

Checklist of aphylloroid fungi (Agaricomycetes, Basidiomycota) in boreal forests of Pinega Reserve, north-east European Russia

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Abstract: Herein we present a checklist of aphylloroid fungi of the Pinega Reserve, in the territory of North European Russia. We present 328 species from 158 genera in the checklist. Each record includes data on distribution within key reserve localities, the host/substrate association and the frequency pattern. Most findings are documented by herbarium specimens. A predictive estimation of the Pinega Reserve aphylloroid diversity, based on Turing coefficient calculation, resulted in an interval of 360–370 species.

Key words: Agaricomycetes, aphylloroid fungi, Arkhangelsk region, boreal polypores, Pinega Reserve, Polyporales, Russia.

INTRODUCTION

The aphylloroid fungi (Agaricomycetes, Basidiomycota) represent one of key elements of boreal ecosystems due to their wood-decomposing, litter-decomposing and humus-degrading abilities. Some species also are capable of ectomycorrhiza-formation. However, their diversity in boreal forests is unknown in extensive areas. The present checklist intends to cover the biodiversity of this ecomorphic group of basidiomycetes in the territory of the Pinega Reserve, where subvirgin boreal forests are widely distributed. Such forests are enriched by fallen wood on various stages of decomposition and small wood debris; therefore, a lot of niches for lignotrophic fungi are available.

The Pinega Reserve (Figure 1) is situated in North East European Russia, along the Pinega River, over the carbonic White-Sea Plateau and occupies an area of 412 km². The climate is Atlantic-Arctic and moderately moist (annual precipitation nearly 550 mm). Average July temperature is 15.7°C, average January temperature is -14.4°C. The sum of active temperatures varies around 1,000–1,100° C (Parmuzin 1985).

The soils are developed over moraine deposits and enriched with calcium in many sites. The vegetation of the reserve shows clear north-boreal features. Norway spruce (*Picea abies/obovata*) dominates in silt soils (occupying ca. 73% of the forested area) and Scotland pine (*Pinus sylvestris*) is prevalent in sandy soil (occupying ca. 16% of the forested

area). Along the Pinega river slopes there are larch forests (4%) with *Larix sibirica*. The fragments of secondary forest are dominated by birch (*Betula pubescens*, 7%), aspen (*Populus tremula*) and willow (*Salix* spp.) species. The small shrubs cover is dominated by *Vaccinium vitis-idaea*, *V. myrtillus* and *Empetrum nigrum*.

MATERIALS AND METHODS

The material was collected during vegetative growth period of forest plants of 2004–2009, 2011, and 2013 by radial route method. The living and dry standing trees, fallen logs, stumps, wood debris and forest litter were observed. In total, 7,500 trees were involved into this study.

Laboratory study of basidiomata was carried out as described by Gilbertson and Ryvarden (1986). Freehand sections and squash mounts were examined in 5% KOH and 2% Cotton Blue. For every specimen, at least 30 spores were measured.

The following key territories are distinguished into reserve (Figure 2).

I. Filippovskoye natural boundary. This landscape district occupies the northeastern part of the reserve around the Sotka river valley. The flood-land and slope-occupying old forests are characteristic to this territory. There are spruce, larch, pine and aspen herb-rich boreal forests.

II. Moseev Log natural boundary. This district lies in the central depressed part of the reserve over the karst landscape. There is an extensive depression as result of karst erosion by acidic waters produced by boreal vegetation run-off. The larch-pine forests with rather complicated cover are characteristic

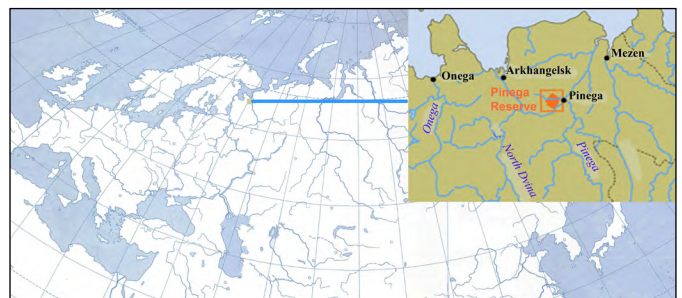


Figure 1. Location of the Pinega Reserve in the Eurasian continent.

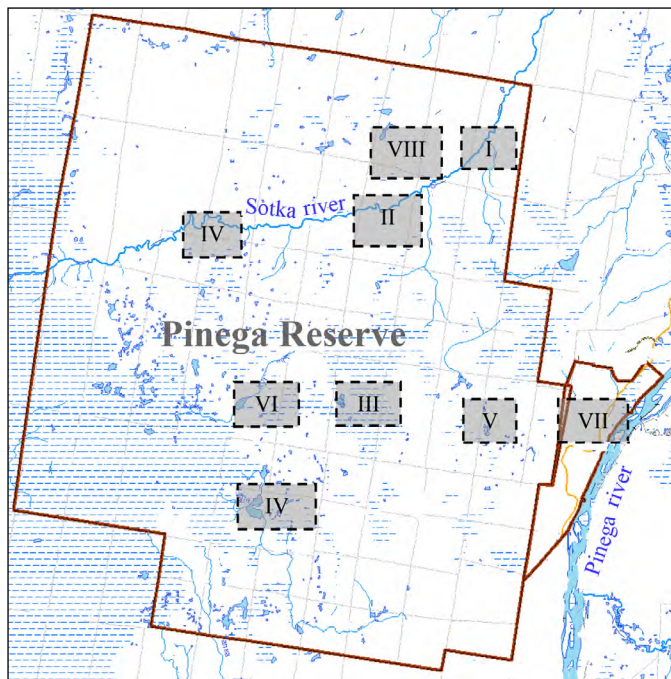


Figure 2. Key territories of the Pinega Reserve: I – Filippovskoye natural boundary, II – Moseev Log natural boundary, III – Zheleznoye Lake natural boundary, IV – Pershkovskoye and Norvezhskoye Lakes natural boundary, V – Sychovo Lake natural boundary, VI – Kuzmichevo Lake natural boundary, VII – Golubino protective zone, VIII – Krivoeye Lake natural boundary.

to this area.

III. Zheleznoye Lake natural boundary. This district is associated with the central part of the reserve. The typical north-boreal spruce-pine forests with green mosses and *Vaccinium* spp. predominate here.

IV. Pershkovskoye and Norvezhskoye Lakes natural boundary. This district is located in the Western low part of reserve. Swamp forests of *Sphagnum*-type are widely distributed here. Stands are enriched presumably by spruce and aspen. There are also forests containing pine and larch.

V. Sychovo Lake natural boundary. The district occupies the Eastern part of the reserve. The forests are comparatively younger with aspen and birch-predominating. The cover is typically boreal, of *V. myrtillus* root type.

VI. Kuzmichevo Lake natural boundary. The district occupies the Western plain part of the reserve. Similarly to the Sychovo Lake district, there are secondary north-boreal aspen and birch forests of *V. myrtillus* root type.

VII. Golubino protective zone. This is a zone bordering the Eastern plain part of the reserve. There are old aspen stands with green mosses type.

VIII. Krivoeye Lake natural boundary. This district occupies the valley-rich Northern part of the reserve. The vegetation is represented by old spruce forests of *Sphagnum*-type and larch-pine forests of green mosses type.

RESULTS

The present checklist adds to previous reports (Ezhov *et al.* 2007, 2010, 2011; Ezhov and Ershov 2008) and includes 328 species belonging to 158 genera of aphylliphoroid basidiomycetes.

Widely distributed species are listed based on field reports.

Most species are documented with herbarium materials deposited at the Herbarium of Pomor State University, Arkhangelsk, Russia (AR). The roman numbers indicate the key territories of the reserve as described above (Figure 2). The generic concepts follow CABI Bioscience Databases (Index Fungorum 2014), with some adjustments.

