PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	9–17	**1990**

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ROZWÓJ BADAŃ FAUNISTYCZNYCH OKOLIC OJCOWA

Development of faunistic studies of Ojców and its region

ABSTRAKT. Badania fauny Ojcowa i okolic rozpoczęły się w 1853 r. I do I wojny światowej prowadzone były siłami ośrodka warszawskiego (m.in. przez Towarzystwo Naukowe Warszawskie). Po I wojnie do badań włączyli się zoologowie krakowscy i lwowscy, a po II wojnie także poznańscy i in. W XX w. prace terenowe prowadzono w oparciu o stacje naukowe w Ojcowie. Dotychczas w Ojcowskim Parku Narodowym odnotowano ponad 4 tys. gatunków zwierząt, a obecnie kontynuowana jest inwentaryzacja zmian powodowanych antropopresją.

SUMMARY

The separation, by means of the state border, of the kingdom of Poland from the Carpathians and the Podolia Plateau after the Congress of Vienna, directed the interest of 19th – century Warsaw naturalists to the "Ojców valley", where an ersatz of the mountain and "steppe" conditions could be found. The first planned faunistic studies of the region, with posts at Złoty Potok and Ojców, were headed, in 1853-1854, by Prof. A. Waga, with W. Taczanowski and K. Stronczyński taking part. The first results were published by Biblioteka Warszawska (Warsaw Library) in 1855 and 1857. Research on invertebrates was continued, a dozen or so years later, in the region between Pieskowa Skała, Ojców and Wierzchowie by another group of Warsaw zoologists: J. Bieniasz (snails), A. Ślósarski (snails and millipedes), J. Sznabl (*Diptera*), E. Majewski (*Neuroptera*) and F. Osterloff, W. Mączyński, J. Baumgarten and E. Szleziger (*Coleoptera*).

The years 1891-1920 constitute the next stage of research. It was then organized by the Warsaw Scientific Society. Particular intensification of research began in 1910 and mainly concerned that on mollusks (J. Wolski, K. Demel, W. Poliński) and *Coleoptera* (T. Tenenbaum, J. Hildt, W. Mączyński, W. Eichler). Apart from that, studies were carried out on amphibians and reptiles (W. Poliński), *Lepidoptera* (Cz. Bieżanko), the water (W. Roszkowski) and cave (K. Demel) faunas. Research was headed by Prof. J. Tur, and a field post at Ojców was established for better efficiency.

The interest in Ojców fauna lessened between the two World Wars; worth mentioning in only the initiative of the Physiographical Commission of the Polish Academy of Sciences and Letters (PAU) for group research of fauna of Kraków region. This led to the presentation of a tentative synthesis od Ojców fauna (J. Stach, 1924).

On the post-War period the research on fauna was being carried out by many scientific centers (especially Kraków, Poznań and Warszawa), and became intensified after the foundation of Ojców National Park (1956). Studies included those on water fauna (F. Wojtas, R.

Sowa, B. Szczęsny), mining insects (M. Beiger), mollusks (J. Urbański), millipedes (W. Stojałowska, J. Kaczmarek), *Apterygota* (A. Szeptycki), *Lepidoptera* (J. S. Dąbrowski, J. Buszko, J. Razowski, E. Palik) orthopterans (W. Bazyluk), some beetles (T. Żłowodzki, A. Kosior, M. Mazur, J. Pawłowski, Z. Stebnicka, Z. Witkowski), some flies (R. Bańkowska, A. Draber-Mońko, P.Trojan), scale insects (J. Koteja and B. Żak-Ogaza), some mites (J. Rafalski, W. Micherdziński, Cz. Błaszak, S. Michocka, W. Niedbała) and other arachnids (J. Rafalski).

Research on the Park and its surroundings was conducted basing in there field posts: the Prof. W. Szafer Museum, the Biological Station of the Institute of Systematic and Experimental Zoology (on Chełmowa Góra since 1962, and Złota Góra since 1967), and the station of Research Center for the Conservation of Nature of the Polish Academy of Sciences. The chapters of the monograph "Przyroda Ojcowskiego Parku Narodowego" (Nature of the Ojców National Park) 1977, constituted a popular synthesis of the recent faunistic studies.

Ecological studies in Sąspowska valley in the 60's and the 70's were included in the International Biological Program (IBP); their first results were published by B. Bobek, T. Kaźmierczak and A. Kosior (1967). Other ecological studies on *Coleoptera* were published by Z. Witkowski (1969) and L. Nabagło (1973).

The present state of the Park's fauna inventory (see the tab.1) counts about 4 000 species of animals, i.e. 12% of the total of species recorded from Poland. Faunistic studies of the Park have somewhat declined in the last few years. However, there exists a possibility of a new rise in interest in the fauna of the Park, e. g. because of the need for establishing various indices of environment pollution. This interest is also indicated by the reactivation of the Field station of the Institute of Systematic and Experimental Zoology and the present seminar.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	19–25	**1990**

JÓZEF PARTYKA

Ojcowski Park Narodowy, 32-047 Ojców

OGÓLNA CHARAKTERYSTYKA OJCOWSKIEGO PARKU NARODOWEGO – PRESJE I ZAGROŻENIA

General characteristics of Ojców National Park – pressures and dangers

ABSTRAKT. Artykuł omawia środowisko przyrodnicze Ojcowskiego Parku Narodowego, wzmiankuje obiekty kulturowe oraz wymienia presje i zagrożenia jego przyrody wywołane gospodarczą działalnością człowieka. Do głównych zagrożeń należy zanieczyszczenie powietrza, nieregularny ruch turystyczny, skomplikowana struktura własnościowa, napór podmiejskich form budownictwa itp. Przeciwdziałanie istniejącym zagrożeniom jest bardzo trudne. Podejmowane działania dotyczą zmian w organizacji ruchu turystycznego, stopniowego porządkowania stosunków własnościowych, kształtowania właściwego modelu zwiedzania OPN, dokumentowania wartości przyrodniczych i obiektów kulturowych.

SUMMARY

Ojców National Park, founded in 1956 on the area of 1590 ha encompasses the most valuable part of the Kraków-Częstochowa Upland, i.e. the Valleys of Prądnik and Sąspowska, and fragments of the Jura plateau. The bedrock consists of calcareous rocks of Jurassian age, 200 m in depth. The main features of landscape formation were established in the Pliocene: deep karsts canyons andsgullies constitute this landscape's characteristic features. The presence of about 200 caves is also connected with the calcareous bedrock.

The differentiated landscape influences the Park's climate, which exhibits many analogies to that of mountain regions in its isolation, air temperature amplitudes, and thermic inversion. Prądnik and Sąspówka are the Park's main water courses; they are fed from about 50 karstic sources. The landscape and climatic differences have for result the mosaic – like distribution of plant associations and the number of flora (about 1000 species of vascular plants) and fauna (about 2600) species.

The legislation founding Ojców National Park has not solved all of the existing problems; new pressures and dangers have appeared with time. These include the industrial air pollution, water relationships deterioration, unsettled property structure and ill – organized tourism. Coping with a many of these problems lies beyond the competences and possibilities of the Park's administration.

