

SUCCISELLA INFLEXA – A NEGLECTED SPECIES IN MEADOWS OF LITHUANIA
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Abstract

Sinkevičienė Z., 2013: *Succisella inflexa* – a neglected species in meadows of Lithuania [*Succisella inflexa* – pražiūrėta Lietuvos pievų rūšis]. – Bot. Lith. 19(1): 67–71.

Succisella inflexa (Kluk) Beck. is one of the rarest red-listed species in Lithuania, occurring at the northern border of its range. Based on herbarium specimens, only five localities were known in SE Lithuania (Trakai, Varėna and Šalčininkai districts) in the period of 1956–1983. In 2007 and 2009, new localities in the Šalčia River valley near Žygmantiškės village (Šalčininkai distr.) and in the Merkys River valley near Molių village (Varėna distr.) were recorded. The populations survived in wet meadows of *Calthion*, *Caricion* communities, in the intensively grazed floodplain. They were composed of flowering and vegetative plants and seemed to be in good condition. The limited occurrence of *S. inflexa* in Lithuania is related to the species distribution on the edge of its range. The late blooming time in August–September was the main reason why this species was neglected during the former investigations on these meadows usually studied before mowing in June or July. After the discovery of new populations, *S. inflexa* is expected to be more distributed in the natural valleys of the Merkys River catchment area.

Keywords: *Dipsacaceae*, floodplain meadows, fen meadows, conservation.

Succisella inflexa (Kluk) Beck. (*Dipsacaceae*) is one of the rarest and least studied red-listed plant species in Lithuania. It is a middle-European species with interrupted natural distribution area, introduced in North America (MEUSEL & JÄGER, 1992). The northern edge of the species distribution reaches Lithuania. To the southeast of Lithuania it occurs in Belarus, Briansk and Smolensk regions of Russia, whereas to the south and west of Lithuania it is distributed in the Ukraine, Poland, Slovakia, Hungary, Romania, Albania, Slovenia, Italy, Austria, Czech Republic and Germany (BOBROV, 1978; CANNON, 1976; CZARNA, 2001). The species is protected in Poland, Germany and Slovakia (CZARNA, 2001). *S. inflexa* usually occurs in wet and fen meadows of river valleys, rarely on the shores of lakes (JANKEVIČIENĖ, 1976; JANKEVIČIENĖ et al., 1996; BOBROV, 1978; CZARNA, 2001; OVERBECK et al., 2003). In riverside willows and alluvial forests, this species has been recorded only in Belarus (KOZLOVSKAJA, 1999).

Without indication of exact localities on the recent territory of Lithuania, the species was reported in the 19th century as *Scabiosa inflexa* Kluck (JUNDZILL, 1830) or *Lepicephalus inflexus* (GORSKI, 1830). The first herbarium specimens of *Succisella inflexa* were collected by P. Snarskis in 1956 and 1958 beside the Merkys River near Pirčiūpis village (former Eišiškės district) (BILAS; SNARSKIS, 1968). Based on these data, *S. inflexa* was included into the list of rare and protected species (ANONYMOUS, 1962). In the 20th century, the plant specimens were last time collected in 1983 by V. Rinkevičius near Pirčiūpis village in the drained valley of the Merkys River. Based on the herbarium (BILAS) data from the 20th century, five records of this species were made on about 10 km² area in the Rivers Merkys, Šalčia and Visinčia valleys at the borders of Varėna, Trakai and Šalčininkai districts (the southeastern part of Lithuania). In 1992, *S. inflexa* was treated as rare species (category 3), the populations of which were scarce due to species

biological peculiarities (BALEVIČIUS, 1992). Later the species was restricted to 1E category – it means that the conservation of this species requires special protection measures (RAŠOMAVIČIUS, 2007).

In 2007, the abundant population of *S. inflexa* was recorded by the author near Žygmantiškės village (Šalčininkai distr.) at a distance of 8–10 km from earlier known locations. The floodplain in the Šalčia River valley was intensively grazed. *S. inflexa* occurred in ungrazed patches dominated by sedges (*Carex vesicaria*, *C. rostrata*, *C. acuta*, *C. nigra*) or other poorly edible plants such as *Juncus effusus*, *Deschampsia cespitosa*, *Filipendula ulmaria*, *Ranunculus flammula*, *Galium palustre* distributed mainly in humid depressions or along former riverbeds (Table 1). Although it was the second half of August, *Succisella inflexa* had just started to bloom. About 0.5–0.7 m tall plants with pale violet flowers were clearly distinguishable on a background of yellowing grasses and sedges. Both vegetative and generative shoots on plants were well developed. Vegetative shoots made a dense sward together with dwarf or decumbent plants such as *Potentilla anserina*, *Ranunculus repens*, *Ranunculus flammula*, *Galium palustre*. Vegetative plants were especially luxuriant in patches moderately grazed probably in early summer, when grasses and sedges were soft and better edible. In the same habitats and under similar ecological conditions, but less abundant population of *Succisella inflexa* was detected on the right bank of the Merkys River near Moliai village (54° 18' 28.03"N; 24° 39' 37.6" E) in 2009.

