

## CHECKLIST OF FUNGI OF THE GENUS *RUSSULA* FROM BELARUSIAN-VALDAI LAKE DISTRICT

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### Abstract

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The species diversity of the genus *Russula* Pers. was studied at the northern part of Belarus and the southern part of Pskov region of Russia. The region of the study is characterized by numerous lakes and rugged terrain. The checklist of fungi of the genus *Russula* is based on the material collected by the author in 1999–2013 as well as the herbarium collections and published data of the other authors. The checklist encompasses 60 species, 28 of these were found to be rare in the area. *R. azurea* and *R. favrei* were reported for the first time in Belarus. Nineteen species – *R. alutacea*, *R. atropurpurea*, *R. aurantiaca*, *R. brunneoviolacea*, *R. consobrina*, *R. fellea*, *R. grisea*, *R. heterophylla*, *R. laeta*, *R. mustelina*, *R. nitida*, *R. pectinatoides*, *R. pseudodelica*, *R. pseudointegra*, *R. rhodopoda*, *R. rosea*, *R. sanguinea*, *R. seperina* and *R. versicolor* were reported for the first time in Pskov region. Most of the listed *Russula* species are widely distributed in Europe. Most species that are rare in the study region are uncommon in the whole Europe as well.

**Keywords:** Basidiomycota, Belarus, Belarusian-Valdai Lake District, distribution, Russia, *Russula* s.l., species diversity.

## INTRODUCTION

The genus *Russula* Pers. is extremely diverse, counting over 750 species worldwide (KIRK et al., 2008). It is notorious for colour variation in sporocarps and obscure morphological and anatomical characteristics (MILLER & BUYCK, 2002). All *Russula* species are ectomycorrhizal and as such they play an important ecological role as symbionts of forest trees (GARDES & BRUNS, 1996; BUYCK et al., 1996) and as important contributors to fungal biomass (RICHARDSON, 1970) and diet of animals and insects (FOGEL & TRAPPE, 1978; RIMŠAITĖ, 2007). They also have economical value as worldwide edible fungi (MILLER & BUYCK, 2002).

The genus *Russula* has a rich taxonomic history in the European mycological literature. It was erected by PERSON (1796) during the studies of macro-

fungi in Northern Europe. The earliest infrageneric classification systems developed from purely macro-morphological and macrochemical characters were gradually replaced by classifications based primarily on microscopic features, especially in the pileipellis. Lately, phylogenetic analysis based on DNA sequences of ribosomal genes has become the most important tool for the classification of *Russula* (MILLER & BUYCK, 2002).

The history of the research on the genus *Russula* in Belarusian-Valdai Lake District began only in the sixties of the 20<sup>th</sup> century with the occurrence of the dissertation by SERŽANINA (1962). Later, the research results were published in a number of papers: SERŽANINA & ZAXAROVA (1974), SERŽANINA (1984), SERŽANINA (1994), GAPIENKO & ŠAPOROVA (2012), KOLMAKOV et al., 2012. Some additional information

about *Russula* species can be found also in SERŽANINA & JAŠKIN (1986). More concise data were presented in the dissertation by the author of the present paper (KOLMAKOV, 2006) and in the monograph on agaricoid basidiomycetes from Belarusian-Valdai Lake District (POPOV et al., 2013).

## DESCRIPTION OF THE STUDY AREA

The region of the study is situated between 57°00'–54°20' N and 31°20'–26°00' E and covers the area of 49.3 thousand square km (Fig. 1). Its landscape is characterized by numerous lakes and rugged terrain and is known under the name of Belarusian-Valdai Lake District (MIL'KOV & GVOZDECKII, 1969).



Fig. 1. Map of collection localities in the Belarusian-Valdai Lake District. Symbols: ● – collection localities visited by the author of the paper; ■ – collection localities visited by the other authors.

Geologically, the study area is located on the western part of Russian Plate of the East European Platform. Pre-Quaternary sediments are presented by upper Devonian dolomites. Quaternary limnoglacial sediments are compiled of reddish-brown clay, sandy loams, sands and gravels (ŠERŠNEVA, 1964; ISAČENKO et al., 1965). Contemporary landscape of the area was formed during the Quaternary period (MALAXOVSKIJ & MARKOV, 1969). River network was formed after retreat of the last glaciations and is relatively young. All rivers belong to three major river systems: Daugava, Velikaja and Lovat (ISAČENKO et al., 1965). Main types of soils in the Belarusian-Valdai

Lake District are sod-podzols on the moraine clay, loam, sandy loam and sand (GEL'TMAN, 1982).

The climate is characterized as moderately continental. The average temperature in January ranges between -5°C and 8°C, in July – between 16.5°C and 18°C. The frost-free period comprises 140 days, snow cover stays up to 130 days, annual precipitation is 700 mm. Vegetation is typical of boreo-nemoral subzone (GEL'TMAN, 1982).

## MATERIALS AND METHODS

The current checklist of fungi of the genus *Russula* from Belarusian-Valdai Lake District is based on critical revision of reference material deposited at the Herbarium of the V.F. Kuprevich Institute of Experimental Botany, Belarus (MSK) and supplemented with the records performed by the author. All material was collected by the author in Pskov region of Russian Federation in 1999–2013.

The concept of taxa generally follows ROMAGNESI (1967) and SARNARI (1988, 2005). Nomenclature and accepted names follow *Index Fungorum* (2014).

Habitat (forest type) for each species is indicated. Abbreviations of the Herbaria: V.L. Komarov Botanical Institute of Russian Academy of Sciences (LE); Educational Establishment Vitebsk State University named after P.M. Masherov (WT); V.F. Kuprevich Botanical Institute of National Academy of Sciences of Belarus (MSK). In the section “Records” (R), the number of species records supported by herbarium material is provided. Indication “rare” means that there are only 1–10 records in the herbarium. Indication “common” means that there are more than 10 records in the herbarium, and, according to personal knowledge of the author, this species can be found almost everywhere in a suitable habitat. New to Pskov region Russian Federation species are marked with an asterisk \*. New to Belarus species are marked with two asterisks \*\*. The species in the checklist are arranged alphabetically. Presently accepted Latin names and the most important synonyms are given for each taxon. The distribution indicates administrative district and regions of investigation area, where the species was recorded. The abbreviations of administrative regions are as follows: Minsk region (Mn), Pskov region (Ps),