In spite of the many dangers and pressures inflicted upon Ojców National Park, in spite of various spatial conflicts, the region still preserves a discrete natural differentiation, its interesting cultural monuments, its specific landscape. The documentation of the values gathered in the Park (natural and cultural) for its preservation is one of the forms of the Park's utility. An extensive literature has accumulated on the subject for the last 180 years; in spite

of that, the state of knowledge on the present natural treasures of Ojców National Park is still incomplete. This is why further studies are still an urgent need: this need is evidenced by the seminar summing up the present state of knowledge of the Park's fauna, which might suggest further research needs.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	27–30	**1990**

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NATURALNE I ANTROPOGENICZNE ZRÓŻNICOWANIE SZATY ROŚLINNEJ OJCOWSKIEGO PARKU NARODOWEGO

Natural and anthropogenic variations in the vegetation of Ojców National Park

ABSTRAKT. Artykuł dotyczy szaty roślinnej Ojcowskiego Parku Narodowego, a w szczególności: genezy jej najistotniejszych cech, takich jak bogactwo, różnorodność, swoistość oraz mozaikowy jej rozkład na terenie Parku i tendencje zmian jakim podlega.

SUMMARY

Natural and anthropogenic variations in the vegetation of Ojców National Park. The vegetation of Ojców National Park is of particular richness. Encountered here may be more than 30 types of plant associations – most of them at community level, above 950 species of vascular plants, numerous cryptogamous plants. The extrazonal presence of montane and steppe plants is especially noteworthy in the flora.

The marked variation in vegetation is a result of the rich terrain mould determining climatic conditions – 30 microclimatic regions. Of lesser importance are the variations in soil and hydrological conditions. The effects of natural stimuli are parallel to those due to the many centuries' human activity further enhancing variations in conditions. The recent factors influencing the structure of the Park's vegetation include changes in physical environment of the Cracow Upland (mainly distortions in water relations and chemization of the environment) and the increase of mass tourist penetration clearly exceeding the capacity of Ojców National Park.

The vegetation of the Park makes up an intricate spatial mosaic. The existing associations may, however, be divided into four community complexes. These would be: 1° – marsh meadow covering valley beds, recently represented by secondary meadow associations; 2° – beechwood complex covering the northern slopes; 3° – mixed deciduous forest and warm shrub complex with secondary or natural xerothermic grasslands present on eastern, southern and western slopes, and finally, 4° –the complex of mixed hardwood-corniferous forests in the Jurassin hilltops.

The last three decades saw characteristic changes in the vegetation of the Park depending on the mode of preservation. Fairly stable are the forest biocenoses while non-forest ones undergo a rapid deterioration. The semi-natural character of significant part of the Park's plant associations (75%) results in the phenomenon of seconday succession reducing, practically, a part of variations and thus the natural richness (of the vegetation in Ojców National Park).

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	31–33	**1990**

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NIEKTÓRE ZAGADNIENIA ZOOGEOGRAFICZNE PASMA JURY KRAKOWSKO-WIELUŃSKIEJ ZE SZCZEGÓLNYM UWZGLĘDNIENIEM OJCOWSKIEGO PARKU NARODOWEGO

Some zoogeographical problems of the Kraków-Wieluń upland with particular consideration to Ojców National Park

SUMMARY

The author begins with inducating difficulties for the faunistic characterization of the area due to the unsatisfactory state of research, or even total ignorance of many animal groups, including some of much importance in zoogeography, e. g. certain groups of arachnids and myriapodans. These difficulties are aggregated by the very local occurrence of many species. Nevertheless, the author can present some characteristic features of the fauna of the region on basis of up-to-date from literature and personal studies.

Against the background of the physiographical character of the Kraków-Wieluń Upland, the author elaborates on the following problems:

1. Relic species, especially those of the Tertiary;
2. The role of the upland as the migration route to the North of numerous species, especially those from the Carpathians and the Sudeten;
3. The big concentration of localities of rare species in this area;
4. The scarcity of cave fauna.

1. The existence of Tertiary relicts among various animal group in the Carpathians is presently beyond any doubt. The occurrence of such relicts in the Upland, witch was an ice-free oasis during the Kraków Glaciation, is evidenced by distribution of certain species of mites, myriapodes, and, possibly, snails; e.g. the distribution of the very rare south-European mite species: *Licnodamaeus undulatus* (Paoli), *Pterochthonius angelus* (Berl.), or *Trichoribatula pilosa* (Mich.) know from only a few localities in western Europe; the mentioned species are know, from Poland, apart from the Kraków Upland, from non-glaciated parts of the Carpathians and their plateau and from nunataks of Sobótka and Ostrzyca in Silesia. Of a similar relict character is the locality of *Brachypauropus superbus* (Hansen) at Ojców (discovered by prof. Andrzej Szeptycki), (the only one of this species in the Upland), reported, apart from that, from only a few never-glaciated localities in the Carpathians (the ranges of Pieniny Mts. and the East Beskid).

2. The Kraków-Wieluń Upland was at various times a suitable migration route for vari-

ous invertebrate species to North e.g. the presence, in the Upland., of the harvestmen *Ischyropsalis Hellwigi* (Panz.) and *Paranemastoma quadripunctatum* (Perty), both species being western and, in Poland, of the Sudeten, together with the lack of their vicariant Carpathian species *Ischyropsalis manicata* L. Koch and *Paranemastoma kochi* (Nowicki), probably isolate from the region by the massive flow of waters from the melting glacier directed toward the South-East along the limits of the Carpathian plateau, are of particular interest.

3. The Upland is also characterized by the relatively big number of localities of some species of rare mites of wide European distribution as e.g. *Atopochthonius artiodactylus* Grandj., the localities of witch might also be of relict character; it is also possible, however, that their fraquent occurrence in the region is a result of the abundance of suitable biotopes.

4. The scarcity of false-scorpions in the caves of the Upland, contrary to the colder and poorer in organic matter Tatra Mts. caves is difficult to explain. It is even more striking when compared with their numerous presence in Ojców and in other parts of the Upland, and with the tendency to live in caves of this group.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	35–40	**1990**

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W 135-LECIE BADAŃ FAUNISTYCZNYCH W JASKINIACH OJCOWSKICH

135 years investigation of cave fauna in Ojców

ABSTRAKT. W pracy przedstawiono stan znajomości fauny jaskiniowej Ojcowa. Dokładniej omówiono gatunki znane dotychczas tylko z jaskiń tego terenu.

SUMMARY

A review of the present knowledge of the cave fauna of Ojców is given. Basic papers in relation to investigated animal groups are listed in the table 1.

About 100 species of invertebrates have been recorded from caves of this area of which *Insecta* are approximately 60% and *Arachnida* – 30%. Most of them ecologically belong to trogloxenes and troglophiles, 8 species represent troglobites or to date are known from caves in Ojców only. These species are various relicts from several stages of colonization of the cave environment in different climatic during the late Quaternary.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	41–44	**1990**

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OBECNY STAN POZNANIA MALAKOFAUNY OJCOWSKIEGO PARKU NARODOWEGO

Present state of the knowledge of Ojców National Park malacofauna

ABSTRAKT. Praca przedstawia historię badań malakofauny w Ojcowie począwszy od 1854 roku, stan jej poznania, oraz omawia problemy wymagające wyjaśnienia na podstawie dalszych poszukiwań i obserwacji.

