

## NEW RECORDS OF *NEHALENNIA SPECIOSA* (CHARPENTIER, 1840) (ODONATA, COENAGRIONIDAE) IN LITHUANIA IN 2006–2008

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### Introduction

*Nehalennia speciosa* (Charpentier, 1840) is a protected insect species in Lithuania. It is included into the Lithuanian Red Data Book since 1989, red list category - 3(R). Only six populations of this species were known in Lithuania: Purvyno Pelkė bog near the lake Pašilaužas (2007), Beržalotas Pelkė bog near lake Akutė (2001) (both in Švenčionys distr.), environs of Verkiai (1961) (Vilnius distr.), Papilys (1935) and Klausučiai (1936) (both in Biržai distr.), and in Kumečiai environs (1983) (Vilkaviškis distr.) (Stanionytė, 1963; Stanionytė, 1993; Rašomavičius, 2007; Ivinskis *et al*, 2008;). This species is included into the IUCN Red List of Threatened Species as well since 2006 (red list category – Near Threatened) (IUCN, 2008). According to the information submitted to the IUCN Red List of Threatened Species, *Nehalennia speciosa* has a very large extent of occurrence across Eurasia, though it is declining and is already regionally extinct in many areas across its range. Dehydration of habitats as the result of drainage, extreme weather conditions and climate changes (global warming), changes in the species composition and structure of the vegetation caused by an increased load of nutrients from deforested or agriculturally used surroundings, overgrowth of habitats are the main threats indicated.

For now this species is native in Austria, Belarus, the Czech Republic, Denmark, Estonia, Finland, Germany, Japan, Democratic People's Republic of Korea, Latvia, Lithuania, Poland, Russian Federation, Ukraine; possibly extinct in Italy, Sweden; regionally extinct in Belgium, France, Luxembourg, the Netherlands, Romania, Slovakia, and Switzerland (IUCN, 2008).

Populations of *N. speciosa* are found primarily in small mire lakes, bog ponds and pools bordered by *Sphagnum*, transition-mires, or fens. Secondary habitats are peat excavations, rarely wet meadows. Microhabitats: border zones of small lakes and *Sphagnum* mats, flooded depressions in *Sphagnum* bogs and fens; generally stagnant, permanent, shallow, mostly but not necessary acid waters of low trophy, overgrown with specific vegetation predominated by narrow-leaved helophytes, especially *Carex limosa*, *C. lasiocarpa*, *Menyanthes trifoliata*, *Utricularia* spp. *N. speciosa* is a stenotopic species (Sternberg & Buchwald, 1999; IUCN, 2008).

*N. speciosa* individuals avoid flying over open water, rarely leave the shelter of tall grasses, thus can easily escape observation. This can be one of the reasons why there are only few records of this species in Lithuania.

The aim of this report is to present new data that contribute to our knowledge on the distribution of rare Odonata species in Lithuania.

## Material and Methods

The material was gathered by the authors of this report during field expeditions in 2006–2008. Insects were collected using a standard entomological net. Photos were taken to document the record. Data from Mūšos-Tyrelio Pelkė bog (Joniškis distr.) was kindly presented by Valentas Ramonas. In one case the species has been identified on the basis of photographs only, according to K. Sternberg & R. Buchwald (1999) and H. Bellmann (2007).

## Results

Seven new populations of *Nehalennia speciosa* were located in seven different administrative districts of Lithuania.

Anyškėčiai distr., Pavirinčiai, Pabiržytės Ežeras lake (55°25'38,9"N, 25°01'55,7"E), 10 06 2008, 1 female (G. Švitra). Marshy bank of a lake with scarce plants of *Carex* spp., *Eriophorum angustifolium*, *Potentilla palustris*, *Scheuchzeria palustris*. Though the species was intensively searched for, no other specimens were seen neither that day, nor on 27 06 2008. *N. speciosa* seems to be very rare at this location.

Ignalina distr., Krivasalis, the north-western strand of the Ešerinis Ežeras lake (56°08'12,8"N, 21°50'02,0"E), 07 06 2008, strong population, tens of individuals (G. Švitra). Wide marsh between the lake and woodland with *Phragmites australis*, *Eriophorum angustifolium*, *Menyanthes trifoliata*, *Thelypteris palustris*, *Potentilla palustris*, *Scheuchzeria palustris*, *Trichophorum alpinum*, *Galium uliginosum*, *Peucedanum palustre*, *Vaccinium oxycoccos*, *Carex diandra*, *C. lasiocarpa*, *C. rostrata*, *Pinus sylvestris*.