List of species

1. *Albatrellus ovinus* (Schaeff.) Kotl. & Pouzar — I, III, IV, VII: on soil (AR 1541) in various forest types. Scarce.
2. *Aleurodiscus lividocaeruleus* (P. Karst.) P.A. Lemke — I, III: on fallen log of *Larix sibirica* (AR 1529) and *Picea obovata* in spruce forest (AR 4). Very scarce.
3. *Amphinema byssoides* (Pers.) J. Erikss. — I, V: on fallen wood of *Larix sibirica* (AR 6) and *Populus tremula* (AR 7) in various forest types. Scarce.
4. *Amylocorticium cremeoisabellinum* (Litsch.) Spirin & Zmitr. — III: on fallen log of *Populus tremula* (AR 1343) in aspen forest. Single find.
5. *A. subillaqueatum* (Litsch.) Spirin & Zmitr. — IV: on fallen log of *Pinus sylvestris* (AR 13) in pine forest. Single find.
6. *Amylocorticium subincarnatum* (Peck) Pouzar — I, III, V: on fallen log of *Larix sibirica* (AR 10, AR 11) in coniferous forest. Scarce.
7. *A. subsulphureum* (P. Karst.) Pouzar — III: on fallen log of *Populus tremula* (AR 1195) in coniferous forest. Single find.
8. *Amylocystis lapponica* (Romell) Bondartsev & Singer — I, II, III, IV, V, VIII: on fallen logs of *Picea obovata* (AR 15) in spruce forests. Rather common.
9. *Amyloporia crassa* (P. Karst.) Bondartsev & Singer — III, IV, VI: on fallen logs of *Larix sibirica* (AR 1103) and *Pinus sylvestris* (AR 32) in coniferous forests. Scarce.
10. *A. sinuosa* (Fr.) Rajchenb., Gorjón & Pildain — I, II, III, IV, V, VI, VII, VIII: on fallen log of *Picea obovata* and *Pinus sylvestris* (AR 49–52, 1082) in various forest types. Rather common.
11. *A. xantha* (Fr.) Bondartsev & Singer — I, II, III, IV, V, VI, VII, VIII: on fallen logs of *Larix sibirica* (AR 63), *Picea obovata* (AR 57), *Pinus sylvestris*, *Populus tremula* (AR 62, AR 1562), and *Salix* sp. (AR 55) in various forest types. Rather common.
12. *Amylostereum chailletii* (Pers.) Boidin — II: on fallen logs of *Larix sibirica* (AR 17) and *Picea obovata* (AR 18) in coniferous forests. Scarce.
13. *Anomoporia albolutescens* (Romell) Pouzar — I, III, IV, V: on fallen logs of *Larix sibirica* (AR 1709), *Pinus sylvestris* (AR 1450), *Betula* sp. (AR 20, AR 1111), and *Populus tremula* (AR 19, AR 21) in mixed forest. Scarce.
14. *A. kamtschatica* (Parmasto) Bondartseva — III, V: on fallen wood of *Larix sibirica* (AR 24) and *Picea obovata* (AR 23) in coniferous forests. Very scarce.
15. *Antrodia albida* (Fr.) Donk — I, III, V: on dry standing trunk of *Salix* sp. (AR 27) in various forest types. Scarce.
16. *A. albobrunnea* (Romell) Ryvarden — III, IV, V: on fallen wood of *Larix sibirica* (AR 29) and *Pinus sylvestris* (AR 1102) in pine forests. Scarce.
17. *A. gossypium* (Speg.) Ryvarden — I, III, V, VII: on fallen logs of *Larix sibirica* (AR 38, AR 1389), *Pinus sylvestris* (AR 1419), and *Populus tremula* (AR 1302) in various forest types. Scarce.

18. *A. pulvinascens* (Pilát) Niemelä — I, VII: on large fallen logs of *Populus tremula* (AR 39, AR 41, AR 1120) in aspen forests. Scarce.
19. *A. serialis* (Fr.) Donk — I, II, III, IV, V, VI, VII, VIII: on fallen logs of *Picea obovata* (AR 48), *Populus tremula* (AR 1298), and basidiome of *Trichaptum* sp. (AR 1285) in various forest types. Rather common.
20. *A. sordida* Ryvarden & Gilb. — III: on fallen log of *Picea obovata* (AR 1105) in coniferous forests. Single find.
21. *Antrodiella faginea* Vampola & Pouzar — I, V: on fallen logs of *Betula* sp. (AR 1388, AR 1738) and *Populus tremula* (AR 66, AR 67) in aspen forests. Scarce.
22. *A. pallasii* Renvall, Johann. & Stenlid — V, VII: on fallen logs of *Larix sibirica*, *Picea obovata* (AR 69, AR 70), and *Pinus sylvestris* (AR 1715) in coniferous forest. Scarce.
23. *A. pallescens* (Pilát) Niemelä & Miettinen — I, V, VII: on fallen log of *Betula* sp. (AR 73, AR 77), *Populus tremula* (AR 1625) and basidiome of *Fomes fomentarius* (AR 1523, AR 1523) in various forest types. Scarce.
24. *A. romellii* (Donk) Niemelä — VII: on fallen logs of *Populus tremula* (AR 1513) in aspen forest. Single find.
25. *Aphanobasidium pseudotsugae* (Burt) Boidin & Gilles — I: on fallen logs and branches of *Larix sibirica* (AR 1423) in aspen forest. Single find.
26. *Artomyces pyxidatus* (Pers.) Jülich — I, III, IV, V, VII: on fallen logs and stumps of *Populus tremula* (AR 182) in mixed forests. Rather common.
27. *Asterodon ferruginosus* Pat. — I, III, IV, V, VII, VIII: on fallen log of *Larix sibirica*, *Picea obovata*, *Betula* sp. (AR 80), and *Populus tremula* (AR 1020) in various forest types. Rather common.
28. *Athelia alnicola* (Bourdot & Galzin) Jülich — III: on fallen log of *Populus tremula* (AR 1114) in aspen forest. Single find.
29. *A. decipiens* (Höhn. & Litsch.) J. Erikss. — VII: on fallen log of *Picea obovata* (AR 81) in spruce forests. Single find.
30. *A. epiphylla* Pers. — I: on fallen logs of *Larix sibirica* (AR 1341), *Picea obovata* (AR 1424), and *Betula* sp. (AR 1585) in coniferous forest. Scarce.
31. *Bankera fuligineoalba* (J.C. Schmidt) Coker & Beers ex Pouzar — III: on soil in pine forest (AR 1559). Very scarce.
32. *Basidioradulum radula* (Fr.) Nobles — III, IV, VII: on fallen logs and branches of *Salix* sp. and *Sorbus aucuparia* (AR 90, AR 93) in various forest types. Rather common.
33. *B. tuberculatum* (Berk. & M.A. Curtis) Hjortstam — I: on fallen log of *Salix* sp. (AR 94) within flood-land vegetation. Single find.
34. *Bjerkandera adusta* (Willd.) P. Karst. — I, II, III, IV, V, VI, VII: on fallen logs and stumps of *Larix sibirica* (AR 108), *Betula* sp. (AR 104), *Populus tremula* (AR 107), and *Salix* sp. (AR 103) in various forest types. Rather common.
35. *B. fumosa* (Pers.) P. Karst. — II, VII: on fallen logs of *Betula* sp. (AR 109), *Populus tremula* (AR 110) and basidiome of *Fomes fomentarius* (AR 1291) in deciduous forests. Rather common.
36. *Botryobasidium vagum* (Berk. & M.A. Curtis) D.P. Rogers — III: on fallen log of *Pinus sylvestris* (AR 1393) in pine forest. Single find.
37. *B. conspersum* J. Erikss. — I: on fallen log of *Alnus incana* (AR 1342) within flood-land vegetation. Single find.
38. *Botryohypochnus isabellinus* (Fr.) J. Erikss. — I, II, IV, V, VI, VII: on fallen logs of *Picea obovata* (AR 118, AR 1484), *Betula* sp. (AR 1170, AR 1483), and *Populus tremula* (AR 1621) in various forest types. Rather common.
39. *Byssocorticium atrovirens* (Fr.) Bondartsev & Singer — V: on fallen log of *Populus tremula* (AR 1215) in mixed forest. Single find.
40. *B. pulchrum* (S. Lundell) M. P. Christ. — I: on fallen log of *Populus tremula* (AR 123) in aspen forest. Single find.
41. *Byssomerulius corium* (Pers.) Parmasto — V, VII: on fallen log of *Populus tremula* (AR 120, AR 121) in aspen forest. Very scarce.
42. *Cantharellus cibarius* Fr. — III: on soil in pine forest (AR 128). Rather common.
43. *Ceraceomyces borealis* (Romell) J. Erikss. & Ryvarden — I, III: on fallen logs of *Larix sibirica* (AR 130), *Betula* sp. (AR 1571), and *Populus tremula* (AR 1610) in various forest types. Scarce.
44. *C. microsporus* K. H. Larss. — III: on fallen log of *Picea obovata* (AR 1313) in spruce forest. Single find.
45. *C. serpens* (Tode) Ginns — I, III, IV, V: on fallen logs of *Larix sibirica* (AR 1425, AR 1520), *Picea obovata* (AR 1519), *Pinus sylvestris* (AR 136), *Betula* sp. (AR 1739), and *Populus tremula* (AR 133, AR 135) in various forest types. Rather common.
46. *C. violascens* (Fr.) Jülich — V: on fallen log of *Betula* sp. (AR 1608) in mixed forest. Single find.
47. *Ceriporia excelsa* S. Lundell ex Parmasto — I, VII: on debris of *Betula* sp. (AR 137, AR 138) in deciduous forest. Scarce.
48. *C. purpurea* (Fr.) Donk — I: on fallen log of *Alnus incana* (AR 142), *Populus tremula* (AR 140), and *Salix* sp. (AR 143) in deciduous forest and within flood-land vegetation. Scarce.
49. *C. reticulata* (Hoffm.) Domański — I: on fallen log of *Populus tremula* (AR 1584) and basidiome of *Fomes fomentarius* (AR 1275) in deciduous forest. Single find.
50. *C. viridans* (Berk. & Broome) Donk — I: on fallen log of *Betula* sp. (AR 144), *Populus tremula* (AR 1486) in deciduous forest. Very scarce.
51. *Ceriporiopsis jelicii* (Tortič & A. David) Ryvarden & Gilb. — I: on fallen log of *Larix sibirica* (AR 873) in pine forest. Single find.
52. *C. mucida* (Pers.) Gilb. & Ryvarden — V: on fallen log of *Pinus sylvestris* (AR 1149), and *Populus tremula* (AR 1145) in pine forest. Scarce.
53. *C. resinascens* (Romell) Domański — I, III, V: on fallen logs of *Populus tremula* (AR 161) in aspen forests. Scarce.
54. *C. subvermispora* (Pilát) Gilb. & Ryvarden — I, III: on fallen log of *Populus tremula* (AR 160, AR 1411) in mixed forest. Scarce.
55. *Cerrena unicolor* (Bull.) Murrill — I, II, III, IV, V, VI, VII, VIII: on dry standing and fallen trees of *Betula* sp., and *Populus tremula* (AR 266) in various forest types. Rather common.
56. *Chaetodermella luna* (Romell ex D.P. Rogers & H.S. Jacks.) Rauschert — I, IV, V: on fallen logs of *Larix sibirica* (AR 235), *Picea obovata*, and *Pinus sylvestris* (AR 1241, AR 1242) in coniferous forests. Rather common.
57. *Chondrostereum purpureum* (Pers.) Pouzar — I, II, III, IV, V, VI, VII: on dry standing and fallen trees of *Larix sibirica*,

