

БИОРАЗНООБРАЗИЕ,  
СИСТЕМАТИКА, ЭКОЛОГИЯ

УДК 582.28 : 581.95

NEW SPECIES OF MACROMYCETES FOR REGIONS OF THE RUSSIAN FAR EAST. 2

© 2021 г. Yu. A. Rebriev<sup>1,\*</sup>, A. V. Bogacheva<sup>2,\*\*</sup>, H. J. Beker<sup>3,4,\*\*\*</sup>, U. Eberhardt<sup>5,\*\*\*\*</sup>,  
N. A. Kochunova<sup>6,\*\*\*\*\*</sup>, H. Kotiranta<sup>7,\*\*\*\*\*</sup>, E. S. Popov<sup>8,\*\*\*\*\*</sup>, N. A. Sazanova<sup>9,\*\*\*\*\*</sup>,  
A. G. Shiryaev<sup>10,\*\*\*\*\*</sup>, and E. A. Zvyagina<sup>11,12,\*\*\*\*\*</sup>

<sup>1</sup> Southern Scientific Centre of the Russian Academy of Sciences, 344006 Rostov-on-Don, Russia

<sup>2</sup> Federal Scientific Center of the East Asia Terrestrial Biodiversity of the Far East Branch of the Russian Academy of Sciences, 690022 Vladivostok, Russia

<sup>3</sup> Royal Holloway College, University of London, TW20-0EX Egham, United Kingdom

<sup>4</sup> Plantentuin Meise, Nieuwelaan 38, B-1860 Meise, Belgium

<sup>5</sup> Staatliches Museum für Naturkunde Stuttgart, Rosenstein 1, D-70191 Stuttgart, Germany

<sup>6</sup> Amur Branch of Botanical Garden-Institute of the Far East Branch of the Russian Academy of Sciences, 675000 Blagoveshensk, Russia

<sup>7</sup> Finnish Environment Institute, FI-00790 Helsinki, Finland

<sup>8</sup> Komarov Botanical Institute of the Russian Academy of Sciences, 197376 St. Petersburg, Russia

<sup>9</sup> Institute of Biological Problems of the North of the Far East Branch of the Russian Academy of Sciences, 685000 Magadan, Russia

<sup>10</sup> Institute of Plant and Animal Ecology, Ural Branch of the Russian Academy of Sciences, 620144 Ekaterinburg, Russia

<sup>11</sup> Lomonosov Moscow State University, 119991 Moscow, Russia

<sup>12</sup> Surgut State University, 628412 Surgut, Russia

\*e-mail: rebriev@yandex.ru

\*\*e-mail: anya.bogachewa@yandex.ru

\*\*\*e-mail: henry@hjbeker.com

\*\*\*\*e-mail: ursula.eberhardt@smns-bw.de

\*\*\*\*\*e-mail: taraninan@yandex.ru

\*\*\*\*\*e-mail: heikki.kotiranta@syke.fi

\*\*\*\*\*e-mail: pezcicula@gmail.com

\*\*\*\*\*e-mail: nsazanova\_mag@mail.ru

\*\*\*\*\*e-mail: anton.g.shiryaev@gmail.com

\*\*\*\*\*e-mail: mycena@yandex.ru

Received February 12, 2021; revised April 19, 2021; accepted May 24, 2021

The paper continues a series of publications devoted to new finds of macrofungi (ascomycetes, basidiomycetes) in regions of the Russian Far East. A total of 121 species of macromycetes are reported for the first time from 7 administrative units of the Russian Far East: Amur Oblast, Magadan Oblast, Sakhalin Oblast, Kamchatka Krai, Khabarovsk Krai, Primorskiy Krai and Chukotka Autonomous Okrug. Each annotated record provides details about specimen ecology and collection information: locality, habitat, substrate, specimen herbarium numbers, collectors and determiners as well as notes on rarity and protection status of some species. For some rare species, notes are given about the main differences in morphology and ecology, about the features of distribution. The identification of *Sarcoscypha korfiana*, *Tuber himalayense*, and *Suillus aurihymenius* species by morphological methods is confirmed by molecular genetic data. The material was deposited in several herbaria (VLA, MAG, SVER, LE, ABGI) and in the Yu. Rebriev (YuR), H.J. Beker (HJB) and H. Kotiranta (HK) personal collections. 23 species (*Aleurodiscus aurantius*, *Clitocybe dryadicola*, *Cystostereum murrayi*, *Dendrocorticium violaceum*, *Dendrothele tetracornis*, *Dentocorticium sulphurellum*, *Fibriciellum silvae-ryae*, *Geastrum berkeleyi*, *Hebeloma dunense*, *Hohenbuehelia grisea*, *Hypochniciellum ovoideum*, *Luelia recondita*, *Melzerium udicola*, *Merismodes bresadolae*, *Mycena silvae-nigrae*, *Omphaliaster borealis*, *Peniophora polygonia*, *Pholiota henningsii*, *Radulodon erikssonii*, *Rhizochaete radicata*, *Sarcoleotia globosa*, *Tricholoma alboconicum*, *Trichophaeopsis paludosa*) are reported as the first records for the Russian Far East, and 13 (*Boudiera acanthospora*, *Ciboria polygona-vivipari*, *Graddonia coracina*, *Gymnopus loiseleurietorum*, *Hebeloma aurantioumbrinum*, *H. pubescens*, *H. spetsbergense*, *Juglanconis oblonga*, *Microstoma aggregatum*, *Rosellinia tassiana*, *Sarcoscypha korfiana*, *Trichophaea variornata*, *Tuber himalayense*) are a new species for Russia.

**Keywords:** ascomycetes, biodiversity, basidiomycetes, fungal distribution, rare species, Russia

**DOI:** 10.31857/S002636482105007X

## INTRODUCTION

The paper continues a series of articles devoted to new finds of macrofungi in regions of the Russian Far East, initiated in 2020 (Rebriev et al., 2020).

Each annotated record provides details about specimen ecology and collection information: locality, habitat, substrate, specimen herbarium numbers, collectors and determiners as well as notes on rarity and protection status of some species. The material was accessioned in LE (Saint Petersburg), MAG (Magadan), SVER (Ekaterinburg), VLA (Vladivostok), ABGI (Blagoveshensk) herbaria, as well as in the Yu. Rebriev (YuR), H. J. Beker (HJB) and H. Kotiranta (HK) personal collections.

## MATERIALS AND METHODS

Material was collected and identified by Anna V. Bogacheva (abbreviated as AB), Natalia Kochunova (NK), Heikki Kotiranta (HK), Eugene S. Popov (EP), Yury A. Rebriev (YR), Nina A. Sazanova (NS), Anton G. Shiryayev (AS), Elena A. Zvyagina (EZ), Henry J. Beker (HJB), Ursula Eberhardt (UE) and others, as indicated in the text. If the specimen was collected and determined by the same specialist, such notes as "coll. and det." are omitted in the text. Coordinates may not be specified for samples with incomplete label data. The taxa names are actualized in accordance with the Index Fungorum database (2021). In a few cases where the species name does not correspond to the one accepted in the Index Fungorum, this is explained in the notes (see *Hebeloma velutipes*, *Morganella sosinii*).

## RESULTS

*Ascomycota**Capnodiales*

*Melanodothis caricis* R.H. Arnold – new for Primorskiy Krai and Sakhalin Oblast.

**Specimens examined:** *Primorskiy Krai:* Vladivostokskiy District, Muravyov-Amurskiy Peninsula, Lyanchikhe river (now Bogataya river), near the farm of the Far Eastern University, in ovaries of *Carex dispalata*, 10.07.1929, coll. W. Tranzschel, det. EP (LE 323585); *Sakhalin Oblast:* Yuzhno-Kurilskiy District, southern part of the Kunashir Island, in ovaries of *Carex* sp., 09.1989, coll. P. Czerepanov, det. EP (LE 323702).

*Diaporthales*

*Juglanconis oblonga* (Berk.) Voglmayr et Jaklitsch – new for Sakhalin Oblast; new for Russia.

**Specimens examined:** *Sakhalin Oblast:* Ulegorskiy District, Ulegorskiy Leskhov, Krasnopolskoye forestry, Orekhovo natural landmark, approx. 48.9638°N, 142.2411°E, plantation of *Juglans ailantifolia*, on dead branch of *J. ailantifolia*, 25.07.1954, coll. V. Lyubarskaya, det. EP (LE 323705); *ibid.*, on dead trunk of *J. ailantifolia*, 29.07.1954, coll. V. Lyubarskaya, det. EP (LE 323703); *ibid.*, on fallen branch of *J. ailantifolia*, 31.07.1954, coll. V. Lyubarskaya, det. EP (LE 323704).

Notes: The species has been reported as the agent of walnut dieback in North America and Japan, where it replaces

the closely related *J. juglandina* (Kunze) Voglmayr et Jaklitsch, which is known in Russia from North Caucasus (Voglmayr et al., 2017). The main difference between these two species is in form and size of ascospores and conidia.

*Geoglossales*

*Sarcoleotia globosa* (Sommerf.) Korf – new for Magadan Oblast; new for Russian Far East.

**Specimens examined:** *Magadan Oblast:* Susumanskiy District, Tal-Yuryakh, 63.3011°N, 146.6508°E, Kolyma coal company, the impact zone of a coal heap in 1977, under *Salix* sp. bush, on moist soil among mosses, 19.08.2020, NS (MAG 5460; fig. 1, a).

Notes: second record in Russia, the first record assigned to Khanty-Mansi Autonomous Okrug (Red Data Book..., 2013).

*Hypocreales*

*Hypomyces stephanomatis* Rogerson et Samuels – new for Primorskiy Krai.

**Specimens examined:** *Primorskiy Krai:* Khorolskiy District, environs of the Sinyaya Mt, 44.8447°N, 131.7187°E, *Quercus-Betula* forest, on ascomata of *Humaria hemisphaerica*, 18.08.2018, coll. M. Dyakov, det. EP (LE 323845); Khasanskiy District, Kedrovaya Pad Nature Reserve, valley of the Kedrovaya river, 43.0979°N, 131.5571°E, riverine broadleaf forest, on ascomata of *Jafnea fuscarpa*, 21.08.2005, EP (LE 246999); Ussuriyskiy Urban Okrug, vicinity of Gorno-Tayozhnoye, 43.6999°N, 132.1594°E, on ascomata of *J. fuscarpa*, 20.08.2018, coll. M. Dyakov, det. EP (LE 324076).

