

NOTES ON THE STATUS OF *VIOLA ULIGINOSA* IN LITHUANIA

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Abstract

 Matulevičiūtė D., 2015: Notes on the status of *Viola uliginosa* in Lithuania [Apie *Viola uliginosa* būklę Lietuvoje]. – Bot. Lith., 21(1): 64–67.

The number of localities and the recent status of the populations of *Viola uliginosa* were unknown due to the absence of data. The short note presents recent data on the occurrence of this species in the Žalgiriai Forest (Šilutė district, western part of Lithuania). These data confirm the fact of the survival of *V. uliginosa* in the territory of the country and possibility of broader distribution of the species in Lithuania. Potential habitats and threats were discussed. Recent status of two populations of *V. uliginosa* in the Žalgiriai Forest is considered to be good. However, the vicinity of clear-cut area may have negative influence due to possible water table changes in the habitat of one population, while another population might be threatened in case of clear cuttings in the habitat.

Keywords: extinction, habitats, threats.

Viola uliginosa Besser is a temperate European species (MEUSEL et al., 1978). It is distributed in the Baltic region, western Russia, Belarus, the Ukraine and Croatia (VALENTINE et al., 1968). *V. uliginosa* is threatened in the major part of its range (DUBOVİK, 2005; INGELÖG et al., 1993; KORNECK et al., 1996).

The data on distribution of *V. uliginosa* in Lithuania are sparse. Only two localities (Darbėnai, Kretinga distr. and Vingis Park, Vilnius) of this species were confirmed by herbarium specimens [BILAS] collected in 1940 (leg. P.Snarskis) and 1946 (leg. M.Natkevičaitė).

The old published material indicated two additional localities in Paluknys (Trakai distr.), Šepeta (Kupiškis distr.) (SNARSKIS, 1954); LEKAVIČIUS (1992) recorded two new localities in the Šventoji Forest (Kretinga distr.) and Joniškėlis (Pasvalys distr.). The last, more precise information about the occurrence of *V. uliginosa* in the northern part of Lithuania (Purviai Forest, Akmenė distr.) was presented by MONSEVIČIUS et al. (1994). However, LAZDAUSKAITĖ

et al. (1986) and LEKAVIČIUS (1992) affirmed that in recent years the species was overall not found. Furthermore, LEKAVIČIUS (1992) indicated that the population in Šepeta (Kupiškis distr.) was extinct. Later OBELEVIČIUS (2007) reported the fact that *V. uliginosa* was not detected in Pasvalys district for ten years and assumed that this species may be extinct there.

Neither the references of all localities, nor label information of herbarium specimens were detailed enough. Therefore, the definite location of the populations was unknown. Thus, the revision of population status would be time consuming or impossible. Due to the absence of new data, the exact number of localities and the current status of populations were unknown (MATULEVIČIŪTĖ, 2007).

In order to find out the exact location of *V. uliginosa* population in Vingis Park (Vilnius), the forest plots with habitat types appropriate for this species were selected using the database of forest soil types (Forest Cadastre data of the State Forest Service). Thus, the search area was reduced choosing from the

park territory the deciduous forest plots on paludic and alluvial soils. During the investigation of these areas on 8 May 2015, the plants of *V. uliginosa* were not detected. They may have become extinct due to anthropogenic activity in this territory, such as draining, excavation, undergrowth removal and filling of flooded depressions with cut shrub biomass.

Two new populations of *V. uliginosa* in the western part of Lithuania (Šilutė district, the Žalgiriai Forest, 55°17' N, 21°27' E) (Fig. 1) were found on 20 May 2014. Distance between the populations was ca. 560 m.

The first population occurred in the Voryčia River flooding zone, in a distance of about 100 m from the river bed. Habitat – the splice of 90-year-old alluvial forest and fresh clear-cut area. In a residual part of the forest plot, the tree layer consisted of predominating *Alnus glutinosa*, sparse *A. incana* and *Betula pubescens*. The understory was rather sparse (coverage 5%), consisting of *Alnus glutinosa* and *A. incana*; field layer was dense (coverage 80%), with predominating *Filipendula ulmaria*, *Geum urbanum*, *Impatiens noli-tangere*, *Thelypteris palustris*, *Iris pseudacorus* and *Carex cespitosa*. Moss layer (coverage 10%) consisted of *Calliergonella cuspidata* and *Climacium dendroides*. In a felled area predominated stumps of *Alnus glutinosa*. *Viola uliginosa* plants occupied the area of about 8 m². Most of individuals of this species were fertile.

