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## Butterflies (*Lepidoptera: Hesperioidea, Papilionoidea*) in Narew National Park

**Abstract:** The study of butterflies (*Lepidoptera: Hesperioidea, Papilionoidea*) was carried out in the Narew National Park, in two strictly protected areas under development: "Grobla pod Kurowem" and "Rynki". A total of 40 butterfly species representing 5 families: *Papilionidae* (1 species), *Pieridae* (7 species), *Lycaenidae* (9 species), *Nymphalidae* (21 species) and *Hesperiidae* (2 species) were registered altogether. Most of these have wide distribution ranges and are commonly found in Poland, especially in various open dry habitats. Only four species: *Lycaena dispar*, *Coenonympha oedippus*, *C. tullia* and *Heteropterus morpheus*, are primarily associated with or specific to moist habitats. Three species: *Papilio machaon*, *Apatura ilia* and *C. oedippus* are legally protected in Poland.

**Key words:** Butterflies, *Hesperioidea, Papilionoidea*, Narew National Park

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### INTRODUCTION

Marsh habitats in Poland, now gradually disappearing from many areas, as a result of man-made changes (chiefly soil drainage practices), are home to many rare plant and animal species. Therefore, it is hardly surprising that in recent years those wetland areas, which are of greatest value in terms of biological diversity, have been the subject of comprehensive research aiming to identify the species composition and structure of their fauna and flora, but also to help develop effective guidelines for the protection of these sites.

The marshland valley of the Narew River is one of these sites. A fragment of the valley, occupying an area of 7350 ha and situated in the course of the river between the villages of Suraż and Rzędziany, is now a protected area known as the Narew National Park (Fig. 1). An area of considerable floristic diversity, the National Park harbours as many as 46 plant associations, with rushes and water plants exhibiting

particularly high diversity (SOKOŁOWSKI 1991). Still, despite its value to naturalists, this area is relatively poorly known in faunistical terms, and particularly with respect to its entomofauna.

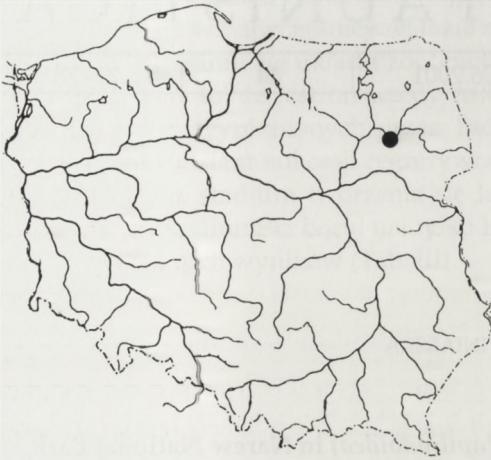


Fig. 1. Map of Poland. • - Narew National Park

the natural resources of this National Park. The study was conducted at two localities, situated within the "Grobla pod Kurowem" (Kurow Dam) and the "Rynki" - both under development and both are strictly protected areas in the future.

The "Kurow Dam" occupies an area of 49,62 ha in the valley of the Kurówka River, Narew's left tributary. The largest part of this area is given over to forest associations and shrubs of the class *Alnetea glutinosae* - *Carici elongatae-Alnetum* and *Salicetum pentandro-cinereae*. Also found here are associations of rushes *Phragmitetum australis*, *Caricetum elatae*, *Glycerietum maximae*, *Acoretum calami* and an association dominated by *Calamagrostis stricata* (KOŁOS, MATOWICKA 1992).

The "Rynki" extends over an area of 280 ha in the Narew valley, south-east of the village of Uhowo. It has been established in order to protect a fragment of the Narew valley housing a variety of associations of rushes, herbs and bushes, reflecting natural plant systems of marshy valleys of the big lowland rivers. Alder forests growing along the north-eastern edge of the Rynki forest range are among the best preserved forests in the entire Narew National Park. Forest and bush associations of the classes *Alnetea glutinosae* - *Carici elongatae-Alnetum*, *Salicetum pentandro-cinerea* and *Betulo-Salicetum repentis* occupy about 50% of the area. Non-forest associations include *Caricetum elatae*, *Caricetum appropinquatae*, *Caricetum gracilis*, *Phragmitetum communis*, *Acoretum calami*, *Sedo-Scleranthea* and *Nardo-Callunetea* (KOŁOS, MATOWICKA 1993).

Because it was a preliminary study, its scope was limited to identification of the species composition. Sampling was conducted four times: in the middle of June, July, August and September and included all the commonest habitat types. Most butterflies were identified on the spot and then let free, but some specimens were preserved in order to allow their identification later.

As regards butterflies, information on species composition and abundance of this group is scarce and generally not updated. More recent data can only be found in an unpublished paper by FRĄCKIEL (1993) and the "A distribution atlas of butterflies in Poland" (BUSZKO 1997).

