

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

1. Name and address of the compiler of this form:

Malgorzata Walczak and Jadwiga Sienkiewicz
Institute of Environmental Protection
Krucza 5/11 Street, 00-548 Warsaw

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

1st October, 2005

3. Country:

Poland

4. Name of the Ramsar site:

Wigry National Park

5. Map of site included:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): *yes* -or- *no*

b) **digital (electronic) format** (optional): *yes* -or- *no*

The Wigry NP border is also the Ramsar site border

6. Geographical coordinates (latitude/longitude):

53°57' N - 54°03' N; 22°57'E - 23°15'E

7. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Wigry National Park is located in northeastern Poland, in the Podlasie Voievodship, between the town of Suwalki and the Lithuanian border.

8. Elevation: (average and/or max. & min.)

130 – 182,8 m a.s.l.

9. Area: (in hectares)

15 085,49

10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Wigry National Park embraces the Lake Wigry of a surface of 2 163 ha (without islands), forests surrounding the Lake, numerous peatbogs, a part of the Czarna Hancza River Valley and farmland. Of special biodiversity value is the variety of landscapes within the site from hills of glacial moraines in the north to almost flat land in the south. The wetland system make up centrally located Wigry Lake and 42 smaller lakes filling post glacial gullies and holes a part of which now contains peatbogs. Rare dystrophic lakes also occur within the site. The Czarna Hancza River is the main water course which flows through the Lake and in its further way makes part of the transboundary Nemunas River basin. Diversified habitats provide variety of ecological niches for a very rich and close to natural biodiversity. The wetland is of great value for its unique biodiversity in the European lowlands and in the sub-boreal biogeographic region.

11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

√1 • √2 • √3 • √4 • 5 • 6 • 7 • 8

12. Justification for the application of each Criterion listed in 11. above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1. Wigry National Park contains several rare and unique wetland types preserved in a near-natural state as well as a great diversity of ecological niches and, as a whole constitutes a unique wetland system in the Polish lowlands and in the entire biogeographical region.

Wetland types of the Habitats Directive Annex I are:

3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.

3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition – type vegetation

3160 Natural dystrophic lakes and ponds

4030 European dry heaths

6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates

(*Festuco-Brometalia*) (* important orchid sites)

6230 * Species-rich *Nardus* grasslands, on silicious substrates in mountain areas (and submountain areas in

Continental Europe)

6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)

7110 * Active raised bogs

7140 Transition mires and quaking bogs

7150 Depressions on peat substrates of the *Rhynchosporion*

7210 * Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

7220 * Petrifying springs with tufa formation (*Cratoneurion*)

91D0 * Bog woodland

91E0 * Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

91I0 * Euro-Siberian steppic woods with *Quercus* sp.

Criterion 2. The site should be also considered internationally important because it supports vulnerable, endangered communities and species (dystrophic lakes, transition- and raised mires, aquatic communities of submersed and floating plants, rare and endangered species of vertebrates). The site shelters at least 7 rare and endangered plant species and 25 species of birds, including three birds endangered in the global scale – red kite *Milvus milvus*, white-tailed eagle *Haliaeetus albicilla* and corncrake *Crex crex*.

	Species of the EU Habitat Dir. Annex II	The Polish Red Book	The IUCN Red List	Protection (Nat. Polish Act)
Insecta	<i>Cerambyx cedro</i>	VU		P
	<i>Lucanus cervus</i>	EN		P
	<i>Graphoderus bilineatus</i>		VU	P
	<i>Euphydryas maturna</i>	LR		P
	<i>Lycaena dispar</i>	LR	LR	P
	<i>Lycaena belle</i>	VU		P
	<i>Ophiogomphus cecilia</i>		-	P
Gastropoda	<i>Vertigo moulinsiana</i>	CR	LR/ cd	P
Bivalvia	<i>Unio crassus</i>	EN	LR/nt	P
Pisces	<i>Cobitis taenia</i>			P
	<i>Misgurnus fossilis</i>	NT	LR	

