

FIRST RECORDS OF *LEMNA TURIONIFERA* IN LITHUANIAPIRMIEJI *LEMNA TURIONIFERA* RADINIAI LIETUVOJE

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Abstract

Sinkevičienė Z., 2011: First records of *Lemna turionifera* in Lithuania [Pirmieji *Lemna turionifera* radiniai Lietuvoje]. – Bot. Lith., 17(1): 59–61.

Occurrence of *Lemna turionifera* Landolt on the territory of Lithuania was first confirmed in two samples of free-floating plants collected in 2010. Localities of the samples in the north-east and south of the country as well as differential characters of *L. turionifera*, *L. minor*, *L. gibba* and *L. minuta* species are presented.

Keywords: aquatic macrophytes, *Lemna turionifera*, vascular plants, Lithuania.

In the flora of Lithuania the family Lemnaceae S. F. Gray is represented by four indigenous (*Lemna minor* L., *L. trisulca* L., *L. gibba* L., *Spirodela polyrhiza* (L.) Schleid.) (SNARSKIS, 1954; BAGDONAITĖ, 1963) and one alien *Wolffia arrhiza* (L.) Horkel ex Wimm. (GUDŽINSKAS, 1999; KUUSK et al., 2003) species. A new species for the flora of the country – *Lemna turionifera* Landolt – was found in the summer of 2010.

Lemna turionifera was recorded in two localities in Lithuania (Fig. 1). The first locality was situated in the north-eastern part of the country, near Kazimieravas village of Ignalina district (55°24'57,4" N, 26°35'16,1" E). On July 15, 2010, this species was found in a drainage ditch of about 2 m width. Total water surface was covered by floating plants with dominant *Lemna minor* and less abundant *L. turionifera*, *L. trisulca*, *Spirodela polyrhiza*, *Riccia fluitans* L. The second locality was registered in the south of the country near Dargužiai village of Varėna district (54°23'00,5" N, 24°52'47,0" E). On August 5, 2010, this species was found in the oxbow lake of the River Merkys. The surface of water was densely covered with vegetation of lemniids. *Lemna turionifera* and *Spirodela polyrhiza* were dominant species, whereas *Lemna minor* and *L. trisulca* were present as sparse accompanying species. Herbarium

specimens from both localities were deposited in the Herbarium of the Institute of Botany (BILAS).

The wide variation of all morphological characters in *Lemna* species depending on environmental conditions was the main reason why *L. turionifera* was first described as new species only in 1975 (LANDOLT, 1975). The production of rootless turions (Table 1) separates *L. turionifera* from other *Lemna* species, however, they occur only in spring and autumn. During the time of collection, the turions were not observed. Living *L. turionifera* differed from very similar co-occurring *L. minor* by smaller sizes, reddish coloured ventral side and darker olive-violet dorsal side with prominent dorsal midline row of papules. In herbarium material, these two species are hardly distinguishable, because in dried *L. minor* the whole lower surface often becomes dark purple. *L. turionifera* is also very similar to non-gibbous forms of *L. gibba*, however, in this species the pigments are usually concentrated in the periphery of ventral side of the fronds.

Primarily, *Lemna turionifera* was known to be distributed in continental regions of North America and Asia (LANDOLT, 1975). The first record in Europe came from the Ural Mountains (LANDOLT, 1986). *L. turionifera* is recorded in majority of the German