- Betula* sp. (AR 173), and *Populus tremula* (AR 173) in various forest types. Rather common.
58. *Cinereomyces lindbladii* (Berk.) Jülich — I, III, IV: on fallen logs of *Picea obovata* (AR 295, AR 296), *Populus tremula* (AR 1129) and old basidiomes (AR 1434) in various forest types. Scarce.
 59. *Clavaria argillacea* Pers. — III: on soil (AR 1336) in pine forest. Single find.
 60. *C. purpurea* O. F. Müll. — II: on soil within flood-land vegetation. Single find, the specimen didn't kept.
 61. *Clavariadelphus ligula* (Schaeff.) Donk — I, III, V: on forest litter in coniferous forests (AR 179, AR 1380). Rather common.
 62. *C. sacchalinensis* (S. Imai) Corner — IV, V: on soil (AR 180) in mixed forests. Scarce.
 63. *Clavulina cinerea* (Bull.) J. Schröt. — I: on soil within flood-land vegetation (AR 1329). Single find.
 64. *Clavulinopsis helvola* (Pers.) Corner — IV, VII: on soil in spruce forest (AR 1262). Single find.
 65. *Climacocystis borealis* (Fr.) Kotl. & Pouzar — I, III, IV: on dry standing trees of *Picea obovata* (AR 185) in spruce forests. Rather common.
 66. *Coltricia perennis* (L.) Murrill — III: on sandy soil (AR 189) in pine forests or near the roads. Rather common.
 67. *Conferticum karstenii* (Bourdote & Galzin) Hallenb. — I, VII: on fallen logs of *Betula* sp. (AR 191) and *Populus tremula* (AR 1124) in mixed forests. Scarce.
 68. *Coniophora arida* (Fr.) P. Karst. — I, III, V: on fallen logs of *Larix sibirica* (AR 200, AR 201), *Pinus sylvestris* (AR 199), and *Populus tremula* (AR 192, AR 1609) in various forest types. Rather common.
 69. *C. fusispora* (Cooke & Ellis) Cooke — IV, V: on fallen log of *Larix sibirica* (AR 1768) and *Pinus sylvestris* (AR 1746) in pine forest. Very scarce.
 71. *C. olivacea* (Fr.) P. Karst. — I, II, III, IV, VI: on fallen logs of *Larix sibirica* (AR 1776), *Picea obovata* (AR 208, AR 1238), *Pinus sylvestris* (AR 211), *Betula* sp. (AR 1634), and *Populus tremula* (AR 202, AR 210) in various forest types. Rather common.
 70. *C. puteana* (Schumach.) P. Karst. — III: on fallen branches of *Larix sibirica* in coniferous forest. Very scarce.
 71. *Corticium roseum* Pers. — I, IV, V, VII: on dry standing and fallen trees of *Populus tremula* (AR 221), *Salix* sp. (AR 223, AR 224), and *Sorbus aucuparia* (AR 1614) in mixed forest. Rather common.
 72. *Crustoderma corneum* (Bourdote & Galzin) Nakasone — I: on fallen log of *Pinus sylvestris* (AR 1607) in coniferous forest. Single find.
 73. *C. dryinum* (Berk. & M. A. Curtis) Parmasto — I, IV, VI, VIII: on fallen logs of *Larix sibirica* (AR 235), *Picea obovata* (AR 233), *Pinus sylvestris* (AR 237), and *Populus tremula* (AR 1572) in coniferous forests. Rather common.
 74. *Crustomyces subabruptus* (Bourdote & Galzin) Jülich — I, VI: on fallen log of *Picea obovata* (AR 242) in spruce forest. Very scarce.
 75. *Cylindrobasidium evolvens* (Fr.) Jülich — I: on fallen logs of *Populus tremula* and *Salix* sp. (AR 251) in various forest types and within flood-land vegetation. Rather common.
 76. *Cytidia salicina* (Fr.) Burt — II, V: on dead and fallen branches of *Salix* sp. (AR 258) within flood-land vegetation. Very scarce.
 77. *Dacryobolus karstenii* (Bres.) Oberw. ex Parmasto — IV: on fallen log of *Populus tremula* (AR 1770) in mixed forest. Single find.
 78. *Daedaleopsis confragosa* (Bolton) J. Schröt. — I, VII: on fallen log and dry standing tree of *Salix* sp. and *Betula* sp. (AR 262) in various forest types. Scarce.
 79. *D. septentrionalis* (P. Karst.) Niemelä — I, V: on fallen log of *Betula* sp. (AR 1545) in various forest types. Scarce.
 80. *D. tricolor* (Bull.) Bondartsev & Singer — VI: on fallen log of *Betula* sp. (AR 268) in birch forest. Very scarce.
 81. *Datronia mollis* (Sommerf.) Donk — IV: on fallen logs of *Populus tremula* (AR 273) in aspen forests. Scarce.
 82. *Dendrocorticium polygonioides* (P. Karst.) M.J. Larsen & Gilb. — I, V, VII: on fallen log of *Alnus incana* (AR 218), *Betula* sp. (AR 1741), and *Populus tremula* (AR 219) in spruce forest and within flood-land vegetation. Rather common.
 83. *Dichomitus squalens* (P. Karst.) D.A. Reid — I, II, III, IV, VI: on fallen logs of *Picea obovata* (AR 280, AR 283) and *Pinus sylvestris* in coniferous forests. Rather common.
 84. *Dichostereum boreale* (Pouzar) Ginns & M.N.L. Lefebvre — I, III, VII: on fallen logs of *Larix sibirica* (AR 1490) and *Picea obovata* (AR 285, AR 288) in coniferous forests. Scarce.
 85. *Diplomitoporus flavescens* (Bres.) Domański — I, II, III, IV, V, VI, VII, VIII: on fallen logs of *Pinus sylvestris* in various forest types. Rather common.
 86. *Elmerina caryae* (Schwein.) D.A. Reid — I, IV: on fallen log of *Betula* sp. (AR 1112) and *Populus tremula* (AR 1472, AR 1766) in mixed forest. Scarce.
 87. *Favolus pseudobetulinus* (Murashk. ex Pilát) Sotome & T. Hatt. — VIII: on living trees of *Populus tremula* (AR 709) in aspen forest. Single find.
 88. *Fibroporia vaillantii* (DC.) Parmasto — I: on fallen log of *Populus tremula* (AR 1763) in aspen forest. Single find.
 89. *Fibulomyces mutabilis* (Bres.) Jülich — I: on fallen log of *Larix sibirica* (AR 1427) in pine forest. Single find.
 90. *Flaviporus citrinellus* (Niemelä & Ryvardeen) Ginns — I, III, IV: on fallen log of *Larix sibirica* (AR 1107), *Picea obovata* (AR 64, AR 1108), and *Betula* sp. (AR 1107) in various forest types. Rather common.
 91. *Fomes fomentarius* (L.) Fr. — I, II, III, IV, V, VI, VII, VIII: on dry standing and fallen trees of *Alnus incana* (AR 313), *Betula* sp., and *Populus tremula* (AR 310) in various forest types. Rather common.
 92. *Fomitiporia punctata* (P. Karst.) Murrill — I, II, III, IV, V, VII: on living, dry and fallen trees of *Alnus incana*, *Betula* sp., and *Salix* sp. (AR 632) in various forest types. Rather common.
 93. *Fomitopsis cajanderi* (P. Karst.) Kotl. & Pouzar — VI: on fallen log of *Picea obovata* (AR 317) in larch forest. Very scarce.
 94. *F. officinalis* (Vill.) Bondartsev & Singer — I, II, IV, VIII: on living *Larix sibirica* in pine forests. Scarce. Specimen didn't kept.
 95. *F. pinicola* (Sw.) P. Karst. — I, II, III, IV, V, VI, VII, VIII: on dry standing and fallen trees and stumps of *Larix sibirica*, *Picea obovata*, *Pinus sylvestris*, *Alnus incana*, *Betula* sp., *Populus tremula*, and *Salix* sp. (AR 318, AR 319) in various forest types. Rather common.
 96. *F. rosea* (Alb. & Schwein.) P. Karst. — I, II, III, IV, V, VI,