Vitebsk region (**Vt**). The abbreviations of administrative districts are: Bešenkovičskij (**Bš**), Braslavskij (**Brs**), Dokšickij (**Dok**), Kun'inskij (**Kun**), Lokenjanskij (**Lok**), Mjadel'skij (**Mdl**), Nevel'skij (**Nev**), Novosokolničskij (**Nvs**), Opočetskij (**Op**), Oršanskij (**Ors**), Postavskij (**Pos**), Pustoškinskij (**Pst**), Rossonskij (**Ros**), Sebežskij (**Seb**), Sennenskij (**Sen**), Usvjatskij (**Usv**), Velikolukskij (**Vel**), Verhnedvinskij (**Vrk**), Vitebskij (**Vit**). Collection localities visited by the author of the present paper were the following: **Russian Federation**. **Ps**, **Kun**: Begunovo (56°16'51" N, 31°10'21" E), Novyj (56°05'67" N, 31°16'54" E), Žižicy (56°28'11" N, 31°36'12" E); **Lok**: Pereluč'e (56°77'19" N, 29°89'99" E); **Nev**: Andronkovo (55°78'97" N, 30°79'40" E), Lake Jazno (56°05'27" N, 29°38'84" E); **Nvs**: Maevo (56°37'36" N, 29°79'01" E), Lake Udrai (56°20'16" N, 30°18'00" E); **Op**: Vlasovo (56°52'16" N, 28°36'02" E); **Pst**: railway station Lemno (56°21'03" N, 28°43'53" E), Stolpovo (56°03'39" N, 29°18'25" E), Vaulino (56°19'14" N, 28°70'38" E), Zabelevica (56°21'00" N, 29°35'60" E); **Seb**: Anninskoe (56°19'96" N, 31°10'21" E), Berezki (56°19'53" N, 28°40'26" E), Bukatino (56°16'80" N, 28°31'89" E), channel Degtjarevka (56°09'80" N, 28°30'26" E), Černaja Grjaz' (56°13'59" N, 28°24'59" E), Černeja (56°15'24" N, 28°33'21" E), Glembočino (56°11'11" N, 28°22'35" E), Idrica (56°22'59" N, 28°54'01" E), Gorbuny (56°27'62" N, 28°53'08" E), Lake Anisimovo (56°28'45" N, 28°57'27" E), Lake Beloe (56°21'68" N, 28°47'14" E), Lake Berezevica (56°16'49" N, 28°42'84" E), Lake Nečerica (56°12'31" N, 28°40'76" E), Lake Glybuxa (56°13'52" N, 28°48'23" E), Lake Usbor'e (56°07'66" N, 28°33'44" E), Lake Zelenec (56°14'75" N, 28°58'26" E), Malkovo (56°17'10" N, 28°36'14" E), Midino (56°13'00" N, 28°24'00" E), Orexovka (56°12'28" N, 28°24'48" E), Osyno (56°10'00" N, 28°41'02" E), Panskij Dvor (56°08'09" N, 28°39'60" E), Pesčanka (56°10'34" N, 28°39'13" E), Pituli (56°07'66" N, 28°70'93" E), Rudnja (56°23'90" N, 28°60'53" E), Staryj Prud (56°07'10" N, 28°43'22" E), terrain of Borovyje (56°12'75" N, 28°62'87" E), Zabel'e (56°20'45" N, 28°46'94" E), Žuki (56°08'36" N, 28°21'19" E); **Usv**: Troica (55°86'80" N, 30°69'31" E); **Vel**: Platonovo (56°24'35" N, 30°37'89" E). **Republic of Belarus**. **Mn**, **Mdl**: Balaši, Kriviči, Naroč, Nikol'cy, Novoselki, Petrelevcy, Pronki, railway crossing Redupl-

ja, Sloboda, Stepenevo, Urliki, Zanaroč, Zavrutki; **Dok**: Jabloncy; **Vt**, **Bsh**: Čanoviči (55°08'42" N, 29°46'04" E), Dolgoe (55°07'15" N, 29°46'22" E), Gnezdilovo (55°07'32" N, 29°44'34" E), Gorodno (55°09'40" N, 29°48'54" E), Komli (55°10'34" N, 29°45'04" E), Lučki (55°09'10" N, 29°54'48" E); **Ors**: village Sofievka (54°46'22" N, 30°24'10" E); **Pos**: Vorony (55°03'00" N, 27°05'01" E); **Ros**: Maškino (55°54'47" N, 28°38'05" E), Rovnoe Pole (55°56'36" N, 28°27'44" E); **Sen**: Lužki (54°44'00" N, 30°17'00" E), Pogrebenka (54°85'05" N, 30°36'42" E), Ščitovka (54°51'00" N, 30°24'00" E); **Vit**: Boroniki (55°08'33" N, 30°13'16" E), Krasnyj Dvor (55°21'06" N, 30°18'37" E), military polygon Losvido (55°19'59" N, 30°01'49" E), Ruba (55°17'49" N, 30°17'12" E), Vitebsk (55°11'21" N, 30°09'56" E), Seden'e (55°21'46" N, 30°19'53" E), pili (55°21'46" N, 30°19'53" E), Zdravnevo (55°34'24" N, 30°34'15" E); **Vrk**: Potino (56°05'13" N, 28°08'04" E), Sukoli (56°04'51" N, 28°06'50" E), Strelki (55°93'27" N, 28°20'81" E).

## RESULTS

The checklist includes 60 species. Of these, 28 were found to be rare in the area. *R. azurea* and *R. favrei* were reported for the first time in Belarus. Nineteen species – *R. alutacea*, *R. atropurpurea*, *R. aurantiaca*, *R. brunneoviolacea*, *R. consobrina*, *R. fellea*, *R. grisea*, *R. heterophylla*, *R. laeta*, *R. mustelina*, *R. nitida*, *R. pectinatoides*, *R. pseudodelica*, *R. pseudointegra*, *R. rhodopoda*, *R. rosea*, *R. sanguinea*, *R. seperina* and *R. versicolor* were reported for the first time in Pskov region.

### List of species

*Russula acetolens* Rauschert / R: rare.

Russian Federation. **Ps**: Nvs, Lake Udrai, aspen forest, 29 July 2008, WT 98; **Pst**, railway station Lemno, aspen-spruce forest, 14 July 2003, LE 223432; **Seb**, north shore of Lake Uklejnic, 22 July 2008, WT 157.

Republic of Belarus. **Vt**: Bš, village Komli, spruce-moss forest, 13 Aug. 2009, WT 106; village Lučki, spruce-oak forest with filbert, 8 Aug. 2003, LE 223434; oak forest, 23 Aug. 2009, WT 100; pine-oxalis forest with filbert, 22 Aug. 2011, WT 258.

***R. acrifolia*** Romagn. / R: common.

Russian Federation. Ps: Seb, spruce forest with aspen, birch and pine, 19 July 2002, A.E. Kovalenko, LE 217539; birch forest, 19 July 2002, A.E. Kovalenko, LE 217551.

***R. adusta*** (Pers.) Fr. / R: common.

Republic of Belarus. Mn: Mdl, village Stepenevo, pine forest, 7 Aug. 1957, G.I. Seržanina, MSK 2530. Vt: Sen, railway station Lužki, alder forest, 18 July 2000, LE 223203; pine forest, 29 Sept. 1999, LE 223215.

***R. aeruginea*** Lindbl. ex Fr. / R: common.

Russian Federation. Ps: Seb, terrain of Borovyje, birch forest with spruce, 10 July 2010, WT 181; western shore of Lake Osyno, birch forest, 27 July 2008, WT 89; spruce forest, 19 July 2002, LE 217495; village Žuki, pine forest with spruce, 20 July 2002, LE 217496; village Osyno, aspen forest with *Salix caprea*, 4 July 2003, WT 27.

Republic of Belarus. Mn: Mdl, village Zavrutki, birch forest, 29 Aug. 1998, Ja.A. Minkovskaja (Šaporova), MSK. Vt: Bš, village Dolgoe, pine forest with birch, 26 Aug. 2009, WT 115; village Lučki, pine-moss forest, 9 Sept. 2012, WT 223; pine forest with spruce, 9 Aug. 2009, WT 123; spruce forest, 22 Aug. 2004, WT 7; Sen, village Ščitovka, pine forest with spruce, 30 June 2009, WT 132.

