

Additional information

General ecological features:

General characteristics of the taxonomic and typological diversity of biota. On the territory of wetland "Stary Zhaden" 34.4% (563 species of vascular plants) of the total species number of flora of Belarus is registered. There are about 19 plant species (bryophytes and vascular plants) per 100 m². The most species rich habitats (26-35 species/100 m²) are concentrated in central and south-western part of the wetland. These areas are confined to forest ecotopes with fertile soils (black alder nemoral-grasses forests), or to transition mires and fens. Species rich habitats form ecological corridors and are an important element, determining the conservation of biological diversity of the wetland and adjacent territories. Bogs phytocoenoses of the eastern part of wetland are characterized by the minimal species set (10-15 species/100 m²). Low number of species is also typical for forest communities of oligotrophic-xerophilous conditions as well as for post-fire plant communities, located along the western and southern margins of the wetland.

In general, the level of α -diversity of the habitats is low (16-20 species/100m²) and extremely low (<15 species/100m²). Such habitats occupy 64.2% of the territory (26.7 and 37.5%, respectively). Phytocenoses with the highest species richness occupy ~ 7.1%. The weighted average value of the floristic diversity level of the wetland is 2.16 points.

Within the wetland "Stary Zhaden" forests cover 8583.5 ha (50.4%), mires - 3675.7 ha (21.6%), meadows - 108.6 ha (0.6%), secondary derivative vegetation, waste land - 2014.6 ha (11.8%), low forests and shrubs - 2492.8 ha (14.6%), other land - 173.2 (1.0%).

The total number of natural ecosystems is 80, including Forest - 28, Marsh - 45 of anthropogenically derived ecosystems - 7 (including the stage of recovery dynamics - 5), the average number of ecosystems - 7 per 1 km². The level of habitat diversity has mosaic character. The minimal values of diversity are typical for south-western, north-eastern and northern parts of the wetland. These areas were formed due to: a) environmental gradients are extended, and the conditions are generally deteriorated due to the increase of oligotrophic (or xerophytization), b) great intensity of effects of anthropogenic factors (logging, fires), which determine the depletion of biological diversity.

The most valuable areas of the wetland are the complex east-european grass and grass-hypnum fens of nemoral type in combination with east-european sphagnum bogs and transition mires. Complex is located in the central part of the wetland and forms the "core" of it.

Flora. On the territory of the wetland 563 species of vascular plants (including hybridogeneous taxa) are registered (303 genus, 82 families, 52 orders, 6 classes and 5 divisions):

Lycopodiopsida - 4 species, *Equisetophyta* - 6 species, *Polypodiophyta* - 8 species, *Pinophyta* - 2 species, *Magnoliophyta* - 542 species (*Magnoliopsida* - 407 species, *Liliopsida* - 136 species).

The most species rich families are: *Asteraceae* - 68 species, *Poaceae* - 55 species, *Cyperaceae* - 38 species, *Fabaceae* - 32 species, *Rosaceae* - 28 species, *Caryophyllaceae* - 26 species. These taxonomic relationships characterize flora of the wetland as *Cyperaceae*-type, that adequately illustrates the dominance of wetlands in the protected area. Lower species richness are typical for families: *Lamiaceae* - 23 species, *Scrophulariaceae* - 23 species, *Polygonaceae* - 20 species, *Ranunculaceae* - 16 species, *Apiaceae* - 15 species, *Salicaceae* - 15 species, *Juncaceae* - 14 species. Taxonomic capacity of other families is lower.

Minimal presence of *Brassicaceae* species and a relatively high taxonomic abundance of *Rosaceae* species characterize the high level of natural features of the wetland habitats.

The dominant life forms are perennial grasses (72%) and woods (12%). 16% - annual and biennial plants, the presence of which reflects the intensive forest management within the wetland (the network of forest roads, logging, forest cultivation).

Fauna. The fauna of the wetlands is diverse and representatively reflects the environmental characteristics of the all spectrum of wetland ecosystems. Within the wetland five classes of vertebrate animals registered: 12 fish species (pike, bream and roach are common), 4 amphibians species (moor frog is dominated by), 5 reptiles species, and 104 birds species (represented by 13 orders): *Ciconiiformes* - 2 species, *Anseriformes* - 3 species, *Accipitriformes* - 10 species, *Galliformes* - 3 species, *Gruiformes* - 3 species, *Charadriiformes* - 7 species, *Columbiformes* - 3 species, *Cuculiformes* - 1 species, *Strigiformes* - 3 species, *Caprimulgiformes* - 1 species, *Strigiformes* - 1 species, *Piciformes* - 8 species, *Passeriformes* - 59 species.