The second population occurred in the zone flooded by the Voryčia River as well; however, the

inundation time of the habitat should be longer than in the case of first population. The locality was situated in a distance of about 650 m from the riverbed, 60 m from the area clear cut last year, and 200 m from the drainage ditch. Habitat – old (ca. 100 years) alluvial grey alder stand. Tree layer consisted exclusively of *Alnus glutinosa*. Understory was not well developed (coverage 5%), consisted of *Ribes spicatum* and *Salix* spp. The field layer (coverage 80%) was predominated by *Iris pseudacorus*, *Lysimachia vulgaris* and *Phalaroides arindinacea*. Very sparse moss layer (coverage 5%) included *Calliergonella cuspidata* and *Climacium dendroides*. *Viola uliginosa* plants were distributed in the area of more than 50 m². Most of the individuals were fertile.

Abundant blossoming of *V. uliginosa* in the Žalgiriai Forest indicates that the habitat conditions in both alluvial forest patches are appropriate for this species. Nevertheless, changes in the habitat conditions due to the vicinity of the clear-cut area may take place in the first population. The conditions in the area of the second population can be considered more or less stable.

By assessing the present status of *V. uliginosa* populations in the Žalgiriai Forest as good, we have to spotlight possible threats. Habitat of a population joining with a fresh clear-cut area may be influenced by hydrological changes occurring after clear cutting (HEWLETT & HIBBERT, 1961). Negative effect may have the shading of the shrubs constituting the regeneration stage of grey alder forest as well. Though, the case of occurrence of *V. uliginosa* in such habitat (KRAWCZYK et al., 2008) demonstrates a possibility of survival of these plants in the deep shade.

These new findings of *V. uliginosa* confirm the fact of survival of this species in Lithuania. However, possible changes in the habitat of the first population determine the necessity of monitoring. In spite of good habitat conditions in the second locality of the Žalgiriai Forest, the danger of eradication of the population is high due to great wood age as grey alders and birches in Lithuania are felled starting from 61 years age (KAZLAUSKAS, 2010).

Rather great number of new localities in the southeastern part of Poland resulted from the investigations performed in the flowering period of *V. uliginosa* at all potential sites of the species. The data implied the idea that this species might have been overlooked due

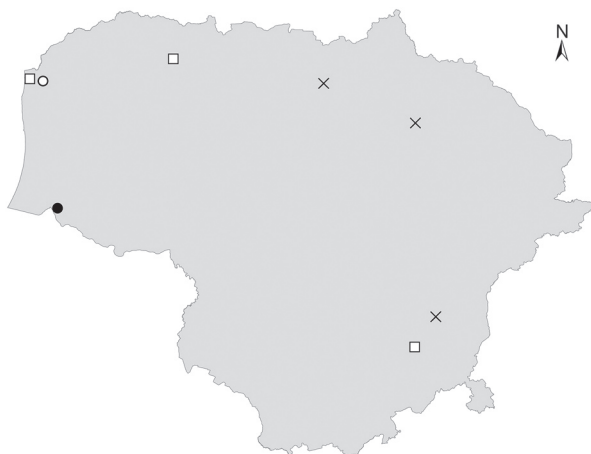


Fig. 1. Distribution of *Viola uliginosa* in Lithuania: ● – herbarium data of the 21th c.; ○ – herbarium data of the 20th c.; □ – literature data of the 20th c.; × – extinct population

to short flowering period and predominance of taller plants in undergrowth during summer (KRAWCZYK et al., 2008). In Lithuania, such detailed investigations on the distribution of *V. uliginosa* have never been performed; therefore, revision of potential habitats of the species in the country should fill the information gaps.

