Eastern Fennoscandia comprises eastern part of the Fennoscandian (Baltic) shield, including Finland and the Murmansk Region, Republic of Karelia, northern part of the Leningrad Region and part of the Arkhangelsk Region (the left banks of Onega River and Ken River) in Russia. The Murmansk Region is an industrially developed area; however, old-growth forests of high interest for mycological studies are still presented there. The main part of the Murmansk Region is situated in the Northern boreal zone according to T. Ahti et al. (1968). For a long time, aphyllophoroid fungi of the Murmansk Region remained poorly explored as compared with other parts of Fennoscandia, although they were studied since late XIX century (Kotkova, 2007). During the last decade the situation has changed significantly. A check-list of aphyllophoroid fungi of the Murmansk Region, which included 321 species (Isaeva & Khimich, 2011), was published based on literature data and herbarium specimens. According to present data, the biota of aphyllophoroid fungi of the Murmansk Region includes 375 species (Khimich et al., 2016, 2017; Bolshakov et al., 2016). Majority of the new records deals with species fairly common in Northern Europe. However, among them there are very rare species in Fennoscandia. In the present study, *Haploporus odorus*, *Skeletocutis lilacina*, and *Trametes trogii* are reported from the Murmansk Region (Fig. 1), their localities are listed and ecological features and distributions are outlined.

**RESULTS AND DISCUSSION**

*Haploporus odorus* (Sommerf.) Bondartsev & Singer – Murmansk Region, Kandalaksha District, near Oriyarvi Lake, right side of the stream, above the road, 66°48’N, 31°13’35”E, on living *Salix caprea* L. in spruce forest, 27.08.2014, coll. LI, det. YK (INEP 1452, 1639) (Fig. 2); foot of the northern slope of Tyurtoyva Mt., 66°52’10”N,
31°10'46"E, *Salix caprea* windbreak in spruce forest, 25.08.2014, coll. LI, det. YK (INEP 1640).

The species is characterized by the pale-coloured perennial basidiocarp and anise smell in fresh condition. The main diagnostic microscopical features are trimitic hyphal system and dextrinoid thick-walled echinulate basidiospores.

This is the first record of the species from the Murmansk Region. *Haploporus odorus* is a rare circumboreal species occurring in Europe (Norway, Sweden, Finland, Poland), Russia (the European part, Urals, Siberia, Far East), Asia and North America (a few scattered localities in Canada) (Bondartseva, 1998; Ryvarden, Melo, 2014; Anonymous, 2017). In Europe the species prefers humid and shaded old forests with scattered *Salix caprea* (Ivanter, Kuznetsov, 2007; Kosolapov, 2008; Ezhov, 2013; Ryvarden, Melo, 2014). Also some other host trees are mentioned: species of *Acer, Alnus, Betula, Cerasus, Fraxinus, Padus, Prunus cerasus, Salix ssp., Syringa, Tilia, Ulmus* (Bondartseva, 1998; Ryvarden, Melo, 2014). In Fennoscandia the species seems to grow only on large, old, living *Salix caprea* trees (Niemelä, 1971). Fruit bodies of *Haploporus odorus* grow solitarily or in groups mostly 1.5–3 m above the ground. It is believed that modern forestry has altered the distribution and population density of this species. It is included in Fennoscandian Red lists: Finland – NT, Norway – VU, Sweden – VU, the Republic of Karelia – 3 (VU) (Ivanter, Kuznetsov, 2007; Rassi et al., 2010; Anonymous, 2015; Westling, 2015). Our record is probably the northernmost in Russia. The species may also be wider distributed in southern Murmansk Region in old-growth spruce forests with willows. *H. odorus* is a good candidate to be included in the third edition of the Red Data Book of the Murmansk Region.
Skeletocutis lilacina A. David & Jean Keller – Murmansk Region, Kandalaksha District, neighborhood of Kanda River, 67°6′11.27″N, 31°50′36.29″E, in spruce forest, on fallen trunk of Picea obovata 24.07.2015, coll. and det. YK (INEP 1450) (Fig. 3).

