

CALDESIA PARNASSIFOLIA – NOT EXTINCT IN LITHUANIA

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Abstract

Sinkevičienė Z., 2016: *Caldesia parnassifolia* – not extinct in Lithuania [*Caldesia parnassifolia* Lietuvoje dar neišnyko]. – Bot. Lith., 22(1): 49–52.

Caldesia parnassifolia (L.) Parl. is a “near threatened” species in Europe and it has been treated as extinct in Lithuania, the latest gathering dating back to 1957. Occurring there at the northern border of its range, this species was recorded only once at the beginning of the 19th century and twice in separate localities in the middle of the 20th century. In summer 2015, after an interval of almost 60 years, *C. parnassifolia* was found in a new locality, more than 100 km north of those previously known. A very abundant population composed of vegetative and flowering (turion forming) individuals was spread over about 3.5 ha area in Lake Rūžas, known as a unique Lithuanian habitat of *Aldrovanda vesiculosa*. *C. parnassifolia* formed almost monodominant stands along swampy shores and less abundantly occurred in communities of floating leaved species (mainly *Nuphar luteum* and *Potamogeton natans*) at a depth of 0.5–1 m. It is likely that implemented measures to improve the habitat condition for *A. vesiculosa* were favourable for the appearance of *C. parnassifolia*.

Keywords: *Alismataceae*, conservation, Habitat Directive, threatened species.

Caldesia parnassifolia (L.) Parl. (Alismataceae) was found again on the territory of Lithuania after an interval of almost 60 years, in summer 2015. Although having a large distribution area (mainly in tropical and subtropical regions of Africa, Asia, Australia and temperate zone of Eurasia) and globally considered as being of “least concern”, this species is especially declining in Europe (GUPTA, 2013). It is listed on Annex II of the Habitats Directive and under Appendix I of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). *C. parnassifolia* is reported as “extinct” not only in Lithuania, but also in Austria, Bulgaria, Croatia, Serbia, Slovenia and Switzerland (GUPTA, 2013). Localities in Lithuania and Belarus are the northernmost points of its distribution (PARFENOV et al., 1987; GAVRILOVA et al., 2003). *C. parnassifolia* is possibly extinct from the neighbouring Belarus (SKURATOVIČ, 2013) and critically endangered in Poland (ŻUKOWSKI, 2001).

In Lithuania, *C. parnassifolia* has always been a very rare species: one record is known from the beginning of the 19th century and it was recorded twice in the middle of the 20th century (Fig. 1). The first finding of *C. parnassifolia* by a student A. Meltzer in the suburb of Vilnius in 1821 was announced in the local press and it was cited in many contemporary botanical publications (BESSER, 1821; WOLFGANG, 1824; GORSKI, 1830; SZMALHAUSEN, 1886). This specimen, as *Alisma parnassifolium* L., as well as a specimen collected by I. Šarkinienė from Lake Ilgis (southern Lithuania) in 1957 (ŠARKINIENĖ, 1961) are deposited at the Herbarium of Vilnius University (WI) (Figs 2, 3). The third locality, in Lake Daugai (southern Lithuania), was reported by NATKEVIČAITĖ (1954). This finding was not supported by a herbarium specimen. In both localities of the 20th century *C. parnassifolia* was reported as not abundant. Since it had not been confirmed subsequently in the mentioned localities, it was treated as extinct (SINKEVIČIENĖ, 2007).

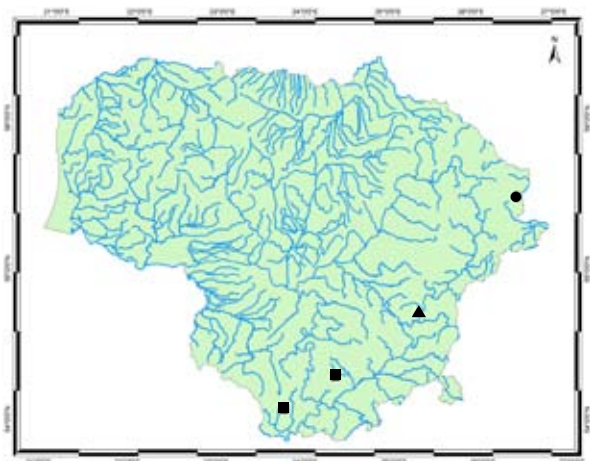


Fig. 1. Distribution of *Caldesia parnassifolia* in Lithuania. ▲ – locality of the 19th century, ■ – localities of the 20th century, ● – locality of 2015



