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NEW RECORD OF *USNEA FLORIDA* (L.) WEBER EX F.H. WIGG. (1780) IN LATVIA WITH NOTES ON SPECIES DISTRIBUTION IN LATVIA

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The paper reports current knowledge about *Usnea florida* in Latvia. New species record with all known records of *Usnea florida* in Latvia are reported. Also, data on secondary substances detected by thin layer chromotography in all available Latvian herbarium material is provided.
Key words: Latvia; lichenized fungi; epiphytic.

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INTRODUCTION

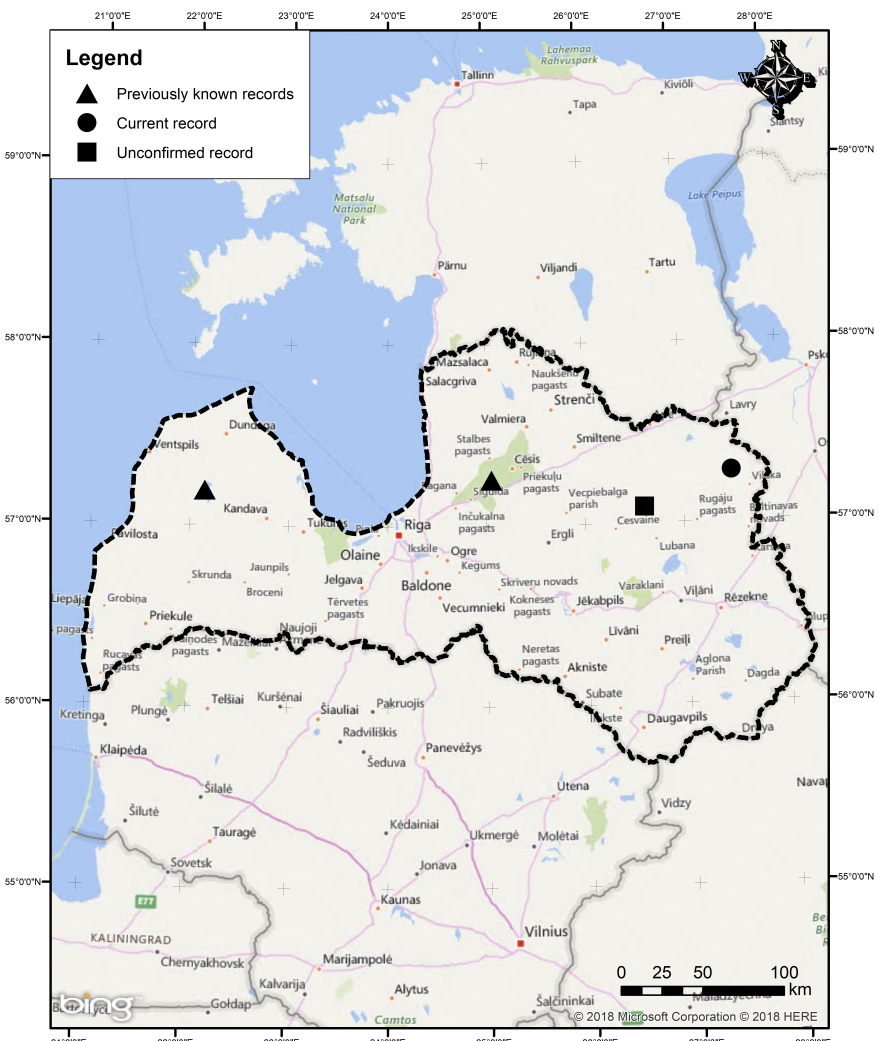
The genus *Usnea* (Parmeliaceae, Ascomycota) is characterized by a fruticose thallus with cortex (with presence of usnic acid in the cortex), medulla and a cartilaginous central axis. Genus *Usnea* consists of a.c. 350 species with wide distribution throughout the world from tropical regions to alpine and polar areas (Divakar et al., 2015, Mark et al. 2016).