SUMMARY

The first information on snails appeared in *The Raport of naturalist's journey to Ojców held in 1854*. An area of recent Park and its surroundings has been attracted attention of naturalists for many times during last century because of the situation of Park and particular picturesquness of Prądnik Valley and its Sąspówka tributary.

The following naturalists should be enumerated: Jachno, Ślósarski, Bieniasz, Błędowski and Demel, Riedel, Wiktor, Dzięczkowski and first of all Urbański who was performing less or more regular observation and who was searching for snails during several dozen years (since 1928).

The most comprehensive treatise on malacofauna of Ojców is that of Poliński (1914), who based on a few collections (mainly of on Bieniasz).

The authors of subsequent papers added new information on separate molluscan groups e.g. Riedel (1957) – *Zonitidae* or Wiktor (1973) – slugs, or included malacofauna of Ojców in their more extensive publications as Dzięczkowski (1972) who carried out the quantitative investigations in beech woods of south-western Poland.

Two papers by Urbański (1973, 1977) were the next important steps. He ordered and completed all available data characterizing malacofauna of Ojców against a background of the whole Krakowsko-Wieluńska Upland. Also the first information on fossile snails were included.

One hundred ten species of snails and bivalves were recorded from Ojców and the nearest surroundings. Not including several species erroneously mentioned it is about 45% of known species from Poland.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	45–47	**1990**

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DOTYCHCZASOWY STAN BADAŃ NAD KLESZCZAMI (*ACARI*: *IXODIDA*) OJCOWSKIEGO PARKU NARODOWEGO

Hitherto existing state of research on the ticks (*Acari*: *Ixodida*) in the Ojców National Park

ABSTRAKT. Przedstawiono chronologiczny przegląd badań przeprowadzonych nad kleszczami (*Ixodida*) w Ojcowskim Parku Narodowym, oraz aktualny stan wiedzy o faunie kleszczy OPN na tle znajomości fauny kleszczy Polski. W Ojcowskim Parku Narodowym występują *Ixodes triangulicеps* Birula, 1895; *I. hexagonus* Leach, 1815; *I. vespertilionis* Koch, 1844 i *I. ricinus* (Linnaeus, 1758); można spodziewać się odkrycia w OPN stanowisk dalszych 7 gatunków *Ixodida*.

SUMMARY

Chronological review of researches on the ticks (*Ixodida*) made in the Ojców National Park is presented.

7 from 21 ticks species existing in Poland are known from Jura Krakowsko-Częstochowska area, and only 4 in the Ojców National Park. Finding the next localities of other 7 species of *Ixodida* could be expected in this area.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	49–51	**1990**

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PAJĘCZAKI (*ARACHNIDA*) OJCOWSKIEGO PARKU NARODOWEGO

Arachnida of the Ojców National Park

ABSTRAKT. Autorka podaje gatunki nowe dla fauny Polski, reliktowe i troglobiontyczne. Wymienia gatunki reprezentujące różne elementy zoogeograficzne, jak również gatunki znane z nielicznych stanowisk w Polsce, stwierdzone w jaskiniach OPN bądź na powierzchni. Dane te wnoszą istotny wkład do poznania fauny pajęczaków Polski.

SUMMARY

When analyzing the current state of knowledge of the arachnid fauna in the Ojców National Park, and especially in its caves, attention should be paid to the occurrence of relict species (*Ichyropsalis hellwigi* (Panz.), *Paranemastoma quadripunctatum* (Perty) and troglobionts (*Porrhomma rosenhaueri* (L.K.), *P. moravicum* Mill. et Krat.). Only species new for Poland *Porrhomma campbelli* F.P.-C., *P. moderatum* Silh, *P. rosenhaueri* (L.K.), or rare (e.g. *Lepthyphantes lepthyphontiformig* (Str.), known from few and scattered localities, are listed. The presence of many species representing various zoogeographic elements is especially interesting. Montane, Boreal – montane (the altitude of the area not exceeding 504 m a.s.l.), Eurosiberian, Subpontic and Submediterranean species deserve particular attention. Such a diversity suggests migrations from the Sudetes, Carpathians, and from the North, and evidences significance of caves as refugia.

Taking into consideration the occurrence of relict and troglobiont species (and in other taxa also endemic species), it is suggested that all the environment protection activities in the Ojców National Park should concentrate on basic methods of strict protection, including the necessity of protection of caves on account of their great importance for scientific studies.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	53–57	**1990**

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OWADY BEZSKRZYDŁE (*APTERYGOTA*) OJCOWSKIEGO PARKU NARODOWEGO

Apterygota of the Ojców National Park

ABSTRAKT. Autor daje uzupełnienia i sprostowania do swoich poprzednich prac dotyczących *Protura* i *Collembola* Ojcowskiego Parku Narodowego, szczegółowo omawia gatunki górskie i kserotermiczne, a także niepublikowane obserwacje nad fauną synantropijną.

SUMMARY

According to the actual knowledge 19 species of *Protura*, 171 of *Collembola*, 6 of *Diplura* and single species of *Microcoryphia* and *Zygentoma* were recorded from the Ojców National Park. The most interesting feature of the fauna of the Park is the presence of many mountains and xerothermical species. First group of species inhabits the coldest and the most humid habitats as deep shady gorges and northern slopes of hills. Ecologicaly it is connected with beech forests and communities of mosses on shady rocks. Some of them are probably pleistocene relicts. The habitats of the opposite microclimatical conditions are the habitat of xerothermical species. They are occurring mostly in petrophilous turfs and in hazel brushwoods on the slopes of southern exposition. The group under question contains the species of different history. Some of them arrived in the Ojców area in the period of cold continental climate (probably in the end of pleistocene or in the very beginning of holocene), the arriving of other ones was connected with holocene climatical optimum.

Many interesting species were discovered during the studies of small uncared households. The most interesting are two troglophils (*Ceratophysella bengtssoni* and *Lepidocyrtus curvicollis*), very rare in natural habitatus but common in small cellars in the households.

All this synantropical complex have disappeared during some years after the abandoning of the houses by the peoples.

The present state of the knowledge of the *Apterygota* fauna of the Ojców N. P. is based on the collections made in years 1962-1966. The actual state is unknown but at last one species (*Folsomia multiseta*) is decreasing its number. The reasons of this phenomenon is still unclear.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	59–62	**1990**

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DOTYCHCZASOWY STAN POZNANIA FAUNY WAŻEK (*ODONATA*) OJCOWSKIEGO PARKU NARODOWEGO

The present state of knowledge on the fauna of *Odonata* of Ojców National Park

ABSTRAKT. W latach 1855-1981 w 14 pracach opublikowano na ogół drobne wzmianki o ważkach Ojcowskiego Parku Narodowego. Wykazano stąd 16 gatunków, a można się spodziewać występowania tu 10 dalszych. Niektóre gatunki, jak można przypuszczać, już wyginęły. Zdaniem autora antropopresja ostatnich dziesiątków lat stwarza szczególne zagrożenie dla gatunków reofilnych i mających długi okres rozwoju larwalnego (2-3 lata, np. *Gomphidae*). Największe szanse przetrwania mają gatunki zimujące w stadium jaja i rozwijające się zaledwie kilka tygodni (gatunki z rodzaju *Lestes* Leach, *Sympetrum* Newm. i częściowo *Aeshna* Fabr.).