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	<i>Rhodens sericeus</i>	NT		P
Amphibia	<i>Triturus cristatus</i>	NT		P
	<i>Bombina bombina</i>			P
	<i>Myotis dasycneme</i>	EN	VU	P
Mammalia	<i>Canis lupus</i>	NT		<u>P</u>
	<i>Castor fiber</i>		NT	P
	<i>Lutra lutra</i>		NT	P
	<i>Lynx lynx</i>	NT	NT	<u>P</u>
	<i>Thesium ebracteatum</i>			P
Plants	<i>Liparis loeselii</i>	VU		P
	<i>Cypripedium calceolus</i>	VU		P
	<i>Agrimonia pilosa</i>			P
	<i>Pulsatilla patens</i>	LR		P
	<i>Saxifraga hirculus</i>	EN		P

Species of the EU Bird Directive Annex I	The Polish Red Book	The IUCN Red List	Protection
<i>Aegolius funereus</i>	LC		P
<i>Alcedo atthis</i>			P
<i>Anthus campestris</i>			P
<i>Aquila chrysaetos</i>	EN	EN	P
<i>Aquila pomarina</i>	LC		P
<i>Aytyba nyroca</i>	EN	NT	P
<i>Bonasa bonasia</i>			P
<i>Botaurus stellaris</i>	LC		P
<i>Bubo bubo</i>	NT		P
<i>Caprimuglus europaeus</i>			P
<i>Chlidonias nigra</i>			P
<i>Ciconia ciconia</i>			P
<i>Ciconia nigra</i>			P
<i>Circus aeruginosus</i>			P
<i>Circus cyaneus</i>	VU		P
<i>Circus pygargus</i>			P
<i>Coracias garrulus</i>	CR		P
<i>Crex crex</i>		NT	P
<i>Dendrocoptes leucotos</i>	NT		P
<i>Dendrocoptes medius</i>			P
<i>Dryocopus martius</i>			P
<i>Egretta alba</i>			P
<i>Emberiza hortulana</i>			P
<i>Falco columbarius</i>			P
<i>Falco peregrinus</i>	CR		P
<i>Ficedula parva</i>			P
<i>Gallinago media</i>	VU	NT	P
<i>Gavia arctica</i>	EXP		P
<i>Grus grus</i>			P
<i>Haliaeetus albicilla</i>	LC	NT	P
<i>Lanius collurio</i>			P
<i>Larus minutus</i>	LC		P
<i>Lullula arborea</i>			P
<i>Luscinia svecica</i>	NT		P
<i>Mergus albellus</i>			P
<i>Milvus migrans</i>	NT		P
<i>Milvus milvus</i>	NT		P
<i>Pandion haliaetus</i>	VU		P
<i>Pernis apivorus</i>			P
<i>Philomachus pugnax</i>	EN		P
<i>Picoides tridactylus</i>	VU		P

<i>Picus canus</i>			P
<i>Pluvialis apricaria</i>	EXP		P
<i>Porzana parva</i>	NT		P
<i>Porzana porzana</i>			P
<i>Sterna albifrons</i>	NT		P
<i>Sterna caspia</i>			P
<i>Sterna hirundo</i>			P
<i>Sylvia nisoria</i>			P
<i>Tetrao tetrix</i>			P

The Area of the Wigry National Park doesn't fulfil the BirdLife International criteria.

Criterion 3. Wigry National Park provides a variety of habitats to species important for maintaining biological diversity of sub-boreal biogeographical region (region of East-European mixed forests). Of special value are peculiarities of rich local flora that includes almost 1000 vascular species, about 300 bryophytes, numerous fungi, myxomycetes and algae. Local fauna embraces 48 species of mammals, 205 birds including 150 species of breeding birds, 12 amphibian species, 55 molluscs and 32 fish species.

Criterion 4. The site supports 150 bird breeding species and the total number of birds observed is 205. The local waterfowl embraces 40 breeding and 33 species occurring seasonally. They include black stork (*Ciconia nigra*) 1 pair, white stork (*Ciconia ciconia*) 20-30 pairs, great crested grebe (*Podiceps cristatus*) ca 300 individuals, red-necked grebe (*Podiceps grisegena*), little grebe (*Podiceps ruficollis*), rare red-breasted merganser (*Mergus serrator*), mute and whooper swans (*Cygnus olor* and *C. cygnus*) ca 400 individuals and bittern (*Botaurus stellaris*) 7-8 individuals.

