

Information Sheet on Ramsar Wetlands (RIS)

1. **Date this sheet was completed/updated:** March 11' 2002
2. **Country, region:** Republic of Belarus, Belarusian Lake District (Poozerie)
3. **Name of wetland:** Osveiski
4. **Geographical coordinates:** 56°05'N, 28°10'E in the center of the site
5. **Elevation:** 129.8 –162.5 m above see level
6. **Area:** 22600 ha

7. Overview

The site is a large complex of lakes, forests, transition and bog mires. The core of the area is Osveia Lake. The lake plays an important role in defining the hydrological and climatic characteristics for Northern Belarus. The surface of this largest in Belarus eutrophic lake is currently subject to rapid overgrowth with surface-water vegetation.

The main part of the site is covered by bog and transition mires with presence of pine-, birch-, and alder forests. The mires are interspersed with few mineral islands. Forest vegetation covers about 30% of the overall area; shrubs cover 4% and meadows cover 6% correspondingly. Fen mire areas are few.

The Osveia natural complex is a concentration site of numerous waterbird species (*Podicipediformes* – 150-200 pairs, *Anseriformes* – 1500-2300 pairs, *Gruiformes* – 500-600 pairs, *Charadriiformes* – 6000-7500 pairs). By its natural location the complex is bound to the migration of their North-Western populations. During seasonal migrations the site regularly supports more than 20,000 individuals of waterbirds.

8. Wetland Type: (please circle the applicable codes for wetland types as listed in Annex I of the Explanatory Note and Guidelines document)

Marine-coastal:	A	B	C	D	E	F	G	H	I	J	K	Zk (a)
Inland:	L	M	N	O	P	Q	R	Sp	Ss	Tp	Ts	
	U	Va	Vt	W	Xf	Xp	Y	Zg	Zk (b)			
Human-made:	1	2	3	4	5	6	7	8	9	Zk (c)		

Please now rank these wetland types by listing them from the most to the least dominant: O, Xp, U, Tp, 9, M, W

9. Ramsar Criteria: (please circle the applicable criteria; see point 12 below)

Please specify the most significant criterion applicable to this site: 1, 5

10. Map of site included? yes

11. Name and address of the compiler of this form

V.P. Biriukov, Vitebsk State University. Moskovski Avenue 33, 210038 Vitebsk. Phone/fax in Vitebsk: +0212 362172. Email: bvp-v@tut.by

12. Justification of the criteria selected under point 9

The site is of international importance because it meets the following criteria:

Criterion 1

It is a particularly good representative example of slightly transformed wetlands of Belarusian Lake District.

Criterion 5

During seasonal migrations the site regularly supports 20,000 and more waterbirds. These are mostly Bean Goose *Anser fabalis* (6,000-8,500 birds in October 1999; 2,300-3,000 in April 2000) and different duck species (Annex 1). The Osveia natural complex serves as a breeding site for numerous waterbird species (*Podicipediformes* – 150-200 pairs, *Anseriformes* – 1500-2300 pairs, *Gruiformes* – 500-600 pairs, *Charadriiformes* – 6000-7500 pairs).

Criterion 6

Crane *Grus grus* forms sometimes large groups (up to 2,000 individuals – 3.3% of biogeographic population) in the post-breeding season. During seasonal migrations the site regularly supports up to 2,8% of the biogeographic population of Bean Goose *Anser fabalis rossicus*.

13. General location

The site is located in Verkhnedvinsk District, Vitebsk oblast, 240 km to the North of Minsk and 150 km to the North-West of Vitebsk.

14. Physical features:

Geology and geomorphology

The Osveia lake-and-mire complex is part of the Poozerie province of glacial moraine-hilly-lacustrine landscapes. The site is located on the border between the Baltic moraine ridge and the Polotsk glacio-lacustrine lowland, the latter consisting of sandy sediments. Almost all landscapes typical for Belarusian Lake District are represented within the borders of the site. The most valuable part of the site is Osveia Lake, which gave the name to the whole site and is the second largest lake in Belarus. The lake covers 23.4% of the area of the site. Open and semi-open wetlands cover 25.2% of the area, forest swamps cover

19.5%, dry forests cover 15.9%, meadows cover 3.5% of the area of the site. The share of arable lands is about 12.4% of the site.