***R. albonigra*** (Krombh.) Fr. / R: common.

Russian Federation. Ps: Seb, village Žuki, spruce forest with pine, 20 July 2002, LE 217493.

**\**R. alutacea*** (Fr.) Fr. [*R. roseipes* Secr. ex Bres.] / R: rare.

Russian Federation. Ps: Seb, Lake Usbor'e, pine forest, 25 July 2008, WT 99.

Republic of Belarus. Mn: Mdl, village Zavrutki, birch forest, 12 Aug. 1997, Ja.A. Minkovskaja (aporova), MSK. Vt: B, village Lučki, pine forest with oak, 23 Aug. 2008, WT 92; Sen, village Ščitovka, pine forest, 9 July 2009, WT 133.

***R. aquosa*** Leclair / R: rare.

Republic of Belarus. Mn: Mdl, village Novoselki, birch forest, 8 Aug. 1999, Ja.A. Šaporova, MSK.

**\**R. atropurpurea*** (Krombh.) Britzelm. / R: rare

Russian Federation. Ps: Seb, village Bukatino, birch-herbal forest, 26 Aug. 2012, WT 234.

**\**R. aurantiaca*** (Jul. Schöff.) Romagn. / R: common.

Russian Federation. Ps: Seb, village Pituli, birch-

herbal forest, 24 July 2011, WT 255; Lake Zeleneč, birch forest, Aug. 2005, WT 10.

Republic of Belarus. Vt: B, village Lučki, pine forest with spruce, 3 July 2001, LE 223035; Ors, village Sofievka, birch-herbal forest, 7 July 11, WT 270; Sen, village Ščitovka, pine forest, 1 July 2009, WT 154; 1 July 2009, WT 128; Vrk, village Potino, pine forest with spruce, 22 Aug. 2000, LE 223011.

***R. aurora*** Bres. / R: rare.

Republic of Belarus. Mn: Mdl, village Zavrutki, birch-herbal forest, Aug. 1998, Ja.A. Minkovskaja (aporova), MSK.

**\*\**R. azurea*** Bres. / R: rare.

Republic of Belarus. Vt: B, village Komli, pine forest with spruce, 31 Aug. 1999, LE 223018; north-west of Belarus, pine forest with spruce, 28 Sept. 2006, WT 38.

***R. betularum*** Hora / R: rare.

Republic of Belarus. Mn: Mdl, railway crossing Kriviči, pine-moss forest with birch, Aug. 1999, Ja.A. Minkovskaja (Šaporova), MSK. Vt: Vrk, village Sukoli, pine forest, 24 Aug. 2000, LE 223040; pine forest, 25 Aug. 2000, LE 223149.

**\**R. brunneoviolacea*** Crawshay / R: common.

Russian Federation. Ps: Seb, village Idrica, birch cereal forest, 20 July 2008, WT 84; village Osyno, pine forest, 24 July 2008, WT 85; Lake Berezevica, birch forest, 23 July 2008, WT 93.

Republic of Belarus. Mn: Mdl, pine forest with birch and oak, 26 July 2000, Ja.A. aporova, MSK. Vt: Vit, military polygon Losvido, birch forest with spruce, 16 July 2000, LE 223147; birch forest, 5 July 2000, LE 223038; village Krasnyj Dvor, birch forest, 27 June 2000, LE 223229.

***R. claroflava*** Grove / R: common.

Russian Federation. Ps: Seb, village Midino, pine forest with spruce, 19 July 2002, LE 217489; village Pituli, birch-fern forest with pine, 24 July 2001, WT 245; Lake Nečerica, birch-cereal forest, 21 July 2011, WT 237; spruce forest, 19 July 2002, LE 217531.

Republic of Belarus. Vt: Brs, spruce-moss forest, 26 July 2000, Ja.A. Šaporova, MSK; Vrk, village Potino, birch forest, 26 Aug. 2000, LE 223002; Vit, village Krasnyj Dvor, birch forest, 26 June 2000, LE 223036; Bš, village Dolgoe, birch forest, 26 Aug. 2009, WT 150; village Lučki, pine forest with spruce, 31 July 2000, LE 223008; 9 July 2000, LE 223031. Sen, village Pogrebenka, pine-moss forest with bil-

berry, 7 July 2011, WT 265; birch-moss forest with spruce, 7 July 2011, WT 259; village Ščitovka, pine forest, 29 June 2009, LE 223004, WT 168; birch forest, 11 July 2007, WT 66; pine-bilberry forest with birch, 12 July 2001, WT 256; birch-moss-bilberry forest, 30 June 2011, WT 217; birch forest, 17 July 2009, WT 158; pine forest with birch and spruce, 13 July 2007, WT 64; pine forest with spruce, 6 July 2009, WT 109; pine-bilberry forest with spruce, 29 June 2011, WT 242; village Ščitovka, 18 June 2002, LE 223102.

**\**R. consobrina*** (Fr.) Fr. / R: common.

Russian Federation. Ps: Seb, village Osyno, birch forest with spruce, 19 Sept. 2009, WT 134;

Republic of Belarus. Mn: Mdl, village Petrelevcy, pine-moss forest with birch and spruce, 16 Aug. 1998, Ja.A. Minkovskaja (aporova), MSK. Vt: Ros, village Ma kino, spruce forest, 21 Aug. 2003, LE 223429, spruce forest, 21 Aug. 2003, LE 223430.

***R. cyanoxantha*** (Schaeff.) Fr. / R: common.

Russian Federation. Ps: Vel, village Platonovo, oak forest, 29 July 2008, WT 87; Seb, village Idrica, pine forest, 20 July 2008, WT 81, village Černeja, pine forest with oak and filbert, 22 July 2002, LE 217524; birch forest, 27 July 2009, WT 162; Lake Zelenec, spruce forest, 28 July 2009, WT 170.

Republic of Belarus. Mn: Mdl, village Zanaroč, spruce-bilberry forest, 17 Aug. 1957, G.I. Seržanina, MSK 2568; aspen-herbal forest with birch and oak, 26 July 2000, Ja.A. Šaporova. Vt: Bš, village Gorodno, spruce forest, 16 July 2000, LE 223201; Sen, village Ščitovka, pine forest, 5 July 2009, WT 130.

***R. decolorans*** (Fr.) Fr. / R: common.

Russian Federation. Ps: Seb, village Idrica, pine-bilberry-moss forest with birch, 20 July 2008; village Midino, pine forest, 21 July 2002, LE 217534; Seb, birch forest with pine, 5 Aug. 2000, E.S. Popov, LE 223647; Lake Zelenec, pine forest, 29 July 2009, WT 129.

Republic of Belarus. Mn: Mdl, village Stepe-nevo, pine-moss-blueberry bog, 8 Aug. 1957, G.I. Seržanina, MSK 2579; black alder forest, 10 Aug. 1957, G.I. Seržanina, MSK 2581; village Petrelevcy, pine-moss forest, 16 Aug. 1998, Ja.A. Minkovskaja (Šaporova), MSK; village Zavrutki, pine-bilberry forest, 29 Sept. 1999, Ja.A. Šaporova, MSK. Vt: Bš, village Lučki, spruce-moss forest, 27 Aug. 2011, WT 267; Vrk, village Potino, pine forest, 22 Aug. 2000, LE 223144.