Species	Status	Number of individuals
<i>Gavia arctica</i>	nL	1i
<i>Botaurus stellaris</i>	L	6m
<i>Ciconia ciconia</i>	L	11p
<i>Cygnus cygnus</i>	L	1p
<i>Aythya nyroca</i>	nL	3i
<i>Milvus migrans</i>	L	+
<i>Milvus milvus</i>	L	1p
<i>Haliaeetus albicilla</i>	L	3p
<i>Circus aeruginosus</i>	L	20p
<i>Circus pygargus</i>	nL	1i
<i>Aquila pomarina</i>	L	2p
<i>Porzana porzana</i>	L	4-5p
<i>Crex crex</i>	L	16-17m
<i>Grus grus</i>	L	21-25p
<i>Tringa glareola</i>	nL	1i
<i>Sterna caspia</i>	nL	1i
<i>Sterna hirundo</i>	nL	27i
<i>Alcedo atthis</i>	L	5-8p
<i>Luscinia svecica</i>	L	2p

L – breeding, nL – inbreeding, M – periodic, p – couple, i – individual, m – male

13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Geobotanical region of East-European mixed forests (or sub-boreal)/"continental" by EEA standards

b) biogeographic regionalisation scheme (include reference citation):

Subboreal or East-European mixed forests of Central Europe – according to the Polish regionalisation by Jerzy Kondracki, 2001: Regional geography of Poland. The region embraces southern Sweden, north-eastern Poland, southernmost Finland and most of the western and central territories of the European part of Russia.

According to EEA – the region has been identified as "continental" (EEA publication 2002: Europe's biodiversity – biogeographical regions and seas).

14. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The relief of the site has been finally shaped during the Baltic glacial period which left deep gullies and ice melting holes between moraines, later filled in by lakes. Local differences in elevations reach up to 50 m. Many of the smaller lakes have been transformed into peatbogs (raised mires) with peat layers of various depths and diverse vegetation cover. Thickness of glacial formations – clay, sand and gravel locally exceeds 150 m. The Lake Wigry of 2.163 ha surface and maximal depth of 73 m remains in close hydrological contact with most of the smaller lakes. Pierty is the second larger lake of a surface of 228 ha and 38 m deep. The lakes display a variety of features of trophic status of water. Separate group constitute mid-forest dystrophic lakes whose dark water is highly saturated with organic substances. The dystrophic lakes have been developed in the process of lake overgrowing.

15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The area is a portion of the Eastern Suwalki Lakeland the origins of which are linked with the youngest phase of Baltic glacial period. The Lakeland has a diversified moraine landscape and is generally inclined to the east. The site lies in central part of the Czarna Hancza basin and the River and lake Wigry constitute a core of the local hydrological system. The lakes and rivers remain in close hydrological contact due to high permeability of glacial formations. Soils are clayey-sandy brown soils and podsoles, and main land use in the catchments is forestry and agriculture. Lake is used as extensive fishery. Climate is cool with distinct continental influences i.e. long (120 days) and frosty winters and snow pack staying for about 100 days. Annual precipitation is 593 mm and average annual temperatures are around 6°C. Early frosts may start in August and vegetation period is only 135 days long, i.e. by two months shorter than in western Poland.

16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Wetlands take more than 19 percent of the site. Located centrally 25 lakes together with the largest Wigry, River Czarna Hancza and smaller rivers constitute interconnected hydrological system. Czarna Hancza has two distinct sections varying in character, the northern - with fast flowing current, and the southern – typical of slow lowland river. The Wigry Lake receives both surface and underground water since the area is built of permeable sands and sandy clays. Around the southern banks of Wigry Lake there are numerous springs which are hydrological peculiarities of the Wigry National Park. Water quality is generally high. The region is rich in natural small rivers where water management is partly controlled by beavers damming and inundating sections of valleys.

17. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • \surd M • N • \surd O • P • Q • R • Sp • Ss • Tp • Ts • \surd U • Va
•
Vt • W • Xf • \surd Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

