

AN ANNOTATED AND ILLUSTRATED CATALOGUE OF POLYPORES (AGARICOMYCETES) OF THE BIAŁOWIEŻA FOREST (NE POLAND)

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Abstract. The Białowieża Forest (BF) is one of the best-preserved lowland deciduous and mixed forest complexes in Europe, rich in diverse fungi. This paper summarizes what is known about the poroid fungi of the Polish part of the Białowieża Forest, based on literature data, a re-examination of herbarium materials, and the authors' studies from 1990–2014. An annotated catalogue of polypores recorded in the forest is presented, including 80 genera with 210 species. All literature and herbarium records are enumerated, and 160 species are illustrated with color pictures. Fourteen species previously reported in the literature have uncertain status because they lack voucher specimens and were not confirmed in recent field studies. *Antrodiella subradula* (Pilát) Niemelä & Miettinen, previously known from Asia, is reported for the first time from Europe. Fourteen species are newly reported from the Białowieża Forest (mainly from Białowieża National Park), including 8 species with first records in Poland (*Antrodia hyalina* Spirin, Miettinen & Kotir., *Antrodia infirma* Renvall & Niemelä, *Antrodiella subradula*, *Junghuhnia fimbriatella* (Peck) Ryvarden, *Postia folliculocystidiata* (Kotl. & Vampola) Niemelä & Vampola, *Postia minusculoides* (Pilát ex Pilát) Boulet, *Skeletocutis chrysella* Niemelä, *Skeletocutis papyracea* A. David), and 6 species reported previously from other localities in Poland [*Antrodiella faginea* Vampola & Pouzar, *Dichomitus campestris* (Qué.) Domański & Orlicz, *Loweomyces fractipes* (Berk. & M. A. Curtis) Jülich, *Oxyporus latemarginatus* (Durieu & Mont.) Donk, *Perenniporia narymica* (Pilát) Pouzar, *Phellinus nigricans* (Fr.) P. Karst.]. Several very rare European polypores already reported from the Białowieża Forest in the 20th century, such as *Antrodia albobrunnea* (Romell) Ryvarden, *Antrodiella foliaceodontata* (Nikol.) Gilb. & Ryvarden, *Buglossoporus pulvinus* (Pers.) Donk, *Dichomitus albidofuscus* (Domański) Domański and *Gelatoporia subvermispora* (Pilát) Niemelä, were found at new localities, confirming their continuous occurrence in this forest.

Key words: Basidiomycota, Biosphere Reserve, fungal diversity, Poland, poroid fungi, primeval forests, UNESCO World Heritage Site

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INTRODUCTION

The Białowieża Forest (BF) is one of the best preserved lowland deciduous and mixed forest complexes in Europe (Faliński 1986; Peterken 1996; Jędrzejewska & Jędrzejewski 1998). It is reported as an example of a European non-fragmented virgin forest community (e.g., Parviainen 2005) or as a remnant of culturally modified ancient forest (e.g., Bobiec 2012). The whole forest complex covers an area of 1250 km² and is located at the border between Poland and Belarus. The Polish part lies between 52°39'–52°48'N and 23°34'–23°38'E

and covers an area of 646 km², including 105 km² protected since 1921 as the Białowieża National Park (BNP) and ca 120 km² protected as a forest reserve (Faliński 2002; Okołów 2012). Białowieża National Park was declared a Biosphere Reserve in 1977 and in 1979 was designated a UNESCO World Heritage Site (Okołów 2002, 2009). Since 2005 the Biosphere Reserve has been expanded to cover the whole Polish part of the Białowieża Forest (Okołów 2012). Glaciofluvial sands, gravels and clays built the flat, undulating plain on which the forest is situated at 135–190 m a.s.l. (Kwiatkowski 1994). The local climate has both continental and

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Atlantic features (Faliński 1986). During the last 50 years the mean annual temperature was 6.9°C (January mean -3°C, July mean 18.3°C), snow cover lasted 92 days on average, and mean annual precipitation was 627 mm (Malzahn *et al.* 2009). The Białowieża Forest consists of a mosaic of various forest communities determined by the variation of topography, soil and hydrology. Coniferous and mixed coniferous stands dominated by *Pinus sylvestris* L. and *Picea abies* (L.) H. Karst. cover ca 50% of the forest area in the Polish part of the Białowieża Forest. Wet deciduous forest with *Alnus glutinosa* Gaertn. and *Fraxinus excelsior* L. covers ca 20%, rich mesic deciduous stands with *Quercus robur* L., *Carpinus betulus* L., *Tilia cordata* Mill. and *Acer platanoides* L. cover 15%, and early successional stands with *Betula pendula* Roth and *Populus tremula* L. cover 13% of the forest area (Jędrzejewska & Jędrzejewski 1998). The Białowieża Forest differs from Western European forests in the absence of *Fagus sylvatica* L. The abundance of *Quercus robur* differentiates it from Eastern European forests. *Picea abies* occurs in almost every forest community (Pawlaczyk 2009).

The first published data on the polypores of the Białowieża Forest date to the 19th century (Błoński *et al.* 1888). Over the last 127 years about 100 publications have included information on these fungi, implying that the diversity of the polypores of that area is relatively well known, but poroid species new to science are still being described from the Białowieża Forest (Niemelä *et al.* 2012; Miettinen *et al.* 2012). Our knowledge of polypore diversity has not been deliberately summarized for a long time, although some information was included in publications from Stanisław Domański (e.g., Domański 1965, 1967, 1972b; Domański *et al.* 1967, 1973). Up to 2013 these publications were the primary source of knowledge on polypore diversity in the Białowieża Forest. Some records of a number of rare poroid species given by Stanisław Domański have not been confirmed by any subsequent researchers. Recently some new records of selected poroid species (but mostly common ones) were published based on material collected for fungal exhibits organized yearly in September by Białowieża National Park (e.g., Szczepkowski *et al.* 2010, 2011; Gierczyk *et al.*

2013, 2014). Niemelä (2013) published a manual for identification of polypores of the Białowieża Forest, including descriptions and a list of species found by his team during inventory work in 2008–2012. This manual gives information on 177 poroid species reported from the study area – 142 species found during the inventory and 35 species from reports in the literature. The literature data are given without revision of the herbarium materials, which in some cases results in duplication of unverified and sometimes wrong information mainly from Domański (records based on misidentified specimens; some of them corrected here).

This work summarizes what is known about the poroid fungi of the Polish part of the Białowieża Forest in the form of an annotated and illustrated catalogue. It is based on literature data, a re-examination of some herbarium materials, especially for species whose concept has changed, and our studies from 1990–2014.

MATERIAL AND METHODS

The original as-yet unpublished material was collected in different areas of the Białowieża Forest by the first author in 2005–2014 during a few short collecting trips in 2005–2008, 2011, 2013 and 2014, and extensive inventory work in 2009–2010 for the ‘Conservation plan for species of macrofungi in the Białowieża National Park’ (Karasiński *et al.* 2010). In total, more than 1100 specimens of polypores were collected and studied. The material is preserved mainly in the personal reference collection of the first author (abbreviated D.K.), with duplicates in KRAM F. The second author has collected polypores in the Białowieża Forest since 1990. The collection includes ca 350 specimens stored in the Herbarium of Marek Wołkowycki (abbreviated H.M.W. M). Other specimens examined (ca 150) were obtained from KRA and mostly from KRAM F-SD (collection of Stanisław Domański in KRAM F, containing mainly polypores collected in the Białowieża Forest in 1955–1970).

For micromorphological studies, thin freehand sections were cut with a razor blade from fresh or dry basidiomata under a Nikon SMZ-2T microscope, mounted in water, 3% aqueous potassium hydroxide with 1% aqueous phloxine, and Melzer’s reagent or 0.1% cotton blue in 60% lactic acid (Kirk *et al.* 2008), and examined under a Nikon Eclipse E-400 microscope at magnification up to 1250×. Color photographs were

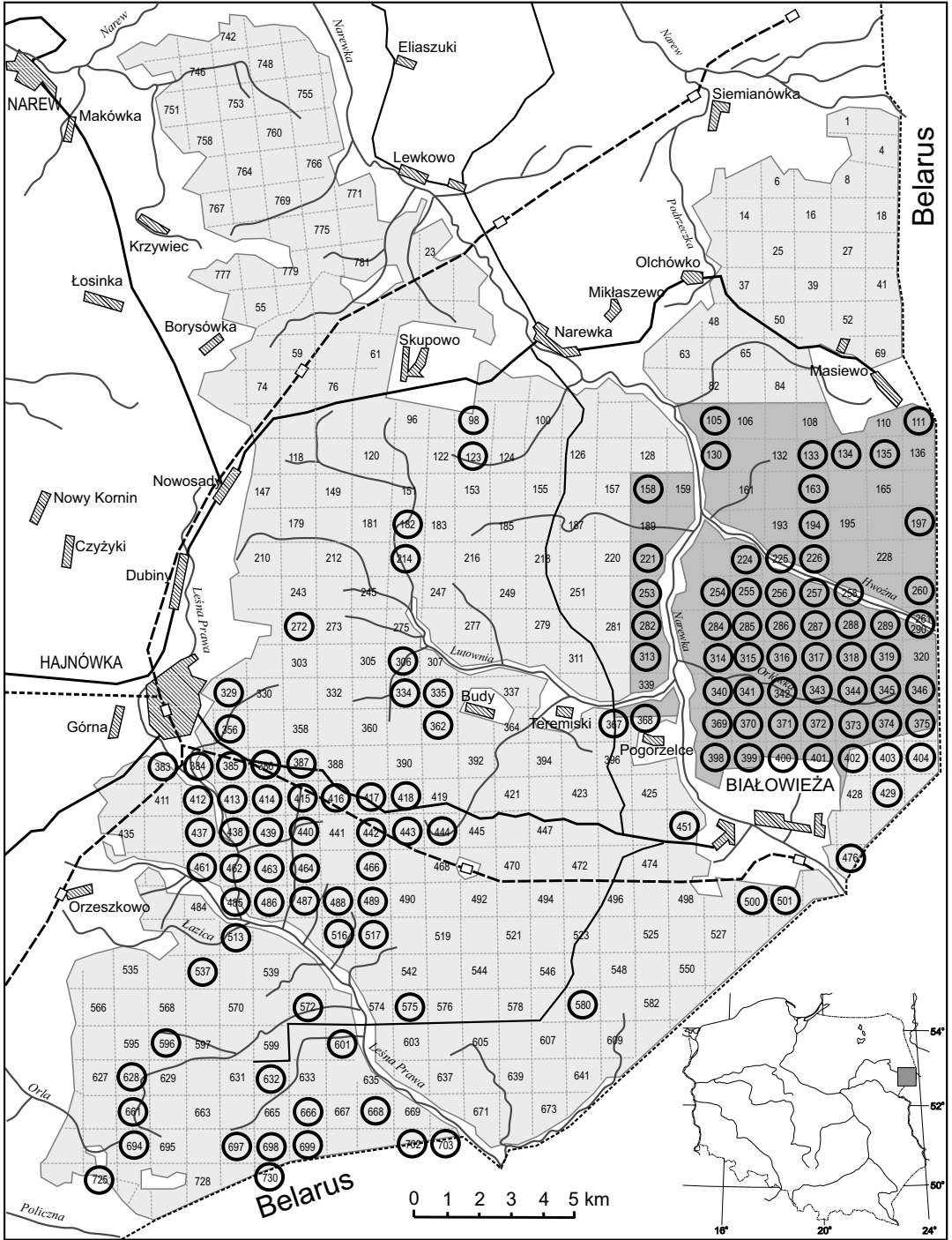


Fig. 1. Study area: pale grey – Białowieża Forest, dark grey – Białowieża National Park, black circles – visited localities. Numbers on map refer to forest section numbers. From Karasiński *et al.* 2009 (supplemented and modified).

taken by the first author using a Nikon D200 camera and an AF Micro Nikkor 60 mm 1:2.8 D lens. MycoBank (www.mycobank.org) and Index Fungorum (www.indexfungorum.asp) websites were consulted for nomenclature and abbreviations of authors of the fungal names.

In the catalogue the species appear alphabetically. All specimens are cited for most species. For some frequently collected species only selected representative specimens examined are cited in full, and for the remaining specimens only the forest section numbers and associated specimen/herbarium numbers are given. For all specimens cited in full the data are arranged as follows: number of forest section of the Polish part of Białowieża Forest in bold (often with precision to section quarter), substrate, date of collection, collector name, specimen number, and herbarium abbreviation. The arrangement of the forest sections in the Białowieża Forest, and the visited collecting sites, are shown in Figure 1. For localities outside the borders of the Białowieża National Park, information about the precise site is usually given in parentheses after the forest section numbers. For some herbarium specimens deposited in the collection of Stanisław Domański, some original annotations, especially original determinations from the labels, are cited after the KRAM F-SD numbers. The literature reports of each species are given as reference lists arranged chronologically. Dubious reports are excluded from the main list and included in the section 'Records with uncertain status', with appropriate commentary.

As a rule, the collecting sites of the specimens collected by Domański in the Białowieża Forest are marked as collected in 'Białowieża'. Likewise, for almost all his literature records, precise site locations besides 'Białowieża' are not available. For such specimens cited here, only 'Białowieża Forest' is given as the locality instead of forest section numbers.

RESULTS AND DISCUSSION

LIST OF SPECIES

Abbreviations used in the list: *Alnus* – *Alnus glutinosa*; *Betula* – *Betula pendula*; BF – Białowieża Forest; BNP – Białowieża National Park; *Carpinus* – *Carpinus betulus*;

Fraxinus – *Fraxinus excelsior*; *Picea* – *Picea abies*; *Pinus* – *Pinus sylvestris*; *Populus* – *Populus tremula*; *Quercus* – *Quercus robur*

Abortiporus biennis (Bull. ex Fr.) Singer

Fig. 2A

LITERATURE REPORTS: Jaroszewicz 1996, Niemelä 2013.

REMARKS. The specimen reported by Jaroszewicz (1996) was presented during the Second Fungi Exposition of the Białowieża Forest. Unfortunately, herbarium material was not preserved, but the occurrence of the species in the BF was recently confirmed by Niemelä (2013).

Albatrellus ovinus (Schaeff.) Murrill

Fig. 2B

SPECIMENS EXAMINED: **134D**, on the ground among mosses under *Picea*, 15 Sept. 2005, *Karasiński 050915-7831* (D.K.); **632A** (Topiło), on the ground under *Picea*, *Carpinus*, *Quercus* and *Betula*, 28 Sept. 2006, *Karasiński 060928-6235* (D.K.).

LITERATURE REPORTS: Orłóś 1955b (as *Polyporus ovinus*), Orłóś 1960 (as *Caloporus ovinus*), Orłóś 1961 (as *Caloporus ovinus*), Domański *et al.* 1967, Bujakiewicz *et al.* 1992, Skirgiełło 1997, Szczepkowski *et al.* 2008, Gierczyk *et al.* 2013, Niemelä 2013.

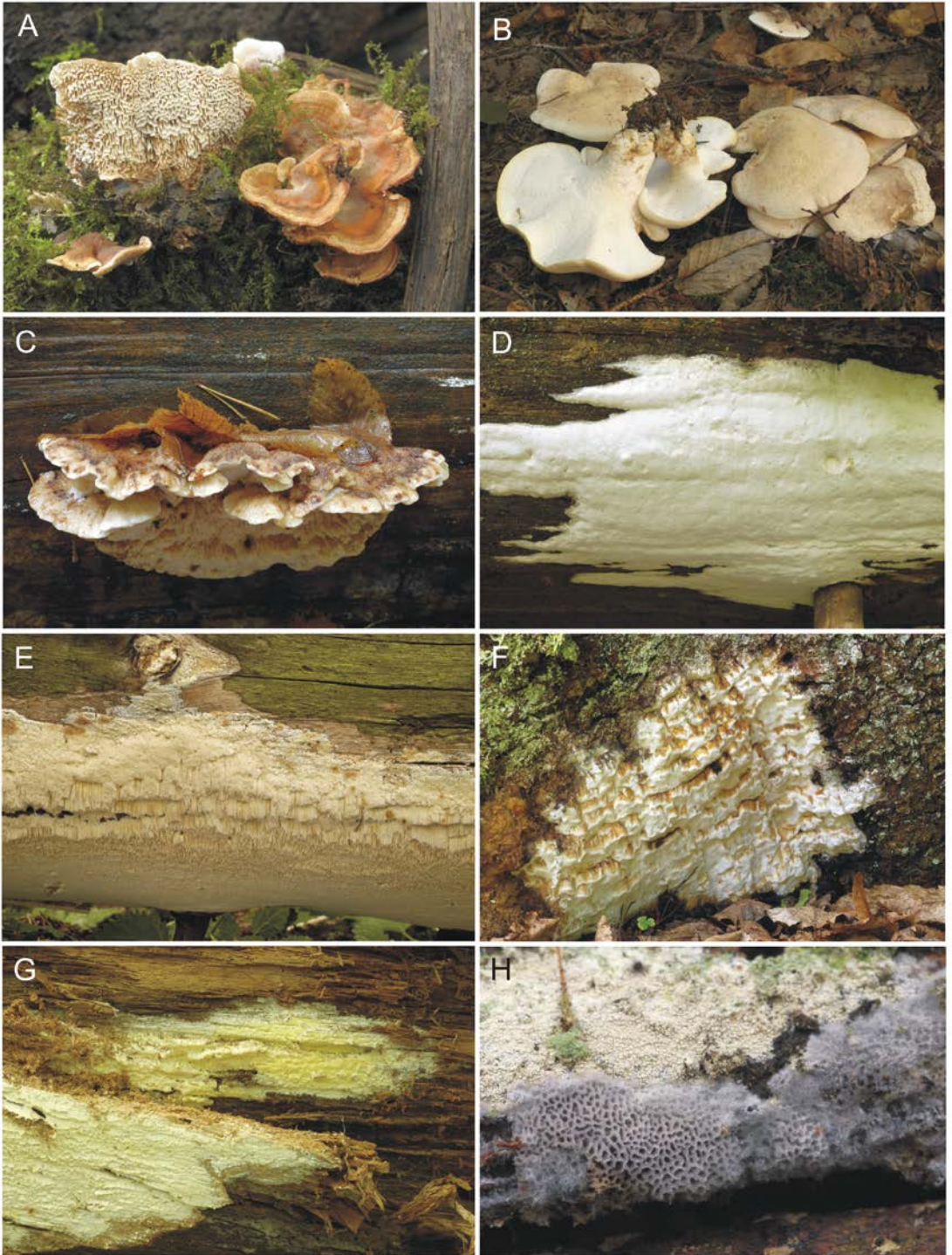
Amylocystis lapponica (Romell) Bondartsev

& Singer ex Singer

Fig. 2C

SPECIMENS EXAMINED: **260D**, on *Picea* fallen trunk, 12 Oct. 2009, *Karasiński 4633a* (D.K.); **257D** (D.K. 4347); **284** (D.K. 6342); **285A**, on *Picea* fallen trunk, 29 July 2009, *Karasiński 3617c* (D.K.); **287A** (D.K. 4368); **288D** (D.K. 3738, 3743D); **289C** (D.K. 3745); **314B** (D.K. 3888A); **315A** (D.K. 3896B); **315B** (D.K. 3911); **319C** (D.K. 3733A); **319C** (D.K. 3579C); **319C** (D.K. 3748A); **319C** (D.K. 3766A); **340C** (D.K. 4225C); **340F** (D.K. 4243A); **340G** (D.K. 4316); **343B** (D.K. 3841E); **344A** (D.K. 3836A); **345B** (D.K. 3718C); **345B** (D.K. 3716C); **346A** (D.K. 3728B, 4679D); **370B** (D.K. 4756); **370C** (D.K. 3703); **372B** (D.K. 3984B); **374A** (D.K. 4162); **374B** (D.K. 4170A); **374C** (D.K. 3409); **374D** (D.K. 3176A); **375A** (D.K. 3577); **375B** (D.K. 4279A); **399A** (D.K. 5063C); **399B** (D.K. 5072A).

Fig. 2. A – *Abortiporus biennis* (Bull. ex Fr.) Singer (specimen photographed in the Kampinos National Park, central Poland), B – *Albatrellus ovinus* (Schaeff.) Murrill, C – *Amylocystis lapponica* (Romell) Bondartsev & Singer ex Singer, D – *Amyloporia crassa* (P. Karst.) Bondartsev & Singer ex Bondartsev, E – *Amyloporia sinuosa* (Fr.) Rajchenb., Gorjón & Pildain, F – *Amyloporia sitchensis* (D. V. Baxter) Vampola & Pouzar, G – *Amyloporia xantha* (Fr.) Bondartsev & Singer ex Bondartsev, H – *Anomoporia bombycina* (Fr.) Pouzar. Photo D. Karasiński (A–H).



LITERATURE REPORTS: Domański 1959b (as *Leptoporus lapponicus*), Gumińska 1963 (as *Leptoporus lapponicus*), Domański *et al.* 1967, Domański 1967, Kotlaba & Lazebniček 1967, Kreisel 1967, Anonymous 1968, Domański 1972a, Domański *et al.* 1973, Piątek 2005a, Szczepkowski *et al.* 2008, Gierczyk *et al.* 2013, Niemelä 2013.

REMARKS. All specimens reported here were collected from logs, trunks and snags of *Picea*. *Amylocystis lapponica* is rather common in BNP, especially in the former Orłówka Strictly Protected Area, and very rare in other parts of the BF. In Poland it has never been found outside the BF (Piątek 2005a). The specimen cited by Wojewoda (2003 after Domański 2001) from the Lasy Łochowskie forest (central Poland) represents *Postia fragilis* (Fr.) Jülich (A. Szczepkowski, pers. comm.).

Amyloporia crassa (P. Karst.) Bondartsev & Singer
ex Bondartsev Fig. 2D

SPECIMENS EXAMINED: **256D**, on *Picea* log, 21 Sept. 2009, *Karasiński 4328* (D.K.); **316D**, on *Picea* log, 1 May 2010, *Karasiński 5361* (D.K.); **316**, on *Picea* fallen trunk, 14 Aug. 2009, *Karasiński 3784A* (D.K.); **317C**, on *Picea* fallen trunk, 14 Aug. 2009, *Karasiński 3786B* (D.K.); **319C**, on *Picea* fallen trunk, 28 July 2009, *Karasiński 3602* (D.K.); **319C**, on *Picea* fallen trunk, 13 Aug. 2012, *Karasiński 3756* (D.K.); **345A**, on *Picea* fallen trunk, 11 Aug. 2009, *Karasiński 3716* (D.K.); **346**, on *Picea* fallen trunk, 11 Aug. 2009, *Karasiński 3724* (D.K.); **374**, on *Picea* fallen trunk, 15 Sept. 2009, *Karasiński 4150* (D.K.); **374**, on *Picea* fallen trunk, 15 Sept. 2009, *Karasiński 4177* (D.K.); **375**, on *Picea* fallen log, 19 Sept. 2009, *Karasiński 4287* (D.K.).

LITERATURE REPORTS: Domański 1959a (as *Poria crassa*), Domański 1965 (as *Amyloporia crassa* f. *crassa*), Domański 1967, Anonymous 1968, Domański 1972b, Niemelä 2013 (as *Antrodia crassa*).

REMARKS. Domański (1965) described *Amyloporia crassa* f. *subimbricata* using specimens collected in the BF. Some specimens of this taxon (but not all) preserved in Domański's herbarium (e.g., KRAM F-SD 333, 792, 2658, 2859, 2862, 2863, 2864) represent *A. sitchensis* (D. V. Baxter) Vampola & Pouzar. See also remarks under *Amyloporia sitchensis*.

Amyloporia sinuosa (Fr.) Rajchenb., Gorjón
& Pildain Fig. 2E

SPECIMENS EXAMINED: **130**, on *Picea* fallen trunk, 14 Sept. 2009, *Karasiński 4113* (D.K.); **135C**, on *Picea* fallen log, 8 July 2009, *Karasiński 3342c* (D.K.); **214B** (D.K. 11007); **224**, on *Picea* fallen trunk, 19 Aug. 2009, *Karasiński 3947* (D.K.); **225D** (D.K. 4598); **260D**, on *Picea* trunk, 12 Oct. 2009, *Karasiński 4633b* (D.K.); **261A** (D.K. 3380); **282** (D.K. 3522); **285** (D.K. 5299E); **288D** (D.K. 3737B); **314B** (D.K. 3303); **316** (D.K. 5273-1); **319C** (D.K. 3754E); **341** (D.K. 4771); **344A** (D.K. 3837); **346** (D.K. 4688); **368** (D.K. 4084); **369** (D.K. 3487); **386** (D.K. 4084); **399**, on *Picea* fallen trunk, 2 Nov. 2009, *Karasiński 5062* (D.K.); **400** (D.K. 3258); **402B** (H.M.W. M-3646); **439A** (Głęboki Kąt Reserve), on *Picea* fallen trunk, 22 May 2006, *Karasiński 060522-5410* (D.K.); **485C** (H.M.W. M-1307); **699C** (H.M.W. M-3600).

LITERATURE REPORTS: Pilát 1950 (as *Poria sinuosa*), Domański 1965 (as *Coriolellus vaporarius* f. *vaporarius* and *C. vaporarius* f. *bulbosus*), Domański 1967 (as *Coriolellus sinuosus*), Kotlaba & Lazebniček 1967 (as *Coriolellus sinuosus*), Anonymous 1968 (as *Coriolellus vaporarius*), Domański 1972b (as *Coriolellus sinuosus*), Szczepkowski *et al.* 2008 (as *Antrodia sinuosa*), Niemelä 2013 (as *Antrodia sinuosa*), Gierczyk *et al.* 2014 (as *Antrodia sinuosa*).

REMARKS. This species is very common in the study area.

Amyloporia sitchensis (D. V. Baxter) Vampola
& Pouzar Fig. 2F

SPECIMENS EXAMINED: **225B**, on *Picea* fallen log, 14 Sept. 2009, *Karasiński 4146* (D.K.); **226A**, on *Picea* fallen trunk, 30 July 200, *Karasiński 3683* (D.K.); **253C**, on *Picea* fallen log, 13 Sept. 2009, *Karasiński 4092* (D.K.); **255D**, on *Picea* fallen log, 26 Apr. 2010, *Karasiński 5243* (D.K.); **285A**, on *Picea* fallen trunk, 28 Apr. 2010, *Karasiński 5288* (D.K.); **286D**, on *Picea* fallen trunk, 14 Aug. 2009, *Karasiński 3774* (D.K.); **288D**, on *Picea* fallen trunk, 12 Aug. 2009, *Karasiński 3743* (D.K.); **289C**, on *Picea* fallen log, 12 Aug. 2009, *Karasiński 3746* (D.K.); **314B**, on *Picea* fallen log, 15 Aug. 2009, *Karasiński 3800* (D.K.); **314C**, on *Picea* fallen log, 25 Apr. 2010, *Karasiński 5180A* (D.K.); **315A**, on *Picea* fallen trunk, 18 Aug. 2009, *Karasiński 3890* (D.K.); **316**, on bark of *Picea* stump, 14 Aug. 2009, *Karasiński 3797* (D.K.); **318D**, on *Picea* fallen trunk, 17 Aug. 2009, *Karasiński 3871* (D.K.); **319C**, on *Picea* stump, 13 Aug. 2009, *Karasiński 3754d* (D.K.); **340C**,

on *Picea* stump, 6 July 2009, *Karasiński* 3288 (D.K.); **341D**, on *Picea* fallen trunk, 17 Oct. 2009, *Karasiński* 4776 (D.K.); **342D**, on *Picea* fallen log, 1 May 2010, *Karasiński* 5345 (D.K.); **343B**, on *Picea* fallen log, 16 Aug. 2009, *Karasiński* 3844 (D.K.); **344B**, on *Pinus* fallen log, 16 Aug. 2009, *Karasiński* 3833 (D.K.); **370D**, on *Picea* fallen log, 5 July 2009, *Karasiński* 3271 (D.K.); **372B**, on *Populus* fallen trunk, 20 Aug. 2009, *Karasiński* 3980 (D.K.); **373C**, on *Picea* fallen log, 13 July 2009, *Karasiński* 3471 (D.K.); **374C**, on *Picea* fallen log, 11 July 2009, *Karasiński* 3395 (D.K.); **375A**, on *Pinus* fallen log, 27 July 2009, *Karasiński* 3564 (D.K.); **399**, on *Picea* fallen trunk, 1 Nov. 2009, *Karasiński* 5011A (D.K.); **439A** (Głęboki Kąt Reserve), on *Picea* fallen trunk, 22 May 2006, *Karasiński* 060522-5371 (D.K.).

LITERATURE REPORTS: Domański 1965 (as *Amyloporia crassa* f. *subimbricata*), Domański 1972b (as *Amyloporia crassa* f. *subimbricata*), Vampola & Pouzar 1992, Szczepkowski *et al.* 2008 (as *Antrodia sitchensis*), Szczepkowski *et al.* 2010 (as *Antrodia sitchensis*), Gierczyk *et al.* 2013 (as *Antrodia sitchensis*), Niemelä 2013 (as *Antrodia sitchensis*), Gierczyk *et al.* 2014 (as *Antrodia sitchensis*).

REMARKS. In the BF it grows almost exclusively on *Picea*, but was once collected from *Pinus* and once from *Populus*. In Poland *Amyloporia sitchensis* is very rare and occurs in natural forests of the northeastern part of the country. So far, outside the BF it was only recorded in the Starożyn Reserve in the Puszcza Augustowska forest (Vampola & Pouzar 1992). The most beautiful perennial basidiomata with an undulate hymenial surface form on the bark in root axils on root-necks of *Picea* stumps and dead standing trees. In the field it can be differentiated from similar *A. crassa* by its sweet resinous odor, which is less pronounced but preserved also in herbarium specimens. Micromorphologically, the size and shape of basidiospores (ca 4.5–5.5 × 1.8–2.2 µm, cylindrical) differentiate *A. sitchensis* from *A. crassa* (basidiospores 5–7 × 2.5–3.5 µm, ellipsoidal). Moreover, the skeletal hyphae of *A. sitchensis* do not dissolve in 5% potassium hydroxide solution, while those of *A. crassa* dissolve rapidly in this medium. *Amyloporia sitchensis* sporulates in summer; samples collected in spring and autumn are often sterile. Vampola and Pouzar (1992) suggested that this fungus may be an undescribed Eu-

ropean taxon morphologically very similar to the species described from North America and known as *Antrodia (Amyloporia) sitchensis*.

Amyloporia xantha (Fr.) Bondartsev & Singer ex Bondartsev Fig. 2G

SPECIMENS EXAMINED: **135C**, on *Picea* fallen log, 8 July 2009, *Karasiński* 3342a (D.K.); **224B**, on *Picea* fallen trunk, 19 Aug. 2009, *Karasiński* 3939b (D.K.); **254D**, on *Picea* fallen trunk, 12 Sept. 2011, *Karasiński* 6213 (D.K.); **256**, on *Pinus* fallen trunk, 29 July 2009, *Karasiński* 3623 (D.K.); **260A**, on *Pinus* fallen trunk, 12 Oct. 2009, *Karasiński* 4645 (D.K.); **285A**, on *Pinus* fallen log, 28 Apr. 2010, *Karasiński* 5306 (D.K.); **318D**, on *Pinus* fallen log, 17 Aug. 2009, *Karasiński* 3865 (D.K.); **374A**, on *Pinus* fallen log, 26 July 2009, *Karasiński* 3540 (D.K.); **400B**, on *Picea* fallen trunk, 5 July 2009, *Karasiński* 3260 (D.K.).

LITERATURE REPORTS: Pilát 1950 (as *Poria calcea* var. *xantha*), Domański 1965 (as *Amyloporia xantha* f. *xantha* and *A. xantha* f. *pachymeres*), Domański 1967, Kotlaba & Lazebniček 1967, Kreisel 1967, Anonymous 1968, Domański 1972b, Szczepkowski *et al.* 2008 (as *Antrodia xantha*), Niemelä 2013 (as *Antrodia xantha*), Gierczyk *et al.* 2014 (as *Antrodia xantha*).

REMARKS. This species is very common in the study area.

Anomoporia bombycina (Fr.) Pouzar Fig. 2H

SPECIMENS EXAMINED: **130A**, on very rotten wood of *Picea* fallen log, 14 Sept. 2009, *Karasiński* 4116 (D.K.); **374C**, on *Pinus* fallen log, 15 Sept. 2009, *Karasiński* 4157 (D.K.); **375D**, on *Picea* fallen log, 16 Oct. 2014, *Karasiński* 10948 (D.K.); **398G**, on very decayed wood of *Picea* fallen trunk, 24 July 2009, *Karasiński* 3503 (D.K.).

LITERATURE REPORTS: Domański 1965 (as *Fibuloporia bombycina*), Domański 1967 (as *Fibuloporia bombycina*), Kotlaba & Lazebniček 1967, Anonymous 1968 (as *Fibuloporia bombycina*), Domański 1972b, Niemelä 2013.

REMARKS. *Anomoporia bombycina* is associated with fallen logs and trunks of conifers (*Picea*, *Pinus*), usually in the late stage of wood decomposition. The species is very rare in Poland, known only from the BF. Only three specimens are deposited in Domański's herbarium (KRAM F-SD 719 and 740 as *Poria bombycina*, KRAM F-SD 741 as *Fibuloporia bombycina*) collected in

1955–1958. Possibly the historical Polish record from the vicinity of Elbląg published by Kaufmann (1925) is based on misidentification, because the specimen was collected from *Populus* sp. Revision of that report is not possible due to lack of herbarium material, but it is likely that Kaufmann's specimen represents *Ceriporiopsis aneirina* (Sommerf.) Domański.

Antrodia albobrunnea (Romell) Ryvarden

Fig. 3A

SPECIMENS EXAMINED: **256B**, on well rotted *Pinus* fallen trunk, 29 July 2009, *Karasiński 3624* (D.K.); **256**, on *Pinus* fallen trunk, 19 Sept. 2011, *Karasiński 6356* (D.K.); **256**, on *Pinus* wood (fallen trunk fragment), 19 Sept. 2011, *Karasiński 6366* (D.K.); **374C**, on *Pinus* fallen log, 23 Sept. 2010, *Karasiński 6009* (D.K.); **374C**, on *Pinus* fallen log, 21 Sept. 2012, *Karasiński 6405* (D.K.).

LITERATURE REPORTS: Domański 1965 (as *Tyromyces albo-brunneus*), Domański 1967 (as *Tyromyces albo-brunneus*) Domański 1972b (as *Tyromyces albobrunneus*), Piątek 2005b, Niemelä 2013.