20 species of mammals are recorded within the wetland territory: *Canis lupus* and *Nyctereutes procyonoides* live permanently here. Step-prints of *Felis linx* were noted everywhere. *Mustela vison* and *Lutra lutra* are less abundant here -. *Martes martes*, *Mustela putorius*, *Mustela nivalis* and *Mustela erminea* can be found everywhere. *Alces alces*, *Lepus timidus* and *Lepus europaeus* are not so abundant. *Sciurus vulgaris* is common species for the wetland. Water bodies are inhabited by *Castor fiber*.

The most important habitats. The total number of natural ecosystems, identified within the territory of the wetland - 80 including: forest - 28, mires – 45, man-made ecosystem - 7 (including ecosystems that are on the stage of recovery dynamics - 5). The average number of ecosystems is 7 per 1 km². According to EEC Habitat Directive 20 rare and vulnerable habitats (26.7%), were identified within the wetland.

Natura 2000 code	E
7110 Active raised bogs	NIS habitat type name
—<	D1.11 Active, relatively undamaged raised bogs
—<	G5.64 Raised bog pre-woods
7140 Transition mires and quaking bogs	
—<	D2.31 [<i>Carex lasiocarpa</i>] swards
—<	D2.33 [<i>Carex rostrata</i>] quaking mires
—<	D2.34 [<i>Carex limosa</i>] swards
—<	D2.35 [<i>Carex chordorrhiza</i>] swards
—<	D2.37 [<i>Rhynchospora alba</i>] quaking bogs
—<	D2.38 [<i>Sphagnum</i>] and [<i>Eriophorum</i>] rafts
—<	D2.39 [<i>Menyanthes trifoliata</i>] and [<i>Potentilla palustris</i>] rafts
—<	D2.3A [<i>Calla palustris</i>] mires
—<	D2.3B Brown moss carpets
—<	D2.3C [<i>Eriophorum vaginatum</i>] quaking bogs
—<	D2.3D [<i>Molinia caerulea</i>] quaking bogs
9080 Fennoscandian deciduous swamp	G1.52 [<i>Alnus</i>] swamp woods on acid peat
woods	
91D0 Bog woodland	G1.51 <i>Sphagnum</i> [<i>Betula</i>] woods
—<	G3.D1 Boreal [<i>Pinus sylvestris</i>] bog woods
—<	G3.D2 Boreal sphagnum [<i>Pinus sylvestris</i>] fen woods
Habitats that are not mentioned by EEC Habitat Directive	
Overgrown forests (>60 years), phytocoenotic structure is similar to Eurasian boreal birch [<i>Betula pendula</i>] forests (G1.918)	
Overgrown (>100 years) subtaiga forests, phytocoenotic structure is similar to Boreal pine [<i>Pinus sylvestris</i>] forests (КОД G3.4)	

The wetland ecosystem functions. Ecosystems of the wetland have a number of important socio-economic and environmental functions:

- regulation of outflow
- gases exchange control (release of oxygen and carbon sequestration)
- raw materials (supplies of berries, medicinal and technical raw materials, hunting species)
- climate
- filtration (for groundwater)
- peat formation (wetland is the part of the largest in southern Belarus peatland)
- accumulation of water
- pioneer (in areas destroyed by peat extraction)

Physical features of the site

Geomorphology. According to geomorphological zoning the wetland is entirely located within the area of geomorphic region of the Pripyat water-glacial alluvial plain with large mires and numerous dunes, islands of terminal moraines and kames. The area belongs to the Belarusian Polesie Zone .

Wetlands located on the wavy waterlogged lowland with extensive development of aeolian relief forms. It is an alternation of bogs, located on the large ancient, elongated flat depressions, and elevated areas of relatively dry watershed plains. Mires consist of several separate elongated mire-tracts, which extend to tens of kilometers. The largest area is Stary Zhadensk tract, located in the central part of the wetland, and the Velikoe Boloto tract, which is located in the southern part of the wetland and partly goes beyond it. Surface height comes down from 140 to 125 m in the northern and north-western direction.

Origin. The wetland has a natural origin. A large part of the wetland is located on the low second terrace of Pripyat river, which was formed during the time between the penultimate and recent (maximum) stages of the Valdai glaciation (about 60-18 thousand years ago). Its formation proceeded without participation of melt waters of Valdai glacier. The first Late Valdai terrace extends to the north from the border the wetland.