#### STUDY AREA, MATERIALS AND METHODS

A preliminary investigation of the species composition of the community of butterflies was carried out in the Narew National Park in 2000 within the framework of a larger project designed to develop a plan for the protection of

Data on the ranges and abundance of individual species in Poland were obtained from BUSZKO (1993, 1997) and KOSTROWICKI (1953, 1965), and information on feeding and habitat preferences was taken from BUSZKO (1993) and KRZYWICKI (1967).

## RESULTS

A total of 40 butterfly species representing 5 families: *Papilionidae* (1 species), *Pieridae* (7 species), *Lycaenidae* (9 species), *Nymphalidae* (21 species, including 7 representing the recently-abandoned family *Satyridae*) and *Hesperiidae* (2 species) were registered altogether at the two study sites, accounting for about 26% of butterfly species living in Poland (or 47% when compared only against the number of species found in lowland Poland and those whose northernmost ranges extend beyond the southern part of the country). 26 species were found in the "Kurow Dam", compared to 34 species, in the "Rynki" strictly protected area (Table I).

The vast majority of species recorded at both study sites are commonly found over the entire area of Poland (Table I). They are usually associated with different types of open habitats, particularly in dry areas and have wide geographical ranges. A large proportion of such species is a characteristic feature of communities of butterflies. They are abundant in numerous habitats and their larvae feed on ubiquitous plants.

Only five species found: *Lycaena dispar* (HAW.), *Argynnis laodice* (PALL.), *Coenonympha oedippus* (FABR.) *C. tullia* (MULL.) and *Heteropterus morpheus* (PALL.) chiefly or exclusively inhabit wetland habitats. *L. dispar*, a Euro-Siberian species, has been registered at sites scattered throughout the Polish Lowlands. It generally does not occur in abundance, but it is not in danger of extinction. It prefers extremely wet habitats - low peat-bogs, waterlogged forest meadows, edges of riparian forests and marshes in forests; the larvae feed on sorrel (*Rumex L.*). *A. laodice*, a Euro-Siberian species, has been found at very few localities in Poland, most of which were situated in the north of the country; it prefers relatively wet habitats and the larvae feed on violet (*Viola L.*), especially *Viola palustris L.* *C. oedippus*, a Palaearctic species, has to date been registered in Poland only in Puszcza Białowieska (KRZYWICKI 1967) and the environs of the town of Chełmno. It inhabits waterlogged meadows, low peatbogs and sedge fens; the larvae feed on grasses (*Gramineae*) and sedge (*Carex L.*). It was first registered in the Chełmno area in 1992 (BUSZKO 1997). *C. tullia*, Palaearctic species, is found all over the country (but it has a scattered distribution), and can occur quite abundantly, inhabiting waterlogged meadows, sedge fens, as well as dry mountain slopes; the larvae feed on grass, sedge and cotton-grass. *H. morpheus*, Euro-Siberian species, has been registered in eastern and south-western Poland but is absent from a vast area in central Poland (disjunctive distribution). Its abundance has been growing. It lives in wet forest meadows, low peatbogs; the larvae feed on various species of grass (*Gramineae*).

Even though the Narew National Park occupies a rather small area, the finding of species with peculiar habitat requirements in a short space of time testifies to a low degree of distortion of the Park's habitats.

Table I. List of the butterfly species caught in the Narew National Park. Distribution in Poland: WA – whole area of Poland, AW – almost all area of Poland, WL – whole area of Poland, but locally, SL – scattered localities, OL – one locality, PP – part of Poland, MS – migrating species. Abundance/occurrence: VC – very common, CO – common, UA – usually abundant, NA – not abundant, PA – in some places abundant, AV – abundance varies, EN – endangered by extinction; \* species protected by law.