Hydrography and hydrology

The area of Osveia Lake is 52.8 sq. km. (including the island). Mean depth is 2.0 m, maximal depth is 7.5 m. The lake has an oval-like pond-type pit stretching from south-west to north-east for 11.4 m. Maximum width of the pit is 7.8 km. The shoreline is 33.4 km long, the indentedness coefficient is 1.17. The shallow nature of the lake is underscored by the share of bottoms with various depths: places up to 2 m deep cover 71% of the pit area; 2-4 m – 24.5%; 4-6 m – 3.6%; 6-7.5 m – 0.6%. Wide sandy littorals and shallow-waters are typical for the lake.

The catchment area of the lake is 206 sq. km. The main part of the catchment area is waterlogged and forested. The southern shores of the lake take the form of a series of hills up to 15 m high, closely approaching the lake. Slopes of the western and north-western shores of the lake are less “obvious“ and gradually turn into a waterlogged floodplain. Arable plots are mainly found in the southern elevated part of the lake’s catchment. The shores are low (0.2-0.4 m), and are easy breakable.

Small Zilupe and Vydrinka rivers, as well as 10 streams and a number of drainage ditches laid through the mire flow into the lake. Streams dry out in summer. The outflow function is played by Degtiarivka Canal, which further is routed through lakes Ormeia and Lisno, further through the Svolna and Drissa rivers and up into the Western Dvina. The incoming part of the water balance is comprised of atmospheric precipitation and surface flow ; the outflow comprises evaporation and direct outflow through the Degtiarivka Canal. Thus in general, Osveia lake is said to be a good example of a non-stagnant water body. The level of water in the lake is highest in fall and winter through fall rainfalls and intensive groundwater feeding. The ratio of lake surface to catchment area is 0.25, which is favorable for smooth water level fluctuations (normally within 30-35 cm). This has a vital importance for breeding waterbirds during their nesting season.

On the other hand, the relatively small area of the catchment area means that the lake ecosystem is pretty vulnerable: any biologically dangerous pollution case in the basin will affect the condition of the water body many times faster and more severely than in case with larger catchments, where surface flows may suffer intermediary transformations and get self-purified to one degree or another.

The hydrochemical regime and water quality are typical for a highly eutrophic lake. The morphometric features of the pit (openness indicator is 26.4, the depth indicator is 0.54) contribute to intensive wind-driven mixing of the water layer during ice-free periods. During these times homothermy prevails on the lake, wherein the vertical temperature distribution is pretty even. Short-term thermal stratification of the water layer can only be observed by stable calm weather. Oxygen saturation can reach 100%.

In winter there is a deficit of oxygen caused by prolonged winter stagnation and decomposition of large volumes of organic matter stored in the lake at this time of the year. Therefore, fish kills are quite common for the lake.

The water is weakly mineralized and hydrocarbonated. Mineralization figures are highest in winter: up to 210-250 mg per l; they are the lowest in summer: 100-200 mg per l. Water transparency can reach 2.3 m. The permanganate oxidizability value is 10-14 mg per l.

Bottom sediments are rich in organic matter. Thin detrital sapropel layer is the dominating in the sediments. It covers about 80% of the pit area, and it is 0.5-7.5 m deep. Siliceous sapropel is found in the central part of the pit on a small area free of macrophytes. Total siliceous sapropel deposits are estimated to be 86.7 mln cubic meters. A large siliceous sapropel deposit (7.4 mln cubic meters) was found under a peat layer on a site adjacent to the wetland complex. These are prospective reserves of valuable raw material.

Climate

Ice starts to appear usually in early December. By the end of winter ice depth reaches 40-70 cm, up to 80 cm in some winters. Ice melt and break-up occurs in early April, which coincides with the start of intensive fly-through and concentration of waterbirds.

The described site belongs to Osveia-Braslav agroclimatic district. The climate is moderately warm and humid. Number of days in a year with daily-average positive temperatures (above 0) is 227. The vegetation season continues for 184 days. Frost-free period is 136 days. Average January temperature is – 7.2 C, July + 17.5 C. Mean annual precipitation is 586 mm. Western and north-western winds dominate.

15. Hydrological values

Covering a substantial area Osveia lake-and-mire complex is an important functional link in the Western-Dvina hydrological district of the Western Dvina river catchment.

