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CONFIRMATION OF *UTRICULARIA AUSTRALIS* OCCURRENCE IN LITHUANIA

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Abstract

Sinkevičienė Z., 2013: Confirmation of *Utricularia australis* occurrence in Lithuania [*Utricularia australis* auga ir Lietuvoje]. – Bot. Lith., 19(2): 161–164.

Occurrence of *Utricularia australis* R. Br. on the territory of Lithuania was confirmed by finding it in Lake Kampinis, Varėna district municipality. Morphological differences between similar species *U. australis* and *Utricularia vulgaris* as well as species composition of the association *Utricularietum australis* and accompanying communities are presented and discussed.

Keywords: carnivorous plants, aquatic macrophytes, *Utricularia australis*, *Utricularietum australis*, Lithuania.

Utricularia australis R. Br. is a carnivorous aquatic plant species widely distributed in temperate and tropical regions, except North and South America (Taylor, 1989). It grows in natural still and slowly flowing water and also in ditches of rice fields. *U. australis* is treated as native in all European countries, where it grows (Uotila, 2013). Almost completely sterile *U. australis* f. *australis* is originated from the hybridization between fertile *U. australis* f. *tenuicaulis*, which is recorded only in Japan, and *Utricularia macrorhiza* (Kameyama et al., 2005). Successful vegetative propagation ensured widespread of the vigorous hybrid.

Occurrence of *Utricularia australis* (= *U. neglegta* Lehm.) in Lithuania has been presumed by many authors (Kuprevičius, 1934; Snarskis, 1954; Jankevičienė, 1976; Gudžinskas, 1999), basing on the records in neighbouring countries. This species is reported as rare in Estonia and Latvia (Mäemets et al., 1996). The need of further investigations on its distribution is indicated, as plants in vegetative condition are very similar to *Utricularia vulgaris*.

Large population of *Utricularia australis* was discovered on 3 August 2010 in a small (area of 0.03 km^2) glacial Lake Kampinis (south of Lithuania, Varėna district, 54° 12’ 12.57” N, 24° 11’ 17.7” E) (Fig. 1). The temperature and pH of water was measured *in situ* using portable meter *Multiline F/Set-3*. Transparency of water was measured with Secchi disk. Distribution of plants in the lake was estimated and communities with *U. australis* were studied after Braun-Blanquet (1964). Phytosociological nomenclature follows Šumberová (2011).

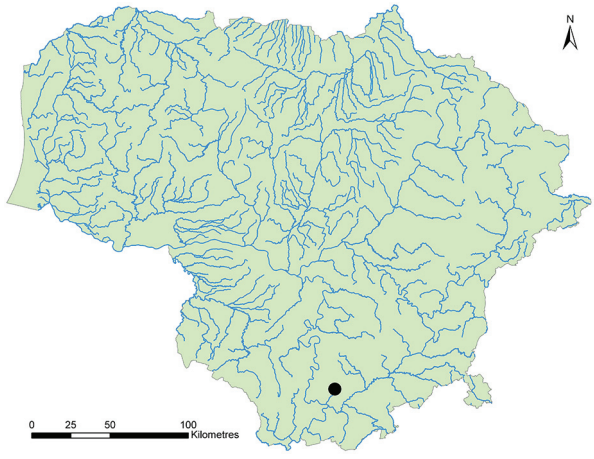

Fig. 1. Locality of *Utricularia australis* in Lithuania

According to the transparent water (Secchi depth 3.6 m) and sandy bottom, the lake seems to be poor in nutrients. High temperature on the surface of water (28°C) and neutral reaction (pH 7.26) probably were favourable for luxuriant development and flowering of the southern species. Flowering plants of *Utricularia australis* were easily recognized by the almost flat lower lip of the corolla with spread slightly undulate margins (Table 1, Fig. 2). This obvious feature, clearly separating *U. australis* from *Utricularia vulgaris* in the field, was completely undetectable in the dried material. *U. australis* was distributed mainly along the eastern shore of the lake at a depth from 0.5 to 3 m. It grew scarce in the belt of *Phragmites australis* and was abundant in communities of floating-leaved plants or formed mono-dominant patches (Table 2). Flowering *U. australis* plants floating on the water surface dominated in the area at a depth of 1.0–2.0 metres, whereas vegetative plants formed submerged patches or co-occurred with other submerged plants in the deepest locations of 3.0 metres.

Locality and date of relevés: Varėna district municipality, Lake Kampinis. 3 August 2010.

Four phytosociological relevès with dominant *Utricularia australis* were attributed to association *Utricularietum australis* (Table 2). This association is assigned to the class *Potamogetonetea* by Matuszkiewicz (2005) or to *Lemnetea* by Šumberová (2011). In Lake Kampinis, these communities formed a complex with phytocenoses of the class *Potamogetonetea.* Pleustonic *Lemnaceae* species or communities were not found.