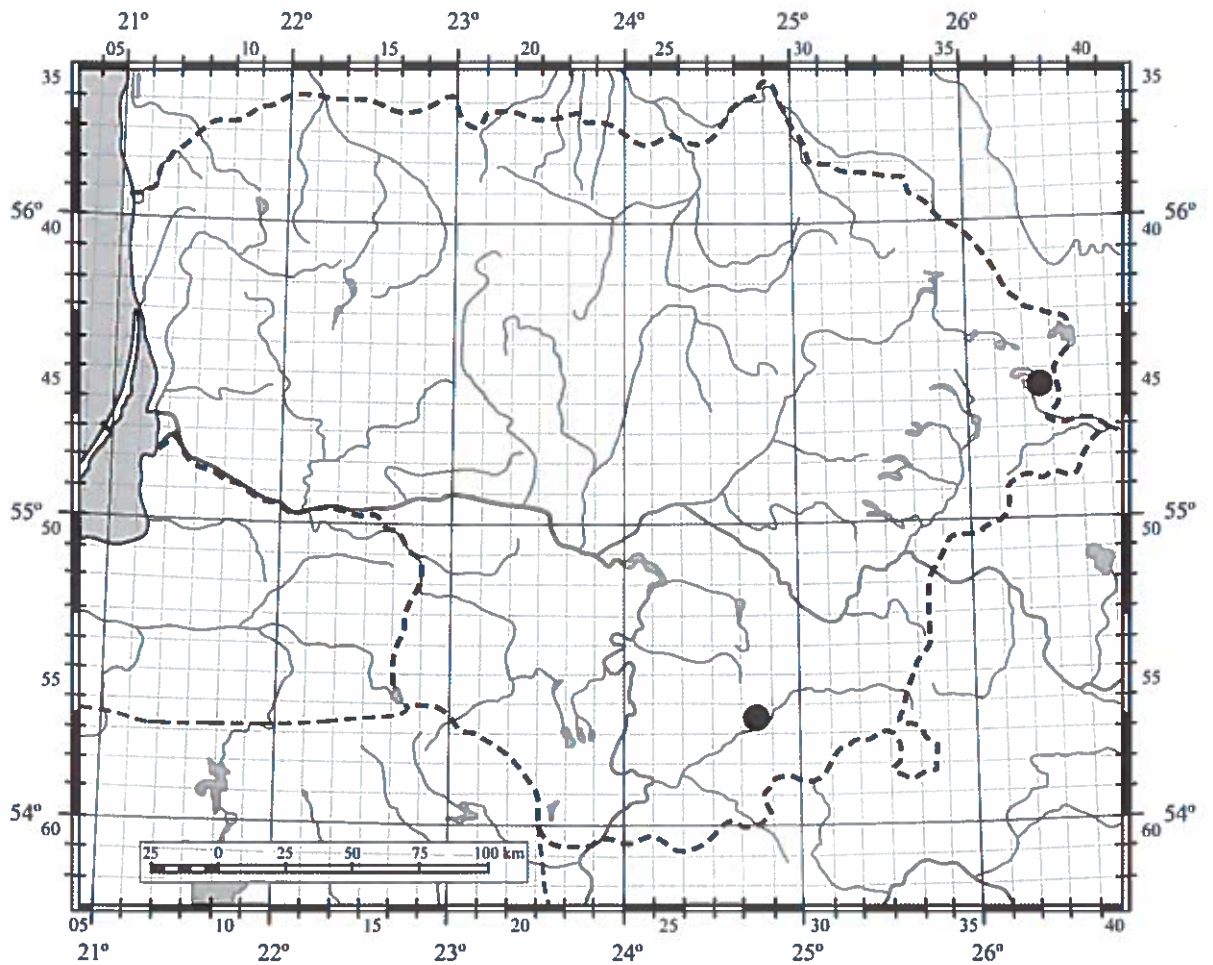


Fig. 1. Localities of *Lemna turionifera* in Lithuania

Table 1. Differential features of *Lemna* species (after WOLFF & LANDOLT, 1994)

| | <i>Lemna turionifera</i> | <i>L. minor</i> | <i>L. gibba</i> | <i>L. minuta</i> |
|--|---|--|--|-----------------------------|
| Turions | Produces; normally present except in mid-summer | Never produces | Never produces | Never produces |
| Distribution of anthocyanins on the fronds | Mostly present on the whole lower surface; sometimes on the whole or parts of upper surface | Rarely present light pink dots on upper surface of fresh plants; on lower surface of dried specimens | Patches or dots on upper surface; on lower surface concentrated in the periphery or elsewhere on daughter fronds | Never present |
| Outline and colour of frond | Oblong to nearly circular, dark green in spring, brighter in summer | Oblong, light green to very light green | Oblong to nearly circular, lower side often gibbous | Elliptic, light green, thin |
| Number of nerves | 3 | 3 | 3(5) | 1 |
| Length of the fronds (mm) | (1.4-)2.0-2.5(-4.0) | (1.2-)2.0-4.0(-6.3) | (2.3-)3.0-5.0(6.0) | 1.0-3.0(4.0) |

Federal Lands (HECKMAN, 1984; WOLFF & RAABE, 1991; WOLFF & ORSCHIEDT, 1993), Austria (WOLFF & LANG, 1993), France, Netherlands (WOLFF, 1992) and Poland (WOLFF & LANDOLT, 1994). Thus, it was supposed that the species has been spreading with migrating water birds from the Ural Mountains westwards to Central Europe and with merchandise from North America into Atlantic Ocean coastal areas. Recently *L. turionifera* has been recorded in the majority of European countries and is treated as native in Estonia, Finland, France, Germany and Russia (UOTILA, 2009). It is quite possible that the species was neglected in Europe for a long time, and its alien status, at least in northern countries (WOLFF & BRUINSMA, 2005; LJUNGSTRAND, 2010), is doubtful. The closest localities of *L. turionifera* to Lithuania are registered in Poland (WOLFF & LANDOLT, 1994) and Estonia (KUUSK, 1999), thus, its occurrence and wide distribution through the whole intermediate territory is presumable.

ACKNOWLEDGMENTS

I am much obliged to Swedish botanist Erik Ljungstrand for the presentation of *Lemna turionifera* specimens collected during field excursion throughout the Baltic countries and the encouragement for search of this species in Lithuania.

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