Fig. 2. The specimen of *C. parnassifolia* from “small lake in pine forest around Verkiiai near Vilnius” collected by A. Meltzer in 1821 (Herbarium of Vilnius University WI). The label (handwriting by S.B. Gorski) includes additional information about occurrence of this species „in ditches near the road“ on the territory of nowadays Belarus in 1824 (Photo by M. Rasimavičius)

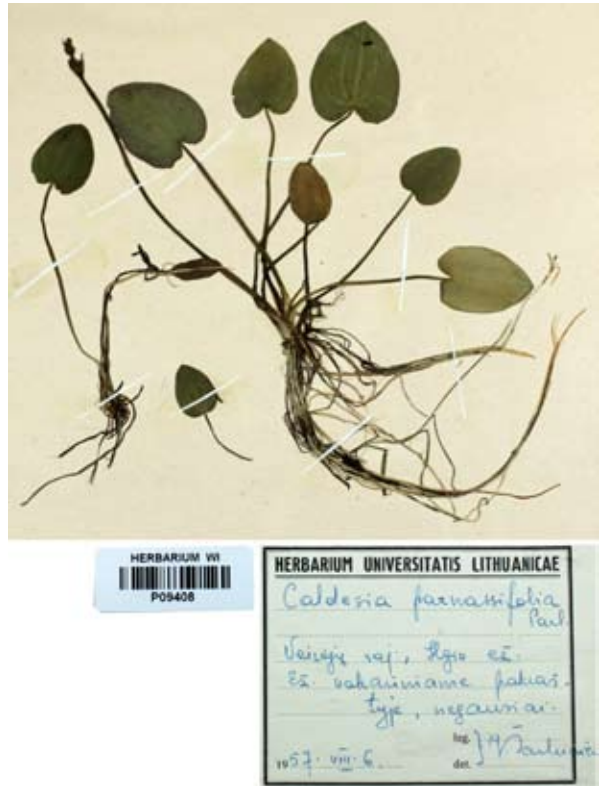


Fig. 3. The specimen of *C. parnassifolia* from Lake Ilgis, collected by I. Šarkinienė in 1957 (Herbarium of Vilnius University WI) (Photo by M. Rasimavičius)

In August 2015, *C. parnassifolia* was found in Lake Rūžas. This location is more than 100 km north of the previously known localities (Fig. 1). *C. parnassifolia* was distributed over a stretch about 800 m long (about 3.5 ha) of the northern inlet (between 55°30'6.2", 26°28'25.93" and 55°29'42.76", 26°28'39.66") of the lake. This part belongs to the protected area included in the European ecological network “Natura 2000” and is an important habitat for the largest European population of *Aldrovanda vesiculosa* (SINKEVIČIENĖ & GUDŽINSKAS, 2012). Contrary to the previous records, the population of *C. parnassifolia* was very abundant. Dense and almost monodominant stands of *C. parnassifolia* were located along swampy shores at a depth of 0.5 m (Fig. 4). Less abundant this species was found in deeper locations (to 1 m deep) in widespread communities of floating leaved species *Nuphar luteum* and *Potamogeton natans*. In addition to these species, *Aldrovanda vesiculosa*, *Hottonia palustris*, *Myriophyllum verticillatum*, *Potamogeton compress-*

