

# THE DRAGONFLY (ODONATA) FAUNA OF STRICT NATURE RESERVE MORICSALA, LATVIA

**Mārtiņš Kalniņš**

Kalniņš M. 2013. The dragonfly (Odonata) fauna of strict nature reserve Moricsala, Latvia. *Acta Biol. Univ. Daugavp.*, 13 (2): 55 – 58.

The current paper summarizes available information on dragonflies of the strict nature reserve Moricsala. Of 59 dragonfly species of nine families recorded in Latvia, 22 species also occur in Moricsala. Estimated number of dragonfly species for strict nature reserve Moricsala is at least 31 to 33 species.

Key words: Odonata, fauna, Moricsala, Latvia.

JSC “Latvian State Forests”, Kristapa iela 30, Rīga, LV-1046, LATVIA, e-mail: [martins.kalnins@biology.lv](mailto:martins.kalnins@biology.lv)

## INTRODUCTION

The strict nature reserve Moricsala is the oldest specially protected nature territory in Latvia established in 1912. This territory is located in the western part of Latvia in Lake Usmas, which area is 3469 ha (Ezeri.lv 2013). The territory of strict nature reserve includes Bay Luziķērtes līcis (bay) and aquatorium (705 ha), and two islands - Moricsala (82 ha) and Lielalksnīte (31 ha). The aim of establishing this reserve was primarily to preserve and study natural broadleaved, mainly oak and lime, forests and their unique flora and fauna. Since 2004 this territory is included into Natura 2000 network (Nature Conservation... 2013).

The first information of plants and animals of Moricsala Island was published already in the 19<sup>th</sup> century, when two pastors and naturalists, Johann Georg Büttner and Johann Heinrich Kawall visited the island and made first biological observations (Nolcken 1868). The first localizable information on the occurrence of dragonflies

in Latvia dates from the second half of the 18<sup>th</sup> century (Fischer 1778). However, only two papers at all contain information on dragonflies in Moricsala Island and Lake Usmas in general (Bērziņš 1942, Spuris 1963).

Biological diversity in general and species of particular interest form the basement of successful nature conservation. The aim of current paper is to summarize available (in current thematic (!) issue) information on dragonflies of the strict nature reserve Moricsala and give recommendations for further dragonfly studies and conservation in this territory.

## MATERIAL AND METHODS

Data from author's geodatabase of Latvian Invertebrate distribution (LINDA) (Kalniņš 2012) were used. Concerning the strict nature reserve Moricsala and Lake Usmas, this geodatabase includes:

1. all published data;

2. unpublished data collected by the author during 12-13.08.2006 and 03-04.06.2008 (observations from Moricsala and Lielalksnīte islands); special dragonfly (imago and exuviae) search along lake banks and open areas; collected by Dmitry Telnov during 10.09.2001 and 29.06.2005 on Moricsala, occasional data;

3. data available on [www.dabasdati.lv](http://www.dabasdati.lv) photographed by Andris Klepers 05.07.2009 and by Mārcis Trūms 05.10.2010, occasional data.

## RESULTS

At present 43 database entries (rows) related to strict nature reserve Moricsala and Lakes Usmas are available comprising data on 22 dragonfly species.

### DAMSELFLIES ZYGOPTERA

*Coenagrion hastulatum* (CHARPENTIER, 1825) - several specimens, on Island Moricsala and Lielalksnīte (Spuris 1963 and author's data).

*Coenagrion puella* (LINNAEUS, 1758) - few dozens of specimens, on Moricsala and Lielalksnīte islands as also near Usma village.

*Coenagrion pulchellum* (VAN DER LINDEN, 1825) - few dozens of specimens, on Moricsala and Lielalksnīte islands (Spuris 1963 and author's data).

*Enallagma cyathigerum* (CHARPENTIER, 1840) - few specimens, on Island Moricsala.

*Erythromma najas* (HANSEMANN, 1823) - single record, Lake Usmas (Bērziņš 1942).

*Ischnura elegans* (VAN DER LINDEN, 1820) - few specimens, on Island Moricsala and Lielalksnīte and near Usma village (Spuris 1963 and author data).

*Lestes dryas* KIRBY, 1890 - two males in fen on Lielalksnīte island.

*Sympecma paedisca* (BRAUER, 1877) - single specimen, on Island Moricsala.

### DRAGONFLIES ANISOPTERA

*Aeshna cyanea* (O. F. MÜLLER, 1764) - single specimen, on Island Moricsala.

*Aeshna grandis* (LINNAEUS, 1758) - several specimens, on Island Moricsala.

*Aeshna isoceles* (O. F. MÜLLER, 1767) - several specimens, on Island Moricsala and Lielalksnīte.

*Anax parthenope* (SÉLYS, 1839) - single record outside of protected territory (Kalniņš 2009).

*Brachytron pratense* (O. F. MÜLLER, 1764) - several specimens and exuviae, on Island Moricsala and Lielalksnīte (exuviae on Island Moricsala only).

*Cordulia aenea* (LINNAEUS, 1758) - several specimens and exuviae, on Island Moricsala and Lielalksnīte (all exuviae found on Moricsala Island only).

*Epithea bimaculata* (CHARPENTIER, 1825) - single adult specimen and two exuviae, on Island Moricsala.

*Gomphus vulgatissimus* (LINNAEUS, 1758) - numerous specimens on Island Moricsala and Lielalksnīte; on Island Moricsala several exuviae were found (Spuris 1963 and author's data).