16. Ecological features

The site described bears a mixture of key environment-making elements, including a large high-production lake, various mire and forest habitats, water (rivers, streams, canals, ditches). The natural and territorial complexes of the site are representative for the baserock elements of the region's landscapes.

The site hosts a wide assemblage of vegetation formations typical for the region. About 48% of the area is covered by littoral and mire phytocenoses; 3% is occupied by forest biocenoses; 6% by meadow biocenoses; 4% by shrub biocenoses. Forest formations are dominated by coniferous species (54.8%), which in turn break into pine-trees (40.2%), birches (21%), and spruces (15%). Also present are black alders *Alnus glutinosa* (8%), asps *Populus tremula* (7%), gray alders *Alnus incana* (2.2%), oaks *Quercus robur* (0.3%), and ashes *Fraxinus excelsior* (0.2%).

Radical small-leaved forests are represented by humid and waterlogged white-birch *Betula pubescens* and black-alder plantations; derivative forests are represented by Common Birch *Betula pendula*, gray-alder, and asp plots. Diversity of forest types in combination with vast littoral and mire phytocenoses define the richness of the site's flora.

Osveia Lake is a key element of the complex. By its trophic level it belongs to the category of shallow eutrophic lakes with some signs of dystrophy. The lake is characterized by highly developed macrophytes, which cover about 90% of the lake's pit. Subsurface macrophyte associations dominate (*Chara sp.*, *Stratiotes aloides*, *Potamogeton perliatus*, etc.) which cover about 56% of the pit. 24% of the lake is covered by air-and-water plants (*Typha augustifolia*, *Phragmites communis*, *Scirpus lacustris*, etc.), another 9% is covered by macrophytes with floating leaves (*Nuphar luteum*, *Nymphaea candida*, *Potamogeton natans*, etc.).

The phytoplankton is represented by 73 species, most of which are diatoms and green algae. By phytoplankton development Osveia Lake belongs to the category of medium-production waterbodies (6.8 g per cubic m). Benthos biomass is 15.3 grams per square meter, 50% of which is mollusca and chironomides.

In general the lake has good protective and feeding conditions for water and near-water animals.

In the west the lake is approached by large bog mire. Pine *Pinus sylvestris* occupies most of the mire, however wide open spaces with small open water windows are quite frequent. Forests are dominated by pines and spruces *Picea abies*. Alder- *Alnus*, and birch *Betula* forests are found along the edges of the mire.

17. Noteworthy flora

Vascular plants flora includes 483 species, including 3 lycopodiums, 6 equisetums, 7 pteridosperms, 3 gymnosperms, and 464 angiosperms.

There are 16 rare National Red Data Book plant species (*Herminium monorchis*, *Nuphar pumila*, *Linnaea borealis*, *Aldrovanda vesiculosa*, *Huperzia selago*, *Gentiana cruciata*, *Cotoneaster alanicus*, *Corallorhiza trifida*, *Rubus chamaemorus*, *Carex paupercula*, *C. pauciflora*, *Dactylorhiza baltica*, *Listera ovata*, *L. cordata*, *Gymnadenia conopsea*, *Gladiolus imbricatus*).

9 valuable vegetation communities have been recorded on the site. Most notable are the complex of hydrophilous vegetation on the mire and ancient spruce forest plots, which ensure conservation of habitats for arctic and taiga species typical for the region.

The mire is rich in commercially valuable berry species: *Oxycoccus palustris*.

18. Noteworthy fauna

The terrestrial vertebrate fauna includes 9 amphibian, 5 reptile, 164 breeding bird and 30 mammal species (69.7% of biological diversity of Belarus). The group of rare National Red Data Book species is represented by 3 mammal and 38 bird species.