REMARKS. The single previous specimen of *Antrodia albobrunnea* collected in the BF is preserved in Domański's herbarium (KRAM F-SD 3733) and all literature reports referred to this specimen. Herbarium envelope KRAM F-SD 3733 contains a very small basidiome, ca 3 × 1 cm. Microstructures are well preserved and developed in this specimen, except for brown pigmented hyphae, which finally formed a brown marginal zone and a low subicular layer close to the substrate. They are present in small numbers in Domański's specimen, so the brown marginal zone is almost absent, hardly visible to the naked eye and also under a lens. The specimens collected in 2009–2012 and reported here are larger and better developed (especially *Karasiński 6356* is a large basidiome). In Poland *A. albobrunnea* seems to be a true rarity, known only from the BNP (Piątek 2005b), and also here it is very rare.

Antrodia hyalina Spirin, Miettinen & Kotir.

Fig. 3B

SPECIMENS EXAMINED: **443A** (W. Szafer Landscape Reserve), on *Populus* fallen trunk, 22 June 2008, *Karasiński 1685* (KRAM F-47456); the same locality and host, 21 Apr. 2009, *Karasiński 2839* (D.K.); **417D** (W. Szafer Landscape Reserve), on *Populus* fallen trunk, 10 Oct. 2009, *Karasiński 4566* (D.K.).

LITERATURE REPORTS: None. The species is new for Poland.

REMARKS. This recently described species (Spirin *et al.* 2013a) is similar to *Antrodia pulvinascens* (Pilát) Niemelä. Both species grow on *Populus* wood but *A. hyalina* differs by having annual basidiomata (perennial in *A. pulvinascens*), cylindrical basidiospores (ellipsoidal in *A. pulvinascens*) and solid skeletal hyphae (hyphae have a clearly visible lumen in *A. pulvinascens*).

Antrodia infirma Renvall & Niemelä Fig. 3C

SPECIMENS EXAMINED: **256D**, on *Pinus* fallen trunk, 29 July 2009, *Karasiński 3654* (D.K.); **319D**, on *Pinus* log, 11 Aug. 2009, *Karasiński 3717* (D.K.); **374D**, on *Pinus* big log hanging 1–2 m above ground level, 26 July 2009, *Karasiński 3553* (D.K.); the same locality and host, 11 Aug. 2009, *Karasiński 3713A* (D.K.); **375B**, on heartwood of *Pinus* fallen log, 27 July 2009, *Karasiński 3585* (D.K.); **375D**, on heartwood of *Pinus* fallen log, 27 July 2009, *Karasiński 3565* (D.K.).

LITERATURE REPORTS: None. The species is new for Poland.

REMARKS. *Antrodia infirma* was described from the boreal zone at the timberline in Lapland (Renvall & Niemelä 1992). This species is characterized by having resupinate basidiomata with relatively large pores, a dimitic hyphal system with very rare tramal skeletals, and cylindrical basidiospores, 6.2–7.8 × 2.2–3 µm in the specimens studied. The characters of the Polish specimens very well fit the original diagnosis (Renvall & Niemelä 1992) and the Swedish collection (Renvall 1993), except for basidiomata size. According to the

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Fig. 3. A – *Antrodia albobrunnea* (Romell) Ryvarden, B – *Antrodia hyalina* Spirin, Miettinen & Kotir., C – *Antrodia infirma* Renvall & Niemelä, D – *Antrodia malicola* (Berk. & M. A. Curtis) Donk, E – *Antrodia pulvinascens* (Pilát) Niemelä, F – *Antrodia serialis* (Fr.) Donk, G – *Antrodiella citrinella* Niemelä & Ryvarden, H – *Antrodiella foliaceodentata* (Nikol.) Gilb. & Ryvarden. Photo D. Karasiński (A–H).



Scandinavian authors cited above and Ryvar den and Melo (2014), in the boreal zone this species forms small basidiomata up to 10 cm long, while the Polish specimens are medium-sized, large or very large, up to 50 cm long or even more when confluent. *Antrodia infirma* inhabits fallen trunks of conifers. About 92% of the Finish collections are from *Pinus* (Renval 1993); it was found only twice on *Picea*, in Finland and in Sweden. All the Polish samples are from large decorticate *Pinus* trunks in various stages of decomposition, from early stage shortly after decorticating to a fairly advanced stage of decay. In the latter case the basidiome was developed on heartwood of a big decayed pine log. The basidiomata of the species are short-lived and rapidly destroyed by insects. Old basidiomata look somewhat like white forms of *Rhodonia placenta* (Fr.) Niemelä, K.-H. Larss. & Schigel. *Gelatoporia subvermispota* (Pilát) Niemelä forms slightly similar basidiomata.

Antrodia infirma is a rare European taxon known from boreal primeval forests. The Polish records from the BNP are at the southern distribution limit of the species. *Antrodia infirma* is known from Finland, Sweden, Russia (Renvall & Niemelä 1992; Renvall 1993; Ryvar den & Melo 2014) and northeastern Poland (this paper).

Antrodia macra (Sommerf.) Niemelä

SPECIMEN EXAMINED. **BF**, on *Salix* sp. branch, 23 Sept. 1965, *Domański* (KRAM F-SD 4884, labelled as '*Coriolellus heteromorphus* (Fr.) Bond. form. *albidus* [*Coriolellus serpens* (Fr.) Bond.]')

LITERATURE REPORTS: Niemelä 2013.

REMARKS. The species appears to be very rare in the study area. It differs from *A. serpens* (Fr.) P. Karst. by having smaller pores and shorter basidiospores, and its association with *Salix* spp. Ryvar den and Gilbertson (1993) reported this species from Poland without a precise locality.

Antrodia malicola (Berk. & M. A. Curtis) Donk Fig. 3D

SPECIMEN EXAMINED. **399C**, on *Populus* dead standing trunk, 2 Nov. 2009, *Karasiński* 5046B (D.K.).

LITERATURE REPORTS: Skirgiełło 1998, Piątek 2002a.

REMARKS. It appears to be very rare in the study area and also in Poland, where it is known from less than 10 localities in the southeastern part of the country (Wojewoda 2003; Piątek 2002a).

Antrodia pulvinascens (Pilát) Niemelä Fig. 3E

SPECIMENS EXAMINED: **260D**, on *Populus* large fallen branch, 12 Oct. 2009, *Karasiński* 4629 (D.K.); **399B**, on rotten *Populus* log, 1 Nov. 2009, *Karasiński* 5041 (D.K.); **BNP**, Sierchanowski Tryb, *Populus tremula*, very big fallen trunk in moist mixed forest, 14 Sept. 2009, *Niemelä* 8650 & *Schigel* (KRA).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. In Poland *Antrodia pulvinascens* is known so far only from the Tatra Mts (Niemelä 1978b as *A. plicata*) and the BF (Niemelä 2013). This species has perennial basidiomata and macromorphologically is very similar to *Amyloporia sitchensis*, but differs in the shape and size of the basidiospores, and the lack of the specific odor characterizing the latter. *Antrodia hyalina*, which also grows on *Populus* wood, differs in having annual basidiomata with a soft consistency and narrower, cylindrical basidiospores (ellipsoidal and significantly wider in *A. pulvinascens*).

Antrodia serialis (Fr.) Donk Fig. 3F

SPECIMENS EXAMINED: **272** (Lipiny Reserve), on *Picea* fallen trunk, 21 May 2006, *Karasiński* 060521-5267 (D.K.); **319C**, on *Picea* fallen trunk, 13 Aug. 2009, *Karasiński* 3764 (D.K.); **369A**, on *Picea* fallen trunk, 14 July 2009, *Karasiński* 3488A (D.K.); **370C**, on *Picea* fallen trunk, 10 Aug. 2009, *Karasiński* 3702 (D.K.); **374**, on *Picea* trunk, 23 Apr. 2009, *Karasiński* 2875 (D.K.); **375D** (D.K. 10953); **412B** (H.M.W. M-1835); **413A** (H.M.W. M-1895); **414A** (H.M.W. M-1948); **414B** (H.M.W. M-1941); **415C** (H.M.W. M-1475); **439A** (H.M.W. M-1257); **439C** (H.M.W. M-1296); **462A** (H.M.W. M-1332); **485C** (H.M.W. M-1312); **486B** (H.M.W. M-1875); **572** (Michnówka Reserve), on *Picea* fallen log, 24 May 2006, *Karasiński* 060524-5513 (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus callosus*), Pilát 1950 (as *Trametes serialis*), Orłoś 1955b (as *Trametes serialis*), Orłoś 1960 (as *Trametes serialis*), Orłoś 1961 (as *Trametes serialis*), *Domański* 1965 (as *Coriolellus serialis* and *C. serialis* f. *callosus*), *Domański et al.* 1967 (as *Coriolellus serialis*), *Domański*

1967 (as *Coriolellus serialis*), Anonymous 1968 (as *Coriolellus serialis*), Domański 1972b (as *Coriolellus serialis* f. *callosus*), Szczepkowski *et al.* 2008, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. It is one of the commonest poroid species in the study area, growing on trunks and stumps of conifers, especially *Picea*. It forms annual to biennial, often large, resupinate or effused-reflexed basidiomata with a leathery consistency, white pores, and elongate and narrow pilei with an ochraceous to brown upper surface. The resupinate basidiomata of *Antrodia serialis* are slightly similar to *A. albobrunnea*, but the latter has a softer consistency, never forms pilei and produces allantoid basidiospores (subfusiform in *A. serialis*).

Antrodia serpens (Fr.) P. Karst.

SPECIMENS EXAMINED: **BF**, on *Corylus avellana* dead trunk, 24 Oct. 1959, Domański (KRAM F-SD 487, labelled '[*Trametes albida* (Fr.) B. et G.] *Coriolellus heteromorphus* (Fr.) Bond. form. ~~albida~~ albida').

LITERATURE REPORTS: Domański 1965 (as *Coriolellus albidus*), Domański 1967 (as *Coriolellus albidus*), Domański 1972b (as *Coriolellus albidus*), Niemelä 2013 (as *Antrodia heteromorpha*).

REMARKS. The specimen examined is the same as listed in the literature reports as *Coriolellus albidus*. During contemporary fieldwork the occurrence of this species was not confirmed. It may be very rare or, less likely, its population is locally extinct. In Poland this species is quite common in deciduous and mixed forests (especially in beech forests on fallen branches of *Fagus sylvatica*) in the south of the country. Recently the species was epitypified based on material from Poland (Spirin *et al.* 2013b).

Antrodiella citrinella Niemelä & Ryvarden

Fig. 3G

SPECIMENS EXAMINED: **226A**, on *Picea* fallen trunk and *Fomitopsis pinicola* dead basidiome, 20 Sept. 2011, Karasiński 6389 (D.K.); **285A**, on *Betula pendula* fallen trunk close to *Fomitopsis pinicola* dead basidiomata, 28 Apr. 2010, Karasiński 5312 (D.K.); **342C**, on *Picea* fallen trunk and *Fomitopsis pinicola* dead basidiome, 17 Oct. 2009, Karasiński 4784 (D.K.); **370C**, on *Picea* fallen trunk close to *Fomitopsis pinicola* dead basid-

iome, 15 Oct. 2009, Karasiński 4731 (D.K.); **370**, on *Picea* fallen trunk and *Fomitopsis pinicola* dead basidiome, 15 Oct. 2009, Karasiński 4747 (D.K.); **373C**, on rotten *Picea abies* stump and *Fomitopsis pinicola* dead basidiome, 24 Apr. 2009, Karasiński 2896 (D.K.); **373D**, on *Picea* fallen trunk close to *Fomitopsis pinicola* dead basidiome, 31 Oct. 2009, Karasiński 4988 (D.K.); **399A**, on *Picea* fallen trunk and *Fomitopsis pinicola* dead basidiome, 1 Nov. 2009, Karasiński 5039 (D.K.); **399B**, on *Picea* fallen trunk, 2 Nov. 2009, Karasiński 5058 (D.K.); **399D**, on *Picea* fallen log, 2 Nov. 2009, Karasiński 5049 (D.K.); **BF**, on *Picea*, 25 Oct. 1956, Domański (KRAMF-SD 5369 as *Tyromyces semisupinus*).

LITERATURE REPORTS: Karasiński *et al.* 2009, Niemelä 2013, Gierczyk *et al.* 2014 (as *Flaviporus citrinellus*).

REMARKS. This species is uncommon in the BF. Resupinate or rarely effused-reflexed basidiomata with a vivid yellow hymenial surface, small, subglobose basidiospores, and connection with *Fomitopsis pinicola* are diagnostic characters of *Antrodiella citrinella*.

Antrodiella faginea Vampola & Pouzar

SPECIMEN EXAMINED. **130**, on *Alnus* fallen trunk with *Mensularia radiata*, 14 Sept. 2009, Karasiński 4126 (D.K.); **134A**, on *Alnus* fallen log decayed by *Mensularia radiata*, 12 July 2009, Karasiński 3446 (D.K.); **368**, on *Quercus* fallen branch with *Hymenochaete rubiginosa*, 13 Sept. 2009, Karasiński 4083 (D.K.); **374C**, on *Carpinus* fallen branch, 11 July 2009, Karasiński 3421 (D.K.); **374C**, on *Betula* fallen branch, 26 July 2009, Karasiński 3537 (D.K.); **BF**, on *Populus*, 14 Sept. 1967, Domański (KRAM F-SD 5303 as *Tyromyces semisupinus*); **BF**, on *Carpinus*, 9 Aug. 1965, Domański (KRAM F-SD 4529 as *Tyromyces semisupinus*).

LITERATURE REPORTS: None. The species is new for the BF.

REMARKS. The species is somewhat similar to *Antrodiella pallescens* (Pilát) Niemelä & Miettinen, which differs by having narrower and slightly curved basidiospores (ellipsoidal to ovoid in *A. faginea*) and occurrence on or close to *Fomes fomentarius* (L.) J. J. Kickx; the predecessors of *A. faginea* are species of hymenochaetoid fungi such as *Phellinus* spp. and *Inonotus* spp., more rarely *Hymenochaete* spp. Moreover, *A. faginea* often

produces gloeocystidia, which are not observed in *A. pallescens*. The species was reported earlier from Poland by Piątek (2001) based on a specimen collected in the Western Carpathians. This specimen in fact represents *Antrodiella pallescens* (KRAM F-51169). Recently the species was recorded in Kampinos National Park (Karasiński *et al.* 2015).

Antrodiella foliaceodentata (Nikol.) Gilb. & Ryvarden Fig. 3H

SPECIMENS EXAMINED: **287A**, on fallen trunk of a deciduous tree and *Fomes fomentarius* dead basidiomata, 21 Sept. 2009, Karasiński 4377 (D.K.); **340B**, on *Fraxinus excelsior* fallen trunk and dead basidiomata of *Fomes fomentarius*, 16 Sept. 2009, Karasiński 4202, 4203 (D.K.); **340F**, on *Acer platanoides* fallen trunk and dead basidiome of *Fomes fomentarius*, 20 Sept. 2009, Karasiński 4299 (D.K.); **340**, on fallen trunk of *Carpinus*, 28 Aug. 1973, Wojewoda *s.n.* (KRAM F-14382); **344B**, on *Fraxinus excelsior* fallen trunk and dead basidiomata of *Fomes fomentarius*, 11 Aug. 2009, Karasiński 3714 (D.K.); **345A**, on *Fraxinus excelsior* fallen log close to dead basidiome of *Fomes fomentarius*, 28 July 2009, Karasiński 3598 (D.K.); **370**, on fallen trunk of *Carpinus*, 26 Aug. 1973, Wojewoda *s.n.* (KRAM F-14347). **372D**, on *Fraxinus excelsior* fallen trunk and dead basidiome of *Fomes fomentarius*, 20 Aug. 2009, Karasiński 3992 (D.K.); **399A**, on fallen trunk of deciduous tree close to dead and living basidiomata of *Fomes fomentarius*, 1 Nov. 2009, Karasiński 5040 (D.K.).

LITERATURE REPORTS: Domański 1967 (as *Irpex foliaceo-dentatus*), Kotlaba & Lazebniček 1967 (as *Irpex foliaceo-dentatus*), Anonymous 1968 (as *Irpex foliaceo-dentatus*), Domański 1970d (as *Coriolus foliaceo-dentatus*), Domański *et al.* 1973 (as *Trametes foliaceo-dentata*), Piątek 2001, Niemelä 2013.

REMARKS. *Antrodiella foliaceodentata* was described from the Caucasus (Nikolajeva 1949) and so far has been found only in the type locality and the BNP. It was not previously reported, but the species seems to be the successor of *Fomes fomentarius*. For almost all specimens cited above

(except those collected by Wojewoda) this association was very conspicuous, and often basidiomata of *A. foliaceodentata* grew directly on dead basidiomata of *Fomes fomentarius*.

Antrodiella leucoxantha (Bres.) Miettinen & Niemelä Fig. 4A

SPECIMENS EXAMINED: **369B**, on *Carpinus* fallen branch, 22 Sept. 2009, Karasiński 4373 (D.K.); **BNP**, Masiewski Tryb, north of Dziedzinka house, on *Carpinus* thin fallen trunk, 15 Oct. 2008, Niemelä 8499 (KRA).

LITERATURE REPORT: Niemelä 2013.

REMARKS. This species is characterized by having small, white, effused-reflexed or pileate basidiomata with thin pilei, cylindrical to slightly curved basidiospores, and the absence of a clear connection with fungal predecessors. It is close to *Antrodiella pallescens*, but the latter is a successor of *Fomes fomentarius* and has smaller basidiospores. The similar *A. faginea* has ellipsoidal basidiospores, grows on wood decayed by hymenochaetoid species like *Phellinus* spp. or *Inonotus* spp., and often produces gloeocystidia.

Antrodiella pallescens (Pilát) Niemelä & Miettinen Fig. 4B

SPECIMEN EXAMINED. **318D**, on *Betula pendula* fallen trunk and *Fomes fomentarius* dead basidiome, 17 Aug. 2009, Karasiński 3880 (D.K.); **BF**, on *Betula* branch, 4 Sept. 1966, Domański (KRAM F-SD 5086 as *Tyromyces semisupinus*); **BF**, on hardwood trunk, 10 Aug. 1962, Domański (KRAM F-SD 2219 as *Trametes genistae* ined.); **BF**, on *Carpinus* branch, 4 Aug. 1962, Domański (KRAM F-SD 2498 as *Tyromyces semisupinus*).

LITERATURE REPORTS: Domański 1965 (as *Tyromyces semisupinus*), Domański 1967 (as *Tyromyces semisupinus*), Domański 1972b (as *Tyromyces semisupinus*), Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. Among numerous specimens preserved in KRAM F-SD under the name *Tyromyces semisupinus*, 11 specimens were collected by

Fig. 4. A – *Antrodiella leucoxantha* (Bres.) Miettinen & Niemelä, B – *Antrodiella pallescens* (Pilát) Niemelä & Miettinen, C – *Antrodiella romellii* (Donk) Niemelä, D – *Antrodiella serpula* (P. Karst) Spirin & Niemelä, E – *Aporpium canescens* (P. Karst.) Bondartsev & Singer ex Singer, F – *Aporpium macroporum* Niemelä, Spirin & Miettinen, G – *Aurantiporus croceus* (Pers.) Murrill, H – *Aurantiporus fissilis* (Berk. & M. A. Curtis) H. Jahn ex Ryvarden. Photo D. Karasiński (A–H).



Domański in the BF. These were revised and five different species were identified among them: *Antrodiella citrinella*, *A. faginea*, *A. pallescens*, *A. romellii* (Donk) Niemelä and *Junghuhnia luteoalba* (P. Karst.) Ryvardeen (for specimen details see under these species).

Antrodiella romellii (Donk) Niemelä Fig. 4C

SPECIMEN EXAMINED. **418** (W. Szafer Landscape Reserve), on bark of *Quercus?* fallen twig, 29 Sept. 2006, *Karasiński 060929/6308* (KRAM F-47250); **BF**, on *Corylus* trunk, 5 Aug. 1962, *Domański* (KRAM F-SD 2495 as *Tyromyces semisupinus*); **BF**, on hardwood branch, 6 Aug. 1962, *Domański* (KRAM F-SD 2496 as *Tyromyces semisupinus*); **BF**, on *Carpinus* trunk, 27 Aug. 1956, *Domański* (KRAM F-SD 379 as *Tyromyces semisupinus*); **BF**, on *Betula*, 11 Aug. 1962, *Domański* (KRAM F-SD 2497 as *Tyromyces semisupinus*).

LITERATURE REPORTS: *Domański 1965* (as *Tyromyces byssinus*), *Domański 1967* (as *Tyromyces byssinus*), *Domański 1972b* (as *Poria romellii*), *Piątek 2001*, *Karasiński et al. 2009*, *Niemelä 2013*.

Antrodiella serpula (P. Karst) Spirin & Niemelä Fig. 4D

SPECIMENS EXAMINED: **282D**, on *Corylus avellana* stump and dead *Mensularia radiata*, 25 July 2009, *Karasiński 3520* (D.K.); **368B**, on *Corylus* stump and *Mensularia radiata* dead basidiome, 13 Sept. 2009, *Karasiński 4078* (D.K.); **399B**, on *Corylus* trunk and *Mensularia radiata* dead basidiome, 2 Oct. 2009, *Karasiński 5065* (D.K.); **194D** (D.K. 3669C), **225C** (D.K. 3687D), **340D** (D.K. 3276A).

LITERATURE REPORTS: *Domański et al. 1967* (as *Trametes hoehnelii*), *Domański 1967* (as *Trametes hoehnelii*), *Domański 1970b* (as *Coriolus hoehnelii*), *Anonymous 1968* (as *Trametes hoehnelii*), *Domański et al. 1973* (as *Trametes hoehnelii*), *Bujakiewicz et al. 1992* (as *Antrodiella hoehnelii*), *Skirgiełło 1997* (as *Antrodiella hoehnelii*), *Bujakiewicz & Kujawa 2010* (as *Antrodiella hoehnelii*), *Niemelä 2013*, *Gierczyk et al. 2014* (as *Antrodiella hoehnelii*).

Antrodiella subradula (Pilát) Niemelä & Miettinen

SPECIMEN EXAMINED: **342C**, on well rotted wood of *Acer?* or *Ulmus?* fallen trunk (coexists with *Gloeohyphochnium analogum*), 17 Oct. 2009, *Karasiński 4781* (D.K.).

LITERATURE REPORT: None. The species is new for Poland.

REMARKS. This is the first European find of the species, and probably the second record worldwide. The original specimen was collected on *Salix* in Siberia (*Ziling 233* in PRM, not studied), lectotypified by Donk (1974; see Miettinen *et al.* 2006 for details). The species is characterized by having resupinate basidiomata with a very thin white subiculum and short cream-colored tubes, angular pores 3–5 per mm, dimitic hyphal structure with skeletal hyphae 2.5–4.5 μm wide, and clamped generative hyphae 2.0–3.5 μm wide, short clavate basidia 11–14.5 \times 4–5 μm with 4 sterigmata, and ellipsoid, thin-walled, non-amyloid basidiospores, 3–4 \times 2.0–2.5 μm , often with a few small oil drops inside. *Antrodiella romellii* has basidiospores similar in shape but larger (3.5–5.0 \times 2.5–3.2 μm), and smaller pores (5–7 per mm). Macroscopically the species is also somewhat similar to *Schizopora radula* (Pers.) Hallenb.

Aporpium canescens (P. Karst.) Bondartsev & Singer ex Singer Fig. 4E

SPECIMENS EXAMINED: **284**, on *Betula* trunk, 19 Sept. 2011, *Karasiński 6344* (D.K.); **285A**, on *Betula pendula* fallen trunk, 19 Sept. 2011, *Karasiński 6344* (D.K.); **341D**, on *Acer platanoides* fallen trunk, 17 Oct. 2009, *Karasiński 4763* (D.K.); **369C**, on fallen trunk of deciduous tree (*Ulmus?*), 22 Sept. 2009, *Karasiński 4387* (D.K.); **402**, on *Populus* fallen trunk, 31 Oct. 2009, *Karasiński 4974* (D.K.).

LITERATURE REPORTS: *Błoński et al. 1888* (as *Polyporus subspadiceus*), *Domański 1965* (as *Aporpium caryae*), *Domański 1967* (as *Aporpium caryae*), *Domański 1972b* (as *Aporpium caryae*), *Wojewoda 1977* (as *Aporpium caryae*), *Wojewoda 1979* (as *Aporpium caryae*), *Niemelä 2013*, *Gierczyk et al. 2014* (as *Protomerulius caryae*).

Aporpium macroporum Niemelä, Spirin & Miettinen Fig. 4F

SPECIMENS EXAMINED: **370A**, on *Populus* fallen log, 22 Sept. 2009, *Karasiński 4400* (D.K.); **402A**, on *Populus* fallen log, 31 Oct. 2009, *Karasiński 4964* (D.K.); **402A**, abundantly on *Populus* fallen logs, 31 Oct. 2009, *Karasiński 4964, 4971, 4973, 4976* (D.K.).

LITERATURE REPORTS: Miettinen *et al.* 2012, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. The species differs from *A. canescens* by having larger pores and wider basidiospores. For more details see Miettinen *et al.* (2012).

Aurantiporus croceus (Pers.) Murrill Fig. 4G

SPECIMENS EXAMINED: **225**, on *Quercus* log, 14 Sept. 2009, *Karasiński 4141* (D.K.); **290**, on *Quercus* log, 22 Sept. 2011, *Karasiński 6475* (D.K.); **319C**, on *Quercus* log, 28 July 2009, *Karasiński 3613* (D.K.); **345B**, on *Quercus* log, 11 Aug. 2009, *Karasiński 3718* (D.K.); **346C**, on *Quercus* rotten log, 21 Sept. 2011, *Karasiński 6437* (D.K.); **316C** (D.K. 5272), **341B** (D.K. 5253), **344B** (D.K. 3828A), **370C** (D.K. 3708A), **373A** (H.M.W. M-1870); **373D** (D.K. 3428), **373D** (D.K. 3448), **374** (D.K. 6437); **375B** (D.K. 3572); **417B** (H.M.W. M-1431).

LITERATURE REPORTS: Piątek & Wolkowycki 2005 (as *Hapalopilus croceus*), Gierczyk *et al.* 2013 (as *Hapalopilus croceus*), Niemelä 2013.

Aurantiporus fissilis (Berk. & M. A. Curtis) H. Jahn ex Ryvar den Fig. 4H

SPECIMENS EXAMINED: **258C**, on *Fraxinus excelsior* fallen log, 21 Sept. 2009, *Karasiński 4359* (D.K.); **340C**, on *Populus* fallen log and stump the same tree, 16 Sept. 2009, *Karasiński 4221* (D.K.); **375A**, on *Populus* log, 19 Sept. 2009, *Karasiński 4279* (D.K.); **375C**, on *Populus* log, 21 Sept. 2011, *Karasiński 6420* (D.K.); **399B**, on *Populus* log, 2 Oct. 2009, *Karasiński 5054* (D.K.).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. The similar *Spongipellis spumeus* (Sowerby) Pat. usually grows solitary and has larger basidiospores.

Aurantiporus priscus Niemelä, Miettinen & Manninen Fig. 5A

SPECIMENS EXAMINED: **318B**, on rotten *Pinus* fallen trunk, 12 Aug. 2009, *Karasiński 3734*, *3735*, *3736* (D.K.).

LITERATURE REPORTS: Niemelä *et al.* 2012, Niemelä 2013.

REMARKS. *Aurantiporus priscus* was recently described based on material from Poland, Finland and Sweden. The type specimen was collected

in BNP (Niemelä *et al.* 2012). This species was previously reported from Europe under the name *Hapalopilus salmonicolor* (Berk. & M. A. Curtis) Pouzar or *Erastia salmonicolor* (Berk. & M. A. Curtis) Niemelä & Kinnunen (e.g., Niemelä 2005), but an isotype study of *Polyporus salmonicolor* Berk. & M. A. Curtis described from the U.S.A. revealed that the European materials belong to a different species described as *Aurantiporus priscus* (Niemelä *et al.* 2012). *Hapalopilus salmonicolor* is a North American taxon having short cylindrical basidiospores 2.0–2.5 µm wide. Another similar species, *Hapalopilus ochraceolateritius* (Bondartzev) Bondartzev & Singer, has narrower basidiospores 1.8–2.2 µm wide. In contrast to these two species, *Aurantiporus priscus* has broadly ellipsoidal basidiospores, 4–5 × 2.5–3.5 µm in the specimen examined. *Hapalopilus salmonicolor* reported by Domański (1972b) from two Polish sites outside the Białowieża Forest (Międzyrzec Podlaski and Pojezierze Mazurskie lakeland) in fact represents *Hapalopilus aurantiacus* (Rostk.) Bondartzev & Singer with basidiospores 5.0–7.0 × 2.5–3.0 µm. *Aurantiporus priscus* seems to be a very rare relict species of old-growth and primeval forests, associated with wood of conifers.

Bjerkandera adusta (Willd.) P. Karst.

SPECIMENS EXAMINED: **98B** (D.K. 10986); **344D**, on *Populus* fallen trunk, 28 March 2002, *Wolkowycki* (H.M.W. M-2799); **385C** (Sacharewo), on *Betula pendula* fallen trunk, 8 Oct. 1998, *Wolkowycki* (H.M.W. M-1231); **402A** (D.K. 10939); **412D**, on *Carpinus*, 5 Nov. 1998, *Wolkowycki* (H.M.W. M-1353); **413A** (H.M.W. M-1212); **437B** (H.M.W. M-1884); **487B** (H.M.W. M-0984); **BF**, on deciduous wood, 1 May 1959, *Wojewoda s.n.* (KRAM F-13473); **BF**, on hardwood, 1 May 1959, *Domański* (KRAM F-SD 2648); **BF**, on *Betula* fallen branch, Oct. 1955, *Domański* (KRAM F-SD 2651); **BF**, on *Carpinus*, 28 Apr. 1960, *Domański* (KRAM F-SD 632 as *Gloeoporus adustus* f. *stratosus* f.n.); **BF**, on *Carpinus*, 10 June 1966, *Domański* (KRAM F-SD 4991).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus adustus*), Błoński 1889a (as *Polyporus adustus*), Siemaszko 1923 (as *Polyporus adustus*), Nespiak 1956 (as *Leptoporus adustus* v. *carpineus*), Orłóś 1960 (as *Gloeoporus adustus*), Orłóś 1961 (as *Gloeoporus*

adustus), Domański *et al.* 1967 (as *Bjerkandera adusta* f. *carpineae* and *Bjerkandera adusta* f. *resupinata*), Domański 1967, Anonymous 1968, Domański *et al.* 1973 (as *Bjerkandera adusta* f. *carpineae* and *B. adusta* f. *resupinata*), Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996, Skirgiełło 1997, Skirgiełło 1998, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Bjerkandera fumosa (Pers.) P. Karst.

SPECIMENS EXAMINED: **413B** (Sacharewo), on *Salix fragilis* fallen trunk, 17 Oct. 1997, *Wolkowycy* (H.M.W. M-1865); **BF**, Palace Park in Białowieża, on deciduous trunk, 21 Oct. 1955, *Domański* (KRAM F-SD 323); **BF**, on *Populus* trunk, 25 Sept. 1965, *Domański* (KRAM F-SD 4904); **BF**, on *Salix* sp. trunk, 26 Sept. 1965, *Domański* (KRAM F-SD 4923).

LITERATURE REPORTS: Domański 1967, Anonymous 1968, Niemelä 2013.

Buglossoporus pulvinus (Pers.) Donk Fig. 5B

SPECIMENS EXAMINED: **257D**, in necrotic depression on trunk of *Quercus robur* living tree, 21 Sept. 2009, *Karasiński* 4341 (D.K.); **314A**, on *Quercus* fallen trunk, 7 July 2009, *Karasiński* 3327 (D.K.); **315A**, on *Quercus* fallen branch, 18 Aug. 2009, *Karasiński* 3895 (D.K.); **315B**, on *Quercus* fallen trunk, 18 Aug. 2009, *Karasiński* 3908 (D.K.); **316B**, on strongly decayed *Quercus* trunk, 14 Aug. 2009, *Karasiński* 3793, 3797 (D.K.); **318D**, on *Quercus robur* rotten trunk, 17 Aug. 2009, *Karasiński* 3862b (D.K.); **369A**, on rotten *Quercus* fallen trunk, 14 July 2009, *Karasiński* 3486 (D.K.); **373D**, on *Quercus* fallen trunk, 11 July 2009, *Karasiński* 3429, 3451 (D.K.); **374C**, on *Quercus* fallen trunk, 11 July 2009, *Karasiński* 3423 (D.K.); **374C**, on *Quercus* fallen trunk, 26 July 2009, *Karasiński* 3545 (D.K.); **374D**, on *Quercus* fallen trunk, 28 July 2009, *Karasiński* 3590 (D.K.); **375B**, on *Quercus* big log, 27 July 2009, *Karasiński* 3573 (D.K.).

LITERATURE REPORTS: Domański *et al.* 1967 (as *Piptoporus quercinus*), Domański 1967 (as *Piptoporus quercinus*), Domański *et al.* 1973 (as *Piptoporus quercinus*), Niemelä 2013.

REMARKS. Basidiomata of this species appear in summer and rarely at the beginning of autumn. In the study area all specimens except one were found on fallen logs, trunks and branches of *Quercus* in early or middle stages of wood decomposition. Only once it was observed in a necrotic depression ca 1 m above ground level on the trunk of a living old *Quercus* tree. These observation conflict with literature data in which the species is usually described as a parasite on living trees and most rarely a saprobe on dead wood (e.g., Domański *et al.* 1973; Ryvar den & Gilbertson 1994; Bernicchia 2005; Ryvar den & Melo 2014).

Ceriporia aurantiocarnescens (Henn.) M. Pieri & B. Rivoire

LITERATURE REPORTS: Niemelä 2013.

REMARKS. The species was reported by Niemelä (2013) without a precise locality. We did not find it in the BF.

Ceriporia excelsa (S. Lundell) Parmasto

Fig. 5C

SPECIMENS EXAMINED: **340A**, on rotten *Quercus* log, 22 Sept. 2010, *Karasiński* 6001 (D.K.).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. This species is characterized by having a pink to reddish orange pore surface and oblong to short cylindrical basidiospores. It is a rare species in the study area and also in Poland (Wojewoda 2003).

Ceriporia purpurea (Fr.) Donk

Fig. 5D

SPECIMENS EXAMINED: **314C**, on *Fraxinus excelsior* fallen branch, 25 Apr. 2010, *Karasiński* 5182b (D.K.); **340F**, on *Ulmus* fallen branch, 22 Sept. 2009, *Karasiński* 4415 (D.K.).

LITERATURE REPORTS: Domański 1967 (as *Merulioopsis purpurea*), Niemelä 2013.

Fig. 5. A – *Aurantiporus priscus* Niemelä, Miettinen & Manninen, B – *Buglossoporus pulvinus* (Pers.) Donk, C – *Ceriporia excelsa* (S. Lundell) Parmasto, D – *Ceriporia purpurea* (Fr.) Donk, E – *Ceriporia viridans* (Berk. & Broome) Donk, F – *Ceriporiopsis aneirina* (Sommerf.) Domański, G – *Ceriporiopsis resinascens* (Romell) Domański, H – *Cerrena unicolor* (Bull.) Murrill. Photo D. Karasiński (A–H).