SUMMARY

The first remarks on Ojców dragonflies were given by Waga in his reports of 1855. For the next more than 80 years, several authors (Majewski 1885, Ingenickij 1893, Ingenitzky 1898, Pongracz 1919, Fudakowski 1925, 1932, 1938) have only recorded 7 species from the area. The number of 10 species of dragonflies discovered in Ojców National Park by 1938, was increased by the further 6 species as late as 1981 (Mielewczyk).

The list of the presently-know species (23% of the country's odonatofauna) yields only a partial image of the dragonfly fauna of the Park. The continuation of research on these insects is thus necessary.

Although the particularly strong anthropopression of the last decades drastically limits the water fauna, especially that of flowing courses, the discovery of at least 10 species of *Odonata* developing in stagnant waters and small courses, might still be anticipated in the Park. This forecast is mainly relevant to southern species and those wintering in the egg stadium (species of the genera *Lestes*, *Sympetrum* and, partially, *Aeshna*). Generally, however, in view of destructive anthropogenic influence, the increase of domination of eurytopic species over ecologically-specialized ones might be anticipated.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	63–64	**1990**

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STAN POZNANIA *NEUROPTEROIDEA* OJCOWSKIEGO PARKU NARODOWEGO

The state of knowledge on *Neuropteroidea* of Ojców National Park

ABSTRAKT. Praca zawiera podsumowanie badań nad *Neuropteroidea*, przeprowadzonych do tej pory w Ojcowskim Parku Narodowym. Z omawianego terenu znanych jest zaledwie 12 gatunków siatkoskrzydłych, co stanowi niewiele ponad 10 % fauny Polski. Prowadzone przez autora badania wskazują jednak, iż neuropterofauna tego regionu jest o wiele bogatsza.

SUMMARY

The authors give a short summary of studies on *Neuropteroidea* witch have been carried out in the Ojców National Park. There are only 12 species known to occur on the mentioned area so far, but there is no doubt that future studies will bring us more detailed data on *Neuropteroidea* occurring on the territory of OPN.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	65–67	**1990**

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RELIKTOWE I RZADKIE GATUNKI PROSTOSKRZYDŁYCH *ORTHOPTERA* W FAUNIE OJCOWSKIEGO PARKU NARODOWEGO

Rare and relic species of *Orthoptera* in the fauna of the Ojców National Park

ABSTRAKT. W pracy przedstawiono stan poznania *Orthoptera* z obszaru Ojcowskiego Parku Narodowego. Spośród 38 gatunków stwierdzonych, 20% okazało się gatunkami rzadkimi i reliktowymi, są to mianowicie *Isophya brevipennis*, *Leptophyes albovittata*, *Phaneroptera falcata*, *Ephippiger ephippiger*, *Platycleis grisea*, *Metrioptera bicolor*, *Oecanthus pellucens*, *Gomphocerippus rufus*.

SUMMARY

38 species of *Orthoptera* are recorded from Ojców National Park. 20% among them, namely *Isophya brevipennis*, *Leptophyes albovittata*, *Phaneroptera falcata*, *Ephippiger ephippiger*, *Platycleis grisea*, *Metrioptera bicolor*, *Oecanthus pellucens* (now extinct) and *Gomphocerippus rufus* are rare and relict in Polish fauna.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	69–73	**1990**

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17-230 Białowieża

STAN POZNANIA KÓZKOWATYCH (*CERAMBYCIDAE, COLEOPTERA*) OJCOWSKIEGO PARKU NARODOWEGO I PROBLEMY ICH OCHRONY

The state of knowledge on *Cerambycidae* (*Coleoptera*) of Ojców National Park and the problems connected with their preservation.

ABSTRAKT. Zebrano informacje literaturowe (28 publikacji) o 39 gatunkach *Cerambycidae* występujących w Ojcowskim Parku Narodowym. Wykazano też 6 nowych gatunków. Stan poznania oceniono jako niezbyt wysoki – 21% fauny *Cerambycidae* Polski. Dano przegląd najbardziej interesujących faunistycznie gatunków. Omówiono historię badań, znaczenie biocenotyczne i gospodarcze oraz problemy ochrony *Cerambycidae* tego obszaru.

SUMMARY

A summary of the literature records of *Cerambycidae* of the Ojców National Park is given. There are 39 species of longhorn beetles recorded from the Park; six species: *Stenocorus meridianus* (L.), *Stenurella bifasciata* (Müll.), *Leptura maculata* Poda, *Anastrangalia dubia* (Scop.), *Clytus lama* Muls. and *Mesosa curcurionoides* (L.), are recorded from the Park for the first time; consisting of 21% of Polish species. Among the species recorded, there are many rare and interesting species, e.g. *Stenocorus quercus* (Gotz), *Cerambyx scopolii* Fuessly, *Purpuricenus kaehleri* (L.), *Echinocerus floralis* (Pall.), *Phytoecia uncinata* (Redt.).

Brief discussions of economic importance, role in circulation of organic matter, pollination, and the conservation of rare species are also provided.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	75–77	**1990**

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17-230 Białowieża

STAN POZNANIA BOGATKOWATYCH (*BUPRESTIDAE, COLEOPTERA*) OJCOWSKIEGO PARKU NARODOWEGO I PROBLEMY ICH OCHRONY

The state of knowledge on *Buprestidae* (*Coleoptera*) of Ojców National Park and problems connected with their preservation

ABSTRAKT. W pracy zebrano informacje literaturowe o 13 gatunkach *Buprestidae* występujących w Ojcowskim Parku Narodowym. Wykazano też nowy gatunek *Agrilus derasofasciatus*. Stan poznania oceniono jako słaby (16,4% fauny krajowej). Omówiono historię badań, znaczenie oraz problemy ochrony *Buprestidae* tego obszaru.

SUMMARY

A summary of the literature records of *Buprestidae* of the Ojców National Park is given. 13 species of buprestids were previously recorded: *Chalcophora mariana* (L.), *Dicerea furcata* (Thunb.), *Scintillatrix rutilans* (Fabr.), *Buprestis haemhorroidalis* Herbst, *Phaenops cyanea* (Fabr.), *Anthaxia fulgurans* (Schrank), *A. manca* (L.), *A. nitidula* (L.), *Agrilus olivicolor* Kiesenw., *A. viridis* (L.), *Habroloma nana* (Payk.), *Trachys minuta* (L.), *T. problematica* Obenb.; *Agrilus derasofasciatus* Lac. is recorded for the first time from that area; these 14 species make up only 16,4% of known Polish *Buprestidae*. A history of investigations and the ecological and economic importance of buprestids in the Ojców N.P. are provided. Possibilities for the protection of the rare species of *Buprestidae* (*D. furcata*, S. *rutilans*, *A. fulgurans*, *A. manca*, *A. derasofasciatus*, *H. nana*, *T. problematica*) are discussed.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	79–85	**1990**

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STAN ZBADANIA KOLEOPTEROFAUNY OJCOWSKIEGO PARKU NARODOWEGO I OTULINY