***R. delica*** Fr. / R: common.

Russian Federation. Ps: Seb, birch forest with spruce, 19 July 2002, A.E. Kovalenko, LE 217497.

Republic of Belarus. Mn: Mdl, village Zavrutki, pine forest, 10 Aug. 1997, Ja.A. Minkovskaja (aporova), MSK.

***R. exalbicans*** (Pers.) Melzer & Zvára [*R. depal-lens* (Pers. : Fr.) Fr.] / R: common.

Russian Federation. Ps: Nev, Lake Jazno, pine-mossy forest with birch, 22 July 2003, WT 13; Seb, village Osyno, birch-cereal forest, 14 Aug. 2006, WT 204; northern coast of the Lake Nečerica, pine-cereal forest, 21 July 2011, WT 263; village Bukatino, birch-cereal-herbal forest, 26 Aug. 2012, WT 216; village Malkovo, birch-reed-grassy forest, 25 July 2009, WT 143; River Černeja, pine forest, 8 July 2003, WT 19; village Osyno, birch forest, 19 July 2008, WT 83; village Malkovo, birch forest, 22 July 2002, LE 217557; birch forest, 25 July 2009, WT 146; village Bukatino, birch forest, 21 July 2008, WT 78; village Berezki, pine forest, 21 Sept. 2009, WT 166; Lake Zelenec, birch forest, 29 July 2009, WT 120; birch forest with spruce, 23 July 2002, LE 217564.

Republic of Belarus. Mn: Mdl, village Zavrutki, birch-herbal forest, Aug. 1998, R.M. Xamaev, MSK; village Reduplja, 15 Aug. 1957, G.I. Seržanina, MSK 2683. Vt: Bš, village Gnezdilovo, pine forest with spruce, 15 Sept. 2000, LE 223019; village Lučki, pine forest with spruce, 9 July 2000, LE 223030; 31 July 2000, LE 223005; Vrk, village Sukoli, pine forest with juniper, 24 Aug. 2000, LE 223145; Vit, military polygon Losvido, spruce forest with birch, 5 July 2000, LE 223034; apple-tree garden, 3 Aug. 2006, WT 207; village Seden'e, birch forest with spruce, 8 Aug. 1999, LE 223222; village Ruba, birch forest, 26 Aug. 2004, WT 22; birch forest, 20 July 2000, LE 223042; birch forest, 22 Aug. 2001, LE 223027; Sen, village Ščitovka, birch forest, 30 June 2009, WT 107; pine forest with birch, 5 July 2009, WT 118; WT 102; pine forest, 1 July 2009, WT 110; pine forest with spruce, 2 July 2002, LE 223420; birch forest, 6 July 2009, WT 139; birch-cereal forest, 4 July 2007, WT 201.

***R. emetica*** (Schaeff.) Pers. / R: common.

Russian Federation. Ps: Seb, village Anninskoe, aspen-goutweed forest with linden, 25 Aug. 2012, WT 248; village Midino, birch forest with spruce, 21 July 2002, LE 217538; village Osyno, spruce forest

with birch, 19 Sept. 2009, WT 169; Pst, railway station Lemno, birch forest with spruce, 14 July 2003, WT 32.

Republic of Belarus. Mn: Mdl, pine-moss forest, 10 Aug. 1958, G.I. Seržanina, MSK 2602; village Zavrutki, pine-cowberry forest, 10 Aug. 1998, Ja.A. Minkovskaja (Šaporova), MSK. Vt: Bš, village Lučki, pine forest with spruce, 31 July 2000, LE 223009; spruce forest with oak, 16 Aug. 2009, WT 114; spruce forest, 16 Aug. 2009, WT 142; spruce-moss forest, 27 Aug. 2011, WT 214; pine-moss forest with spruce, 9 Sept. 2012; village Gnezdilovo, pine-oxalis forest, 5 Sept. 2011, WT 243; village Gorodno, birch forest with pine, 16 July 2000, LE 223345; spruce forest, 16 July 2000, LE 223204; village Komli, pine forest with spruce, 18 Sept. 1999, LE 223016; pine-moss forest, 16 Aug. 2011, WT 257; Brs, spruce-moss forest, 26 July 2000, Ja.A. aporova, MSK; Dok, village Jabloncy, pine-moss forest, 26 Sept. 1999, Ja.A. aporova, MSK; Sen, village Ščitovka, pine-bilberry forest with birch, 18 July 2007, WT 194. Vrk, village Potino, pine forest with spruce, 22 Aug. 2000, LE 223043; village Sukoli, birch forest with pine, 23 Aug. 2000, LE 223044.

**\*\**R. favrei*** M.M. Moser / R: rare.

Republic of Belarus. Vt: B , village Gorodno, spruce forest, 16 July 2000, LE 223435.

**\**R. fellea*** (Fr.) Fr. / R: rare.

Russian Federation. Ps: Pst, village Stolpovo, pine forest, 19 July 2003, WT 23.

***R. foetens*** Pers. / R: common.

Russian Federation. Ps: Seb, village Peščanka, birch forest, 24 July 2004, WT 40; village Staryj Prud, birch forest, 3 Aug. 2000, E.S. Popov, LE 223646; village Černeja, pine forest with filbert, 22 July 2002, LE 217529; 56 km highway Opočka-Polock, pine forest, 27 July 2009, WT 149; spruce forest with pine and birch, 19 July 2002, A.E. Kovalenko, LE 217562.

Republic of Belarus. Mn: Mdl, village Zavrutki, birch forest, 12 Aug. 1987, Ja.A. Minkovskaja (Šaporova), MSK; village Pronki, spruce forest, 17 Aug. 1957, G.I. Seržanina, MSK 2605; village Zavrutki, spruce-moss forest, 5 Sept. 2000, Ja.A. aporova, MSK. Vt: Vrk, village Sukoli, birch forest with pine, 22 Aug. 2000, LE 223039; Vit, Museum estate of Il'ja Repin "Zdravnevo", birch forest, 26 June 2009, WT 161; military polygon Losvido, birch for-

est with spruce, 5 July 2000, LE 223007; birch forest, 13 Sept. 1999, LE 223048; Sen, village Ščitovka, pine forest, 24 June 2002, LE 223417; railway station Lužki, pine forest with spruce, 18 July 2000, LE 223013.

***R. fragilis*** Fr. / R: common.

Russian Federation. Ps: Seb, birch forest with spruce, aspen and alder, 19 July 2002, O.V. Morozova, LE 217532; terrain Borovye, pine forest with spruce, 10 July 2010, WT 182; eastern shore of Lake Osyno, birch forest with alder, 15 Aug. 2006, WT 30; Lake Anisimovo, spruce forest, 24 July 2008, WT 91; village Midino, spruce forest with birch, pine, aspen and alder, 21 July 2002, LE 217525.