REMARKS. This species has basidiomata similar to *C. excelsa* but differs in having slightly smaller pores and larger, allantoid basidiospores.

Ceriporia viridans (Berk. & Broome) Donk

Fig. 5E

SPECIMEN EXAMINED: **398**, on *Carpinus* fallen trunk, 21 Sept. 2007, *Karasiński 1671* (D.K.); **BF**, on *Corylus avellana* trunk, 10 Aug. 1962, *Domański* (KRAM F-SD 2310); **BF**, on wood of *Tilia* sp., 12 June 1966, *Domański* (KRAM F-SD 5015); **BF**, on wood of *Tilia* sp., 22 Sept. 1965, *Domański* (KRAM F-SD 4865); **BF**, on dead basidiocarp of *Fomes fomentarius*, 9 Aug. 1962, *Domański* (KRAM F-SD 2542); **BF**, on wood of *Betula* sp., 23 Oct. 1957, *Domański* (KRAM F-SD 5444).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus viridans*), *Domański* 1965, 1967, 1972b, Niemelä 2013.

Ceriporiopsis aneirina (Sommerf.) Domański

Fig. 5F

SPECIMENS EXAMINED: **316A**, on *Populus* log, 27 Apr. 2010, *Karasiński 5276* (D.K.); **370B**, on *Populus* fallen branch, 17 Oct. 2009, *Karasiński 4799* (D.K.); **399A**, on *Populus* fallen branch, 1 Nov. 2009, *Karasiński 5043* (D.K.); **402A**, on *Populus* fallen trunk, 31 Oct. 2009, *Karasiński 4958* (D.K.); **402A** (D.K. 4969A); **418C** (D.K. 4568).

LITERATURE REPORTS: *Domański* 1963, 1965, 1967, 1972b, *Karasiński et al.* 2009, Niemelä 2013, *Gierczyk et al.* 2014.

Ceriporiopsis resinascens (Romell) Domański

Fig. 5G

SPECIMENS EXAMINED: **402A**, on *Populus* trunk, 13 Sept. 2013, *Karasiński 10092* (D.K.); **BF**, on *Alnus* trunk, 27 Oct. 1956, *Domański* (KRAM F-SD 568); **BF**, on *Salix* sp. branch, 23 Sept. 1965, *Domański* (KRAM F-SD 4883).

LITERATURE REPORTS: *Domański* 1967.

REMARKS. This uncommon species is macroscopically similar to *C. aneirina* but usually forms smaller basidiomata with smaller pores 3–4 per mm (1–3 per mm in *C. aneirina*), and narrower, cylindrical basidiospores (broadly ellipsoidal in *C. aneirina*).

Cerrena unicolor (Bull.) Murrill

Fig. 5H

SPECIMENS EXAMINED: **130**, on *Betula pendula* fallen trunk, 14 Sept. 2009, *Karasiński 4109* (D.K.); **225B**, on *Betula* fallen trunk, 11 Oct. 2009, *Karasiński 4587* (D.K.); **272D** (H.M.W. M-1107); **314A**, on *Populus* fallen trunk, 7 July 2009, *Karasiński 3300* (D.K.); **375D** (D.K. 10973); **384C** (H.M.W. M-1132); **413A** (H.M.W. M-1217); **488C** (H.M.W.M-0963); **500A** (H.M.W. M-2258); **516D** (H.M.W. M-2132); **668D** (H.M.W. M-1113).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Daedalea unicolor*), Błoński 1889a (as *Daedalea unicolor*), Siemaszko 1925 (as *Daedalea unicolor*), *Domański* 1967, Anonymous 1968, *Domański et al.* 1973 (as *Cerrena unicolor* f. *irpicoides*), *Bujakiewicz et al.* 1992, *Jaroszewicz* 1996, *Skirgiełło* 1997, *Szczepkowski et al.* 2008, *Gierczyk et al.* 2013, Niemelä 2013, *Gierczyk et al.* 2014.

Chaetoporellus latitans (Bourdot & Galzin)

Bondartsev & Singer *ex Singer*

SPECIMENS EXAMINED: **BF**, on wood of *Picea* fallen trunk, 20 Sept. 1960, *Domański* (KRAM F-SD 845).

LITERATURE REPORTS: *Domański* 1965, *Domański* 1967, *Domański* 1972b, Niemelä 2013.

REMARKS. In the BF it seems to be a very rare species, not found during recent fieldwork. The specimen cited above was previously reported by *Domański* (1965, 1967, 1972b). Niemelä (2013) reported it from the BF based on literature data (after *Domański* 1972b).

Cinereomyces lindbladii (Berk.) Jülich

Fig. 6A

SPECIMENS EXAMINED: **135C** (D.K. 3339D); **135D**, on *Pinus* fallen trunk, 8 July 2009, *Karasiński 3337* (D.K.); **194C** (D.K. 3358A); **225B**, on *Picea* fallen trunk, 14 Sept. 2009, *Karasiński 4142* (D.K.); **260A** (D.K. 4643); **261A** (D.K. 3375A, DK 3380A); **285A** (D.K. 5309; DK 5314); **319C** (D.K. 3757); **340C**, on *Picea* fallen log, 6 July 2009, *Karasiński 3284* (D.K.); **340F** (D.K. 4311); **346D** (D.K. 4696A); **369B** (D.K. 4198); **373C**, on *Quercus* fallen trunk, 31 Oct. 2009, *Karasiński 4982* (D.K.); **373D** (D.K. 3460A2); **374C** (D.K. 4158); **399C** (D.K. 5028A); **412B** (H.M.W. M-1947); **414C** (H.M.W. M-2815); **415C** (H.M.W. M-1469); **463C** (H.M.W. M-1284); **500A** (H.M.W. M-1520).

LITERATURE REPORTS: *Domański* 1959a (as *Poria cinerascens*), *Domański* 1965 (as *Tyromyces cinera-*

scens), Domański 1967 (as *Tyromyces cinerascens*), Domański 1972b (as *Poria cinerascens*), Piątek 2002b, 2003, Szczepkowski *et al.* 2008, Niemelä 2013.

REMARKS. This species appears to be common in the study area.

Climacocystis borealis (Fr.) Kotl. & Pouzar

Fig. 6B

SPECIMENS EXAMINED: **194D**, on *Picea* stump, 30 July 2009, *Karasiński 3670* (D.K.), **224B** (D.K. 3932E); **225C**, on *Picea* stump, 30 July 2009, *Karasiński 3687H* (D.K.); **254D** (D.K. 3808B); **313B**, on *Picea* dead standing trunk, 25 July 2009, *Karasiński 3517* (D.K.); **314B** (D.K. 3885A); **318D** (D.K. 3880A); **319C**, on *Picea* stump, 13 Aug. 2009, *Karasiński 3760* (D.K.); **340A** (D.K. 4322A); **368A** (D.K. 4080), **369B** (D.K. 4199A); **370C**, on *Picea* fallen log, 10 Aug. 2009, *Karasiński 3703F* (D.K.); **374D** (D.K. 10947); **412B** (H.M.W. M-2850); **413D** (H.M.W. M-1896); **439A** (H.M.W. M-1258); **486A** (H.M.W. M-1879); **488C** (Nieznanowo reserve), on *Picea* stump, 13 Sept. 2005, *Karasiński 050913-7544* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus borealis*), Siemaszko 1925 (as *Polyporus borealis*), Pilát 1950 (as *Leptoporus borealis*), Orłóš 1951 (as *Polyporus borealis*), Benedix 1967 (as *Spongipellis borealis*), Orłóš 1955b (as *Polyporus borealis*), Orłóš 1960 (as *Leptoporus borealis*), Orłóš 1961 (as *Leptoporus borealis*), Domański *et al.* 1967 (as *Climacocystis borealis* var. *borealis* and *C. borealis* var. *spathulatus*), Domański 1967, Anonymous 1968, Domański *et al.* 1973 (as *Climacocystis borealis* var. *borealis* and *C. borealis* var. *spathulatus*), Bujakiewicz *et al.* 1992, Skirgiełło 1997, Bujakiewicz 2003, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Coltricia cinnamomea (Jacq.) Murrill Fig. 6C

SPECIMEN EXAMINED: **285A**, on the ground under *Picea*, *Carpinus* and *Quercus*, 15 Aug. 2009, *Karasiński 3802b* (D.K.).

LITERATURE REPORTS: Kotłaba & Lazebniček 1967, Anonymous 1968, Gierczyk *et al.* 2013, Niemelä 2013.

REMARKS. This species is rare in the studied area.

Coltricia perennis (L.) Murrill

SPECIMENS EXAMINED: **383D**, on mineral soil in *Serratulo-Pinetum*, 20 Aug. 2000, *Wólkowycki* (H.M.W.

M-0983); **384C** (H.M.W. M-0982); **385D** (H.M.W. M-1369); **417** (W. Szafer Landscape Reserve), on the ground, 29 Sept. 2006, *Karasiński 060929-6310* (D.K.); **487B** (H.M.W. M-1405); **596A** (H.M.W. M-1743); **666A**, on mineral soil in *Peucedano-Pinetum*, 27 Aug. 2000, *Wólkowycki* (H.M.W.M-1036); **668A** (H.M.W. M-1037); **698** (Starzyna Reserve), on sandy soil, 28 Sept. 2006, *Karasiński 060928-6112* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus perennis*), Błoński 1889a (as *Ochroporus perennis*), Siemaszko 1925 (as *Polyporus perennis*), Nespiak 1959 (as *Xanthochrous perennis*), Orłóš 1960 (as *Polystictus perennis*), Orłóš 1961 (as *Polystictus perennis*), Anonymous 1968, Nespiak 1968, 1970, Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Skirgiełło 1997, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. Recent records of this species are only outside the BNP borders.

Corioloopsis gallica (Fr.) Ryvarden Fig. 6D

SPECIMENS EXAMINED: **194C**, on *Fraxinus* fallen trunk, 9 July 2009, *Karasiński 3367* (D.K.); **194D** (D.K. 3668); **194D** (D.K. 3367); **214D** (D.K. 11014); **225B** (D.K. 3687); **253D** (D.K. 4099B); **254D** (D.K. 3814F); **314C**, on *Fraxinus* fallen branch, 25 Apr. 2010, *Karasiński 5182A* (D.K.); **314C**, on *Fraxinus* fallen log, 25 Apr. 2010, *Karasiński 5193* (D.K.); **334C**, on bark of *Fraxinus* fallen trunk, 24 March 1993, *Wólkowycki* (H.M.W. M-2259); **370C** (D.K. 4720); **373D** (H.M.W. M-0051); **413A** (H.M.W. M-3450); **439C** (H.M.W. M-1409); **487A** (H.M.W. M-2822); **488C** (Nieznanowo Reserve), on *Fraxinus* fallen trunk, 13 Sept. 2005, *Karasiński 050913-7611* (D.K.); **572** (Michnówka Reserve), on *Fraxinus* fallen trunk, 24 May 2006, *Karasiński 060524-5627* (D.K.).

LITERATURE REPORTS: Orłóš 1960 (as *Trametes gallica*), Domański *et al.* 1967 (as *Funalia extenuata* and *F. extenuata* f. *resupinato-reflexa*), Domański 1968 (as *Trametella extenuata*), Domański *et al.* 1973 (as *Trametella extenuata*), Bujakiewicz *et al.* 1992 (as *Corioloopsis extenuata*), Bujakiewicz 1994 (as *Corioloopsis extenuata*), Skirgiełło 1997 (as *Corioloopsis extenuata*), Bujakiewicz 2002, 2003, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Niemelä 2013 (as *Trametella gallica*), Gierczyk *et al.* 2014.

Corioloopsis trogii (Berk.) Domański Fig. 6E

SPECIMENS EXAMINED: **214D** (Szczekotowo Reserve), on *Populus* big fallen log, 17 Oct. 2014,

Karasiński 11016 (D.K.); **318D**, on *Populus* fallen trunk, 10 March 2002, *Wolkowycki* (H.M.W. M-2905); **373C**, on *Populus* fallen branch, 20 Aug. 2009, *Karasiński 3975* (D.K.); **402B**, on *Populus* fallen branch, 13 July 2009, *Karasiński 3479* (D.K.); **417** (W. Szafer Landscape Reserve), on *Populus* fallen trunk, 29 Sept. 2006, *Karasiński 060929-6335* (D.K.).

LITERATURE REPORTS: Szczepkowski *et al.* 2008, Niemelä 2013 (as *Trametella trogii*), Gierczyk *et al.* 2014.

REMARKS. This species probably is uncommon in the study area or else is undercollected.

Daedalea quercina (L.) Pers.

Fig. 6F

SPECIMENS EXAMINED: **98B**, on *Quercus* stump, 17 Oct. 2014, *Karasiński 10990* (D.K.); **413A**, on *Quercus* fallen trunk, 5 Oct. 1998, *Wolkowycki* (H.M.W. M-1210); **413B** (H.M.W. M-1423); **580** (Podcerkwa), on *Quercus*, 1 Sept. 1973, *Wojewoda s.n.* (KRAM F-58156); **703A** (H.M.W. M-1121); **BF**, on *Quercus*, 25 Sept. 1965, *Domański* (KRAM F-SD 4906); **BF**, on bark of *Quercus* trunk, 30 Aug. 1957, *Domański* (KRAM F-SD 461 as *Trametes quercina* f. *lenzitoidea*).

LITERATURE REPORTS: Błoński *et al.* 1888, Siemaszko 1925, Karpiński 1949, Nespiaak 1956, Orłóś 1960 (as *Trametes quercina*), Orłóś 1961 (as *Trametes quercina*), Domański *et al.* 1967, Domański 1967, Anonymous 1968, Nespiaak 1968, Domański *et al.* 1973, Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Skirgiełło 1997, Szczepkowski *et al.* 2008, Gierczyk *et al.* 2013, Niemelä 2013.

Daedaleopsis confragosa (Bolton) J. Schröt.

Fig. 6G

SPECIMENS EXAMINED: **214D** (Szczekotowo Reserve), on *Alnus* fallen trunk, 17 Oct. 2014, *Karasiński 11023* (D.K.); **385C** (H.M.W. M-1365); **412B** (H.M.W. M-0967); **413D** (Sacharewo), on trunk of *Salix caprea*, 25 Sept. 1999, *Wolkowycki* (H.M.W. M-1887); **414C** (H.M.W. M-1930); **437A** (H.M.W. M-3596); **438A**, on *Alnus glutinosa*, 11 Oct. 1998 (H.M.W. M-1279); **439A** (H.M.W. M-1129); **572A** (H.M.W. M-1130); **580** (Podcerkwa), on fallen branch of deciduous tree, 1 Sept. 1973, *Wojewoda s.n.* (KRAM F-58157); **601C** (H.M.W. M-1117); **702B** (H.M.W. M-1144); **BF**, on *Alnus*, 8 Aug. 1962, *Domański* (KRAM F-SD 3650); **BNP**, NE of the

main gate, on *Salix caprea* branches along forest road, 10 Oct. 2008, *Niemelä 8430* (KRAM F-47906).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Trametes rubescens*), Błoński 1889a (as *Daedalea rubescens* var. *anceps*), Orłóś 1951 (as *Trametes rubescens*), Orłóś 1960 (as *Trametes confragosa*), Domański *et al.* 1967, Domański 1967, Anonymous 1968, Domański *et al.* 1973 (as *Daedaleopsis confragosa* f. *anceps*), Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996, Skirgiełło 1997, Wojewoda 2002 (as *Daedaleopsis tricolor*), Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Datronia mollis (Sommerf.) Donk

Fig. 6H

SPECIMENS EXAMINED: **98B** (D.K. 10988); **214D** (D.K. 11020); **369A**, on *Populus* fallen branch, 14 July 2009, *Karasiński 3480D* (D.K.); **370C**, on *Acer* fallen branch, 4 July 2009, *Karasiński 3228B* (D.K.); **372B**, on *Populus* log, 18 Aug. 2009, *Karasiński 3978* (D.K.); **372D**, on *Populus* fallen trunk, 20 Aug. 2009, *Karasiński 3978b* (D.K.); **412C** (H.M.W. M-1357); **413C** (H.M.W. M-2162); **414B** (H.M.W. M-1950); **415A** (H.M.W. M-3419); **437B** (H.M.W. M-1908); **438A** (H.M.W. M-1282); **516C** (H.M.W. M-2130); **580** (Podcerkwa), on fallen trunk, 1 Sept. 1973, *Wojewoda s.n.* (KRAM F-58158).

LITERATURE REPORTS: Orłóś 1960 (as *Trametes mollis*), Orłóś 1961 (as *Trametes mollis*), Domański 1965 (as *Antrodia mollis*), Domański 1967 (as *Antrodia mollis*), Anonymous 1968 (as *Antrodia mollis*), Domański 1972b, Bujakiewicz *et al.* 1992, Skirgiełło 1997, Szczepkowski *et al.* 2008, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species appears to be common in Poland (Wojewoda 2003) but uncommon in the BF.

Dichomitus albidofuscus (Domański) Domański

Fig. 7A

SPECIMENS EXAMINED: **BF**, on *Picea* fallen trunk, 10 Aug. 1965, *Domański 4541* (KRAM F-SD 4541-holotype); **130C**, on rotten *Picea* fallen trunk, 14 Sept. 2009, *Karasiński 4120* (D.K.); **261A**, on bark of *Picea* fallen trunk, 10 July 2009, *Karasiński 3378* (D.K.); **284D**,

Fig. 6. A – *Cinereomyces lindbladii* (Berk.) Jülich, B – *Climacocystis borealis* (Fr.) Kotl. & Pouzar, C – *Coltricia cinnamomea* (Jacq.) Murrill, D – *Corioloopsis gallica* (Fr.) Ryvarden, E – *Corioloopsis trogii* (Berk.) Domański, F – *Daedalea quercina* (L.) Pers., G – *Daedaleopsis confragosa* (Bolton) J. Schröt., H – *Datronia mollis* (Sommerf.) Donk. Photo D. Karasiński (A–H).



on bark of *Picea* fallen trunk, 7 July 2009, *Karasiński* 3320 (D.K.); **285C**, on *Picea* fallen trunk, 28 Apr. 2010, *Karasiński* 5330d (D.K.); **316B**, on *Picea* fallen log, 27 Apr. 2010, *Karasiński* 5254 (D.K.); **318C**, on *Picea* fallen trunk, 16 Aug. 2009, *Karasiński* 3840 (D.K.); **340F**, on *Picea* fallen branch, 6 July 2009, *Karasiński* 3285 (D.K.); **373C**, on *Picea* fallen log, 13 July 2009, *Karasiński* 3455a (D.K.); **374C**, on *Picea* fallen trunk, 11 July 2009, *Karasiński* 3402 (D.K.); **374D**, on *Picea* fallen log, 26 July 2009, *Karasiński* 3536 (D.K.); **375A**, on *Picea* fallen log, 13 July 2009, *Karasiński* 3455a (D.K.); **375B**, on *Picea* fallen trunk, 19 Sept 2009, *Karasiński* 4269a (D.K.); **399B**, on *Picea* fallen trunk, 5 July 2009, *Karasiński* 3269 (D.K.); **401B**, on *Picea* fallen trunk, 24 June 2008, *Karasiński* 1717 (D.K.).

LITERATURE REPORTS: Domański 1966 (as *Poria albidofusca*), Domański 1967 (as *Poria albidofusca*), Domański 1972b, Niemelä 2013.

REMARKS. The species has its *locus classicus* in the BF (Domański 1966). Its basidiomata develop on wood at the end of spring or in summer, and occasionally later. The earliest basidiomata in the initial stage of development were observed at the end of April, after a mild and almost snowless winter. Usually the basidiomata mature in June or the beginning of July, and later disappear quickly. When the summer has a long rainless period, some dead, dry remnants of basidiomata can be found also in August and even September, but they are difficult to identify in this condition. The species is known so far from BNP, a few localities in the Czech Republic and the European part of Russia (Vampola & Vlasák 1992; Kotkova & Isaeva 2007). Based on molecular data a new combination into *Donkiporia* Kotl. & Pouzar has recently been proposed for this species (Vlasák *et al.* 2010).

Dichomitus campestris (Quél.) Domański & Orlicz Fig. 7B

SPECIMENS EXAMINED: **399A**, on dead still-attached branch of *Corylus avellana*, 4 July 2009, *Karasiński* 3240 (D.K.).

LITERATURE REPORTS: None. This species is new for BNP.

REMARKS. In the study area the species appears to be very rare, so far known from only one specimen, found close to the main gate to the Park. The species is associated with *Corylus avellana* dead standing trunks and dead still-attached branches. In the south of Poland it was recorded also on *Alnus incana*.

Diplomitoporus crustulinus (Bres.) Domański Fig. 7C

SPECIMENS EXAMINED: **BF**, on *Picea* fallen branch, 4 Aug. 1965, Domański (KRAM F-SD 4473).

LITERATURE REPORTS: Domański 1970a, Domański 1972b, Niemelä 2013.

REMARKS. This species is known in the study area from one specimen cited above, and was not confirmed in recent fieldwork. Niemelä (2013) reported it from the BF based on literature data (after Domański 1970a).

Diplomitoporus flavescens (Bres.) Domański Fig. 7D

SPECIMENS EXAMINED: **317C**, on *Pinus* fallen trunk, 14 Aug. 2009, *Karasiński* 3786 (D.K.); **725** (Krugle), on *Pinus* dead standing trunk, 31 Oct. 2014, *Wolkowycki* (H.M.W. M-3263).

LITERATURE REPORTS: Domański 1970a, Szczepkowski *et al.* 2008, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species probably is not rare in the study area but is undercollected.

Fibroporia gossypium (Speg.) Parmasto Fig. 7E

SPECIMENS EXAMINED: **135C**, on *Pinus* fallen log, 8 July 2009, *Karasiński* 3344 (D.K.); **225A** (D.K. 4138); **226A**, on bark of *Alnus glutinosa* fallen trunk, 9 July 2009, *Karasiński* 3355A (D.K.); **254D** (D.K. 3807); **256B** (D.K. 3629); **272** (Lipiny Reserve), on *Picea* fallen trunk, 26 Sept 2006, *Karasiński* 060926-5853 (D.K.); **285A** (D.K. 3801); **288D**, on *Picea* rotten trunk, 12 Aug.

Fig. 7. A – *Dichomitus albidofuscus* (Domański) Domański, B – *Dichomitus campestris* (Quél.) Domański & Orlicz, C – *Diplomitoporus crustulinus* (Bres.) Domański (dried specimen KRAM F-SD 4473), D – *Diplomitoporus flavescens* (Bres.) Domański, E – *Fibroporia gossypium* (Speg.) Parmasto, F – *Fistulina hepatica* (Schaeff.) Fr., G – *Fomitiporia punctata* (Fr.) Murrill, H – *Fomitiporia robusta* (P. Karst.) Fiasson & Niemelä. Photo D. Karasiński (A–H).



2009, *Karasiński 3737* (D.K.); **313B** (D.K. 3511); **314B** (D.K. 3887); **315B** (D.K. 3904); **315B** (D.K. 3917A); **318D** (D.K. 3859); **340C** (D.K. 4239A); **340F** (D.K. 4314); **341C** (D.K. 4409); **342C** (D.K. 4793); **345A** (D.K. 3716A); **345B** (D.K. 3718D); **369A** (D.K. 3488); **372B**, on *Picea* big log, 20 Aug. 2009, *Karasiński 3984b* (D.K.); **372B** (D.K. 3986B); **373C** (D.K. 3458); **374A** (D.K. 4171); **375B** (D.K. 4654).

LITERATURE REPORTS: Domański 1965 (as *Tyromyces resupinatus*), Domański 1967 (as *Tyromyces resupinatus*), Domański 1972b (as *Fibroporia gossypia*), Szczepkowski *et al.* 2008 (as *Antrodia gossypina*), Szczepkowski *et al.* 2010 (as *Antrodia gossypina*), Niemelä 2013, Gierczyk *et al.* 2014 (as *Antrodia gossypium*).

REMARKS. This species appears to be common in the study area.

Fistulina hepatica (Schaeff.) Fr. Fig. 7F

SPECIMENS EXAMINED: **254D**, on dead standing *Quercus* trunk, 15 Aug. 2009, *Karasiński 3800C* (D.K.); **258C**, on trunk of *Quercus* living tree ca 280 years old, *Karasiński 4353* (D.K.); **318D** (D.K. 3747); **318D** (D.K. 3862); **319C**, at base of living *Quercus*, 11 Aug. 2009, *Karasiński 3719* (D.K.); **340C** (D.K. 4319B); **374D** (D.K. 3731); **402** (D.K. 3965); **402B** (D.K. 3827); **414B** (H.M.W. M-1658).

LITERATURE REPORTS: Błoński *et al.* 1888, Błoński 1889a, Karpiński 1949, Orłóś 1955b, 1960, 1961, Domański 1967, Anonymous 1968, Nespiak 1968, Nespiak 1970, Skirgiełło 1970, Bujakiewicz *et al.* 1992, Jaroszewicz 1993, 1996, Skirgiełło 1997, Bujakiewicz 2003, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Fomes fomentarius (L.) J. J. Kickx

SPECIMENS EXAMINED: **98B**, on *Populus* trunk, 17 Oct. 2014, *Karasiński 10983* (D.K.); **214D** (D.K. 11001); **287A** (D.K. 4377A); **340B** (D.K. 4203A); **340F** (D.K. 4299A); **344B** (D.K. 3714A); **345A**, on *Fraxinus* log, 11 Aug. 2009, *Karasiński 3714* (D.K.); **345A** (D.K. 3598A); **372D** (D.K. 3992A); **385C** (H.M.W. M-0973); **399A** (D.K. 5040A); **402A** (D.K. 10940); **513B** (H.M.W. M-1109).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus fomentarius*), Błoński 1889a (as *Ochroporus fomentarius*), Siemaszko 1925 (as *Polyporus fomentarius*), Karpiński 1949 (as *Polyporus fomentarius*),

Orłóś 1951, 1955a, b, Nespiak 1956, Orłóś 1960, 1961, Orłóś & Twarowska 1967, Domański *et al.* 1967, Domański 1967, Anonymous 1968, Nespiak 1968, Skirgiełło 1976, Nespiak 1970, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996, Grzywacz *et al.* 1996, Skirgiełło 1997, 1998, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This is a widely distributed temperate and boreal species, common in the study area.

Fomitiporia punctata (Fr.) Murrill Fig. 7G

SPECIMENS EXAMINED: **402A**, on bark of *Populus* fallen trunk, 19 Sept. 2013, *Karasiński 9961* (D.K.); **412A** (Sacharewo), on *Prunus avium* fallen branch, 26 March 2002, *Wolkowycki* (H.M.W. M-2720); **412B** (H.M.W. M-1511); **463A** (H.M.W. M-1288); **BF**, on *Corylus avellana* trunk, 18 Sept. 1960, *Domański* (KRAM F-SD 1101); **BF**, on *Populus* trunk, 24 Oct. 1955, *Domański* (KRAM F-SD 514).

LITERATURE REPORTS: Domański 1965, 1967, 1972b, Szczepkowski *et al.* 2008, Niemelä 2013. All literature reports as *Phellinus punctatus*.

Fomitiporia robusta (P. Karst.) Fiasson & Niemelä Fig. 7H

SPECIMENS EXAMINED: **225**, on trunk of *Quercus* old living tree, 20 Sept. 2011, *Karasiński 6394* (D.K.); **412B**, on trunk of *Quercus* living tree, 29 Nov. 2000, *Wolkowycki* (H.M.W. M-0964); **413C** (H.M.W. M-1902); **488A** (H.M.W. M-2059).

LITERATURE REPORTS: Orłóś 1961, Orłóś & Twarowska 1967, Domański *et al.* 1967, Domański 1967, Anonymous 1968, Domański *et al.* 1973, Bujakiewicz *et al.* 1992, Grzywacz *et al.* 1996, Skirgiełło 1997, Orłóś 1960, Niemelä 2013. All literature reports as *Phellinus robustus*.

REMARKS. In the BF it is rather common, associated with old oaks.

Fomitopsis pinicola (Sw.) P. Karst. Fig. 8A

SPECIMENS EXAMINED: **123A** (D.K. 10991); **135C** (D.K. 3343B); **194D** (D.K. 3669C); **225** (D.K. 3687C); **226A** (D.K. 3349C); **254D** (D.K. 3808E); **255B** (D.K. 3653C); **256** (D.K. 3644B); **285A**, on *Betula pendula* fallen trunk, 28 Apr. 2010, *Karasiński 5312A* (D.K.); **313A**, on *Picea* fallen trunk, 25 July 2009, *Karasiński 3509A* (D.K.); **314** (D.K. 3303D, DK 3289B); **318** (D.K.

3880C); **319A** (D.K. 3731C); **334C** (H.M.W. M-1124); **340** (D.K. 3278E); **342C** (D.K. 4784A); **344A** (D.K. 3837C); **346D** (D.K. 3581B); **370C** (D.K. 4731A); **372** (D.K. 3986C); **373C** (D.K. 2896); **373D** (D.K. 4988A); **373D**, on *Picea* fallen trunk, 13 July 2009, *Karasiński 3460C* (D.K.); **375D** (D.K. 10970); **384B** (H.M.W. M-1131); **399A** (D.K. 5039A); **412B** (H.M.W. M-1934); **412D** (H.M.W. M-1329); **429B** (H.M.W. M-1125); **463A** (H.M.W. M-1285); **537D** (H.M.W. M-1099); **572** (Michnówka Reserve), on *Alnus glutinosa* fallen log, 24 May 2006, *Karasiński 060524-5532* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus pinicola*), Błoński 1889a (as *Polyporus pinicola*), Siemaszko 1925 (as *Polyporus pinicola*), Karpiński 1949 (as *Fomes marginatus* and *F. pinicola*), Orłoś 1951 (as *Fomes marginatus* and *F. pinicola*), Orłoś 1955b (as *Fomes marginatus*), Nespiaik 1956 (as *Fomes pinicola*), Orłoś 1960 (as *Fomes marginatus*), Orłoś 1961 (as *Fomes marginatus*), Dominik 1963 (as *Fomes marginatus*), Gumińska 1963, Orłoś & Twarowska 1967, Domański *et al.* 1967, Domański 1967, Anonymous 1968, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996, Skirgiełło 1997, 1998, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2010, 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species is very common in the study area.

Fomitopsis rosea (Alb. & Schwein.) P. Karst.

Fig. 8B

SPECIMENS EXAMINED: **105B** (D.K. 3434); **135C** (D.K. 3342B); **135D** (D.K. 3331A); **194D** (D.K. 3665B1); **214B** (D.K. 11002); **224D** (D.K. 3832A); **225A** (D.K. 4128A); **226B** (D.K. 3683B); **255D** (D.K. 3653B); **256D** (D.K. 3652); **257B**, on *Picea* trunk, 21 Sept. 2009, *Karasiński 4354B* (D.K.); **257D** (D.K. 4342B); **260A** (D.K. 3370F); **261A** (D.K. 3376B); **285A** (D.K. 3617A); **287C** (D.K. 3778); **288D** (D.K. 3738A); **289C** (D.K. 3745A); **313B** (D.K. 3510); **314C** (D.K. 3888B); **315A** (D.K. 3894B); **318D** (D.K. 3879); **319A** (D.K. 3731); **340F** (D.K. 3289B); **369**, on *Picea* fallen trunk, 15 Sept. 2005, *Karasiński 050915-7807* (D.K.); **369C** (D.K. 3490A); **370C** (D.K. 3705B); **371C** (D.K. 3250A); **373D** (D.K. 3458A); **374A** (D.K. 3536A1); **375A** (D.K. 3577A); **375D** (D.K. 10945, D.K. 10975); **398A** (H.M.W. M-2717); **399A**, on *Picea* fallen trunk, 1 Nov. 2009, *Karasiński 5011B* (D.K.); **399B** (D.K. 3244B); **402C**, on *Picea* fallen trunk, 22 Sept. 2007, *Karasiński 070922-7937* (D.K.); **403A** (H.M.W.

M-2796); **412A** (H.M.W. M-2711); **414C** (H.M.W. M-1005); **415C** (H.M.W. M-1472); **463C** (H.M.W. M-1291); **476B** (H.M.W. M-0970); **487B** (H.M.W. M-1137); **488C** (Nieznanowo Reserve), on *Picea* fallen trunk, 13 Sept. 2005, *Karasiński 050913-7647* (D.K.); **572** (Michnówka Reserve), on *Picea* fallen log, 24 May 2006, *Karasiński 060524-5606* (D.K.). **697B** (Starzyna Reserve), on *Picea* fallen log, 28 Sept. 2006, *Karasiński 060928-6188* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus roseus*), Błoński 1889a (as *Polyporus roseus*), Siemaszko 1923 (as *Polyporus roseus*), Pilát 1950 (as *Fomes roseus*), Orłoś 1951 (as *Fomes roseus*), Orłoś 1955b (as *Fomes roseus*), Orłoś 1960 (as *Fomes roseus*), Orłoś 1961 (as *Fomes roseus*), Benedix 1967, Domański *et al.* 1967, Domański 1967, Kotlaba & Lazebniček 1967, Kreisel 1967, Anonymous 1968, Domański *et al.* 1973, Skirgiełło 1972, Szczepka 1989, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996, Skirgiełło 1997, Bujakiewicz 2003, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This is one of the commonest poroid species in the study area, especially in BNP. A single large fallen *Picea* trunk may often be inhabited by more than 200 basidiomata. Outside the Białowieża Forest it is known in Poland from only a few localities (Wojewoda 2003).

Frantisekia mentschulensis (Pilát) Spirin

Fig. 8C

SPECIMENS EXAMINED: **254D**, on *Fraxinus* log covered by mosses, 15 Aug. 2009, *Karasiński 3811* (D.K.); **254D**, on *Acer* log, 12 Sept. 2011, *Karasiński 6183* (D.K.); **282D**, on *Populus* fallen log, 25 July 2009, *Karasiński 3523B* (D.K.); **284B**, on *Fraxinus* fallen trunk, 15 Aug. 2009, *Karasiński 3815* (D.K.); **319C**, on *Betula* log covered by mosses, 13 Aug. 2009, *Karasiński 3753* (D.K.); **340**, on fallen trunk of *Populus*, 28 Aug. 1973, *Pouzar* (KRAM F-58159 as *Tyromyces mentschulensis*); **342C**, on *Carpinus* fallen trunk, 17 Oct. 2009, *Karasiński 4788* (D.K.); **369C**, on *Ulmus?* fallen trunk, 22 Sept. 2009, *Karasiński 4385* (D.K.); **370A**, on *Populus* fallen trunk, 22 Sept. 2009, *Karasiński 4402* (D.K.); **370A** (D.K. 4403); **370C**, on *Carpinus betulus* fallen trunk, 10 Aug. 2009, *Karasiński 3711* (D.K.); **372B**, on *Populus* fallen trunk, 20 Aug. 2009, *Karasiński 3970* (D.K.); **372D**, on *Populus* dead standing trunk, 20 Aug. 2009, *Karasiński 3971* (D.K.); **372D** (D.K. 3985); **399A**,

on *Tilia* fallen trunk, 1 Nov. 2009, *Karasiński 5044* (D.K.); **399**, on fallen trunk of *Carpinus*, 31 Aug. 1973, *Holubova s.n.* (KRAM F-58160 as *Tyromyces mentschulensis*); **402**, on *Populus* trunk, 19 Sept. 2013, *Karasiński 10087* (D.K.); **402A**, on *Populus* fallen trunk, 19 Sept. 2009, *Karasiński 4266* (D.K.).