State of research on the *Coleoptera* of the Ojców National Park and its region

ABSTRAKT. Wyróżniono 5 etapów dotychczasowych badań chrząszczy Ojcowa i okolic: rekonesans faunistyczny pod kierunkiem A. Wagi i następne wyprawy koleopterologów warszawskich (1853-1890); badania zespołowe Towarzystwa Naukowego Warszawskiego (1891-1920); międzywojenne i powojenne indywidualne badania krakowskich i lwowskich koleopterologów (1921-1955); badania zespołowe po utworzeniu Ojcowskiego Parku Narodowego z wykorzystaniem jako baz trzech stacji terenowych w pierwszych latach intensywnej industrializacji sąsiedztwa parku (1956-1972); kontrolne badania w obliczu silnego zagrożenia przyrody OPN (1973-1990). W wyniku inwentaryzacji faunistycznej (kwerenda literatury źródłowej i kontroli niektórych kolekcji) w okresie 135 lat badań (1853-1988) zarejestrowano w Ojcowie i okolicy 1142 gatunków chrząszczy; przewiduje się, iż dalsze badania powiększą tą liczbę do ok. 2 tys. gatunków

SUMMARY

The memorable, mid – 19th – century expedition of Warsaw zoologists included, among others, K. Stronczyński, and it is who probably published the first data on Ojców *Coleoptera* (Waga, 1855, 1857). The information found in the manuscript of S. B. Gorski of the 50's of the same century on a number of species from the "Olkusz mountains" might also have concerned Ojców. However, regular research on *Coleoptera* was only initiated several years later by Warsaw scientists Fr. Osterloff, W. Mączyński, E. Szleziger, J. Baumgarten, Sz. Tenenbaum, Fr. Hildt, and Eichler. Studies were continued, with changing intensity, until the first World War, when Eichler and Hildt published a synthesis of their research (in fact, Osterloff published even earlier – 1887–1889, while Mączyński's collection of 1889-1912 was studies and published in several oarts beginning with 1931, by Smreczyński, Stobiecki, Makółski, Szymczakowski, and others). The captures were traditionally conducted in the triangle Pieskowa Skała – Ojców – Wierzchowie, in which area all interesting environments are concentrated. *Coleoptera* were also captured there in the interwar period, this time, however, by Kraków scholars (S. Smreczyński jun, G. and E. Mazur) and those attractive to Warsaw coleopterologists – the appel of Carpathians and Podolia was too strong for scientists from former (pre-war) Kingdom of Poland.

The interest in Ojców increased again the second World War. Kraków researchers (S. Smreczyński, later W. and W. Szymczakowski, T. Żłowodzki, S. Kapuściński) still traveled in the region. Planned research conducted by scientific centers of Kraków and Poznań were

initiated soon after the foundation of Ojców National Park (1956). The three existing field stations permitted whole years' observation and captures. Sąspowska valley, in the proximity of which the stations were situated, constituted the main research area. The greatest intensity of research occurred in the decade 1962–1972 (J. Pawłowski, Z. Stebnicka, A. Szeptycki), and student training and scientific trips (future eminent coleopterologists, e.g. Z. Witkowski, J. Klimaszewski, A. Tomalak, A. Nowosad took part in those) to the Biological Station of the Institute of Systematic and Experimental Zoology of the Polish Academy of Sciences were of great help.

Ecology of some groups of *Coleoptera* was studies in research conducted by the Research Center for the Conservation of Nature or the Polish Academy of Sciences, the Jagiellonian University, and Ojców National Park (Z. Witkowski, A. Kosior, L. Nabagło, J. Fedorko). Occasional visits to the Station were paid, in the 60's, by B. Burakowski from Warsaw and A. Warchałowski from Wrocław. Young coleopterologists J. K. Młynarski and M. Mazur joined the research in the 70's.

The present state of knowledge of the *Coleoptera* of Ojców does not exceed 1200 species (see the tab.1), i.e. 20% of the total of species recorded from Poland.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	87–94	**1990**

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WSTĘPNE BADANIA MUCHÓWEK PRYSZCZARKOWATYCH (*DIPTERA*, *CECIDOMYIIDAE*) W OJCOWSKIM PARKU NARODOWYM

Preliminary studies on Gall-Midges of the (*Diptera*, *Cecidomyiidae*) in the Ojców National Park

ABSTRAKT. Stwierdzono 60 gatunków pryszczarkowatych (*Diptera*, *Cecidomyiidae*) na 42 gatunkach roślin żywicielskich. Badany materiał stanowiły larwy praszczarkowatych uzyskane głównie z wyrośli powodowanych przez te owady na roślinach, które zebrano w Ojcowskim Parku Narodowym na 14 stanowiskach w latach 1986-1987.

SUMMARY

The paper contains a record of 60 gall-midges (*Diptera*, *Cecidomyiidae*) collected in the region of the Ojców National Park in the year 1986-1987.

Material for investigation was gathered from May to October, in 14 following sections of the Park: 7, 10, 15, 17, 18, 19, 20, 21, 23, 26, 30, 31 and 33. In mentioned sections occurred the following plant associations: Oak – hornbeam forest (*Tilio-carpinetum*), Carpathian beech forest (*Dentario glandulosae – Fagetum*), sycamore maple forest (*Phyllitido – Aceratum*), mixed oak – pine forest (*Pino – Quercetum*) and riparian lowland (*Alno – Padion*).

Gall-midge larvae were obtained mainly from the galls on the trees and shrubs, herbaceous plants as well as from cones of coniferous trees. *Rhadophaga rosaria* (H.Lw.) and *Dasyneura urticae* (Perris) were most abundant, whereas *Mayetiola poae* (Bosc.) was a rare species.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	95–99	**1990**

ANNA KLASA

Ojcowski Park Narodowy, 32-047 Ojców

STAN POZNANIA MUCHÓWEK (*DIPTERA*) OJCOWSKIEGO PARKU NARODOWEGO

The state of knowledge on *Diptera* of Ojców National Park

ABSTRAKT. Bibliografia dotycząca *Diptera* Ojcowskiego Parku Narodowego liczy 38 pozycji. Ogółem z terenu tego wykazano 388 gatunków z 41 rodzin muchówek, co stanowi ok. 6,5% fauny tej grupy owadów znanych z Polski. Najlepiej zbadanymi rodzinami wśród *Nematocera* są *Trichoceridae* i *Chironomidae*, natomiast wśród *Brachycera – Agromyzidae*.

SUMMARY

Notes containing remarks on the *Diptera* fauna of Ojców National Park are very fragmentary and dispersed; publications dealing solely and in full with the subject are lacking. The earliest reports of species from the present area of the National Park can be found in works by A. Waga and J. Sznabl of the second half of the 19th century.

Trichoceridae and *Chironomidae* are the best – studies families of *Nematocera*; *Agromyzidae* are best know from among *Brachycera*. Four dipteran species new for science have been described from the Park; these are: *Sapromyza obsoletoides* Sznable, *Agromyza oycoviensis* Beiger, *Phytomyza simmi* Beiger, and *Medetera polonica* Negrobov, Capecki.

Literature on *Diptera* of Ojców National Park consists of 38 entries. A total of 388 species belonging to 41 families of *Diptera* have been reported from the area; this constitutes nearly 6,5% of the fauna of those insects known from Poland. This is why the state of knowledge of this group is unsatisfactory in Ojców National Park.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	101–104	**1990**

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PSZCZOŁY (*APOIDEA*) OJCOWSKIEGO PARKU NARODOWEGO

Apoidea of the Ojców National Park

ABSTRAKT. W Ojcowskim Parku Narodowym wykazałam 153 gatunki *Apoidea*, a wśród nich jeden gatunek górski (*Lasioglossum bavaricum*), trzy gatunki północno-górskie (*Osmia nigriventris*, *O. parietina* i *Bombus jonellus*) i 24 gatunki kserotermiczne, np. *Andrena agilissima*, *A. paucisquama*.