Jonava distr., Bėčių Miškas f., the Ilgajo Ežeras lake (55°07'35,6"N, 24°29'52,4"E), 16 06 2008, 3 spec. (G. Švitra). Swampy bank of a lake with *Phragmites australis*, *Eriophorum angustifolium*, *Menyanthes trifoliata*, *Potentilla palustris*, *Carex* spp.

Joniškis distr., Mūšos-Tyrelio Pelkė bog (56°12'30,0"N, 23°15'36,0"E), 26 06 2008, more than 10 individuals (V. Ramonas). Swampy edge of a small mire lake with *Carex limosa*, *Calluna vulgaris*.

Plungė distr., the Endriuškaičių Ežeras lake (56°00'19,8"N, 21°54'46,7"E), 16 06 2006, tens of individuals (G. Švitra). Swampy bank of the lake with *Phragmites australis*, *Typha latifolia*, *Thelypteris palustris*, *Calluna vulgaris*, *Eriophorum angustifolium*, *Menyanthes trifoliata*, *Potentilla palustris*, *Carex* spp., *Vaccinium oxycoccus*, *Utricularia vulgaris*, *Nuphar lutea*, *Potamogeton natans*, *Stratiotes aloides*.

Radviliškis distr., Miškinių Ežeras lake (55°34'26,2"N, 23°20'26,4"E), 15 06 2008, 1 spec. (B. Gliwa). A floating mat with *Menyanthes trifoliata*, *Dactylorhiza incarnata*, *Carex* spp., *Galium palustre*, *Potentilla palustris*, *Betula pubescens*, *Eriophorum angustifolium* beside a small mesotrophic lake with *Stratiotes aloides*, *Nuphar lutea*.

Skuodas distr., Kruopiai env. (56°08'12,8"N, 21°50'02,0"E), 14 06 2006, 04 07 2006, strong population, tens of individuals (G. Švitra). Swampy area submerged by beaver activities and traversed by numerous ditches of open water with floating mat alongside. Well grown vegetation with *Betula pubescens*, *Salix* spp., *Frangula alnus*, *Phragmites australis*, *Typha latifolia*, *Menyanthes trifoliata*, *Potentilla palustris*, *Carex rostrata*, *Carex* spp.