LITERATURE REPORTS: Kotlaba & Pouzar 1988 (as *Poria fissiliformis*), Piątek 2001 (as *Antrodiella fissiliformis*), *Karasiński et al.* 2009, Niemelä 2013, Gierczyk *et al.* 2014 (as *Antrodiella fissiliformis*).

REMARKS. So far, in Poland this species is not known outside the BF. Ryvarden and Gilbertson (1993) reported it from Poland without a precise locality.

Fuscoporia ferruginosa (Schrad.) Murrill

Fig. 8D

SPECIMENS EXAMINED: **135D**, on fallen trunk of deciduous tree, 8 July 2009, *Karasiński 3332a* (D.K.); **194C**, on *Populus* fallen trunk, 9 July 2009, *Karasiński 3364* (D.K.); **334A** (H.M.W. M-0046); **344D**, on *Acer* fallen branch, 28 March 2002, *Wolkowycki* (H.M.W. M-2820); **399B**, on *Fraxinus excelsior* fallen trunk, 2 Nov. 2009, *Karasiński 5066* (D.K.); **414C** (H.M.W. M-2725).

LITERATURE REPORTS: Pilát 1950 (as *Phellinus ferruginosus*), Niemelä 2013 (as *Phellinus ferruginosus*).

Ganoderma applanatum (Pers.) Pat. Fig. 8E

SPECIMENS EXAMINED: **123A** (D.K. 10992); **214D** (D.K. 11013); **214D** (D.K. 11026); **334D**, on fallen trunk in *Tilio-Carpinetum*, 24 March 1993, *Wolkowycki* (H.M.W. M-1175); **340F**, on *Acer platanoides* fallen trunk, 6 July 2009, *Karasiński 3278C* (D.K.); **343B**, on *Acer platanoides* fallen log, 16 Aug. 2009, *Karasiński 3823* (D.K.); **372C**, on *Carpinus* fallen trunk, 5 July 2009, *Karasiński 3252E* (D.K.); **375**, on *Quercus* trunk, 19 Sept. 2009, *Karasiński 4274* (D.K.); **375D** (D.K. 10958); **384C** (H.M.W. M-1120); **385C** (H.M.W. M-1228); **412B** (H.M.W. M-1292); **414B** (H.M.W. M-1957); **702B** (H.M.W. M-1139).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus applanatus*), Siemaszko 1925 (as *Polyporus ap-*

planatus), Karpiński 1949 (as *Polyporus applanatus*), Orłóś 1951 (as *Fomes applanatus*), Orłóś 1955b, 1960, 1961, Dominik 1963, Orłóś & Twarowska 1967, Domański *et al.* 1967, Domański 1967, Nespiak 1968, Skirgiełło 1970, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996, Skirgiełło 1997, 1998 (as *Ganoderma lipsiense*), Sokół 2000, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This is common species in the study area but was underrecorded during recent fieldwork.

Ganoderma lucidum (Curtis) P. Karst. Fig. 8F

SPECIMENS EXAMINED: **194C**, at base of living *Quercus*, 9 July 2009, *Karasiński 3357* (D.K.); **257D**, among mosses at base of *Quercus* old living tree, 21 Sept. 2009, *Karasiński 4364* (D.K.).

LITERATURE REPORTS: Dominik 1963, Hołownia 1974, Bujakiewicz *et al.* 1992, Skirgiełło 1997, Sokół 2000, Niemelä 2013.

REMARKS. This species is rare in the study area.

Gelatoporia subvermispora (Pilát) Niemelä

Fig. 8G

SPECIMENS EXAMINED: **224B**, on *Pinus* fallen log, 19 Aug. 2009, *Karasiński 3944* (D.K.); **256A**, on *Picea* fallen trunk, 20 July 2009, *Karasiński 3652* (D.K.); **282D**, on *Picea* fallen trunk, 25 July 2009, *Karasiński 3535* (D.K.); **284B**, on *Alnus* fallen log, 15 Aug. 2009, *Karasiński 3816* (D.K.); **313B**, on *Picea* fallen log, 25 July 2009, *Karasiński 3525* (D.K.); **340F**, on *Picea* fallen trunk, 6 July 2009, *Karasiński 3294* (D.K.); **344B**, on *Quercus* fallen log, 16 Aug. 2009, *Karasiński 3830* (D.K.); **374C**, on *Pinus* fallen log, 21 Aug. 2009, *Karasiński 4004* (D.K.); **375B**, on *Picea* rotten log, 27 July 2009, *Karasiński 3579* (D.K.); **398G**, on *Picea* fallen trunk, 24 July 2009, *Karasiński 3504A* (D.K.).

LITERATURE REPORTS: Domański 1967 (as *Poria subvermispora*), Domański 1969d (as *Fibuloporia subvermispora*), Domański 1972b (as *Fibuloporia subvermispora*), Niemelä 1985, Niemelä 2013.

Fig. 8. A – *Fomitopsis pinicola* (Sw.) P. Karst., B – *Fomitopsis rosea* (Alb. & Schwein.) P. Karst., C – *Frantisekia mentschulensis* (Pilát) Spirin, D – *Fuscoporia ferruginosa* (Schrad.) Murrill, E – *Ganoderma applanatum* (Pers.) Pat., F – *Ganoderma lucidum* (Curtis) P. Karst., G – *Gelatoporia subvermispora* (Pilát) Niemelä, H – *Gloeophyllum odoratum* (Wulfen) Imazeki. Photo D. Karasiński (A–H).



REMARKS. This species appears to be not rare in the study area. In Poland it was reported from BNP and recently from Kampinos National Park in central Poland (Karasiński *et al.* 2015), and also found in the Lipówka Reserve in the Niepołomice Forest in the south of the country (D. Karasiński, unpubl.).

Gloeophyllum abietinum (Bull.) P. Karst.

SPECIMENS EXAMINED: **384C** (Sacharewo), on *Picea abies* fallen trunk, 10 March 1993, *Wolkowycki* (H.M.W. M-1143); **BNP**, Wilczy Szlak, on *Picea* thick decorticate trunk in windthrow area, 14 Sept. 2009, *Niemelä 8653* (KRA).

LITERATURE REPORTS: Błoński 1889a, Domański 1967, Anonymous 1968, Niemelä 2013.

Gloeophyllum odoratum (Wulfen) Imazeki

Fig. 8H

SPECIMENS EXAMINED: **285**, on *Picea* fallen trunk, 28 Apr. 2009, *Karasiński 5334A* (D.K.); **374D** (D.K. 10943); **375D** (D.K. 10963); **398D** (H.M.W. M-1361); **414A** (H.M.W. M-1920); **488C** (Nieznanowo Reserve), on *Picea* fallen log, 13 Sept. 2005, *Karasiński 050913-7629* (D.K.); **601A** (H.M.W. M-1105); **702B** (H.M.W. M-1108); **BNP**, SE part, west of Dziedzinka house, on *Picea* fallen trunk, 12 Oct. 2008, *Niemelä 8458* (KRA).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Trametes odorata*), Błoński 1889a (as *Ochroporus odoratus*), Siemaszko 1923 (as *Trametes odotata*), Orłoś 1960 (as *Anisomyces odoratus*), Orłoś 1961 (as *Anisomyces odoratus*), Domański *et al.* 1967 (as *Osmoporus odoratus*), Domański 1967 (as *Osmoporus odoratus*), Nespia 1968, Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Skirgiełło 1997, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2010, Szczepkowski *et al.* 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species is common in the study area.

Gloeophyllum sepiarium (Wulfen) P. Karst.

SPECIMENS EXAMINED: **182D** (D.K. 10995); **335D**, on *Picea* fallen trunk, 24 March 1993, *Wolkowycki* (H.M.W. M-1126); **335C** (H.M.W. M-1123); **369A**, on *Picea* fallen trunk, 14 July 2009, *Karasiński 3488B* (D.K.); **384A** (H.M.W. M-1487); **412B** (H.M.W. M-1488); **413A** (H.M.W. M-1142); **415C** (H.M.W. M-1471); **464D** (H.M.W. M-1127); **488C** (H.M.W. M-0972); **537D** (H.M.W. M-1111).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Lenzites sepiaria*), Błoński 1889a (as *Lenzites sepiaria*), Siemaszko 1925 (as *Lenzites sepiaria*), Karpiński 1949 (as *Lenzites sepiaria*), Domański 1967, Nespia 1968, Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Skirgiełło 1997, Orłoś 1960, Niemelä 2013, Gierczyk *et al.* 2013, 2014.

REMARKS. In Poland it is a common species in managed coniferous forests, but rather uncommon in the study area.

Gloeoporus dichrous (Fr.) Bres.

Fig. 9A

SPECIMENS EXAMINED: **402A**, on *Populus* fallen trunk, 31 Oct. 2009, *Karasiński 4979* (D.K.).

LITERATURE REPORTS: Domański 1967, Domański 1970c (as *Polyporus dichrous*), Domański *et al.* 1973, Gierczyk *et al.* 2013, Niemelä 2013.

REMARKS. This species appears to be rare in the study area.

Gloeoporus pannocinctus (Romell) J. Erikss.

Fig. 9B

SPECIMENS EXAMINED: **135C**, on *Betula pendula* fallen trunk, 8 July 2009, *Karasiński 3342d* (D.K.); **214D** (D.K. 11004); **224D** (D.K. 3932D); **225A** (D.K. 4130), **225B** (D.K. 4600); **226A** (D.K. 3349); **256D** (D.K. 3769A); **258C** (D.K. 4357); **261A** (D.K. 3392); **284B** (D.K. 3814D); **313A** (D.K. 3507); **315D** (D.K. 3928); **319C** (D.K. 3748B); **343B** (D.K. 3841B); **370C** (3707B); **370D** (D.K. 4399); **372D**, on *Populus* fallen trunk, 20 Aug. 2009, *Karasiński 3967* (D.K.); **372D** (D.K. 3975A); **372D** (D.K. 3982B); **373C**, on *Populus* fallen branch, 20 Aug. 2009, *Karasiński 3975b* (D.K.);

Fig. 9. A – *Gloeoporus dichrous* (Fr.) Bres., B – *Gloeoporus pannocinctus* (Romell) J. Erikss., C – *Gloeoporus taxicola* (Pers.) Gilb. & Ryvar den, D – *Grifola frondosa* (Dicks.) Gray, E – *Hapalopilus rutilans* (Pers.) Murrill, F – *Hapalopilus ochraceolateritius* (Bondartzev) Bondartzev & Singer (specimen photographed in Kampinos National Park, central Poland), G – *Heterobasidion parviporum* Niemelä & Korhonen, H – *Inocutis dryophila* (Berk.) Fiasson & Niemelä. Photo D. Karasiński (A–H).



374B (D.K. 4186), **375A** (D.K. 4286); **398** (D.K. 3504) **402A** (D.K. 3533); **443A** (W. Szafer Landscape Reserve), on fallen trunk, 23 June 2008, *Karasiński 1698* (D.K.).

LITERATURE REPORTS: Domański 1965, 1967, Anonymous 1968, Domański 1970c (as *Polyporus pannocinctus*), Domański 1972b, Szczepkowski *et al.* 2011, Niemelä 2013, Gierczyk *et al.* 2014 (as *Gelatoporia pannocincta*).

REMARKS. In the BF it is a rather common species on dead hardwoods, especially *Populus* and *Betula*.

Gloeoporus taxicola (Pers.) Gilb. & Ryvarden
Fig. 9C

SPECIMENS EXAMINED: **284D**, on *Pinus* decorticate trunk, 7 July 2009, *Karasiński 3315* (D.K.); **316C**, on *Pinus* fallen branch, 27 Apr. 2010, *Karasiński 5273A* (D.K.); **316D**, on bark of *Pinus* fallen trunk, 1 May 2010, *Karasiński 5357* (D.K.); **399C** (H.M.W. M-2800); **412B** (H.M.W. M-2705).

LITERATURE REPORTS: Domański 1967 (as *Meruliopsis taxicola*), Niemelä 2013 (as *Meruliopsis taxicola*).

REMARKS. This species possibly is not rare but undercollected in recent studies.

Grifola frondosa (Dicks.) Gray
Fig. 9D

SPECIMENS EXAMINED: **257D**, at base of very old *Quercus* dead standing tree, 21 Sept. 2009, *Karasiński 4365* (D.K.); **285C**, at base of *Quercus* living tree, 13 Sept. 2011, *Karasiński 6281* (D.K.); **290**, at base of *Quercus* living tree, 22 Sept. 2011, *Karasiński 6477* (D.K.); **314A**, at base of *Quercus* dead standing tree, 13 Sept. 2011, *Karasiński 6238* (D.K.); **370D**, at base of *Quercus* dead standing trunk, 15 Oct. 2009, *Karasiński 4751* (D.K.); **418B** (H.M.W. M-0005).

LITERATURE REPORTS: Orłó 1955b, Domański *et al.* 1967, 1973, Hołownia 1974, Szczepka & Sokół 1991, Bujakiewicz *et al.* 1992, Skirgiełło 1997, Szczepkowski & Piętka 2008, Szczepkowski *et al.* 2011, Niemelä 2013.

Hapalopilus ochraceolateritius (Bondartzev)
Bondartzev & Singer
Fig. 9F

SPECIMENS EXAMINED: **BF**, on *Pinus* fallen trunk, 17 July 1958, *Domański* (KRAM F-SD 716); **BF**, on *Pinus* trunk, Oct. 1955, *Domański* (KRAM F-SD 814); **BF**, on *Picea* fallen trunk, 20 Oct. 1963, *Domański* (KRAM F-SD 3424).

LITERATURE REPORTS: Domański 1965, 1967, 1972b, Niemelä 2013.

REMARKS. The specimens cited above are preserved in KRAM F-SD and possibly are the same as in literature reports. *Hapalopilus ochraceolateritius* seems to be a true rarity in the study area; since 1963 it has not been recollected, including during recent intensive fieldwork. According to available data, the basidiomata appear from July to October. Morphologically similar *H. aurantiacus* differs by having larger pores (1–3 per mm vs. 3–6 per mm in *H. ochraceolateritius*) and larger (mostly wider) basidiospores (5.2–6.4 × 2.2–2.8 μm vs. 4.2–5.4 × 1.8–2.2 μm in *H. ochraceolateritius*).

Hapalopilus rutilans (Pers.) Murrill
Fig. 9E

SPECIMENS EXAMINED: **194C**, on dead standing trunk of *Quercus*, 9 July 2009, *Karasiński 3356b* (D.K.); **356A** (H.M.W. M-1115); **413A** (H.M.W. M-1128); **414B** (H.M.W. M-1953); **414D** (H.M.W. M-2196); **444B**, on *Corylus avellana*, 22 Aug. 2004, *Wolkowycki* (H.M.W. M-3431); **463A** (H.M.W. M-1744).

LITERATURE REPORTS: Błoński 1889a (as *Ochroporus nidulans*), Domański *et al.* 1967 (as *Hapalopilus nidulans*), Domański 1967 (as *Hapalopilus nidulans*), Anonymous 1968 (as *Hapalopilus nidulans*), Domański *et al.* 1973 (as *Hapalopilus nidulans*), Bujakiewicz *et al.* 1992, Skirgiełło 1997, Bujakiewicz & Kujawa 2010 (as *Hapalopilus nidulans*), Niemelä 2013, Gierczyk *et al.* 2014 (as *Hapalopilus nidulans*).

REMARKS. This species is not common but possibly also undercollected in recent studies.

Heterobasidion annosum (Fr.) Bref.

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus annosus*), Karpiński 1949 (as *Fomes annosus*), Orłó 1951 (as *Trametes radiciperda*), Orłó 1955b, 1960, 1961 (as *Fomes annosus*), Orłó & Twarowska 1967, Domański *et al.* 1967, Domański 1967, Domański *et al.* 1973 (as *Heterobasidion annosus* f. *macraulos*), Skirgiełło 1976, Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Grzywacz *et al.* 1996, Skirgiełło 1997, Łakomy *et al.* 2000, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. Literature reports published before 2000 refer to the species *sensu lato*. In KRAM F-SD all specimens collected by Domański in the

study area belong to *Heterobasidion parviporum* Niemelä & Korhonen (see below). We did not collect *Heterobasidion annosum* s.str. during recent fieldwork. Recent records referring to the species *sensu stricto* were published by Szczepkowski *et al.* (2008), Bujakiewicz and Kujawa (2010), Gierczyk *et al.* (2013, 2014) and Niemelä (2013).

Heterobasidion parviporum Niemelä & Korhonen Fig. 9G

SPECIMENS EXAMINED: **285C**, on *Picea* stump, 21 Sept. 2010, *Karasiński 5952* (D.K.); **340G**, on *Picea* fallen trunk, 16 Sept. 2009, *Karasiński 4216B* (D.K.); **402A**, on *Picea* rotten stump, 22 Apr. 2009, *Karasiński 2855* (D.K.); **402A**, on *Picea* fallen trunk, 25 June 2008, *Karasiński 1735* (D.K.); **402B**, on *Picea* fallen trunk, 15 July 2009, *Wolkowycki* (H.M.W. M-3653).

LITERATURE REPORTS: Kowalski & Łakomy 1998 (as *Heterobasidion annosum* intersterility group S), Łakomy *et al.* 2000 (as *Heterobasidion annosum* intersterility group S), Niemelä 2013, Gierczyk *et al.* 2013, 2014.

Inocutis dryophila (Berk.) Fiasson & Niemelä Fig. 9H

SPECIMENS EXAMINED: **257C**, on trunk of *Quercus* living tree, 21 Sept. 2009, *Karasiński 4337* (D.K.); **318D**, on trunk of *Quercus* old living tree, 17 Aug. 2009, *Karasiński 3883A* (D.K.); **375B**, on trunk of *Quercus* living tree, 27 July 2009, *Karasiński 3592* (D.K.); **402A**, on trunk of *Quercus* living tree ca 100 years old, 31 Oct. 2009, *Karasiński 4978* (D.K.); **416A** (H.M.W. M-3656); **442** (W. Szafer Landscape Reserve), on *Quercus robur* trunk, 23 June 2008, *Karasiński 1702* (D.K.).

LITERATURE REPORTS: Karpiński 1949 (as *Inonotus dryophilus*), Domański *et al.* 1967, Domański *et al.* 1973 (as *Inonotus dryophilus*), Komorowska 1983 (as *Inonotus dryophilus*), Niemelä 2013 (as *Inonotus dryophilus*).

Inocutis rheades (Pers.) Fiasson & Niemelä Fig. 10A

LITERATURE REPORTS: Domański *et al.* 1967 (as *Inonotus rheades*), Skirgiełło 1998 (as *Inonotus rheades*), Niemelä 2013 (as *Inonotus rheades*).

REMARKS. We did not confirm this species in recent studies, and it was not found among the specimens deposited in KRAM F-SD. According to Niemelä (2013) it is common in the study area.

Inonotus cuticularis (Bull.) P. Karst. Fig. 10B

SPECIMENS EXAMINED: **BF**, Palace Park in Białowieża, on deciduous stump, Oct. 1955, *Domański* (KRAM F-SD 602).

LITERATURE REPORTS: Domański *et al.* 1967, 1973, Niemelä 2013.

REMARKS. This species appears to be rare and was not confirmed by recent observations. Only one specimen (cited above) collected in 1955 is deposited in KRAM F-SD.

Inonotus dryadeus (Pers.) Murrill Fig. 10C

LITERATURE REPORTS: Karpiński 1949 (as *Polyporus dryadeus*), Orłoś 1955b, Domański *et al.* 1967, Domański *et al.* 1973 (as *Inonotus dryadeus*), Bujakiewicz 2003, Bujakiewicz & Kujawa 2010, Niemelä 2013.

REMARKS. We did not confirm this species in recent work and didn't find it among the specimens stored in KRAM F-SD, but it was collected and recently published from the study area by Bujakiewicz (2003) and Bujakiewicz and Kujawa (2010). Niemelä (2013) reported it based on literature data (after Domański 1972b).

Inonotus hispidus (Bull.) P. Karst. Fig. 10D

SPECIMENS EXAMINED: **413A** (Sacharewo), on trunk of *Malus domestica* living tree, 30 July 2000, *Wolkowycki* (H.M.W. M-1919).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. *Inonotus hispidus* is characterized by having usually large, sessile, semicircular basidiomata with a strongly hispid upper surface and ovoid basidiospores 9–12 × 6–9 μm, the largest among European species of *Inonotus*. In Poland almost all reports are of it growing synanthropically in places such as orchards, gardens, parks and avenues (Piątek 2000). Similarly, in the BF it was collected only once in an old orchard in the vicinity of Hajnówka (Sacharewo). Niemelä (2013) listed this species as 'Rather common in Central Europe', and apparently did not find it in the BF.

Inonotus obliquus (Pers.) Pilat Fig. 10E

SPECIMENS EXAMINED: **316**, on *Betula pubescens* fallen trunk, 27 Apr. 2010, *Karasiński 5279* (D.K.);

319C, on *Betula* fallen log, 13 Aug. 2009, *Karasiński 3748G* (D.K.); **340G**, on *Betula* dead standing trunk, 16 Sept. 2009, *Karasiński 4228* (D.K.); **442** (W. Szafer Landscape Reserve), on *Betula* fallen trunk, 23 June 2008, *Karasiński 1705* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus obliquus*), Błoński 1889a (as *Ochroporus obliquus*), Pilát 1950, Orłoś 1951 (as *Fomes nigricans*), Mańka & Stube 1952 (as *Poria obliqua*), Orłoś 1961, Domański 1965, 1967, Anonymous 1968, Domański 1972b.

Irpex lacteus (Fr.) Fr. Fig. 10F

SPECIMENS EXAMINED: **402**, on fallen branches of *Betula*, 19 Sept. 2013, *Karasiński 10088* (D.K.).

LITERATURE REPORTS: Błoński 1889a (as *Sistotrema canescens*), Domański 1967, Niemelä 2013.

REMARKS. This species appears to be rare in the study area.

Ischnoderma benzoinum (Wahlenb.) P. Karst. Fig. 10G

SPECIMENS EXAMINED: **226A**, on *Picea* fallen trunk, 30 July 2009, *Karasiński 3687G* (D.K.); **226A**, at base of *Picea* dead standing trunk, 20 Sept. 2011, *Karasiński 6390* (D.K.); **253C** (D.K. 4091A); **260D** (D.K. 4612); **282D**, on *Picea* fallen trunk, 25 July 2009, *Karasiński 3519* (D.K.); **284B**, at base of *Picea* stump, 15 Aug. 2009, *Karasiński 3821* (D.K.); **284D**, on *Pinus* fallen log, 13 Sept. 2011, *Karasiński 6275* (D.K.); **314C**, on *Picea* fallen log, 25 Apr. 2010, *Karasiński 5167* (D.K.); **315B** (D.K. 3913); **370C**, on *Picea* fallen trunk, 10 Aug. 2009, *Karasiński 3701A* (D.K.); **374C**, on *Pinus* fallen trunk, 21 Aug. 2009, *Karasiński 4005* (D.K.); **375A** (D.K. 4282); **375D** (D.K. 10968); **439A** (H.M.W. M-1011); **463B** (H.M.W. M-1492); **485C** (H.M.W. M-1133); **487B** (H.M.W. M-1206).

LITERATURE REPORTS: Bujakiewicz *et al.* 1992, Jarszewicz 1996, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2011, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. In the study area the species occurs mostly on *Picea* and very rarely on *Pinus*. On the

latter substrate the basidiomata are smaller and usually grow solitary.

Ischnoderma resinsum (Fr.) P. Karst. Fig. 10H

SPECIMENS EXAMINED: **257D**, on *Tilia* fallen log, 21 Sept. 2009, *Karasiński 4366* (D.K.); **341D**, on *Acer platanoides* fallen trunk, 17 Oct. 2009, *Karasiński 4765* (D.K.); **BNP**, on *Carpinus* thick fallen trunk, moss-covered but still hard wood, 11 Oct. 2008, *Niemelä 8437* (KRA).

LITERATURE REPORTS: Orłoś 1960, Domański *et al.* 1967, Domański 1967, Kreisel 1967, Bujakiewicz *et al.* 1992, Skirgiełło 1997, Niemelä 2013.

REMARKS. In the BF this species appears to be much rarer than *Ischnoderma benzoinum*.

Junghuhnia collabens (Fr.) Ryvarden Fig. 11A

SPECIMENS EXAMINED: **253C** (D.K. 4091B); **254D** (D.K. 3800D); **256D**, on well rotted *Picea* fallen trunk, 14 Aug. 2009, *Karasiński 3771* (D.K.); **282D**, on *Picea* fallen trunk, 25 July 2009, *Karasiński 3521* (D.K.); **315A** (D.K. 3901); **319C**, on *Picea* fallen log, 13 Aug. 2009, *Karasiński 3754C* (D.K.); **342C** (D.K. 4787); **369A**, on *Picea* fallen trunk, 14 July 2009, *Karasiński 3489* (D.K.); **374D** (D.K. 4195); **374B** (D.K. 4659); **399B** (D.K. 5056); **697B** (Starzyna reserve), on *Picea* fallen log, 28 Sept. 2006, *Karasiński 060928-6197* (D.K.).

LITERATURE REPORTS: Domański 1965, 1967 (as *Chaetoporus rixosus*), Kotłaba & Lazebniček 1967 (as *Chaetoporus rixosus*), Anonymous 1968 (as *Chaetoporus rixosus*), Domański 1972b (as *Chaetoporus collabens*), Szczepkowski *et al.* 2008, Niemelä 2013, Gierczyk *et al.* 2014.

Junghuhnia fimbriatella (Peck) Ryvarden Fig. 11B

SPECIMENS EXAMINED: **256D**, on *Acer platanoides* fallen log close to living *Ganoderma applanatum* basidiomata, 14 Aug. 2009, *Karasiński 3770* (D.K.); **343B**, on *Acer platanoides* fallen log together with *Ganoderma applanatum*, 16 Aug. 2009, *Karasiński*

Fig. 10. A – *Inocutis rheades* (Pers.) Fiasson & Niemelä (specimen photographed in Kaszuby Landscape Park, N Poland), B – *Inonotus cuticularis* (Bull.) P. Karst. (specimen photographed in Cracow, S Poland), C – *Inonotus dryadeus* (Pers.) Murrill (specimen photographed in Puszcza Niepolomicka Forest, S Poland), D – *Inonotus hispidus* (Bull.) P. Karst., E – *Inonotus obliquus* (Pers.) Pilat, F – *Irpex lacteus* (Fr.) Fr., G – *Ischnoderma benzoinum* (Wahlenb.) P. Karst., H – *Ischnoderma resinsum* (Fr.) P. Karst. Photo D. Karasiński (A–H).



3823 (D.K.); **374A**, on *Quercus* fallen trunk together with *Ganoderma applanatum*, 19 Sept. 2009, *Karasiński 4275* (D.K.).

LITERATURE REPORTS: None. The species is new for Poland.

REMARKS. The species is characterized by having resupinate, cream-colored basidiomata with pores 3–5 per mm, a strongly rhizomorphic margin, large, encrusted skeletocystidia with subhymenial or tramal origin and small, broadly ellipsoid to subglobose basidiospores $2.5\text{--}3.5 \times 1.8\text{--}2.5 \mu\text{m}$ (in specimens examined). *Junghuhnia fimbriatella* seems to be a very rare successor of the common *Ganoderma applanatum*. This association, mentioned earlier by other authors (e.g., Ryvarden & Gilbertson 1993), was confirmed in all recent records of the species in the BF. Ryvarden and Gilbertson (1993) and Ryvarden and Melo (2014) reported *Junghuhnia fimbriatella* from Poland based on Große-Brauckmann and Nuss (1991). However, in the latter publication there are no data on the occurrence of this species in Poland. Hence it is reported here as a new national record.

Junghuhnia lacera (P. Karst.) Niemelä & Kinnunen Fig. 11C

SPECIMENS EXAMINED: **318D**, on bark of *Populus* fallen trunk, 17 Aug. 2009, *Karasiński 3876* (D.K.); **375B**, on *Quercus* fallen branch, 13 Oct. 2009, *Karasiński 4665* (D.K.).

LITERATURE REPORTS: Domański 1972b (as *Cheatorporus separabilimus*), Niemelä 2013.

REMARKS. This species appears to be rare in the study area.

Junghuhnia luteoalba (P. Karst.) Ryvarden Fig. 11D

SPECIMENS EXAMINED: **260A**, on *Pinus* fallen trunk, 12 Oct. 2009, *Karasiński 4645* (D.K.); **260C**, on *Pinus* fallen log, 12 Oct. 2009, *Karasiński 4605* (D.K.); **284A**, on *Pinus* trunk, 13 Sept. 2011, *Karasiński 6280* (D.K.);

374C, on *Pinus* fallen log, 15 Sept. 2009, *Karasiński 4164* (D.K.); **400B**, on *Picea* fallen trunk, 5 July 2009, *Karasiński 3263* (D.K.); **BF**, on *Picea* trunk, 11 Aug. 1962, *Domański* (KRAM F-SD as *Tyromyces semisupinus*).

LITERATURE REPORTS: Domański 1965, 1967 (as *Chaetoporus varicolor*), Domański 1972b (as *Chaetoporus luteoalbus*), Niemelä 2013.

Junghuhnia nitida (Pers.) Ryvarden Fig. 11E

SPECIMENS EXAMINED: **260D**, on *Betula* fallen branch, 12 Oct. 2009, *Karasiński 4632* (D.K.); **318D**, on *Populus* fallen trunk, 10 March 2002, *Wolkowycki* (H.M.W. M-2907); **399D**, on *Populus* fallen branch, 2 Nov. 2009, *Karasiński 5050* (D.K.); **402A**, on *Populus* fallen branch, 31 Oct. 2009, *Karasiński 4969B* (D.K.); **417** (W. Szafer Landscape Reserve), on *Populus* fallen trunk, 29 Sept. 2006, *Karasiński 060929-6337* (D.K.); **438C** (H.M.W. M-1271).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus micans*), Domański 1965, 1967 (as *Chaetoporus euporus*), Domański 1972b (as *Chaetoporus nitidus*), Niemelä 2013.

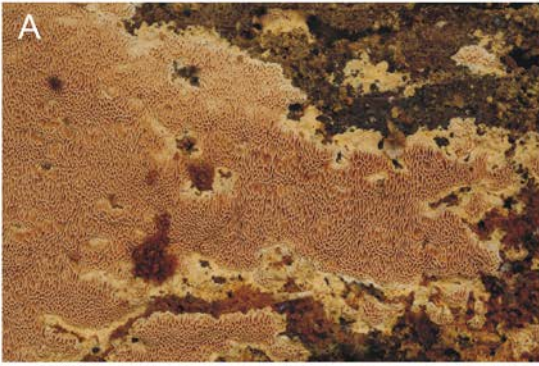
REMARKS. It is close to *Junghuhnia lacera* but differs in having smaller and more regular pores 5–7 per mm (2–5 per mm in *J. lacera*), a non-rhizomorphic margin and slightly smaller basidiospores.

Laetiporus sulphureus (Bull.) Murrill Fig. 11F

SPECIMENS EXAMINED: **214D** (Szczekotowo Reserve), on *Quercus* big fallen log, 17 Oct. 2014, *Karasiński 11010* (D.K.); **402C**, at base of *Quercus* dead standing trunk, 22 Sept. 2011, *Karasiński 6445A* (D.K.); **BNP**, SE part, west of Dzedzinka house, at base of big *Quercus robur*, 12 Oct. 2008, *Niemelä 8460* (KRA); **BF**, on *Quercus* living tree, 12 June 1959, *Domański* (KRAM F-SD 398 as *Grifola sulphurea*).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus rostański* nov. sp.), Błoński 1889b (as *Polyporus Rostański*), Siemaszko 1925 (as *Polyporus sulphureus*), Karpinski 1949 (as *Polyporus sulphureus*), Orłóś 1951, 1955b (as *Polyporus sulphureus*), Orłóś 1960, 1961 (as *Grifola sulphurea*), Domański *et al.*

Fig. 11. A – *Junghuhnia collabens* (Fr.) Ryvarden, B – *Junghuhnia fimbriatella* (Peck) Ryvarden, C – *Junghuhnia lacera* (P. Karst.) Niemelä & Kinnunen, D – *Junghuhnia luteoalba* (P. Karst.) Ryvarden, E – *Junghuhnia nitida* (Pers.) Ryvarden, F – *Laetiporus sulphureus* (Bull.) Murrill, G – *Lenzites betulinus* (L.) Fr., H – *Leptoporus mollis* (Pers.) Quél. Photo D. Karasiński (A–H).



1967, Domański 1967, Anonymous 1968, Nespiak 1968, 1970, Bujakiewicz *et al.* 1992, Jaroszewicz 1993, 1996, Skirgiełło 1997, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species is very common in Poland, but based on field observations is moderately common in the study area, mainly on old *Quercus* and rarely on *Salix*.

***Lenzites betulinus* (L.) Fr.** Fig. 11G

SPECIMENS EXAMINED: **370C**, on *Tilia* fallen trunk, 10 Aug. 2009, *Karasiński* 3707 (D.K.); **372D**, on *Populus* fallen log, 20 Aug. 2009, *Karasiński* 3993 (D.K.); **413C** (H.M.W. M-2153); **571B**, on *Betula pendula* fallen trunk, 27 Aug. 1990, *Wolkowycki* (H.M.W. M-1110); **632D** (H.M.W. M-1112); **BF**, on deciduous trunk, 18 Sept. 1960, *Domański* (KRAM F-SD 1352).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Lenzites betulina*), Błoński 1889a (as *Lenzites flaccida*), Orłóś 1961 (as *Trametes betulina*), Domański *et al.* 1973 (as *Lenzites betulina* f. *flaccida*), Bujakiewicz *et al.* 1992, Skirgiełło 1997, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

***Leptoporus mollis* (Pers.) Quél.** Fig. 11H

SPECIMENS EXAMINED: **135D**, on *Picea* fallen trunk, 8 July 2009, *Karasiński* 3335 (D.K.); **224B**, on *Picea* trunk, 19 Aug. 2009, *Karasiński* 3939a (D.K.); **224B** (D.K. 3952), **285A** (D.K. 3956); **286D**, on *Picea* fallen trunk, 14 Aug. 2009, *Karasiński* 3776 (D.K.); **319C**, on *Picea* fallen trunk, 28 July 2009, *Karasiński* 3610 (D.K.); **374C**, on *Pinus* fallen log, 26 July 2009, *Karasiński* 3551 (D.K.); **374D** (D.K. 3960, 4006, 4163); **375D**, on *Pinus* log, 24 Sept. 2010, *Karasiński* 6051 (D.K.); **402A** (D.K. 4980).

