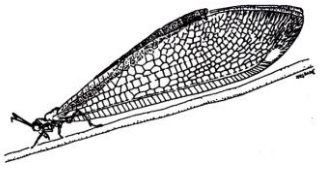

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Neuropterida (Megaloptera, Raphidioptera, Neuroptera) of Kozjanski Regional Park, Slovenia

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Abstract. Kozjanski Regional Park, consisting of about 20,600 hectares, is a protected area situated in SE Slovenia and characterized by Subpannonian and Prealpine influences. In 1980 and from 2003 to 2007, 47 neuropterid species were collected in the area. Among them, the following species are recorded for the first time in Slovenia: *Dichochrysa abdominalis* (Brauer, 1856), *Chrysoperla mediterranea* (Hölzel, 1972) and *Chrysoperla pallida* Henry, Brooks, Duelli & Johnson, 2002. The Park is important as a refuge for rare as well as interesting species of Neuropterida and the results could be helpful for environmental survey or management plans.

Key words: Neuropterida, Kozjanski Regional Park, nature conservation, Slovenia

Introduction

Kozjanski park, consisting of about 20,600 hectares, is situated in SE Slovenia (Fig. 1). It is the largest Regional Park in the country and it represents a wide range of regional ecosystems and landscape-types with large parts of the primordial nature, where human impact is balanced with nature. The Bistrica river runs through the centre of the Park, and the territory is covered by the forested Rudnica on eastern border, mountain range of Bohor and Vetrnik on the west, Orlica in the south and the eastern part of the Park is fringed by the river Sotla (Zidar, 2001).

The major part of Kozjanski Regional Park meets the criteria for special protection area SPA in Natura 2000 in order to protect endangered species of birds (Mencinger, 2004). Local fauna, flora and vegetation have Subpannonian and Prealpine biogeographical character (Zupančič & Žagar, 1995). Throughout the Park there are four forest reserves, at least six forest communities (probably the most interesting thereof are *Vicio oroboidi-Fagetum* and *Hacquetio-Fagetum*), and 25 to 30 grassland communities. Characteristic grassland assemblages are from *Brometalia erecti* (Škornik, 2001), *Molinietalia, Arrhenatheretalia* and *Nardetalia* orders (Zidar, 2001; Škornik, 2001).

Neuropterida, especially the families green lacewings (Chrysopidae), brown lacewings (Hemerobiidae) and dusty-wings (Coniopterygidae), are of great interest to a large group of applied entomologists because of their role as predators of other small arthropods – pests on plants important in agriculture and natural ecosystems (Canard *et al*. 1984; Stelzl & Devetak, 1999; McEwen *et al*., 2001). Despite of the fact that Slovenian neuropterid fauna is relatively well known (Devetak, 1992b, 1995, 2007), new findings, even spectacular, are not excluded (e.g. Jones & Devetak, 2009).

Material and methods

During occasional visits of the Park the specimens were collected between May and October in the years 1980 and 2003–2007 using sweeping net. Antlion larvae were excavated from their pit-fall traps in sand using a spoon.

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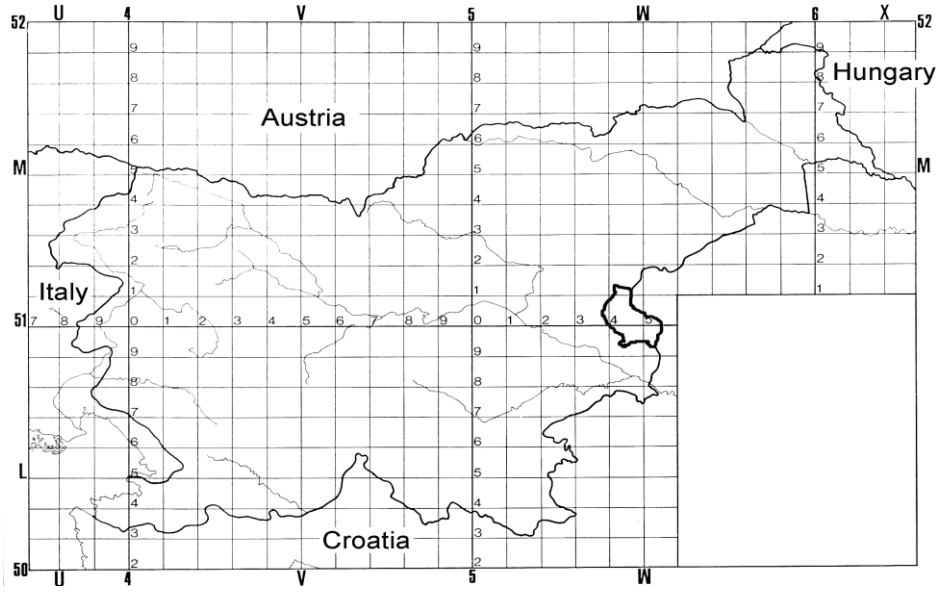

Fig. 1. Position of Kozjanski Regional Park in Slovenia.

Majority of the specimens is preserved in ethanol and deposited in the second author's collection. Nomenclature and taxonomy is in accordance with Aspöck *et al.* (1980) and Aspöck *et al.* (2001).

Results and discussion

47 species are recorded from the area, representing 1 family and 2 species of the order Megaloptera, 1 family and 3 species of the order Raphidioptera, and 7 families and 42 species of the order Neuroptera (Table 1).

We assume that further research, carried out with other techniques of collecting, e.g. light trapping, will increase the number of species in the area for a dozen.