Hydrology and hydrography. The territory of the wetland is located between river Pripyat and its right tributaries – rivers Stviga and Ubort. Hydrological network of the wetland is represented by only melioration canals which are connected with the main water-ways. Rivers flowing close to the wetland borders turned into receiving waters of drainage systems. Their hydrological characteristics were the appropriately changed.

On the north and north-eastern part of the wetland few relatively large canals stretch in the northern-north-eastern direction to river Stviga. Here is the place of the drainage network, established over 120 years ago during Western expedition for survey and drainage under the direction of general I. Zhilinskisi. On the eastern boundary of the wetland, close to tracts Stary Zhadensk and Boloto Velikoe, ditch Glavnaya and canal Bychok are, respectively, originated. These linear water bodies run on heavily waterlogged territory of Pripyatski National Park, sometimes intersect, and flow into rivers Stviga and Pripyat. Canal Bychok connects to the river. Mutvitsa and prolongs it. The river Mutvitsa flows from the Tonezh finite-moraine. Canal Bychok with its sluice system is the one from two main drainage-alloy canals of the Simonovichi Polesie drainage system. At present, main canals are littered and overgrown with trees, shrubs and emophytes. Therefore adjacent areas are waterlogged. Near southern and south-western boundary of the wetland the system of canalized rivers and canals run in the direction of river Stviga. This rivers-canals system also flows from Tonezh ridge.

The hydrographic network of the wetland:

1. River Mutvitsa - the left tributary of the canal Glavnaya Ditch (Pripyat basin). Length is 13 km. The catchment area is 77 km². The average water surface slope - 0.77%. It starts near the village Tonezh, flows through the wooded wetland, estuary is located 8 km to north from the village Tonezhskaya Rudnya; 5.5 km of the riverbed is canalized.
2. Drainage canal Bychok - right tributary of river Stviga (Pripyat basin). It was constructed in 1873-1893. Length - 24 km. Starts from river Mutvitsa, 0.8 km to north from the village Rudnya of Lelchitsy district, crosses the Pripyat National Park, flows into the river Stviga near the village Ozerany of Zhitkovichi district. The main tributaries - ditch Glavnaya (length 19 km) and Semetskaya Strelka (length 8.2 km).
3. Drainage canal Glavnaya Ditch - the left tributary of canal Bychok (Pripyat basin). Canal was built in 1873-1893, reconstructed in 1968. It starts at 8.5 km to south from the village Berezhtsy, crosses tract Stary Zhadensk and flows into the canal Krushinny.

Hydrochemical parameters of water.

In general, are typical for all of Polesie mires, and indicate close to natural conditions of the wetland. An average pH value is 3.3-3.8 for bogs, 3.6-4.0 for transition mires, and 4.6-5.9 for fens.

Soils. The main types of soils are mire soils and sod-podzols. Groundwater comes quite close to the soil surface here. This leads to significant spread of sod-podzolic soils of varying hydromorphic degrees and intensive process of mire soil development. Soils of bog type occupy large areas, confined to the central part of the wetland. Soils of transition mire adjoin them. Soils of the fens are dominated by shallow peat, peat-gley, peaty-gley, humic-gley and silty-humic soils, which underlain by unconsolidated ancient alluvial sands.

On the elevated sand ridges weakly-podzolic soils with deep level of groundwater are distributed. Strongly-podzolic sandy soils with illyuvial humus horizon and close stagnant waters are found within low watershed areas along the margins of bogs. Areas located near rivers and wide shallow depressions with flowing groundwater are covered by soddy-humic-gleyey soils, gley-sandy soils and shallow peat deposits of the fen type.

In the northern part of the wetland the soddy-semihydromorphic soil and alluvial-soddy soils of the floodplain can be found. Other types of soils are also indicated within the southern and eastern part of the wetland: undeveloped sandy soil and areas with waved sands.

Climate. The average annual long-term air temperature is $+6.9 \pm 0.10\text{C}$, varying in different years from $+4.9$ (1940) to $+8.70\text{C}$ (1989, 2008). The warmest month is July ($+18.60\text{C}$), the coldest - January (-5.40C).

The duration of the period with average daily temperatures above 00C is 256 days, vegetation period - 207 days, frost-free period - 148 days. The latest frost was recorded on 2 of May, the first - on 28 of September. The average monthly temperature in January ranges from 0.80C (1989) to -15.80C (1987), in July from $+15.30\text{C}$ (1979) to $+22.70\text{C}$ (2010). The average monthly temperature of the soil surface is up to -70C in winter and up to $+220\text{C}$ in July.