LITERATURE REPORTS: Domański *et al.* 1967 (as *Tyromyces mollis*), Domański 1967 (as *Tyromyces mollis*), Domański *et al.* 1973 (as *Tyromyces mollis*), Bujakiewicz *et al.* 1992 (as *Tyromyces mollis*), Skirgiełło 1997 (as *Tyromyces mollis*), Niemelä 2013.

REMARKS. This species is not common in the study area. In Poland its largest known population

was recently found in Kampinos National Park (*Karasiński et al.* 2015).

***Lindtneria flava* Parmasto**

LITERATURE REPORTS: Domański 1984, Niemelä 2013.

REMARKS. Domański (1984), following Parmasto (1968), reported the species from the BF but it was described based on material collected in the Belarusian part of the BF. We did not find it in the Polish part of the BF but Niemelä (2013) recently reported it based on a new record.

***Loweomyces fractipes* (Berk. & M. A. Curtis) Jülich** Fig. 12A

SPECIMENS EXAMINED: **417** (W. Szafer Landscape Reserve), on fallen branch, 15 Sept. 2011, *Karasiński* 6289 (D.K.).

LITERATURE REPORTS: None. The species is new for the BF.

REMARKS. This may be a rare species in the study area or else undercollected due to its occurrence in wet places often inaccessible for collecting, flooded during the vegetative season. It was recorded only in the W. Szafer Landscape Reserve, outside the BNP borders. Basidiomata of *L. fractipes* are often stipitate or spathulate, and usually small. It grows on fine woody debris, especially fallen branches of deciduous trees lying on the ground in wet or periodically flooded places. Its basidiomata are often produced during periods when these habitats are temporarily dried. The species is slightly similar to *Spongipellis delectans* (Peck) Murrill, especially in the initial stages of basidiomata development. The latter inhabits coarse woody debris (often dead standing trees) and has significantly larger basidiomata with larger, sinuous pores, dissepiments becoming lacerate to dentate or even hydroid with age, and longer basidia with larger basidiospores.

Fig. 12. A – *Loweomyces fractipes* (Berk. & M. A. Curtis) Jülich, B – *Mensularia radiata* (Sowerby) Lázaro Ibiza, C – *Oligoporus balsameus* (Peck) Gilb. & Ryvardeen, D – *Oligoporus ptychogaster* (Ludwig) R. & O. Falck, E – *Oligoporus romellii* (M. Pieri & Rivoire) Niemelä, F – *Oligoporus sericeomollis* (Romell) Jülich, G – *Onnia leporina* (Fr.) H. Jahn, H – *Onnia tomentosa* (Fr.) P. Karst. Photo D. Karasiński (A–H).



Mensularia radiata (Sowerby) Lázaro Ibiza
Fig. 12B

SPECIMENS EXAMINED: **123C**, on *Carpinus* dead standing trunk, 17 Oct. 2014, *Karasiński 10993* (D.K.); **194D**, on *Alnus* fallen branch, 30 July 2009, *Karasiński 3669D* (D.K.); **214D** (D.K. 11024); **225** (D.K. 3687E); **272** (Lipiny Reserve), on *Corylus* dead standing trunk, 21 May 2006, *Karasiński 060521-2* (D.K.); **282** (D.K. 3520A); **340D**, on *Corylus avellana* dead standing trunk, 7 July 2009, *Karasiński 3276B* (D.K.); **368A**, on *Corylus* dead standing trunk, 13 Sept. 2009, *Karasiński 4078A* (D.K.); **369A**, on deciduous fallen trunk, 13 Sept. 2009, *Karasiński 3481* (D.K.); **374B**, on *Alnus* dead standing trunk, 21 Sept. 2011, *Karasiński 6438* (D.K.); **374C**, on *Corylus* stump, 11 July 2009, *Karasiński 3426A* (D.K.); **375D** (D.K. 10967); **399** (D.K. 5065B); **413A** (H.M.W. M-1024); **413A** (H.M.W. M-1213); **462A** (H.M.W. M-1334); **516D** (H.M.W. M-2134).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus radiatus*), Błoński 1889a (as *Ochroporus radiatus*), Orłóś 1951 (as *Polystictus radiatus*), Orłóś 1961, Domański *et al.* 1967, Domański 1967, Anonymous 1968 (as *Inonotus radiatus*), Bujakiewicz *et al.* 1992 (as *Inonotus radiatus*), Bujakiewicz 1994 (as *Inonotus radiatus*), Jaroszewicz 1996 (as *Inonotus radiatus*), Grzywacz *et al.* 1996 (as *Inonotus radiatus*), Skirgiełło 1997 (as *Inonotus radiatus*), Orłóś 1960 (as *Inonotus radiatus*), Szczepkowski *et al.* 2008 (as *Inonotus radiatus*), Bujakiewicz & Kujawa 2010 (as *Inonotus radiatus*), Gierczyk *et al.* 2013 (as *Inonotus radiatus*), Niemelä 2013 (as *Inonotus radiatus*).

REMARKS. In the study area it is a common species on *Alnus* and *Corylus*.

Meripilus giganteus (Pers.) P. Karst.

SPECIMENS EXAMINED: **414B**, at base of *Quercus* stump, 25 Aug 2001, *Wolkowycki* (H.M.W. M-1659).

LITERATURE REPORTS: Bujakiewicz *et al.* 1992, Skirgiełło 1997, Niemelä 2013.

REMARKS. This distinctive species with a large compound basidiome was confirmed in recent studies by only one collection from forest section 414B in the western part of the BF in the vicinity of Hajnówka. According to local people it also occurs in the Palace Park in Białowieża. Niemelä (2013) reported it based on personal information from Anna Kujawa.

Obba rivulosa (Berk. & M. A. Curtis) Miettinen & Rajchenb.

SPECIMENS EXAMINED: **BF**, on fallen branch of *Pinus*, 25 Oct. 1955, *S. Domański* (KRAM F-SD 5445 as *Physporinus rivulosus*).

LITERATURE REPORTS: Karasiński *et al.* 2009 (as *Ceriporiopsis rivulosa*), Niemelä 2013.

REMARKS. This is an extremely rare species in the study area and also in Europe. It is known from Finland, France, Italy and the former Yugoslavia (Ryvarden & Melo 2014).

Oligoporus balsameus (Peck) Gilb. & Ryvarden
Fig. 12C

SPECIMENS EXAMINED: **340F**, on *Quercus robur* log, 6 July 2009, *Karasiński 3295* (D.K.); **370C**, on rotten *Picea* log, 15 Oct. 2009, *Karasiński 4733* (D.K.).

LITERATURE REPORTS: Skirgiełło 1998 (as *Tyromyces kymatodes*), Niemelä 2013 (as *Postia balsamea*).

REMARKS. This species is rare in the study area. It is characterized by having pileate or effused-reflexed basidiomata with a faintly zonate pileus surface, thick-walled fusiform cystidia that are sparsely encrusted at the apex, and oblong ellipsoidal, slightly thick-walled basidiospores $3.5\text{--}5.5 \times 2.2\text{--}2.8 \mu\text{m}$ (in specimens examined).

Oligoporus ptychogaster (Ludwig) R. & O. Falck
Fig. 12D

SPECIMENS EXAMINED: **272** (Lipiny Reserve), on *Picea* fallen trunk, 26 Sept 2006, *Karasiński 060926-5868*-teleomorph and anamorph (D.K.); **286**, on *Picea* fallen trunk, 21 Sept. 2009, *Karasiński 4371*-teleomorph and anamorph (D.K.); **374C**, on *Pinus* fallen branch, 15 Sept. 2009, *Karasiński 4168* (D.K.); **697B** (Starzyna Reserve), on *Picea* fallen log, 28 Sept. 2006, *Karasiński 060928-6184* (D.K.).

LITERATURE REPORTS: Orłóś 1961 (as *Leptoporus ptychogaster*), Szczepkowski *et al.* 2008, Gierczyk *et al.* 2013 (as *Postia ptychogaster*), Niemelä 2013 (as *Postia ptychogaster*), Gierczyk *et al.* 2014 (as *Postia ptychogaster*).

Oligoporus romellii (M. Pieri & Rivoire)
Niemelä Fig. 12E

SPECIMENS EXAMINED: **340B**, on *Picea* fallen branch, 20 Sept. 2009, *Karasiński 4292* (D.K.); **340B**, on *Picea* fallen branch, 20 Sept. 2009, *Karasiński 4301* (D.K.); **370C**, on rotten *Picea* fallen log, 15 Oct. 2009, *Karasiński 4724* (D.K.); **370**, Poprzeczny Tryb, east of 'Mogiłki' graves, on *Picea* fallen tree in wet place, 11 Sept. 2009, *Niemelä 8615 & D. Schigel* (KRA); **375B**, on *Picea* rotten stump, 13 Oct. 2009, *Karasiński 4663* (D.K.); **416** (W. Szafer Landscape Reserve), on *Picea* fallen trunk, 15 Sept. 2011, *Karasiński 6297* (D.K.).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. In the BF this species grows exclusively on *Picea*, unlike the similar *O. sericeomollis* (Romell) Jülich which seems locally to be associated with dead wood of *Pinus*. The morphological differences between these two species are small and mostly refer to differences in the shape and size of encrusted cystidia. As a rule, *O. romellii* has more slender and narrower cystidia (up to 6 µm wide), often with almost thin to slightly thick walls, while *O. sericeomollis* produces cystidia up to 10 µm wide with very thick walls up to 3.5 µm in specimens examined. For more details see Pieri and Rivoire (2006) and Ryvarden and Melo (2014). *Oligoporus balsaminus* (Niemelä & Y. C. Dai) Niemelä (= *Postia balsamina* Niemelä & Y. C. Dai) seems to be the same as *Oligoporus romellii*.

Oligoporus sericeomollis (Romell) Jülich
Fig. 12F

SPECIMENS EXAMINED: **284**, on *Pinus* fallen log, 13 Sept. 2011, *Karasiński 6285* (D.K.); **288**, on *Pinus* fallen log, 23 Sept. 2011, *Karasiński 6537* (D.K.); **289**, on *Pinus* fallen log, 22 Sept. 2011, *Karasiński 6451* (D.K.); **316**, on *Pinus* fallen log, 23 Sept. 2011, *Karasiński 6533* (D.K.); **316**, on *Pinus* dead standing trunk, 24 Sept. 2011, *Karasiński 6558* (D.K.); **374**, on *Pinus* fallen log, 21 Sept. 2011, *Karasiński 6407* (D.K.); **374D**, on *Pinus* fallen log, 13 Oct. 2009, *Karasiński 4646* (D.K.); **374D**, on *Pinus* rotten fallen trunk, 24 Sept. 2010, *Karasiński 6039* (D.K.); **375D**, on *Pinus* big fallen log, 16 Oct. 2014, *Karasiński 10971* (D.K.).

LITERATURE REPORTS: Domański 1965 (as *Chaetoporellus litschaueri* and *Tyromyces sericeo-mollis*), Domański 1967 (as *Tyromyces sericeo-mollis*),

Domański 1972b (as *Strangulidium sericeo-molle*), Niemelä 2013.

REMARKS: See remarks under *Oligoporus romellii*.

Onnia leporina (Fr.) H. Jahn Fig. 12G

SPECIMENS EXAMINED: **255D**, on trunk of *Picea* living tree, 19 Sept. 2011, *Karasiński 6349* (D.K.); **369**, on living tree of *Picea*, 27 Aug. 1973, *Wojewoda s.n.* (KRAM F-34254); **417A**, on *Picea* dead standing trunk, 28 Aug. 2012, *Wolkowycki* (H.M.W. M-0188); **417C** (H.M.W. M-0189); **443**, W. Szafer Landscape Reserve, on standing trunk of *Picea*, 29 Sept. 2006, *Karasiński 1642* (KRAM F-47394); **500**, in the vicinity of Podolany Reserve, on dead standing trunk of *Picea*, 27 Sept. 2006, *Karasiński 1636* (KRAM F-47393); **BF**, on living tree of *Picea*, 25 Oct. 1959, *Domański* (KRAM F-SD 609 as *Polystictis tomentosus* var. *triqueter*).

LITERATURE REPORTS: Kotlaba & Lazebniček 1967 (as *Mucronoporus circinatus*), Anonymous 1968 (as *Mucronoporus tomentosus* var. *circinatus*), Domański *et al.* 1973 (*Mucronoporus tomentosus* var. *triqueter*), Wojewoda 2003 (as *Inonotus leporinus*), Karasiński *et al.* 2009 (as *Inonotus leporinus*), Szczepkowski *et al.* 2011 (as *Inonotus leporinus*), Niemelä 2013 (as *Peloporus leporinus*).

REMARKS. This is a rare species associated with *Picea*, on which it is a parasite and saprobe. Basidiomata are mainly observed on bark of dead standing trees.

Onnia tomentosa (Fr.) P. Karst. Fig. 12H

SPECIMENS EXAMINED: **285A**, on the ground in mixed forest (*Quercus*, *Picea*, *Carpinus*), 29 July 2009, *Karasiński 3659* (D.K.); **289C**, on the ground in mixed forest under *Picea*, 12 Aug. 2009, *Karasiński 3746e* (D.K.); **315A**, on roots of *Picea* stump, 18 Aug. 2009, *Karasiński 3902* (D.K.); **369B**, on base of dead standing trunk of *Pinus*, 13 Sept. 2011, *Karasiński 6231* (D.K.); **699C** (H.M.W. M-3613); **BF**, on the ground under *Pinus*, 18 Oct. 1960, *Domański* (KRAM F-SD 1373); **BNP**, Poprzeczny Tryb, east of 'Mogiłki' graves, on the ground in *Carpinus-Picea-Quercus* mixed forest, 11 Sept. 2009, *Niemelä 8596* (KRA).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus tomentosus*), Orłóś 1960 (as *Polystictus tomentosus*), Orłóś 1961 (as *Polystictus tomentosus*), Domański 1967, Anonymous 1968 (as *Mucronoporus tomentosus*), Bujakiewicz 2003, Bujakiewicz & Kujawa

2010, Szczepkowski *et al.* 2010 (as *Inonotus tomentosus*), Niemelä 2013 (as *Pelloporus tomentosus*).

Onnia triquetra (Pers.) Imazeki

SPECIMENS EXAMINED: **284D**, at base of *Pinus* dead standing trunk, 13 Sept. 2011, *Karasiński 6263* (D.K.); **369B**, on *Pinus* stump, 13 Sept. 2011, *Karasiński 6231A* (D.K.).

LITERATURE REPORTS: Błoński 1889a (as *Ochroporus triqueter*), Siemaszko 1925 (as *Polyporus circinatus*), Domański *et al.* 1967 (as *Mucronoporus tomentosus* var. *triqueter*), Niemelä 2013 (as *Pelloporus triquetrus*).

REMARKS. This species is rare in the study area or undercollected.

Oxyporus corticola (Fr.) Ryvarden Fig. 13A

SPECIMENS EXAMINED: **98B** (D.K. 10989B); **214D** (D.K. 11025); **282D**, on *Populus* fallen trunk, 25 July 2009, *Karasiński 3522A* (D.K.); **315B** (D.K.3897); **315D** (D.K. 3909); **346A** (D.K. 3729); **369A**, on *Populus* fallen trunk, 14 July 2009, *Karasiński 3485* (D.K.); **369A**, on necrotic swelling on trunk of dead standing *Populus*, 14 July 2009, *Karasiński 3485A* (D.K.); **372D**, on *Populus* fallen trunk, 20 Aug. 2009, *Karasiński 3978* (D.K.); **372D** (D.K. 3972); **399D** (D.K. 5053); **402A** (D.K. 4952); **437D** (H.M.W. M-0032).

LITERATURE REPORTS: Domański 1965 (as *Chaetoporus corticola*), Domański 1967, 1972b, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. In the study area this is a rather common species showing a clear preference for *Populus*. The microscopically similar *Oxyporus ravidus* (Fr.) Bondartsev & Singer produces pileate basidiomata and according to recent observations in the BF it grows on other hardwoods.

Oxyporus latemarginatus (Durieu & Mont.) Donk Fig. 13B

SPECIMENS EXAMINED: **417** (W. Szafer Landscape Reserve), on bark of *Populus* fallen trunk, 20 Sept. 2013, *Karasiński 9968* (D.K.).

LITERATURE RECORDS: None. The species is new for the BF.

REMARKS. This species is similar to *Oxyporus obducens* (Pers.) Donk but differs by having larger pores and basidiospores.

Oxyporus obducens (Pers.) Donk

SPECIMENS EXAMINED: **398B**, on *Ulmus* fallen trunk, 14 Aug. 2009, *Karasiński 3799* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus obducens*), Domański 1965, 1972b, Niemelä 2013.

REMARKS. This species appears to be very rare in the study area. It has annual resupinate basidiomata with 4–6 pores per mm, and small, ellipsoidal basidiospores $3.5\text{--}4.5 \times 2.5\text{--}3 \mu\text{m}$ (in specimen examined). The morphologically similar *O. corticola* and *O. latemarginatus* have larger pores and basidiospores. *Oxyporus populinus* (Schumach.) Donk usually forms perennial, effused-reflexed basidiomata (rarely annual and resupinate), and has subglobose basidiospores.

Oxyporus populinus (Schumach.) Donk

Fig. 13C

SPECIMENS EXAMINED: **163C**, on trunk of *Acer platanoides* living tree, 12 July 2009, *Karasiński 3444* (D.K.); **221A** (H.M.W. M-0156); **306C**, at base of trunk of *Acer platanoides* living tree, 24 May 1993, *Wolkowycki* (H.M.W. M-1136); **316C**, on trunk of *Acer platanoides* living tree, 27 Apr. 2010, *Karasiński 5281A* (D.K.); **372C**, on trunk of *Acer platanoides* living tree, 5 July 2009, *Karasiński 3253B* (D.K.); **375B** (D.K. 10969); **400B**, on *Acer platanoides* large fallen branch, 5 July 2009, *Karasiński 3262* (D.K.); **413C** (H.M.W. M-1102); **439A** (H.M.W. M-2000); **439C** (H.M.W. M-0987); **463B** (H.M.W. M-1496); **487B** (H.M.W. M-1380).

LITERATURE REPORTS: Siemaszko 1925 (as *Polyporus connatus*), Orłóš 1960, 1961, Domański *et al.* 1967, Domański 1967, Skirgiełło 1984, Bujakiewicz & Kujawa 2010, Niemelä 2013.

REMARKS. All recent records are from *Acer platanoides*.

Fig. 13. A – *Oxyporus corticola* (Fr.) Ryvarden, B – *Oxyporus latemarginatus* (Durieu & Mont.) Donk, C – *Oxyporus populinus* (Schumach.) Donk, D – *Oxyporus ravidus* (Fr.) Bondartsev & Singer, E – *Perenniporia medulla-panis* (Jacq.) Donk, F – *Perenniporia narymica* (Pilát) Pouzar, G – *Perenniporia subacida* (Peck) Donk, H – *Phaeolus schweinitzii* (Fr.) Pat. Photo D. Karasiński (A–H).



***Oxyporus ravidus* (Fr.) Bondartsev & Singer**

Fig. 13D

SPECIMENS EXAMINED: **194D**, on *Fraxinus* fallen trunk, 30 July 2009, *Karasiński 3663* (D.K.); **314C**, on fallen trunk of deciduous tree (*Carpinus?*), 13 Sept. 2011, *Karasiński 6288* (D.K.); **340**, on *Alnus* fallen trunk, 20 Sept. 2009, *Karasiński 3663* (D.K.).

LITERATURE REPORTS: Domański 1965, 1967, Domański *et al.* 1967, Domański 1972b, 1973, Niemelä 2013.

REMARKS. This species is similar to *Oxyporus corticola*, but differs by having pileate or effused-reflexed basidiomata.

***Perenniporia medulla-panis* (Jacq.) Donk**

Fig. 13E

SPECIMENS EXAMINED: **133B**, on *Quercus* stump, 27 Apr. 2010, *Wolkowycki* (H.M.W. M-0081); **163C**, on *Quercus* stump, 12 July 2009, *Karasiński 3443* (D.K.); **194C**, on *Quercus* stump, 9 July 2009, *Karasiński 3363* (D.K.); **214D** (D.K. 11021); **221A** (H.M.W. M-0153); **226A**, on *Quercus* stump, 30 July 2009, *Karasiński 3679*(D.K.); **239A** (H.M.W. M-0111); **314C**, on *Quercus* fallen log, 13 Sept. 2011, *Karasiński 6237* (D.K.); **369B**, on *Quercus* log, 13 Sept. 2011, *Karasiński 6231* (D.K.); **374B**, on *Quercus* fallen trunk, 15 Sept. 2009, *Karasiński 4180* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus medulla panis* and *Polyporus unitus*), Błoński 1889a (as *Polyporus medulla-panis*), Domański 1965, 1967 (as *Poria medullaris*), Domański 1972b, Gierczyk *et al.* 2013, Niemelä 2013.

***Perenniporia narymica* (Pilát) Pouzar** Fig. 13F

SPECIMENS EXAMINED: **285A**, on bark of *Populus* dead standing trunk, around and on *Fomes fomentarius* dead basidiome, 15 Aug. 2009, *Karasiński 3822* (D.K.), the same locality and host tree, 19 Aug. 2009, *Karasiński 3958* (D.K.); **372B**, on decorticate *Populus* fallen trunk, 20 Aug. 2009, *Karasiński 3990* (D.K.); **402**, on *Populus* fallen trunk, 21 Sept. 2011, *Karasiński 6402* (D.K.); **402**, on *Populus* trunk, 22 Sept. 2011, *Karasiński 6445* (D.K.); **BNP**, Sierchanowski Tryb, on *Betula pubescens* standing dead tree decayed by *Fomes fomentarius*, 14 Sept. 2009, *Niemelä 8651* (KRA as *Perenniporia subacida*).

LITERATURE REPORTS: None. The species is new for the BF.

REMARKS. This species was previously reported from southeastern Poland by Domański (1973 as *Poria elongata* and *Perenniporia elongata*) based on a specimen collected in the Bieszczady National Park (KRAM F-SD 4820!). It appears to be a very rare Eurasian species associated with deciduous wood and old-growth forests. It is characterized by having annual, resupinate basidiomata, amyloid skeletal hyphae dissolving in KOH, and ellipsoidal or ovoid basidiospores $4.0\text{--}5.5 \times 3.0\text{--}3.8 \mu\text{m}$ (in specimens examined), often with a slightly concave adaxial side, negative in Melzer's reagent. The genus *Yuchengia* B. K. Cui & Steffen was recently proposed to accommodate this species (Zhao *et al.* 2013).

***Perenniporia subacida* (Peck) Donk** Fig. 13G

SPECIMENS EXAMINED: **225** (D.K. 6396); **226A** (D.K. 3692); **254D** (D.K. 3806); **256A**, on *Picea* fallen trunk, 29 July 2009, *Karasiński 3645* (D.K.); **285A** (D.K. 3954); **285A** (D.K. 5300); **314C** (D.K. 5182); **317C**, on *Picea* rotten trunk, 14 Aug. 2009, *Karasiński 3787* (D.K.); **340C** (D.K. 4320); **340G** (D.K. 4410); **346D**, on *Picea* fallen trunk, 27 July 2009, *Karasiński 3581A* (D.K.); **346D** (D.K. 4687); **374D**, on *Pinus* log, 26 July 2009, *Karasiński 3549* (D.K.); **399B**, on *Picea* fallen log, 5 July 2009, *Karasiński 3243* (D.K.).

LITERATURE REPORTS: Domański 1964b, 1965 (as *Poria subacida*), Domański 1967, Domański 1972b, Szczepkowski *et al.* 2010, Niemelä 2013.

REMARKS. This species is characterized by having very large, resupinate and perennial basidiomata, with a distinctly stratified context, strongly dextrinoid skeletal hyphae up to $5 \mu\text{m}$ in diam., slender binding hyphae, and ovoid to ellipsoidal, often weakly dextrinoid basidiospores $4.8\text{--}6.5 \times 3.8\text{--}4.6 \mu\text{m}$. In the BF it grows almost exclusively on *Picea*, once observed on *Pinus*. The species is very rare in Poland, known only from two localities – the BF and the Augustów Forest (Holec & Pouzar 1998; Wojewoda 2003).

***Phaeolus schweinitzii* (Fr.) Pat.** Fig. 13H

SPECIMENS EXAMINED: **398**, on trunk of *Picea*, 21 Sept. 2007, *Karasiński 070921-7775* (D.K.); **412A**, at base of *Pinus* dead standing trunk, 9 Sept. 2001, *Wolkowycki* (H.M.W. M-1749); **416B** (H.M.W.

M-1386); **500A** (Podolany Reserve), on the ground under *Picea*, 27 Sept. 2006, *Karasiński 060927-6068* (D.K.); **BF**, on *Picea* trunk, 29 Apr. 1960, *Domański* (KRAM F-SD 626).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus spongia*), Orłoś 1960, 1961, *Domański et al.* 1967, *Domański* 1967, *Bujakiewicz et al.* 1992, *Jaroszewicz* 1996, *Skirgiełło* 1997, *Gierczyk et al.* 2013, *Niemelä* 2013.

Phellinidium ferrugineofuscum (P. Karst.)
Fiasson & Niemelä Fig. 14A

SPECIMENS EXAMINED: **135D**, on bark of *Picea* fallen trunk, 8 July 2009, *Karasiński 3336* (D.K.); **194D** (D.K. 3665C1); **225B** (D.K. 3685); **255D** (D.K. 5218); **261A** (D.K. 3376, DK 3388 DK 3393); **285A** (D.K. 5330A); **285C** (D.K. 5287B); **314A** (D.K. 3304); **315B** (D.K. 3913); **316C** (D.K. 5260E); **318D** (D.K. 3879); **319C** (D.K. 3607); **340B** (D.K. 4223A); **340G** (D.K. 4225); **340G** (4305A); **346D** (D.K. 4679A); **369A** (D.K. 3490); **369C** (4374); **370C** (D.K. 3703D); **373D** (D.K. 4679A, DK 4994); **374D** (D.K. 3534A); **375B** (D.K. 3579); **399C**, on bark of *Picea* fallen log, 1 Nov. 2009, *Karasiński 5022* (D.K.).

LITERATURE REPORTS: *Domański* 1965, 1967, *Kotlaba & Lazebniček* 1967, *Anonymous* 1968, *Domański* 1972b, *Szczepkowski et al.* 2010, *Niemelä* 2013. All literature records are as *Phellinus ferrugineofuscus*.

REMARKS. The species is associated with dead wood of *Picea* in an early stage of decomposition. It is characterized by having annual to biennial, resupinate basidiomata with small pores 7–9 per mm, long, tramal setae, lacking hymenial setae and having allantoid basidiospores. *Phellinidium ferrugineofuscum* was collected many times during recent studies and seems to be quite common in the study area. However, in Poland it is so far not known outside the BF (Wojewoda 2003).

Phellinopsis conchata (Pers.) Y. C. Dai
Fig. 14B

SPECIMENS EXAMINED: **402B**, on *Salix caprea* fallen trunk, 26 July 2009, *Karasiński 3532* (D.K.); **414B**, on trunk of *Salix caprea*, 10 Feb. 1998, *Wolkowycki* (H.M.W. M-0881); **442B**, on *Salix caprea* fallen trunk, 10 Sept. 2004, *Wolkowycki* (H.M.W. M-3120).

LITERATURE REPORTS: Orłoś 1960 (as *Phellinus con-*

chatus), *Gierczyk et al.* 2013 (as *Phellinus conchatus*), *Niemelä* 2013 (as *Phellinus conchatus*).

REMARKS. This species appears to be rare in the study area or undercollected.

Phellinus alni (Bondartsev) Parmasto Fig. 14C

SPECIMENS EXAMINED: **123D** (D.K. 10994); **214B** (Szczekotowo Reserve), on trunk of *Carpinus* living tree, 17 Oct. 2014, *Karasiński 11005* (D.K.); **285A**, on *Carpinus* living tree, 28 Apr. 2010, *Karasiński 5326B* (D.K.); **314A**, on trunk of *Carpinus* living tree, 25 Apr. 2010, *Karasiński 5197A* (D.K.); **316C**, on *Carpinus* living tree, 27 Apr. 2010, *Karasiński 5279A* (D.K.); **438A** (H.M.W. M-0068); **439A** (Głęboki Kął Reserve), on *Alnus* fallen trunk, 14 Sept. 2005, *Karasiński 050914-7721* (D.K.).

LITERATURE REPORTS: *Niemelä* 2013.

Phellinus igniarius (L.) Quél. Fig. 14D

SPECIMENS EXAMINED: **484A** (Łozice), on trunk of *Salix fragilis* living tree, 23 March 1993, *Wolkowycki* (H.M.W. M-1027); **BF**, near bank of the Hwoźna River, on *Salix* fallen branch, 23 Sept. 1965, *Domański* (KRAM F-SD 4876).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus igniarius*), Błoński 1889a (as *Ochroporus igniarius*), *Karpiński* 1949 (as *Polyporus igniarius*), Orłoś 1951 (as *Fomes igniarius*), Orłoś 1955b, Orłoś 1960, Orłoś 1961, Orłoś & *Twarowska* 1967, *Domański et al.* 1967, *Domański* 1967, *Anonymous* 1968, *Nespiak* 1968, 1970, *Bujakiewicz et al.* 1992, *Jaroszewicz* 1996, *Grzywacz et al.* 1996, *Skirgiełło* 1997, 1998, *Bujakiewicz & Kujawa* 2010, *Gierczyk et al.* 2013, *Niemelä* 2013.

REMARKS. Some specimens given in literature reports may in fact represent other species from the *Phellinus igniarius* complex, e.g., *P. alni*, *P. nigricans* (Fr.) P. Karst. or *P. populicola* *Niemelä*. Among several specimens collected in the BF and preserved in *Domański's* herbarium only one (cited above) belongs to *Phellinus igniarius* s.str.

Phellinus laevigatus (Fr.) Bourdot & Galzin
Fig. 14E

SPECIMENS EXAMINED: **194D**, on bark of *Betula pubescens* fallen trunk, 30 July 2009, *Karasiński 3661* (D.K.); **261A**, on *Betula pendula* fallen trunk, 10 July 2009, *Karasiński 3373* (D.K.); **318B**, on *Betula* sp.

fallen trunk, 12 Aug. 2009, *Karasiński 3744c* (D.K.); **318D** (H.M.W. M-2804); **369C**, on *Betula pendula* fallen trunk, 22 Sept. 2009, *Karasiński 4381* (D.K.); **402A**, on *Betula pendula* fallen trunk, 31 Oct. 2009, *Karasiński 4972* (D.K.); **437B**, on *Betula pendula* fallen trunk, 20 May 2006, *Karasiński 060520-5131* (D.K.); **437B** (H.M.W. M-0024).

LITERATURE REPORTS: Pilát 1950, Domański 1965, 1967, 1972b, Niemelä 1972, 2013, Gierczyk *et al.* 2014.

Phellinus nigricans (Fr.) P. Karst. Fig. 14F

SPECIMENS EXAMINED: **314B**, on trunk of *Betula pendula* living tree, 18 Aug. 2009, *Karasiński 3888* (D.K.); **440**, on *Betula pendula* fallen trunk, 23 May 2006, *Karasiński 060523-5488* (D.K.).

LITERATURE REPORTS: None. This species is new for the BF.

REMARKS. This species appears to be rare in the study area and in its strict sense it was previously not reported from the BF. Among specimens of *Phellinus igniarius* s.l. deposited in KRAM F-SD there is no specimen that fit the genuine *Phellinus nigricans*.

Phellinus populicola Niemelä Fig. 14G

SPECIMENS EXAMINED: **98B** (D.K. 10980); **224B** (D.K. 3946A, DK 3950A); **256D** (D.K. 5240A); **282D**, on trunk of old *Populus* living tree, 25 July 2009, *Karasiński 3524b* (D.K.); **314B** (D.K. 3885B, 3907B); **315C** (D.K. 3928B); **316A** (D.K. 5280A); **318B**, on trunk of *Populus* living tree, 12 Aug. 2009, *Karasiński 3744e* (D.K.); **340C** (D.K. 4319C); **369A**, on trunk of *Populus* living tree, 14 July 2009, *Karasiński 3480b* (D.K.); **370A** (D.K. 4400A); **370D** (D.K. 4737); **371D** (D.K. 3252); **372D** (D.K. 3966A); **399C** (D.K. 5046); **402A**, on trunk of *Populus* living tree, 13 July 2009, *Karasiński 3479a* (D.K.); **443A** (W. Szafer Landscape Reserve), on *Populus* dead standing trunk, 23 June 2008, *Karasiński 1689* (D.K.).

LITERATURE REPORTS: Niemelä 1975, Szczepkowski *et al.* 2008, 2011, Niemelä 2013, Gierczyk *et al.* 2013, 2014.

REMARKS. This is a fairly common species

in old aspen stands. During recent studies it was recorded many times. Outside the BF it is very rare in Poland, known from only a few sites (Wojewoda 2003).

Phellinus tremulae (Bondartsev) Bondartsev & Borissov Fig. 14H

SPECIMENS EXAMINED: **98B** (D.K. 10984, D.K. 10989); **197B** (D.K. 3370D); **197D** (D.K. 3370E); **225A** (D.K. 3687A); **226A**, on trunk of *Populus* living tree, 9 July 2009, *Karasiński 3355* (D.K.); **255C** (D.K. 5242A); **256D** (D.K. 5240B); **261A**, on trunk of old *Populus* living tree, 10 July 2009, *Karasiński 3381* (D.K.); **282D** (D.K. 3527B); **315B** (D.K. 3907A); **315D** (D.K. 3921A); **315D** (D.K. 5251); **316A** (D.K. 5280), **340G** (D.K. 4224A); **342C** (D.K. 4791); **369A** (D.K. 3480C); **370B** (D.K. 4799A); **372D** (D.K. 3966C); **398G** (D.K. 3498); **399C** (D.K. 5056A); **402A** (D.K. 3479A).

LITERATURE REPORTS: Pilát 1950 (as *Phellinus igniarius* var. *tremulae*), Orłóš 1960 (as *Phellinus igniarius* var. *tremulae*), Jaroszewicz 1996, Grzywacz *et al.* 1996, Szczepkowski *et al.* 2008, Niemelä 2013, Gierczyk *et al.* 2013, 2014.

Phellinus tuberculatus (Baumq.) Niemelä

SPECIMENS EXAMINED: Białowieża village (Zastawa), on trunk of *Prunus domestica* in orchard, 20 July 1990, *Wolkowycki* (H.M.W. M-1026); Masiewo village, on *Prunus domestica* fallen branch, 16 Nov. 2006, *Wolkowycki* (H.M.W. M-0045).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. This species was observed on cultivated *Prunus domestica* L. in anthropogenic habitats outside forest.

