INFORMATION SHEET ON RAMSAR WETLANDS

1. COUNTRY: Belarus

2. DATE OF COMPILATION: 26 June, 1999

3. REFERENCE NUMBER:

4. NAME AND ADDRESS OF COMPILER: Kozulin A.V. (Institute of Zoology, Belarus National Academy of Sciences, Academichnaya St. 27, Minsk, 220072 Belarus).

5. NAME OF WETLAND: Sporovsky Biological Reserve («zakaznik») of national importance

6. DATE OF RAMSAR DESIGNATION:

7. GEOGRAPHICAL COORDINATES: 52° 23' N 25° 20' E

8. GENERAL LOCATION: The area is situated in the middle course of the river Yaselda, 2 km southward of the town of Beryoza on the territory of four administrative districts in Brest region, they are: Beryozovsky, Drogichensky, Ivanovsky, Ivatsevichsky. The borders of the area are fixed and have been well described.

9. AREA (in hectares): 19384 ha

10. WETLAND TYPE: Internal wetlands: M, O, Tp, Ts, U, Xf. Anthropogenic wetlands: 2, 4, 9.

11. ALTITUDE: 142-144 m above sea level

12. OVERVIEW (brief description): Sporovsky Biological Reserve of national importance includes one of the largest lowland mesotrophic sedge fen mires in Europe. It is situated in the floodplain of the river Yaselda. The greater part of the mire appears to be in a condition very close to the natural one. On the most part of the mire the hydrological regime has been breached as a result of drainage canal constructions and the impact of the surrounding drainage systems. The mire represents one of the largest in Europe habitats of Aquatic Warbler - globally threatened bird species (1360-2120 singing males).

13. PHYSICAL FEATURES :

Geology and geomorphology. The territory of the landscape reserve of the national importance Sporovsky is represented by the landscapes of ancient alluvial lowlands with wide and poorly drained floodplain and floodplain terraces complicated by lake and peat-filled depressions. Secondary water-glacial lowland is the leading territorial and geomorphologic basis of its landscape structures of different levels. It is the only flat floodplain stretch in Belarusian Polesia with channels, oxbow lakes and fen mires which was not affected directly by any large scale drainage alternation and where floodplain and mire-formation processes occur in equilibrium. It is Sporovskoe Lake that mainly provides conditions for close proximity of ground water-table to the soil surface. Being the residual lake with the size near to 11.5 km^2, average depth of 0.7 m, and water volume of ca. 16.1 million m^3, it plays a compensatory role in the maintaining of water rich regime of the catchment area (more 3000 km^2) and of the adjacent landscapes as well. The presence of the large tectonic fracture in the area between such tectonic structures as Polesia depression in the east and Brest depression in the west indicates the existence of recent pre-conditions for wetland formation in the area which will shape the structure, appearance and functional peculiarities of the landscapes for a long period.

Hydrography and Hydrology. The Yaselda River is second-ranked on length and water sink left tributary of Pripyat. Its source is in the lowland mire Dikoe (Pruzhany District, Brest Region), and it flows into the Pripyat at the 489th km upstream its mouth near Kachanovichi village. The total river

length is 242 km, the catchment area is 7790 km². Watershed is poorly developed, for the relief is flat, which, in its turn, resulted in the water exchange with the neighboring catchments. The catchment area near Berioza is 916 km², below Zhidovka Channel (the eastern border of the reserve) - 3870 km² . Main tributaries of the Yaselda within the reserve are the Vinets Channel (51 km length) and the River Zhegulianka (44 km).The floodplain of the Yaselda is bilateral, its normal width is 0.8-1.2 km, the minimal is 0.1 km (near Zhaber village). Downstream of the Zhegulianka the mouth floodplain width increases up to 1.5-6 km. The riverbed within the reserve borders is freely meandering, with locally abundant emerging vegetation. The prevailing river width is 10-30 m, depth - 0.8-2 m, current velocity - 0.10 m/s. It crosses through 6 km length shallow and beginning to overgrow Sporovskoe Lake. The average width of the lake is 3 km, depth - 0.5-0.8 m.

The Yaselda belongs to the lowland river type with dominance of snow water feeding. This fact explains annual changes in the water level regime - spring flooding, low midsummer level, regularly breached by rain flooding and increased by regular thawing midwinter levels. Average start of spring water level increase occurs in the first decade of March, the earliest dates observed were in mid February. The duration of the flooding is 2-3 months. The floodplain is covered by water along the whole river length nearly every year. The highest flooding levels are observed in late March, the flooding height varies widely between years - from 15-20 cm and up to 100-120 cm. Midsummer's lows are observed usually since the second half of May and last 140-160 days. Winter low levels are established usually in early December. They are usually higher than summer levels and are more stable, with only occasional winter flooding which may even exceed the vernal ones.