The average annual long-term amount of precipitation is 671 ± 12 mm, varying in different years from 422 (1963) to 969 mm (1998).

During the warm period (April-September), 410 mm of precipitation falls out, in the cold season (October-March) - 260 mm. During the year a minimum of precipitation falls usually in February and March (36 mm in average), maximum - in July (91 mm). Daily maximum amount of precipitation (115 mm) was observed in June, 1991.

The average thickness of snow cover during the winter is 15-20 cm, in some years - up to 55 cm. The stable snow cover sets from 15 to 20 of December, and melts from 5 to 10 of March. The average number of days with thaws (December-February) is 40-45.

There are 108 humid days (relative humidity $\geq 80\%$) in the year, dry (with the relative humidity $\leq 30\%$) - 19. The general atmospheric circulation causes the dominance of winds of western directions. The annual average wind speed is 2.6 m/s, the maximal average wind speed is observed from November to May (2.6-2.9 m/s, with western direction - up to 3.2 m/s), and the minimal - from June to October (2.2-2.5 m/s). During the day, the slowest speed is observed at night, the highest - during the day-time.

Physical features of the catchment area:

The wetland is located between the right tributaries of the river Pripyat (the largest tributary of the river Dnepr) - rivers Stviga and Ubort.

Stviga River springs from the tract Dobryl of Rovno region of Ukraine. It flows into the Pripjat from right side (323 km from its mouth). The total length of river Stviga is 178 km, on the territory of Belarus - 112 km. The total catchment area is 5300 km², within Belarus - 4300 km². The main tributaries on the territory of Belarus: stream Plav, canal Bychok (right); river Mostva (left). The basin is a pear-shaped, with a significantly developed left bank. It is located within the lowland plain of Polesie, adjacent to the Volyn-Podolsk upland in the south, and the northern part is situated on an elevated Turov plateau. Forests are mixed, dominated by deciduous trees, often waterlogged; the largest mires are concentrated in the upper part of the catchment. Fens distributed throughout the watershed. Large lakes are absent. Riverbed is freely meandering, highly sinuous, branched, with sandy islands, flooded during spring time. Upper part of the riverbed is canalized. The banks are steep, destroyed during flood. Banks are swampy, composed of peat and sand, overgrown with shrubs and forests.

Ubort River – is the right tributary of the Pripjat River. Length - 292 km. The catchment area - 5820 km². The average water surface slope is 0.3%. Mean annual water flow at the river mouth is 24.4 m³/s. It starts at about 207.2 m above s.

l. in the Zhitomir region of Ukraine, flows into the Pripjat River at a height of about 120 m above s. l. Length of river Ubort is 126 km within territory of Belarus, and catchment area - 910 km². The flood usually begins in early March (the maximum height above mean water is 4 m, the average - 1.8-2.7 m) and ends in mid-May. Stabilization of mean water occurs in July (average duration - three months). River freezes in early December. River valley is inexpressive, sometimes merges with the surrounding area. Floodplain is two-sided, its width - 0.1-0.2 km in the upper flow and up to 1-5 km within the rest extension. The riverbed is freely meandering, sinuous, in lower flow is strongly sinuous, with low sandy islands. The width of riverbed is 10-15 m, near the river mouth - up to 60 m.

Ecosystem services

Current scientific research and facilities

Case studies of landscape and biological diversity in the reserve were carried out to prepare the scientific justification for the establishment of the reserve of national importance “Stary Zhaden”. In 2011 flora and fauna of the wetland were studied in details, the systematic list of major groups of vertebrates was also prepared; rare and endangered species were identified, and the current condition of the wetland was assessed in 2003. These works were carried out by various specialists of the Scientific and Practical Center for Bioresources of the National Academy of Sciences, and of the Institute of Experimental Botany of the National Academy of Sciences.

The status of the population *Aquila clanga* (I category of the Red Data Book of Belarus, the European conservation status (SPEC-1), the European threat status (EN), Annex of CITES) is annually monitored. Forestry management, grading of hunting areas, counts of hunting and rare species are periodically carried out on this territory. The obtained data have the great scientific importance (Scientific and Practical Center for Bioresources of the National Academy of Sciences, RUE "Belgosohota", RUE "Belgosles", national park “Pripjatsky”).

Social and cultural values

Historical and cultural importance.