Phellopilus nigrolimitatus (Romell) Niemelä, T. Wagner & M. Fisch. Fig. 15A

SPECIMENS EXAMINED: **254D**, on rotten wood of *Picea* fallen log, 15 Aug. 2009, *Karasiński 3804A* (D.K.); **255D** (D.K. 5217), **256A** (D.K. 3638); 256D, **257C** (D.K. 4339A); **258C** (D.K. 4361); 283C, **284B** (D.K. 3814E); **284D** (D.K. 5331); **285A** (D.K. 5314A); 285C, **288D**, on *Picea* fallen trunk, 12 Aug. 2009, *Karasiński*

Fig. 14. A – *Phellinidium ferrugineofuscum* (P. Karst.) Fiasson & Niemelä, B – *Phellinopsis conchata* (Pers.) Y. C. Dai, C – *Phellinus alni* (Bondartsev) Parmasto, D – *Phellinus igniarius* (L.) Quél., E – *Phellinus laevigatus* (Fr.) Bourdot & Galzin, F – *Phellinus nigricans* (Fr.) P. Karst., G – *Phellinus populicola* Niemelä, H – *Phellinus tremulae* (Bondartsev) Bondartsev & Borissov. Photo D. Karasiński (A–H).



3743D (D.K.); **314C** (D.K. 5175, DK 3306); **314D** (D.K. 5196B); **315A** (D.K. 3893B); **316C** (D.K. 5275); **319C** (D.K. 3748), **340B** (3278A); **340F** (D.K. 4197A1); **341B** (D.K. 4407); **341C** (D.K. 4767B); **341D** (5251B), **344A** (D.K. 3836); **344B** (D.K. 3854); **346D** (D.K. 3582); **346D** (D.K. 4688); **369A** (D.K. 3480A); **370C** (D.K. 3698D); **373B** (D.K. 3460D); **373D** (D.K. 3449A); **374C** (D.K. 3408D); **374D** (D.K. 3415B); **374D** (D.K. 3534C); **375A** (D.K. 4285A); **398G**, on *Picea* fallen trunk, 24 July 2009, *Karasiński 3498A* (D.K.); **399A** (D.K. 5028); **399B** (D.K. 5034); **399C** (D.K. 5072); **400A** (D.K. 5339A); **402B** (H.M.W. M-3654).

LITERATURE REPORTS: Pilát 1950, Orłóś 1960, Domański 1962, 1965, Domański *et al.* 1967, Domański 1967, Kotlaba & Lazebniček 1967, Anonymous 1968, Domański 1972b, Domański *et al.* 1973, Bujakiewicz *et al.* 1992, Skirgiełło 1997, Niemelä *et al.* 2001, Bujakiewicz 2003, Niemelä 2005, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Szczepkowski *et al.* 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014. All literature records (except Niemelä *et al.* 2001) are as *Phellinus nigrolimitatus*.

Physisporinus sanguinolentus (Alb. & Schwein.) Pilát Fig. 15B

SPECIMENS EXAMINED: **340A**, on rotten wood of base of dead standing *Quercus robur* trunk, 22 Sept. 2010, *Karasiński 6003* (D.K.); **340F**, on *Picea* rotten stump, 16 Sept. 2009, *Karasiński 4234* (D.K.); **340G**, on fallen branch of deciduous tree (*Fraxinus?*), 16 Sept. 2009, *Karasiński 4204a* (D.K.); **375A**, on *Picea* stump, 19 Sept. 2009, *Karasiński 4283* (D.K.); **387** (W. Szafer Landscape Reserve), on rotten trunk, 20 Sept. 2013, *Karasiński 9970* (D.K.).

LITERATURE REPORTS: Domański 1965, 1967 (as *Podoporia sanguinolenta*), Anonymous 1968 (as *Podoporia sanguinolenta*), Domański 1972b (as *Rigidoporus sanguinolentus*), Szczepkowski *et al.* 2008, Niemelä 2013 (as *Rigidoporus sanguinolentus*).

Physisporinus vitreus (Pers.) P. Karst. Fig. 15C

SPECIMENS EXAMINED: **245D**, on *Picea* fallen trunk, 12 Sept. 2011, *Karasiński 6211* (D.K.); **315B**, on rotten *Picea* fallen trunk, 18 Aug 2009, *Karasiński*

3914 (D.K.); **340B**, on rotten trunk of deciduous tree, 20 Sept. 2009, *Karasiński 4308* (D.K.).

LITERATURE REPORTS: Domański 1967 (as *Podoporia vitrea*), Gierczyk *et al.* 2013, Niemelä 2013 (as *Rigidoporus sanguinolentus*), Gierczyk *et al.* 2014.

REMARKS. Microscopically similar *Rigidoporus undatus* (Pers.) Donk has tramal cystidia with small caps of apical encrustation, smaller pores, larger basidiospores and more robust basidiomata.

Piptoporus betulinus (Bull.) P. Karst.

SPECIMENS EXAMINED: **98B**, on *Betula* dead standing trunk, 17 Oct. 2014, *Karasiński 10979* (D.K.); **375D**, on *Betula* fallen trunk, 16 Oct. 2014, *Karasiński 10974* (D.K.); **413A** (Sacharewo), on trunk of *Betula pendula*, 25 Sept. 1999, Wołkowycki (H.M.W. M-1903); **413A** (Sacharewo), on trunk of *Betula pubescens*, 10 Oct. 1998, Wołkowycki (H.M.W. M-1236); **463D** (Bereźniaki), on trunk of *Betula pendula*, 16 March 1993, Wołkowycki (H.M.W. M-1098).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus betulinus*), Błoński 1889a (as *Polyporus betulinus*), Siemaszko 1925 (as *Polyporus betulinus*), Karpiński 1949 (as *Polyporus betulinus*), Nespiać 1956 (as *Polyporus betulinus*), Orłóś 1960, 1961, Domański 1967, Anonymous 1968, Nespiać 1968, Skirgiełło 1976, Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Grzywacz *et al.* 1996, Skirgiełło 1997, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Polyporus arcularius (Batsch) Fr. Fig. 15D

SPECIMENS EXAMINED: **226A**, on *Corylus avellana* fallen branch, 30 July 2009, *Karasiński 3672* (D.K.); **316C**, on *Carpinus* fallen branch, 27 Apr. 2010, *Karasiński 5282* (D.K.); **BF**, on hardwood, 1 May. 1959, Domański (KRAM F-SD 611); **BF**, on *Carpinus* fallen trunk, 28 Oct. 1956, Domański (KRAM F-SD 610).

LITERATURE REPORTS: Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Skirgiełło 1997, Orłóś 1960 (as *Polyporellus arcularius*), Bujakiewicz & Kujawa 2010, Niemelä 2013.

Fig. 15. A – *Phellopilus nigrolimitatus* (Romell) Niemelä, T. Wagner & M. Fisch., B – *Physisporinus sanguinolentus* (Alb. & Schwein.) Pilát, C – *Physisporinus vitreus* (Pers.) P. Karst., D – *Polyporus arcularius* (Batsch) Fr., E – *Polyporus badius* (Pers.) Schwein., F – *Polyporus ciliatus* Fr., G – *Polyporus melanopus* (Pers.) Fr., H – *Polyporus tuberaster* (Jacq.) Fr. Photo D. Karasiński (A–H).



Polyporus badius (Pers.) Schwein. Fig. 15E

SPECIMENS EXAMINED: **214A** (H.M.W. M-1473); **369A**, on fallen branch of deciduous tree, 14 July 2009, *Karasiński 3481C* (D.K.); **398B**, on *Ulmus* sp. fallen trunk, 14 Aug. 2009, *Karasiński 3799* (D.K.); **413B** (H.M.W. M-1645); **572** (Michnówka Reserve), on deciduous fallen trunk, 24 May 2006, *Karasiński 060524-5518* (D.K.); **414D** (H.M.W. M-1458); **487B** (H.M.W. M-1624); **633C** (H.M.W. M-0927).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus picipes*), Błoński 1889a (as *Polyporus picipes*), Siemaszko 1923 (as *Polyporus picipes*), Orłoś 1951 (as *Polyporus picipes*), Nespiak 1959 (as *Polyporus picipes*), Orłoś 1960, 1961 (as *Polyporellus picipes*), Domański *et al.* 1967 (as *Polyporus picipes*), Domański 1967 (as *Polyporus picipes*), Anonymous 1968 (as *Polyporus picipes*), Nespiak 1968 (as *Polyporus picipes*), Domański *et al.* 1973, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996 (as *Polyporus picipes*), Skirgiełło 1997, 1998, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Polyporus brumalis (Pers.) Fr.

SPECIMENS EXAMINED: **214D** (D.K. 11018); **272D** (H.M.W. M-0555); **306A** (H.M.W. M-0915); **329D** (H.M.W. M-0738); **334D** (H.M.W. M-0921); **355A** (H.M.W. M-0906); **356A**, on *Corylus* fallen trunk, 12 Dec. 1992, *Wolkowycki* (H.M.W. M-0898); **362A** (H.M.W. M-0903); **367C** (H.M.W. M-0883); **383A** (H.M.W. M-0889); **384B** (H.M.W. M-0894); **385A** (H.M.W. M-0922); **402A** (H.M.W. M-0577); **403A** (H.M.W. M-0919); **404C** (H.M.W. M-0900); **413B** (H.M.W. M-1861); **414A** (H.M.W. M-1862); **416C** (H.M.W. M-0878); **437D** (H.M.W. M-1871); **438A** (H.M.W. M-1298); **439D** (H.M.W. M-3047); **440A** (H.M.W. M-0908); **461B** (H.M.W. M-0977); **462B** (H.M.W. M-0910); **463D** (H.M.W. M-0231); **464A** (H.M.W. M-0892); **466C** (H.M.W. M-0252); **476A** (H.M.W. M-0193); **486B** (H.M.W. M-0913); **488C** (H.M.W. M-0975); **501C** (H.M.W. M-0905); **537B** (H.M.W. M-0904); **575A** (H.M.W. M-2817); **596C** (H.M.W. M-0885); **628B** (H.M.W. M-0891); **632A** (H.M.W. M-0917); **661B** (H.M.W. M-0736); **694C** (H.M.W. M-0887); **725A** (H.M.W. M-0739); **BF**, on rotten hardwood, 1 May 1959, *Domański* (KRAM F-SD 2691 as *Polyporus subarcularius*); **BF**, on fallen branch of deciduous tree, 29 Apr. 1960, *Domański* (KRAM F-SD 1262 as *Polyporus subarcularius*).

LITERATURE REPORTS: Błoński *et al.* 1888, Błoński

1889a (as *Polyporus fuscidulus*), Nespiak 1959, Orłoś 1960 (as *Polyporellus brumalis*), Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Skirgiełło 1997, Niemelä 2013.

Polyporus ciliatus Fr. Fig. 15F

SPECIMENS EXAMINED: **340D**, on *Tilia* fallen branch, 6 July 2009, *Karasiński 3275* (D.K.); **384D** (H.M.W. M-0974); **412D**, on well-rotted wood remnants, 7 July 2003, *Wolkowycki* (H.M.W. M-3015); **437B** (H.M.W. M-0040); **442B** (H.M.W. M-2013); **513B** (H.M.W. M-1427).

LITERATURE REPORTS: Domański *et al.* 1967, Domański 1967, Domański *et al.* 1973, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Jaroszewicz 1996, Skirgiełło 1997, 1998, Bujakiewicz & Kujawa 2010.

Polyporus melanopus (Pers.) Fr. Fig. 15G

SPECIMENS EXAMINED: **261A**, on well rotted trunk of deciduous tree covered by mosses, 10 July 2009, *Karasiński 3382* (D.K.); **282D**, on fallen twig of deciduous tree, 25 July 2009, *Karasiński 3524a* (D.K.); **313B**, on fallen deciduous twig, 25 July 2009, *Karasiński 3524b* (D.K.).

LITERATURE REPORTS: Domański *et al.* 1967, 1973, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Skirgiełło 1997, Niemelä 2013.

Polyporus squamosus (Huds.) Fr.

SPECIMENS EXAMINED: **412D**, on *Corylus avellana* fallen trunk, 7 July 2003, *Wolkowycki* (H.M.W. M-3013); **414D**, on fallen trunk, 3 June 2001, *Wolkowycki* (H.M.W. M-2055); **485B**, on fallen trunk, 11 June 2003, *Wolkowycki* (H.M.W. M-3012); **BF**, on *Acer* trunk, 9 Aug. 1962, *Domański* (KRAM F-SD 4198).

LITERATURE REPORTS: Błoński *et al.* 1888, Błoński 1889a, Karpiński 1949, Orłoś 1960 (as *Polyporellus squamosus*), Domański 1967, Bujakiewicz *et al.* 1992, Skirgiełło 1997, 1998, Niemelä 2013, Gierczyk *et al.* 2014.

Polyporus tuberaster (Jacq.) Fr. Fig. 15H

SPECIMENS EXAMINED: **226**, on fallen branch of deciduous tree, 2001, *Bujakiewicz* (KRAM); **313A**, on very rotten wood of deciduous tree, 25 July 2009, *Karasiński 3505* (D.K.); **369A**, on *Acer platanoides* fallen trunk, 14 July 2009, *Karasiński 3481b* (D.K.); **464C**, on *Salix caprea* fallen trunk, 22 Aug. 1999, *Wolkowycki* (H.M.W. M-1396); **BF**, on *Carpinus* fallen

branch, 10 June 1966, *Domański* (KRAM F-SD 4993 as *Polyporus coronatus*).

LITERATURE REPORTS: *Domański* 1967 (as *Polyporus coronatus*), *Domański et al.* 1973 (as *Polyporus floccipes*), *Bujakiewicz* 2003, *Szczepkowski et al.* 2008, *Bujakiewicz & Kujawa* 2010, *Niemelä* 2013.

Polyporus umbellatus (Pers.) Fr.

SPECIMENS EXAMINED: **319C**, on the ground under *Carpinus*, *Quercus* and *Tilia*, 13 Aug. 2009, *Karasiński* 3761 (D.K.).

LITERATURE REPORTS: *Błoński et al.* 1888 (as *Polyporus umbellatus*), *Błoński* 1889a (as *Polyporus ramosissimus*), *Orłoś* 1955b, *Domański et al.* 1967 (as *Grifola umbellata*), *Domański et al.* 1973, *Skirgiełło* 1976 (as *Grifola umbellata*), *Bujakiewicz et al.* 1992 (as *Grifola umbellata*), *Skirgiełło* 1997 (as *Grifola umbellata*), *Niemelä* 2013.

Polyporus varius (Pers.) Fr.

SPECIMENS EXAMINED: **356C**, on *Salix caprea*, 23 Apr. 1993, *Wolkowycki* (H.M.W. M-0926); **439C** (in the vicinity of Głębokki Kał Reserve), on wood, 26 Nov. 2003, *Wolkowycki* (H.M.W. M-3050).

LITERATURE REPORTS: *Błoński et al.* 1888 (as *Polyporus elegans* and *P. varius*), *Błoński* 1889a (as *Polyporus elegans* and *P. varius*), *Domański et al.* 1967 (as *Polyporus varius* var. *nummularius*), *Domański* 1967, Anonymous 1968, *Nespiak* 1968, *Jaroszewicz* 1996, *Skirgiełło* 1998, *Bujakiewicz & Kujawa* 2010, *Niemelä* 2013 (as *Polyporus leptocephalus*).

Porodaedalea chrysoloma ((Fr.) Fiasson & Niemelä Fig. 16A

SPECIMENS EXAMINED: **158B**, on *Picea* fallen trunk, 20 Sept. 2007, *Karasiński* 070920-1 (D.K.); **226A** (D.K.3678); **239A** (H.M.W. M-0110); **257D**, ca 30 basidiomata on trunk of *Picea* living tree, 21 Sept. 2009, *Karasiński* 4345 (D.K.); **313B** (D.K. 3516); **316** (D.K. 5256); **334D** (H.M.W. M-1057); **346D**, on *Picea* branch, 13 Oct. 2009, *Karasiński* 4694 (D.K.); **373D** (D.K. 4997); **399A**, in necrotic depression on trunk of *Picea* living tree, 4 July 2009, *Karasiński* 3242 (D.K.); **438A** (H.M.W. M-1056); **439A** (H.M.W. M-3591); **463B** (H.M.W. M-1493); **488C** (H.M.W. M-1029); **572** (Michnówka Reserve), on *Picea* stump, 24 May 2006, *Karasiński* 060524-5548 (D.K.).

LITERATURE REPORTS: *Siemaszko* 1923 (by mis-

take as *Polyporus annosus*, misidentification revised in *Siemaszko* 1925 as *Trametes abietis*), *Pilát* 1950 (as *Phellinus abietis*), *Domański et al.* 1967 (as *Phellinus pini* var. *abietis*), *Domański* 1967 (as *Phellinus pini* var. *abietis*), *Domański* 1972b (as *Phellinus chrysoloma*), *Szczepkowski et al.* 2008 (as *Phellinus chrysoloma*), *Niemelä* 2013 (as *Phellinus chrysoloma*).

Porodaedalea pini (Brot.) Murrill Fig. 16B

SPECIMENS EXAMINED: **130**, on trunk of *Pinus* living tree, 14 Sept. 2009, *Karasiński* 4109a (D.K.); **224D**, on *Pinus* living tree of, 19 Aug. 2009, *Karasiński* 3945a (D.K.); **255** (D.K. 5233) **260C**, on trunk of *Pinus* living tree, 10 July 2009, *Karasiński* 3371 (D.K.); **272D** (H.M.W. M-1059); **285** (D.K. 5299A); **318B** (D.K. 3744F); **374C** (D.K. 4165); **375A** (D.K. 4282A); **375A** (D.K. 4286A).

LITERATURE REPORTS: *Błoński et al.* 1888 (as *Trametes pini*), *Karpiński* 1949 (as *Trametes pini*), *Pilát* 1950, *Orłoś* 1955b, 1960, 1961, *Orłoś & Twarowska* 1967, *Domański et al.* 1967, *Domański* 1967, Anonymous 1968, *Jaroszewicz* 1996, *Grzywacz et al.* 1996, *Szczepkowski et al.* 2008, *Bujakiewicz & Kujawa* 2010, *Szczepkowski et al.* 2011, *Niemelä* 2013. All literature records since 1950 published as *Phellinus pini*.

Porotheleum fimbriatum (Pers.) Fr. Fig. 16C

SPECIMENS EXAMINED: **98B**, on *Betula* fallen trunk, 17 Oct. 2014, *Karasiński* 10981 (D.K.); **402B**, on *Populus* fallen log, 26 July 2009, *Karasiński* 3530 (D.K.); **451B** ('Żebra Żubra' tract), on bark of *Populus* fallen trunk, 20 Sept. 2007, *Karasiński* 070920-1 (D.K.).

LITERATURE REPORTS: *Pilát* 1950, *Domański* 1967 (as *Stromatoscypha fimbriata*).

Porpomyces mucidus (Pers.) Jülich Fig. 16D

SPECIMENS EXAMINED: **226A**, on very rotten *Picea* stump, 11 Oct. 2009, *Karasiński* 4578 (D.K.); **255D**, on strongly decayed *Picea* log, 14 Aug. 2009, *Karasiński* 3768 (D.K.); **314C**, on well-rotted deciduous log (*Fraxinus?*), 25 Apr. 2010, *Karasiński* 5173 (D.K.); **315D**, on rotten *Picea* fallen trunk, 27 Apr. 2010, *Karasiński* 5251a (D.K.); **343D**, on well-rotted *Picea* fallen trunk, 16 Aug. 2009, *Karasiński* 3849 (D.K.); **346D**, on very rotten *Picea* fallen trunk, 13 Oct. 2009, *Karasiński* 4681 (D.K.); **370C**, on well-rotted stump of deciduous tree, 10 Aug. 2009, *Karasiński* 3704 (D.K.); **374B**, on rotten *Acer platanoides* fallen trunk, 15 Sept. 2009, *Karasiński* 4181 (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus mucidus*), Domański 1965 (as *Fibuloporia mollusca*), Domański 1972b (as *Fibuloporia donkii*), Szczepkowski *et al.* 2008 (as *Ceriporiopsis mucida*), Niemelä 2013, Gierczyk *et al.* 2014 (as *Ceriporiopsis mucida*).

Postia alni Niemelä & Vampola Fig. 16E

SPECIMENS EXAMINED: **260D**, on *Populus* fallen trunk, 12 Oct. 2009, *Karasiński* 4622 (D.K.); **284B**, on *Carpinus* fallen trunk, 15 Aug. 2009, *Karasiński* 3800E (D.K.); **285C**, on *Corylus avellana* fallen branch, 28 Apr. 2010, *Karasiński* 5330 (D.K.); **370A**, on *Populus* fallen trunk, 22 Sept. 2009, *Karasiński* 4393 (D.K.); **370C**, on *Populus* fallen trunk, 22 Sept. 2009, *Karasiński* 4405 (D.K.); **385D** (H.M.W. M-1367); **439D** (H.M.W. M-2042); **500C** (Podolany Reserve), on *Corylus avellana* fallen branch, 27 Sept. 2006, *Karasiński* 060927-6035 (D.K.).

LITERATURE REPORTS: Jaroszewicz 1996 (as *Tyromyces subcaesius*), Szczepkowski *et al.* 2008 (as *Oligoporus alni*), Niemelä 2013, Gierczyk *et al.* 2014.

Postia caesia (Schrad.) P. Karst. Fig. 16F

SPECIMENS EXAMINED: **214D** (Szczekotowo Reserve), on *Picea* fallen trunk, 17 Oct. 2014, *Karasiński* 11003 (D.K.); **375D** (D.K. 10952); **413A** (H.M.W. M-1889); **413D** (Sacharewo), on *Picea* fallen trunk, 25 Sept. 1994, *Wolkowycki* (H.M.W. M-1888); **439A** (H.M.W. M-0075); **462B** (H.M.W. M-1745); **489** (in the vicinity of Nieznanowo Reserve), on *Pinus* stump, 24 Sept. 2006, *Karasiński* 060924-5609 (D.K.); **572A** (Michnówka Reserve), on *Picea* fallen trunk, 19 Sept. 2004, *Wolkowycki* (H.M.W. 3112); **730A** (Starzyna Reserve), on *Picea*, 23 Sept. 2004, *Wolkowycki* (H.M.W. 3125); **BNP**, SE part, west of Dziedzinka house, on *Picea* big fallen tree, 12 Oct. 2008, *Niemelä* 8457 (KRA).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus caesius*), Bujakiewicz *et al.* 1992 (as *Tyromyces caesius*), Orłoś 1960, 1961 (as *Leptoporus caesius*), Domański 1967 (as *Tyromyces caesius*), Anonymous 1968 (as *Tyromyces caesius*), Bujakiewicz 1994 (as *Tyromyces caesius*), Skirgiełło 1997 (as *Tyromyces caesius*), Skirgiełło 1998 (as *Postia caesia*), Szczepkowski *et al.* 2008 (as *Oligoporus caesius*), Bujakiewicz

& Kujawa 2010 (as *Oligoporus caesius*), Gierczyk *et al.* 2013, Niemelä 2013.

Postia ceriflua (Berk. & M. A. Curtis) Jülich Fig. 16G

SPECIMENS EXAMINED: **285C**, on dead standing *Pinus* trunk, 21 Sept. 2010, *Karasiński* 5953 (D.K.); **288D**, on *Picea* rotten stump, 22 Sept. 2011, *Karasiński* 6448 (D.K.); **369D**, on rotten *Pinus* log, 16 Sept. 2009, *Karasiński* 3957 (D.K.); **369D**, on rotten *Pinus* log, 13 Sept. 2011, *Karasiński* 6230 (D.K.); **373**, on *Quercus* fallen trunk, 26 July 2009, *Karasiński* 3541 (D.K.); **374C**, on *Quercus* fallen trunk, 10 Aug. 2009, *Karasiński* 3713 (D.K.); **374C**, on *Quercus* fallen trunk, 21 Sept. 2011, *Karasiński* 6408 (D.K.); **374D**, on rotten *Pinus* log, 23 Sept. 2010, *Karasiński* 6008 (D.K.); **374C**, on *Pinus* fallen log, 21 Sept. 2011, *Karasiński* 6404 (D.K.).

LITERATURE REPORTS: Niemelä 2013.

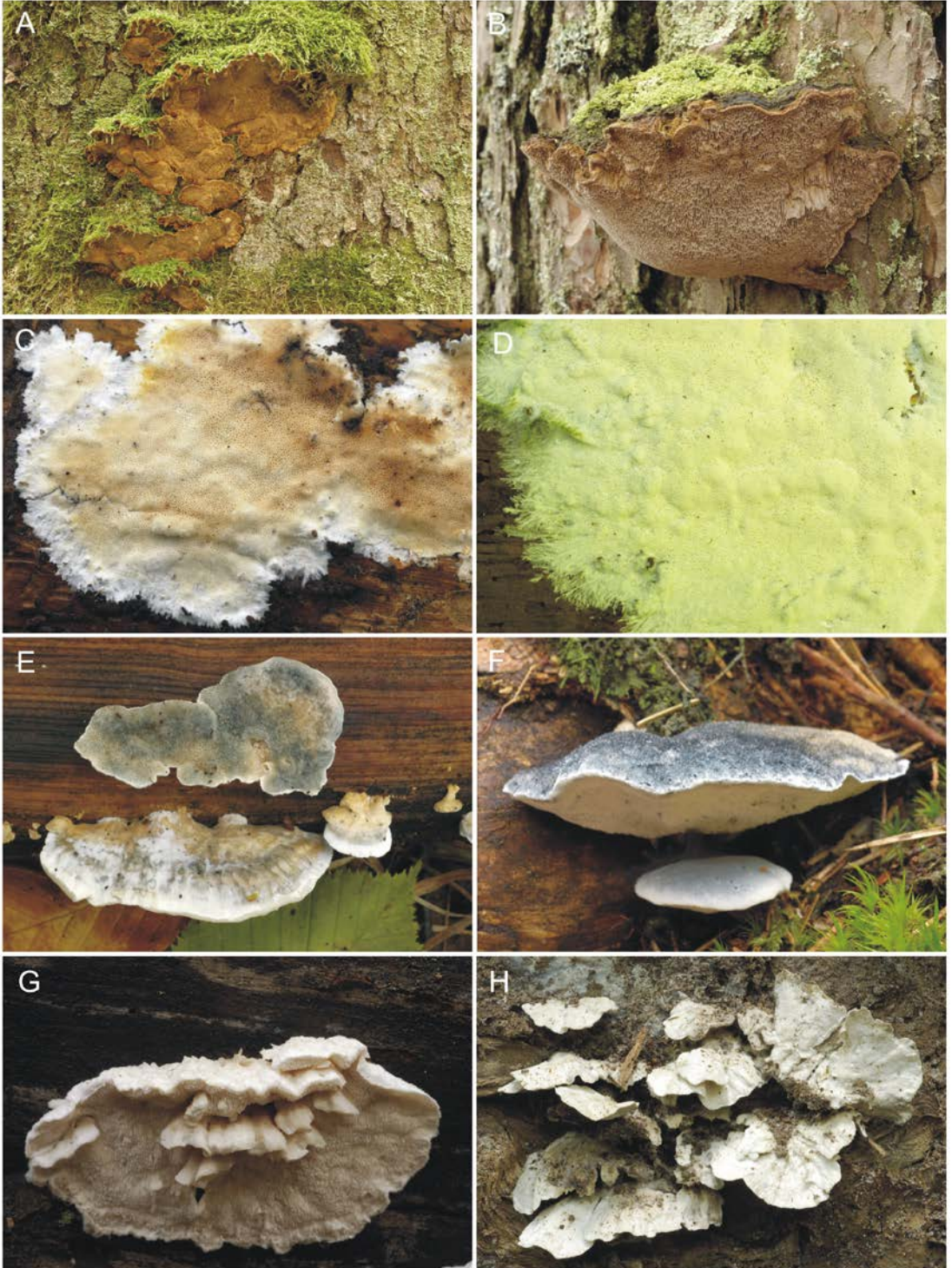
REMARKS. According to Wojewoda (2003) this species was reported from Poland by Ryvarden and Gilbertson (1994) ‘on map of Europe, without localities’, but this is a mistake made by Wojewoda (see Ryvarden & Gilbertson 1994: 407).

Postia floriformis (Quél.) Jülich Fig. 16H

SPECIMENS EXAMINED: **254D**, on roots of *Picea* fallen trunk, 12 Sept. 2011, *Karasiński* 6218 (D.K.); **412C**, at base of *Picea* dead standing tree, 9 Sept. 2001, *Wolkowycki* (H.M.W. M-1576); **BF**, on *Picea* trunk, 18 Sept. 1960, Domański (KRAM F-SD 946, as *Tyromyces floriformis*); **BF**, on *Picea* trunk, 26 Aug. 1956, Domański (KRAM F-SD 535, *Tyromyces floriformis*); **BF**, on *Picea* trunk, 17 Sept. 1960, Domański (KRAM F-SD 947, *Tyromyces floriformis*); **BF**, on deciduous trunk, 5 Aug. 1962, Domański (KRAM F-SD 2245, *Tyromyces floriformis*); **BF**, on *Tilia* sp. trunk, 6 Aug. 1962, Domański (KRAM F-SD 2246, *Tyromyces floriformis*); **BNP**, Dyrekcyjny Tryb, on *Picea* fallen big trunk, 15 Sept. 2009, *Niemelä* 8655 (KRAM F-58161).

LITERATURE REPORTS: Domański *et al.* 1967 (as *Tyromyces floriformis*), Domański 1967 (as *Tyromyces floriformis*), Domański *et al.* 1973 (as *Tyromyces floriformis*), Niemelä 2013.

Fig. 16. A – *Porodaedalea chrysoloma* (Fr.) Fiasson & Niemelä, B – *Porodaedalea pini* (Brot.) Murrill, C – *Porotheleum fibriatum* (Pers.) Fr., D – *Porpomyces mucidus* (Pers.) Jülich, E – *Postia alni* (Pers.) Jülich, F – *Postia caesia* (Schrad.) P. Karst., G – *Postia ceriflua* (Berk. & M. A. Curtis) Jülich, H – *Postia floriformis* (Quél.) Jülich. Photo D. Karasiński (A–H).



Postia folliculocystidiata (Kotl. & Vampola)

Niemelä & Vampola

Fig. 17A

SPECIMENS EXAMINED: **373C**, *Picea* fallen trunk, 24 Apr. 2009, *Karasiński 2916* (D.K.).

LITERATURE REPORTS: None. This species is new for Poland.

REMARKS. This is possibly a very rare species in Europe, characterized by having small pendent basidiomata attached to the substrate in one point, and large, pyriform, capitate or broadly clavate hymenial cystidia distinctly projecting above the basidia. According to Ryvarden and Melo (2014) *Oligoporus folliculocystidiatus* Kotl. & Vampola (= *Postia folliculocystidiata*) and *Leptoporus minusculoides* Pilát ex Pilát [= *Postia minusculoides* (Pilát ex Pilát) Boulet] are synonyms of *Postia ceriflua*. However, on the basis of materials recently collected in the BF, all represent distinct species. See also Vampola *et al.* (2014).

Postia fragilis (Fr.) Jülich

Fig. 17B

SPECIMENS EXAMINED: **135C**, on *Picea* fallen trunk, 8 July 2009, *Karasiński 3339e* (D.K.); **226A**, on *Picea* fallen trunk, 30 July 2009, *Karasiński 3680* (D.K.); **272** (Lipiny Reserve), on *Picea* stump, 26 Sept 2006, *Karasiński 060926-5897* (D.K.); **374C**, on *Pinus* log, 21 Aug. 2009, *Karasiński 3994* (D.K.); **398C**, on *Picea* fallen trunk, 18 Sept. 2009, *Karasiński 4259* (D.K.); **442D** (H.M.W. M-2140); **572A** (H.M.W. M-3108); **698** (Starzyna Reserve), on *Picea* stump, 28 Sept. 2006, *Karasiński 060928-6156* (D.K.).

LITERATURE REPORTS: Domański *et al.* 1967 (as *Tyromyces fragilis*), Domański 1967 (as *Tyromyces fragilis*), Anonymous 1968 (as *Tyromyces fragilis*), Domański *et al.* 1973 (as *Tyromyces fragilis*), Szczepkowski *et al.* 2008 (as *Oligoporus fragilis*), Niemelä 2013.

Postia guttulata (Peck) Jülich

Fig. 17C

SPECIMENS EXAMINED: **105B** (D.K. 3440); **111B** (D.K. 3370C); **135C** (D.K. 3342C); **135D**, on *Picea* trunk, 8 July 2009, *Karasiński 3340* (D.K.); **224B** (D.K. 3948A); **224B** (D.K. 3952A); **226A** (D.K.3687F); **254D**

(D.K. 3804B); **255D** (D.K. 3653), **257D**, on *Picea* stump, 21 Sept. 2009, *Karasiński 4342* (D.K.); **261A** (D.K. 3375), **285A**, on *Picea* fallen trunk, 29 July 2009, *Karasiński 3617D* (D.K.); **285A** (H.M.W. M-3660); **285C** (D.K.5299C), **287C** (D.K. 3779); **289C** (D.K. 3746B); **315B** (D.K. 3913E); **316B** (D.K. 3789A); **318B** (D.K. 3744G); **319C** (D.K. 3614); **340A** (D.K. 4227A); **340C** (D.K. 4319); **342C** (D.K. 4787B); **345A** (D.K. 3718F); **374D** (D.K. 4196A); **375A** (D.K. 4279B); **402** (D.K. 3965B); **402B** (H.M.W. M-3649); **417D** (H.M.W. M-3109); **698** (Starzyna reserve), on *Picea* stump, 28 Sept. 2006, *Karasiński 060928-6172* (D.K.).

LITERATURE REPORTS: Domański 1967 (as *Tyromyces guttulatus*), Anonymous 1968 (as *Tyromyces stipticus* f. *guttulatus*), Domański *et al.* 1973 (as *Tyromyces guttulatus*), Niemelä 1978a (as *Tyromyces guttulatus*), Szczepkowski *et al.* 2008 (as *Oligoporus guttulatus*), Karasiński *et al.* 2009, Szczepkowski *et al.* 2010 (as *Oligoporus guttulatus*), Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species is rather common in the BF on stumps and fallen trunks of *Picea*. In Poland the species has not been so far recorded outside the BF (Wojewoda 2003).

Postia lactea (Fr.) P. Karst.

Fig. 17D

SPECIMENS EXAMINED: **226A**, on *Pinus* log, 11 Oct. 2009, *Karasiński 4573* (D.K.); **370**, on *Populus* fallen log, 22 Sept. 2009, *Karasiński 4404* (D.K.); **437A** (Sacharewo), on fallen coniferous trunk, 26 Aug. 2003, *Wolkowycki* (H.M.W. M-3023).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus lacteus*), Pilát 1950 (as *Leptoporus lacteus*), Orłóš 1960, 1961 (as *Leptoporus lacteus*), Domański *et al.* 1967 (as *Tyromyces lacteus*), Kotlaba & Lazebniček 1967 (as *Tyromyces lacteus*), Anonymous 1968 (as *Tyromyces lacteus*), Domański *et al.* 1973 (as *Tyromyces lacteus*), Bujakiewicz *et al.* 1992 (as *Tyromyces lacteus*), Skirgiełło 1997 (as *Tyromyces lacteus*).