- VII, VIII: on fallen logs and stumps of *Picea obovata*, *Pinus sylvestris* (AR 323), and *Populus tremula* (AR 322) in various forest types. Rather common.
97. *Fuscoporia viticola* (Schwein.) Murrill — I, II, III, IV, V, VII: on fallen logs of *Larix sibirica*, *Picea obovata* (AR 658), and *Pinus sylvestris* (AR 656, AR 657) in coniferous forests. Rather common.
98. *Ganoderma appplanatum* (Pers.) Pat. — I, IV, VI: on fallen logs of *Betula* sp. (AR 823) and *Populus tremula* in various forest types. Scarce.
99. *Gelatoporia dichroa* (Fr.) Ginns — III, IV, V, VI, VII: on dry standing and fallen trees of *Alnus incana* (AR 1654), *Betula* sp. (AR 353), *Populus tremula* (AR 1771), and *Salix* sp. in various forest types. Rather common.
100. *G. pannocincta* (Romell) Niemelä — I, III, IV, V, VII: on fallen log of *Betula* sp. (AR 154, AR 1167), *Populus tremula* (AR 153, AR 155, AR 159), and basidiomes of *Phellinus tremulae* (AR 1412) in various forest types and within flood-land vegetation. Rather common.
101. *Gloeocystidiellum convolvens* (P. Karst.) Donk — I, V, VII: on fallen logs of *Larix sibirica* (AR 324), *Picea obovata* (AR 1447), *Betula* sp. (AR 326, AR 1279), and *Populus tremula* (AR 1783) in mixed forests. Rather common.
102. *G. porosum* (Berk. & M. A. Curtis) Donk — I, III, V: on fallen logs of *Picea obovata* (AR 333) and *Populus tremula* (AR 1526) in aspen forest. Scarce.
103. *Gloeoporus taxicola* (Pers.) Gilb. & Ryvarden — I, II, III, IV, V, VII, VIII: on fallen logs of *Picea obovata* and *Pinus sylvestris* (AR 356) in various forest types. Rather common.
104. *Gloeophyllum odoratum* (Wulfen) Imazeki — I, III: on stumps and fallen logs of *Picea obovata* (AR 1405, AR 1704) in spruce forests. Scarce.
105. *G. sepiarium* (Wulfen) P. Karst. — I, II, III, IV, V, VI, VII, VIII: on fallen logs of *Picea obovata* (AR 347), *Pinus sylvestris*, *Alnus incana* (AR 346) and *Populus tremula* in various forest types. Rather common.
106. *G. protractum* (Fr.) Imazeki — I, III: on fallen log of *Pinus sylvestris* (AR 341, AR 342) in pine forest. Scarce.
107. *Gloiodon strigosus* (Sw.) P. Karst. — I: on fallen log of *Betula* sp. (AR 1737) within flood-land vegetation. Very scarce.
108. *Gloiothele citrina* (Pers.) Ginns & G.W. Freeman — I, V, VI: on fallen logs of *Larix sibirica* (AR 1006, AR 1013, AR 1015), *Picea obovata* (AR 1008, AR 1011, AR 1014), and *Populus tremula* (AR 1007, AR 1009, AR 1010) in various forest types. Rather common.
109. *Hapalopilus rutilans* (Pers.) P. Karst. — I, IV: on dry standing and fallen trees and branches of *Betula* sp. and *Sorbus aucuparia* (AR 363) in various forest types. Rather common.
110. *Haploporus odoratus* (Sommerf.) Bondartsev & Singer — VII: on living trees of *Salix* sp. (AR 365) in mixed forest. Single find.
111. *Hericium cirrhatum* (Pers.) Nikol. — I, V: on dry standing trees and stumps of *Betula* sp. in various forest types. Scarce.
112. *H. coralloides* (Scop.) Pers. — I, III, IV, V, VII: on dry standing and fallen trees of *Betula* sp. and *Populus tremula* (AR 367) in various forest types. Rather common.
113. *Heterobasidion annosum* (Fr.) Bref. — II, III, IV, V: on living, dry and fallen trees of *Pinus sylvestris* (AR 368) in coniferous forests. Rather common.
114. *H. parviporum* Niemelä & Korhonen — I, IV, VII: on fallen logs of *Picea obovata* (AR 372, AR 1707) in spruce forests. Scarce.
115. *Hydnellum aurantiacum* (Batsch) P. Karst. — VII: on soil (AR 374) in pine forests. Very scarce.
116. *H. ferrugineum* (Fr.) P. Karst. — V: on soil in pine forest. Single find.
117. *Hydnocristella himantia* (Schwein.) R.H. Petersen — I: on branch of *Larix sibirica* (AR 1428) in coniferous forest. Single find.
118. *Hydnum repandum* L. — I, III, IV, V: on soil in open pine forests (AR 381, AR 383). Rather common.
119. *Hymenochaete cinnamomea* (Pers.) Bres. — I, VII: fallen log of *Populus tremula* (AR 384) and *Salix* sp. (AR 1157) in aspen forest. Scarce.
120. *H. fuliginosa* (Pers.) Lév. — I, V: on fallen log of *Larix sibirica* (AR 388, AR 389) in spruce forest. Scarce.
121. *Hyphoderma luridum* (Bourdot & Galzin) J. Erikss. & Hjortstam — I: on fallen logs of *Populus tremula* (AR 1408) and basidiome of *Inonotus radiatus* in aspen forests. Very scarce.
122. *H. setigerum* (Fr.) Donk — I, III, IV: on fallen logs of *Betula* sp. (AR 403, AR 1467) and *Populus tremula* (AR 400, AR 408) in various forest types. Scarce.
123. *Hyphodontia abieticola* (Bourdot & Galzin) J. Erikss. — IV: on fallen logs of *Pinus sylvestris* (AR 411) in pine forest. Single find.
124. *H. alutaria* (Burt) J. Erikss. — I, III, IV: on fallen logs of *Picea obovata* (AR 412, AR 1430) in coniferous forests. Scarce.
125. *H. aspera* (Fr.) J. Erikss. — I, III: on fallen log of *Picea obovata* and *Populus tremula* (AR 1338, AR 1575) in aspen forest. Scarce.
126. *H. barba-jovis* (Bull.) J. Erikss. — I: on fallen log of *Betula* sp. (AR 423) in deciduous forest. Single find.
127. *H. breviseta* (P. Karst.) J. Erikss. — I, III, IV, VII: on fallen log of *Picea obovata* (AR 424, AR 426) and *Populus tremula* (AR 1622) in various forest types. Rather common.
128. *H. crustosa* (Pers.) J. Erikss. — I: on fallen branches of *Betula* sp. (AR 1429) within flood-land vegetation. Single find.
129. *H. efibulata* J. Erikss. & Hjortstam — II, V: on fallen log of *Picea obovata* (AR 431) in spruce forests. Very scarce.
130. *H. hastata* (Litsch.) J. Erikss. — II, V: on fallen log of *Picea obovata* (AR 431) in spruce forests. Single find.
131. *H. pallidula* (Bres.) J. Erikss. — I, III, VII: on fallen log of *Larix sibirica* (AR 437, AR 1769), *Picea obovata* (AR 436), and *Betula* sp. (AR 1635) in various forest types. Scarce.
132. *H. quercina* (Pers.) J. Erikss. — I: on dry still attached branch of *Salix* sp. (AR 433) within flood-land vegetation. Single find.
133. *H. sambuci* (Pers.) J. Erikss. — I: on fallen logs of *Salix* sp. (AR 440) within flood-land vegetation. Single find.
134. *H. subalutacea* (P. Karst.) J. Erikss. — I, II, IV, V: on fallen logs and branches of *Larix sibirica* (AR 445), *Pinus sylvestris* (AR 446), *Betula* sp. (AR 1431), and *Populus tremula* (AR 1312) in various forest types. Scarce.
135. *Hypochnella violacea* Auersw. ex J. Schröt. — I: on fallen