High indicators of diversity and numbers of rare fauna species of the site are clear confirmation of the significance of the site for conservation of biological diversity. The available data shows that the numbers of protected birds (National Red Data Book species) breeding on the site are as follows (pairs): Little Grebe *Tachybaptus ruficollis* (0-4), Red-necked Grebe *Podiceps grisegena* (2-7), Slavonian Grebe *Podiceps auritus* (0-4), Bittern (25-30), Little Bittern *Ixobrychus minutus* (2-3), Black Stork *Ciconia nigra* (3-5), Mute Swan *Cygnus olor* (2-3), Wigeon *Anas penelope* (0-2), Goldeneye *Bucephala clangula* (0-3), White-tailed Eagle *Haliaeetus albicilla* (1), Short-toed Eagle *Circaetus gallicus* (2-3), Lesser Spotted Eagle *Aquila pomarina* (3-5), Golden Eagle *Aquila chrysaetos* (1), Osprey *Pandion haliaetus* (2-3), Kestrel *Falco tinnunculus* (5-10), Merlin *Falco columbarius* (5-6), Hobby *Falco subbuteo* (3-6), Willow Grouse *Lagopus lagopus* (30-40), Little Crake *Porzana parva* (8-10), Crane (15-18), Golden Plover *Pluvialis apricaria* (15-30), Whimbrel *Numenius phaeopus* (15-25), Curlew *Numenius arquata* (5-10), Greenshank *Tringa nebularia* (10-20), Little Gull *Larus minutus* (10-25), Scops Owl *Otus scops* (1-2), Eagle Owl *Bubo bubo* (0-1), Pygmy Owl *Glaucidium passerinum* (5-8), Ural Owl *Strix uralensis* (4-7), Great Gray Owl *Strix nebulosa* (1-2), Short-eared Owl *Asio flammeus* (3-6), Tengmalm's Owl *Aegolius funereus* (3-9), Roller *Coracias garrulus* (1), Three-toed Woodpecker *Picoides tridactylus* (10-20), Bluethroat *Luscinia svecica* (15-30), Savi's Warbler *Locustella luscinioides* (20-60), Great Gray Shrike *Lanius excubitor* (5-12).

Regular breeding of a number of other species threatened in Europe has been recorded on the site: Corncrake *Crex crex* (IUCN Category VU), Great Snipe *Gallinago media* (IUCN LR/nt). The following breeding species with an international protection status have here more than 1% of the Belarusian population: Bittern (Annex II of Bern Convention), Crane (Annex II of Bern Convention), White-tailed Eagle (IUCN LR/nt), Golden Eagle (Annex II of Bern Convention), Osprey (Annex II of Bern

Convention), Scops Owl (Annex II of Bern Convention); about 1% - Short-eared Owl (Annex II of Bern Convention).

The Osveia natural complex serves as a breeding site for numerous waterbird species (*Podicipediformes* – 150-200 pairs, *Anseriformes* – 1500-2300 pairs, *Gruiformes* – 500-600 pairs, *Charadriiformes* – 6000-7500 pairs) and is naturally bound to the migration route of their North-Eastern populations (41 species with overall number of individuals up to 26,000 was once recorded).

One-time records of Barnacle Goose *Branta leucopsis* and Red-breasted Goose *Branta ruficollis* (IUCN Category VU) were made for Osveia Lake. The globally threatened Lesser White-fronted Goose (IUCN Category VU) is common on passage.

Up to 2,000 individuals of cranes concentrate in the Osveia natural complex during migration.

The site is one of the few sites in Belarus where the following mammal species occur regularly: *Ursus arctos* (2-4 individuals), *Felis linx* (5-8 individuals) and *Meles meles* (8-10 settlements).

Based on the outcomes of narrow-scope counts, numbers of key “resource” mammals on the site is the following: Elk *Alces alces* (60-80 individuals), Wild Boar *Sus scrofa* (90-120), Roe Deer *Capreolus capreolus* (60-70), Fox *Vulpes vulpes* (35-50), Raccoon Dog *Nyctereutes procyonoides* (70-80), Otter *Lutra lutra* (15-20), Beaver *Castor fiber* (40-60), American Mink *Mustela vison* (60-80), Musk-rat *Ondatra zibethica* (50-80), Fitchew *Mustela putorius* (70-100), Marten *Martes martes* (30-40), Weasel *Mustela nivalis* (90-100), Ermine *Mustela erminea* (100-150), Mountain Hare *Lepus timidus* (300-400), Brown Hare *Lepus europaeus* (50-60), Common Squirrel *Sciurus vulgaris* (up to 1,000 individuals).

19. Social and cultural values

The site has some still to be studied primitive camps dated to Neolithic times, as well as ancient dwellings and mound burials dated V century B.C. to XVII century our time. Other historic places such as individual and mass graves of victims of World War II are also found in the vicinity of the site. In 1959 a Mound of Friendship was constructed right where the borders of Belarus, Russia and Lithuania meet (on the boundary of Osveia complex). The Mound was built in the memory of cooperative guerilla movement during WW II, and is a place for annual meetings and festivals of people of the three countries.