REMARKS. *Postia lactea* is similar to *P. tephroleuca* (Fr.) Jülich and *P. stiptica* (Pers.) Jülich but differs in having context without the bitter taste that characterizes the latter species, and in

Fig. 17. A – *Postia folliculocystidiata* (Kotl. & Vampola) Niemelä & Vampola (dried specimen D.K. 2916), B – *Postia fragilis* (Fr.) Jülich, C – *Postia guttulata* (Peck) Jülich, D – *Postia lactea* (Fr.) P. Karst., E – *Postia leucomallella* (Murrill) Jülich, F – *Postia lowei* (Pilát ex Pilát) Jülich, G – *Postia luteocaesia* (A. David) Jülich (photographed in Kampinos National Park, central Poland), H – *Postia minusculoides* (Pilát ex Pilát) Boulet. Photo D. Karasiński (A–H).



having a pure white pileal surface in contrast to the mouse-grey pileal surface of the former species. The hymenial parasite *Tremella polyporina* D. A. Reid was found inside the tubes of specimen *Karasiński 4404*.

Postia lateritia Renvall

SPECIMENS EXAMINED: **BF**, on *Picea*, 28 Aug. 1956, *Domański* (KRAM F-SD 5374 as *Tyromyces fragilis*); **370C**, Poprzeczny Tryb, east of 'Mogiłki' graves, on decorticate *Picea* fallen trunk, 9 Sept. 2009, *Niemelä 8571* (KRAM F-58165).

LITERATURE REPORTS: *Niemelä 2013*.

REMARKS. This species is similar to *Postia fragilis* and is easily confused with it. It was previously known only from Northern Europe (Fennoscandia) and one locality in Spain (*Renvall 1992*; *Ryvarden & Melo 2014*). One specimen preserved in KRAMF-SD, originally identified by *Domański* as *Tyromyces fragilis*, very well fits the species concept of *Postia lateritia*. It has basidiospores $4.8\text{--}6.2 \times 1.2\text{--}1.4 \mu\text{m}$, that is, more allantoid and narrower than in *P. fragilis*. The latter has basidiospores $1.6\text{--}2.2 \mu\text{m}$ wide. Another species similar to *P. lateritia* is *P. leucomallella* (*Murrill*) *Jülich*, which has almost identical basidiospores but forms hymenial gloecystidia.

Postia leucomallella (*Murrill*) *Jülich* Fig. 17E

SPECIMENS EXAMINED: **135C**, on *Pinus* fallen trunk, 8 July 2009, *Karasiński 3342b* (D.K.); **284C**, **340**, on *Pinus* fallen log, 16 Sept. 2009, *Karasiński 4229* (D.K.); **374**, on *Pinus* fallen log, 26 July 2009, *Karasiński 3542* (D.K.); **387** (W. Szafer Landscape Reserve), on *Pinus* log, 20 Sept. 2013, *Karasiński 10099B* (D.K.); **398B**, on *Picea*, 31 Oct. 2001, *Wolkowycki* (H.M.W. M-2181); **698** (Starzyna Reserve), on *Pinus* trunk, *Piątek s.n.* (D.K. 6625).

LITERATURE REPORTS: Anonymous 1968 (as *Tyromyces gloecystidiatus*), *Niemelä 2013*.

Postia lowei (*Pilát ex Pilát*) *Jülich* Fig. 17F

SPECIMENS EXAMINED: **226A**, on *Picea* fallen log, 20 Sept. 2011, *Karasiński 6376* (D.K.); **257C**, on *Picea* rotten trunk, 21 Sept. 2009, *Karasiński 4331* (D.K.); **284D**, on *Picea* fallen trunk, 13 Sept. 2011, *Karasiński 6286* (D.K.); **316B**, on *Picea* fallen trunk, 14 Aug. 2009,

Karasiński 3798 (D.K.); **375B**, on *Picea* fallen trunk, 27 July 2009, *Karasiński 3576* (D.K.); **375D**, on well rotten *Picea* fallen trunk, 13 Oct. 2009, *Karasiński 4669* (D.K.); **375D** (D.K. 10962); **402A**, on rotten *Picea* fallen trunk, 23 Sept. 2007, *Karasiński 070923-8154* (D.K.).

LITERATURE REPORTS: *Domański 1964a*, 1965, *Domański et al. 1967*, *Domański 1967*, *Kotłaba & Lazebniček 1967*, Anonymous 1968, *Domański 1972b*, *Domański et al. 1973*, *Skirgiełło 1998*, *Niemelä 2013*, *Vampola et al. 2014*. All literature reports (except *Niemelä 2013*; *Vampola et al. 2014*) published as *Tyromyces lowei*.

REMARKS. An excellent description of the species and an extensive discussion of the features differentiating it from all similar and related species are provided by *Vampola et al. (2014)*.

Postia luteocaesia (*A. David*) *Jülich* Fig. 17G

LITERATURE REPORTS: *Niemelä 2013*.

REMARKS. This species was reported by *Niemelä (2013)* without a precise locality. We did not find it in the BF.

Postia minusculoides (*Pilát ex Pilát*) *Boulet* Fig. 17H

SPECIMENS EXAMINED: **374C**, inside hollow of very rotten *Picea* fallen big log, 21 Aug. 2009, *Karasiński 3997* (D.K.); **374C**, in cavities on very rotten trunk of coniferous tree, 21 Sept. 2011, *Karasiński 6412* (D.K.).

LITERATURE REPORTS: None. This species is new for Poland.

REMARKS. This species is characterized by having minute pendent basidiomata, thin-walled hyphae in both context and tube trama, numerous slender fusoid cystidioles in the hymenium, and narrowly ellipsoidal to short-cylindrical basidiospores $4.2\text{--}5.2 \times 2.4\text{--}2.6 \mu\text{m}$ (in specimens studied). *Postia minusculoides* is considered by some mycologists (e.g., *Ryvarden & Gilbertson 1994*, *Ryvarden & Melo 2014*) to be a synonym of *P. ceriflua*, which indeed has basidiospores similar in shape and size but differs by having larger and usually effused-reflexed or even pileate basidiomata, the absence of cystidioles in the hymenium, and the presence of thick-walled hyphae in the context and trama of tubes.

Postia stiptica (Pers.) Jülich

SPECIMENS EXAMINED: **314C**, at base of *Quercus*(!) dead standing trunk, 13 Sept. 2011, *Karasiński 6240* (D.K.); **370C**, on *Picea* stump, 4 July 2009, *Karasiński 3228A* (D.K.); **399**, on *Picea*, 31 Aug. 1973, *Wojewoda s.n.* (KRAM F-58162); **486A** (Nieznany Bór), on fallen trunk, 11 June 2003, *Wolkowycki* (H.M.W. M-3024); **697B** (Starzyna Reserve), at base of *Picea* living tree, 28 Sept. 2006, *Karasiński 060928-6166* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus albidus*), Błoński 1889a (as *Polyporus alutaceus*), Domański 1960 (as *Leptoporus albidus*), Orłoś 1960, 1961 (as *Leptoporus stipticus*), Bujakiewicz 1994 (as *Tyromyces stipticus*), Domański *et al.* 1967 (as *Tyromyces stipticus*), Domański 1967 (as *Tyromyces stipticus*), Anonymous 1968 (as *Tyromyces stipticus*), Bujakiewicz *et al.* 1992 (as *Tyromyces stipticus*), Bujakiewicz 1994 (as *Tyromyces stipticus*), Skirgiełło 1997 (as *Tyromyces stipticus*), Szczepkowski *et al.* 2008 (as *Oligoporus stipticus*), Bujakiewicz & Kujawa 2010 (as *Oligoporus stipticus*), Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species differs from similar species such as *P. lactea* and *P. tephroleuca* by having a strongly bitter taste and wider, slightly shorter basidiospores.

Postia tephroleuca (Fr.) Jülich

SPECIMENS EXAMINED: **225D**, on fallen trunk of deciduous tree (*Quercus*?), 20 Sept. 2011, *Karasiński 6391* (D.K.); **369D**, on *Picea* fallen trunk, 18 Sept. 2011, *Karasiński 6330* (D.K.); **374D**, on *Pinus* fallen log, 12 Aug. 2009, *Karasiński 3731* (D.K.); **375A**, on *Picea* fallen trunk, 19 Sept. 2009, *Karasiński 4280* (D.K.); **BNP**, Masiewski Tryb, north of Dzedzinka house, on *Populus*, 15 Oct. 2008, *Niemelä 8500* (KRA).

LITERATURE REPORTS: Bujakiewicz *et al.* 1992, Skirgiełło 1997, Szczepkowski *et al.* 2008 (as *Oligoporus tephroleucus*), Niemelä 2013.

REMARKS. The specimens collected in the BF on coniferous wood differ from those on hardwoods by having a more strigose pileal surface and a thinner context.

Pycnoporellus alboluteus (Ellis & Everh.) Kotl. & Pouzar Fig. 18A

SPECIMENS EXAMINED: **224B** (D.K. 3940); **224D** (D.K. 3932); **257D**, on *Picea* fallen log, 21 Sept. 2009, *Karasiński 4343* (D.K.); **284B** (D.K. 3814F); **285A**,

on *Picea* fallen trunk, 29 July 2009, *Karasiński 3617A* (D.K.); **287C** (D.K. 3778); **288D**, on *Picea* fallen trunk, 12 Aug. 2009, *Karasiński 3743B* (D.K.); **314C** (D.K. 5176); **316B** (D.K. 3782); **317A** (D.K. 5364A); **318B** (D.K. 3744D); **318D** (D.K. 3873); **318D** (D.K. 3877); **319A** (D.K. 3735A); **319C** (D.K. 3597A); **319C** (D.K. 3603); **319C** (D.K. 3748I); **340F** (D.K. 4231A); **340G** (D.K. 4239); **346A** (D.K. 3720); **346D** (D.K. 3726); **370C** (D.K. 3698A); **370C** (D.K. 4739); **370D** (D.K. 4758); **373C** (D.K. 3472); **373C** (D.K. 3478 albinotic form); **374A** (D.K. 4170); **374C**, on *Picea* fallen trunk, 11 July 2009, *Karasiński 3398* (D.K.); **399B** (D.K. 5063).

LITERATURE REPORTS: Domański 1959b (as *Phaeolus alboluteus*), Gumińska 1963 (as *Phaeolus alboluteus*), Domański 1965, 1967, Anonymous 1968, Domański 1972b, Niemelä 1980, Piątek 2002c, 2003, Niemelä 2005, Niemelä 2013.

REMARKS. This is one of the rarest poroid species in Europe, known from a few sites in the northern and central parts of the continent (Ryvarden & Melo 2014). It is associated with old-growth forests and dead wood of conifers. According to recent observations, *P. alboluteus* has a relatively large population in the BF but so far has been found only in the BNP area and never outside its borders. The species is characterized by having usually large basidiomata with an orange-yellow hymenial surface and pores larger than 1 mm in diameter, which finally form an irpicoid to dentate or even almost hydroid hymenophore. In rare cases, specimens of this species may be almost white, but such an albinotic form was observed only once (specimen *Karasiński 3478*).

Pycnoporellus fulgens (Fr.) Donk Fig. 18B

SPECIMENS EXAMINED: **135C** (D.K. 3343); **194D** (D.K. 3669B); **225A** (D.K. 4137); **225B** (D.K. 4601); **225C** (D.K. 3687B); **226A** (D.K. 3349A); **226B** (D.K. 3683A); **254D** (D.K. 3808A); **255B** (D.K. 3653A); **256A** (D.K. 3644); **313A** (D.K. 3509); **314A** (D.K. 3303C); **315C** (D.K. 3926); **315D** (D.K. 3930A); **318D** (D.K. 3880B); **319A** (D.K. 3731A); **319C** (D.K. 3748H); **319C** (D.K. 3757E); **340C** (3278B); **340F**, on *Picea* stump + *F. pinicola*, 6 July 2009, *Karasiński 3289* (D.K.); **340F** (D.K. 4316E); **344A** (D.K. 3837A); **346A** (D.K. 3723A); **346D** (D.K. 3581); **370C**, on *Picea* stump and *Fomitopsis pinicola* dead basidiome, 4 July 2009, *Karasiński 3228* (D.K.); **372B** (D.K. 3986A); **399B** (D.K. 3248A), **399D** (D.K. 5070A); **697B** (Starzyna

Reserve), on *Picea* fallen log and *Fomitopsis pinicola* dead basidiome, 28 Sept. 2006, *Karasiński 060928-6191* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus lithuanicus*), Błoński 1889b (as *Ochroporus lithuanicus*), Bendix 1967 (as *Pycnoporellus fibrillosus*), Anonymous 1968 (as *Pycnoporellus fibrillosus*), Domański *et al.* 1973, Skirgiełło 1997, Piątek 2002d, Niemelä 1980, Szczepkowski *et al.* 2008, 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Pycnoporus cinnabarinus (Jacq.) P. Karst.

Fig. 18C

SPECIMENS EXAMINED: **214D** (Szczekotowo Reserve), on *Carpinus* fallen trunk, 17 Oct. 2014, *Karasiński 11017* (D.K.); **256D** (H.M.W. M-3416b); **285A** (H.M.W. M-3416a).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Trametes cinnabarinus*), Błoński 1889a (as *Polyporus cinnabarinus*), Karpiński 1949 (as *Trametes cinnabarina*), Skirgiełło 1965, Niemelä 2013.

Rhodonía placenta (Fr.) Niemelä, K.-H. Larss. & Schigel

Fig. 18D

SPECIMENS EXAMINED: **194D** (D.K. 3662); **224B** (D.K. 3949); **226A** (D.K. 3671); **226B** (D.K. 3689); **256D** (D.K. 3619); **261A** (D.K. 3377, 3390); **284B**, on decorticate *Pinus* fallen trunk, 7 July 2009, *Karasiński 3310* (D.K.); **315B** (D.K. 3916); **316B** (D.K. 3795A); **316C** (D.K. 5270); **318D** (D.K. 3875); **319A**, on *Picea* fallen trunk, 28 July 2009, *Karasiński 3604* (D.K.); **340F** (D.K. 4244); **343D** (D.K. 3837B, 3848); **344A** (D.K. 3718H); **370C** (D.K. 3704B); **372B** (D.K. 3991); **374D**, on *Pinus* log, 26 July 2009, *Karasiński 3547* (D.K.); **375B** (D.K. 3588).

LITERATURE REPORTS: Domański 1963, 1965, 1965b, 1967, 1970e (as *Ceriporiopsis placenta*), Domański 1972b (as *Poria placenta* and *P. placenta* f. *placenta*), Gierczyk *et al.* 2013, Niemelä 2013.

REMARKS. The species is quite common in the study area on wood of conifers. The basidiomata of this species vary in color from pure white to vivid pink.

Rigidoporus crocatus (Pat.) Ryvarden Fig. 18E

SPECIMENS EXAMINED: **130C** (D.K. 4111); **194C** (D.K. 3360A); **225A** (D.K. 4129A), **252D** (Pogorzelce reserve) (KRAM F-51549); **255D** (D.K. 5226); **284B** (D.K. 3814E); **285A** (D.K. 5296); **313B** (D.K. 3514A); **316B** (D.K. 3792); **318B** (D.K. 3744A); **318D** (D.K. 3871A), **319C** (D.K. 3757, 3759, 3767); **340B** (D.K. 4197); **340F** (D.K. 4241C); **340G** (D.K. 4298); **341D**, on *Quercus* fallen log, 17 Oct. 2009, *Karasiński 4769* (D.K.); **346D** (D.K. 4697); **369C** (D.K. 4382); **373D** (D.K. 3460); **375A** (D.K. 4270); **375A** on *Picea* fallen trunk, 16 Sept. 2009, *Karasiński 4283* (D.K.); **375B** (D.K. 4283); **399C** (D.K. 5003, 5045); **400B**, on *Carpinus* fallen trunk, 5 July 2009, *Karasiński 3265A* (D.K.); **402A** (D.K. 4966); **488C** (Nieznanowo Reserve), on rotten trunk, 13 Sept. 2005, *Karasiński 050913-7638* (D.K.); **697B** (Starzyna Reserve), on *Betula* fallen log, 28 Sept. 2006, *Karasiński 060928-6212* (D.K.).

LITERATURE REPORTS: Domański 1959a (as *Poria nigrescens*), Domański 1962, 1965, 1967 (as *Podoporia nigrescens*), Kotlaba & Lazebniček 1967 (as *Rigidoporus nigrescens*), Anonymous 1968 (as *Podoporia nigrescens*), Domański 1972b (as *Rigidoporus nigrescens*), Szczepkowski *et al.* 2008, 2011, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species is characterized by having resupinate, perennial basidiomata with a pinkish brown to dull brick-red hymenial surface and rigid consistency, a monomitic hyphal system with clampless hyphae forming dense structures in all parts of the basidiome, the absence of cystidia and the presence of subglobose basidiospores. It is quite frequently observed in the BF, especially in BNP, on both hardwoods and conifers (*Betula*, *Carpinus*, *Fraxinus*, *Quercus*, *Picea*, once on *Pinus*). In southern Poland it also occurs on *Abies alba* Mill.

Rigidoporus undatus (Pers.) Donk Fig. 18F

SPECIMENS EXAMINED: **256F**, on bark at base of *Quercus* living tree, 21 Sept. 2009, *Karasiński 4335* (D.K.); **258C**, on *Fraxinus* log, 21 Sept. 2009, *Karasiński 4362* (D.K.); **340A**, on *Tilia* fallen log, 22 Sept. 2010, *Karasiński 5960* (D.K.).

Fig. 18. A – *Pycnoporellus alboluteus* (Ellis & Everh.) Kotl. & Pouzar, B – *Pycnoporellus fulgens* (Fr.) Donk, C – *Pycnoporus cinnabarinus* (Jacq.) P. Karst., D – *Rhodonía placenta* (Fr.) Niemelä, K. H. Larss. & Schigel, E – *Rigidoporus crocatus* (Pat.) Ryvarden, F – *Rigidoporus undatus* (Pers.) Donk, G – *Sarcoporia polyspora* P. Karst., H – *Schizopora paradoxa* (Schrad.) Donk. Photo D. Karasiński (A–H).



LITERATURE REPORTS: Niemelä 2013.

REMARKS. This species is similar to *Physisporinus vitreus* but differs by having more robust basidiomata with smaller pores (6–8 per mm vs. 4–6 in *P. vitreus*), slightly smaller basidiospores and the presence of thin to thick-walled cystidia of tramal origin, apically encrusted, embedded in the trama and not projecting.

Sarcoporia polyspora P. Karst. Fig. 18G

SPECIMENS EXAMINED: **224B**, on rotten *Picea* fallen trunk, 19 Aug. 2009, *Karasiński 3941* (D.K.); **253C**, on *Picea* fallen trunk, 13 Sept. 2009, *Karasiński 4094* (D.K.); **255**, on *Picea* fallen log, 19 Sept. 2011, *Karasiński 6348* (D.K.); **318D**, on *Pinus* fallen log, 17 Aug. 2009, *Karasiński 3866* (D.K.); **340F**, on *Pinus* fallen trunk, 16 Sept. 2009, *Karasiński 4230*; **340G**, on rotten *Picea* fallen log, 20 Sept. 2009, *Karasiński 4289* (D.K.); **373C**, on *Picea* fallen trunk, 13 July 2009, *Karasiński 3469* (D.K.); **374B** (D.K. 10944); **374C**, on *Picea* fallen trunk, 15 Sept. 2009, *Karasiński 4196* (D.K.); **375B** (D.K. 10955).

LITERATURE REPORTS: Domański 1965, 1967 (as *Tyromyces subcartilagineus*), Kotlaba & Lazebniček 1967 (as *Parmastomyces kravtzevianus*), Anonymous 1968 (as *Tyromyces subcartilagineus*), Domański 1972b (as *Parmastomyces kravtzevianus*), Szczepkowski *et al.* 2010 (as *Parmastomyces transmutans*), Niemelä 2013.

Schizopora flavipora (Berk. & M. A. Curtis ex Cooke) Ryvarden

SPECIMENS EXAMINED: **98B** (D.K. 10978); **256D**, on *Alnus* fallen trunk, 21 Sept. 2009, *Karasiński 4329* (D.K.); **342C**, on *Carpinus* fallen trunk, 17 Oct. 2009, *Karasiński 4773* (D.K.); **369**, on very rotten deciduous trunk, 21 Sept. 2007, *Karasiński 070921-2* (D.K.); **373**, on bark of *Picea* fallen trunk, 27 June 2008, *Karasiński 1785* (D.K.); **399A**, on *Carpinus* fallen trunk, 2 Nov. 2009, *Karasiński 5074* (D.K.).

LITERATURE REPORTS: Domański 1969c (as *Schizopora phellinoides*), Bujakiewicz *et al.* 1992 (as *Schizopora carneo-lutea*), Gierczyk *et al.* 2013, Niemelä 2013 (as *Hyphodontia flavipora*), Gierczyk *et al.* 2014.

Schizopora paradoxa (Schrad.) Donk Fig. 18H

SPECIMENS EXAMINED: **98B**, on *Carpinus* fallen branch, 17 Oct. 2014, *Karasiński 10982* (D.K.); **214D** (D.K. 10999); **255D**, on fallen branch (*Quercus?*), 26 Apr.

2010, *Karasiński 5221* (D.K.); **372C**, on *Carpinus* fallen trunk, 5 July 2009, *Karasiński 3252F* (D.K.); **385C**, on *Carpinus* fallen branch, 8 Oct. 1998, *Wolkowycki* (H.M.W. M-1232); **399**, on fallen branches of deciduous tree, 31 Aug. 1973, *Wojewoda s.n.* (KRAM F-58163); **413A** (H.M.W. M-1249); **438A** (H.M.W. M-1277).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Irpex paradoxus*), Błoński 1889a (as *Sistotrema paradoxum*), Orłoś 1961 (as *Poria versipora* and *Irpex obliquus*), Domański 1965 (as *Xylodon versiporus* f. *paradoxus*), Domański 1967 (as *Xylodon versiporus*), Anonymous 1968 (as *Xylodon versiporus*), Domański 1969b, 1972b, Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Skirgiełło 1997, 1998, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013 (as *Hyphodontia paradoxa*), Gierczyk *et al.* 2014.

Schizopora radula (Pers.) Hallenb.

SPECIMENS EXAMINED: **369A**, on *Alnus* fallen branch, 10 March. 2002, *Wolkowycki* (H.M.W. M-2910); **374C**, on *Quercus robur* fallen log, 23 Sept. 2010, *Karasiński 6016* (D.K.); **374D**, on *Quercus* log, 23 Sept. 2010, *Karasiński 6021* (D.K.).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus radula*), Domański 1965 (as *Chaetoporus radulus*), Niemelä 2013 (as *Hyphodontia radula*), Gierczyk *et al.* 2014.

Sidera lenis (P. Karst.) Miettinen Fig. 19A

SPECIMENS EXAMINED: **399D**, on *Picea* fallen trunk, 1 Nov. 2009, *Karasiński 5033* (D.K.); **402C**, on *Picea* fallen trunk, 22 Apr. 2009, *Karasiński 2861* (D.K.).

LITERATURE REPORTS: Domański 1962 (as *Poria lenis*), Domański 1965, 1967 (as *Amyloporia lenis*), Anonymous 1968 (as *Amyloporia lenis*), Domański 1972b (as *Poria lenis* and *P. lenis* var. *radicata*), Niemelä 2013.

REMARKS. The materials of Domański deposited in KRAM F-SD were not revised; they need to be re-examined to determine which of the two European poroid *Sidera* species were reported in the above-mentioned literature under the names *Poria lenis* and *Amyloporia lenis*.

Sidera vulgaris (Fr.) Miettinen Fig. 19B

SPECIMENS EXAMINED: **224B**, on *Pinus* fallen branch, 19 Aug. 2009, *Karasiński 3942, 3950* (D.K.); **226A**, on *Pinus* fallen log, 9 July 2009, *Karasiński 3348* (D.K.);

282D, on *Picea* fallen trunk, 25 July 2009, *Karasiński* 3526 (D.K.); **374D**, on *Pinus* trunk, 24 Sept. 2011, *Karasiński* 6566 (D.K.); **375**, on *Picea* fallen trunk, 13 Oct. 2009, *Karasiński* 4658 (D.K.); **375D** (D.K. 10951); **399A**, on *Picea* rotten log, 15 Oct. 2009, *Karasiński* 4716a (D.K.); **399D**, on *Populus* fallen trunk, 2 Nov. 2009, *Karasiński* 5051 (D.K.); **402A**, on *Populus* fallen log, 31 Oct. 2009, *Karasiński* 4968 (D.K.); **402C**, on rotten *Picea* fallen trunk, 25 June 2008, *Karasiński* 1745, **402C**, on rotten *Picea* fallen trunk, 27 June 2008, *Karasiński* 1799 (D.K.); **415D**, in the vicinity of Głębokki Kąt Reserve, on *Picea* fallen trunk, 22 May 2006, *Karasiński* 060522-5330 (D.K.).

LITERATURE REPORTS: Niemelä & Dai 1997 (as *Skeletocutis vulgaris*), Niemelä 2013.

REMARKS. This species differs from *S. lenis* by having capitate hyphal ends on dissepiment edges, and smaller basidiospores 3–4 µm long (4–5 µm long in *S. lenis*).

Skeletocutis amorpha (Fr.) Kotl. & Pouzar

SPECIMENS EXAMINED: **135D**, on *Picea* fallen trunk, 8 July 2009, *Karasiński* 3329 (D.K.); **385C** (H.M.W. M-1233); **385D** (Sacharewo), on *Pinus* stump, 10 Feb. 2002, *Wolkowycki* (H.M.W. M-2704); **438A** (H.M.W. M-1300); **466D** (H.M.W. M-2101).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus amorphus*), Pilát 1950 (as *Gloeoporus amorphus*), Domański 1965 (as *Skeletocutis amorpha* f. *resupinata*), Domański 1967, Domański *et al.* 1967, 1973, Szczepkowski *et al.* 2008, Niemelä 2013, Gierczyk *et al.* 2014.

Skeletocutis biguttulata (Romell) Niemelä

Fig. 19C

SPECIMENS EXAMINED: **226A**, on rotten trunk, 9 July 2009, *Karasiński* 3353 (D.K.); **226A**, on *Picea* fallen trunk, 11 Oct. 2009, *Karasiński* 4580 (D.K.); **255D**, on *Picea* trunk, 26 Apr. 2010, *Karasiński* 5218C (D.K.); **285A**, on *Picea* fallen branch, 28 Apr. 2010, *Karasiński* 5289 (D.K.); **313B**, on *Picea* fallen trunk, 25 July 2009, *Karasiński* 3515 (D.K.); **319**, on *Pinus* fallen branch, 13 Aug. 2009, *Karasiński* 3762 (D.K.); **373D**, on *Picea* log, 13 July 2009, *Karasiński* 3449 (D.K.).

LITERATURE REPORTS: Piątek & Cabała 2005, Niemelä 2013.

REMARKS. Possibly it was also reported previously by Domański (1972b) as *Incrustoporia subincarnata*. The herbarium specimens deposited

in KRAM F-SD were revised by Piątek and Cabała (2005), and all of them represent *S. biguttulata*.

Skeletocutis brevispora Niemelä Fig. 19D

SPECIMENS EXAMINED: **319C**, on *Picea* fallen trunk and *Phellinidium ferrugineofuscum* dead basidiome, 28 July 2009, *Karasiński* 3607A (D.K.); **340B**, on *Picea* fallen trunk and *P. ferrugineofuscum* dead basidiome, 20 Sept. 2009, *Karasiński* 4305 (D.K.); **370C**, on *Picea* fallen trunk and *P. ferrugineofuscum* dead basidiome, 10 Aug. 2009, *Karasiński* 3703E (D.K.); **374D**, on wood of *Picea* fallen log close to and on dead basidiome of *P. ferrugineofuscum*, 26 July 2009, *Karasiński* 3534 (D.K.).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. This species is a successor on wood previously decayed by *Phellinidium ferrugineofuscum*, often growing directly on its dead basidiomata. Microscopically the species is characterized by having short allantoid and fairly thick basidiospores 3.2–4.6 × 1.4–1.8 µm (in specimens examined) tapering towards the apiculus, without guttules, and having rather straight, sparsely encrusted hyphal ends at dissepiment edges.

Skeletocutis carneogrisea A. David

SPECIMENS EXAMINED: **285C**, on *Picea* fallen trunk and *Trichaptum* dead basidiome, 28 Apr. 2010, *Karasiński* 5291 (D.K.); **369C**, on *Picea* fallen trunk and *Trichaptum abietinum* dead basidiomata, 22 Sept. 2009, *Karasiński* 4383 (D.K.); **439A**, on *Picea* fallen trunk and *Trichaptum* dead basidiomata, 10 Dec. 2000, *Wolkowycki* (H.M.W. M-1454).

LITERATURE REPORTS: Domański *et al.* 1967 (as *Skeletocutis amorpha* f. *mollusca*), Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species is similar to *Skeletocutis amorpha* but differs by having whitish or slightly greyish tubes in contrast to the yellow-orange or pinkish tubes of the latter species. *Skeletocutis carneogrisea* is a successor species; its predecessors are species of *Trichaptum* Murrill.

Skeletocutis chrysellae Niemelä Fig. 19E

SPECIMENS EXAMINED: **158**, on bark of *Picea* fallen trunk close to *Porodaedalea chrysoloma*, 18 Sept. 2008, *Karasiński* 080918-1582 (D.K.); **373**, on *Picea* fallen

trunk close to *P. chrysoloma*, 27 June 2008, *Karasiński 1776* (D.K.); **375**, on bark of *Picea* fallen trunk close to *P. chrysoloma*, 24 Sept. 2010, *Karasiński 6050* (D.K.); **402**, on *Picea* trunk, close to *P. chrysoloma*, 31 Oct. 2009, *Karasiński 4997* (D.K.).

LITERATURE REPORTS: None. This species is new for Poland.

REMARKS. This is a successor species on spruce wood previously inhabited by *Porodaedalea chrysoloma*.

Skeletocutis jelicii Tortiĉ & A. David Fig. 19F

SPECIMENS EXAMINED: **346C**, on rotten *Picea* fallen trunk, 21 Sept. 2011, *Karasiński 6435* (D.K.); **369C**, on very rotten *Picea* fallen trunk, 22 Sept. 2009, *Karasiński 4377* (D.K.); **285C**, on very rotten *Picea* fallen trunk, 20 Sept. 2010, *Karasiński 5945* (D.K.).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. This species differs from other species of *Skeletocutis* Kotl. & Pouzar by having a monomitic hyphal system, ellipsoidal basidiospores (allantoid in other species), and the absence of encrusted hyphal ends on dissepiment edges. The species has a very thin basidiome with small pores 7–9 per mm, a hymenial surface with depressions after guttation droplets, and brown spots when mature. In the hymenium are encrusted hyphidia. *Skeletocutis jelicii* is a rare species previously known from the former Yugoslavia and Finland (Ryvarden & Melo 2014).

Skeletocutis kuehneri A. David Fig. 19G

SPECIMENS EXAMINED: **373C**, on *Pinus* fallen log and dead *Trichaptum* sp., 13 July 2009, *Karasiński 3469* (D.K.); **373D**, on *Picea* fallen log (coexist with *Phellolopilus nigrolimitatus*), 13 July 2009, *Karasiński 3449* (D.K.); **399C**, on bark of *Picea* big fallen log close to *Trichaptum abietinum* dead basidiomata, 4 July 2009, *Karasiński 3241* (D.K.); **BNP**, NE of the main gate, on *Picea* fallen tree, 10 Oct. 2008, *Niemelä 8431* (KRA).

LITERATURE REPORTS: Niemelä 2013.

REMARKS. This species was previously reported

from Poland by Piątek and Cabała (2005). The shape and size of basidiospores are the same in *S. kuehneri*, *S. chrysellae* and *S. stellae* (Pilát) Jean Keller: allantoid, *ca* 3–4 × 0.7–1 µm, without guttules. The latter has perennial basidiomata and small pores 7–10 per mm, while in the annual *S. kuehneri* and *S. chrysellae* the pores are larger, *ca* 4–6 per mm. *Skeletocutis kuehneri* is a successor on wood previously inhabited by *Trichaptum* spp. and has a dimitic hyphal structure, unlike *S. chrysellae* which grows together with *Porodaedalea chrysoloma* and produces binding hyphae in the subiculum.

Skeletocutis nivea (Jung.) Jean Keller

SPECIMENS EXAMINED: **214D** (Szczekotowo Reserve), on *Fraxinus* fallen trunk, 17 Oct. 2014, *Karasiński 11008* (D.K.); **252B** (H.M.W. M-1530); **340C**, on *Fraxinus* fallen branch, 6 July 2009, *Karasiński 3276C* (D.K.); **345A**, on *Corylus avellana* fallen branch, 29 July 2009, *Karasiński 3596* (D.K.); **375D** (D.K. 10950); **384D** (H.M.W. M-1647); **398D** (H.M.W. M-1900); **412A** (H.M.W. M-1347); **414D** (H.M.W. M-2184); **438B** (H.M.W. M-1413); **439B** (Głęboki Kąt Reserve), on *Fraxinus* fallen twig, 22 March 2002, *Wolkowycki* (H.M.W. M-2702); **464D** (H.M.W. M-1617); **486D** (H.M.W. M-1898); **488C** (H.M.W. M-1536).

LITERATURE REPORTS: Domański *et al.* 1967 (as *Tyromyces semipileatus*), Domański 1967 (as *Tyromyces semipileatus*), Domański *et al.* 1973 (as *Leptotritum semipileatus*), Bujakiewicz *et al.* 1992, Bujakiewicz 1994, Skirgiełło 1997, Bujakiewicz & Kujawa 2010, Niemelä 2013, Gierczyk *et al.* 2014.

Skeletocutis odora (Sacc.) Ginns Fig. 19H

SPECIMENS EXAMINED: **130C** (D.K. 4121); **194D** (D.K. 3666); **226A** (D.K. 3673, DK 3676); **314D** (D.K. 3931); **315B** (D.K. 3795, DK 3912, DK 3917); **318D**, on *Betula* fallen trunk, 17 Aug. 2009, *Karasiński 3877A* (D.K.); **318D** (D.K. 3860); **319C**, on *Picea* trunk, 13 Aug. 2009, *Karasiński 3760B* (D.K.); **319C** (D.K. 3754E); **340C** (D.K. 3287); **340F** (D.K. 4310, DK 3287); **343C** (D.K. 3847); **344B** (D.K. 3829); **345A**

Fig. 19. A – *Sidera lenis* (P. Karst.) Miettinen, B – *Sidera vulgaris* (Fr.) Miettinen, C – *Skeletocutis biguttulata* (Romell) Niemelä, D – *Skeletocutis brevispora* Niemelä, E – *Skeletocutis chrysellae* Niemelä, F – *Skeletocutis jelicii* Tortiĉ & A. David, G – *Skeletocutis kuehneri* A. David, H – *Skeletocutis odora* (Sacc.) Ginns. Photo D. Karasiński (A–H).