Republic of Belarus. Mn: Brl, village, aspen-herbal forest, 26 July 2000, Ja.A. aporova, MSK; Mdl, birch-herbal forest with aspen, 26 July 2000, Ja.A. aporova, MSK; village Zavrutki, birch forest, 5 Sept. 1998, Ja.A. Minkovskaja (Šaporova), MSK; village Stepenevo, bog, 2 Aug. 1958, G.I. Seržanina, MSK 2618; Vt, Vrk, village Sukoli, birch forest, 23 Aug. 2000, LE 223033; Vit, village Boroniki, spruce forest, 26 July 2000, LE 223012; Bš, village Lučki, spruce forest, 11 Sept. 2004, LE 226955; spruce forest with aspen and birch, WT 11; pine forest with spruce, 9 July 2000, LE 223346; birch-oxalis forest 23 Aug. 2011, WT 227; pine-moss forest, 10 Sept. 2012, WT 235; spruce-moss forest, 27 Aug. 2001, WT 268; Sen, village Ščitovka, willow forest, 4 Oct. 2007, WT 46; pine forest with birch, 8 July 2007, WT 67.

***R. graveolens*** Romell / R: rare.

Russian Federation. Ps: Kun, village Begunovo, oak forest, 24 July 2003, LE 223753.

Republic of Belarus. Mn: Mdl, village Zavrutki, birch-herbal forest with oak and gray alder, Aug. 1999, Ja.A. aporova, MSK.

**\**R. grisea*** (Batsch) Fr. / R: rare.

Russian Federation. Ps: Seb, in the vicinity of Lake Beloe, birch-moss-herbal forest, 24 July 2007, WT 193.

Republic of Belarus. Mn: Mdl, spruce-moss forest, 26 July 2000, Ja.A. Šaporova, MSK; village Stepenevo, pine forest, 23 Aug. 1957, G.I. Seržanina, MSK 2623. Vt, Vit, town Vitebsk, Park Jur'eva Gor'ka, birch forest, 15 Aug. 2000, LE 223217.

**\**R. heterophylla*** (Fr.) Fr. / R: common.

Russian Federation. Ps: Kun, village Begunovo,

oak forest, 24 July 2003, WT 17; Seb, channel Degtjarevka, birch forest, 25 July 2008, WT 77.

Republic of Belarus. Mn: Mdl, village Zavrutki, pine-moss forest with birch, Aug. 2001, Ja.A. aporova, MSK; village Stepenevo, pine-moss forest, 17 Aug. 1958, G.I. Seržanina, MSK 1065; pine-moss-heather forest, 9 Aug. 1957, G.I. Seržanina, MSK 2629; village Pronki, spruce forest with broad-leaved trees, 17 Aug. 1957, MSK 1063. Vt: Sen, railway station Lužki, 18 July 2000, LE 223206.

**R. integra** (L.) Fr. / R: common.

Russian Federation. Ps: Op, village Vlasovo, birch forest, 13 July 2010, WT 180; Seb, village Glembočino, birch forest, 26 July 2009, WT 152; Lake Beloe, birch-sedge forest with buckthorn, 24 July 2007, WT 212; village Osyno, birch-fern forest with oak, 17 Aug. 2006, WT 211; Lake Zelenec, birch-moss forest with spruce, 27 July 2008, WT 183.

Republic of Belarus. Mn: Dok, village Jabloncy, pine-moss forest, 26 Sept. 1999, Ja.A. aporova, MSK; Mdl, village Zavrutki, pine-moss forest with birch, MSK. Vt: B, village Gnezdilovo, spruce forest, 24 Aug. 2011, WT 228; Sen, village Ščitovka, birch forest, 6 July 2009, WT 140; birch-cow wheat forest, 13 July 2007, WT 213; pine-cereal forest, 12 July 2011, WT 239; pine-cereal forest, 12 July 2011, WT 239; village Pogrebenka, pine-moss forest with spruce, 6 July 2011 WT 231.

**\*R. laeta** Jul. Schäff. / R: rare.

Russian Federation. Ps: Seb, village Osyno, birch forest with aspen and buckthorn, 4 July 2003, WT 31.

Republic of Belarus. Vt: Bš, village Lučki, pine-moss forest with spruce, 23 Aug. 2011, WT 232.

**R. laurocerasi** Melzer / R: rare.

Republic of Belarus. Mn: Mdl, railway crossing Kriviči, pine-moss forest with bilberry, Sept. 1997, Ja.A. Šaporova, MSK.

**R. lilacea** Quél. / R: common.

Republic of Belarus. Vt: Bš, village Lučki, aspen-cereal forest, 3 Sept. 2012, WT 225; spruce-oxalis forest, 22 Aug. 2011, WT 222; Vit, town Vitebsk, birch-cereal forest, 13 Sept. 1999, LE 223006.

**R. minutula** Velen. / R: rare.

Republic of Belarus. Mn: Mdl, village Nikol'cy, pine-moss-herbal forest, 26 July 2000, Ja.A. aporova, MSK.

**R. mollis** Quel. / R: rare.

Republic of Belarus. Mn: Mdl, village Zanaroč, birch-herbal forest with pine, 26 July 2000, Ja.A. Šaporova, 26 July 2000, MSK.

**\*R. mustelina** Fr. / R: rare.

Russian Federation. Ps: Seb, village Osyno, aspen-grassy forest, 4 July 2003, WT 27.

Republic of Belarus. Mn: Mdl, village Petrelevcy, pine-moss-bilberry forest, 7 Sept. 2000, Ja.A. Šaporova, MSK. Vt: Sen, village Ščitovka, birch forest, 2 July 2002, LE 223326; pine-cereal forest with birch, 13 July 2007, WT 186.

**R. nauseosa** (Pers.) Fr. / R: common.

Russian Federation. Ps: Lok, village Pereluč'e, mixed forest with birch, spruce and aspen, 6 Aug. 2004, WT 2; Seb, village Osyno, birch forest, 4 July 2003, WT 16; WT 26; village Černaja Grjaz', spruce forest, 7 Aug. 2003, LE 226957.

Republic of Belarus. Vt: Bš, village Komli, pine forest with spruce, 27 Sept. 2001, LE 223216; village Lučki, pine forest with birch and pine, 22 Aug. 2004, WT 37; village Čanoviči, spruce forest, 11 Aug. 2001, LE 223010; Vit, village Špili, spruce forest, 26 July 2000, LE 223046; Sen, village Ščitovka, spruce forest with birch, 24 June 2002, LE 223421; pine forest with spruce, 12 July 2009, WT 155; pine, 13 July 2009, WT 104.

**\*R. nitida** (Pers.) Fr. / R: rare.

Russian Federation. Ps: Seb, village Zabel'e, black alder forest, 28 July 2009, WT 174; village Osyno, aspen forest, 27 July 2004, WT 9; birch forest, 20 July 2004, WT 41.

Republic of Belarus. Mn: Mdl, village Nikol'cy, birch-herbal forest, with aspen, 26 July 2000, Ja.A. aporova, MSK. Vt: B, village Lučki, pine-moss forest, 9 Sept. 2012, WT 269; Sen, village Ščitovka, birch forest, 8 July 2007, WT 65; black alder forest, 14 July 2009, WT 137;

**R. ochroleuca** (Pers.) Fr. / R: common.

Republic of Belarus. Vt: Pos, village Vorony, pine-moss forest with spruce, 16 Aug. 2003, WT 190; Sen, railway station Lužki, pine forest with spruce, 15 Oct. 2000, LE 223047.

**R. olivacea** (Schaeff.) Fr. / R: rare.

Republic of Belarus. Mn: Dok, village Jabloncy, spruce-bilberry forest, 26 Sept. 1999, Ja.A. Šaporova, MSK; Mdl, village Petrelevcy, pine-moss forest, 16 Aug. 1998, Ja.A. Minkovskaja (Šaporova), MSK;

village Naroč, spruce moss-bilberry forest, 26 July 2000, Ja.A. Šaporova, MSK.