M, O, U, Xp

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The rich diversity of landscapes is associated with diversity of habitat types within the site with predominating woodlands of boreal character. Spruce is a main woody species in stands. 19 forest communities have been identified with rich mixed woods of *Corylo-Piceetum* and *Calamagrostio-Piceetum* taking the largest surface. Smaller surfaces occupy alder and flood-plain forests (*Fraxino-Alnetum*, *Stellario-Alnetum*) and mixed linden-oak woods (*Tilio-Carpinetum*). Typical of biogeographic region are coniferous forests on peatbogs (*Sphagno girgensohnii-Piceetum*, *Betulo pubescentis-Piceetum*) and swampy deciduous woods (*Sphagno-Betuletum pubescentis*). A great majority of the swampy forest communities have been preserved in a close to natural state. Aquatic and mire vegetation has also been maintained in a fairly natural state (about 10 per cent of the area). Amongst almost 90 non-woody plant communities, notable are mire communities in particular those of raised bogs (*Sphagnetalia magellanicæ*) and transitional bogs including floating moss mats (*Caricion lasiocarpæ*, *Rhynchosporion albae*). Forests of the site belong to the major unbroken forest tract in Poland - Augustów Forest so that wildlife is characteristic of great woodlands with two species of large predators i.e. wolf and lynx. Swampy forests shelter large herbivores such as elk, red deer, roe deer and wild boar.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The rich flora of the Wigry National Park contains 88 species subject to legal protection and endangered including such flowering plants as: mezereon (*Daphne mezereum*), martagon lily (*Lilium martagon*), columbine (*Aquilegia vulgaris*), globe flower (*Trollius europæus*) and numerous *Orchidaceae*. Representatives of this Family include among others: bird's-nest orchid (*Neottia nidus-avis*), lesser butterfly-orchid (*Platanthera bifolia*), fen orchid (*Liparis loeselii*), heath spotted orchid (*Dactylorhiza maculata*), creeping lady's tresses (*Goodyera repens*) and lady's slipper (*Cypripedium calceolus*). Boreal flora is represented by both vascular plants, such as e.g.: *Carex disperma*, *Saxifraga hirculus*, *Scirpus hudsonianus* and *Polemonium coeruleum*, in addition to numerous hornworts, lichens and mosses.

The site provides significant habitat for species critically endangered and growing only on a limited number of stands, such as: *Neottianta cucullata*, *Microstylis monophyllos*, *Hammarbya paludosa*, *Lathyrus pisiformis*, *Scirpus hudsonianus* and *Carex vaginata*.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The fauna of mammals within the site is well represented with 48 mammals including protected beaver (*Castor fiber*) – at least 60 stands, otter (*Lutra lutra*), muskrat (*Ondatra zibetica*), wolf (*Canis lupus*), lynx (*Felis lynx*), stoat (*Mustela erminea*) and European elk (*Alces alces*). Protected bat species include *Vespertilio murinus*, *Eptesicus serotinus* and *Plecotus auritus*.

The site supports 150 bird breeding species and the total number of birds observed is 205. The local waterfowl embraces 40 breeding and 33 species occurring seasonally. They include black stork (*Ciconia nigra*) 1 pair, white stork (*Ciconia ciconia*) 20-30 pairs, great crested grebe (*Podiceps cristatus*) ca 300 individuals, red-necked grebe (*Podiceps grisegena*), little grebe (*Podiceps ruficollis*), rare red-breasted merganser (*Mergus serrator*), mute and whooper swans (*Cygnus olor* and *C. cygnus*) ca 400 individuals and bittern (*Botaurus stellaris*) 7-8 individuals.

Rare predatory birds include white-tailed eagle (*Haliaeetus albicilla*), osprey (*Pandion haliaetus*), red kite (*Milvus milvus*), lesser spotted eagle (*Aquila pomarina*).

To other rare and threatened species observed within the Park belong: kingfisher (*Alcedo atthis*), goldeneye (*Bucephala clangula*), common rose finch (*Carpodacus erythrinus*), great white egret (*Egretta alba*), goosander (*Mergus merganser*), bluethroat (*Luscinia svecica*) and river warbler (*Locustella locustella*).

Rare and protected species of other taxonomic groups: - molluscs – *Anodonta cygnea*; insects – *Anthophora plumipes* and bumblebees: *Bombus jonellus*, *Bombus schrencki*, *Bombus semenoviellus*.

21. Social and cultural values:

e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Sites of archaeological excavations from Palaeolithic period, remnants of stone and iron age nomadic hunter settlement in Zubronajcie, graveyard of the Jacwing people with mounds from III and IV century, old villages of fishermen and pitch distillers, valuable baroque monastery on the peninsula of Wigry Lake.

Current socio-economic values: tourism and agro-tourism, agriculture, timber production, fishery.

22. Land tenure/ownership:

(a) within the Ramsar site:

An overwhelming portion of the site belongs to the State Treasury (12 386 ha), and the remaining area is owned by private owners (2 598 ha) and the Regional Management of Roads and the Voievodship Management of Land Reclamation (101 ha).