(D.K. 3716D); **346** (D.K. 4691); **370A** (D.K. 4406); **370C** (D.K. 3710); **374**, on *Pinus* fallen log, coexisting with *Antrrodia infirma*, 26 July 2009, *Karasiński 3553A* (D.K.); **402A**, on *Populus* fallen trunk, 26 July 2009, *Karasiński 3528* (D.K.).

LITERATURE REPORTS: Domański 1962 (as *Ceriporia gilvella*), Domański 1965, 1967, 1969e, Domański 1972b (as *Incrustoporia tschulymica*), Piątek 2005c, Niemelä 2013, Gierczyk *et al.* 2014.

REMARKS. This species occurs frequently in the study area, mostly on *Picea* fallen trunks, but during recent observations was also recorded on *Pinus*, *Betula* and *Populus*. It is characterized by having annual, resupinate basidiomata, usually with an undulate hymenial surface, tubes up to 1 cm long, relatively large pores 2–5 per mm, a partly gelatinous context when fresh and a distinct smell similar to young garlic but sweeter. The hyphal ends at dissepiment edges are strongly encrusted and clearly flexuous or even spirally twisted. The size of basidiospores is intermediate for the genus, $4.0\text{--}5.5 \times 1.2\text{--}1.6 \mu\text{m}$, and they lack guttules.

Skeletocutis papyracea A. David Fig. 20A

SPECIMENS EXAMINED: **256**, on *Picea* log, 29 July 2009, *Karasiński 3639* (D.K.); **257D**, on fallen log of *Picea*, 21 Sept. 2009, *Karasiński 4346* (D.K.) **257D** (D.K. 4346); **285A** (D.K. 5288A); **319C** (D.K. 3605, DK 3749); **340F** (D.K. 3283); **369A**, on rotten *Picea* fallen trunk, 14 July 2009, *Karasiński 3482* (D.K.); **373C** (D.K. 3456, 3965); **375B** (D.K. 3569); **375**, on *Pinus* fallen trunk, 24 Sept. 2010, *Karasiński 6052* (D.K.).

LITERATURE REPORTS: None. This species is new for Poland.

REMARKS. It is characterized by having rather small, very thin and hygrophanous basidiomata with minutely fimbriate margins and pores 4–5 per mm, straight and sparsely encrusted hyphal ends on dissepiment edges, and cylindrical, slightly curved basidiospores $4\text{--}5.5 \times 1.4\text{--}1.8 \mu\text{m}$, often with 1–2 guttules. *Skeletocutis biguttulata* has similar gut-

tulate but longer basidiospores ($4.5\text{--}7.0 \mu\text{m}$), but it produces spirally winding and strongly encrusted hyphae at dissepiment edges, and its basidiomata are larger, thicker and not hygrophanous.

Skeletocutis stellae (Pilát) Jean Keller Fig. 20B

SPECIMENS EXAMINED: **130C** (D.K. 4121A); **224B** (D.K. 3942); **226C**, on *Picea* fallen trunk, 30 July 2009, *Karasiński 3682* (D.K.); **253C** (D.K. 4089); **254D** (D.K. 3813); **257C** (D.K. 4338); **285A** (D.K. 5307); **316B** (D.K. 3789); **316C** (D.K. 5259); **319B**, on *Pinus* log, 14 Aug. 2009, *Karasiński 3789* (D.K.); **340B** (D.K. 4303); **344D** (D.K. 3593); **370C** (D.K. 3709); **373D** (D.K. 4996A); **373D**, on *Picea* big fallen log, 13 July 2009, *Karasiński 3447* (D.K.); **374C** (D.K. 3546); **374D** (D.K. 4161); **375A** (D.K. 4276); **399B** (D.K. 3298E); **399C** (D.K. 5048); **442B** (W. Szafer Landscape Reserve), on very rotten fragment of fallen trunk, 23 June 2008, *Karasiński 1711* (D.K.).

LITERATURE REPORTS: Domański 1959a (as *Poria stellae*), Domański 1963, 1965, 1967, 1972b (as *Incrustoporia stellae*), *Karasiński et al.* 2009, Niemelä 2013.

REMARKS. It is characterized by having perennial, often large basidiomata, small pores 7–10 per mm, allantoid basidiospores $3\text{--}4 \times 0.8\text{--}1 \mu\text{m}$, the absence of guttules, and moderately winding hyphal ends at dissepiment edges with rather sparse encrustation.

Spongipellis delectans (Peck) Murrill Fig. 20C

LITERATURE REPORTS: Orłowski 1960, 1961 (as *Leptoporus bredecelensis*), Domański *et al.* 1967 (as *Spongipellis bredecelensis*), Domański 1967 (as *Spongipellis bredecelensis*), Domański *et al.* 1973, Piątek *et al.* 2004, Tomšovský 2012, Niemelä 2013.

REMARKS. Possibly this species is very rare in the study area; we did not confirm it in recent fieldwork; nor was it found among the specimens preserved in KRAM F-SD and identified by Domański as *Spongipellis delectans*. One specimen labelled with this name is a sterile basidiome of *Trametopsis cervina* (Schwein.) Tomšovský

Fig. 20. A – *Skeletocutis papyracea* A. David, B – *Skeletocutis stellae* (Pilát) Jean Keller, C – *Spongipellis delectans* (Peck) Murrill (photographed in Puszcza Bukowa Forest, NW Poland), D – *Spongipellis spumeus* (Sowerby) Pat., E – *Spongiporus rhodophilus* Spirin & Zmitr., F – *Trametes gibbosa* (Pers.) Fr., G – *Trametes ochracea* (Pers.) Gilb. & Ryvarden, H – *Trametes pubescens* (Schumach.) Pilát. Photo D. Karasiński (A, B, D–H) and G. Domian (C).



(on *Carpinus*, 20 Oct. 1963, *Domański*, KRAM F-SD 3442 as *S. delectans*). The second collection (KRAM F-SD 546), reported from BNP as *S. delectans* (Piątek *et al.* 2004), does not belong to this species either. This specimen was originally identified as *Spongipellis litschaueri* Lohwag, and that is indeed the correct name for this specimen. A specimen collected by Orłóś on 20 September 1957 (see *Domański et al.* 1973: tab. VIII, 2.) may be *Spongipellis delectans*. Herbarium material is stored in WAM (not studied). Tomšovský (2012) reported *S. delectans* from the BF based on a collection from 1955 deposited in PRM 884226. Niemelä (2013) reported this species based on literature data (after *Domański et al.* 1973).

Spongipellis litschaueri Lohwag

SPECIMENS EXAMINED: **BF**, on deciduous log (*Quercus?*), 25 Oct. 1959, *Domański* (KRAM F-SD 546).

LITERATURE REPORTS: Piątek *et al.* 2004 (as *Spongipellis delectans*).

REMARKS. It seems to be a very rare species in the study area, and was not confirmed during recent fieldwork. The species was earlier synonymized with *Spongipellis delectans*, and under this name the specimen cited above was published by Piątek *et al.* (2004). Recent molecular studies showed that *Spongipellis litschaueri* is a distinct species (Tomšovský 2012) which, besides its genetic divergence, differs in its ecology and macro-morphology from *S. delectans*. It grows almost exclusively on *Quercus* (*S. delectans* predominantly on *Fagus*) and has thick basidiomata with a pileal context up to 7 cm thick (vs. up to 2 cm thick in *S. delectans*), the basidiome triquetrous in section, pores with thin dissepiments (thick in *S. delectans*) and basidiospores longer than 7 µm on average (up to 7 µm in *S. delectans*). In the specimen examined (KRAM F-SD 546), basidiospore size was (6.0–)6.2–7.6(–8.0) × (4.6–)4.8–6.2(–6.4) µm.

Spongipellis spumeus (Sowerby) Pat. Fig. 20D

SPECIMENS EXAMINED: **340B**, on dead standing deciduous trunk, 24 Sept. 2010, *Rutkowski s.n.* (D.K. 6066).

LITERATURE REPORTS: *Domański et al.* 1967, 1973, Piątek *et al.* 2004, Niemelä 2013 (as *Spongiporus spumea*), Gierczyk *et al.* 2013.

REMARKS. This species appears to be very rare in the study area. It differs from *S. litschaueri* and *S. delectans* mostly by having an almost even hymenial surface and smaller, regular pores (larger, irregular, daedaleoid, dentate and lacerate in *S. delectans* and *S. litschaueri*).

Spongiporus rhodophilus Spirin & Zmitr.

Fig. 20E

SPECIMENS EXAMINED: **135C**, on rotten *Picea* fallen trunk, 8 July 2009, *Karasiński 3328a* (D.K.); **226A**, on *Populus* fallen trunk, 9 July 2009, *Karasiński 3346* (D.K.); **256A**, on rotten *Picea* fallen trunk, 29 July 2009, *Karasiński 3643* (D.K.); **284B**, on rotten *Picea* fallen trunk, 15 Aug. 2009, *Karasiński 3814d* (D.K.); **285A** (D.K. *3658); **288B**, on *Picea* log, 12 Aug. 2009, *Karasiński 3738a* (D.K.); **288D** (D.K. *3738B); **313A**, on *Picea* fallen trunk, 25 July 2009, *Karasiński 3508* (D.K.); **289C** (D.K. *3745B); **315A**, on rotten *Picea* fallen trunk, 18 Aug. 2009, *Karasiński 3889* (D.K.); **316B** (D.K. *3788); **318D**, on rotten stump of *Picea*, 13 Aug. 2009, *Karasiński 3747a* (D.K.); **318D** (D.K. *3869A); **319C** (D.K. *3601); **319C**, on *Picea* fallen log, 13 Aug. 2009, *Karasiński 3754a* (D.K.); **319C**, on *Picea* fallen log, 13 Aug. 2009, *Karasiński 3758* (D.K.); **340F**, on rotten *Picea* fallen trunk, 6 July 2009, *Karasiński 3296* (D.K.); **340G**, on *Picea* fallen trunk, 16 Sept. 2009, *Karasiński 4217a* (D.K.); **345A** (D.K. *3715A); **346A** (D.K. *3725); **370C** (D.K. *3701); **370C**, on rotten *Picea* fallen trunk, 10 Aug. 2009, *Karasiński 3703c* (D.K.); **373B**, on *Picea* fallen trunk, 28 July 2009, *Karasiński 3591* (D.K.); **374D**, on *Picea* fallen trunk, 28 July 2009, *Karasiński 3591* (D.K.); **375 B** (D.K. *3892).

LITERATURE REPORTS: Orłóś 1960 (as *Leptoporus undosus*), *Domański et al.* 1967 (as *Tyromyces undosus*), Szczepkowski *et al.* 2010 (as *Oligoporus undosus*), Gierczyk *et al.* 2013 (as *Postia undosa*), Niemelä 2013 (as *Spongiporus undosus*).

REMARKS. This species was described as a successor of *Fomitopsis rosea* [= *Rhodofomes roseus* (Alb. & Schwein.) Kotl. & Pouzar] (Spirin *et al.* 2006). The asterisked specimens grew with or on *F. rosea* dead basidiomata. The other specimens occurred without an evident connection with *F. rosea*.

***Trametes gibbosa* (Pers.) Fr.** Fig. 20F

SPECIMENS EXAMINED: **98B** (D.K. 10985); **214D** (Szczerkotowo Reserve), on *Carpinus* fallen trunk, 17 Oct. 2014, *Karasiński 11012* (D.K.); **334A**, on *Carpinus* fallen trunk, 24 March 1993, *Wolkowycki* (H.M.W. M-1050); **372C**, on *Carpinus* fallen trunk, 5 July 2009, *Karasiński 3252H* (D.K.); **399**, on *Carpinus* fallen trunk, 31 Aug. 1973, *Wojewoda s.n.* (KRAM F-58164); **BF**, on *Quercus* trunk, Oct. 1955, *Domański* (KRAM F-SD 2704); **BF**, on deciduous trunk, 20 Sept. 1960, *Domański* (KRAM F-SD s.n., as *Trametes gibbosa* var. *kalchbrenneri*); **BNP**, Poprzeczny Tryb, on *Carpinus* fallen rather thin trunk, 14 Oct. 2008, *Niemelä 8484* (KRA).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *T. gibbosa* and *T. Kalchbrenneri*), Błoński 1889a (as *Daedalea gibbosa* and *D. kalchbrenneri*), Siemaszko 1925, Pilát 1950, Orłóś 1951, 1960, 1961, *Domański et al.* 1967 (as *Trametes gibbosa* f. *kalchbrenneri*), *Domański* 1967, Anonymous 1968, Nespiać 1968, *Domański et al.* 1973 (as *Trametes gibbosa* f. *kalchbrenneri*), *Bujakiewicz et al.* 1992, *Jaroszewicz* 1996, *Skirgiełło* 1997, *Szczepkowski et al.* 2008, *Bujakiewicz & Kujawa* 2010, *Gierczyk et al.* 2013, *Niemelä* 2013, *Gierczyk et al.* 2014.

***Trametes hirsuta* (Wulfen) Pilát**

SPECIMENS EXAMINED: **214D** (D.K. 11000, 11011); **362A**, on *Carpinus* fallen trunk, 24 March 1993, *Wolkowycki* (H.M.W. M-1053); **384D** (H.M.W. M-1244); **385D** (H.M.W. M-2736); **412B** (H.M.W. M-0958); **429B** (H.M.W. M-1052); **513B** (H.M.W. M-1389); **517D** (H.M.W. M-2855); **572C**, on fallen trunk, 28 Aug. 1990, *Wolkowycki* (H.M.W. M-1051); **BF**, on *Carpinus* fallen branch, 8 Aug. 1962, *Domański* (KRAM F-SD 3677); **BNP**, Poprzeczny Tryb, *Carpinus* fallen tree, 14 Oct. 2008, *Niemelä 8481* (KRA).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus hirsutus*), Siemaszko 1923 (as *Polyporus hirsutus*), *Karpiński* 1949 (as *Polystictus hirsutus*), Pilát 1950, Nespiać 1956 (as *Polystictus hirsutus*), Orłóś 1960, 1961, *Domański* 1967, Nespiać 1968, *Bujakiewicz et al.* 1992, *Bujakiewicz* 1994, *Jaroszewicz* 1996, *Skirgiełło* 1997, *Szczepkowski et al.* 2008, *Bujakiewicz & Kujawa* 2010, *Gierczyk et al.* 2013, *Niemelä* 2013, *Gierczyk et al.* 2014.

***Trametes ochracea* (Pers.) Gilb. & Ryvarden** Fig. 20G

SPECIMENS EXAMINED: **214D** (Szczerkotowo Reserve), on *Populus* stump, 17 Oct. 2014, *Karasiński*

11019 (D.K.); **214D** (D.K. 11015, 11027); **260D**, on *Populus* log, 12 Oct. 2009, *Karasiński 4625* (D.K.); **274B** (H.M.W. M-1046); **306A** (H.M.W. M-1045); **370D**, on *Populus* log, 17 Oct. 2009, *Karasiński 4800* (D.K.); **385B** (H.M.W. M-1637); **413A** (H.M.W. M-1215); **443** (W. Szafer Landscape Reserve), on *Populus* decorticate fallen trunk, 21 Apr. 2009, *Karasiński 2841* (D.K.).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus zonatus*), *Karpiński* 1949 (as *Polystictus zonatus*), Pilát 1950 (as *Trametes zonata*), Orłóś 1960 (as *Trametes zonata*), *Domański et al.* 1967 (as *Trametes zonata*), *Domański* 1967 (as *Trametes zonata*), Anonymous 1968 (as *Trametes zonata*), *Bujakiewicz et al.* 1992 (as *Trametes multicolor*), *Skirgiełło* 1997 (as *Trametes multicolor*), *Gierczyk et al.* 2013, *Niemelä* 2013, *Gierczyk et al.* 2014.

***Trametes pubescens* (Schumach.) Pilát** Fig. 20H

SPECIMENS EXAMINED: **286B**, on *Carpinus* fallen log, 19 Sept. 2011, *Karasiński 6372* (D.K.); **BF**, on *Carpinus* branch, 18 Sept. 1960, *Domański* (KRAM F-SD 1022); **BF**, on deciduous trunk, 20 Sept. 1960, *Domański* (KRAM F-SD 949); **BF**, on deciduous branch, 24 Sept. 1965, *Domański* (KRAM F-SD 4891).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus pubescens*), *Domański et al.* 1967, *Domański* 1967, Nespiać 1968, *Domański et al.* 1973, *Bujakiewicz et al.* 1992, *Skirgiełło* 1997, 1998, *Niemelä* 2013.

***Trametes suaveolens* (L.) Fr.**

SPECIMENS EXAMINED: **374D**, on trunk of *Salix caprea* living tree, 13 Oct. 2009, *Karasiński 4647* (D.K.); **399**, on trunk of *Salix caprea*, 21 Sept. 2011, *Karasiński 6443* (D.K.).

LITERATURE REPORTS: *Bujakiewicz et al.* 1992, *Skirgiełło* 1997, *Niemelä* 2013.

***Trametes versicolor* (L.) Pilát** Fig. 21A

SPECIMENS EXAMINED: **182D**, on *Quercus* fallen branch, 17 Oct. 2014, *Karasiński 10996* (D.K.); **340A**, on *Fraxinus* rotten stump, 22 Sept. 2010, *Karasiński 5958* (D.K.); **412B** (H.M.W. M-2832); **438C** (H.M.W. M-1268); **439C** (H.M.W. M-0962); **599A** (H.M.W. M-1043).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus versicolor*), Siemaszko 1925 (as *Polyporus*

versicolor), Karpiński 1949 (as *Polystictus versicolor*), Orłóś 1951 (as *Polystictus versicolor*), Orłóś 1960, 1961, Domański *et al.* 1967, Domański 1967, Anonymous 1968, Nespiak 1968, 1970, Bujakiewicz *et al.* 1992, Jaroszewicz 1996, Skirgiełło 1997, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Trametopsis cervina (Schwein.) Tomšovský

Fig. 21B

SPECIMENS EXAMINED: **BF**, on deciduous fallen trunk, 28 Aug. 1956, *Domański* (KRAM F-SD 489 as *Trametes cervina*); **BF**, on deciduous fallen trunk, 20 Oct. 1963, *Domański* (KRAM F-SD 3442 as *Spongipellis delectans*).

LITERATURE REPORTS: Domański 1965, 1967 (as *Co-riolellus cervinus*), Domański *et al.* 1973 (as *Trametes cervina*), Niemelä 2013.

REMARKS. It seems to be a very rare species in the BF, not confirmed in recent fieldwork. Only two specimens are preserved in Domański's collection. Specimen KRAM F-SD 489 is fertile but in poor condition, and almost completely damaged by insects. The second specimen (KRAM F-SD 3442), misidentified by Domański as *Spongipellis delectans*, is sterile. It has a dimitic hyphal structure, which excludes *Spongipellis*. Based on a comparison with other specimens of *Trametopsis cervina* it was assigned to this species. Niemelä (2013) reported this species based on literature data (after Domański *et al.* 1973).

Trechispora candidissima (Schwein.) Bondartsev & Singer

SPECIMENS EXAMINED: **370C**, on rotten stump of *Picea*, 15 Oct. 2009, *Karasiński* 4719 (D.K.).

LITERATURE REPORTS: Domański 1967 (as *Cristella candidissima*), Niemelä 2013.

REMARKS. This is a rare species which differs from closely related species mostly by having small rod-like crystals covering subicular hyphae.

Trechispora hymenocystis (Berk. & Broome)

K. H. Larss.

Fig. 21C

SPECIMENS EXAMINED: **500** (in the vicinity of Podolany Reserve), on bark of *Picea* fallen trunk, 27 Sept. 2006, *Karasiński* 1635 & *Piątek* (KRAM F-47254); **BNP**, Poprzeczny Tryb, east of 'Mogilki' graves, on *Picea* fallen thick trunk, 9 Sept. 2009, *Niemelä* 8573 (KRA).

LITERATURE REPORTS: *Karasiński et al.* 2009, *Niemelä* 2013.

REMARKS. This species differs from other poroid species of *Trechispora* P. Karst. mostly by having sphaerocysts on subicular hyphae.

Trechispora mollusca (Pers.) Liberta Fig. 21D

SPECIMENS EXAMINED: **315B**, on very rotten wood, 18 Aug. 2009, *Karasiński* 3920 (D.K.); **373C**, on *Picea* rotten stump, 13 July 2009, *Karasiński* 3467 (D.K.); **375B**, on *Pinus* rotten log, 13 Oct. 2009, *Karasiński* 4656 (D.K.); **388C** (W. Szafer Landscape Reserve), on very rotten wood, 19 Sept. 2007, *Karasiński* 070919-7680 (D.K.); **387** (W. Szafer Landscape Reserve), on rotten wood, 20 Sept. 2013, *Karasiński* 9959 (D.K.).

LITERATURE REPORTS: Domański 1972b (as *Cristella mollusca*), Niemelä 2013, Gierczyk *et al.* 2014.

Trichaptum abietinum (Dicks.) Ryvarden

Fig. 21E

SPECIMENS EXAMINED: **98B**, on *Picea* fallen branch, 17 Oct. 2014, *Karasiński* 10987 (D.K.); **135D**, on *Picea* trunk, 8 July 2009, *Karasiński* 3329A (D.K.); **285** (D.K. 5291B); **286D**, on *Picea* fallen trunk, 14 Aug. 2009, *Karasiński* 3777A (D.K.); **369** (D.K. 4383B); **384C** (H.M.W. M-1101); **412A** (H.M.W. M-1324); **463A** (H.M.W. M-1318); **464D** (H.M.W. M-1100); **BNP**, Poprzeczny Tryb, *Picea* thick fallen trunk, 14 Oct. 2008, *Niemelä* 8474 (KRA).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus abietinus*), Błoński 1889a (as *Polyporus abietinus*), Siemaszko 1923 (as *Polyporus abietinus*), Pilát 1950 (as *Trametes abietina*), Orłóś 1960, 1961 (as *Trametes abietina*), Domański 1967, Anonymous 1968 (as *Hirschioporus abietinus*), Bujakiewicz *et al.*

Fig. 21. A – *Trametes versicolor* (L.) Pilát, B – *Trametopsis cervina* (Schwein.) Tomšovský (photographed in Bieszczady National Park, SE Poland), C – *Trechispora hymenocystis* (Berk. & Broome) K. H. Larss., D – *Trechispora mollusca* (Pers.) Liberta, E – *Trichaptum abietinum* (Dicks.) Ryvarden, F – *Trichaptum bifforme* (Fr.) Ryvarden, G – *Trichaptum fuscoviolaceum* (Ehrenb.) Ryvarden, H – *Tyromyces chioneus* (Fr.) P. Karst. Photo D. Karasiński (A–H).



1992, Bujakiewicz 1994, Jaroszewicz 1996, Skirgiełło 1997, 1998, Szczepkowski *et al.* 2008, Bujakiewicz & Kujawa 2010, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Trichaptum biforme (Fr.) Ryvarden Fig. 21F

SPECIMENS EXAMINED: **402A**, on *Betula* fallen trunk, 16 Oct. 2014, *Karasiński 10938* (D.K.); **699C**, on *Betula pendula* fallen trunk, 28 Sept. 2006, *Wolkowycki* (H.M.W. M-3611); **BF**, on *Betula*, Oct. 1956, *Domański* (KRAM F-SD 2660 as *Hirschioporus pergamenus*); **BF**, on hardwood, 22 May 1958, *Domański* (KRAM F-SD 2661 as *Hirschioporus pergamenus*); **BF**, on hardwood, Sept. 1956, *Domański* (KRAM F-SD 2388 as *Hirschioporus pergamenus*).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus simulans*), Pilát 1950 (as *Trametes biformis*), Orłóš 1960, 1961 (as *Trametes biformis*), Domański *et al.* 1967 (as *Hirschioporus pergamenus*), Domański 1967 (as *Hirschioporus pergamenus*), Domański *et al.* 1973 (as *Hirschioporus pergamenus*), Bujakiewicz *et al.* 1992, Wojewoda *et al.* 2002, Szczepkowski *et al.* 2008, 2011, Gierczyk *et al.* 2013, Niemelä 2013, Gierczyk *et al.* 2014.

Trichaptum fuscoviolaceum (Ehreb.)

Ryvarden Fig. 21G

SPECIMENS EXAMINED: **385C**, on *Picea* fallen trunk, 21 March 1991, *Wolkowycki* (H.M.W. M-1119); **437D** (H.M.W. M-1330); **460C** (H.M.W. M-1235); **600B** (H.M.W. M-1104); **BF**, on *Picea* fallen trunk, 19 Sept. 1960, *Domański* (KRAM F-SD 883).

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Irpex fusco-violaceus*), Błoński 1889a (as *Sistotrema fusco-violaceum*), Siemaszko 1925, Bujakiewicz *et al.* 1992, Skirgiełło 1997, Niemelä 2013, Gierczyk *et al.* 2014 (as *Trichaptum holli*).

Tyromyces chioneus (Fr.) P. Karst. Fig. 21H

SPECIMENS EXAMINED: **340F**, on fallen branch of deciduous tree (*Betula*?), 16 Sept. 2009, *Karasiński 4232* (D.K.); **340**, on *Carpinus* fallen trunk, 22 Sept. 2009, *Karasiński 4416* (D.K.); **340A**, on dead standing *Corylus avellana* trunk, 22 Sept. 2010, *Karasiński 5994* (D.K.); **437A** (Sacharewo), on *Corylus*?, 9 Feb. 2004, *Wolkowycki* (H.M.W. M-3407); **730A** (Starzyna reserve), on *Betula pendula* fallen branch, 23 Sept. 2004, *Wolkowycki* (H.M.W. M-3119).

LITERATURE REPORTS: Błoński 1889a (as *Polyporus*

chioneus), Domański *et al.* 1967, 1973 (as *Tyromyces albellus*), Bujakiewicz *et al.* 1992, Skirgiełło 1997, Niemelä 2013.

RECORDS WITH UNCERTAIN STATUS

Albatrellus confluens (Fr.) Kotl. & Pouzar

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus politus*), Domański *et al.* 1973 (cited specimen reported by Błoński *et al.* 1888).

REMARKS. Except for the first report, no additional specimens of the species have ever been published from the study area. This species was not confirmed by recent observations.

Amyloporia sordida (Ryvarden & Gilb.) Vampola & Pouzar

LITERATURE REPORTS: David & Tortić 1984.

REMARKS. This species was not confirmed by recent observations. According to Vampola and Pouzar (1992) the specimen reported from the BNP by David and Tortić (1984) belongs to *Amyloporia sitchensis*.

Antrodia ramentacea (Berk. & Broome) Donk

LITERATURE REPORTS: Domański 1969a, Domański 1972b (as *Corirolellus ramentaceus*), Niemelä 2013.

REMARKS. The specimens cited by Domański (1969a, 1972b) were not found in KRAM F-SD. Niemelä (2013) reported this species from the BF based on literature data (after Domański 1969a). The occurrence of this species in the BF has not been confirmed by recent observations.

Antrodia vaillantii (DC.) Ryvarden

LITERATURE REPORTS: Błoński 1889a (as *Polyporus Vaillantii*).

REMARKS. Herbarium material is probably lost. The occurrence of the species in the BF was not confirmed by recent studies.

Ceriporia reticulata (Hoffm.) Domański

LITERATURE REPORTS: Błoński 1889a (as *Polyporus farinellus*), Domański 1965, 1967, 1972b, Niemelä 2013.

REMARKS. This species is quite common on

dead hardwoods in Poland (Wojewoda 2003) but it seems to be very rare in the BF and was not confirmed by recent fieldwork. The specimens cited by Domański have not been found in KRAM F-SD. Niemelä (2013) reported this species based on literature data (after Domański 1967).

Ceriporiopsis gilvescens (Bres.) Domański

LITERATURE REPORTS: Domański 1967, 1971, Niemelä 2013.

REMARKS. None of the several specimens of *Ceriporiopsis gilvescens* stored in KRAM F-SD were collected in the study area. Niemelä (2013) reported this species from the BF based on literature data (after Domański 1971). The occurrence of this species in the BF was not confirmed during recent fieldwork.

Daedaleopsis tricolor (Bull.) Bondartsev & Singer

LITERATURE REPORTS: Wojewoda 2002.

REMARKS. The specimen cited by Wojewoda (2002, KRAM F-SD 861) represents *Daedaleopsis confragosa*, with a small basidium and slightly reddened pileus surface.

Dichomitus squalens (P. Karst.) Reid

LITERATURE REPORTS: Domański 1965 (as *Coriolellus squalens*), Domański 1972b, Niemelä 2013.

REMARKS. This species was not confirmed by recent observations. The only specimen in Domański's collection, labelled *Coriolellus squalens* collected in Białowieża (on pine planks on a railway bridge in Białowieża, 20 Oct. 1955, Domański, KRAM F-SD 273), does not belong to this species. The herbarium envelope contains a specimen having an effused-reflexed basidium $ca\ 10 \times 4$ cm in outline, with a widely effused resupinate part and an elongate, narrow pileus with a hirsute surface, circular pores 3–4 per mm with thick dissepiments, a trimitic hyphal structure with clamped generative hyphae 3–7 μm , skeletal hyphae 4–6 μm wide, binding hyphae 2–4 μm wide, basidia $ca\ 20 \times 5$ μm , and basidiospores 6–7 \times 2–2.5 μm , cylindrical, slightly curved, hyaline, thin-walled and non-amylloid. This set of characters exclude *Dichomitus*

squalens, especially due to the distinctly hirsute pileus, size and shape of basidiospores, and lack of dichotomously branched binding hyphae, but correct assignment to species is not possible. This indicates that the literature reports (Domański 1965, 1972b) are based on a misidentified specimen. Niemelä (2013) reported the species based on literature data (after Domański 1972b).

Fuscoporia contigua (Pers.) G. Cunn.

LITERATURE REPORTS: Błoński 1889a (as *Ochroporus contiguus*).

REMARKS. It was not found during recent fieldwork. The species seems to be very rare in the study area, or absent.

Ganoderma adpersum (Schulzer) Donk

LITERATURE REPORTS: Domański *et al.* 1973, Niemelä 2013.

REMARKS. According to Domański *et al.* (1973) ‘(...) this fungus has been observed in Białowieża’, but it was not confirmed during recent studies. Niemelä (2013) reported it from the BF based on literature data (after Domański *et al.* 1973).

Gloeophyllum trabeum (Pers.) Murrill

LITERATURE REPORTS: Błoński *et al.* 1888 (as *Polyporus trabeus*).

REMARKS. Except for the literature report (Błoński *et al.* 1888) it was never published from the study area, and was not confirmed by recent observations.

Oligoporus rennyi (Berk. & Broome) Donk

LITERATURE REPORTS: Domański 1972b (as *Strangulidium rennyi*), Niemelä 2013.

REMARKS. Herbarium material for the literature report (Domański 1972b) has not been found in KRAM F-SD, and the species was not found during recent fieldwork. Niemelä (2013) reported the species based on literature data (after Domański 1972b).

Phellinus lundellii Niemelä

LITERATURE REPORTS: Domański *et al.* 1973, Niemelä 2013.

REMARKS. It was not confirmed in recent studies. Herbarium material for the literature record from the BF (Domański *et al.* 1973) was not found among the specimens deposited in KRAM F-SD. Niemelä (2013) reported the species based on literature data (after Domański *et al.* 1973).

Skeletocutis subincarnata (Peck) Jean Keller

LITERATURE REPORTS: Domański 1972b (as *Incrustoporia subincarnata*).

REMARKS. It was not confirmed in recent fieldwork. The specimens preserved in KRAM F-SD under this name belong to *Skeletocutis biguttulata* (Piątek & Cabała 2005).

CONCLUSIONS

The Białowieża Forest, and especially the area protected in Białowieża National Park, is a refuge for many endangered, rare and interesting organisms, especially wood-inhabiting fungi. Polypore species richness is very high there. Many relict fungal species of old-growth forest occur in the BF and have relatively large populations. The current knowledge of the poroid fungi in the Polish part of BF has been summarized here based on our examination of 1600 specimens and an analysis of about 100 published reports. In total, 210 species representing 80 genera are listed in this paper. *Postia*, *Skeletocutis*, *Polyporus*, *Phellinus*, *Antrodia* and *Antrodiella* are genera represented by the largest number of species. Fourteen species previously reported in the literature have uncertain status as polypores of the BF because they lack corresponding voucher specimens and were not confirmed in recent field studies. Another fourteen species are newly reported for the Białowieża Forest (mainly from Białowieża National Park), including 8 species reported for the first time from Poland: *Antrodia hyalina*, *A. infirma*, *Antrodiella subradula*, *Junghuhnia fimbriatella*, *Postia folliculocystidiata*, *P. minusculoides*, *Skeletocutis chrysellata* and *S. papyracea*. Several very rare European polypores already reported from the Białowieża Forest in the 20th century, such as *Antrodia albobrunnea*, *Antrodiella foliaceodentata*, *Buglos-*

soporus pulvinus, *Dichomitus albidofuscus* and *Gelatoporia subvermisporea*, were found at new localities, confirming their continuous occurrence in this forest. *Antrodiella subradula*, previously known from Asia, is reported for the first time from Europe.

The polypore diversity of the Polish part of the Białowieża Biosphere Reserve is unique, and much higher than in other European forests studied for their polypore biodiversity. A total of 394 poroid species are known from Europe (Ryvarden & Melo 2014), and the half of them occur in the BF. About 235 poroid species have been noted from Poland so far; the vast majority of them occur in the BF, among them many species not reported from other areas of Poland. The only species not present in the BF are those strictly associated with mountain forests or mountain trees such as *Abies alba* and *Fagus sylvatica*, which are absent from the BF. As compared with the reports of polypore species from other Polish national parks, the BNP area seems to be a true polypore diversity hotspot. The Polish national park next-best investigated in terms of fungal diversity, Kampinos National Park (Kampinos Biosphere Reserve), hosts only 129 poroid species (Karasiński *et al.* 2015).

An analysis of the factors affecting such high diversity of poroid fungi in the BF is beyond the scope of this study. In general, however, we suggest that the polypore species richness of this area reflects the degree of naturalness of forest ecosystem processes there, with continuous availability of dead wood lying on the forest floor. Białowieża National Park in particular has a long history of continuity of forest growth in natural conditions. It was never extensively used by humans in the past. The absence of management over the centuries has ensured the continuous availability of a large amount of woody debris of different sizes and decay stages since the end of the last glaciation, serving as substrates for many relict, rare and endangered poroid fungi not found in most European forests.

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