SUMMARY

153 species of the *Apoidea* were collected in the Ojców National Park. It was found that mountain (*Lasioglossum bavaricum*) and boreal-mountain (*Osmia nigriventris*, *O. parietina* i *Bombus jonellus*) species live in cool plant communities and the xerothermic species (24) i.e. *Andrena agilissima* and *A. paucisquama* on warm meadows and xerotherms. The grestest number of the species and specimens of *Apoidea* (exc. *Apidae*) were collected (tabela 2) in warm meadows and xerotherms. It was found that in years 1963 to 1975 the number of bumblebees on cool meadows were decreasing from 70 to 5 specimens per 100m^2.

PRĄDNIK
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Prądnik. Prace Muz. Szafera	**1**	105–111	**1990**

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GĄSIENICZNIKOWATE (*HYMENOPTERA*, *ICHNEUMONIDAE*) OJCOWSKIEGO PARKU NARODOWEGO

Ichneumonidae (*Hymenoptera*) of the Ojców National Park

ABSTRAKT. W latach 1980-1987 odłowiono gąsienicznikowate w różnych zbiorowiskach roślinnych Ojcowskiego Parku Narodowego. Wykazano 512 gatunków (7537 okazów), w tym 18 nowych dla fauny Polski. Uchwycono powiązania troficzne pomiędzy 62 gatunkami parazytoidów i 33 gatunkami owadów-fitofagów. Dla 17 gatunków gąsienicznikowatych po raz pierwszy dla wiedzy wykryto gatunki żywicielski. Stwierdzone gatunki reprezentowały 13 elementów zoogeograficznych, spośród których element europejski był najliczniejszy.

SUMMARY

Investigations were performed over 1980-1987 within the selected areas of the Ojców National Park. As result of the study 512 species (7537 specimens) of family *Ichneumonidae* were collected, including 18 species new to Poland. Trophic relations between 62 species parasitoids and 33 species phytophagous insects were established. There were 13 zoogeographical groups distinguished, among which European elements were represented most numerous.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	113–118	**1990**

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BŁONKÓWKI (*HYMENOPTERA*) OJCOWSKIEGO PARKU NARODOWEGO – STAN I PERSPEKTYWY BADAŃ

Hymenoptera of the Ojców National Park – the state and perspectives of investigations

ABSTRAKT. Z terenu OPN wykazano dotychczas 732 gatunki błonkówek, co stanowi tylko około 7,3% krajowej hymenopterofauny. Stosunkowo najlepiej poznane są gąsieniczniki, pszczoły i mrówki. W OPN można spodziewać się występowania co najmniej 2-3 tys. gatunków błonkówek; szczególnie interesująca powinna okazać się hymenopterofauna zbiorowisk ciepłolubnych.

SUMMARY

So far, 732 *Hymenoptera* species have been reported from Ojców National Park; this constitutes only 7,3% of the country's hymenopterofauna, which is estimated at c. 10 thousand species. In this context, the state of knowledge of the Park's hymenopteran fauna might be described as very poor. The existing data, apart from M. Dylewska's work on Apoidea and the results of T. Kaźmierczak's research on *Ichneumonidae*, are mainly based on accidentally collected material or have been obtained on the occasion of studies on other insect groups (mainly of secondary and wood pests) being the parasitoids' hosts. The species reported so far belong to the following *Hymenoptera* groups: *Symphyta* (9), *Ichneumonidae* (540), *Braconidae* (5), *Cynipoidea* (4), *Chalcidoidea* (2), *Proctotrupoidea* (1), *Vespoidea* (1), *Formicoidea* (16), *Apoidea* (153).

In view of the significant differentiation of the Park's plant associations, the presence of several thousand hymenopteran species might be anticipated there, in spite of the relatively small area. Those might include numerous species of considerable (negative or positive) importance to the biocenoses situated within the Park. The populations of *Hymenoptera* inhabiting thermophilous associations e.g. xerothermic shrubbery and grass on rocks so characteristic of the Park, should prove to be of particular interest from the faunistic and the zoogeographical points of view.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	119–121	**1990**

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MOTYLE (*LEPIDOPTERA*) OJCOWSKIEGO PARKU NARODOWEGO – OBECNY STAN BADAŃ

State of research on the *Lepidoptera* in the Ojców National Park

ABSTRAKT. Motyle Ojcowa są słabo poznane; na spodziewanych ok. 1400 gatunków zanotowano dotychczas niecałe 520 co stanowi 1/6 fauny krajowej. Dotychczasowe badania były sporadyczne i nie dotyczyły wszystkich rodzin.

SUMMARY

The *Lepidoptera* of Ojców National Park are insufficiently known; of the expected estimate of 1400 species, only 520 have been recorded so far, what is approximately 1/6 of the Polish fauna. Until now, the studies were only occasional and did not concern all families of *Lepidoptera.*

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	123–133	**1990**

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ICHTIOFAUNA POTOKU SĄSPÓWKA W OJCOWSKIM PARKU NARODOWYM W 1987 R.

Fishes (*Pisces*) of the Sąspówka stream in the Ojców National Park in 1987

SUMMARY

In spring and in autumn 1987 fish catches were made by means of electricity in the stream Sąspówka. The stream is a right tributary of the Prądnik river, both flowing through Ojców National Park. The stream Sąspówka flows through limestonerocks amidst the woods of the National Park. The catches were made in four catching stations in spring and in the three stations in autumn situated at the same places in both seasons. In summer 1987 the third station was invaded by a population of beavers and therefore could not be caught. All fish caught in the stations were weighted and measured according to one method, and afterwards returned into the stream. Only brown trout (*Salmo trutta m. fario* L.) were caught, both in spring and autumn. The age structure of the population shifted towards the one and two years old (Table 1). The biomass per 1 m^2 surface was high (8 g/m^2) – Table 3. In comparison with other polish streams, the individual growth of the trout was very poor (Tables 2,4,5). The biomass of the brown trout was nearly twice that of the fish from the same year and from the similar environmental conditions of the Skawa river drainage area (Table 6). The condition of the brown trout was very good during the first year of growth but it subsequently deteriorated (Table 7). The relative variability (v%) of individual body weights and body lengths was highest in the first two years of growth, then it diminished (Tables 2,4,5). The brown trout population of the Sąspówka stream has close genetical ties with that of the Prądnik river, as the spawners from the Prądnik river swim into the Sąspówka for spawns.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	135–137	**1990**

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ZMIANY W HERPETOFAUNIE OJCOWSKIEGO PARKU NARODOWEGO W LATACH 1963–1987

Changes of the herpetofauna of the Ojców National Park in 1963–1987

ABSTRAKT. Herpetofauna Ojcowskiego Parku Narodowego obejmuje osiem gatunków płazów oraz pięć gatunków gadów. Spadek ich liczebności związany jest z zatruciem jak i dużymi zmianami środowiska. W związku z tym celowa wydaje się czynna ingerencja w ratowanie odpowiednich biotopów. Na omawianym terenie znaleziono też wiele kopalnych subfosylnych szczątków płazów o dużym znaczeniu dla badania zmian faunistycznych ostatnich tysiącleci.