- logs of *Alnus incana* (AR 1201) and *Betula* sp. (AR 1202) within flood-land vegetation. Very scarce.
136. *Hypochnicium bombycinum* (Sommerf.) J. Erikss. — I: on stumps and fallen logs of *Padus avium* (AR 1569), *Populus tremula* (AR 1620), and *Salix* sp. (AR 452) within flood-land vegetation. Scarce.
137. *H. geogenium* (Bres.) J. Erikss. — I: on fallen log of *Pinus sylvestris* (AR 1214) within flood-land vegetation. Single find.
138. *H. lundellii* (Bourdot) J. Erikss. — III: on fallen log of *Salix* sp. (AR 463) in spruce forest. Single find.
139. *Inocutis rheades* (Pers.) Fiasson & Niemelä — I, IV, V, VII: on dry standing tree of *Populus tremula* (AR 471–473) in pine forest. Rather common.
140. *Inonotus leporinus* (Fr.) Gilb. & Ryvarden — II, IV: on dying trees and stumps of *Picea obovata* (AR 1658) in spruce forests. Rather common.
141. *I. obliquus* (Arc. ex Pers.) Pilát — I, II, III, IV, V, VI, VII, VIII: on living and dry trees of *Alnus incana* and *Betula* sp. (AR 471–473) in various forest types. Rather common.
142. *I. tomentosus* (Fr.) Teng — I, VI: on roots of *Picea obovata* (AR 542) in pine forest and within flood-land vegetation. Very scarce.
143. *I. triqueter* (Pers.) P. Karst. — I, II, III, IV, V, VII: on dying trees and stumps of *Picea obovata* (AR 543, AR 1258) in spruce forests. Rather common.
144. *Intextomyces contiguus* (P. Karst.) J. Erikss. & Ryvarden — I, V: on fallen log of *Populus tremula* (AR 1169) and *Salix* sp. (AR 484, AR 1710) in aspen forest and within flood-land vegetation. Very scarce.
145. *Ischnoderma benzoinum* (Wahlenb.) P. Karst. — I, III, VI: on fallen logs and stumps of *Larix sibirica* and *Pinus sylvestris* (AR 489) in pine forests. Rather common.
146. *Junghuhnia collabens* (Fr.) Ryvarden — I, III, IV, VII: on fallen logs of *Picea obovata* (AR 1706) in spruce forests. Scarce.
147. *J. lacera* (P. Karst.) Niemelä & Kinnunen — VII: on fallen log of *Pinus sylvestris* (AR 925), *Populus tremula* (AR 924), and *Salix* sp. (AR 1146) in coniferous forests and within flood-land vegetation. Scarce.
148. *J. luteoalba* (P. Karst.) Ryvarden — I, III, IV, V, VII: on fallen logs of *Picea obovata* (AR 908), *Pinus sylvestris* (AR 905), and *Populus tremula* (AR 1485) in various forest types. Rather common.
149. *J. pseudozilingiana* (Parmasto) Ryvarden — I, VII: on fallen logs of *Betula* sp. (AR 920) in deciduous forest. Very scarce.
150. *Kavinia albovidis* (Morgan) Gilb. & Budington — I, IV: on fallen log of *Picea obovata* (AR 1745) and *Populus tremula* (AR 492) in mixed forest. Very scarce.
151. *Laetiporus sulphureus* (Bull.) Murrill — I, III: on fallen logs and stumps of *Larix sibirica* (AR 494) and *Pinus sylvestris* (AR 493) in pine forest. Scarce.
152. *Laurilia sulcata* (Burt) Pouzar — I, III, IV, V, VII: on fallen logs of *Larix sibirica* (AR 496), *Picea obovata* (AR 497, AR 499), and *Pinus sylvestris* (AR 501, AR 502) in various forest types. Scarce.
153. *Laxitextum bicolor* (Pers.) Lentz — I, IV, V: on dry standing and fallen trees of *Alnus incana*, *Betula* sp., and *Populus tremula* (AR 505) in various forest types. Rather common.
154. *Lentaria afflata* (Lagger) Corner — IV, V, VII: on fallen wood of *Pinus sylvestris* (AR 507) and *Populus tremula* (AR 508, AR 1039) in various forest types. Scarce.
155. *L. dendroidea* (O. R. Fr.) J. H. Petersen — VII: on soil (AR 1657) in aspen forest. Single find.
156. *L. mucida* (Pers.) Corner — I, VII: on wood of *Populus tremula* (AR 512, AR 1381), covered by algal film in aspen forests. Scarce.
157. *L. subcaulescens* (Rebent.) Rauschert — V: on fallen wood of *Populus tremula* (AR 1643) in aspen forests. Single find.
158. *Lentinellus castoreus* (Fr.) Kühner & Maire — I, III, VII: on fallen log of *Betula* sp. (AR 513) and *Populus tremula* (AR 1550) in mixed forests. Scarce.
159. *Lenzites betulina* (L.) Fr. — I: on stump of *Betula* sp. (AR 514) in birch forest. Very scarce.
160. *Leptoporus mollis* (Pers.) Quél. — I, V, VI, VII: on fallen logs of *Picea obovata* (AR 516, AR 519) and *Pinus sylvestris* (AR 518) in spruce forests. Rather common.
161. *Leptosporomyces fuscostratus* (Burt) Hjortstam — I, V: on fallen logs of *Juniperus communis* (AR 1510) and *Larix sibirica* (AR 1509) in pine forest. Very scarce.
162. *L. galzinii* (Bourdot) Jülich — I, III: on fallen logs of *Larix sibirica* (AR 521, AR 1295), *Pinus sylvestris* (AR 520), *Betula* sp. (AR 1752) and basidiome of *Fomes fomentarius* in pine forest. Scarce.
163. *Leucogyrophana mollusca* (Fr.) Pouzar — III: on fallen logs of *Larix sibirica* (AR 523) and *Pinus sylvestris* (AR 1517) in mixed forest. Very scarce.
164. *L. romellii* Ginns — I, III, V: on fallen log of *Larix sibirica* (AR 1198), *Pinus sylvestris* (AR 1518), and *Populus tremula* (AR 524) in coniferous forest. Scarce.
165. *Lopharia cinerascens* (Schwein.) G. Cunn. — IV: on fallen log of *Populus tremula* (AR 527) in mixed forest. Single find. Probably, this is alien ephemeral species, for discussion see Ezhov *et al.* (2011).
166. *Macrotyphula fistulosa* (Holmsk.) R.H. Petersen — I, III, V, VI: on forest litter (AR 178) in mixed forests. Scarce.
167. *M. juncea* (Alb. & Schwein.) Berthier — I, IV: on soil and fallen branches (AR 1252) in birch forests. Scarce.
168. *Merulius tremellosus* Schrad. — I, III, IV, V, VII: on stumps and fallen logs of *Picea obovata* (AR 682), *Betula* sp. (AR 688), and *Populus tremula* in various forest types. Rather common.
169. *Metulodontia nivea* (P. Karst.) Parmasto — I: on fallen log of *Populus tremula* (AR 530, AR 531) in aspen forest. Very scarce.
170. *Mucronella calva* (Alb. & Schwein.) Fr. — I, IV: on fallen logs of *Picea obovata* (AR 533, AR 1163) and *Pinus sylvestris* (AR 532) in coniferous forests. Scarce.
171. *Multiclavula vernalis* (Schwein.) R.H. Petersen — V: on soil covered by film consisted by algae and moss protonemata (AR 1652). Single find.
172. *Mutatoderma mutatum* (Peck) C.E. Gómez — I: on fallen log of *Salix* sp. (AR 396) within flood-land vegetation. Single find.
173. *Mycoacia aurea* (Fr.) J. Erikss. & Ryvarden — I: on fallen log of *Betula* sp. (AR 1633) and basidiomes of *Fomes fomentarius* (AR 1592) within flood-land vegetation. Very scarce.
174. *M. fuscoatra* (Fr.) Donk — I, IV, V, VII: on fallen log of