*Libellula depressa* LINNAEUS, 1758 - single specimen on muddy place near beaver (*Castor fiber*) lodge.

*Libellula fulva* O. F. MÜLLER, 1764 - several specimens on Island Moricsala and Lielalksnīte.

*Libellula quadrimaculata* LINNAEUS, 1758 - numerous specimens on Island Moricsala and Lielalksnīte (Spuris 1963 and author's data).

*Orthetrum cancellatum* (LINNAEUS, 1758) - several specimens on Island Moricsala and Lielalksnīte.

*Sympetrum danae* (SULZER, 1776) - single specimen, on Island Moricsala.

*Sympetrum sanguineum* (O. F. MÜLLER, 1764) - few specimens, on Island Moricsala.

## DISCUSSION

Till now 59 dragonfly species of nine families have been recorded in Latvia (Kalniņš 2012). Compared to that, 22 species recorded from 818 ha area of strict nature reserve Moricsala considered moderate rich fauna. However *A. parthenope* was recorded outside of the strict nature reserve territory, it is to be added to the total calculation, because this species is an active flyer, the Latvian population is expanding and suitable habitats are widely available and represented within protected territory (Kalniņš 2009, 2011).

Several common and widespread species of dragonflies in Latvia are not yet recorded from strict nature reserve Moricsala despite of availability of suitable habitats. These not yet found common species are listed systematically: *Calopteryx splendens* (HARRIS, 1782), *C. virgo* (LINNAEUS, 1758) (for both *Calopteryx* possible vagrant specimens from neighbouring River Engure), *Lestes sponsa* (HANSEMANN, 1823), *Platycnemis pennipes* (PALLAS, 1771), *Pyrrhosoma nymphula* (SULZER, 1776), *Aeshna mixta* LATREILLE, 1805, *Anax imperator* LEACH, 1815, *Somatochlora flavomaculata* (VAN DER LINDEN, 1825), *S. metallica* (VAN DER LINDEN, 1825), *Sympetrum flaveolum* (LINNAEUS, 1758), and *S. vulgatum* (LINNAEUS, 1758). Absence of the genus *Leucorrhinia* in Moricsala could not be explained at this time despite the fact that some observations were made in applicable time and habitats. Current data show that additional studies have to be performed both in June and August to observe widespread and common early-summer

(e.g. *Leucorrhinia*) and late-summer (e.g. *Sympetrum*) species.

During the observations overgrowth of the fen on Island Lielalksnīte and meadows of both islands was established. This can have a negative impact on dragonfly populations through loss of feeding and resting places on both of protected islands. Beaver activity on Island Moricsala can be evaluated as positive factor for dragonflies, because new open areas are being established.

## CONCLUSIONS

We consider occurrence of at least 31 to 33 dragonfly species on strict nature reserve Moricsala and adjacent water area of Lake Usmas. Additional faunistic studies focused on particular species have to be performed in June and August. No urgent management actions are needed for dragonflies, as identified affecting factor is not critical.

## ACKNOWLEDGEMENTS

I am greatly indebted to Dr. Dmitry Telnov (the Entomological Society of Latvia, Rīga) for consultations, discussions and data provided, as also to Andris Klepers and Mārcis Tīrums (both - the Ornithological Society of Latvia, Rīga) for data provided and to Ruslans Matrozis (the Ornithological Society of Latvia, Rīga) for consultations on the historical aspect.

Development of this article is supported by LIFE-Nature program of European Commission project „Management of Fennoscandian wooded meadows (6530\*) and two priority beetle species: planning, public participation, innovation” (LIFE09 NAT/LV/000240).



## REFERENCES

Received: 08.07.2013.

Accepted: 10.10.2013.

- Auniņš A. (red.) 2010. *Eiropas Savienības aizsargājami biotopi Latvijā. Noteikšanas rokasgrāmata*. [European Union protected habitats in Latvia. Identification handbook.] Latvijas Dabas fonds, Rīga: Pp. 320 (in Latvian).
- Bērziņš B. 1942. Beitrag zur Kenntnis der Odonatenfauna Lettlands. *Folia zoologica et hydrobiologica* 11, No. 2: 329-350.
- Ezeri.lv 2013. Lake database. <http://www.ezeri.lv> (last accessed February 2, 2013).
- Fischer J.B. 1778. Versuch einer Naturgeschichte von Livland. Erste Auflage, Leipzig: 155-156.
- Kalniņš M. 2009. Lesser Emperor *Anax parthenope* (SELYS, 1839) (Odonata: Aeshnidae) – a new dragonfly species in Latvia. *Latvijas Entomologs* 47: 16-20.
- Kalniņš M. 2011. The distribution of southern dragonfly (Odonata) species in Latvia and adjacent territories. *Environmental and Experimental Biology* 9: 43–52.
- Kalniņš M. 2012. Dragonflies (Odonata) in Latvia - history of research, bibliography and distribution from 18th century until 2010. *Latvijas Entomologs* 51: 91-149.
- Nature Conservation Agency 2013. Nature data management system “OZOLS”. <http://www.daba.gov.lv> (last accessed February 2, 2013).
- Nolcken J.H.W. 1868. Lepideptorologische Fauna von Estland, Livland und Kurland. *Arbeiten des Naturforscher-Vereins zu Riga. Neue Folge* 2: 294.
- Spuris Z. 1963. Jaunas ziņas par spāru izplati Latvijā. [New data on distribution of dragonflies in Latvia.] *Latvijas Entomologs* 7: 21-40. (in Latvian, German summary)