Usnea florida has widespread distribution in Europe, but only few records registered in the Baltic States (Randlane et al. 2009, Motiejūnaitė 1999). In all cases species was found in old-growth deciduous forest habitats. Recent taxonomical studies supported synonymy of *U. florida* and *U. subfloridana* Stirt. (1882) (Kelly et al. 2011, Saag et al. 2011, Mark et al. 2016). It was considered that *U. florida* is a fertile morphotype of *U. sublforidana*, species that has widespread distribution and is common almost in all Europe. Official taxonomical changes still were not proposed due to conservation reasons, caused by ecological preferences of *U. florida* (Mark et al. 2016), and insufficient number of reasonable ecological and genetical investigations. The taxonomic status of *U. florida* still remains an object for discussions.

In Latvia, *U. florida* is red-listed and included to local legislative lists of protected species, (Andrušaitis et al. 1996, Anonymous 2000, Anonymous 2013). Earlier species was known from three localities in Latvia. For the first time in Latvia it was found in Jaungulbene by A. Bruttan

in the second part of the 19th century (Bruttan 1869), but the presence of species was never confirmed in a current locality afterwards. K. Kupfer (Kupfer 1931) reported *U. florida* in 1931 in Moricsala Nature Reserve, it was confirmed by local lichenologists and ecologists afterwards (Fig.1). The third location of species was found by A. Piterāns in Gauja National Park (Piterāns & Leimane 1987). Since 2002, *U. florida* was noted as a woodland key habitat indicator species in Latvia (Ek et al. 2002), but was never found outside of three known localities (Fig.2). Species is also known in Lithuania (Motiejūnaitė 1999). So far, in Estonia *U. florida* is not recorded (Tõrra & Randlane 2007). Current paper reports new record of *U. florida* in Latvia.

The specimens of new *U. florida* record were initially recorded and collected in a border of nemoral and coniferous forest in North-Eastern Latgale in December 10, 2015 by Valentīna Pužule during the field trip of doctoral study course. The collections were determined using the routine lichenological methods (Smith et al. 2009). Thin layer chromotography was applied for detection of secondary substances in collected material. All specimens of *U.florida* are deposited at the Herbarium of Daugavpils University,



2.Fig. All known loccalities of *Usnea florida* in Latvia.

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Information about the new record

Morphology: Thallus 5-9 cm tall, erect, main branches 0,6 – 0,9 mm diam., curved. Soralia absent, papillae abundant, mostly on main branches. Apotecia abundant, arising at apices of main and major lateral branches; discs 0,6 – 1,1 cm diam., with abundant, branched, marginal projections, up to 5 mm long. Ascospores 8.5 – 10.5 x 5.6 – 7 nm, ellipsoidal.

Chemistry: Usnic, thamnolic and alectorialic acids were detected by TLC.

Ecology: Specimen was collected in old-growth forest site that was evaluated as 9020* (Fennoscandian hemiboreal natural old broadleaved deciduous forests rich in epiphytes) protected habitat, according to Latvian interpretation of Annex I EU Habitat Directive in (Auniņš et al. 2013).

DISCUSSION

In all Latvian *U. florida* herbarium material usnic, thamnolic and alectorialic acids were detected by TLC.

As in a case of earlier registered records, specimens of new record were found in old-growth broad-leaved forest site, on recently fallen branches of *Tilia cordata*. Accompanying red-listed and protected lichen species such as *Arthonia byssacea*, *A. vinosa*, *Cetrelia* s.lat., *Lobaria pulmonaria*, *Thelotrema lepadinum* were found during lichenological investigations.

Previously, it was considered that in Latvia *U. florida* is associated with old-growth broad-leaved forests (Andrušaitis et al. 1996). The present record of species further supports this hypothesis. The present forest patch historically was preserved due to the local traditions - in North-Eastern Latgale local people did not cut the particular forest areas. However, the further studies are necessary for investigating the *U. florida* distribution and dispersal requirements in fragmented landscape of Latvia.

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