- Betula* sp. (AR 1754) and *Populus tremula* (AR 537) in mixed forest. Scarce.
175. *M. uda* (Fr.) Donk — I: on fallen logs of *Populus tremula* (AR 538, AR 539) and basidiome of *Fomes fomentarius* (AR 1736) in mixed forest. Scarce.
176. *Osteina obducta* (Berk.) Donk — I, IV: on roots of *Larix sibirica* (AR 546) in pine forest. Very scarce.
177. *Oxyporus corticola* (Fr.) Ryvarden — I, II, III, IV, V: on fallen logs and branches of *Populus tremula* (AR 550) in various forest types. Rather common.
178. *O. populinus* (Schumach.) Donk — I: on dry standing tree of *Betula* sp. (AR 1047) and *Sorbus aucuparia* (AR 1047) in pine forests. Very scarce.
179. *Parmastomyces mollissimus* (Maire) Pouzar — II, V: on fallen logs of *Pinus sylvestris* (AR 558) in coniferous forests. Very scarce.
180. *Peniophora incarnata* (Pers.) P. Karst. — I, IV, V: on dry standing and fallen trees of *Betula* sp. (AR 1586), *Populus tremula* (AR 560), and *Salix* sp. (AR 567) within flood-land vegetation. Rather common.
181. *P. nuda* (Fr.) Bres. — IV: on fallen logs and branches of *Populus tremula* (AR 571) in mixed forest. Single find.
182. *P. pithya* (Pers.) J. Erikss. — I: on dry attached and fallen branches of *Larix sibirica* (AR 577) and *Picea obovata* (AR 578) in coniferous forests. Very scarce.
183. *P. polygonia* (Pers.) Bourdot & Galzin — I, IV, VII: on fallen logs and branches of *Populus tremula* (AR 574, AR 575, AR 1050) in aspen forests. Very common.
184. *P. septentrionalis* Laurila — II: on fallen log of *Picea obovata* (AR 584) in spruce forests. Single find.
185. *Peniophorella pallida* (Bres.) K. H. Larss. — V: on fallen log of *Picea obovata* (AR 1604) in mixed forest. Single find.
186. *P. praetermissa* (P. Karst.) K.H. Larss. — I: on fallen log of *Alnus incana* (AR 1159) within flood-land vegetation. Single find.
187. *Perenniporia subacida* (Peck) Donk — I, III, IV, VII: on fallen logs of *Larix sibirica* (AR 591), *Picea obovata* (AR 1561, AR 1311), *Betula* sp. (AR 1141), *Populus tremula* (AR 586), and basidiome of *Phellinus chrysoloma* (AR 870, AR 1284) in various forest types. Rather common.
188. *P. tenuis* (Schwein.) Ryvarden — I: on fallen logs of *Populus tremula* (AR 596) in aspen forest. Single find.
189. *Phaeolus schweinitzii* (Fr.) Pat. — V, VII: on roots of old *Pinus sylvestris* and *Larix sibirica* (AR 597) in coniferous forests. Scarce.
190. *Phanerochaete deflectens* (P. Karst.) Hjortstam — I, VII: on fallen logs of *Populus tremula* (AR 600, AR 1410) in aspen forest. Very scarce.
191. *Ph. galactites* (Bourdot & Galzin) J. Erikss. & Ryvarden — V: on fallen log of *Betula* sp. (AR 1587) in mixed forest. Single find.
192. *Ph. laevis* (Fr.) J. Erikss. & Ryvarden — I, III, V, VII: on fallen logs of *Picea obovata* (AR 601), *Betula* sp. (AR 603), and *Populus tremula* (AR 602) in various forest types. Scarce.
193. *Ph. sanguinea* (Fr.) Pouzar — I, III, IV, VII: on fallen logs of *Larix sibirica* (AR 1294), *Picea obovata*, and *Betula* sp. (AR 1598) in pine forests. Scarce.
194. *Ph. sordida* (P. Karst.) J. Erikss. & Ryvarden — I, III, IV, V: on fallen logs of *Pinus sylvestris* (AR 607) and *Populus tremula* (AR 612) in various forest types. Scarce.
195. *Ph. velutina* (DC.) P. Karst. — I, III, V, VI: on fallen logs of *Picea obovata*, *Alnus incana* (AR 614), *Betula* sp. (AR 1713), and *Populus tremula* (AR 613, AR 616) in various forest types. Scarce.
196. *Ph. viticola* (Schwein.) Parmasto — III, V: on fallen logs of *Picea obovata* (AR 1139) and *Populus tremula* (AR 1140) in various forest types. Scarce.
197. *Phellinidium ferrugineofuscum* (P. Karst.) Fiasson & Niemelä — I, II, III, IV: on fallen logs of *Picea obovata* (AR 631), *Pinus sylvestris*, and *Populus tremula* (AR 627) in spruce forests. Rather common.
198. *Ph. sulphurascens* (Pilát) Y.C. Dai — I, III, VII: on fallen log of *Larix sibirica*, *Picea obovata* (AR 652, AR 653), and *Pinus sylvestris* (AR 654) in coniferous forests. Scarce.
199. *Phellinus conchatus* (Pers.) Quél. — I, II, III, IV, V, VI, VII: on living and dry trees of *Populus tremula* and *Salix* sp. (AR 626) in mixed forests. Rather common.
200. *Ph. igniarius* (L.) Quél. — I, II, III, IV, V, VII: on living, drying and standing dry trees of *Alnus incana* (AR 617), *Betula* sp., *Sorbus aucuparia* (AR 645) and *Salix* sp. (only field record) in various forest types. Rather common.
201. *Ph. laevigatus* (P. Karst.) Bourdot & Galzin — II, III, IV, V, VII: on fallen logs of *Betula* sp. (AR 638) in various forest types. Rather common.
202. *Ph. lundellii* Niemelä — II, III, IV, V, VII: on fallen logs of *Betula* sp. (AR 642) in spruce forests. Very common.
203. *Ph. nigrolimitatus* (Romell) Bourdot & Galzin — I, II, IV: on fallen logs of *Larix sibirica*, *Picea obovata* (AR 649), *Pinus sylvestris* (AR 648) in coniferous forests. Scarce.
204. *Ph. populicola* Niemelä — I, II, III, IV, V, VI, VII, VIII: on living aspen trees in various forest types. Rather common.
205. *Ph. tremulae* (Bondartsev) Bondartsev & P.N. Borisov — I, II, III, IV, V, VI, VII, VIII: on living aspen trees (AR 637) in various forest types. Rather common.
206. *Phlebia mellea* Overh. — I, III, IV, V, VII: on fallen logs of *Larix sibirica* (AR 663), *Picea obovata*, and *Populus tremula* (AR 666) in various forest types. Rather common.
207. *Ph. lilascens* (Bourdot) J. Erikss. & Hjortstam — I: on fallen log of *Populus tremula* (AR 1409) in aspen forest. Single find.
208. *Ph. livida* (Pers.) Bres. — I: on fallen log of *Picea obovata* (AR 673) and *Populus tremula* (AR 672, AR 1137, AR 1469) in coniferous forests. Scarce.
209. *Ph. coccineofulva* Schwein. — I: on fallen log of *Betula* sp. (AR 675, AR 676) in mixed forest and within flood-land vegetation. Very scarce.
210. *Ph. ochraceofulva* (Bourdot & Galzin) Donk — VI, VII: on fallen log of *Betula* sp. and *Populus tremula* (AR 677) in spruce forest. Very scarce.
211. *Ph. radiata* Fr. — I, IV, V, VI, VII: on dry standing and fallen trees of *Betula* sp. (AR 678) and *Populus tremula* in various forest types. Rather common.
212. *Ph. rufa* (Pers.) M.P. Christ. — I: on fallen log of *Populus tremula* (AR 1433) in aspen forest. Single find.
213. *Ph. segregata* (Bourdot & Galzin) Parmasto — V: on fallen log of *Pinus sylvestris* (AR 1432) in pine forest. Single find.
214. *Phlebiella christiansenii* (Parmasto) K.H. Larss. & Hjortstam — I, III: on fallen log of *Larix sibirica* (AR 1138) and *Alnus incana* (AR 1762) in various forest types. Very

- scarce.
215. *Phlebiopsis gigantea* (Fr.) Jülich — I, II, III, IV, V, VII: on fallen logs of *Larix sibirica*, *Picea obovata*, and *Pinus sylvestris* (AR 700) in coniferous forests. Rather common.
216. *Piloderma bicolor* (Peck) Jülich — I: on fallen log of *Picea obovata* (AR 703), *Betula* sp. (AR 1632) in mixed forests. Scarce.
217. *P. byssinum* (P. Karst.) Jülich — III, V: on fallen log of *Larix sibirica* (AR 707), *Picea obovata* (AR 1127), and *Betula* sp. (AR 706) in various forest types. Scarce.
218. *Piptoporus betulinus* (Bull.) P. Karst. — I, II, III, IV, V, VI, VII, VIII: on standing and fallen trees and branches of *Betula* sp. (AR 708) in various forest types. Rather common.
219. *Plicatura nivea* (Sommerf.) P. Karst. — I, II, VI, VII: on fallen logs of *Alnus incana*, *Betula* sp. and *Populus tremula* (AR 716) in various forest types. Rather common.
220. *Polyporus brumalis* (Pers.) Fr. — VII: on fallen logs and branches of *Betula* sp. (AR 1057) in mixed forests. Single find.
221. *P. squamosus* (Huds.) Fr. — IV: on drying trees of *Populus tremula* in aspen forests. Single find.
222. *P. varius* (Pers.) Fr. — I, II, IV: on fallen logs of *Betula* sp. and *Populus tremula* (AR 724) in mixed forests. Scarce.
223. *Porodaedalea chrysoloma* (Fr.) Fiasson & Niemelä — I, II, III, IV, V, VI, VII: on living, drying and fallen trees and stumps of *Picea obovata* in spruce forests. Rather common.
224. *P. niemelaei* M. Fisch. — I, III: on living and fallen trees of *Larix sibirica* (AR 644) in larch-pine mixed forest. Rather common.
225. *P. pini* (Brot.) Murrill — II, III, IV, V, VI, VII, VIII: on living trees of *Pinus sylvestris* in pine forests. Rather common.
226. *Postia alni* Niemelä & Vampola — I, III, IV, V: on fallen logs of *Alnus incana*, *Betula* sp., and *Populus tremula* (AR 729) in various forest types. Rather common.
227. *P. caesia* (Schrad.) P. Karst. — I, III, IV, V: on fallen logs of *Larix sibirica* (AR 1628) and *Picea obovata* in various forest types. Scarce.
228. *P. fragilis* (Fr.) Jülich — I, III, IV: on fallen logs of *Larix sibirica*, *Picea obovata* (AR 1491), *Pinus sylvestris* (AR 739, AR 1300), and *Populus tremula* (AR 738) in various forest types. Scarce.
229. *P. guttulata* (Sacc.) Jülich — IV: on fallen logs of *Picea obovata* (AR 740) in spruce forests. Single find.
230. *P. hibernica* (Berk. & Broome) Jülich — I, V: on fallen logs of *Larix sibirica* and *Pinus sylvestris* (AR 742) in pine forest. Scarce.
231. *P. lateritia* Renvall — IV, V, VII: on fallen logs of *Picea obovata* (AR 744) and *Pinus sylvestris* (AR 745) in coniferous forests. Scarce.
232. *P. leucomallella* (Murrill) Jülich — V: on fallen wood of *Picea obovata* (AR 748) in coniferous forests. Single find.
233. *P. ptychogaster* (F. Ludw.) Vesterh. — I, V: on fallen log of *Larix sibirica* (AR 753) in pine forest. Very scarce.
234. *P. rancida* (Bres.) M.J. Larsen & Lombard — V: on fallen log of *Pinus sylvestris* (AR 1627) in pine forests. Single find.
235. *P. rennyi* (Berk. & Broome) Rajchenb. — III, V: on fallen log of *Larix sibirica* (AR 1134) and *Pinus sylvestris* (AR 755, AR 1740) in pine forests. Scarce.
236. *P. sericeomollis* (Romell) Jülich — IV, V: on fallen log of *Larix sibirica* (AR 1132) and *Pinus sylvestris* (AR 1435) in pine forests. Scarce.
237. *P. stiptica* (Pers.) Jülich — I, III, IV, V: on fallen log of *Picea obovata*, *Pinus sylvestris*, and *Betula* sp. (AR 764) in various forest types. Rather common.
238. *P. tephroleuca* (Fr.) Jülich — II, VII: on fallen logs of *Larix sibirica* (AR 770), *Picea obovata* (AR 767, AR 771), and *Betula* sp. in various forest types. Scarce.
239. *P. undosa* (Peck) Jülich — I, II, III: on fallen log of *Picea obovata* (AR 776), *Pinus sylvestris* (AR 1299), and *Populus tremula* (AR 774, AR 775, AR 1064) in various forest types. Rather common.
240. *Pseudochaete tabacina* (Sowerby) T. Wagner & M. Fisch. — I, III, V, VII: on dry standing and fallen trees of *Larix sibirica* (AR 1597), *Betula* sp. (AR 1714), *Padus avium* (AR 392), and *Populus tremula* (AR 1711) in various forest types. Rather common.
241. *Pterula multifida* (Chevall.) Fr. — V: on rotten wood of *Populus tremula* (AR 1645) in aspen forests. Single find.
242. *Punctularia strigosozonata* (Schwein.) P.H.B. Talbot — I, VII: on fallen log of *Populus tremula* (AR 783) in aspen forest. Scarce.
243. *Pycnoporellus alboluteus* (Ellis & Everh.) Kotl. & Pouzar — I: on fallen logs of *Picea obovata* (AR 784) in spruce forests. Single find.
244. *P. fulgens* (Fr.) Donk — I, II, III, IV, V, VII: on fallen logs of *Larix sibirica* (AR 1701), *Picea obovata* (AR 789, AR 790, AR 1406), *Betula* sp. (AR 1503, AR 1560) in various forest types. Rather common.
245. *Pycnoporus cinnabarinus* (Jacq.) P. Karst. — I, II, III, IV, V, VI, VII: on dry standing and fallen trees and branches of *Betula* sp. (AR 791) in various forest types. Rather common.
246. *Radulodon aneirinus* (Sommerf.) Spirin — I, III, IV, V, VII, VIII: on fallen logs of *Populus tremula* (AR 145, AR 147, AR 148, AR 1025) in aspen forests. Rather common.
247. *R. erikssonii* Ryvarden — I, VII: on fallen log of *Betula* sp. (AR 1297) and *Populus tremula* (AR 1420, AR 1421) in aspen forest and within flood-land vegetation. Scarce.
248. *Ramaria apiculata* (Fr.) Donk — II, IV: on fallen logs of *Populus tremula* (AR 804) and soil in aspen forests. Very scarce.
249. *R. decurrens* (Pers.) R.H. Petersen — III: on soil (specimen don't kept) in pine forest. Single find.
250. *R. fennica* (P. Karst.) Ricken — III: on soil (AR 812) in coniferous forests. Single find.
251. *R. stricta* (Pers.) Quéél. — I, III: on fallen log of *Larix sibirica* (AR 1379) and litter (AR 808, AR 809) in spruce forests. Scarce.
252. *R. suecica* (Fr.) Donk — I, II, III: on soil in coniferous forests (AR 812). Scarce.
253. *Ramariopsis kunzei* (Fr.) Corner — I: on soil within flood-land vegetation (AR 1254). Single find.
254. *Resinicium bicolor* (Alb. & Schwein.) Parmasto — I, III, IV: on fallen log of *Pinus sylvestris*, *Padus avium* (AR 1619), and *Populus tremula* (AR 1750) in various forest types within flood-land vegetation. Scarce.
255. *R. furfuraceum* (Bres.) Parmasto — I, IV, V: on fallen logs of *Larix sibirica* (AR 817), *Picea obovata* (AR 819), and *Pinus sylvestris* (AR 818) in coniferous forests. Rather common.