*Ophiocordyceps myrmecophila* (Ces.) G.H. Sung, J.M. Sung, Hywel-Jones et Spatafora – new for Kamchatka Krai.

**Specimen examined:** *Kamchatka Krai:* Bystrinskiy District, Bystrinskiy Nature Park, vicinity of Esso village, left side of the Uksichan River, 55.9292°N, 158.6821°E, on dead imago of *Formica rufa* among mosses, 07.08.2005, EP (LE 247061).

*Sporophagomyces chrysostomus* (Berk. et Broome) K. Pöldmaa et Samuels – new for Primorskiy Krai.

**Specimens examined:** *Primorskiy Krai:* Khasanskiy District, Kedrovaya Pad Nature Reserve, right bank of the Droyanoy brook, 43.1145°N, 131.4709°E, mixed old-growth forest, on old basidioma of *Ganoderma applanatum*, 22.08.2005, EP (LE 294370); Ussuriyskiy Urban Okrug, vicinity of Gorno-Tayozhnoye, valley of the Krivoy brook, 43.6979°N, 132.1879°E, broadleaf forest, on old basidioma of *G. applanatum*, 23.08.2020, EP (LE 305239).

*Helotiales*

*Calycellina lachnobrachya* (Desm.) Baral – new for Kamchatka Krai.

**Specimen examined:** *Kamchatka Krai:* Bystrinskiy District, Bystrinskiy Nature Park, Esso village, near the bridge across the Bystraya river, 55.9242°N, 158.7154°E, on fallen leaf of *Salix* sp., 12.08.2005, EP (LE 236602).

*Chlorenchelia macrospora* F. Ren et W.Y. Zhuang – new for Khabarovsk Krai.

**Specimens examined:** *Khabarovsk Krai:* Bolshekhekhtsirskiy Nature Reserve, vicinity of Bichikha town, 48.1807°N, 134.4929°E, floodplain forest, on deciduous wood, 29.08.2018, AB (VLA D 4351).

*Ciboria polygoni-vivipari* Eckblad – new for Kamchatka Krai and Primorskiy Krai; new for Russia.

**Specimen examined:** *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, vicinity of Esso village, subalpine meadow, on fallen stromatized bulbils of *Bistorta vivipara* among mosses, 12.08.2005, EP (LE 236579); *Primorskiy Krai*: Vladivostokskiy Urban Okrug, Russkiy Island, campus of the Far Eastern Federal University, 43.0226°N, 131.8852°E, deciduous forest, on litter, 29.04.2018, coll. A.V. Gurskaya, det. AB (VLA D-4087).

Notes: This arcto-alpine species was described from mainland Norway (Eckblad, 1969) and since then was reported from Greenland (Petersen, Korf, 1982), Svalbard (Huhtinen, 1987), Iceland (Hallgrímsson, Eyjólfsdóttir, 2004), and Sweden (Eriksson, 2009). No other sclerotinia-ceous species is known from bulbils of *Bistorta vivipara* (Eckblad, 1969).

*Encoeliopsis rhododendri* (Ces.) Nannf. — new for Kamchatka Krai.

**Specimen examined:** *Kamchatka Krai*: Yelizovskiy District, Vilyuchinskiy mountain pass, 52.6736°N, 158.1844°E, on dry seed capsules of *Rhododendron kamschaticum*, 22.08.2010, coll. P. B. Gannibal, det. EP (LE 304471).

*Graddonia coracina* (Bres.) Dennis — new for Primorskiy Krai; new for Russia.

**Specimen examined:** *Primorskiy Krai*: Shkotovskiy District, Ussuriyskiy Nature Reserve, Suvorovskoye forestry, valley of the Suvorovka river, 43.6376°N, 132.5534°E, broadleaf riverine forest, on wood of partly submerged rotten hardwood branch, 20.08.2020, EP (LE 305198).

Notes: *G. coracina* is quite frequently collected in Europe, and also reported from North America (Dennis, 1955; Gminder, 1993; Baral, 1999). It is an aquatic discomycete inhabiting hardwood debris in streams with fast-flowing, unpolluted water, mostly completely submerged (Gminder, 1993). The species can be easily recognized by its habitat, mollisoid apothecia browning or blackening with age, and broadly egg-form multiguttulate ascospores.

*Hysteropezizella diminuens* (P. Karst.) Nannf. — new for Kamchatka Krai.

**Specimen examined:** *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, vicinity of Esso village, left side of the Uksichan River, 55.9292°N, 158.6821°E, on decaying leaves of *Carex* sp., 07.08.2005, EP (LE 294823).

Notes: Previously reported from Magadan Oblast and Chukotka (Raitviir, 2008).

*Tympanis alnea* (Pers.) Fr. — new for Amur Oblast.

**Specimen examined:** *Amur Oblast*: Zeyskiy District, foothills of the Sektakhan Range, on bark of a dead branch of *Alnus* sp., 06.09.1965, coll. B.A. Tomilin, det. EP (LE 173159).

*T. hypopodia* Nyl. — new for Kamchatka Krai.

**Specimen examined:** *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, vicinity of Esso village, lower reaches of the Uboyny brook, 56.0000°N, 158.7184°E, *Pinus pumila*-*Rhododendron aureum* thicket, on bark of a dead branch of *Pinus pumila*, 06.08.2005, EP (LE 248370).

*T. spermatispora* (Nyl.) Nyl. — new for Kamchatka Krai.

**Specimen examined:** *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, vicinity of Esso village, right side of the Uksichan river, 1.5 km upstream of the Esso village, 55.9252°N, 158.6738°E, on dead twig of *Salix* sp., 08.08.2005, EP (LE 304633).

#### Lecanorales

*Sclerococcum stygium* (Berk. et M.A. Curtis) Olariaga, Teres, J.M. Martín, M. Prieto et Baral — new for Primorskiy Krai.

**Specimen examined:** *Primorskiy Krai*: Sikhote-Alinskiy Nature Reserve, environs of Ust'-Shanduy ranger station, on fallen trunk of a hardwood tree, 21.08.2012, coll. V. F. Malysheva, det. EP (LE 304708).

#### Mytilinidiales

*Lophium mytilinum* (Pers.) Fr. — new for Kamchatka Krai.

**Specimen examined:** *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, vicinity of Esso village, right side of the Bystraya river, 55.9199°N, 158.7183°E, on rotten wood of *Pinus pumila*, 09.08.2005, EP (LE 235769).

#### Pezizales

*Boudiera acanthospora* T. Schumach. et Dissing — new for Kamchatka Krai; new for Russia.

**Specimen examined:** *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, Esso village, riverbank at the shoreline near the bridge across the Bystraya river, 55.9242°N, 158.7154°E, on sandy soil, 12.08.2005, EP (LE 236601).

*Helvella lacunosa* Afzel. — new for Amur Oblast.

**Specimen examined:** *Amur Oblast*: northern slope of the Tukuringra Range, valley of the Bolshaya Erakingra river, mixed *Larix-Betula* forest, on soil, 17.09.1965, coll. B. A. Tomilin, det. EP (LE 247315).

*Microstoma aggregatum* Otani — new for Primorskiy Krai; new for Russia.

**Specimens examined:** *Primorskiy Krai*: Khasanskiy District, Kedrovaya Pad Nature Reserve, on the right side of the Kedrovaya river near the mouth of the Drovyanoy brook, 43.1179°N, 131.4770°E, broadleaf forest, on fallen corticated trunk of a hardwood tree, 22.08.2005, EP (LE 236664); Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarovskoye forestry, valley of the Pravaya Komarovka river, 43.6450°N, 132.4553°E, mixed old-growth forest, on fallen hardwood branch, 21.08.2020, coll. M. Dyakov, det. EP (LE 324100; fig. 1, b).

Notes: *M. aggregatum* is a very rare species, which is endemic to temperate East Asia (Otani, 1990; Zhuang, Wang, 1997; Habu, 2012). Its hairy, pinkish ascomata develops in dense clusters on dead trunks and large-sized fallen branches *Quercus mongolica* in old-growth deciduous and coniferous-deciduous forests from July to November and are unmistakable in the field.

*Miladina lecithina* (Cooke) Svrček — new for Primorskiy Krai.

**Specimen examined:** *Primorskiy Krai*: Shkotovskiy District, Ussuriyskiy Nature Reserve, Suvorovskoye forestry, valley of the Suvorovka river, 43.6376°N, 132.5534°E, broadleaf riverine forest, on wood of partly submerged rotten hardwood branch, 20.08.2020, EP (LE 305240).

*Pachyella clypeata* (Schwein.) Le Gal — new for Primorskiy Krai.

**Specimens examined:** *Primorskiy Krai*: Shkotovskiy District, Ussuriyskiy Nature Reserve, Suvorovskoye forestry, valley of the Suvorovka river, 43.6401°N, 132.5620°E, riparian broadleaf forest, on rotten wood of a fallen hardwood trunk, 19.08.2020, EP (LE 305241); *ibid.*, 43.6378°N, 132.5548°E, 20.08.2020, EP (LE 305242).

*Peziza echinospora* P. Karst. — new for Primorskiy Krai.

**Specimens examined:** *Primorskiy Krai*: Vladivostokskiy Urban Okrug, Russkiy Island, campus of the Far Eastern Federal University, 43.0226°N, 131.8852°E, on the fire pit, 24.06.2017, AB (VLA D 4341).

*Plicaria carbonaria* (Fuckel) Fuckel – new for Primorskiy Krai.

Specimen examined: *Primorskiy Krai*: Ussuriyskiy Urban Okrug, Gorno-Tayozhnoye, Arboretum of the Gornotayozhnaya Research Station, 43.6920°N, 132.1550°E, on burned soil, 17.08.2020, EP (LE 305214).

*Pseudaleuria fibrillosa* (Masse) J. Moravec – new for Primorskiy Krai.

