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Artykuły naukowe / Scientific articles

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Abstract. Authors discuss the occurrence of dragonflies in the Kampinos National Park and its buffering zone which are also protected as Biosphere Reserve "Kampinos Forest". The center of the reserve is the Kampinos Forest, the largest compact forest complex in Central Poland. The data on dragonflies of the biosphere reserve is in 21 papers which encompass in general 41 species (37 from the park and 25 from its buffering zone). The authors' data discussed in this paper concerns 49 species. 12 species in the biosphere reserve, 12 species in the national park and 7 species in the buffering zone have been found for the first time. In total, 53 dragonfly species were recorded in the study area.

In the Kampinos National Park 49 species of dragonflies were found. This number is high, however, on the vast areas of the park, poorly diversified odonatocoenoses typical of small water bodies and fens formed by common eurytopes are dominating. Stenotopes with special care species among them are known from a few dispersed sites. The most valuable is *Coenagrion armatum*, however, it has not been found for 17 years and its current status is unknown. The park is also a "hot-spot" of species richness of dragonflies as well as the refugium of tyrphophilous fauna with its most valuable representative *Nehalennia speciosa*, which is associated with the only well preserved *Sphagnum* peat bog (Długie Bagno). This is one of a few sites of this species of Central Poland. The area of the park requires further studies, especially on Długie Bagno which has only initial and fragmentary data.

Large part of the Kampinos National Park are derelict lands on which the processes of renaturation are still ongoing. In addition, vast fens have been almost entirely drained. As a result, the leading role in the maintenance of species richness of dragonflies play anthropogenic waters – especially canals and large artificial water bodies. These habitats are more labile than natural ones, prone to succession and disturbances. The authors recommend their monitoring and, if necessary, interference in their succession and renaturation.

In the buffering zone of the Kampinos National Park 32 dragonfly species have been recorded so far. More or less complete data refers only to the Vistula River, where well preserved odonatocoenoses typical of large and medium-sized lowland rivers were found. Southern and western part of the buffering zone is not interesting, subjected to strong anthropic pressure, and characterized by low diversity of water habitats. However, the western part (with the valley of the River Bzura) and northern part (with the Vistula River), encompassing flood areas and interesting oxbow lakes (with *Aeshna viridis* among others), can keep valuable and diversified assemblages of dragonflies. The authors point to the urgent need for their evaluation.

Key Words: Odonata, Biosphere Reserve "Kampinos Forest", Kampinos National Park, Central Poland, literatural data, new records, *Nehalennia speciosa*.

Strony / Pages: 24-30

Stwierdzenie wylotu drugiej generacji tężnicy małej *Ischnura pumilio* (CHARPENTIER, 1825) i tężnicy wytwornej *Ischnura elegans* (VANDER LINDEN, 1820) (Odonata: Coenagrionidae) w Polsce środkowo-wschodniej

A record of the emergence of second generation of the Small Bluetail *Ischnura pumilio* (CHARPENTIER, 1825) and Common Bluetail *Ischnura elegans* (VANDER LINDEN, 1820) (Odonata: Coenagrionidae) in the Central-Eastern Poland

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Abstract. So far it has been regarded that *Ischnura* spp. is univoltine species in Poland. In 2010 the situations pointing out the emergence of the second generations were observed. In 2011 the studies designed to provide this evidence were conducted. A new and isolated pond (2x2 m, depth to 40 cm) was created in March in order to eliminate the possibility of the emergence of the first generation. It was situated near two shallow water bodies where in 2010 the larvae of *Ischnura pumilio* were found. In 2011 dynamics of the population in the new pond, two near shallow water bodies as well as in one large and deep water body were studied. The results confirmed the second generations of both species in the new pond and two shallow water bodies in its vicinities.

Data from the large and deep water body did not confirm the emergence of the second generation of *Ischnura elegans* but also did not deny it. Metamorphoses lasted from the beginning of May till the end of August, with the peak in the second half of May. The time of larval development could be elongated by different water temperature than in small water bodies. However, the length of the development in experimental conditions at the temperature of 20–27°C is 60–70 days, and these temperatures prevailed for most of the season in the shore zone of this water body. Therefore, one can not exclude the possibility of development of the second generation in it – especially that it would explain the period of metamorphoses lasting up to four months.

The full development of the second generation of *Ischnura pumilio* in the dug up pond lasted up to 60 days. This is the shortest development time found in the wild in Central Europe, similar to that of the development of I. pumilio in southern France, and the data from the breeding of other species of the genus (*I. verticalis* – 58 days, *I. elegans* – 60–70 days). The time of full development of the second generation of *I. elegans* in this water body was up to about 100 days. However, this water body was colonized by *I. elegans* reluctantly and the result may be unrepresentative. The time of development of the second generation of *I. elegans* may be much shorter, as indicated by the population dynamics in a shallow water body situated near the dug up pond.

Data obtained during the research and a number of late records of *I. pumilio* indicate that the occurrence of the second generation of this species does not belong in Poland to rare exceptions. The arrangement of late records rather indicates the possibility of the emergence of the second generation in a large distribution area of the species in the country. Few observations of individual juveniles of *I. pumilio* in the half of September, and in one case 17 days after the record of the last juvenile specimen at the site, indicate the real probability of the emergence of even the part of the individuals of the third generation which requires further study.

Key Words: *Odonata, Ischnura elegans, Ischnura pumilio, bivoltinism, two generations, Poland*.

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Notatki / Notes

Strony / Pages: 31-32

Stwierdzenie iglicy małej *Nehalennia speciosa* (CHARPENTIER, 1840) (Odonata, Coenagrionidae) w Kampinoskim Parku Narodowym

The record of Sedgling *Nehalennia speciosa* (CHARPENTIER, 1840) (Odonata, Coenagrionidae) in the Kampinos National Park

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Abstract. On 8 July, 2012, a single male of *Nehalennia speciosa* has been found within the borders of Kampinos National Park in Poland, the Masovian voivodeship (52°19'10" N, 20°45'18" E, UTM: DC89). The individual was found in a habitat uncharacteristic for the species. The vegetation of the observation site consisted of young Scots Pines and Heather, growing on poor soils of sand dunes, with no water bodies, wetlands or peat bogs nearby. There is only one other site of this species currently known in the Kampinos National Park.

Key Words: Dragonflies, Odonata, Nehalennia speciosa, Central Poland, Kampinos National Park, record.