***R. paludosa*** Britzelm. / R: common.

Russian Federation. Ps: Seb, village Osyno, birch forest, 24 July 2008, WT 88; village Pituli, pine-cereal forest with birch, 24 July 2011, WT 218; terrain of Borovye, pine forest with spruce, 10 July 2010, WT 179; birch-mossy forest, 21 July 2002, G.Yu. Konečnaja, LE 217528; pine forest, 20 July 2002, LE 217563.

Republic of Belarus. Mn: Dok, village Jabloncy, pine-moss forest, 26 Sept. 1999, Ja.A. Šaporova, MSK; pine-red-berry forest, 26 Sept. 1999, Ja.A. Šaporova, MSK; Mdl, village Zavrutki, pine-bilberry forest with spruce, 12 Aug. 1997, Ja.A. Minkovskaja (Šaporova), MSK; village Stepenovo, pine-moss forest, 8 Aug. 1957, G.I. Seržanina, MSK 2675; village Petrelevcy, pine-moss forest, 16 Sept. 1998, Ja.A. Minkovskaja (Šaporova), MSK; village Zanaroč, birch-herbal forest, 26 July 2000, Ja.A. Šaporova, MSK; village Naroč, pine-moss forest with birch, Ja.A. Šaporova, MSK. Vt: Bš, village Gorodno, birch forest with spruce, 16 July 2000, LE 223028; Vrk, village Sukoli, pine forest, 24 Aug. 2000, LE 223223; Pos, village Vorony, pine forest with spruce, 16 Aug. 2003, LE 223762; Sen, village Ščitovka, pine forest, 9 July 2009, WT 119; pine forest with spruce, 6 July 2009, WT 126; 17 June 2002, LE 223220; July 2002, LE 223418; 9 July 2009, WT 153; pine forest, 9 July 2009, WT 141; Vt, LE 223411.

**\**R. pectinatoides*** Peck / R: rare.

Russian Federation. Ps: Nvs, village Andronkovo, oak-goutweed-cereal forest, 28 July 2008, WT 82.

Republic of Belarus. Vt: Vit, village Krasnyj Dvor, pine-cereal forest, 8 June 2000, LE 223020; town Vitebsk, maple forest with lime, 7 July 2000, LE 223015.

**\**R. pseudodelica*** J.E. Lange / R: common.

Russian Federation. Ps: Vel, village Platonovo, oak forest, 29 July 2008, WT 80; Nvs, village Andronkovo, oak forest, 28 July 2008, WT 94, WT 95.

Republic of Belarus. Vt: Bš, village Lučki, pine forest with birch, 11 Aug. 2001, LE 223025; mixed forest, 8 Aug. 2003, WT 34; Sen, village Ščitovka, birch forest, 6 July 2009, WT 167.

**\**R. pseudointegra*** Arnould & Goris / R: rare.

Russian Federation. Ps: Usv, village Troica, oak forest, 5 Aug. 2004, WT 3.

***R. pseudo-olivascens*** (Bres.) Bon [*Russula elaeodes* (Bres.) Romagn. ex Bon] / R: common.

Russian Federation. Ps: Pst, railway station Lemno, pine-heather forest, 14 July 2003, LE 223756; spruce-bilberry forest, 14 July 2003, LE 223755; Seb, village Zabel'e, pine-bilberry forest, 28 July 2009, WT 125.

Republic of Belarus. Mn: Mdl, village Balaši, pine forest, 9 Aug. 1957, G.I. Seržanina, MSK 2724. Vt: Bš, village Gorodno, birch-moss forest with spruce, 16 July 2000, LE 223037; village Lučki, pine-moss-bilberry forest with spruce, 16 July 2000, LE 223023; pine-moss forest with spruce, 31 July 2000, LE 223021; LE 223003; 9 Aug. 2009, WT 163; village Gnezdilovo, pine-bilberry forest, 23 Aug. 2011, WT 241; Sen, village Ščitovka, pine-moss-bilberry forest, 14 July 2009, WT 124.

***R. puellaris*** Fr. / R: common.

Russian Federation. Ps: Seb, village Midino, birch forest with spruce, 22 July 2002, LE 217558; village Gorbuny, aspen-stone brambled forest, 25 Aug. 2012.

Republic of Belarus. Mn: Mdl, village Balaši, pine-moss forest, 11 Aug. 1958, G.I. Seržanina, MSK 2692; village Petrelevcy, pine-moss forest, 16 Aug. 1998, Ja.A. Minkovskaja (Šaporova), MSK. Vt: Bš, village Lučki, birch forest with spruce, 11 Aug. 2001, LE 223209; spruce forest, 11 Sept. 2004, WT 35; pine-herbal forest with maple, 10 Sept. 2012, WT 252; Sen, village Ščitovka, pine forest with oak, spruce and alder, 13 July 2007, WT 63; aspen-cowwheat forest with filbert, 11 July 2007, WT 200; pine-herbal-cereal forest, 17 July 2007, WT 196.

***R. queletii*** Fr. / R: rare.

Russian Federation. Ps: Pst, village Stolpovo, pine forest with spruce, 19 July 2003, LE 226996; Seb, Lake Glybuxa, pine forest, 27 July 2008, WT 86.

Republic of Belarus. Mn: Mdl, village Stepenovo, pine forest, 9 Aug. 1957, G.I. Seržanina, MSK 2607. Vt: Bš, village Gnezdilovo, pine-oxalis forest with filbert and spruce, 4 Aug. 2007, WT 189; village Lučki, pine forest with spruce, 13 Sept. 2001, LE 223219; Pos, village Vorony, spruce forest, 16 Aug. 2003, LE 226907; Ros, village Rovnoe Pole, spruce forest, 21 Aug. 2003, LE 226986; Sen, village Ščitovka, pine forest, 5 July 2009, WT 116.

**\**R. rhodopoda*** Zvára / R: rare.



Russian Federation. Ps: Kun, village Novyj, spruce forest, 26 July 2007, 26 July 2007, WT 210.

Republic of Belarus. Vt: Bš, village Lučki, pine forest, 23 Aug. 2008, WT 97; spruce-moss forest, 27 Aug. 2011, WT 236; village Čanoviči, birch forest with spruce, 11 Aug. 2001, WT 42.

***R. risigallina*** (Batsch) Sacc. [*Russula vitellina* (Pers.) Gray] / R: common.

Russian Federation. Ps: Kun, village Begunovo, spruce forest with aspen, 24 July 2003, LE 223433; Pst, village Zabelevica, birch forest, 30 July 2004, WT 6; village Stolpovo, birch forest with spruce, 19 July 2003, LE 226947.

Republic of Belarus. Vt: Bš, village Gnezdilovo, oak forest with spruce and filbert, 4 Aug. 2007, WT 69; pine-oxalis forest with filbert, 23 Aug. 2011, WT 264; village Lučki, pine-bilberry forest with filbert, 22 Aug. 2011, WT 219; Vit, village Špili, spruce forest, 26 July 2000, LE 223014; Sen, railway station Lužki, birch forest with pine, 18 July 2000, LE 223029; birch forest with spruce, 18 July 2000, LE 223022; village Ščitovka, pine forest, 5 July 2009, WT 138.

