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The Biebrza National Park protects the biggest and the best preserved in the European Union complex of peatland of marshy, lowland river valley. It covers 59 223 ha, and it is the largest national park in Poland. The very unique diversity of plant and animal species and almost natural ecosystems managed to survive in the Biebrza River valley. Here 280 species of birds have been recorded; among them 178 breed in the Biebrza wetlands. 48 mammal species with the biggest population of Elk (about 600 individuals) in Poland as well as more than 1000 vascular plants species have been observed in the area. Not any other region in Poland has larger population of Lady's Slipper orchid.



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It is an important breeding, feeding and stop over site for many waterfowl and wetland birds. According to Bird Life International, it is the birds' refuge of global significance. The Biebrza National Park was added to the RAMSAR Convention list in 1995, as one of the most important world wetland sites. The Biebrza Valley was also incorporated into the European Ecological Natura 2000 Network, which protects the most valuable nature ecosystems in the European Union. As the result many species of flora and fauna including: birds - Spotted Eagle, Black Grouse, Great Snipe, Aquatic Warbler, mammals - Beaver, Otter, Wolf as well as plants - Fen Orchid, Marsh Saxifrage and Eastern Pasque Flower are particularly protected at the Biebrza River.



Warsaw University
of Life Sciences



Biebrza National Park



Institute for Land Reclamation
and Grassland Farming
in Falenty



Mammal Research Institute
of Polish Academy of Sciences
in Białowieża



Norwegian Institute
for Agricultural
and Environmental Research



Centre for Ecological Research
of Polish Academy of Sciences
in Łomianki



University of Wrocław



University of Antwerp



Utrecht University

redbog.sggw.pl

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Red Bog Project

Project Biodiversity protection of Red Bog (Czerwone Bagno) - relic of raised bogs in Central Europe - PL 0082
- is implemented within framework of EEA Grants



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The **Red Bog** reserve is the second biggest raised bog in Poland with regard to its area and probably the only big bog of this type preserved in natural state in the entire country. Due to wide-spread endanger of wetland habitats by eutrophication and drying up, investigation of ecological relationships on the relatively little transformed sites is getting a lot of importance and causes that the Red Bog is area of unique value on the European scale.



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Regardless of non-questionable nature value and primary assessment and analysis of the scientific research results conducted in this area, the Red Bog reserve is not yet scientifically documented and mapped in methodological way. Moreover, we are not able to ascertain, how stable is this unique system (considerable development of Alder buckthorn (*Frangula alnus*) and pine forest may indicate some significant changes in water recharge mechanism of the bog). Therefore, the **direct aim** of the project is the recognition of ecological relationships that decide about biodiversity of raised and transitional bogs. Description of relationships between water and soil (including soil-forming processes) conditions and plant communities and relationships between ungulates herbivorous and large predators will enable for formulating of raised and transitional bogs protection and restoration principles. At the European scale, elaboration of efficient restoration and protection methods of raised bogs priority habitats of EU is the need of the moment.

Proposed activities of the project implementation cover three main themes: (1) recognition and documentation of existing state of the system, (2) formulation of protection strategy, (3) study on ecological relations. Those tasks will be implemented by seven research teams which are specialized in the following fields: hydrology and hydrogeology, meteorology, hydrogenic sites and peat soils, botany - forest and non forest plants, mammals, birds and insects. The additional team will be responsible for GIS and data bases documentation.



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Mammals

- ✓ 107 observations of wolves and lynxes
- ✓ 732 observations of ungulate mammals
- ✓ 20 research transects in Biebrza National Park
- ✓ determination of headcount and spacial structure of wolves population
- ✓ determination of group structure, headcount and environmental preferences of ungulate mammals

Birds

- ✓ qualitative and quantitative characterization of nesting birds groups on 4 marked test areas - 20-30 ha each (9-10 check visits on each in season)
- ✓ searching for nesting places of rare birds, especially woodpeckers, owls and cranes
- ✓ monthly check of 5 km transect
- ✓ inspection of nests of rare raptor birds in protective zones
- ✓ 105 bird species (75 nesting), i.a. birds as precious as Greater Spotted Eagle, Eurasian Eagle Owl and White-backed Woodpecker

Habitats & soils

- ✓ 17 research spots
- ✓ determination of surface formation, stratigraphy, types of soil forming habitats, soil subtype
- ✓ water level depth measurements
- ✓ volumetric moisture content of soil formations using reflectometry (*TDR - Time Domain Reflectometry*)
- ✓ samples of surface formations taken from 90 layers
- ✓ GPS and leveling measurements

Vegetation

- ✓ documenting of plant communities (over 200 phytosociological photos taken)
- ✓ charting of plant communities
- ✓ evaluation of range changes of forest communities, scrub communities and open terrain communities in last 50 years on a basis of aerial photo analysis
- ✓ 19 strictly protected species localized including rare and endangered ones
- ✓ locating of 15 test fields for evaluation of impact of big herbivores on vegetation
- ✓ research of tree stand age structure

Meteorology

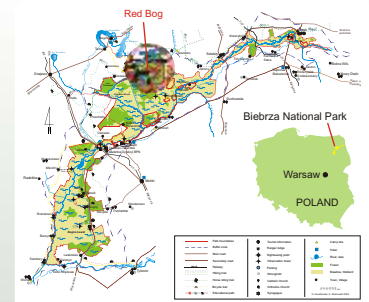
- ✓ 4 measurement campaigns
- ✓ installment of gas sampling equipment
- ✓ drawing gas samples for greenhouse gases analysis

Hydrology & hydrogeology

- ✓ 7 measurement campaigns
- ✓ 31 geological probes installed
- ✓ water level measurements in 35 wells
- ✓ 29 piezometers in 17 locations with 17 automatic water level sensors
- ✓ leveling of 9 piezometers
- ✓ cataloguing and identification of stream network in field

GIS & Data bases

- ✓ launch of redbog.sggw.pl server with groupware environment
- ✓ over 8 000 unique page visits
- ✓ preparation of base maps for all project teams
- ✓ preparation of data bases for 4 teams



The Red Bog strict protection zone

It is one of the oldest and the most famous protected area in Poland. It is probably named after red colour of water observed between tussocks of sedge and moss. The Red Bog forest reserve was established in 1925 with the area of 2.179 ha. According to prof. Władysław Szafer (1932) "the bog pine forest with transition to the birch forest" covered the area. Its aim was to protect the one of the last Elk (*Alces alces*) refuge in Poland. It is a spot where Elk, in number of several individuals, survived the World War II. Thoughtful care allowed successful rebuilding of Polish population of that species.

This reserve, with adjoining Grzędy reserve, were made into one nature reserve with the total area of about 12,000 ha and was named Red Bog (Czerwone Bagno) in 1981. It became part of the Biebrza National Park, in the year of establishment (1993). The Red Bog strict protection zone covers about 3000 ha according to the data from 2007. Only indispensable scientific researches are carried out here. Neither the economic activities nor the tourist traffic take place in the zone. Nevertheless, the educational trail along the boardwalk leading to the observation platform allows seeing fragments of this precious area.



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