Freezing usually is observed in the first decade of December, the maximal ice thickness is observed in February-March. The mean ice thickness is 32 cm, the maximal one - up to 70 cm. Ice breakdown is usually observed in the last decade of March, the total length of the ice-related period is 125-130 days. The river sink regime in the given area was closely studied near Berioza and Senin village. According to the data provided by Belhydromet, the mean annual water expenditure near Berioza varied from 1.34 to 9.69 m³/s, downstream of Sporovskoe Lake - 4,38 m³/s.The proportion of spring sink in the total one is 58%, summer-autumn season comprises 27% and winter - 15%.

Climatic conditions. The whole reserve is situated in the southern warm, unstable and moist agroclimatic region. The main feature of this region is the formation of a less continental climate, with mild and short winters, and long summers, if compared to other areas in Belarus. According to long-term observation on Pinsk Meteorological Station, the mean temperature of the coldest and warmest months, January and July are -5.3°C and +18.6°C respectively; while the annual mean temperature is +6.9°C. These indices for the whole country are -6.7°C, + 17.8°C, + 5.8°C respectively. The duration of the period with air temperature exceeding zero is ca. 250 days, exceeding 10°C - 157 days, exceeding 15°C - 95-105 days. Annual average precipitation in Polesia is ca. 600 mm, this is slightly less than the average for the whole country (650 mm). The duration of the period with stable snow cover in the region is ca. 75 days, from the last decade of December to early March. No stable cover is formed during ca. 18% of the winters.

Soil cover. The hydrological regime of the Yaselda and high water penetrability of sandy soils in its basin and floodplain cause high level of soil water logging in the floodplain during the greatest part of the year. That is why mire-type soil formation processes are predominant there. The distribution of soil cover in the floodplain of the Yaselda is very simple, for lowland mires are absolutely predominant. Only few small dry elevated island are scattered within the floodplain. Within the reserve in the floodplain lowland mires there dominate peat-mire (mostly peaty and peaty-gleyed) moderately acid (pH 4.7-5.3) soils . Floodplain sand soils (pH 5.0) are most common at the elevations. Peat layer depth varies from 0.5 to 2 m.

14. ECOLOGICAL FEATURES:

It is one of the largest floodplain fen mires in Europe. The mires within the reserve comprise a solid continuous tract (75% of the territory) stretched along the Yaselda for about 35 km. Floodplain habitats are mostly lowland mires. The present-day rather poor meadows taken together occupy only 5 % of the area, forests - 8.6 %, bushes - 1 %, lakes and rivers - 10 %. Sandy hills and low crests with

grassy vegetation in their highest parts are scattered between the mires and on the floodplain borders. The slopes and foots of the hills and crests are covered by birch, ash, black alder and oak growth.
In the past pine-oak forests were predominated on the islands. In the long run such forests were cut off and the area began to be used as arable land and pasture. Nowadays arable zones turn out to be fallow land and the natural vegetation cover is renewed.
Meadow and mire vegetation is represented mainly by eutrophic mire (associations *Phalaridetum arundinaceae, Glycerietum aquaticae, Caricetum gracilis, Phragmitetum communis, Caricetum rostratae*), acidophylic mire grassy (association *Caricetum elatae*), wet meadow (associations *Molinietum coeruleae, Caricetum paniceae*), and black alder forest (associations *Salicetum pentandro-cinereae и Alno (glutinosae)-Betuletum (pubescentis)* communities. European mire communities *Caricetum elatae* are of special interest as they are at the eastern distribution border.
Three main forest community groups are represented in the reserve:
1. Native lowland mire floodplain forests of *Alnus glutinosa* and *Betula pubescens*;
2. Natural and planted pine forests on the sands and sandy loams of floodplain terrace and river steep banks.
3. Secondary alder and birch forests with admixture of pine and oak on the relief elevations which replaced logged native broad-leaved and broadleaf-pine forests.

On the whole, there are represented by 13 forest types of 4 forest formations. This fact testifies to the monotony of the forest cover and ecotopic poverty of the territory.

15. LAND TENURE /OWNERSHIP OF :

The land in the area belongs to the state and is rented by collective farms (about 20 collective farms) and forestry enterprises.