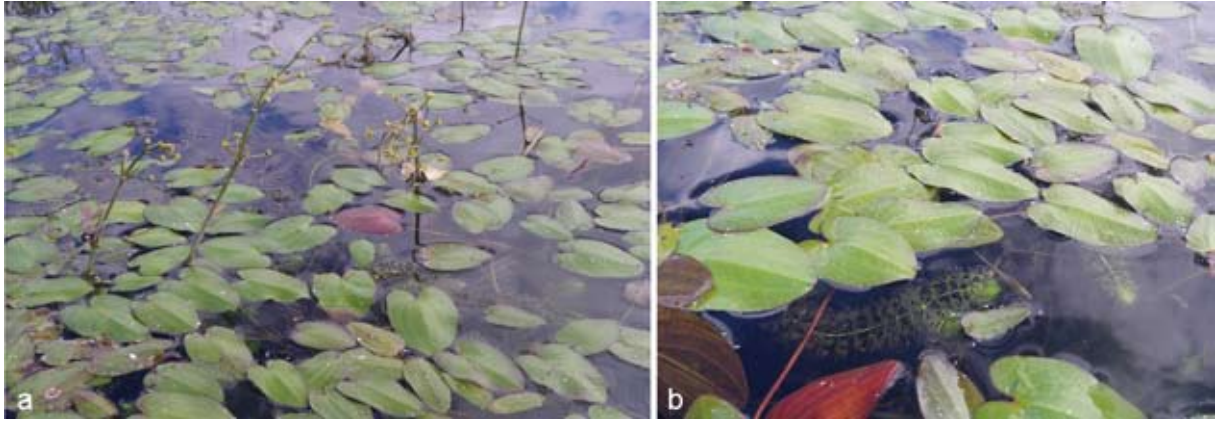


Fig. 4. *C. parnassifolia* in Lake Rūžas: a – flowering plants, b – floating leaves of vegetative plants and *Aldrovanda vesiculosa* (Photo by the author)

sus, *Sparganium emersum* and *Stratiotes aloides* were the most common co-occurring species.

Since *C. parnassifolia* was found growing in water ranging in a depth between 0.5 and 1.0 m, in such conditions only f. *fluitans* Glück of this species was present. Vegetative plants were distributed throughout the whole inlet area, whereas flowering plants were only observed in locations along the shores sheltered from winds and waving. Abundant turions were found in the axils of the bracts of separated inflorescence-like stems as well as on flowering inflorescences. Two types of turion formation were also observed in Chinese populations (GITURU et al., 2003).

According to the growing depth between 0.5–1 m and prevailing communities of floating leaved plants, the habitat of *C. parnassifolia* in Lake Rūžas is very similar to that described in Lake Daugai, Banduragis inlet (NATKEVIČAITĖ, 1954). In Lake Ilgis, on the contrary, *C. parnassifolia* occurred in shallow water (0.15–0.3 m) among helophytes (*Carex* spp. *Phragmites australis*, *Menyanthes trifoliata*, *Potentilla palustris*) (ŠARKINIENĖ, 1963).

The discovery of *C. parnassifolia* in Lake Rūžas was unexpected, because this locality is well-known as an important habitat of *Aldrovanda vesiculosa* and, thus, frequently visited by botanists. At this time, the provenance of *C. parnassifolia* in this new locality is unknown. In 2014, several measures to improve the habitat conditions for *A. vesiculosa* were implemented (e.g. removal of floating *Nuphar* rhizomes). Possibly, it was one of favourable terms for the species occurrence.

ACKNOWLEDGEMENTS

I am grateful to Mindaugas Rasimavičius (Vilnius University, Herbarium WI) for providing herbarium specimen pictures. Many thanks to Vita Monkuvienė (Nature Research Centre, Institute of Botany) for compiling the distribution map.

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CALDESIA PARNASSIFOLIA LIETUVOJE DAR NEIŠNYKO

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Santrauka

Caldesia parnassifolia (L.) Parl. Europoje yra atsidūrusi prie išnykimo ribos, Lietuvoje paskutinį kartą pastebėta tik 1957 m. ir todėl laikyta išnykusia. Ši rūšis Lietuvoje yra šiauriniame savo paplitimo arealo pakraštyje ir buvo rasta tik vieną kartą XIX a. pradžioje (Vilniaus apylinkėse) ir du kartus XX a. viduryje (Alytaus ir Lazdijų rajonų Daugų ir Ilgio ežeruose). 2015 m. vasarą, beveik po 60 m. pertraukos, *C. parnassifolia* rasta Rūžo ežere – radvietėje, daugiau kaip 100 km nutolusioje nuo anksčiau žinomų. Ši vieta geriau žinoma kaip kitos Europinės svarbos rūšies – *Aldrovanda vesiculosa* buveinė, kurioje *C. parnassifolia* anksčiau nebuvo pastebėta. Labai

gausią *C. parnassifolia* populiaciją sudarė vegetuojantys ir žydintys (turionus formuojantys) individai, paplitę apie 3,5 ha plote, 0,5–1 m gylyje. Prie užpelkėjusių pakrančių apie 0,5 m gylyje *C. parnassifolia* sudarė beveik grynus sąžalynus, giliau ne taip gausiai augo visoje įlankoje vyraujančių plūdurlapių augalų (daugiausia *Nuphar luteum* ir *Potamogeton natans*) bendrijose. Panašioje buveinėje ji buvo rasta 1954 m. Daugų ežero Banduragio įlankoje. Šiuo metu nėra žinoma kaip širdžialapė kaldezija atsirado Rūžo ežere. Viena iš palankių aplinkybių galėjo būti perteklinės augalijos šalinimas, atliktas 2014 m., siekiant pagerinti pūslėtosios aldrūnės augimo sąlygas.