Specimen examined: *Primorskiy Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarovskoye forestry, valley of the Pravaya Komarovka river, 43.6530°N, 132.4294°E, mixed old-growth forest, on litter, 22.08.2018, coll. M. Dyakov, det. EP (LE 324077).

*Pyronema confluens* (Pers.) Tul. et C. Tul. – new for Kamchatka Krai.

Specimen examined: *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, Esso village, riverbank near the bridge across the Bystraya river, 55.9242°N, 158.7154°E, on a charred tarpaulin, 11.08.2005, EP (LE 235766).

*Sarcoscypha korfiana* F.A. Harr. – new for Primorskiy Krai; new for Russia.

Specimens examined: *Primorskiy Krai*: Shkotovskiy District, Ussuriyskiy Nature Reserve, Suvorovskoye forestry, valley of the Suvorovka river, 43.6403°N, 132.5617°E, broadleaf riverine forest, on fallen hardwood twigs, 19.08.2020, EP (LE 324103; GenBank MW602966; fig. 1, c); *ibid.*, 43.6376°N, 132.5534°E, on fallen hardwood twigs, 20.08.2020, EP (LE 305190); Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarovskoye forestry, valley of the Pravaya Komarovka river, 43.6450°N, 132.4553°E, mixed old-growth forest, on fallen hardwood twig, 21.08.2020, coll. M. Dyakov, det. EP (LE 304848).

Notes: The identification was confirmed by comparison of ITS sequence newly generated from our material (GenBank MW602966) with that from the holotype HMAS 61202, GenBank U66027 (Harrington, 1997; Harrington, Potter, 1997). Originally described from northeast China (Zhuang, 1993), the species is quite common in studied area and can be easily recognized in the field by its medium-sized stipitate apothecia with bright yellow hymenial disc.

*Trichophaea gregaria* (Rehm) Boud. – new for Kamchatka Krai.

Specimens examined: *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, vicinity of Esso village, right bank of the Bystraya river, 55.9199°N, 158.7183°E, on soil along a track, 09.08.2005, EP (LE 236604, LE 235770).

*T. variornata* Korf et W.Y. Zhuang – new for Primorskiy Krai; new for Russia.

Specimen examined: *Primorskiy Krai*: Ussuriyskiy Urban Okrug, vicinity of Gorno-Tayozhnoye, slope of a brook valley within 1 km north of Ussuriysk Astrophysical Observatory, 43.7050°N, 132.1636°E, broadleaf forest, on rotten half-buried hardwood branch, 18.08.2020, EP (LE 324099; fig. 1, d).

*Trichophaeopsis paludosa* (Boud.) Häffner et L.G. Krieglitz. – new for Khabarovsk Krai; new for Russian Far East.

Specimens examined: *Khabarovsk Krai*: Bolshekhkhtsirskiy Nature Reserve, vicinity of Bichikha town, 48.1807°N, 134.4929°E, floodplain forest, on deciduous wood, 29.08.2018, AB (VLA D 4346).

*Tuber aestivum* (Wulfen) Spreng. – new for Primorskiy Krai.

Specimens examined: *Primorskiy Krai*: Yakovlevskiy District, vicinity of Yakovlevka town, 43.4759°N, 131.9233°E, *Quercus* forest, in soil, 28.08.2016, coll. S. V. Frolov, det. AB (VLA D 4001); Nadezhdinskiy District, vicinity of Kiparisovo

town, summer cottage, *Tilia* sp. planting, in soil, 10.10.2020, coll. E.A. Babaeva, det. AB (VLA D 4404).

*T. himalayense* B.C. Zhang et Minter – new for Primorskiy Krai; new for Russia.

Specimen examined: *Primorskiy Krai*: Khasanskiy District, vicinity of Slavyanka settlement, Cape Bruce, 42.8819°N, 131.4700°E, *Quercus mongolica* forest, in soil along an old dirt road, 04.09.2020, coll. YR, det. EP (LE 324101; GenBank MW602967).

Notes: A BLAST search revealed that the ITS sequence newly generated from our material is identical (99–100%) with those of other Asian isolates of *T. himalayense* deposited in GenBank.

#### Pleosporales

*Kirschsteinothelia thujina* (Peck) D. Hawksw. – new for Kamchatka Krai.

Specimen examined: *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, right side of the Uksichan river, 1.5 km upstream of the Esso village, 55.9252°N, 158.6738°E, on bark of fallen trunk of *Larix cajanderi*, 08.08.2005, EP (LE 235786).

#### Rhytismatales

*Discocainia treleasei* (Sacc.) J. Reid et Funk – new for Kamchatka Krai.

Specimen examined: *Kamchatka Krai*: Bystrinskiy District, Bystrinskiy Nature Park, right side of the Uksichan river, 1.5 km upstream of the Esso village, 55.9252°N, 158.6738°E, on bark of fallen trunk of *Larix cajanderi*, 08.08.2005, EP (LE 235771).

#### Xylariales

*Rosellinia tassiana* Ces. et De Not. – new for Primorskiy Krai; new for Russia.

Specimen examined: *Primorskiy Krai*: Ussuriyskiy Urban Okrug, slope of a brook valley within 1 km north of Ussuriysk Astrophysical Observatory, 43.7050°N, 132.1636°E, *Quercus mongolica* forest, on bark of a living *Q. mongolica* tree, 18.08.2020, EP (LE 324102).

Notes: The species inhabits the bark of various living trees (*Quercus*, *Morus*, *Prunus*, *Abies*) and previously was reported from Italy (Traverso, 1907; Petrini, 1992), France (Saccardo, 1881), Portugal (Unamuno, 1941), and Spain (Larios et al., 1988; Checa, Blanco, 2005).

*Xylaria frustulosa* (Berk. et M.A. Curtis) Cooke – new for Khabarovsk Krai.

Specimen examined: *Khabarovsk Krai*: Khabarovsk, on an old *Fraxinus* stump, 16.04.1939, coll. V. Rubanovskaya, det. EP (LE 323579).

#### Basidiomycota

##### Agaricales

*Clavaria argillacea* Pers. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, meadow with *Salix* spp. bushes, on soil, 12.08.2006, AS [SVER(F) 96201].

*C. fragilis* Holmsk. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, meadow with *Salix* spp. bushes, on soil, 7.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96218].

*Clavulinopsis helvola* (Pers.) Corner – new for Amur Oblast.

Specimens examined: *Amur Oblast:* Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, forest with *Betula* sp., *Pinus* sp., on mosses, 14.08.2006, AS [SVER(F) 96220].

*Clitocybe dryadicola* (J. Favre) Harmaja – new for Magadan Oblast; new for Russian Far East.

Specimens examined: *Magadan Oblast:* Khasynskiy District, Olskoe plateau, Yablonovyy pass, 60.6159°N, 151.5868°E, dryad tundra with *Pinus pumila*, among *Dryas* sp., 29.08.2019, NS (MAG 5321); *ibid.*, on slope and at top, 22.08.2016, NS (MAG 5442, MAG 5443); *ibid.*, 16.08.2018, coll. E. Andriyanova, det. NS (MAG 4642); 129 km of Kolyma highway, 60.3786°N, 151.4415°E, dryad woodland with *Larix cajanderi* and *Pinus pumila* on pebbles, on soil among *Dryas* sp., 24.07.2016, NS (MAG 5445).

Notes: arctoalpine species typical to the mountain tundra, grows among dryads and willows. It differs from the closely related species *Clitocybe dionysae* Bon by the opaque edge of pileus and partly agglutinated spores.

*Cortinarius talus* Fr. – new for Magadan Oblast.

Specimens examined: *Magadan Oblast:* vicinity of Magadan, Nagaevskaya hill, 59.5679°N, 150.7625°E, forest with *Betula lanata*, on soil among litter, 25.07.1999, NS (MAG 2669); same locality and habitat, 21.08.2006, NS (MAG 1430).

*Cystostereum murrayi* (Berk. et M.A. Curtis) Pouzar – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast:* Zeyskiy District, Zeya Nature Reserve, 62nd kilometer of Zeya – Zolotaya Gora route, floodplain of the Kamenushka river, 54.2242°N, 126.9149°E, *Picea* forest with *Alnus* sp. and other deciduous species, on branches of *Alnus* sp., 17.08.2015, NK (ABGI 378/104860).

*Dendrothele tetracornis* Boidin et Duhem – new for Primorskiy Krai; new for Russian Far East.

Specimens examined: *Primorskiy Krai:* Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, mixed, deciduous old-growth forest, on partly corticated, strongly decayed *Acer* sp., 29.07.2018, HK (HK 28720); same forest and date, on living *Juglans regia*, HK (HK 28734).

*Gymnopus loiseleurietorum* (M.M. Moser, Gerhold et Tobies) Antonin et Noordel. – new for Magadan Oblast and Chukotka Autonomous Okrug; new for Russia.

Specimens examined: *Magadan Oblast:* Olskiy District, Magadanskiy Nature Reserve, Olskiy section, Cape Alevina, 58.8432°N, 151.3602°E, shrub tundra, among *Loiseleuria procumbens*, on residues, 26.07.2018, NS (MAG 5105); *Chukotka Autonomous Okrug:* Anadyrskiy District, about 25 km west of the village Beringovskiy, upper stream Glinistyy, 63.0724°N, 179.2580°E, damp shrub tundra in the stream valley, among *Loiseleuria procumbens*, 3.07.2020, coll. M. Khoreva, det. NS (MAG 5273).

Notes: arctoalpine species co-occurring to *Loiseleuria procumbens* and specialized on decomposition of its residues. The species is specified to Europe (Antonin et al., 1994).

*Hebeloma aurantioumbrinum* Beker, Vesterh. et U. Eberh. – new for Chukotka Autonomous Okrug; new for Russia.

Specimens examined: *Chukotka Autonomous Okrug:* Beringia National Park, Kolyuchin Island, 67.4788°N, 174.6390°W, arctic tundra under *Salix* sp., on soil, 21.08.2015, HJB (HJB 14647); Beringia National Park, Belyaka Spit, 67.0413°N, 174.6119°W, arctic tundra under

*Salix* sp., on soil, 27.08.2015, HJB (HJB 14668, HJB 14672); *ibid.*, K. Atkinson (HJB 14669).