16. CONSERVATION MEASURES TAKEN:

In 1999 all territory of site was announced to be protected as biological reserve of national importance. Within the reserve it is prohibited to carry out any drainage and land reclamation activities. Economic use of the land is restricted and officially regulated.

17. .CONSERVATION MEASURES PROPOSED:

In the course of the project's executing by the Royal Society for the Protection of Birds (RSPB, Great Britain) and Belarus Society for Protection of Birds (APB, Belarus) under the financial support of Fund «Darwin Initiative» (Great Britain) in 1999-2001 the following activities are planned:
- achieve an improved understanding of catchment-based mire hydrology and hydrochemistry;
- prepare broad zoological and botanical profiles for Sporova mires;
- improve the information base about the ecology of key biodiversity indicator species (Aquatic Warbler);
- develop management plan for Sporova mire.

18. CURRANT LAND AND WATER USE.

The prevailing form of land use in the area is haymaking that is carried out on about 30 % of the reserve territory. Cattle grazing is carried out on some parts of the site (10% of the area). Commercial fishing by an industrial team (brigade) is carried on in lake Sporovskoye and hunting is practised on the whole territory according to the state legislation. On the adjacent to the area drained fields grain and tilled crops are grown.

19. POSSIBLE CHANGES IN LAND AND WATER USE.

At present, the question about the possibility of land use in the reserve for organization of ecological tourism is being widely discussed.

20. DISTURBANCES AND MAIN THREATS (factors which may have a negative impact on the ecological character of the wetland)

Change of the water regime. Canalization of the upper course of the Yaselda from the source to the upper limits of the reserve, construction of the reservoir and fish farm «Selets» upstream of the reserve and decreasing of the floodplain width due to the drainage downstream of the reserve lead to

the change in the river hydrological regime. In spring the filling of the fishfarm's ponds is carried on. This causes complete absence of flooding. In the middle of August they begin letting out the water intensively; and this results in high flooding and fen mires are flooded consequently. High rains in summer also contribute to floodplain's flooding and, as a result, mortality of all ground nesting birds is increased.

At present, ca. 30% of Yaselda's catchment area has been drained. The most of the drainage works were carried out in 1970s. Drainage and land reclamation factor seems to be the most important one among the other economic activities. The quantitative characteristics of the annual water sink before drainage activities were equal to 147 mm and after its completing - already to 210 mm. The construction of the «Selets» fish pond complex at the distance of 5 km upstream the river had a serious impact on the river regime within the reserve. It is mostly pronounced in spring and late autumn. During dry years, water filling of the fish farm ponds causes practically complete absence of flooding from Berioza downstream to Khomsk. On the contrary, water sink from the fish farm leads to the constant 20-40 cm water level increase and flooding of the floodplain in the given area from mid July to late September. These alternations of water regime may cause considerable changes in lowland mire plant communities and degradation of one of the largest European breeding grounds of the globally threatened Aquatic Warbler.

Water pollution. Increase in water pollution is observed during the recent years. Yaselda water quality is affected by the industrial waste and domestic sewage in Berioza, agricultural effluents, drainage activities, and chemicals from water complex «Selets». The sewage from Berioza has its negative effect downstream the sewage treatment plant, while agriculture (cattle-breeding, landuse) performs its negative impact on the hydrological regime as a result of the run-off of fertilizers and chemicals from the fields on the whole watercourse. Main indices of water quality have deteriorated significantly during the last decades (studies in 1973-1978 and 1996). This fact caused the intensive overgrowing of both - the river bed and the shallow lake Sporovskoye. Concentrations surpassing the existing maximal sanitary standards were observed for oil products, Cu and phenols during the all periods, and in 1996 there were increased concentrations of BOD_5, NO_2 and P.

Organic pollution from cattle breading farms increases as well. The increase of sinks from fields causes intensive anthropological eutrophication and the upper course of the river from the Beryoza up to Sporovskoye lake begins to overgrow. This is also true for the lake itself. It is noteworthy that in the river Yaselda a self-purifying system works well due to its swamped floodplain.

Ploughing. Trend to the active agricultural use of the unique dry elevations in the floodplain supporting specific plant communities has been observed recently. This results in changes of vegetation.

Overgrazing. One of the most important disturbance factor is cattle overgrazing in some mire localities and subsequent changes in nanorelief and plant communities. Overgrazing has been registered in the area located to the north- east of village Kokoritsa

Haymaking. The decrease in haymaking areas was resulted in intensive overgrowing of open mires by bushes (*Salix sp.*). Such localities become unsuitable for open mire specialists e.g., for Aquatic Warbler.