The plant communities with *S. inflexa* were intermediate between wet meadow (*Calthion palustris* R. Tx. 1937 em. Lebrun et al. 1949) and tall sedge (*Caricion elatae* W.Koch 1926) communities. *Epilobio-Juncetum effusi* (Walter 1950) Passarge 1964 was easily physiognomically distinguishable from *Calthion palustris*. Plant communities of *Epilobio-Juncetum effusi* have been recorded in Lithuania, but not described in details (BALEVIČIENĖ, 1991; SINKEVIČIENĖ, 1998). *S. inflexa* has also been noticed in *Caricetum vesicariae* Br.-Bl. et Denis 1926.

In Germany, on the western edges of *S. inflexa* range, it occurs in *Molinion caeruleae* W.Koch 1926, *Calthion palustris* and *Caricion elatae* communities (OBERDORFER, 1994). In Poland, in addition to the mentioned communities, it has been found in *Cari-*

Table 1. Species composition of communities with *Succisella inflexa*

Current number	1	2
Cover of herb layer %	100	100
Cover of moss layer %	5	2
Number of species in a record	16	19
<i>Succisella inflexa</i>	3	2
<i>Calliergonella cuspidata</i>	.	1
<i>Climacium dendroides</i>	2	
<i>Carex flava</i>	.	1
<i>Carex nigra</i>	2	
<i>Carex ovalis</i>	1	
<i>Carex vesicaria</i>	2	1
<i>Deschampsia cespitosa</i>	3	3
<i>Equisetum fluviatile</i>	.	+
<i>Filipendula ulmaria</i>	2	2
<i>Galium palustre</i>	3	1
<i>Galium uliginosum</i>		2
<i>Geum rivale</i>		1
<i>Juncus effusus</i>	2	2
<i>Lysimachia vulgaris</i>	+	
<i>Lythrum salicaria</i>	+	1
<i>Phleum pratense</i>		1
<i>Plantago media</i>		+
<i>Potentilla anserina</i>	2	3
<i>Potentilla palustris</i>	2	1
<i>Ranunculus flammula</i>		3
<i>Ranunculus repens</i>	2	2
<i>Rumex acetosa</i>	.	+
<i>Stellaria graminea</i>	1	
<i>Viola palustris</i>	2	

etalia nigrae (W.Koch 1926) Nordhagen 1936 em. Br.-Bl. 1949) and even *Scheuchzerietalia palustris* Nordhagen 1936, whereas in Slovenia, the species has been noticed in significantly drier meadows of *Arrhenatherion* W.Koch 1926 (ZELNIK, 2007).

The published data on the biology and ecology of *Succisella inflexa* are scarce not only in Lithuania, but also in the whole Europe. Seed germination and seedling establishment have been studied in SE



Fig. 1. Distribution of *Succisella inflexa* in Lithuania. ○ – localities in 1956–1983; ● – recent localities (2007, 2009)

Bavaria (OVERBECK et al., 2003). In fen meadows of Lake Chiemsee, some populations of *S. inflexa* have been noticed growing in *Caricion elatae* communities. The late blooming in August–September, as in Lithuania, was also typical for plants on the western edge of the distribution area. The mature seeds appeared there in the beginning of November 2001, that’s why the production of mature seeds under Lithuanian climatic conditions is likely only in case of very long and warm autumn. Although *S. inflexa* has always been sparse in the meadows of Lake Chiemsee, the almost total decline in the population has been related to the abandonment of traditional land use. Such straw meadows traditionally mowed each year after mid-September were dominated by sedges (*Carex disticha*, *C. elata* and *C. gracilis*) and contained rare species (*Iris sibirica*, *Lathyrus palustris*, *Ophioglossum vulgatum* and *Dactylorhiza*

incarnata), whereas the abandoned sites were dominated by tall sedges and helophytes (*Carex elata*, *C. vesicaria*, *Lythrum salicaria*, *Phalaroides arundinacea* and *Phragmites australis*). The abandonment not only caused the decline of adult individuals, but litter accumulation after several years of abandonment led to a total loss of suitable habitat for seedling recruitment (OVERBECK et al., 2003).