Nature resource use is mainly represented by tree-cutting, collection of berries and mushrooms, amateur hunting and fishing. This all is practiced by local people on a non-commercial basis.

The site has good potential for development of ecological tourism, historical and general-knowledge routes and projects.

Scientific research is done on the site by scientists and experts representing various institutes of the National Academy of Sciences of Belarus, as well as Vitebsk State University.

20. Land tenure/ownership

The site is owned by the state. It is used by 5 land-users. 46% of the site is used by 3 collective farms. 30% of the site is used by Verkhnedvinsk forestry (Ignalinsk forest district), 21% (the lake) is used by various companies belonging to Agropromtechnica State Corporation

21. Current land use

Good preservation of landscapes and maintenance of ecological values of the site are favored by poor urbanization degree of the territory. Within the boundaries of the Osveia complex 5 small human dwellings are located, with overall population about 300. All traditional agricultural land-uses except

cattle pasturing in the littoral part and on the Island of Osveia Lake are allowed on those lands that are in use of the collective farms. However, the legally established “exceptions” are not followed, which negatively affects the lake ecosystem, as well as the condition of biotopes on the island.

On forested areas the Ignalinsk forest district conducts selection and gradual logging, thinning operations, regeneration activities. Some of the quarters within the water conservation zone have been subject to clear-felling. All indirect traditional forest uses, such as collection of berries, mushrooms, medicinal plants, are allowed on the site. Amateur and commercial fishing is practiced on Osveia Lake. The catches are dominated by *Esox lucius*, *Abramis brama*, *Rutilus rutilus*, *Perca fluviatilis*, *Tinca tinca*. By commercial fishing classification the lake belongs to bream-pike-roach group with commercial fish resources up to 107 kg per ha. Commercial catches have declined ten times over the last 15 years: from 94.3 tons in 1985 to 10.5 tons in 1998. This is a consequence of unwise commercial fishing in the past (overfishing, mass fishing of young fish, destruction of spawning grounds, etc.), as well as increased poaching, especially during spawning, and general deterioration of the lake ecosystem. In 1996 mass fish kills were observed as a result of early spring suffocation.

Indigenous fishes (*Carassius carassius*, *Abramis brama*, *Esox lucius*) have been introduced into the lake for the last 5 years. In 1996 *Carassius auratus*, *Ctenopharyngodon idella*, *Aristichthys nobilis* were introduced for their adaptation. In the past there were some unsuccessful attempts at introduction of *Cyprinus carpio* and *Anguilla anguilla*. Currently a regime for rational exploitation of fish resources with elements of aquaculture is under elaboration.

There are no nationally and/or regionally important roads and facilities on the site. Their development is not listed on the future plans for the site. Locally important raw material mining is conducted on the site (sand and clay extraction).

The site is open for regulated amateur hunting of huntable mammals and birds, excluding spring hunting of waterfowl. No forms of organized recreation and tourism are found on the site.

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

The condition of the natural complex was most negatively impacted by the anthropogenic interference into the natural hydrological regime of Osveia Lake.

In 1929-30 a system of drainage canals was constructed on the site as part of the ameliorative drainage campaign, and the Zilupe and Vydrinka rivers entering the lake were canalized. At the same time Degtiakiovka canal was constructed connecting Osveia Lake with Armeia Lake. As a result the water level in the lake dropped by 1.5 m. In the subsequent years up to 1996 the water level in the lake was rising and falling many times, within an amplitude of 2 m, which was the consequence of alternating construction and destruction of soil dams on Degtiariovka Canal, as well as construction in 1950s and subsequent operation of a regulated flow-through sluice. Maintenance of a rather low water level in the lake in 1970-80s was related to the requirements for peat extraction practiced on the nearby mining site.

Osveia peat extraction company operating in the mire adjacent to the lake has been annually extracting some 150,000 tons of peat for fertilizer and fuel purposes, and this has adversely affected the water level regime of the lake for 30 years. At the moment the company is no longer operating. But the extracted mining pits and ditches covering the total area of more than 1,000 ha continue to drain the mire and the lake.

Currently the embankment along the Degtiariovka Canal is kept in a very poor technical condition and does not correspond to the normative prescriptions. Scours have formed in some parts of it leading to

progressive destruction of the embankment. Beavers' houses were found in many parts of the "body" of the embankment.