*H. dunense* L. Corb. et R. Heim – new for Chukotka Autonomous Okrug; new for Russian Far East.

Specimens examined: *Chukotka Autonomous Okrug:* Yttygran Island, Whale Bone Alley, 64.6452°N, 172.5170°W, arctic tundra under *Salix* sp., on soil, 19.08.2015, HJB (HJB 14635, HJB 14636, HJB 14638, HJB 14639, HJB 14640, HJB 14642); Wrangel Island Nature Reserve, Wrangel Island, Lake Kmo, 71.1587°N, 178.9083°E, arctic tundra under *Salix* sp., on soil, 23.08.2015, R. Russ (HJB 14655); Wrangel Island Nature Reserve, Wrangel Island, on route to tundra Peak Hut, 71.3269°N, 179.9119°W, arctic tundra under *Salix* sp., on soil, 24.08.2015, S. Ross (HJB 14661); Wrangel Island Nature Reserve, Wrangel Island, Doubtful Bay, 70.9371°N, 179.6144°W, arctic tundra under *Salix* sp., on soil, 26.08.2015, HJB (HJB 14664, HJB 14665, HJB 14666).

*H. pubescens* Beker et U. Eberh. – new for Chukotka Autonomous Okrug; new for Russia.

Specimens examined: *Chukotka Autonomous Okrug:* Wrangel Island Nature Reserve, Wrangel Island, Doubtful Bay, 70.9372°N, 179.6147°W, arctic tundra under *Salix* sp., on soil, 26.08.2015, HJB (HJB 14662, HJB 14663).

*H. spetsbergense* Beker et U. Eberh. – new for Chukotka Autonomous Okrug; new for Russia.

Specimens examined: *Chukotka Autonomous Okrug:* Beringia National Park, Kolyuchin Island, 67.4788°N, 174.6391°W, arctic tundra under *Salix* sp., on soil, 21.08.2015, HJB (HJB 14643, HJB 14644, HJB 14645, HJB 14646, HJB 14648); *ibid.*, 67.4490°N, 174.6058°W, on mossy soil in arctic tundra under *Salix* sp., 28.08.2015, HJB (HJB 14682); Wrangel Island Nature Reserve, Wrangel Island, Lake Kmo, 71.1579°N, 178.8904°E, arctic tundra under *Salix* sp., on soil, 23.08.2015, HJB (HJB 14651); *ibid.*, 23.08.2015, M. Odlin (HJB 14652); Wrangel Island Nature Reserve, Wrangel Island, on route to tundra Peak Hut, 71.3444°N, 179.4557°E, on mossy soil in arctic tundra under *Salix* sp., 24.08.2015, HJB (HJB 14656); *ibid.*, 71.3130°N, 179.6009°E, arctic tundra under *Salix* sp., on soil, 24.08.2015, HJB (HJB 14659); *ibid.*, 71.3443°N, 179.4558°E, arctic tundra under *Salix* sp., on soil, 24.08.2015, P. Sluss (HJB 14657); Beringia National Park, Belyaka Spit, 67.0412°N, 174.6126°W, arctic tundra under *Salix* sp., on soil, 27.08.2015, HJB (HJB 14667, HJB 14670, HJB 14671, HJB 14673, HJB 14674, HJB 14675, HJB 14676, HJB 14677, HJB 14678, HJB 14679, HJB 14681).

*H. velutipes* Bruchet – new for Chukotka Autonomous Okrug.

Specimens examined: *Chukotka Autonomous Okrug:* Yttygran Island, Whale Bone Alley, 64.6434°N, 172.5170°W, arctic tundra under *Salix* sp., on soil, 19.08.2015, HJB (HJB 14641).

Notes: according to IndexFungorum *Hebeloma velutipes* is synonym of *H. leucosarx* P.D. Orton. But this species are differ in morphology and ecology, as well as in genetics allow to view them as two distinct species (Beker et al., 2016).

*Hohenbuehelia grisea* (Peck) Singer – new for Magadan Oblast; new for Russian Far East.

Specimens examined: *Magadan Oblast:* Tenkinskiy District, upper part of Kolyma river, Orotuk station, 10 km to the south-east from the village Orotuk, 62.0501°N, 148.6567°E, forest with dominance of *Betula cajanderi*, on

dry *B. cajanderi*, 5.09.2018, coll. M. Pakhomov, det. NS (MAG 5304; fig. 1, e).

Notes: It differs from the closely related species *Hohenbuehelia atrocoerulea* (Fr.) Singer, indicated for south of Russian Far East (Bulakh, 2016), mainly in the darker color of basidiomas, less crowded gills, thick-walled metuloids with a rounded-pointed and fine-crystalline apex, and a preference for other deciduous trunks.

*Hygrocybe coccinea* (Schaeff.) P. Kumm. – new for Magadan Oblast.

Specimens examined: *Magadan Oblast*: Olskiy District, Spafaryev Island, North Cape, 59.1980°N, 149.0604°E, sea-side meadow, archaeological excavations, on peaty soil among small mosses and lichens, 19.07.2013, NS (MAG 3973); western part of Zavyalov Island, 59.0778°N, 150.5919°E, damp hummocky tundra with solifluction dips, at the base of the bump, on peaty soil among plant residues, 14.08.2019, NS (MAG 5268).

*H. miniata* (Fr.) P. Kumm. – new for Magadan Oblast.

Specimens examined: *Magadan Oblast*: vicinity of Magadan city, vicinity of Snezhnyy village, 59.7242°N, 150.9006°E, moist blueberry swamp, among mosses, 9.08.2020, coll. M. Trumpe, det. NS (MAG 5278); Novaya Veselaya, valley of the Kedrovyy Klyuch brook, 59.5222°N, 150.9028°E, moist woodland with *Larix* sp., on compacted peaty soil with mosses, 8.08.2020, NS (MAG 5313).

*Hygrophorus chrysodon* (Batsch) Fr. – new for Magadan Oblast.

Specimens examined: *Magadan Oblast*: Khasynskiy District, Yablonovyy pass, 60.6159°N, 151.5868°E, dryad tundra with rare *Pinus pumila* and *Larix cajanderi*, on soil among *Dryas* sp., 22.08.2016, NS (MAG 5400).

*Leucocybe candicans* (Pers.) Vizzini, P. Alvarado, G. Moreno et Consiglio – new for Magadan Oblast.

Specimens examined: *Magadan Oblast*: Susumanskiy District, vicinity of Momontay lake, 63.7330°N, 148.1204°E, shrub-lichen tundra, on soil among *Arctous alpina* and lichens, 06.08.2018, coll. E. Andriyanova, det. NS (MAG 5352).

*Lycoperdon atropurpureum* Vittad. – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Khankaiskiy District, Novokachalinsk village, lake Khanka, 45.1500°N, 132.0000°E, deciduous forest with dominance of *Quercus mongolica*, on soil, 17.08.2018, YR (YuR 3537; fig. 1, f).

Notes: *Lycoperdon molle* Pers. is morphologically similar species but distinguished by its less ornamented spores (Rebriev, 2016; Jeppson, 2018).

*L. mammiforme* Pers. – new for Khabarovsk Krai.

Specimens examined: *Khabarovsk Krai*: Khekhtsirskiy Reserve, 48.2398°N, 135.1928°E, mixed forest, on soil, 28.08.2017, coll. E. Erofeeva, det. YR (YuR 3478).

*Merismodes bresadolae* (Grelet) Singer – new for Primorskiy Krai; new for Russian Far East.

Specimen examined: *Primorskiy Krai*: Ussuriyskiy Urban Okrug, slope of a brook valley within 1 km north of Ussuriysk Astrophysical Observatory, 43.7050°N, 132.1636°E, *Quercus mongolica* forest, on bark of a living *Q. mongolica* tree, socio *Rosellinia tassiana*, 18.08.2020, EP (LE 324104).

*Morganella sosinii* Rebriev et Bulakh – new for Khabarovsk Krai.

Specimens examined: *Khabarovsk Krai*: Anyuyskiy National Park, Nilo cordon, 49.2515°N, 137.2661°E, mixed

forest, on fallen tree, 11.09.2018, coll. E. Erofeeva, det. YR (YuR 3577).

Notes: According to the cladistics conception based on molecular phylogeny, *Morganella* accepted as section of genus *Lycoperdon* and located in the *Agaricaceae* as well as other puffballs. Recent research allows the restoration of the *Lycoperdaceae*, with a reduced number of taxa including genus *Morganella* (Wijayawardene et al. 2020).

*Mucronella calva* (Alb. et Schwein.) Fr. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, on fallen *Pinus* sp. trunk, 8.09.2014, coll. V. Chuykov, det. AS (SVR(F) 96202).

*Mycena amicta* (Fr.) Qué. – new for Magadan Oblast.

Specimens examined: *Magadan Oblast*: vicinity of Magadan city, Novaya Veselaya, valley of the Kedrovyy Klyuch brook, 59.5228°N, 150.8978°E, under *Betula lanata*, among the litter, 23.09.2018, NS (MAG 5376); Nagaevskaya hill, 59.5679°N, 150.7625°E, forest with *Betula lanata*, on soil among litter, 5.08.2015, NS (MAG 5385).

*M. silvae-nigrae* Maas Geest. et Schwöbel – new for Magadan Oblast; new for Russian Far East.

Specimens examined: *Magadan Oblast*: Srednekanskiy District, vicinity of Seymchan village, mixed forest with dominance of *Larix* sp., on an old stump of *Larix* sp., 11.06.2013, coll. S. Yarysheva, det. NS (MAG 5430; fig. 1, g).

Notes: this taxon sometimes considered as a 2-spore variety of *Mycena stipata* Maas Geest. et Schwöbel. The species is distributed in Europe, North America and is known from Northern Russia (Khanty-Mansi Autonomous Okrug) (*Mycena silvae-nigrae*., 2019).

*Omphaliaster borealis* (M. Lange et Skifte) Lamoure – new for Magadan Oblast, new for Russian Far East.

Specimens examined: *Magadan Oblast*: Susumanskiy District, vicinity of Momontay lake, 63.7330°N, 148.1204°E, moss-lichen tundra, among the mosses and lichens, 6.08.2018, coll. E. Andriyanova, det. NS (MAG 5353; fig. 1, h).