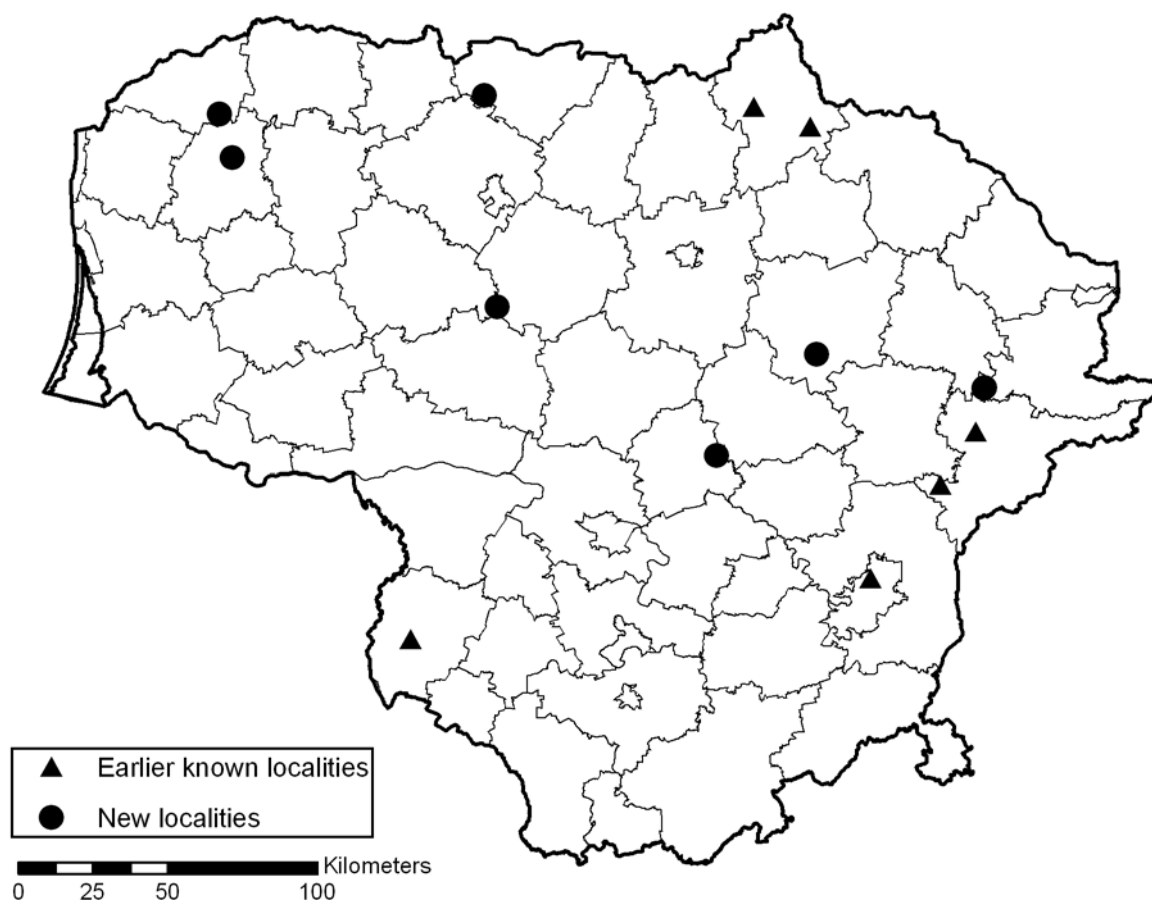


Figure 1. Records of *Nehalennia speciosa* in Lithuania.

## Discussion

Several simple reasons may be mentioned concerning new records. The new Red Data Book of Lithuania provides up-to-date data on the species. Rare findings trigger on the wish to find them, together with the extended knowledge where to look for. Second, scientists are more mobile than 20 years ago. The development of digital photography makes it easy to gather a lot of species and identify them later – as the finding from lake Miškiniai. This allows it, together with information retrieval via internet, for amateurs to contribute. Biologists are advised to use this enormous potential.

New findings of *N. speciosa* do not show the spreading of this species in Lithuania. The localities are situated far from each other. Dispersal among these sites seems difficult because they are isolated biotopes. And the species is known for being strongly associated to a site. Very few individuals have been discovered at a distance further than 100 m from their breeding habitats (Sternberg & Buchwald, 1999).

From this point of view it would be very interesting to look for *N. speciosa* in secondary habitats with respect to the distance to possible source sites. The use of very small water bodies by larvae may be due to the absence of concurrence. According to K. Sternberg & R. Buchwald (1999), no larvae of *N. speciosa* have been found together with larvae of other Odonata species.

The most important measure for the protection of this species is to leave the habitat

untouched. Drainage must be avoided as well as fast flooding. Fishing and tourism should be reduced to a minimum. Artificial alternative sites did not yield positive results (Sternberg & Buchwald, 1999).

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### **Naujos *Nehalennia speciosa* (Charpentier, 1840) (Odonata, Coenagrionidae) radavietės Lietuvoje 2006–2008 metais**

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### Santrauka

Pateikti duomenys apie 7 naujas retos žirgelių rūšies *Nehalennia speciosa* (Charpentier, 1840) (Odonata, Coenagrionidae) radavietes Lietuvoje 2006–2008 metais. *N. speciosa* yra įrašyta į Lietuvos raudonąją knygą ir į Tarptautinės gamtos apsaugos sąjungos nykstančių rūšių sąrašą. Straipsnyje nurodytos tikslios stebėjimo vietos, datos, individų skaičius, aprašytos buveinės. Pateiktas rūšies paplitimo Lietuvoje žemėlapis. Rūšis labai stenotopinė, jos paplitimą riboja tinkamų buveinių stoka, tačiau nedidelis žinomų radaviečių skaičius gali būti paaškinamas ir tuo, kad šios žirgelių rūšies individai labai nedideli ir sunkiai pastebimi.

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