Interesting is an occurrence of two taxa, namely, *Mantispa styriaca* (Poda 1761) and *Dichochrysa inornata* (Navás 1901), that are characterized as rare species and included in the list of rare and endangered species of Slovenia (Devetak, 1992a). First Slovenian record of an owl-fly species, *Libelloides longicornis* (Linnaeus, 1764) is based on an insect originating from Kozjanski Regional Park (Devetak, 2007). For the first time are also reported the following green lacewing species for Slovenia: *Dichochrysa abdominalis* (Brauer, 1856), *Chrysoperla mediterranea* (Hölzel, 1972) and *Chrysoperla pallida* Henry, Brooks, Duelli & Johnson, 2002. Thus, the number of species of Neuropterida occurring in Slovenia has risen to 111.

Table 1. A list of Neuropterida (Megaloptera, Raphidioptera, Neuroptera) occurring in Kozjanski Regional Park

Order, family, species	Locality
MEGALOPTERA	
Sialidae Leach and Brewster, 1815	
Sialis lutaria (Linnaeus, 1758)	11
Sialis fuliginosa Pictet, 1836	11
RAPHIDIOPTERA	
Raphidiidae Latreille, 1810	
Dichrostigma flavipes (Stein, 1863)	3
Venustoraphidia nigricollis (Albarda, 1891)	6
Ornatoraphidia flavilabris (Costa, 1855)	3, 6

Table 1. Continued.

NEUROPTERA	
Coniopterygidae Burmeister, 1839	
Helicoconis (Helicoconis) lutea (Wallengren, 1871)	1, 2, 3, 5, 6, 7, 12
Coniopteryx (Coniopteryx) pygmaea Enderlein, 1906	1, 2, 3, 5, 6, 7, 12
Coniopteryx (Metaconiopteryx) esbenpeterseni Tjeder, 1930	1, 5
Conwentzia pineticola Enderlein, 1905	1
Semidalis aleyrodiformis (Stephens, 1836)	1, 2, 3, 6
Osmylidae Leach and Brewster, 1815	
Osmylus fulvicephalus (Scopoli, 1763)	1, 4, 6
Mantispidae Leach and Brewster, 1815	
Mantispa styriaca (Poda, 1761)	3
Hemerobiidae Latreille, 1802	
Drepanepteryx phalaenoides (Linnaeus, 1758)	3, 6, 8
Hemerobius (Hemerobius) humulinus Linnaeus, 1758	3
Hemerobius (Hemerobius) atrifrons McLachlan, 1868	6
Hemerobius (Hemerobius) pini Stephens, 1836	3, 11
Hemerobius (Hemerobius) contumax Tjeder, 1932	3
Hemerobius (Hemerobius) handschini Tjeder, 1957	2
Hemerobius (Hemerobius) micans Olivier, 1792	1, 2, 3, 5, 6, 7, 8, 10, 13
Hemerobius (Hemerobius) gilvus Stein, 1863	7
Hemerobius (Brauerobius) marginatus Stephens, 1836	3, 4, 13
Sympherobius(Sympherobius) pygmaeus (Rambur, 1842)	6, 7
Sympherobius (Sympherobius) elegans (Stephens, 1836)	3, 7
Sympherobius (Niremberge) pellucidus (Walker, 1853)	3, 6
Chrysopidae Schneider, 1851	
Hypochrysa elegans (Burmeister, 1839)	3, 7
Nineta flava (Scopoli, 1763)	3
Nineta pallida (Schneider, 1846)	3, 6
Chrysotropia ciliata (Wesmael, 1841)	3
Chrysopa perla (Linnaeus, 1758)	3, 7, 10
Chrysopa walkeri McLachlan, 1893	3, 5, 13
Chrysopa viridana Schneider, 1845	3
Dichochrysa flavifrons (Brauer, 1850)	2, 3, 5
Dichochrysa inornata (Navás, 1901)	9
Dichochrysa prasina (Burmeister, 1839)	1, 3, 5, 6
Dichochrysa abdominalis (Brauer, 1856)	1, 13
Dichochrysa ventralis (Curtis, 1834)	1, 3, 5, 6, 8, 13
Peyerimhoffina gracilis (Schneider, 1851)	3, 5, 6, 7, 10, 13
Chrysoperla carnea s. l. (Stephens, 1836)	1, 2, 3, 5, 6, 7, 10, 12, 13
Chrysoperla mediterranea (Hölzel, 1972)	13
Chrysoperla pallida Henry, Brooks, Duelli & Johnson, 2002	2, 3, 5, 6, 7, 10, 11, 12, 13
Chrysoperla lucasina (Lacroix, 1912)	1, 3, 5, 6, 7, 10, 12, 13
Cunctochrysa albolineata (Killington, 1935)	3, 13
Myrmeleontidae Latreille, 1802	
Dendroleon pantherinus (Fabricius, 1787)	8
Myrmeleon formicarius Linnaeus, 1767	3, 5, 7, 13
Euroleon nostras (Geoffroy in Fourcroy, 1785)	1, 5, 7, 8, 13
Ascalaphidae Lefèbvre, 1842	
Libelloides longicornis (Linnaeus, 1764)	3
Libelloides macaronius (Scopoli, 1763)	3

Legend: 1 – Lesično; 2 – Oslica; 3 – Vetrnik; 4 – Kozje; 5 – Podsreda; 6 – Orlica; 7 – Svete Gore; 8 – Orešje na Bizeljskem; 9 – Podčetrtek; 10 – Osredek pri Podsredi; 11 – Trebče; 12 – Bistrica ob Sotli; 13 – Rigelj.

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