Notes: northern species of clitocyboid type with verrucose spores.

*Pholiota henningsii* (Bres.) P.D. Orton – new for Magadan Oblast; new for Russian Far East.

Specimens examined: *Magadan Oblast*: Olskiy District, Kavinskaya Valley Reserve, 59.6872°N, 147.4904°E, swampy *Larix* sp. forest with *Betula nana* and blueberry, among *Sphagnum* spp. mosses, 19.08.2017, NS (MAG 5060).

Notes: the species differs from other species *Pholiota* (section *Flammuloides*) by the ecology, grows in swampy habitats, among sphagnum mosses. The species is known for Europe (*Pholiota henningsii*., 2019).

*Pterulicium gracile* (Desm. et Berk.) Leal-Dutra, Dentinger et G.W. Griff. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, mixed forest with *Betula* sp., *Pinus* sp., on rotten grasses and leaves, 15.08.2006, AS [SVR(F) 96199].

*Ramariopsis tenuiramosa* Corner – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, mixed forest with dominance of *Betula* sp., *Pinus* sp., on soil between dead grasses, 14.08.2006, AS [SVR(F) 96200].

*Tricholoma alboconicum* (J.E. Lange) Cléménçon – new for Magadan Oblast; new for Russian Far East.

Specimens examined: *Magadan Oblast*, Khasynskiy District, Yablonovyy pass, 60.6159°N, 151.5868°E, sparse mixed forest with dominance of *Larix* sp., with *Pinus pumila* and *Betula middendorffii*, on soil among *Dryas* sp. and *Salix* sp., 22.08.2016, NS (MAG 4887).

Notes: the species differ from *Tricholoma terreum* s.l. (syn. *Tricholoma myomyces* var. *alboconicum* J.E. Lange, *Tricholoma argyraceum* f. *alboconicum* (J.E. Lange) Bon) as having a pointed cap, narrower (to subcylindrical) spores and some other distinctive features, and association with deciduous trees.

*T. vaccinum* (Schaeff.) P. Kumm. – new for Magadan Oblast.

Specimens examined: *Magadan Oblast*: Khasynskiy District, Yablonovyy pass, 60.6147°N, 151.5858°E, sparse forest with dominance of *Larix* sp. with *Pinus pumila*, on soil among the *Polytrichum* spp. mosses, 22.08.2016, NS (MAG 4545); Yablonovyy pass, 60.6161°N, 151.5987°E, *Larix cajanderi* forest along the stream, on soil, 22.08.2016, NS (MAG 5422); Srednekanskiy District, vicinity of Seymchan village, 62.9830° N, 152.3199° E, cowberry *Larix cajanderi* forest, on soil, 29.08.2018, NS (MAG 5458).

*Typhula capitata* (Pat.) Berthier – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, brook valley, on dead *Calamagrostis* sp. stems, 07.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96216].

*T. caricina* P. Karst. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, deciduous forest with dominance of *Betula* sp., *Salix* sp., on dead *Carex* sp. leaves, 14.08.2006, AS [SVER(F) 96197].

*T. crassipes* Fuckel – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, mixed forest with dominance of *Pinus* sp., *Larix* sp., *Betula* sp., on dead tree leaves, 13.08.2006, AS (SVER(F) 96221).

*T. culmigena* (Mont. & Fr.) Berthier – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, mixed forest with dominance of *Pinus* sp., *Betula* sp., on dead forbs, 15.08.2006, AS [SVER(F) 96215].

*T. erythropus* (Pers.) Fr. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, bushes with *Salix* spp., *Betula* spp., on fallen leaves of *Populus* sp., 8.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96203].

*T. graminum* P. Karst. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, open meadow, on dead *Calamagrostis* sp. leaves, 9.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96222].

*T. juncea* (Alb. et Schwein.) P. Karst. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, mixed forest with dominance of *Pinus* sp.,

*Betula* sp., on dead fallen leaves of *Populus* sp. and *Betula* sp., 14.08.2006, AS [SVER(F) 96214].

*T. lutescens* Boud. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, forest with dominance of *Betula* sp., *Salix* sp., on dead herbs, 13.08.2006, AS [SVER(F) 96204].

*T. micans* (Pers.) Berthier – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, meadow, on dead *Equisetum* sp., 09.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96223].

*T. phacorrhiza* (Reichard) Fr. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, forest with dominance of *Pinus* sp., *Betula* sp., on fallen leaves of *Betula* sp., 15.08.2006, AS [SVER(F) 96205].

*T. setipes* (Grev.) Berthier – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, mixed forest with dominance of *Betula* sp., *Pinus* sp., *Larix* sp., on fallen leaves of *Betula* sp., 07.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96213].

*T. spathulata* (Corner) Berthier – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, bushes with *Salix* spp., *Betula* spp., on dead brunch of *Salix* sp., 13.08.2006, AS [SVER(F) 96224].

*T. subhyalina* Courtec. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, meadow, on dead leaves of *Calamagrostis* sp., 14.08.2006, AS [SVER(F) 96212].

*T. todei* Fr. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, bushes with *Salix* spp., *Betula* spp., on dead *Athyrium* sp. petioles, 13.08.2006, AS [SVER(F) 96206].

*T. uncialis* (Grev.) Berthier – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, mixed forest with dominance of *Larix* sp., *Betula* sp., on dead stems of *Chamaenerion* sp., 14.08.2006, AS [SVER(F) 96219].

*T. variabilis* Riess – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, bushes with *Salix* spp., *Betula* spp., on dead stem of *Aconitum* sp., 8.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96207].

#### Atheliales

*Amphinema byssoides* (Pers.) J. Erikss. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, Tepy foresters outpost, 54.0325°N, 127.5766°E, mixed forest with dominance of *Betula* sp. and *Larix* sp. with *Picea* sp., after a fire, on a dead trunk of *Betula* sp. under bark, 27.07.14, NK (ABGI 418/22038); Zeya Nature Reserve, 62nd kilometer of Zeya – Zolotaya Gora route, floodplain of the Kamenushka river, 54.1292°N, 126.7294°E, forest with dominance of *Populus* sp. with *Pi-*



*cea* sp. and *Alnus* sp., on dead branches of *Populus* sp., 18.06.2015, NK (ABGI 1574/105122); Zeya Nature Reserve, 52nd kilometer of Zeya – Zolotaya Gora route, valley of the B. Erakingra river, 54.1286°N, 126.9744°E, forest with *Picea* sp., on a dead trunk of *Picea* sp., 15.06.2016, NK (ABGI 1575/105123).

*Hypochniciellum ovoideum* (Jülich) Hjortstam et Ryvar-den – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast:* Zeyskiy District, Zeya Nature Reserve, 62nd kilometer of Zeya – Zolotaya Gora route, floodplain of the Kamenushka river, 54.1237°N, 126.7222°E, deciduous forest, on dead branches of *Populus* sp., 17.08.2015, NK (ABGI 452/22043).

*Melzericium udicola* (Bourdot) Hauerslev – new for Amur Oblast; new for Russian Far East, second finding for Russia.

Specimens examined: *Amur Oblast:* Zeyskiy District, Zeya Nature Reserve, 52nd kilometer of Zeya – Zolotaya Gora route, valley of the B. Erakingra river, 54.1647°N, 126.9763°E, deciduous forest, on the bark of a dead trunk of *Alnus* sp., 16.08.2015, NK (ABGI 384/22061).

Notes: the first find of species on the territory of Russia was made in the Novgorod Region (Kotkova, 2012).

#### Boletales

*Coniophora olivacea* (Fr.) P. Karst. – new for Amur Oblast.

Specimens examined: *Amur Oblast:* Zeyskiy District, Zeya State Nature Reserve, the shore of the reservoir, Izvestkovy Bay, 53.9588°N, 127.4372°E, mixed forest, on a burnt trunk of *Larix* sp., 17.06.2020, NK (ABGI 1460/104834); Zeya Nature Reserve, Teply foresters outpost, 54.0325°N, 127.5766°E, forest with dominance of *Quercus* sp. with *Betula* sp., *Populus tremula* and *Larix* sp., on a dead trunk of *Larix* sp., 20.08.2015, NK (ABGI 1482/104835).

*Scleroderma bovista* Fr. – new for Amur Oblast.

Specimens examined: *Amur Oblast:* Magdagachinskiy District, Tygda station, 53.1031°N, 126.3469°E, coniferous forest with dominance of *Pinus* sp., on sandy soil, 06.08.1958, L. Vasilieva, Yu. Rebriev (VLA M 17864); Blagoveshchenskiy District, Muhinskiy Nature Park, 50.5384°N, 127.6284°E, edge of the forest, on sandy soil, 25.08.2001, coll. NK, det. YR (VLA M 18284).

*Suillus aurihymenius* X.F. Shi et P.G. Liu – new for Magadan Oblast; new for Russian Far East.

Specimens examined: *Magadan Oblast:* Srednecanskiy District, vicinities of Seymchan village, 62.8339°N, 152.4313°E, mixed forest with *Larix cajanderi*, *Betula plathyphylla*, *Salix bebbiana*, *S. schwerinii*, 28.08.2018, coll. NS, det. EZ (MAG 5109, ITS GenBank MW596242; fig. 1, i); *ibid.*, 62.9616°N, 152.3382°E, mixed forest with dominance of *Larix cajanderi* (with *Salix* spp., *Chosenia arbutifolia*), 17.08.2015, coll. S. Yarysheva, det. NS (MAG 4416).

Notes: the species was described by Xiao-Fei Shi et al. in 2016 from northern China, Heilongjiang province (Shi et al., 2016). According to the p-distance analysis performed in MEGA X, the ITS sequence of MAG5109 differs from the sequence of the type specimen of *Suillus aurihymenius* HKAS 63129; GenBank, JN201972 by 0.8%. In Russia, *S. aurihymenius* was recorded on the territory of Altai (Bolshakov et al., 2020).

#### Cantharellales

*Multiclavula vernalis* (Schwein.) R.H. Petersen – new for Amur Oblast.