\****R. rosea*** Pers. [*Russula lepida* Fr.] / R: common.

Russian Federation. Ps: Seb, Lake Berezevica, birch forest, 23 July 2008, WT 79; Lake Beloe, pine-cereal-herbal forest, 24 July 2007, WT 195.

Republic of Belarus. Vt: Bš, village Komli, pine forest with spruce, 27 Sept. 2001, LE 223218; village Lučki, pine forest, 9 Aug. 2009, WT 103; pine forest with oak and spruce, 2 Aug. 2003, WT 5.

\****R. sanguinea*** (Bull.) Fr. / R: common.

Russian Federation. Ps: Pst, village Vaulino, pine forest with birch, 14 July 2003, WT 8; Seb, village Zabel'e, black alder forest, 28 July 2009, WT 131.

Republic of Belarus. Vt: Bš, village Gnezdilovo, pine-wild strawberry forest with filbert, 4 Aug. 2007, WT 208; village Lučki, pine forest, 5 Aug. 2000, LE 223045; pine-bilberry forest, 3 Sept. 2011, WT 240, pine-herbal forest with maple, 16 Aug. 2011, WT 251.

***Russula sardonias*** Fr. / R: rare.

Republic of Belarus. Mn: Mdl, village Sloboda, pine forest with birch and oak, Sept. 1998, Ja.A. Minkovskaja (Šaporova), MSK.

\****R. seperina*** Dupain / R: rare.

Russian Federation. Ps: Vel, village Platonovo,

oak forest, 29 July 2008, WT 96; Nvs, village Maevo, oak-goutweed forest, 1 Aug. 2004, WT 18.

***R. solaris*** Ferd. & Winge / R: rare.

Republic of Belarus. Vt: Sen, village Ščitovka, linden-cereal forest, 4 July 2007, WT 187.

***R. sororia*** Fr. / R: rare.

Republic of Belarus. Vt: Sen, village Ščitovka, pine-cereal forest with birch and alder gray, 13 July 2007.

***R. sphagnophila*** Kauffman / R: rare.

Republic of Belarus. Vt: Vrk, village Strelki, birch-moss forest, 20 Aug. 2003, WT 199.

***R. turci*** Bres. / R: rare.

Republic of Belarus. Mn: Mdl, village Stepenevo, 10 Aug. 1958, G.I. Seržanina, MSK 2676; village Petrelevecy, pine-moss-bilberry forest, 16 Aug. 1998, Ja.A. Minkovskaja (Šaporova), MSK. Vt: Sen, village Ščitovka, pine forest, 23 July 2009, WT 148; pine-cereal forest, 18 July 2007, WT 188; birch-herbal-cereal forest, 13 July 2007, WT 191.

***R. velenovskiji*** Melzer & Zvára / R: common.

Russian Federation. Ps: Seb, village Midino, spruce forest with birch, aspen and filbert, 21 July 2002, LE 217526; Seb, pine forest with maple and filbert, 22 July 2002, LE 217523; birch forest with spruce, 19 July 2002, E.S. Popov, LE 217522.

Republic of Belarus. Mn: Mdl, village Zanaroč, spruce-bilberry forest, 17 Aug. 1958, G.I. Seržanina, MSK 2708; Vt: Bš, village Lučki, pine forest with spruce, 31 July 2000, LE 223221; spruce forest, 13 Aug. 2009, WT 145; spruce forest with oak, 16 Aug. 2009, WT 135; spruce-oxalis forest, 23 Aug. 2008, WT 184; village Komli, pine forest with birch, 8 Sept. 1999, LE 223205; Sen, village Ščitovka, birch forest, 13 July 2007, WT 68.

\****R. versicolor*** Jul. Schöff. / R: rare.

Russian Federation. Ps: Seb, village Anninskoe, linden-glagueal forest, 25 Aug. 2012, WT 224; village Ostrovno, elm forest, 24 July 2007, WT 185.

Republic of Belarus. Mn: Mdl, village Naroč, birch-herbal forest, 26 July 2000, Ja.A. Šaporova, MSK; Vt: Vit, military polygon Losvido, apple orchard with birch, 3 July 2006, WT 36; Vit, birch forest, 22 Aug. 2001, LE 223026.

***R. vesca*** Fr. / R: common.

Russian Federation. Ps: Seb, Lake Zelenec, pine forest, 10 July 2010, WT 175; pine forest, 28 July 2009, WT 171; terrain Borovye, pine forest, 10 July

2010, WT 176; village Zabel'e, pine forest, 28 July 2009, WT 127; spruce forest with birch, 23 July 2002, LE 217530; birch forest, 19 July 2002, A.E. Kovalenko, LE 217537.

Republic of Belarus. Mn: Brs, village pine-moss forest, 26 July 2000, Ja.A. Šaporova, MSK; Mdl, village Urliki, pine-moss forest, 10 Aug. 1958, G.I. Seržanina, MSK 2713; village Petrelevcy, pine-bilberry forest, 26 Aug. 1999, Ja.A. Šaporova, MSK; village Zanaroč, pine-moss-cowberry forest, 26 July 2000, Ja.A. Šaporova, MSK. Vt: Bš, village Lučki, pine forest with spruce, 13 Aug. 2009, WT 165; pine forest, 9 July 2000, LE 223032; pine forest with spruce, 31 July 2000, LE 223207; LE 223208; Vit, military polygon Losvido, birch forest, 5 July 2000, LE 223142; Sen, railway station Lužki, birch forest, 18 July 2000, LE 223143; birch forest, 18 July 2000, LE 223146; village Pogrebenka, pine-moss forest with birch, 6 July 2011, WT 254; village Ščitovka, birch forest, 30 June 2009, WT 172; birch forest, 2 July 2002, LE 223422; pine forest, 17 Sept. 2009, WT 101; pine-moss-bilberry forest, 30 June 2011, WT 247; birch-cereal forest, 8 July 2007, WT 202; spruce-ferny forest with birch, 26 June 2007, WT 203; pine-moss forest with birch, 5 July 2007, WT 206.

***R. vinosa*** Lindblad / R: common.

Russian Federation. Ps: Seb, village Midino, spruce forest with aspen, 21 July 2002, LE 217498; village Orexovka, spruce forest, 21 July 2002, LE 217527; terrain Borovyje, pine-moss forest with spruce, 10 July 2010, WT 177; village Zabel'e, pine forest, 28 July 2009, WT 173; Lake Zelenec, pine forest, 29 July 2009, WT 121; pine forest, 29 July 2009, WT 105; village Černeja, pine forest, 27 July 2009, WT 111.

Republic of Belarus. Vt: Bš, village Gnezdilovo, pine forest, 9 Aug. 2009, WT 108; pine forest, 9 Aug. 2009, WT 112; WT 113; village Lučki, spruce forest with pine, 16 Aug. 2009, WT 147; spruce-moss forest, 27 Aug. 2011, WT 230; pine-moss forest, 9 Sept. 2012, WT 221; village Čanoviči, spruce forest with birch, 11 Aug. 2001, LE 223017; Sen, village Pogrebenka, birch-moss forest with spruce, 6 July 2011, WT 250; village Ščitovka, pine forest with spruce, 6 July 2007, WT 54; pine-moss-bilberry forest, 30 June 2011, WT 238.