In late 40s the soil dam on the Degtiarivka Canal was destroyed resulting in drastic decline of the water level. This in turn, has led to shrinkage of the lake's area and it becoming very shallow. Intensive overgrowth of the water space started, formation of tense macrophyte beds followed. Despite the fact that the water level was eventually raised to the pre-emergency level, the water quality and gas regime of the mire continued to decline in 1950-80s. A real threat of a "hyper-eutrophic jump" in the lake's development became obvious. Fish kills became frequent following oxygen deficit in winters, traditional spawning grounds in the littoral zone and in the mouths of the rivers were getting rapidly overgrown with vegetation.

Other negative sign mainly attributed to intensive overgrowth of the lake with macrophytes, specifically air-and-water species such as *Typha augustifolia*, *Phragmites communis*, *Scirpus lacustris* was declining concentration of waterfowl. Traditional nesting grounds of Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula* and Coot were disappearing in the north-eastern part of the lake following intense overgrowth with vegetation. In some other parts, including the island, this was caused by rapid overgrowth of shores.

Cattle pasturing in the littoral zone and on the island is another negative factor affecting the condition of the lake ecosystem. Significant compression of clayey and loam soils was observed everywhere along the perimeter of the island, especially in the south-western part. This has led to serious degradation of natural vegetation, deterioration of soil texture. Erosion processes become progressively common: soil streams and slides are very frequent in the southern part of the island. Cattle overgrazing has resulted in rapid deterioration of soil mesofauna rates, which are biological indicators of soil fertility. In cattle watering places substantial amount of organic pollutants enter the lake.

Currently a radical restructuring of meadow biocenoses is going on with displacement of those that have formed under lower load conditions. Disappearance of the most vulnerable to anthropogenic influence stenobiotic and rare species and declining of biological diversity of the island in general has been recorded. Thus, a number of plants listed in the National Red Data Book of Belarus are currently on the edge of disappearance from the island. These include *Cotoneaster alauica*, *Gentiana cruciata*, *Platanthera bifolia*, *Dactylorhiza majalis*, *Orchis militaris*, *Listera ovata*. Not a single plant of *Herminium monorchis* has been found on the island for the last several years.

Up to mid-90s Osveia village was discharging its municipal, agricultural (pig-farm) and industrial wastes into the lake.

Another two factors negatively influencing the ecosystems of the site are: clear fellings in the water conservation zone (in the vicinity of Potino village) and arable farming on the south-eastern slopes of the lake's shores.

23. Conservation measures taken

Artificial elevation of the water level in Osveia Lake and its maintenance at a relatively high level (130.16-130.48 m according to the Baltic altitude system) for the last several years has been an important element in the efforts aimed at stabilizing the ecological condition of the Osveia natural complex, contributing to conservation of its biological diversity and natural succession processes.

The Council of Ministers' Decree # 190 dated 13 June 1977 prescribed establishment of Osveia Hunting Reserve on the territory of the potential Ramsar site (22,600 ha by area) in order to establish optimal conditions for regeneration of populations of huntable birds and mammals. According to the procedure, upon completion of a 20-year validity period the Hunting Reserve is automatically turned into a biological zakaznik (reserve) with a stricter nature-conservation regime. It should be noted, that the hunting reserve managed to fulfill its mission and restore populations of huntable animals, especially

ungulate animals. During the time when the hunting reserve was existant the numbers of elk, wild boar, and Capercaillie have reached the level close to the ecosystems' carrying capacity: Elk – up to 60-80 individuals, Wild Boar - up to 90-120, Capercaillie *Tetrao urogallus* – up to 30-50 males. Before the hunting reserve was established only isolated individuals of these species were recorded on the site. On 3 January 2000 the Council of Ministers' Decree # 4 ruled for establishment of a landscape reserve on the basis of the biological zakaznik, with extension of area by 5,154 ha. However, the borders and the area of the desribed potential Ramsar site have remained unchanged. The area of the Yelnia potential Ramsar site is currently 22,600 ha.

One of the key requirements for the protection regime in the new zakaznik is maintenance of mean annual water level in Osveia Lake at 130.16-130.48 m of the Baltic Measurement System.