Specimens examined: *Amur Oblast:* Skovorodinskiy District, 8 km south-east of Skovorodino town, 53.914°N, 123.974°E, bushes with *Salix* spp., *Betula* spp., on open soil, 9.09.2014, coll. V. Chuykov, det. AS [SVER(F) 96217].

#### Corticiales

*Dendrocorticium violaceum* H.S. Jacks. – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast:* Zeyskiy District, Zeya Nature Reserve, 62nd kilometer of Zeya – Zolotaya Gora route, floodplain of the Kamenushka river, 54.2241°N, 126.9149°E, mixed forest with *Betula* sp., *Larix* sp., *Picea* sp. and *Pinus* sp., on a dead branch of hardwood, 16.08.2016, NK (ABGI 539/104845).

#### Geastales

*Geastrum berkeleyi* Masee – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast:* Blagoveshchenskiy District, Muhinskiy Nature Park, 50.6784°N, 127.6517°E, clearing, on soil, 09.08.2002, NK (VLA M 18285).

#### Gloeophyllales

*Helioocybe sulcata* (Berk.) Redhead et Ginns – new for Amur Oblast.

Specimens examined: *Amur Oblast:* Zeyskiy District, Zeya State Nature Reserve, coast of the Zeya Reservoir, Sukhoi brook, 53.9388°N, 127.5605°E, mixed forest with dominance of *Betula* sp. and *Larix* sp. with *Populus* sp. admixture, on dead *Populus* sp. wood, 12.06.2018, NK (ABGI 1336/105066); Zeya State Nature Reserve, coast of the Zeya Reservoir, Teply foresters outpost, 53.9225°N, 127.3501°E, deciduous forest with dominance of *Quercus* sp. with *Betula* sp. and *Populus tremula*, on dead trunks of *P. tremula*, 16.06.2020, NK (ABGI 1561/105067); Selem-dzhinskiy District, Norskiy Nature Reserve, vicinity of Maltsevskiy point, 52.4835°N, 130.0157°E, floodplain deciduous forest, on dead wood of *Salix* sp. and *Alnus* sp., 30.06.2018, NK (ABGI 982/105065).

#### Gomphales

*Ramaria corrugata* (P. Karst.) Schild – new for Amur Oblast.

Specimens examined: *Amur Oblast:* Skovorodinskiy District, 4 km south-east of Skovorodino town, 53.968°N, 123.976°E, mixed forest, on fallen *Picea* sp. needles, 12.08.2006, AS [SVER(F) 96221].

*Ramaricium albochraceum* (Bres.) Jülich – new for Amur Oblast.

Specimens examined: *Amur Oblast:* Zeyskiy District, Zeya Nature Reserve, 62nd kilometer of Zeya – Zolotaya Gora route, 54.1237°N, 126.7222°E, deciduous forest, on dead tree of *Populus* sp., 17.08.2015, NK (ABGI 455/22073); Zeya Nature Reserve, 52nd kilometer of Zeya – Zolotaya Gora route, valley of the B. Erakingra river, 54.2134°N, 127.0661°E, deciduous forest, on the bark of a dead trunk of *Populus* sp., 06.06.2016, NK (ABGI 1581/104858).



*Hymenochaetales*

*Hymenochaete anomala* Burt – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Kaimanovka village, 43.37°N, 132.13°E, deciduous forest, on corticated small branch of *Padus* sp., 28.07.2018, HK (HK 28710).

*Kurtia macedonica* (Litsch) Karasinski – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, deciduous old-growth forest, on decorticated, fairly decayed *Betula* sp., 02.08.2018, HK (HK 28820).

*Peniophorella pubera* (Fr.) P. Karst. [= *Hyphoderma puberum* (Fr.) Wallr.] – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Selezmdzhinskiy District, Norskiy Nature Reserve, vicinity of Antonovskaya point, 52.8362°N, 130.1155°E, floodplain forest, on dead branches of *Padus* sp., 05.07.2018, NK (ABGI 1212/105068); Zeyskiy District, Zeya Nature Reserve, environs of the point “52nd km”, valley of the river B. Erakingra, 53.8543°N, 127.3593°E, floodplain deciduous forest, on dead wood of *Salix* sp., 20.06.2020, NK (ABGI 1472/105069).

*Polyporales*

*Ceriporia mellita* (Bourdot et Galzin) Bondartsev et Singer – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, deciduous old-growth forest, on decorticated, strongly decayed *Ulmus* sp. branch, 01.08.2018, HK (HK 28803).

*Dentocorticium sulphurellum* (Peck) M.J. Larsen et Gilb. – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, coast of the Zeya Reservoir, Teply foresters outpost, 54.0325°N, 127.5766°E, forest with dominance of *Quercus* sp. with an admixture of *Betula* sp. and *Larix* sp., on a dead rotten trunk of *Larix* sp., 22.08.2015, NK (ABGI 454/104867).

*Frantisekia ussuri* (Y.C. Dai et Niemelä) Spirin – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, deciduous old-growth forest, corticated, fairly decayed *Acer* sp., 29.07.2018, HK (HK 28721); same forest, on decorticated, strongly decayed *Fraxinus* sp., 02.08.2018, HK (HK 28827).

*Junghuhnia nitida* (Pers.) Ryvarden – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Tambovskiy District, Muravyevskiy Nature Park, 49.872917°N, 127.703817°E, deciduous forest, on a dead trunk of *Quercus* sp., 05.06.2020, NK (ABGI 1602/105059).

*Perenniporia tenuis* (Schwein.) Ryvarden – new for Amur Oblast; second finding for Russian Far East.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya State Nature Reserve, coast of the Zeya Reservoir, Teply foresters outpost, 54.0325°N, 127.5766°E, forest with dominance of *Quercus* sp. with an admixture of *Betula* sp. and *Populus tremula*, on dead trunk of *Quercus* sp., 19.06.2020, NK (ABGI 1454/105064).

Notes: In the Russian Far East, the species was firstly recorded in the Bastak Nature Reserve, Jewish Autonomous Oblast (Bukharova, Zmitrovich, 2014).

*Phlebia radiata* Fr. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Selezmdzhinskiy District, Norskiy Nature Reserve, vicinity of Maltsevskiy point, 52.4835°N, 130.0157°E, forest with *Salix* sp., on a dead trunk of *Salix* sp., 27.06.2018, NK (ABGI 1325/105062).

*Radulodon aneirinus* (Sommerf.) Spirin – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, 34nd kilometer of Zeya – Zolotaya Gora route, 54.0655°N, 127.1591°E, deciduous forest with dominance of *Betula* sp. with *Populus tremula*, on a dead trunk of *Betula* sp., 29.07.2014, NK (ABGI 216/104872); Zeya Nature Reserve, 52nd kilometer of Zeya – Zolotaya Gora route, 54.2133°N, 127.0661°E, forest with *Chosenia* sp., on a dead trunk of *Chosenia* sp., 05.06.2016, NK (ABGI 1578/104874); Svobodnenskiy District, vicinity of Svobodniy town, territory of the Amur gas processing factory, floodplain of Zeya river, 51.4549°N, 128.3850°E, floodplain forest with dominance of *Salix* sp., on dead wood, 05.09.2020, NK (ABGI 1516/104873).

*R. copelandii* (Pat.) N. Maek. – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Svobodnenskiy District, vicinity of Svobodniy town, territory of the Amur gas processing factory, 50.5686°N, 128.1999°E, forest with dominance of *Quercus* sp. with an admixture of *Betula* sp. and *Pinus* sp., on the dead branches of *Quercus* sp., 05.09.2020, NK (ABGI 1522/104877).

*R. erikssonii* Ryvarden – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, coast of the Zeya Reservoir, Teply foresters outpost, 54.0325°N, 127.5766°E, forest with dominance of *Quercus* sp. with *Betula* sp. and *Populus tremula*, on a burnt trunk of *Quercus* sp. in a hollow, 04.06.2015, NK (304/104875 ABGI); Svobodnenskiy District, vicinity of Svobodniy town, territory of the Amur gas processing factory, 51.4591°N, 128.1725°E, forest with *Quercus* sp., on a dead trunk of *Quercus* sp., 05.09.2020, NK (ABGI 1508/104876).

*Rhizochaete radicata* (Henn.) Gresl., Nakasone et Rajchenb. – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, 62nd kilometer of Zeya – Zolotaya Gora route, floodplain of the Kamenushka river, 54.235°N, 126.8100°E, mixed forest, on a dead trunk, 18.07.2016, NK (ABGI 1480/105063).

*Scopuloides rimosa* (Cooke) Jülich – new for Amur Oblast, second finding for Russian Far East.

Specimens examined: *Amur Oblast*: Selezmdzhinskiy District, Norskiy Nature Reserve, vicinity of Maltsevskiy point, 52.4835°N, 130.0157°E, floodplain forest, on a dead trunk of *Alnus* sp., 28.06.2018, NK (ABGI 1227/105060).

*Steccherinum laeticolor* (Berk. et M.A. Curtis) Banker – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Bureyskiy District, left bank of the Bureya river, environs of the oil pipeline, near Malinovskiy Island, 49.7845°N, 129.9721°E, floodplain forest, on a dead trunk of *Fraxinus* sp., 25.08.2020, coll. G. Darman, det. NK (ABGI 1555/105061).

*Yuchengia narymica* (Pilát) B.K. Cui, C.L. Zhao et K.T. Steffen – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, deciduous old-growth forest, on corticated, strongly decayed *Salix* sp., 30.07.2018, HK (HK 28760).

#### *Russulales*

*Aleurodiscus aurantius* (Pers.) J. Schröt. – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, environs of the point “62nd km”, valley of the river Kamenushka, 54.2241°N, 126.9149°E, floodplain deciduous forest, on dead twigs, 17.08.2015, NK (ABGI 382/105070).

*Amylostereum areolatum* (Chaillat ex Fr.) Boidin – new for Amur Oblast.

Specimens examined: *Amur Oblast*: vicinity of Blagoveshensk town, territory of the Amur Branch of Botanical Garden–Institute, 50.3197°N, 127.4808°E, deciduous forest with *Betula* sp., *Quercus* sp., on branches of *Quercus* sp., 13.09.2019, NK (ABGI 1617/106007); Svobodnenskiy District, vicinity of Svobodny town, territory of the Amur gas processing factory, 50.5686°N, 128.1999°E, deciduous forest with dominance of *Quercus* sp. with an admixture of *Betula* sp. and *Pinus* sp., on branches of *Quercus* sp., 05.09.2020, NK (ABGI 1521/104878).