The wetland is swampy, difficult of access area. Within the wetland settlements are absent. Any archaeological, cultural, historical monuments are not allocated within the territory. During the Soviet time the military testing ground "Merlinskie Hutora" (the largest and second largest in the world) was located within the wetland area. Numerous abandoned buildings remaining from that time are interesting for people who

study military history. Various vegetation, conventionally called the "barren", as well as secondary undergrowth and scrub vegetation is formed on the former military site. Possible danger is unexploded ordnance left over from the military ground operation.

Socio-economic potential.

Population. On the territory of the wetland settlements are absent. Adjacent to the northern part of the wetland area have been historically densely populated. Nowadays some settlements at a distance of 2-10 km are located within this area - Berezhtsy, Rychev, Hilchitsy, Korotichi. The areas adjacent to southern, western and eastern parts of the wetland are much less populated. In the southeastern part at a distance of 0.5-1 km village Rudnya is located, 9 km - village Tonezh, from the south at a distance of 10-12 km – village Korma, 15 km - village Bukcha is located. There are many farms and small settlements within the wetland territory before the Second World War: Obzov, Zhadensk, Mlynische, Tatishche, Starye, Korno, etc. Between them there was a well-developed road network. However, in Soviet times due to the organization here (1963) the largest in Europe military testing ground "Merlinskije Hutora" all settlements were resettled.

Transport and engineering infrastructure. The territory of the wetland is heavily swamped, that's why the road network is poorly developed here. The only road runs between village Berezhtsy and Obzov (resettled farm), it passes through the western edge of the wetland. In addition to the transport infrastructure, part of the drainage network is located here. This network was laid in the late XIX century (1873-1893) during the Western expedition for survey and drainage under the direction of general I. Zhilinskisi. Canals Bychok with its sluice system is the one from two main drainage- alloy canals of the Simonovichi Polesie drainage system.

Industrial production and mineral resources. Industrial enterprises are absent on the wetland territory. This area is also not a source of raw materials for industry of Zhytkovichi district. On the territory five peat extraction sites are located: Mezhch I (inventory number 825), Mezhch (partly, inventory number 826), Smolyarnya (partly, inventory number 827), Schaschits (inventory number 1267), as well as an unnamed peatland (inventory number 134H). The average depth of peat is 0.75-2.1 m, the maximal - 3.8 m.

Agriculture. On the territory of the wetland agricultural land of the farmer M. Shrubka is located. In the structure of land fund this land occupies 93.2 ha (0.5%). At present, land is not used for grazing and is under active transformation by developing of shrub vegetation. For the purposes of forest protection 0.4 ha of grassland is used. Agricultural lands of APC "Rychevsky" and farmland of M. Shrubka are directly adjacent to the wetland.

Forestry. The wetland "Stary Zhaden" is covered by forests (16955.2 ha) of the forest fund of SFI "Poleski Forestry". Forest land covers 8722.1 ha (51.4%), including productive forested land - 8583.5 ha (50.6%). The entire forest fund within the wetland belongs to group II (production forests); 6617.3 ha (75.8% of forest area) belongs to the inaccessible forest areas. Taken together, inaccessible forest areas and mires constitute 60.7% of the forest fund, which provides good conditions for conservation of rare species of plants, animals and natural ecosystems.

The total timber store in the forests of the wetland (for 01.01.2011) is 912.4 thousand m³. It is represented by pine plantations - 704.6 thousand m³ (77.2%), including the pine growing on the dry land - 495.1 thousand m³ (54.3%), pine of the mires - 209.5 thousand m³ (22.9%). The average timber store in the forests is 122 m³ per hectare of forested area.

Fishery use. Reservoirs are not suitable for intensive cultivating of fish.

Hunting. Hunting is managed by experimental forest-hunting economy "Lyaskovichi", which is included in the structure of a national park "Pripyatsky".

Biological resources. Collecting of berries (blueberries, cranberries) within the wetland is an important source of income for the local population. Within the wetland harvesting of biological resources carries out in following ways:

- harvesting of fruit, berries (blueberry, cranberry, raspberry) and mushrooms
- harvesting of officinal and technical plants
- commercial honey

Store of the non-timber forest resources of the wetland is 4.8 thousand tons, including actually available store - 1.24 thousand tons. Costs of the resources are 4838.7 thousand USD, including actually available resources - 1191.98 thousand USD.