Old vegetation burning. It needs careful application according to actual ecological situation. Burning in the mires may have especially adverse affect during dry springs with no flooding when upper soil level burns along with the dry grassy vegetation. The majority of birds, in particular - globally threatened species - Corncrace and Aquatic Warbler stop breeding on such burned mires and meadows.

21.HYDROLOGICAL AND BIOPHYSICAL VALUES.

Sporovsky lowland mire tract is unique for Europe in respect to its area and natural state of the landscapes and it is one of the largest lowland mires of Polesia. It represents one of the last remaining large mires in Yaselda's catchment and plays the water regulatory role important for this large tributary of Pripyat. Sporovsky reserve represents unique complex of mesotrophic and eutrophic fen mires characterized by high peat deposit, important role in CO_2 fixation, and by improvement of air quality as well. The floodplain mire also significantly participates in purification of the effluents from the drained catchment area. During the periods of spring and midsummer rain floods floodplain mires play the role of water storage and thus they prevent the flooding of populated areas and agricultural land.

22.SOCIAL AND CULTURAL VALUES.

The mire complex plays an important role in water regime regulation for the given area. Stable favorable conditions for agriculture are preserved due to the presence of the mire on the adjacent drainage systems. The mire also performs the role of a large filter by preventing polluted water from getting into Pripyat. Floodplain reservoirs of the Yaselda and Sporovskoye lake in particular are notable for their large fish supplies used by the native population. The area under study is one of the best zones for hunting waterfowl. The mire and especially its parts situated around Sporovskoye lake are used intensively for hay cutting and cattle breeding. On the territory of reserve Sporovskoye on the elevated parts between mires two places where the ancient man lived were discovered. One of them was registered as «monument of nature», the second one was found in 1997.

23. NOTEWORTHY FAUNA:

The structure of fauna in reserve is shaped by the dominance of wetland, i.e., open lowland mires, lakes and rivers, high emerging vegetation, floodplain meadows and willow bushes. Vertebrate fauna of the reserve includes 20 mammal, 112 bird, 6 reptile and 6 amphibian species. *Lacerta agilis* and *Natrix natrix* are common reptiles there. Total number of amphibian species reported is 8 with *Rana arvalis* and *R. temporaria* being the most common species.

Small total number of mammal species is connected with wide distribution of one habitat- fen mires- and absence of large forest tracts. Good protection of the territory and absence of hunting called forth here conservation of economically valuable bird and animal species in quite large amounts. *Alces alces, Sus scrofa* and *Capreolus capreolus* were common just several years ago in the north-eastern part of the reserve where extensive shrubs cover partially drained mireland. Today their quantity is very low. Occurrence of the waterbodies and wetlands provide good conditions for valuable fur bearing animals, i.e., *Nyctereutes procyonoides, Mustella putotius, Mustella erminea, Vulpes vulpes, Lepus europeus.* Semiaquatic mammals (*Mustella vison, Lutra lutra, Castor fiber, Ondatra zibethica*) reach high densities on Yaselda and Sporovskoe. The parts of the lake witch are close to the river are especially important for them. This is indicated by high density of *Mustella vison* and observations of *Lutra lutra* litters there.

Bird fauna of the reserve is the richest among vertebrate classes. It comprises 112 breeding species, or about half (49.5%) of all breeding birds in Belarus. Seventeen species listed in the national Red Data Book (22.6% protected birds) were recorded in the reserve. Among rare and threatened species the representatives of lowland mire bird communities deserve special attention: *Numenius arquata, Asio flammeus, Acrocephalus paludicola, Locustella luscinoides.* The reserve holds one of the largest world populations of Aquatic Warbler. Its total size is estimated to be 1360-2120 singing males. This territory also has national importance for preserving of such rare species as *Botaurus stellaris, Ciconia nigra, Chlidonias niger, Locustella luscinoides.*

24.NOTEWORTHY FLORA.

Total number of species reported in the reserve is 543 (out of ca. 1700 Belarusian species). This number is rather low for such a large area as Sporovky is. Poor representation of ecological niches in the reserve seems to be the reason for this phenomenon. Dominating floodplain mires are characterized by unique, but stable and not very diverse plant species composition. Relief elevations which contribute to the plant species diversity (the so called ancient «Eol's islands») are not numerous; furthermore, most of them represent disturbed (agricultural are abandoned agricultural) habitats. Specific features of the reserve's flora are: a great species diversity of *Caryophillaceae*, a considerable proportion of *Carecaceae, Juncaceae* and *Salicaceae.* These features may be attributed to the dominance of lowland mires, presence of dry sandy islands within the mire tracts and low disturbance level of the area. The proportion of synanthropic species is quite low (more than 40 species were recorded). But most of them occur only along roads and on disturbed elevated islands.