The following activities are prohibited under the established protection regime:

- Activities leading to changes in natural landscape (drainage, road and facilities construction)
- Withdrawal of water from Osveia Lake for water supply and irrigation purposes
- Clear felling, except for ripe and over-matured woods in which gradual and selection logging is considered inexpedient judged by the condition of the plantation
- Cattle pasturing in the littoral strip and on the island
- Fixed gear fishing in places of mass concentration of water birds
- Use of motorized boats.

Other important nature conservation activities included liquidation of the pig farm on the shore of the lake, construction of municipal purification facilities in Osveia village and cessation of peat extraction.

Nevertheless, the established protection regime is very frequently violated by local inhabitants. Violations include clear cutting in the water conservation zone, cattle pasturing on the island, arable farming on lake shores, poaching.

24. Conservation measures proposed but not yet implemented

In order to solve the key problems related to the condition of the zakaznik it is important to elaborate a management plan for it that would build on the following recommendations:

- Further elevation of the water level in the lake to improve the condition of the lake ecosystem and slow down the overgrowth of the lake. In order to establish and maintain a new water level it is necessary to undertake corresponding hydrological studies and do necessary calculations.
- Reconstruction of the embankment and flow-through sluice on the Degtiariovka Canal, including construction of a fish-pass enabling fish migration in the system of Osveia and communicating water bodies (the other lake, and the rivers).
- Elaboration of a project for ecologically safe extraction of sapropel, which would increase the depth of the lake and enable formation of favorable gas regime.
- Elaboration of an integrate scheme for rational exploitation and regeneration of fish resources of the lake.
- Regular control over enforcement and observation by land-users of the protection regime established for the landscape zakaznik.
- Elaboration of a plan for forest planting on part of the island; obligatory hay-cutting on open parts with rare species listed in the National Red Data Book of Belarus.
- Implementation of obligations under Ramsar Convention in that part which is related to biotechnical and conservation measures for maintenance of optimal conditions for breeding and migrating water-birds (extension of nesting areas through hay-cutting and controlled burning of dense carpets of old over-water vegetation; creation of a park with artificial nesting grounds; elimination of the disturbance factor during breeding; establishment of timeframes and zones for hunting of migrating water-birds).

- Preparation and establishment of monitoring on habitats of rare flora and fauna species of the zakaznik.

25. Current scientific research and facilities

Currently Vitebsk State University carries out stationary studies of the conditions and dynamics of ornithological fauna, fish fauna, entomological fauna, and upper vascular plants, focusing on rare species. In 1983 a permanent monitoring plot was established on the site by Vitebsk State University. However, scientific and research activities are limited by shortage of funds.

Experts of the Belarusian State University and National Academy of Sciences also conduct regular studies on the site. In 1972 the Limnology Department of Belarusian State University conducted a comprehensive study and description of Osveia Lake.

A project on ecological rehabilitation of the Osveia natural complex has been put into the plan of the State Scientific-and-Technical Program “Ecological Safety” for 2002-2003.

A permanent hydrological post has been operating on the lake since 1928, closing for 1941-1944 war. The post measures the water level in the lake. Forest organization activities, classification of hunting grounds, as well as narrow-scope counts of huntable and rare species are regularly carried out on the site. The outcomes of these activities present good scientific interest.

Being a representative and close-to-natural site, the Osveia natural complex is considered to be an excellent reference plot to study biodiversity of Northern Belarusian landscapes. The site may serve as a basis for elaboration of biological grounds for the hunting industry (rational use of huntable resources). It is of high priority to establish a scientific coordinating center to study, monitor and forecast the developmental dynamics of this unique natural complex of Belarus.

In 2001 OMPO supported investigations on the territory of Osveia carried out to compile its description as a potential Ramsar site (ornithological and hydrological description, identification of threats).

26. Current conservation education

Specialized nature-conservation and scientific-and-popular materials on the flora, fauna, and sightseeing places of the Osveia natural complex are very few. Issues related to Osveia Lake transformations following human interference into the natural hydrological regime of the mire, as well as problems of ecological rehabilitation of the complex are regularly discussed in media. These issues are being raised by the Institute of Ecology of the National Academy of Sciences of Belarus.

27. Current recreation and tourism

Osveia Lake and the adjacent areas are very popular with local people. The site is used for unorganized sanitary recreation and tourism, fishing, amateur hunting, collection of berries and mushrooms. The recreational load is maximum in summer when people from all over Belarus come here for vacation. No special camps, sanitariums, hotels or other catering facilities are located in the area.