SUMMARY

The herpetofauna of the Ojców National Park includes eight species of amphibians and five species of reptiles. Observations made during the period 1963-1987 showed significant decrease of amphibian and reptilian populations. The situation is caused by pollution and drastic changes of the environment. In order to restrain this decrease, human active interference is necessary. Numerous fossil and subfossil finds of amphibian and reptilian remains from this region are indicative of important changes of the herpetofauna of the area during the last millennia.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	139–141	**1990**

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ZMIANY POPULACJI PTAKÓW NA TERENIE OJCOWSKIEGO PARKU NARODOWEGO

Changes in bird population in Ojców National Park

ABSTRAKT. Przedstawiono zmiany w składzie zespołu ptaków zasiedlających teren Ojcowskiego Parku Narodowego w latach 1973-1987. Zmniejszenie liczebności drozdów śpiewaków, kosów i pokrzywnic w ostatnim 10-leciu jest wynikiem zmian roślinności, a zwłaszcza usychania młodych drzew szpilkowych tworzących podszycie.

SUMMARY

The state of knowledge on the bird fauna of Ojców National Park is presented along with changes in the local bird community composition during the last 100 thousand years. Personal observations during the last 15 years yielded no changes in the number of bird in deciduous tree stands (beech forests) (it remained at 70-80 pairs/10 ha). At the same time, the number of birds nesting in mixed forests decreased (from 123 pairs/10 ha in 1973-76 to 76 and 64 pairs/10 ha in 1986 and 1987, respectively). This is mainly relevant for the Song Thrush, *Turdus philomelos*, the Blackbird, *Turdus merula*, and the Dunnock, *Prunella modularis*, i.e. species nesting in the brushwood layer. The decrease in number of these birds is a result of vegetation changes (death of young conifers) causing, in turn, the limitation of area for their nests and an increased pressure of predator against breeding territories.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	143–148	**1990**

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NIETOPERZE (*MAMMALIA*: *CHIROPTERA*) OJCOWSKIEGO PARKU NARODOWEGO

Bats (*Mammalia*: *Chiroptera*) of Ojców National Park

ABSTRAKT. Na terenie Ojcowskiego Parku Narodowego stwierdzono dotychczas występowanie 13 gatunków nietoperzy, należących do dwóch rodzin: podkowcowatych (*Rhinolophidae*) i mroczkowatych (*Vespertilionidae*). Spośród nich dwa są charakterystyczne dla tego obszaru: podkowiec mały (*Rhinolophus hipposideros*) i nocek orzęsiony (*Myotis emarginatus*). W wyniku zjawisk związanych z degradacją środowiska naturalnego liczebność nietoperzy katastrofalnie się zmniejszyła. Zapobieganie ich wyginięciu wymaga energicznych działań, m.in. skutecznej ochrony schronień nietoperzy.

SUMMARY

Bats of the Ojców National Park. For above a hundred years the bat fauna of the Kraków Wieluń Upland has been a subject of intensive studies. Owing to the bat fauna in the Ojców National Park is regarded as the best recognized in Poland. The thirty years survey has demonstrated the presence of 13 species belonging to two families: the Horseshoe bats (*Rhinolophidae*) and Common bats (*Vespertilionidae*). This assemblage covers 90% of all species known from southern Poland. Most observations concern the bats living in rocks and hibernating in caves: those occupying other habitats are not considered in the present study. Of the discussed species, the following three forms are most characteristic for the area: the Greater horseshoe bat (*Rhinolophus ferrumenquinum*), known from a single locality only i.e. the Nietoperzowa Cave; the Lesser horseshoe bat (*Rhinolophus hipposideros*), observed in many localities of the Upland and Ojców National Park and Geoffroy's bat (*Myotis emarginatus*), occurrence of witch is restricted to the territory of the Upland. The two latter species are highly endangered and require a special protection. In consequence of the environmental pollution, the number of individuals of the bats catastrophically decreases. The population of the Lesser horseshoe bat has been reduced almost a hundred times during the last thirty years. In order to avoid the total extinction of these species, support from local authorities is indispensable as well as various popularizing actions are to be undertaken. The more effective protection of both winter shelters of the bats (caves) and summer ones (lofts of buildings, woodlands) is urgently necessary. Also the summer reproductive colonies of the bats require a special protection.

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PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	149–152	**1990**

ANNA KLASA

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BÓBR EUROPEJSKI (*CASTOR FIBER* L.) NOWY SSAK W OJCOWSKIM PARKU NARODOWYM

The European beaver, *Castor fiber* L., a new mammal at Ojców National Park

ABSTRAKT. Praca przedstawia efekty introdukcji 3 par bobrów, które wprowadzono do Ojcowskiego Parku Narodowego w 1985 roku. Zwrócono uwagę na udaną aklimatyzację zwierząt, co jednak, zdaniem autorki, nie jest jednoznaczne z pozytywnym efektem introdukcji, ponieważ środowisko w jakie zostały one wprowadzone nie spełnia wymagań tego gatunku.

SUMMARY

The preservation and restoration of natural biocenoses are among the chief functions of national parks. This also permits the restitution of animals once present in a given area yet later extinct for various reasons.

Fragments of beaver skeletons were found twice in Ojców caves, dated back to 70-50 thousand years B. C., and 4-2 thousand years B. C., respectively. In spite of the significant changes in the natural environment of the area since that time, the decision was made to introduce 6 beaver individuals into the Park. Three years having already elapsed since this action, it can now be stated that the animals' acclimatisation in the Park has been successful. This, however, does not mean that there occurred a successful introduction as the environment to which the animals have been placed does not fulfil the species' requirement (e.g. the autumn-winter food basis is nearly exhausted, the closed – in area of the Park makes migrations impossible, and its small size does not permit the building of new habitats). It should be also mentioned that a population of six unrelated individuals is endangered by the unfavourable phenomena connected with the inbreeding.

Beaver presence – enhanced changes in the natural environment of the area are significant. They are particularly consicuous in Sąspowska valley, where the several dams and the resulting flooding of the terrain caused a change in water relationships.

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PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	153–158	**1990**

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HYDROBIOLOGICZNE BADANIA POTOKU SĄSPÓWKA W OJCOWSKIM PARKU NARODOWYM

Hydrobiological studies of the stream Sąspówka in the Ojców National Park

ABSTRAKT. W pracy podano wyniki analiz fizyko-chemicznych wody i zawartości materii organicznej w dnie potoku. Obliczono także suchą masę glonów i fauny dennej podzielonej na funkcjonalne grupy troficzne.

SUMMARY

The studies were carried in an annual cycle from September 1986 to October 1987, at 4 stations. The seasonal changes in physico-chemical parameters of running water, and also in the most important biocenotic elements such as periphyton and macroinvertebrates were investigated. Water trophy decreased along the course of the stream: the nutrient concentrations and BOD_5 index fell while the oxygen concentration was maintained at a high level. Levels of calcium, magnesium, and pH were significantly higher upstream. In periphyton samples the species composition of algae, dry mass, organic matter and chlorophyll a contents were investigated. The highest level of dry mass and of organic matter concentration was found on boundary muds. Higher organic matter and chlorophyll a concentrations were found on stones than on gravel. The macroinvertebrate fauna was quantitively and qualitatively rich. The most common forms were those feeding on detritus, less common were animals feeding on algae and detritus. The number of predators changed markedly. The macroinvertebrate biomass decreased slightly with distance from the stream sources.