Eleven species listed in the national Red Data Book occur in the reserve.

Some other rare and unique plant species are recorded in the reserve, they are: *Cypripedium calceolus, Cephalanthera rubra, Luistera ovata, Planthathera chlorantha, Gentiana cruciata, Dianthus cartusianorum, Epipactis atrorubens, Lycopodiella inundata, Iris sibirica, Carex umbrosa, Nymphaea alba.*

A number of other rare and unique species were discovered here as well: *Saxifraga tradactylis, Lithospemum officinale. Digitalis grandiflora. Chondrilla juncea, Stachus recta.*

25. CURRENT SCIENTIFIC RESEARCH AND FACILITIES:

The detailed scientific research of flora and fauna has been carried out only since 1997 .Up to this time partial data concerning the species structure of flora and fauna were obtained for a small territory in the vicinity of Sporovskoye lake. This was done during the preparation for the reserve's foundation in late 80-s. Regular research of water pollution is being carried out along the river's course upstream and downstream the reserve. Being one of the largest lowland mires in Europe, whose condition is very close to the natural one, the considered area has a great potential importance for scientific research of the ecosystems of mesothropic lowland mires as well as for specialists'training.

26.CURRENT CONSERVATION EDUCATION:

The informing of the inhabitants on the importance of the area has begun since 1997 when a large population of Aquatic Warbler was discovered here. Publications in a local newspaper dedicated to the importance of the area, several meetings with local authorities , an invitation of the local services' representatives have resulted in the fact that most of them are aware of the value of the reserve. However, the inhabitants have a very vague idea of the fact even up to this time . It is necessary that a purposeful campaign for nature conservation education work among the inhabitants and among pupils in particular should be carried out.

27.RECREATION AND TOURISM:

The economy of the considered area is dominated by agriculture, however the physical conditions (types of soil, climate) are unfavorable for profitable agriculture production. Yaselda region is also characterized by such negative factors as low standard of life, undeveloped infrastructure, poor entrepreneurial skills. The moving into towns of the most dynamic and creative part of the population slows down the region's development. The younger generation is leaving the countryside and moving to bigger cities and, as a result, the population is getting older.

The development of rural tourism and ecotourism could help to overcome these problems. However some forms of tourism can lead to the destruction of habitats for birds and animals and to degradation of landscapes as well. A lowland mire is especially vulnerable if visited by large groups of people. Consequently, the development of tourism should be carried on here in such a way, so as to minimize conflicts with social and cultural traditions and, last but not least, to minimize the conflicts with natural possibilities of the region. The following measures aimed at the development of stable tourism in the area on a small scale can be suggested:

- Organization of ecological youth camps;
- Water excursions;
- Organization of information services;
- Scientific tourism.

During 1997-1998 after international conferences the given area was visited by three groups of tourists from western Europe, one group of students from Germany and some excursions.

28.MANAGEMENT AUTHORITY:

The national biological reserve «Sporovsky» is under the authority of Drogichensky, Berezovsky, Ivatsevichsky, Ivanovsky districts' executive authorities and the Ministry of Forestry of the Republic of Belarus. The nature conservation of the reserve is carried out by district executive committees, the state forests protection organization together with nature preservation bodies. The addresses of the district inspections are as follows:

Berezovsky district inspection, Bereza 225210, Lenin Str. 82
Drogichensky district inspection, Drogichin 225830, Lenin Str. 93
Ivanovsky district inspection, Ivanovo 225800, Oktyabr Square 2
Ivatsevichsky district inspection, Ivatsevichy, 225250, Lenin Str. 44

29.JURISDICTION:

Brest regional committee of natural resources and nature conservation: Brest224013, Malaya St. 3.

The Ministry of Natural Resources and Nature Conservation: Minsk 220048 Kollectornaya St. 10.

30. BIBLIOGRAPHICAL REFERENCE (scientific/technical only)

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30. REASONS FOR INCLUSION: (state which Ramsar criteria - as adopted by Rec. C. 4.15 of the Montreux Conference -are applicable)

1a, 2a

About 9% of European breeding population of globally threatened Aquatic Warbler is regularly nesting in Sporovsky fen mire tract (1360-2120 pairs).