256. *Rhodonía placenta* (Fr.) Niemelä, K.H. Larss. & Schigel — I, III, IV, V: on fallen log of *Larix sibirica* (AR 1699), *Picea obovata* (AR 1492), and *Pinus sylvestris* (AR 752) in pine forest. Scarce.
257. *Rigidoporus crocatus* (Pat.) Ryvarden — I: on fallen logs of *Betula* sp. (AR 820, AR 821) and basidiome of *Fomes fomentarius* (AR 1697) in mixed forests and within flood-land vegetation. Scarce.
258. *Sarcodon imbricatus* (L.) P. Karst. — I, III, V: on soil, in pine forest. Very scarce.
259. *Schizopora flavipora* (Berk. & M.A. Curtis ex Cooke) Ryvarden — I: on dry branch of *Salix* sp. (AR 433) within flood-land vegetation. Single find.
260. *S. paradoxa* (Schröd.) Donk — III: on fallen logs of *Populus tremula* (AR 438) in mixed forest. Single find.
261. *Scopuloides rimosa* (Cooke) Jülich — III, VII: on fallen logs of *Betula* sp. (AR 1213) and *Populus tremula* (AR 1599) in deciduous forests. Very scarce.
262. *Scytinostroma portentosum* (Berk. & M.A. Curtis) Donk — I: on fallen branches and logs of *Populus tremula* (AR 1422) in pine forest. Very scarce.
263. *Serpula himantoides* (Fr.) P. Karst. — I, III, V, VIII: on fallen logs of *Larix sibirica* (AR 846, AR 848, AR 850), *Picea obovata* (AR 849, AR 1566), and *Pinus sylvestris* (AR 847) in coniferous forests. Rather common.
264. *Sidera lenis* (P. Karst.) Miettinen — I, V, VII: on fallen log of *Larix sibirica* (AR 1289) in pine forests. Scarce.
265. *S. lunata* (Romell ex Bourdot & Galzin) K.H. Larss. — I, IV: on debris of *Populus tremula* (AR 978) and *Picea obovata* (AR 1414) in aspen forest. Very scarce.
266. *Sistotrema brinkmannii* (Bres.) J. Erikss. — I: on fallen logs of *Populus tremula* (AR 1310) in aspen forest. Single find.
267. *S. muscicola* (Pers.) S. Lundell — IV: on fallen logs of *Picea obovata* (AR 1747) in spruce forests. Single find.
268. *S. raduloides* (P. Karst.) Donk — I, V: on fallen log of *Larix sibirica* (AR 854) in pine forest. Single find.
269. *S. resinicystidium* Hallenb. — V: on fallen log of *Betula* sp. (AR 1583) in mixed forest. Single find.
270. *Sistotremastrum niveocremaeum* (Höhn. & Litsch.) J. Erikss. — VII: on fallen log of *Picea obovata* (AR 1436) in mixed forest. Single find.
271. *S. sueticum* Litsch. ex J. Erikss. — I, III, V: on fallen logs of *Larix sibirica* (AR 1316) and *Picea obovata* (AR 1315) in coniferous forest. Scarce.
272. *Sistotremella perpusilla* Hjortstam — VII on fallen logs of *Larix sibirica*, destroyed by *Stereum* sp. (AR 1375) in coniferous forest. Single find.
273. *Skeletocutis amorpha* (Fr.) Kotl. & Pouzar — I, II, IV, V, VI, VII: on fallen logs and stumps of *Picea obovata* and *Pinus sylvestris* (AR 856, AR 857) in coniferous forests. Rather common.
274. *S. brevispora* Niemelä — I: on fallen logs of *Picea obovata* (AR 1415), destroyed by *Phellinus ferrugineofuscus* in spruce forest. Single find.
275. *S. carneogrisea* A. David — I, III, V: on fallen logs and stumps of *Larix sibirica* (AR 867), *Picea obovata* (AR 1151), *Pinus sylvestris*, and old basidiomes of *Trichaptum abietinum* (AR 1151) in coniferous forest. Scarce.
276. *S. chrysellia* Niemelä — III, IV: on fallen logs of *Picea obovata*, *Pinus sylvestris* (AR 871), and basidiomes of *Phellinus chrysoloma* (AR 871) in coniferous forests. Very scarce.
277. *S. kuehneri* A. David — I, VII: on fallen log of *Picea obovata* (AR 1629) and *Pinus sylvestris* (AR 1301) in pine forest. Very scarce.
278. *S. odora* (Sacc.) Ginns — I, III, IV, V, VII, VIII: on fallen logs of *Larix sibirica* (AR 887), *Picea obovata* (AR 889, AR 890), and *Populus tremula* (AR 885) in various forest types. Rather common.
279. *S. papyracea* A. David — I, III, IV: on fallen logs of *Picea obovata* (AR 897) and *Pinus sylvestris* (AR 894, AR 896) in various forest types. Scarce.
280. *S. stellae* (Pilát) Jean Keller — I, III, VII: on fallen logs of *Larix sibirica* (AR 1153), *Picea obovata* (AR 1418), and *Pinus sylvestris* (AR 901) in pine forests. Scarce.
281. *S. subincarnata* (Peck) Jean Keller — III, V: on fallen logs of *Picea obovata* (AR 1417) and *Pinus sylvestris* (AR 1416) in various forest types. Very scarce.
282. *Steccherinum bourdotii* Saliba & A. David — IV: on the basis of attached branch on dry standing tree of *Populus tremula* (AR 1749) in aspen forest. Single find.
283. *S. fimbriatum* (Pers.) J. Erikss. — I, III, IV, VI: on fallen logs of *Populus tremula* (AR 883, AR 884) and *Salix* sp. (AR 1705) in aspen and mixed forests. Rather common.
284. *S. ochraceum* (Pers.) Gray — I, III, VI, V, VII: on dry standing and fallen trees of *Betula* sp. (AR 917) and basidiome of *Fomes fomentarius* (AR 1461) in various forest types. Rather common.
285. *Sterellum rufum* (Fr.) J. Erikss. — I, III, IV, V, VII: on fallen logs and branches of *Populus tremula* (AR 580) in aspen forests. Rather common.
286. *Stereum hirsutum* (Willd.) Pers. — I, II, III, IV, V, VII: on fallen logs of *Populus tremula* (AR 926) in various forest types. Rather common.
287. *S. sanguinolentum* (Alb. & Schwein.) Fr. — I, IV, V, VI, VII: on fallen logs of *Larix sibirica*, *Picea obovata* (AR 930) and *Pinus sylvestris* (AR 933, AR 934) in coniferous forests. Rather common.
288. *S. subtomentosum* Pouzar — I, II, III, IV, V, VI, VII, VIII: on fallen log of *Betula* sp., *Populus tremula*, *Salix* sp., and *Sorbus aucuparia* (AR 936) in various forest types. Rather common.
289. *Subulicystidium longisporum* (Pat.) Parmasto — I: on fallen log of *Populus tremula* (AR 1437) in mixed forest. Scarce.
290. *Thelephora atra* Weinm. — I: on fallen logs of *Betula* sp. (AR 1345), *Salix* sp. (AR 1344) within flood-land vegetation. Scarce.
291. *Th. terrestris* Ehrh. — I, III, V: on soil (AR 945, 946) in sphagnum spruce forests. Scarce.
292. *Tomentella asperula* (P. Karst.) Höhn. & Litsch. — VII: on fallen log of *Populus tremula* (AR 1631) in aspen forest. Single find.
293. *T. brunneorufa* M.J. Larsen — IV: on fallen log of *Populus tremula* (AR 950) in aspen forest. Single find.
294. *T. bryophila* (Pers.) M.J. Larsen — I, V: on fallen logs of *Alnus incata* (AR 1463), *Betula* sp. (AR 1462), and *Populus tremula* (AR 949) in aspen forest and within flood-land vegetation. Scarce.
295. *T. calcicola* (Bourdot & Galzin) M.J. Larsen — I: on fallen log of *Populus tremula* (AR 1413) in mixed forest. Single