PRĄDNIK
PRACE I MATERIAŁY MUZEUM IM. PROF. WŁADYSŁAWA SZAFERA

Prądnik. Prace Muz. Szafera	**1**	159–166	**1990**

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OCENA JAKOŚCI WODY POTOKU SĄSPÓWKA NA PODSTAWIE BIOTESTU *PARAMECIUM* I BADAŃ BAKTERIOLOGICZNYCH

Estimation of water quality in the stream Sąspówka based on *Paramecium* bioassay test and bacteriological research

ABSTRAKT. W latach 1986-1988 przeprowadzono analizy fizyko-chemiczne i badania biologiczne wody krasowego potoku Sąspówka. Woda dobrze natleniona o dużej zawartości wapnia, w górnej i środkowej części potoku wykazała podwyższony poziom substancji biogennych oraz chlorków i siarczanów pochodzenia antropogenicznego. Wysoki stopień troficzności w rejonie wsi Sąspów, stwierdzony na podstawie badań bakteriologicznych i biotestu *Paramecium*, obniżał się wraz z biegiem cieku.

SUMMARY

The Sąspówka, a right tributary of the Prądnik river, is a karstic stream carrying water from Jurassian sources and surface affluents. It flows through the village of Sąspów in its upper course, later passing through forests, agricultural areas, and meadows. It is being gradually colonized by beavers in its middle and lower part. Water samples were collected at four stations beginning with the main source at Sąspów, and in the upper, middle, and lower sections of the course. At the same time hydrochemical analysis and biological studies including the determination of dominating ciliate communities were carried out. The Sąspówka, because of its short course, small depth, and rapid current, does not exhibit much qualitative differentiation in water character. Anthropogenic pollution plays an important role there. The chemical analysis yielded, already at the source, significant amounts of nitrates, ammonia, chlorides, and sulphates from surface waters penetrating through fissures into source waters. The greatest amount of organic matter has been found in the upper course of the stream and in its sections inhabited by beavers. The results of the *Paramecium* bioassay test conducted on the model species *Paramecium tetraurelia*, stock 51, point to the oligotrophic character of the source, and to the increase of eutrophization in the upper course persisting in the middle and lower parts of the stream. Bacteriological studies (coli titre, overall number of colonies per 1 ml water) yield a strong pollution of the upper section decreasing with the course of the stream. The water of Sąspówka is poor, both in quantity and quality, in ciliate communities present. Apart from the source, where no ciliates have been observed, the stations were dominated by bacteriophagic species.

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Prądnik. Prace Muz. Szafera	**1**	167–174	**1990**

WOJCIECH ZĄBECKI

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REAKCJE KAMBIO- I KSYLOFAGICZNYCH OWADÓW NA IMISJE PRZEMYSŁOWE W DRZEWOSTANACH JODŁOWYCH OJCOWSKIEGO PARKU NARODOWEGO

Response of cambio- and xylophagous insects to an absorption of industrial emissions by the fir stands of the Ojców National Park

ABSTRAKT. W pracy przedstawiono zmiany wśród owadów zasiedlających zamierające jodły, w różnym stopniu uszkodzone przez imisje przemysłowe. Stwierdzono, że wraz ze wzrostem uszkodzenia przez imisje drzewostanów jodłowych, niektóre gatunki owadów kambio- i ksylofagicznych ograniczały frekwencję, a równocześnie u innych frekwencja wzrastała.

SUMMARY

For many years a process of the weakening and dying of trees, resulted from the absorption of the toxic sulfur compounds emitted by industrial regions, has been observed in the fir stands of the Ojców National Park. The particularly drastic effects of this activity can be seen in the stands with the western or close to it exposure. The stands situated on such slopes act as emission capturing screens. Differences occurring in the pollution levels of fir stands with an eastern or close to it exposure and those situated on western slops or nearby, have resulted in visible changes, both quantitative and qualitative, among the insects infesting fir trees.

As concerns a comparison between frequencies of occurrence of insect species on the study areas it was found that on fir-trees from the stands less destroyed by absorption of industrial emissions, the most numerous proved to be the following species: *Pityokteines spinidens* Reitt., *Rhagium inquisitor* L., *Pissodes piceae* Ill., *Pityokteines vorontzovi* Jacobs. and *Siricidae*. However, in the stands more seriously damaged the main pests infesting the weakened fir-trees were: *Siricidae*, *Pityophtorus pityographus* (Ratz.), *P. piceae* and *Serropalpus barbatus* Shall.

To summarize the results obtained it can be said that it is possible to isolate a group of insects whose share in the infestation of the weakened trees is decreasing with an increase in absorbed emissions. To this group can be assigned: *Pityokteines curvidens* and *Pityokteines vorontzovi*. Species which did not show any significant changes, depending on the level of pollution resulted from the absorption of sulfur compounds, proved to be: *P.* piceae, *Trypodendron lineatum* (01.) and *Elateroides dermestoides* L. Whereas *P. pityographus*, *S. barbatus*, *Cryphalus piceae* (Ratz.) and *Siricidae* have increased their participation in the process of infesting the weakened fir-trees on areas particularly exposed to absorption of industrial emissions.

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Prądnik. Prace Muz. Szafera	**1**	175–184	**1990**

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ROLA OWADÓW W PRZYSPIESZANIU ZAMIERANIA POSZCZEGÓLNYCH GATUNKÓW DRZEW NA TERENIE OJCOWSKIEGO PARKU NARODOWEGO

Role of insects in enhancing the withering of particular tree species in Ojców National Park

ABSTRAKT. W pracy przedstawiono rolę poszczególnych gatunków owadów występujących na głównych gatunkach lasotwórczych OPN w przyspieszaniu procesu zamierania drzew i wydzielania się posuszu. Proces ten przedstawiono na tle innych czynników szkodotwórczych powodujących ich uszkadzanie i osłabianie oraz stwarzających predyspozycje do zasiedlania przez owady.

SUMMARY

The Ojców National Park is both one of the smallest and one of the most endangered national parks in Poland. Because of its exceptional natural, material, and landscape values, it has been, since the earliest times, the object of human interest and utilization. This has always had, and still has, a negative impact on the species composition and structure of its tree stands. The pressure of already-traditional anthropogenic factors has been increased, in the last 30 years, by industrial and urban emissions. The joint action of various destructive factors causes a progressive weakening of particular trees and increases the massive appearance of some species of insects. Of greatest importance here are the associations of species feeding under the tree bark, in the cambium (cambiophagous). They profit from the weakening of the trees and cause an increased formation of deadwood. The Park's tree stand species structure is dominated by following main species: the fir (23,8% of area), the pine (32,5%), the beech (20,3%), the spruce (10,7%), and the larch (4%). These are inhabited, as a rule, by monophagic insect associations, which influence the spatial and species structures of the tree stands in an increasingly effective way. It is the fir that has proven to be the most endangered species. The intensity of the present negative phenomena is differentiated according to whether they occur in strict, or partial, nature reserves.