The rareness and limited distribution of *Succisella inflexa* in Lithuania is related to the position on the edge of the range. Another reason, why *S. inflexa* was found in so few places, most probably is related to late time of blooming. Flowering plant specimens (BILAS) were collected in August and September. Since basic studies on meadow vegetation usually take place before meadow mowing in June or July, *S. inflexa* was neglected in the Merkys River and its tributaries floodplains during the investigations

in 1959–1963 (LISAITĖ-KIZIENĖ, 1967) and was not mentioned in the description of Lithuanian meadow vegetation (RAŠOMAVIČIUS, 1998).

After the discovery of new populations, *S. inflexa* is expected to be more distributed in the natural valleys of the Merkys and Šalčia Rivers and their tributaries. Most perspective for the occurrence of this species are not completely abandoned moderately grazed or at least rarely mown natural wet meadows of *Calthion palustris*, *Caricion elatae* and *Molinion caeruleae*.

Checking of former and search for new localities as well as studies on species biology are necessary for the assurance of species conservation.

Despite the fact that vegetative propagation is more important for the survival and renewal of *S. inflexa* due to late flowering, the reproductive capability by seeds under Lithuanian climatic conditions until now has not been investigated.

Special measures of management such as traditional moving or moderately intensive grazing could be applied in the most valuable meadow areas with *S. inflexa*.

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Specimens of *Succisella inflexa* (Kluk) Beck. deposited at the Herbarium BILAS:

Eišiškės district, Pirčiupis, the Merkys River valley between the river and the road Vilnius–Eišiškės, on the left bank, 17 September 1956; leg. et. det. P. Snarskis. No. 13619.

Eišiškės district, Pirčiupis, on shrubs near the Merkys River, 10 September 1958; leg. et. det. P. Snarskis. No. 13618.

Šalčininkai district, on slope of the Visinčia River, 7 August 1964; leg. K. Balevičius, det. R. Jankevičienė. No. 25443.

Šalčininkai district, right bank of the Šalčia River below Papiškės village, 26 August 1982; leg. et det. Z. Sinkevičienė.

Trakai district, Madžiūnai village, confluence of the Merkys River and drainage ditch, 2 August 1983; leg. et det. V. Rinkevičius. Nr. 53268.

Šalčininkai district, Žygantiškės village, right bank of the Šalčia River valley above a bridge, intensively grazed meadow, abundant in *Juncetum effusi*, 20 August 2007; leg. et det. Z. Sinkevičienė. (N 54° 20' 27, 49"; E 24° 57' 21,8").

SUCCISELLA INFLEXA – PRAŽIŪRĖTA LIETUVOS PIEVŲ RŪŠIS

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Santrauka

Succisella inflexa (Kluk) Beck. – viena iš rečiausių pievų rūšių, įrašytų į Lietuvos raudonąją knygą. Per Lietuvą eina šiaurinė jos paplitimo arealo riba. Pagal herbariumų duomenis 1956–1983 metų laikotarpyje žinomos tik 5 radimo vietos Pietryčių Lietuvoje ties Trakų, Varėnos, Šalčininkų rajonų riba. 2007 m. *S. inflexa* aptikta Šalčios upės slėnyje ties Žygantiškėmis (Šalčininkų r.), 2009 m. – Merkio upės slėnyje ties Moliais (Varėnos r.). Abi populiacijos išliko intensyviai ganomų slėnių šlapiose pievose, *Calthion palustris* ir *Caricion elatae* bendrijose, kuriose vyrauja blogai gyvulių ėdami augalai. Abiejose

populiacijose buvo ir žydinčių ir vegetuojančių augalų. Ribotas *S. inflexa* paplitimas Lietuvoje gali būti susijęs su jos padėtimi arealo pakraštyje. Dėl vėlyvo žydėjimo (rugpjūčio–rugsėjo mėn.) rūšis nepastebėta ankstesnių Merkio baseino upių pievų tyrimų metu, kadangi jos daugiausia buvo tiriamos birželio ar liepos mėnesiais. Aptikus naujas gyvybingas *S. inflexa* populiacijas galime tikėtis, kad rūšis gali būti plačiau paplitusi Merkio baseino upių užliejamose pievose, ypač ekstensyviai naudojamose jų plotuose. Jos populiacijos gali būti išsivysčiusios ir apleistų kultūrinių pievų plotuose.