*Duportella lassa* Spirin et Kout – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, deciduous old-growth forest, on corticated, fairly hard deciduous tree, 29.07.2018, HK (HK 28725).

*Gloeocystidiellum porosum* (Berk. et M.A. Curtis) Donk – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, 62nd kilometer of Zeya – Zolotaya Gora route, 54.2241°N, 126.9149°E, floodplain forest, on dead branches of *Alnus* sp., 18.07.2016, NK (ABGI 1584/105072).

*Peniophora polygonia* (Pers.) Bourdot et Galzin – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, vicinity of point “52nd km”, 54.1286°N, 126.9744°E, mixed forest, on bark of *Populus tremula*, 05.06.2016, NK (ABGI 1591/105071).

*Scytinostroma odoratum* (Fr.) Donk – new for Amur Oblast.

Specimens examined: *Amur Oblast*: Zeyskiy District, Zeya Nature Reserve, 52nd kilometer of Zeya – Zolotaya Gora route, 54.1286°N, 126.9744°E, mixed forest with dominance of *Betula* sp. with an admixture of *Larix* sp. and *Picea* sp., on dead wood of *Larix* sp., 05.06.2016, NK (ABGI 1590/105073).

#### *Trechisorales*

*Fibriciellum silvae-ryae* J. Erikss. et Ryvarden – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast*: Selezdzhinskiy District, Norsky Nature Reserve, vicinity of Maltsevskiy point, on the top of the Maltsevskaya hill, 52.4835°N, 130.0157°E, mixed forest with dominance of *Betula* sp. and *Larix* sp. with an admixture of deciduous species, on a dead trunk of a deciduous tree, 28.06.2018, NK (ABGI 1224/105075).

*Luellia recondita* (H.S. Jacks.) K.H. Larss. et Hjortstam – new for Amur Oblast; new for Russian Far East.

Specimens examined: *Amur Oblast*: Selezdzhinskiy District, Norsky Nature Reserve, vicinity of Maltsevskiy point, 52.4833°N, 130.0148°E, floodplain forest, on dead wood of *Alnus* sp., 30.06.2018, NK (ABGI 1218/105076).

*Subulicystidium brachysporum* (P.H.B. Talbot et V.C. Green) Jülich – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, deciduous old-growth forest, on small, corticated, fairly hard branch of *Lonicera* sp., 02.08.2018, HK (HK 28838).

*S. perlongisporum* Boidin et Gilles – new for Primorskiy Krai.

Specimens examined: *Primorsky Krai*: Ussuriyskiy Urban Okrug, Ussuriyskiy Nature Reserve, Komarova station, 43.64°N, 132.34°E, deciduous old-growth forest, on partly corticated, strongly decayed *Acer* sp., 29.07.2018, HK (HK 28719); *ibid.*, on corticated, fairly hard *Ulmus* sp., 20.07.2018, HK (HK 28771); *ibid.*, on hard, corticated branch of *Acer* sp., 02.08.2018, HK (HK 28808).

## DISCUSSION

A total of 121 species of macromycetes are reported as new for the Russian Far East. 36 species belong to the *Ascomycota* (*Capnodiales*, *Diaporthales*, *Geoglossales*, *Hypocreales*, *Helotiales*, *Lecanorales*, *Mytilinidiales*, *Pezizales*, *Pleosporales*, *Rhytismatales*, and *Xylariales*), and 86 – to the *Basidiomycota* (*Agaricales*, *Atheliales*, *Boletales*, *Cantharellales*, *Corticiales*, *Gastreales*, *Gloeophyllales*, *Gomphales*, *Hymenochaetales*, *Polyporales*, *Russulales*, and *Trechisporales*). 24 species (*Aleurodiscus aurantius*, *Clitocybe dryadicola*, *Cystostereum murrayi*, *Dendrocorticium violaceum*, *Dendrothele tetracornis*, *Dentocorticium sulphurellum*, *Fibriciellum silvae-ryae*, *Geastrum berkeleyi*, *Hebeloma dunense*, *Hohenbuehelia grisea*, *Hypochniciellum ovoideum*, *Luellia recondita*, *Melzericium udicola*, *Merismodes bresadolae*, *Mycena silvae-nigrae*, *Omphaliaster borealis*, *Peniophora polygonia*, *Pholiota henningsii*, *Radulodon erikssonii*, *Rhizochaete radicata*, *Sarcoleotia globosa*, *Suillus aurihymenius*, *Tricholoma alboconicum*, *Trichophaeopsis paludosa*) are reported for the first time for the Russian Far East. 13 species (*Boudiera acanthospora*, *Ciboria polygoni-vivipari*, *Graddonia coracina*, *Gymnopus loiseleurietorum*, *Hebeloma aurantioumbrinum*, *H. pubescens*, *H. spetsbergense*, *Juglanconis oblonga*, *Microstoma aggregatum*, *Rosellinia tassiana*, *Sarcoscypha korfiana*, *Trichophaea variornata*, *Tuber himalayense*) are a new species for Russia.

The distribution of new records of macromycetes within the regions is as follows:

- 54 – new for Amur Oblast;
- 5 – Chukotka Autonomous Okrug;
- 13 – Kamchatka Krai;
- 5 – Khabarovsk Krai;
- 16 – Magadan Oblast;
- 27 – Primorskiy Krai;
- 2 – Sakhalin Oblast.

The studies on fungal diversity in the Far Eastern regions of Russia to be continued.

Thanks for help in field work and samples provided by colleagues Dr. Marya G. Khoreva, Dr. Elena A. Andriyanova, Svetlana A. Yarysheva, Mikhail N. Pakhomov, Mikhail Trumpe and others. The work of Y. Rebriev was carried out within the frame of government assignments for the South Science Center RAS (project AAAA-A19-119011190176-7 “Structural and functional organization and dynamics of plane landscape biocoenoses of the south part of Russia in the conditions of climate change and anthropogenic impact”). The research of N. Kochunova was carried out within the frame of government assignments for Botanical Garden-Institute FEB RAS “Assessment of the current biological diversity and resource potential of the flora of East Asia” (project AAAA-A20-120031990009-4). The work of E. Popov was carried out within the framework of the institutional research project “Herbarium collections (history, conservation, study and replenishment)” (AAAA-A18-118022090078-2) of Komarov Botanical Institute RAS. The research of N. Sazanova was carried out within the frame of government assignments for Institute of Biological Problems of the North FEB RAS (project AAAA-A17-117122590002-0 “Inventory and classification of taxonomic and spatial diversity of plants and plant communities of the Far East North of Russia”). E. Zvyagina’s work is supported by a grant from the Russian Foundation for Basic Research (RFBR) 20-04-00349.

## REFERENCES

- Antonín V., Halling R.E., Noordeloos M.E. Generic concepts within the groups of *Marasmius* and *Collybia* sensu lato. *Mycotaxon*. 1997. V. 63. P. 359–368.
- Baral H.-O. *Ombrophila hemiamyloidea* (Leotiales), a new aquatic discomycete. *Mycologia Bavarica*. 1999. V. 3. P. 50–63.
- Beker H.J., Eberhardt U., Vesterholt J. *Hebeloma* (Fr.) P. Kumm. *Fungi Europaei*. Lomazzo: Edizioni Tecnografica. 2016. V. 14. 1232 pp.
- Bolshakov S. Yu., Kalinina L.B., Volobuev S.V. et al. New species for regional mycobiotas of Russia. 5. Report 2020. *Mikologiya i fitopatologiya*. 2020. V. 54 (6). P. 404–413. <https://doi.org/10.31857/S0026364820060033>
- Bukharova N.V., Zmitrovich I.V. Aphyllorphoroid fungi of the “Bastak” reserve. *Mikologiya i fitopatologiya*. 2014. V. 48 (6). P. 343–354 (in Russ.).
- Bulakh E.M. Mushrooms of the Russian Far East. Vladivostok: Russkiy ostrov, 2016. 400 p. (in Russ.).
- Checa J., Blanco M.N. Some interesting pyrenomycetous fungi on bark of *Quercus* spp. from Spain. *Mycotaxon*. 2005. V. 94. P. 225–230.
- Dennis R.W.G. Two proposed new genera of *Helotiales*. *Kew Bulletin*. 1955. V. 10. P. 359–362.
- Eckblad F.-E. Contributions to the *Sclerotiniaceae* of Norway. *Friesia*. 1969. V. 9. P. 4–9.
- Eriksson O.E. The non-lichenized ascomycetes of Sweden. Umeå: Umeå University, 2009. 361 p.
- Gminder A. *Graddonia coracina* (Bresadola) Dennis. *Rheinland-Pfälzisches Pilzjournal*. 1993. V. 3 (2). P. 104–107.
- Habu M. Survey report of *Microstoma aggregatum* Otani (Senbon Kitsune no Sakazuki). Chiba fungus discourse meeting communication. 2012. № 28. P. 61–65 (in Japanese).
- Hallgrímsson H., Eyjólfsdóttir G.G. Íslenskt sveppatal I. Smásveppir. *Fjölrit Náttúrufræðistofnunar*. 2004. V. 45. P. 1–189.
- Harrington F.A. New species of *Sarcoscypha* (*Sarcoscyphaceae*, *Pezizales*). *Harvard Papers in Botany*. 1997. V. 1 (40). P. 53–64.
- Harrington F.A., Potter D. Phylogenetic relationships within *Sarcoscypha* based upon nucleotide sequences of the internal transcribed spacer of nuclear ribosomal DNA. *Mycologia*. 1997. V. 89 (2). P. 258–267.
- Huhtinen S. New Svalbard fungi. *Environmental Science Research*. 1987. V. 34. P. 123–151.
- Index Fungorum. CABI Bioscience, 2021. <http://www.indexfungorum.org>. Accessed 10.03.2021.
- Jeppson M. Puffballs of Northern and Central Europe. *Mykologiska publikationer*. 2018. V. 8. P. 1–360.
- Kotkova V.M. New data on aphyllorphoraceous fungi of Novgorod Region // *Mikologiya i fitopatologiya*. 2012. V. 46 (3). P. 178–181 (in Russ.).
- Larios J.M., Honrubia M., Moreno G. Estudio de los hongos que fructifican en la vegetación relicta de *Abies pinsapo* Boiss., en España Peninsular. *Acta Botanica Malacitana*. 1988. V. 13. P. 91–110. <https://doi.org/10.24310/Actabotani-caabmabm.v13i.9411>
- Mycena silvae-nigrae* Maas Geest. et Schwöbel in GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset <https://doi.org/10.15468/39omei>
- Otani Y. Miscellaneous notes on Japanese *Discomycetes*. Reports of the Tottori Mycological Institute. 1990. V. 28. P. 251–265.
- Petersen P.M., Korf R.P. Some inoperculate *Discomycetes* and *Plectomycetes* from West Greenland. *Nordic Journal of Botany*. 1982. V. 2. P. 151–154.
- Petrini L.E. *Rosellinia* species of the temperate zones. *Sydowia*. 1992. V. 44 (2). P. 169–281.
- Pholiota henningsii (Bres.) P.D. Orton in GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset <https://doi.org/10.15468/39omei>
- Raitviir A. The *Helotiales* of the Magadan and Chukotka areas of the Russian Arctic. *Sommerfeltia*. 2008. V. 31. P. 179–190. <https://doi.org/10.2478/v10208-011-0010-8>
- Rebriev Yu.A. Gasteromycetes of the genus *Lycoperdon* in Russia. *Mikologiya i fitopatologiya*. 2016. V. 50 (5). P. 380–401 (in Russ.).
- Rebriev Yu.A., Bulakh E.M., Sazanova N.A. et al. New species of macromycetes for regions of Russian Far East. 1. *Mikologiya i fitopatologiya*. 2020. V. 54 (4). P. 278–288. <https://doi.org/10.31857/S0026364820040091>
- Red Data Book of the Khanty-Mansi Autonomous Okrug-Yugra: animals, plants and fungi. Ekaterinburg, 2013. 460 p. (in Russ.).
- Saccardo P.A. *Fungi Gallici lecti a cl. viris P. Brunaud, C.G. Gillet, Abb. Letendre, A. Malbranche, J. Therry*