The list of potential habitats of *V. uliginosa* in Lithuania can be compiled by using the data both from Lithuania and the neighbouring countries. The newest findings of *V. uliginosa* in Lithuania, the habitat data on most of the newly referred *V. uliginosa* populations in Poland (KRAWCZYK et al., 2008) and occurrence of this species in floodplain forests belonging to *Pruno padi-Alnetum incanae* and *Carici elongatae-Alnetum* subass. *cardaminetosum* in Estonia (PAAL et al., 2008) enable to include the alluvial forests into this list. Deciduous swamp woods with predominating *Alnus glutinosa* should also be considered as potential *V. uliginosa* habitats as they were indicated by LEKAVIČIUS (1992) in Lithuania, by DUBOVİK (2005) in Belarus and by KRAWCZYK et al. (2008) in Poland. The discussed-above list of habitats should include forest glades in swamp woods, stands of grey alder and spruce (DUBOVİK, 2005; KRAWCZYK et al., 2008), birch woods and oak forests, margins of the fens, and shrubberies in the river valleys and floodplains (DUBOVİK, 2005). *V. uliginosa* is referred in the open habitats as well: peaty shrubby meadows (LEKAVIČIUS, 1992), wet floodplain meadows and wet meadows outside the floodplain areas, fens and transition mires (GAVRILOVA, 2003). Several anthropogenic habitats have been listed: wet forest roads and firebreaks (GAVRILOVA, 2003), edges of the ditches in forests (DUBOVİK, 2005; KRAWCZYK et al., 2008).

According to DUBOVİK (2005), *V. uliginosa* is restricted to large forest patches not suffering from anthropogenic influence. The threats for this species are considered to be the drainage of habitats and their transformation to cultivated lands (LEKAVIČIUS, 1992; DUBOVİK, 2005), building and reparation of the roads, intensive grazing, pesticide treatment and fertilization, intensive recreation (DUBOVİK, 2005), clear cutting of the forests (DUBOVİK, 2005), beaver activity and expansion of the alien species *Solidago gigantea* (KRAWCZYK et al., 2008). However, changes in water table are regarded by KRAWCZYK et al. (2008) as the main threat.

Summarizing we can conclude that *Viola uliginosa* in Lithuania is very rare, endangered and sensitive to habitat changes species. The recent and old data on the distribution of *V. uliginosa* in Lithuania demonstrate the detection of this species in different parts of the country. The new localities of *V. uliginosa* may be resulted of the revision of potential habitats.

ACKNOWLEDGEMENTS

The author is grateful to E. Nicius for providing information about *V. uliginosa*, and V. Monkuvienė for technical assistance in preparation of the distribution map and selection of the forest plots for the investigation in Vingis Park.

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APIE *VIOLA ULIGINOSA* BŪKLĘ LIETUVOJE

Dalytė MATULEVIČIŪTĖ

Santrauka

Viola uliginosa radviečių skaičius ir populiacijų būklė Lietuvoje buvo nežinomi dėl mažo duomenų kiekio ir nepakankamo jų detalumo bei naujos informacijos trūkumo. Straipsnyje teigiama, kad viena iš dviejų herbariumo pavyzdžiais patvirtintų populiacijų buvusių Vilniuje, Vingio parke, yra išnykusi. Pateikiami ir nauji duomenys apie dvi *V. uliginosa* populiacijas Šilutės rajone, Žalgirių miške. Šių populiacijų dabartinė būklė yra gera, nors yra jau egzistuojančių

ir potencialių grėsmių. Vienai iš populiacijų gali pakenkti kirtavietės kaimynystė, lemianti gruntinio vandens lygio pokyčius ir krūmų gausą; antrajai labai pakenktų, jeigu jos buveinėje būtų pradėti kirtimai.

Šie duomenys patvirtina, kad *V. uliginosa* Lietuvoje nėra išnykusi, bet labai reta ir jautri buveinių pokyčiams rūšis. Ji gali būti paplitusi įvairiose šalies vietose. Aptartos potencialios šios rūšies buveinės ir galimos grėsmės jos populiacijoms.