Current recreation and tourism

The wetland is remote from the large settlements; it is highly swamped and forested. That's why there is no necessary infrastructure for recreational activities. There are no rivers and lakes here, which usually attract vacationists. Recreational potential of the wetland is relatively low, and main forms of recreational pressure are hunting, picking mushrooms and berries by local population.

However, mire complexes is characterized by a high level of originality. Here are concentrated the unique natural ecosystems of polesie type with a specific composition of the biota. Considering the high scientific value, the presence of rare natural communities, as well as protected species of animals and plants, the wetland is perspective for ecological tourism.

There are no touristic and recreational facilities and objects listed in the State inventory of tourism resources of the Republic of Belarus. The development of tourist infrastructure within the wetland is also not planned by the State programme of socio-economic development and complex use of Pripyat Polesie in 2010-2015.

Current land (including water) use

Land users in the territory are the State Forestry Institution "Polesski Forestry" - 16,955.21 ha (99.5%), and farmland of M. Shrubas - 93.18 ha (0.5%).

Major land uses: forestry

- logging,
- reforestation
- secondary forest use (berries, mushrooms, officinal and technical raw collecting) recreation
- hunting
- berries picking

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

within the Ramsar site:

Logging. Substantial and continuing threat to natural forest ecosystems is logging, first of all - final harvesting. During the period from 2002 to 2010 2638.7 ha (30.7% of forested area) of the wetland territory was affected by logging, 28.2 thousand m³ of wood were harvested. The most intensive logging was carried out in 2002-2004.

Fires. Fires belong to one of the most significant threats to functioning of natural systems. The main causes of fires: mass visiting the territory by people during the berries and mushrooms harvesting, intentional arsons, drainage reclamation, extreme summer droughts of the last years. Over the past decades fires occur regularly on the wetland. Especially disastrous fires were in July-September of 2002. As a result, 4322.8 ha (25.5%) of the forest were damaged, 2016.5 ha (18.1% of the forested area) were severely damaged. Timber stock of dead forests is up to 144.0 thousand m³ (12.7%). Fire caused significant damage to the vegetation resources (berries, officinal plants). The annual minimal cost of damages only from the reduction of cranberries harvesting is about 100-250 thousand USD. The fires led to occurring of the secondary post-fire vegetation, drying out the pine on the mires, in some places - to destroying of ground cover, and consequently to biological diversity decreasing.

Drainage reclamation. The major waterways within the wetland are the network of old canals and ditches of the end of

XIX. Despite the fact that nowadays the drainage network is not functioning effectively enough, it influences significantly on the wetland vegetation formation. Frequent partial drainage leads to vegetation changes (the intensive development of wood layer, increasing of stand productivity and growth of shrubs on the wetland, appearance the peripheral areas of mire with not valuable plant communities). The overgrowing process of the open areas of mires and flooded meadows are recorded within the area of about 1.7 ha, or 10.3% of the wetland.

However, these processes don't have a total character, since within the large area of the wetland there is an opposite process – rewetting of the forested and open areas of mires by reducing the effects of drainage canals functioning (they are overgrown), as well as by settlement of beavers. These trends are in large scale on the wetland territory. Mire complexes of the western and central parts gradually become inaccessible. Distinct processes of natural ecosystems transformation occur on the area of 2.6 thousand ha (15.2%).

Contamination of the environment. There is a local contamination of ecosystems by household rubbish in the vicinity of the villages located on the periphery of the wetland (Berezhtsy, Rychev, Rudnya), as well as by local organizations in the camps for pickers of berries in the western and southern parts.

Recreation. The main forms of stress on natural systems are hunting and a mass collection of mushrooms and berries by local population. The wetland intensively visited during harvesting season in summer (June-July) and autumn (September-October). In this regard, long-term path network, permanent entrances to the wetland, parking places were formed here. Berry-pickers damage berry-fields, make intentional and non-intentional arsons, damage forest roads, waste and destruct the natural systems.

Damage of the forest by pests and diseases. Centres of damages occupy 2.22 ha (0.26% of forested area) with a timber volume of 3.1 thousand m³. Status of disease does not cause a significant threat to phytocenoses.

Poaching. As a result of poaching, the number of major economically valuable animals is below of the biological capacity of the wetland. Some fear is caused by a condition of local populations of moose, wild boar, capercaillie and black grouse.

Radioactive contamination. As a result of the Chernobyl disaster the area of the wetland was subjected to insignificant contamination of <37 kBq/m² (<1 Cu/km²) with ¹³⁷Cs.

in the surrounding area:

All listed negative factors occur on the adjacent territory.