The site has large potential for development of ecological tourism and organized recreation on a national scale

28. Jurisdiction

a) *territorial jurisdiction*: Verkhnedvinsk district executive committees

b) *functional jurisdiction*: Vitebsk Oblast Committee of Natural Resources and Environmental Protection, Ul. Pravdy 26A, 210010 Vitebsk, Belarus

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, Ul. Kollektorknaia 10, 220048 Minsk, Belarus

29. Management authority

The lands of the Osveiski National Landscape Zakaznik fall under the jurisdiction of the Verkhnedvinsk district executive committees. The main structure supervising the established nature-conservation regime on the territory of the site on behalf of the Ministry of Natural Resources and Environmental Protection is Verkhnedvinski district inspection of nature resources and environmental protection, staffed with 4 persons. .

Address of Verkhnedvinski district inspection is: Kooperativnaya street, 1, Verkhnedvinsk 211620, Belarus

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Annex I

Table 1. Numbers and composition of water-birds on Lake Osveia during seasonal migrations (1999-2000)

Species	Type of Occurrence	Estimated number (individuals)			Protection status	
		October'99 (first decade)	April' 2000 (second decade)	October' 2000 (first decade)	National Red Data Book category	Bern Convention
		<u>min-max, individuals</u>	<u>Min-max, individuals</u>	<u>min-max, individuals</u>		
<i>Gavia stellata</i>	P	-	-	0-2		II
<i>Gavia arctica</i>	P	0-3	-	-	I	II
<i>Podiceps auritus</i>	B	4-18	0-13	-	IV	
<i>Podiceps grisegena</i>	B	-	2-23	0-11	III	
<i>Tachybaptus ruficollis</i>	B	-	0-5	0-7	II	
<i>Podiceps cristatus</i>	B	240-290	180-270	250-350		
<i>Branta leucopsis</i>	P	0-8	-	-		II
<i>Branta bernicla</i>	P	0-9	-	-		III
<i>Branta ruficollis</i>	Vs.	-	0-4	-	IV	II
<i>Anser erythropus</i>	P	0-28	0-7	0-10		II
<i>Anser anser</i>	P	250-700	10-15	80-170		
<i>Anser albifrons</i>	P	100-400	6-40	40-150		
<i>Anser fabalis</i>	P	6000-8500	2300-3000	700-2100		
<i>Anser sp.</i>		1500-2000	100-800	100-900		
<i>Cygnus olor</i>	B	12	4	7	V	
<i>Cygnus cygnus</i>	P	-	2	-		II
<i>Anas platyrhynchos</i>	B	700-2500	700-800	1000-1400		
<i>Anas crecca</i>	B	80-250	65-70	55-90		
<i>Anas strepera</i>	B	-	2-4	0-6		III
<i>Anas penelope</i>	B	250-340	2300-3000	60-110	IV	
<i>Anas acuta</i>	P	12-80	0-11	-	II	III
<i>Anas querquedula</i>	B	300-350	22-50	90-140		III
<i>Anas clypeata</i>	B	6-80	42-50	0-23		
<i>Anas sp.</i>		100-500	25-85	30-120		

Species	Type of Occurrence	Estimated number (individuals)			Protection status	
		October'99 (first decade)	April' 2000 (second decade)	October' 2000 (first decade)	National Red Data Book category	Bern Convention
		<u>min-max, individuals</u>	<u>Min-max, individuals</u>	<u>min-max, individuals</u>		
<i>Aythya ferina</i>	B	1450-1800	600-800	700-950		III
<i>Aythya fuligula</i>	B	300-550	320-450	160-200		
<i>Aythya marila</i>	P	9-100	8-60	0-40		III
<i>Clangula hyemalis</i>	P	-	0-4	0-3		
<i>Bucephala clangula</i>	B	120-140	90-470	70-210	III	
<i>Melanitta nigra</i>	P	-	0-33	17-21		
<i>Mergellus albellus</i>	P	2-40	12-70	0-32		II
<i>Mergus serrator</i>	P	-	2-18	0-13	III	
<i>Mergus merganser</i>	P	-	0-9	0-22	II	
<i>Mergus sp.</i>		0-42	2-35	0-60		
<i>Fulica atra</i>	B	2000-2500	400-1200	250-700		

Note: P – passage birds; B – breeding birds; Vs. – irregularly visiting