No.	Species	Distribution in Narew N. P.		Distribution in Poland	
		Kurow Dam	Rynki	Type of distribution	Type of occurrence
1	2	3	4	5	6
<b>Hesperiidae</b>					
1.	<i>Heteropterus morpheus</i> (PALL.)	+	-	PP	UA
2.	<i>Thymelicus lineola</i> (OCHS.)	-	+	WA	CO
<b>Papilionidae</b>					
3.	<i>Papilio machaon</i> L. *	+	-	WA	CO
<b>Pieridae</b>					
4.	<i>Leptidea sinapsis</i> (L.)	-	+	WA	CO
5.	<i>Anthocharis cardamines</i> (L.)	+	+	WA	CO
6.	<i>Pieris brassicae</i> (L.)	+	+	WA	VC
7.	<i>Pieris rapae</i> (L.)	+	+	WA	VC
8.	<i>Pieris napi</i> (L.)	+	+	WA	VC
9.	<i>Colias hyale</i> (L.)	+	+	WA	CO
10.	<i>Gonepteryx rhamni</i> (L.)	+	+	WA	VC
<b>Lycaenidae</b>					
11.	<i>Lycaena phlaeas</i> (L.)	-	+	WA	CO
12.	<i>Lycaena dispar</i> (HAW.)	-	+	SL	NA
13.	<i>Lycaena virgaureae</i> (L.)	-	+	WA	UA
14.	<i>Lycaena tityrus</i> (PODA)	-	+	WA	CO
15.	<i>Lycaena alciphron</i> (ROTT.)	-	+	WA	UA
16.	<i>Callophrys rubi</i> (L.)	+	+	WA	NA
17.	<i>Celastrina argiolus</i> (L.)	-	+	WA	NA
18.	<i>Plebeius argus</i> (L.)	-	+	WA	UA
19.	<i>Polyommatus icarus</i> (ROTT.)	+	+	WA	CO
<b>Nymphalidae</b>					
20.	<i>Argynnis laodice</i> (PALL.)	-	+	SL	NA
21.	<i>Argynnis paphia</i> (L.)	-	+	WA	PA
22.	<i>Issoria lathonia</i> (L.)	+	+	WA	CO
23.	<i>Boloria selene</i> (DEN.et. SCHIFF.)	+	+	WA	PA
24.	<i>Boloria dia</i> (L.)	-	+	AW	PA
25.	<i>Vanessa atalanta</i> (L.)	+	+	MS	NA
26.	<i>Vanessa cardui</i> (L.)	+	+	MS	AV
27.	<i>Inachis io</i> (L.)	+	+	WA	VC
28.	<i>Aglais urticae</i> (L.)	+	+	WA	VC
29.	<i>Polygonia c-album</i> (L.)	+	+	WA	VC
30.	<i>Araschnia levana</i> (L.)	+	-	WA	VC
31.	<i>Nymphalis antiopa</i> (L.)	-	+	WA	NA
32.	<i>Melitaea athalia</i> (ROTT.)	-	+	WA	CO
33.	<i>Apatura ilia</i> (DEN.et SCHIFF.)*	+	-	WA	NA
34.	<i>Pararge aegeria</i> (L.)	+	+	WA	UA

Table I. - cont.

1	2	3	4	5	6
35.	<i>Coenonympha tullia</i> (MULL.)	+	-	WL	PA
36.	<i>Coenonympha oedippus</i> (FABR.)*	+	-	OL	ED
37.	<i>Coenonympha arcania</i> (L.)	+	+	WA	UA
38.	<i>Coenonympha pamphilus</i> (L.)	+	+	WA	CO
39.	<i>Aphantopus hyperantus</i> (L.)	+	+	WA	VC
40.	<i>Maniola jurtina</i> (L.)	+	+	WA	CO

Of the species found in the Narew National Park, the following three are legally protected in Poland: *Papilio machaon* L., *Apatura ilia* (DEN. et SCHIFF) and *C. oedippus*. *P. machaon*, a Euro-Siberian species, is found all over the country and in numerous localities (though it is never abundant) and is not threatened by extinction. *A. ilia*, a Euro-Caucasian species, has also been registered throughout the country, though from a smaller number of localities, and is not endangered either.

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## STRESZCZENIE

[Motyle dzienne (*Lepidoptera*: *Hesperioidea*, *Papilionoidea*) w Narwiańskim Parku Narodowym]

W 2000 r. w Narwiańskim Parku Narodowym przeprowadzono wstępne badania nad składem gatunkowym motyli dziennych w ramach prac związanych ze sporządzeniem Planu Ochrony Narwiańskiego Parku Narodowego. Badania prowadzono na dwóch projektowanych obszarach ochrony ścisłej: „Grobla pod Kurowem” i „Rynki”. Materiał zbierano cztery razy (w połowie czerwca, lipca, sierpnia i września) czerpakiem entomologicznym metodą „na upatrzonego”.

Na obu powierzchniach badawczych stwierdzono łącznie 40 gatunków motyli dziennych z 5 rodzin: *Papilionidae* (1 gatunek), *Pieridae* (7 gatunków), *Lycaenidae* (9 gatunków), *Nymphalidae* (21 gatunków) i *Hesperiidae* (2 gatunki). Większość z nich występuje pospolicie w całym kraju. Są one zazwyczaj związane z różnego typu środowiskami otwartymi, przede wszystkim suchymi.

Pięć gatunków: *Lycaena dispar* (HAW.), *Argynnis laodice* (PALL.), *Coenonympha oedippus* (FABR.) *C. tullia* (MULL.) oraz *Heteropterus morpheus* (PALL.) zasiedla przede wszystkim lub wyłącznie środowiska wilgotne. Na terenie Narwiańskiego Parku Narodowego znaleziono 3 gatunki objęte w Polsce prawną ochroną: *Papilio machaon* L., *Apatura ilia* (DEN.et SCHIFF) i *C. oedippus*.