One of the northernmost records of *Eleocharis mamillata* subsp. *mamillata* (Cyperaceae) in Europe, and the first discovery in Murmansk Region (Russia)

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We report the first locality (67°55′13″ N, 33°39′73″ E) in Murmansk Region of *Eleocharis mamillata* H. Lindb. f. subsp. *mamillata*. The species distribution range in Europe extends to nearly 68° N attested by one older (1924) record in Finland and two recent ones (2008–2009) in Norway. The new site at a similar latitude in *Lapponia Imandrae* in Russia is briefly described. It is proposed to include this species in the next regional Red Data Book in the group “In need of monitoring”.

**Introduction**

*Eleocharis mamillata* was described by Lindberg (1902) who regarded it as a Scandinavian endemic. Today, it is known from Western Europe through Asia to Western Northern America in the temperate and boreal zone (Egorova 1976, Hultén & Fries 1986, Gregor 2003; Smith & Gregor 2014). Two subspecies occur: in addition to the widespread *E. mamillata* ssp. *mamillata* there is *E. mamillata* ssp. *austriaca* which is largely confined to mountainous areas in Europe and the Urals (Fig. 1).

The species is included in the European Red List of species (Bilz & al. 2011) and in the Red Data Book of Eastern Fennoscandia (Kotiranta & al. 1998). However, it was not included in the actual Fennoscandian Red Lists (Ivanter & Kuznetsov, 2007, Kålås & al. 2010, Rassi & al. 2010). In Central Russia *E. mamillata* is relatively rare and is present in some regional Red Data Books (Azbukina & al. 2010, Bobrov & al. 2013).

*E. mamillata* tends to grow in wet habitats such as lake shores, wet meadows and mires. It was assumed that *E. mamillata* ssp. *austriaca* occurs in calcareous habitats whereas *E. mamillata* ssp. *mamillata* is typical for peaty pools (Walters 1953, Strandhede & Dahlgren 1968, Kaplan & al. 2015). In Karelia, the species grows in paludal meadows and coastal (alluvial) sites with sedges typical of oligotrophic water pools (Ramenskaja 1983, Kravchenko, pers. comm.). *E. mamillata* ssp. *mamillata* occurs also in secondary habitats, being associated with artificial ponds and water-filled depressions (Gregor 2003, Kaplan & al. 2015, Kravchenko, pers. comm.). The species can be locally abundant throughout its range.

**Results and discussion**

In September 2016 the species was found by the first author in the center of Murmansk Region (Russia) about 1.8 km south of Apatity
(67°55'13" N, 33°39'73" E). It was observed by the southern part of a small lake (about 4,800 m² and 70 m in diameter) in the valley of the river Nivastrovskaja which flows into Lake Imandra Ekostrovskaja on its eastern side (Fig. 1). The species grew along the edge of the lake with Co- marum palustre, Menyanthes trifoliata, Carex rostrata, C. lasiocarpa, and Epilobium sp., and in shallow water (pH = 7.4, conductivity 55 μS/cm) with Hippuris vulgaris, Utricularia minor, U. intermedia, Potamogeton berchtoldii, Nitella flexilis / opaca and Chara virgata. E. mamillata is dominant in this vegetation (Figs. 2 & 3). The shoots vary in height from 16–29 cm at the water’s edge to 38–48 cm in shallow water. Several voucher specimens were collected by I. Blinova on 19.09.2016 and deposited in the Herbarium of the Polar-Alpine Botanical Garden-Institute (KPABG) (Fig. 4). The area of the valley Nivastrovskija is rich in calcium rocks; Blinova & Petrovskij (2014) and Blinova (2015) described base-rich fens with many rare species of Orchidaceae and Cyperaceae.

The nearest recorded sites of E. mamillata are 140–210 km to the south-west and to the south of the Apatity population. They are situated in small lakes of Salla municipality in Finland (Kallunkijärvi, 66°38'41.16" N 28°58'19.14" E, Lehmilampi, 67°4'16.81" N 28°52'30.92" E, Iso Sarvilampi, 67°17'0.31" N 28°11'37.10" E) (Lampinen & Lahti 2016) and on Srednij Island (66°17'13.94" N 33°38'26.78" E) in the White Sea (Bakin & Sitnikov 2014), which belongs to the Republic of Karelia in Russia.
Fig. 2. Habitat of *Eleocharis mamillata* near Apatity (Murmansk Region, Russia) in a wetland ecosystem with fens and shallow lakes surrounded by northern-taiga forest in the valley of the river Nivostrovskaja. Photo I. Blinova, 19 September 2016.

Fig. 3. *Eleocharis mamillata* forms dense stands at the water's edge along with *Comarum palustre* near Apatity (Murmansk Region, Russia). The individual plants bend easily, unlike *E. palustris*. Photo I. Blinova, 19 September 2016.
gio kuusamoënsis it is present in Oulanka National Park in Finland (Lampinen & Lahti 2016) and in Paanajarvi National Park (Kravchenko 2007).

About 33 occurrences of E. mamillata are known north of the Arctic Circle (Lampinen & Lahti 2016, internet resources for O, UiT, LD, NTNU, NMBU, NBIC) most of which are new (especially in Norway) and not indicated on the map of Hultén & Fries (1986). The three northernmost records are near to 68° N: 1) Lapponia kittilensis by J. Montell in 1924 in Muonio (67°57’20.24” N 23°40’9.36” E), and two recent ones made in 2008–2009 in the Norwegian district of Ofoten; 2) Mannfjorden (67°58’39” N 16°31’46” E); 3) Tysfjord (67°58’36” N 16°32’21” E). The Apatity record in Lapponia Imandrae in Russia will extend this list.

The study material has the typical characters of Eleocharis mamillata ssp. mamillata (see Lindberg 1902, Strandhede & Dahlgren 1968, Gregor & Barth 1998): wide obovate fruits, wide nipple-like stylopodia, mostly 5 long perianth bristles (much longer than fruits), and a weak stem with about 12 vascular bundles (Fig. 5). The identification was confirmed by H. Väre (16.11.2016).

1 During preparation of this paper four new specimens have been found in the Herbarium of the Botanical Museum in Helsinki (H) by R. Lampinen in unsorted collections, including among them one of the oldest (1905) collected in a brook near Lake Inari (68°53’48.60” N 27°20’32.43” E) in Lapponia inarensis. This specimen identification needs to be confirmed. It might be another close species Eleocharis palustris which occurs at more northern latitudes than does E. mamillata, and indeed was noted in Inary Lake during detailed lake studies in northern Finland by Rintanen (1982).
“toring” is more appropriate in the next Red Data Book of Murmansk Region. Additional field research is required to study the northernmost Russian population of this species.

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References


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**Internet resources**