- find.
296. *T. cinereoumbrina* (Bres.) Stalpers — I: on fallen log of *Betula* sp. (AR 1773) within flood-land vegetation. Single find.
297. *T. coerulea* (Bres.) Höhn. & Litsch. — V: on fallen log of *Populus tremula* (AR 1774) in aspen forest. Single find.
298. *T. crinalis* (Fr.) M.J. Larsen — I: on fallen branches of *Populus tremula* (AR 1772) in aspen forest. Single find.
299. *T. ellisii* (Sacc.) Jülich & Stalpers — I: on fallen log of *Betula* sp. (AR 1785) within flood-land vegetation. Single find.
300. *T. griseoumbrina* Litsch. — I: on fallen log of *Populus tremula* (AR 953) in aspen forest. Single find.
301. *T. lapida* (Pers.) Stalpers — V: on fallen log of *Betula* sp. (AR 954) in mixed forest. Single find.
302. *T. lateritia* Pat. — I, V: on fallen logs and branches of *Populus tremula* (AR 955, AR 956) in aspen forest. Very scarce.
303. *T. lilacinogrisea* Wakef. — I: on fallen log of *Betula* sp. (AR 1751) in mixed forest. Single find.
304. *T. radiosa* (P. Karst.) Rick — I, III, IV, V: on fallen log of *Picea obovata* (AR 1184, AR 1775), *Betula* sp. (AR 1591), and *Populus tremula* (AR 958) in various forest types. Scarce.
305. *T. stuposa* (Link) Stalpers — I, III: on fallen logs of *Larix sibirica* (AR 1390), *Picea obovata* (AR 957), and *Pinus sylvestris* (AR 1340) in various forest types. Scarce.
306. *T. sublilacina* (Ellis & Holw.) Wakef. — I, V: on fallen logs of *Larix sibirica* (AR 1474) and *Pinus sylvestris* (AR 1473) in various forest types. Scarce.
307. *T. umbrinospora* M.J. Larsen — III: on fallen log of *Populus tremula* (AR 1191) in aspen forest. Single find.
308. *Trametes hirsuta* (Wulfen) Lloyd — I, II, III, IV, V, VI, VII, VIII: on dry standing and fallen trees and branches of *Betula* sp., *Padus avium*, and *Populus tremula* (AR 960) in various forest types. Rather common.
309. *T. ochracea* (Pers.) Gilb. & Ryvarden — I, II, III, IV, V, VI, VII: on fallen logs and branches of *Betula* sp. (AR 965), *Populus tremula* (AR 963, AR 964), and *Salix* sp. (AR 967) in various forest types. Rather common.
310. *T. pubescens* (Schumach.) Pilát — I, II, III, IV, V, VI, VII, VIII: on fallen logs and branches of *Betula* sp. (AR 971) in various forest types. Rather common.
311. *T. suaveolens* (L.) Fr. — I, III, IV, V, VI, VII: on fallen logs of *Populus tremula* (AR 1076), *Salix* sp. in various forest types. Rather common.
312. *T. versicolor* (L.) Lloyd — I, III, IV, V, VII: on fallen logs of *Betula* sp. and *Populus tremula* (specimens didn't keep) in various forest types. Rather common.
313. *Trechispora alnicola* (Bourdot & Galzin) Liberta — III: on basidiome of *Fomes fomentarius* (AR 1271) in mixed forest. Single find.
314. *T. candidissima* (Schwein.) Bondartsev & Singer — I: on fallen log of *Larix sibirica* (AR 1193) in pine forest. Single find.
315. *T. farinacea* (Pers.) Liberta — I: on fallen log of *Pinus sylvestris* (AR 977) in coniferous forest. Single find.
316. *T. mollusca* (Pers.) Liberta — I: on basidiome of *Fomes fomentarius* (AR 979) in mixed forest. Single find.
317. *Trichaptum abietinum* (Dicks.) Ryvarden — I, II, III, IV, V, VI, VII, VIII: on dry standing and fallen trees and stumps of *Larix sibirica*, *Picea obovata* (AR 982), and *Pinus sylvestris* (AR 981) in various forest types. Rather common.
318. *T. fuscoviolaceum* (Ehrenb.) Ryvarden — I, II, III, VII: on fallen logs of *Larix sibirica*, *Picea obovata* (AR 986), and *Pinus sylvestris* (AR 985, AR 987) in coniferous forests. Rather common.
319. *T. laricinum* (P. Karst.) Ryvarden — I, III, V, VI: on fallen logs of *Larix sibirica* (AR 990) and *Pinus sylvestris* (AR 991) in coniferous forests. Scarce.
320. *Trichaptum bifforme* (Fr.) Ryvarden — I, II, IV, VI: on fallen logs of *Betula* sp. (AR 983, AR 984) and *Populus tremula* in various forest types. Rather common.
321. *Tubulicrinis calothrix* (Pat.) Donk — III: on fallen log of *Pinus sylvestris* (AR 1623) in pine forest. Single find.
322. *Typhula corallina* Quél. — VII: on fallen leaves of *Populus tremula* (AR 1386) in aspen forest. Single find.
323. *T. setipes* (Grev.) Berthier — VII: on fallen leaves of *Populus tremula* (AR 1767) in aspen forest. Single find.
324. *Vararia investiens* (Schwein.) P. Karst. — I, V, VII.: on fallen log and branches of *Larix sibirica* (AR 1002, AR 1293), *Populus tremula* (AR 1272, AR 1540), and *Salix* sp. (AR 1580) in various forest types. Scarce.
325. *Veluticeps abietina* (Pers.) Hjortstam & Tellería — I, III, IV: on fallen logs of *Picea obovata* (AR 1004, AR 1005) in spruce forests. Scarce.
326. *Xanthoporia radiata* (Sowerby) Tura, Zmitr., Wasser, Raats & Nevo — I, II, III, IV, V, VII: on dry standing trees of *Alnus incana* (AR 475), *Sorbus aucuparia* (AR 476) in various forest types. Rather common.
327. *Xenasmateella vaga* (Fr.) Stalpers — I, VII: on fallen logs of *Larix sibirica* (AR 1306), *Betula* sp. (AR 1307), *Populus tremula* (AR 691, AR 692), and *Salix* sp. in various forest types. Rather common.
328. *Xylodon pruni* (Lasch) Hjortstam & Ryvarden — I: on fallen logs of *Betula* sp. (AR 439) in mixed forest. Single find.

DISCUSSION

The maximum species number (233 species) is revealed in the Filippovskoye natural boundary (key territory I), followed by Zheleznoye Lake (III) and Sychovo Lake (V) natural boundaries with 147 species, Pershkovskoye and Norvezhskoye Lakes natural boundaries (IV) with 126 species, and Golubino protective zone (VIII) with only 27 species.

The majority of species (83.5%) are saprotrophs infesting dead and fallen logs of trees and shrubs. The forest litter and soil are inhabited by 23 species, while the same number of saprotrophic species was found on dead fungal fruit bodies. Two species (*Typhula setipes* and *T. corallina*) are recorded from fallen leaves.

Species of mesophilous humidity requirements composed 54.6% of the sample, the percent of hygrophilous species was 30.7%, whereas the xerophilous fungi composed 14.7%.

The higher species numbers are associated to basic stand-forming trees: aspen, 141 species; spruce, 97; birch, 94; larch, 81; and pine, 75. The species numbers distributions within second level trees were as follows: rowan (96 species), willow (32 species), alder (21 species), and bird cherry (4 species).

Concerning geographic characteristics, Holarctic species are predominant (45.7%), while more local distributional patterns (amphi-Atlantic, European and Palearctic) consisted of 12.4%. The remaining percentage corresponded to cosmopolitan species.

A predictive estimation of the Pinega Reserve aphylophoroid diversity, based on Turing coefficient calculation (Leontyev 2008), resulted in an interval of 360–370 species.

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