***R. violacea*** Quél. / R: common.

Russian Federation. Ps: Kun, village Begunovo, oak forest, 5 Aug. 2004, WT 1; village Žižicy, pine-moss forest, 26 July 2007, WT 209; Seb, Lake Berezovica, pine forest, 23 July 2008, WT 90; terrain of Borovyje, pine forest with spruce, 10 July 2010, WT 178; village Osyno, birch forest, 20 July 2004, WT 24; birch forest with aspen, 4 July 2003, WT 14; Lake Zelenec, pine forest with spruce, 29 July 2009, WT 164; village Černeja, pine forest, 8 July 2003, WT 25; pine-moss-heatheral forest, 25 Aug. 2012, WT 260; pine-herbal-cereal forest, 25 Aug. 2012, WT 262; village Rudnja, pine-herbal-cereal forest, 26 Aug. 2012, WT 215; village Bukatino, pine-cereal forest, 26 Aug. 2012, WT 233.

Republic of Belarus. Vt: Bš, village Gnezdilovo, pine-moss-bilberry forest, 24 Aug. 2011, WT 226; village Lučki, pine forest with spruce, 14 Aug. 2000, LE 223202; birch-bilberry forest with spruce, 3 Sept. 2011, WT 249; Vrk, village Sukoli, pine forest, 25 Aug. 2000, LE 223148; Ros, village Rovnoe Pole, spruce forest with birch and black alder, Sept. 2003, LE 223765; Sen, village Ščitovka, birch forest, 17 July 2009, WT 122; pine forest, 5 July 2009, WT 136; WT 160; birch forest, 30 June 2009, WT 151; pine forest with spruce, 1 July 2009, WT 156; birch-cereal forest, 7 July 2007, WT 192; oak-bilberry forest with pine and filbert, 13 July 2007, WT 197; pine-cereal forest, 7 July 2011, WT 246;

***R. xerampelina*** (Schaeff.) Fr. / R: common.

Russian Federation. Ps: Pst, village Stolpovo, pine forest, 19 July 2003, LE 223754, LE 223757; Seb, village Berezki, pine forest, 21 Sept. 2009, WT 144; pine forest, 21 Sept. 2009, WT 159; village Midino, birch forest, 19 July 2002, LE 217580.

Republic of Belarus. Mn: Mdl, village Zavrutki, pine-moss forest, 18 Sept. 1998, Ja.A. Šaporova, MSK; village Petrelevcy, birch-coniferous forest, 16 Aug. 1998, Ja.A. Šaporova, MSK. Vt, Bš, village Gnezdilovo, pine-bilberry-cereal forest, 24 Aug. 2011, WT 266; village Gorodno, spruce forest, 16 July 2000, LE 223041; village Komli, pine forest with spruce, 27 Sept. 2001, LE 223424; village Lučki, pine forest with spruce, 31 July 2000, LE 223426; 5 Aug. 2000, LE 223425; 13 Aug. 2009, WT 117; pine-oxalis forest, 5 Sept. 2011, WT 261; pine-moss-cereal forest, 24 Aug. 2011, WT 220; Vit, village Boroniki, spruce forest, 26 July 2000, LE 223024.

## DISCUSSION

Most of the listed species of *Russula* are widely distributed in Europe. The species found to be rare in this study is mostly associated with broad-leaved trees. Most species that are rare in the study region are uncommon in the whole Europe as well. *R. azurea*, *R. laeta*, *R. minutula*, *R. nitida*, *R. queletii*, *R. rhodopoda*, *R. sardonida*, *R. solaris*, *R. sororia*, *R. turci*, *R. versicolor* are widespread in the subcontinent, but are considered as infrequent. *R. favrei*, which was reported as new to Belarus, is more common in mountains of Central Europe (COURTECUISE & DUHEM, 1995; RONIÉKIER & ADAMČÍK, 2009a, b). *R. laurocerasi* is more common southwards of the study region, e.g. in central Belarus (GAPIENKO & ŠAPOROVA, 2012) and is rare in Europe (COURTECUISE & DUHEM, 1995). *R. pectinatoides* is sporadically recorded in Europe and is very rare in the whole territory of Belarus (GAPIENKO & ŠAPOROVA, 2012). *R. seperina* is very rare in Europe (COURTECUISE & DUHEM, 1995) and in the study area it was found only in old oak forests in Pskov region (Russian Federation).

In both deciduous and coniferous forests, the following species occur: *R. acrifolia*, *R. aeruginea*, *R. albonigra*, *R. cyanoxantha*, *R. heterophylla*, *R. integra*, *R. mustelina*, *R. ochroleuca*, *R. risigallina*, *R. aquosa*, *R. nitida*, *R. puellaris*, *R. sphagnophila*, which are confined to humid forests; *R. acetolens*, *R. graveolens*, *R. pectinatoides*, *R. pseudodelica*, *R. pseudointegra*, *R. seperina*, *R. solaris*, *R. sororia*, *R. versicolor* that are mainly found under broad-leaved trees; *R. adusta*, *R. alutacea*, *R. decolorans*, *R. paludosa*, *R. pseudoolivascens*, *R. sanguinea*, *R. sardonida*, *R. vesca*, *R. xerampelina* – under pines; *R. aurantiaca*, *R. aurora*, *R. betularum*, *R. brunneoviolacea*, *R. claroflava*, *R. exalbicans*, *R. emetica*, *R. foetens*, *R. fragilis*, *R. grisea*, *R. laeta*, *R. lilacea*, *R. olivacea* – under birches; *R. azurea*, *R. consobrina*, *R. favrei*, *R. nauseosa*, *R. queletii*, *R. rhodopoda*, *R. vinosa* – under spruces; *R. rosea* and *R. violacea* are associated with various deciduous trees; *R. velenovskyi* was found in mixed pine and oak forest.

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## BALTARUSIJOS IR VALDAJAUS EŽERYNO REGIONO *RUSSULA* GENTIES GRYBŲ SĄRAŠAS

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### Santrauka

Genties *Russula* Pers. rūšių įvairovė buvo tirta šiaurinėje Baltarusijoje ir pietinėje Pskovo regione (Rusijos Federacija) dalyje. Tyrimo regionas pasižymi kalvotu reljefu ir dideliu skaičiumi ežerų. Straipsnyje pateikiamas *Russula* Pers. rūšių sąrašas sudarytas remiantis autoriaus lauko tyrimais vykdytais 1999–2013 m. bei kitų autorių kolekcijomis ir publikuota medžiaga. Sąrašą sudaro 60 rūšių, iš jų 28 yra retos tirtajame regione. *R. azurea* ir *R. favrei* rastos pirmą kartą Baltarusijoje. Devyniolika rū-

šių – *R. alutacea*, *R. atropurpurea*, *R. aurantiaca*, *R. brunneoviolacea*, *R. consobrina*, *R. fellea*, *R. grisea*, *R. heterophylla*, *R. laeta*, *R. mustelina*, *R. nitida*, *R. pectinatoides*, *R. pseudodelica*, *R. pseudointegra*, *R. rhodopoda*, *R. rosea*, *R. sanguinea*, *R. seperina* ir *R. versicolor* rastos pirmą kartą Pskovo regione. Dauguma sąrašė esančių *Russula* genties rūšių yra paplitusios visoje Europoje. Dauguma rūšių, kurios buvo retai aptinkamos tirtajame teritorijoje yra nedažnos ir visoje Europoje.