Fig. 2. Characteristic view of *Utricularia australis* flower with flat lower lip of the corolla, spread margin and upper lip distinctly longer as palate

Sixty-eight herbarium specimens of *Utricularia vulgaris* collection in the Herbarium BILAS were revised. Special attention was paid to the specimens collected after the revision of the *Flora of the Baltic Countries* (Mäemets et al., 1996). More than half of all revised specimens were collections of vegetative plants, because many populations especially in deep waters persist and

Table 1. Morphological distinctions between *Utricularia australis* and *U. vulgaris* (after Taylor, 1972; Zao Schu, 2011; Tahir, 2011)

Utricularia australis	*Utricularia vulgaris*
Generative features	
Corolla deep yellow	Corolla lemon-yellow
Upper lip longer as palate	Upper lip ± as long as the gibbous palate
Lower lip of corolla ± flat with spread undulate margin	Lower lip of corolla with deflexed margin
Palate of corolla glabrous	Palate of corolla pubescent
Glands inside the apex of the corolla spur with glands on both dorsal and ventral surfaces	Glands inside the apex of the corolla spur on dorsal surface only
Anther thecae distinct	Anther thecae confluent
Bracts orbicular	Bracts ovate
Pedicels 3–5 times as long as the bract, erect or patent in fruit	Pedicels 2–3 times as long as the bract, strongly recurved in fruit
Plants sterile	Plants fertile, capsule globose
Vegetative features	
Leaves with 2 primary segments	Leaves with 2–4 primary segments
Capillary leaf segments with setulae arising from the apex of the short teeth	Capillary leaf segments with setulae directly arising from the margins, without any teeth

Table 2. Species composition of the communities with *Utricularia australis*

Number of relevès	1	2	3	4	5	6	7	8	9	10
Cover, %	100	100	100	60	90	90	90	70	80	100
Depth, m	1.0–2.0	1.0–2.0	1.0–2.0	3.0	1.2–3.0	1.0–1.1	0.2–1.0	1.0–2.0	2.5	2.0–3.0
Number of species in relevè	4	5	5	3	3	6	7	7	4	2
Ch. Ass.										
Utricularia australis A. Br.	**5**	**5**	**5**	**3**	2	2	1	1	2	+
Potamogeton natans L.	1	1			**4**	**4**	**3**	1		
Nuphar luteum (L.) Sm.	1	1	1		1	1		**3**	+	
Myriophyllum spicatum L.		+							4	
Ceratophyllum demersum L.								1		5
Cl. Potametea										
Persicaria amphibia (L.) Gray							2			
Batrachium circinatum (Sibth.) Spach									1	
Myriophyllum verticillatum L.	+		+							
Potamogeton lucens L.			+							
Accompanying species										
Phragmites australis (Cav.) Trin ex Steud.		+	+				1			
Equisetum fluviatile L.						1	1	+		
Carex rostrata Stokes						+	1			
Schoenoplectus lacustris (L.) Palla							+	1		
Typha latifolia L.						+		+		
Chara globularis Thuill.				1						
Eleocharis acicularis (L.) Roem et Schult.				1						

Syntaxonomical units (after Šumberová, 2011): relevès 1–4 – *Utricularietum australis* Th. Müller et Görs 1960; relevès 5–7 – *Potametum natantis* Hild 1959; relevè 8 – *Nymphaeo albae-Nupharetum luteae* Nowiński 1927; relevè 9 – *Potamo pectinati-Myriophylletum spicati* Rivas Goday 1964; relevè 10 – *Ceratophylletum demersi* Corillion 1957.

spread only vegetatively. As mentioned above, vegetative distinctions between *U. australis* and *U. vulgaris* are negligible and should be supported by generative features (Table 1). The revision of 32 flowering plant specimens revealed that such features as distribution of the glands inside the apex of the corolla spur, presence or absence of hairs on the palate of corolla and ratio between the length of upper lip and palate can be observed only in a part of the dried specimens. Plant fertility, the length of pedicels and its curvature is possible to check in both fresh and dry specimens.

Features, characteristic to *Utricularia australis,* as dorsal and ventral spur glandulation and distinct stamen anthers were observed in two herbarium specimens. V. Stepanavičienė collected both specimens in small water bodies within limits of Vilnius City at the early stage of flowering. The occurrence of *U. australis* in these locations can be adjusted during the nearest vegetation season.

In conclusion it can be predicted that *U. australis* is more widely distributed in the country, at least in the southern Lithuania. On the other hand, revision of the herbarium specimens confirmed that this species is much rarer than *U. vulgaris.*

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UTRICULARIA AUSTRALIS TIKRAI AUGA IR LIETUVOJE

Zofija Sinkevičienė

Santrauka

Pelkinis skendenis (*Utricularia australis*) pirmą kartą Lietuvoje aptiktas 2010 m. rugpjūčio 3 d. Kampinio ežere (Varėnos r. sav., koordinatės 54° 12’ 12.57” N, 24° 11’ 17.7” E). Labai vešlūs žydintys augalai sudarė iki 10 m pločio juostą rytiniame ežero pakraštyje. Nuo labai panašaus paprastojo skendenio (*Utricularia vulgaris*) žydintis pelkinis skendenis lengvai skiriasi išskleistais plokščios apatinės žiedo lūpos pakraščiais, tačiau šis požymis visiškai prarandamas išdžiovintuose herbariumo pavyzdžiuose. Kiti skiriamieji pelkinio skendenio morfologiniai žiedų požymiai: viršutinė lūpa žymiai ilgesnė už pliką apatinės lūpos gūbrį; liaukutės pentino viduje išsidėsčiusios ir dorsalinėje ir ventralinėje dalyse; žiedkočiai 3–5 kartus ilgesni už pažiedes, po žydėjimo išlieka statūs arba šiek tiek palinkę, bet niekada nenulinksta žemyn; vaisių dėžutės nesusiformuoja, nes augalai sterilūs. Kampinio ežere pelkinis skendenis sudaro *Utricularietum australis* bendrijas arba įeina į plūdurlapių (*Potametum natantis, Nymphaeo albae-Nupharetum luteae*) ir pasinėrusių augalų (*Potamo pectinati-Myriophylletum spicati, Ceratophylletum demersi*) bendrijų sudėtį. Šis radinys patvirtina, kad pelkinis skendenis tikrai auga Lietuvoje, tačiau pagal herbariumo rinkinių peržiūros duomenis ši rūšis žymiai retesnė negu paprastasis skendenis.