In the field, the species may be easily identified due to resupinate basidiocarp with a bittersweet black currants (Ribes nigrum)-like odor in fresh condition and lilac colour of fruit body. The fungus is similar to Trichaptum abietinum, but has smaller pores.

The species is reported for the second time from the Murmansk Region. Earlier, Skeletocutis lilacina was found by the Finnish mycologist M. Laurila in the summer of 1937, in southwestern Murmansk Region, near the present Russian-Finnish border, on the southern shore of Autiajärvi Lake, on a fallen spruce trunk (Kotkova, 2007). S. lilacina is characterized by disjunctive distribution and is known from Europe (Finland, Norway, Switzerland), Russia (the European part, the Urals, Siberia), Asia (China) and North America (Canada) (Korsunov et al., 2002; Dai et al., 2004; Mukhin, 2005; Kosolapov, 2008; Ryvarden, Melo, 2014).

S. lilacina was not mentioned for the Republic of Karelia (Krutov et al., 2014), but it is recorded from the Paanajarvi National Park (in northern part of the Republic on the border with the Murmansk Region) without an exact indication of the locality (Ylisirniö et al., 2012). Thus, our finding is probably the northernmost in Russia. This species seems to grow mostly on Picea but it was also collected on Larix, Pinus pumila and Pinus sylvestris (Dai et al., 2004; Korsunov et al., 2002; Mukhin, 2005; Ryvarden, Melo, 2014). This species is red listed in Finland – VU, Norway – EN, Sweden – VU and Murmansk Region – 2 (VU) (Rassi et al., 2010; Konstantinova et al., 2014; Anonymous, 2015; Westling, 2015).

Trametes trogii Berk. – Murmansk Region, Apatity City, plantation of deciduous trees near buildings, 67°34′03″N, 33°23′36″E, on stump of Populus tremula, 09.2014, coll. EB, det. YK (INEP 1451) (Fig. 4).

Trametes trogii has cream-coloured annual pilei and tomentose upper surface. The small basidia and basidiospores are important microscopic features.

This is the second record of Trametes trogii from the Murmansk Region. Previously, it was
found on the coast of Ryazhkov Island (Kandalaksha State Nature Reserve) on charred wood (Pystina at al., 1969), which could have been timber brought to the island, or a log that the sea had carried to the coast.

*Trametes trogii* is widespread in southern Europe, rarer in southern part of Fennoscandia, recorded in Asia, North America and Russia (European part, the Urals, Siberia, and Far East). It is most common on *Populus* and *Salix*, but was also collected on *Acer, Alnus, Betula, Eucalyptus, Fagus, Quercus, Ulmus, Juglans, Morus* and exceptionally on coniferous trees (*Pinus*) (Bondartseva, 1998; Ryvarden & Melo, 2014). *Trametes trogii* is a thermophilous species and prefers open habitats (Martikainen et al., 2000), but it can occur in unusually habitats. As was stressed by O. Ezhov et al. (2012, 2014) this fungus can grow under extreme temperature conditions and it is recorded as a newcomer (on timber wood) in treeless conditions, such as polar deserts, albeit as rudimentary fruit bodies only. This species is red listed in Finland – VU, Norway – VU and Sweden – CR (Rassi et al., 2010; Anonymous, 2015; Westling, 2015). *T. trogii* is not included in the Red Book of the Republic of Karelia. It is distributed within the region in the middle taiga zone and is quite common in central Petrozavodsk City (Ruokolainen, 2003). The species hardly occurs in natural northern taiga in the Murmansk Region, probably being confined to anthropogenic habitats only.

Our findings of *Haploporus odoratus* and *Skeletocutis lilacina* are the northernmost in Russia. Further species inventories are needed to assess the distribution of the mentioned aphyllophoroid fungi in the Murmansk Region.

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