(b) in the surrounding area:

Private land or owned by the State Agency of Agricultural Land.

23. Current land (including water) use:

(a) within the Ramsar site:

Forest is a predominant land use type within the Park (9 464 ha), waters take 2 907 ha and agricultural land – 2 228.8 ha. The site is used for timber production (forest), crop production (fields, meadows, pastures), for recreation and amenity purposes, lakes are used for water sports, swimming, angling and adjacent forests for hiking, cycling, horse riding. Locally, small sections of rivers and lakes are used as waterways.

Tourist installations cover boat houses, camping grounds, 1 youth hostel.

The site is visited by about 100 thousand visitors per year.

(b) in the surroundings/catchment:

In the vicinity of the site the land is used for agriculture and forestry.

24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

(a) within the Ramsar site:

The area of Wigry National Park has long ago been given the protected status, formerly as several nature reserves, landscape park and later, since 1989, as a national park. This helped to eliminate threats due to intensive land management and changes of land use within the site and contributed to maintaining its biodiversity in a close to natural state. Present threats to the site result from massive tourism and water pollution by sewage from tourist facilities and farmyards.

(b) in the surrounding area:

As within the site.

25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

The area has been given designated as a national park in 1989 and formerly it was protected as a landscape park. In 1997 the Park area was extended to its present size and a buffer zone was added of a surface of 11 283.81 ha. A part of the area i.e. 396 ha is subject to strict protection.

The Park has the management plan. In some parts of the site measures of active protection have been undertaken in the form of meadow mowing to prevent forest succession and withdrawal of valuable species and habitats.

Wigry Lake has been embraced with special protection programme of the International Association for Limnology (SIL) at the XXVII SIL Congress in Dublin in 1998.

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

None.

27. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Research activity (among others – hydrobiological and limnological study) is carried out by the Laboratory of Integrated Environmental Monitoring at Wigry. Study is conducted with special emphasis on the Czarna Hancza River basin and mires at the River section from Sobolewo to its mouth at Wigry. Hydrobiological study is performed by the Warmia-Mazury University in Olsztyn while botanical study (research on rare and threatened plants) by the Botanical Garden of the Warsaw University.

28. Current conservation education:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Park has established one information centre with two permanent exhibitions, educational station, scientific laboratory, and tourist facilities include 9 observation hides, 6 educational paths and 208 km tourist trails. Over 20 packages of information booklets, maps, printed guides have been published in addition to the Park's quarterly "Wigry" and other publications, website: www.wigry.win.pl

29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The site is used for recreation, dominating forms of tourism are hiking, cycling, kayaking.

Number of visitors per year exceeds 60 thousands (in 2002 – 100 000), what gives the figure of 3.4 person per hectare per year.

30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

The site is located within the Podlasie Voievodeship. Functionally it is within the jurisdiction of the Ministry of Environment.

31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The site is managed by the Director of the Wigry National Park.

Wigry National Park, Krzywe 82, 16-400 Suwałki Poland e-mail address: wigry_pn@su.onet.pl

Wigry National Park homepage is <http://www.wigry.win.pl>

32. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Kondracki J. 2001: Regional geography of Poland ed. by Panstwowe Wydawnictwa Naukowe, Warsaw

EEA publication 2002: Europe's biodiversity – biogeographical regions and seas.

Sokolowski A.W., Kot J. 1996. Przyroda Województwa Suwalskiego. Urząd Wojewodzki Suwalki

Sienkiewicz J., Walczak M., Smogorzewska M., Nowak S., Nowicki W., Kloss M., Wójcik J., 1999: Documentation of sites listed by the Ramsar Convention and proposed to the List. Institute of Environmental Protection, Warsaw.

Polska Czerwona Księga Zwierząt (Polish Red Data Book of Animals), 2001: Editor: Z.Głowacinski. PWRiL, Warszawa.

Polska Czerwona Księga Roślin, (Polish Red Data Book of Plants) 2001: Editors: R. Kazmierczakowa, K. Zarzycki. W. Szafer Institute of Botany, Institute of Nature Conservation. Krakow.

Gromadzki M. et al. 1994: Bird Areas in Poland. OTOP. Biblioteka Monitoringu Środowiska, Krakow