- vel editi in Mycotheca Gallica cl. C. Roumeguèri. Series III. Michelia. 1881. V. 2 (7). P. 302–371.
- Shi X.-F., Yu F.-Q., Zhang R. Two new species of *Suillus* associated with larches in China. *Mycotaxon*. 2016. V. 131. P. 305–315.  
https://doi.org/10.5248/131.305
- Traverso J.B. Pyrenomycetae *Sphaeriaceae: Allantosporeae, Hyalosporae, Phaeosporae*. *Flora Italica cryptogama. Pars I: Fungi. Vol. II. Fasc. 2. Rocca San Casciano*, 1907. P. 353–700.
- Unamuno P.L.M. Enumeracion y distribucion geografica de los ascomicetos de la Peninsula Iberica y de las Islas Baleares. *Memorias. Real Academia de Ciencias Exactas, Físicas y Naturales de Madrid*. 1941. V. 8. P. 1–403.
- Voglmayr H., Castlebury L., Jaklitsch W. *Juglanconis* gen. nov. on *Juglandaceae*, and the new family *Juglanconidaceae (Diaporthales)*. *Persoonia – Molecular Phylogeny and Evolution of Fungi*. 2017. V. 38. P. 136–155.  
https://doi.org/10.3767/003158517X694768
- Wijayawardene N.N., Hyde K.D., Al-Ani L.K.T. et al. Outline of Fungi and fungus-like taxa. *Mycosphere*. 2020. V. 11 (1). P. 1060–1456.  
https://doi.org/10.5943/mycosphere/11/1/8
- Zhuang W.-Y. The genus *Sarcoscypha* in Jiaohe, Jilin province, with notes on surface morphology of Ascospores. *Mycosystema*. 1993. V. 5. P. 65–72.
- Zhuang W.-Y., Wang Z. Some new species and new records of discomycetes in China. VII. *Mycotaxon*. 1997. V. 63. P. 307–321.
- Булах Е.М. (Bulakh) Грибы Дальнего Востока России. Владивосток: Русский остров, 2016. 400 с.
- Бухарова Н.В., Змитрович И.В. (Bukharova, Zmitrovich) Афиллофороидные грибы заповедника “Бастак” // Микология и фитопатология. 2014. Т. 48. № 6. С. 343–354.
- Коткова В.М. (Kotkova) Новые сведения об афиллофоровых грибах Новгородской области // Микология и фитопатология. 2012. Т. 46. № 3. С. 178–181.
- Красная книга Ханты-Мансийского автономного округа – Югры: животные, растения, грибы (Red Data Book). Екатеринбург: Издательство Баско, 2013. 460 с.
- Ребриев Ю.А. (Rebriev) Гастеромицеты рода *Lycoperdon* в России // Микология и фитопатология. 2016. Т. 50. № 5. С. 302–312.

## НОВЫЕ ДЛЯ РЕГИОНОВ РОССИЙСКОГО ДАЛЬНЕГО ВОСТОКА ВИДЫ МАКРОМИЦЕТОВ. 2

Ю. А. Ребриев<sup>a, #</sup>, А. В. Богачева<sup>b, ##</sup>, Г. Дж. Бекер<sup>c, d, ###</sup>, У. Эберхардт<sup>e, ####</sup>, Н. А. Кочунова<sup>f, #####</sup>,  
Х. Котиранта<sup>g, #####</sup>, Е. С. Попов<sup>h, #####</sup>, Н. А. Сазанова<sup>i, #####</sup>,  
А. Г. Ширяев<sup>j, #####</sup>, Е. А. Звягина<sup>k, l, #####</sup>

<sup>a</sup> Южный научный центр РАН, Ростов-на-Дону, Россия

<sup>b</sup> ФНЦ Биоразнообразия ДВО РАН, Владивосток, Россия

<sup>c</sup> Королевский колледж Холлоуэй, Лондонский университет, Эгам, Великобритания

<sup>d</sup> Ботанический сад Мейсе, Мейсе, Бельгия

<sup>e</sup> Государственный музей естественной истории Штутгарта, Штутгарт, Германия

<sup>f</sup> Амурский филиал Ботанического сада – института ДВО РАН, Благовещенск, Россия

<sup>g</sup> Финский институт окружающей среды, Хельсинки, Финляндия

<sup>h</sup> Ботанический институт им. В.Л. Комарова РАН, Санкт-Петербург, Россия

<sup>i</sup> Институт биологических проблем Севера ДВО РАН, Магадан, Россия

<sup>j</sup> Институт экологии растений и животных Уральского отделения РАН, Екатеринбург, Россия

<sup>k</sup> Московский государственный университет имени М.В. Ломоносова, Москва, Россия

<sup>l</sup> Сургутский государственный университет, Сургут, Россия

<sup>#</sup>e-mail: rebriev@yandex.ru

<sup>##</sup>e-mail: anya.bogachewa@yandex.ru

<sup>###</sup>e-mail: henry@hjbeker.com

<sup>####</sup>e-mail: ursula.eberhardt@smns-bw.de

<sup>#####</sup>e-mail: taraninan@yandex.ru

<sup>#####</sup>e-mail: heikki.kotiranta@syke.fi

<sup>#####</sup>e-mail: pezicula@gmail.com

<sup>#####</sup>e-mail: nsazanova\_mag@mail.ru

<sup>#####</sup>e-mail: anton.g.shiryayev@gmail.com

<sup>#####</sup>e-mail: mycena@yandex.ru

Статья продолжает серию публикаций о находках новых для Дальневосточного региона видов макромицетов. Приведены сведения о 121 виде базидиальных и сумчатых макромицетов, впервые отмеченных в административных единицах Дальнего Востока (Амурской, Магаданской, Сахалинской областей, Камчатского, Приморского, Хабаровского краев, Чукотского автономного округа). Даны сведе-

ния о конкретных местонахождениях, местообитаниях, субстратах, дате сбора находок, с указанием гербарных номеров образцов. Для некоторых редких видов даны примечания об основных отличиях в морфологии и экологии, об особенностях распространения. Идентификация видов *Sarcoscypha korfiana*, *Tuber himalayense*, *Suillus aurihymenius* морфологическими методами подтверждена молекулярно-генетическими данными. Цитируемый материал хранится в микологических коллекциях VLA (Владивосток), MAG (Магадан), SVER (Екатеринбург), LE (Санкт-Петербург), ABGI (Благовещенск) и в личных коллекциях авторов. 24 вида (*Aleurodiscus aurantius*, *Clitocybe dryadicola*, *Cystostereum murrayi*, *Dendrocorticium violaceum*, *Dendrothele tetracornis*, *Dentocorticium sulphurellum*, *Fibriciellum silvae-ryae*, *Geastrum berkeleyi*, *Hebeloma dunense*, *Hohenbuehelia grisea*, *Hypochniciellum ovoideum*, *Luellia recondita*, *Melzerium udicola*, *Merismodes bresadolae*, *Mycena silvae-nigrae*, *Omphaliaster borealis*, *Peniophora polygonia*, *Pholiota henningsii*, *Radulodon erikssonii*, *Rhizochaete radicata*, *Sarcoleotia globosa*, *Suillus aurihymenius*, *Tricholoma alboconicum*, *Trichophaeopsis paludosa*) отмечены впервые для Дальнего Востока России. 13 видов (*Boudiera acanthospora*, *Ciboria polygoni-vivipari*, *Graddonia coracina*, *Gymnopus loiseleurietorum*, *Hebeloma aurantioumbrinum*, *H. pubescens*, *H. spetsbergense*, *Juglanconis oblonga*, *Microstoma aggregatum*, *Rosellinia tassiana*, *Sarcoscypha korfiana*, *Trichophaea variornata*, *Tuber himalayense*) являются новыми для России.

**Ключевые слова:** аскомицеты, биоразнообразие, базидиомицеты, распространение грибов, редкие виды, Россия