



Sarobetsu Wetland
Japan
(28_09_2021)

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Site Information Sheet on
East Asian-Australasian Flyway Network Sites
(SIS) – 2017 version

Available for download from <https://eaaflyway.net/about-us/the-flyway/flyway-site-network/>

Categories approved by Second Meeting of the Partners of the East Asian-Australasian Flyway Partnership in Beijing, China 13-14 November 2007 - Report (Minutes) Agenda Item 3.13

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2. Date this sheet was completed *:

DD/MM/YYYY

24/09/2021

3. Country *:

Japan

4. Name of the Flyway Network site *:

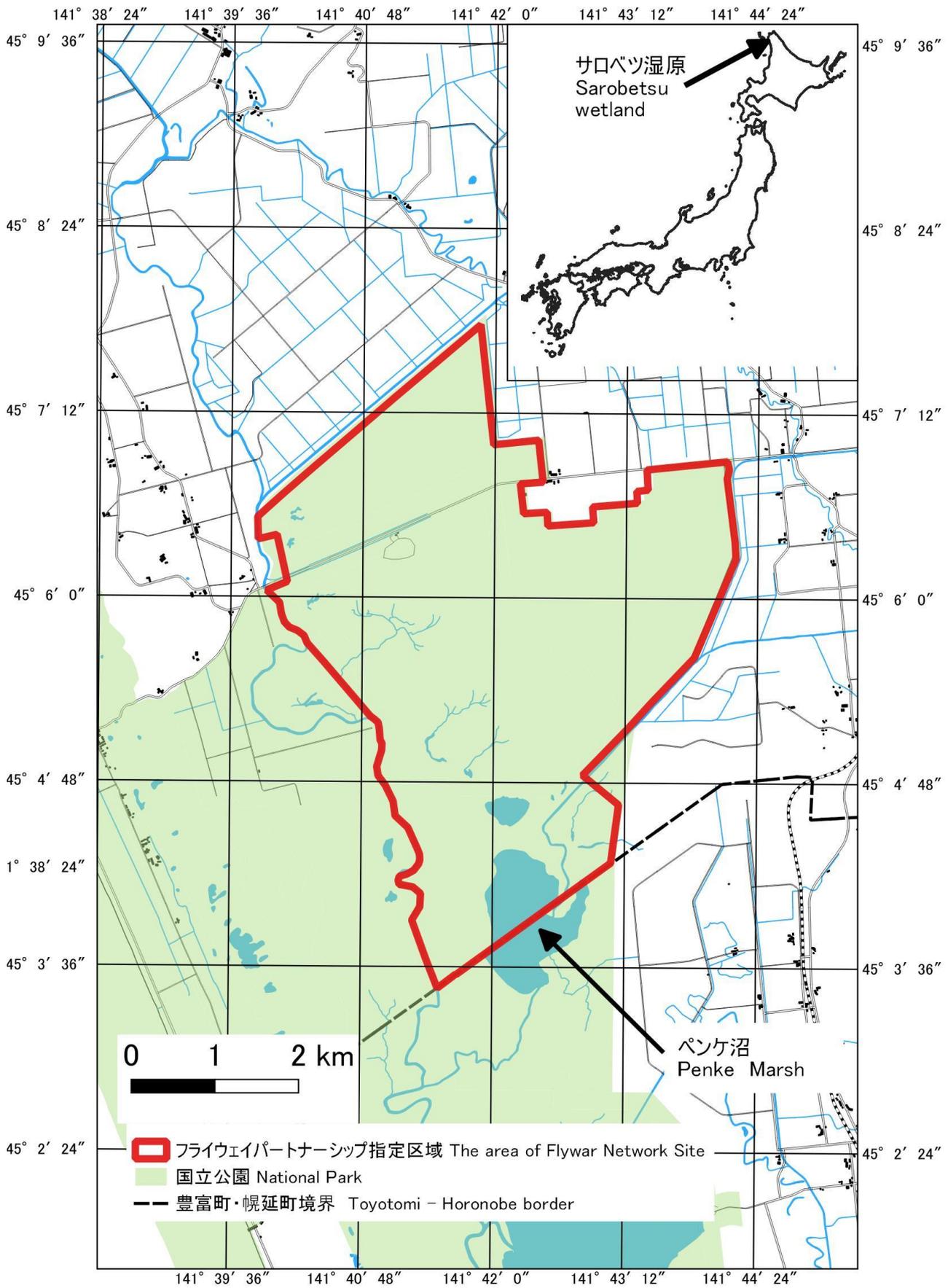
Accepted English transcription of the Site's name.

Sarobetsu Wetland

5. Map of site *:

The most up-to-date available and suitable map of the wetland should also be appended to the SIS (only in digital format and shape file). The map must clearly show the boundary of the site. Please refer to the "Digitising Site Boundaries in Google Earth" file linked [here](#).

The area within the red thick line on the map below. It is the same area of the Sarobetsu Wildlife Protection Area in Toyotomi Town as of September 2020.



Google Earth Image of the Proposed Sarobetsu Wetland FNS



6. Geographical coordinates (latitude/longitude, in decimal degrees) *:

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

45°05'N, 141°42'E

7. Elevation *: (in metres: average and/or maximum & minimum)

Min. 0m; Max. +8m

8. Area *:

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

2,253 hectares

9. General overview of the site *:

A brief (two sentences) summary of the site, mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

This site consists of rivers and lakes and swamps along the Sarobetsu River. It is located on the north part of Hokkaido, which provides an important stopover site for waterfowl migrating between Japan and Sakhalin, Russia.

10. Justification of Flyway Site Network Criteria*:

Please provide waterbird count information (with year of latest count) that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,
- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a “staging site” supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The “staging site” criteria is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

1. **(Criterion 5)** This site regularly supports from 20,892 to 42,563 migratory waterbirds, exceeding the 20,000 waterbirds threshold in all four recent years, and with a 2015-2018 average of 28,116 waterbirds.

Maximum number of waterbirds at this site

Year	2015	2016	2017	2018
Number of waterbirds	27,121	21,887	20,892	42,563

Source: Ministry of the Environment Monitoring site 1000: Waterfowl survey report

2. **(Criterion 6)** This site regularly (2015 – 2018) supports:

- 10-22% (average 14%) of the individuals in the East Asian population of *Anser albifrons* (Greater White-fronted Goose), with counts exceeding the 1% threshold in all four recent years.
- 19-73% (average 46%) of the individuals in the East Asian population of *Anser fabalis middendorffi* (Middendorff’s Bean Goose), with counts exceeding the 1% threshold in all four recent years.

Species	Maximum Count				1%	% of Population			
	2015	2016	2017	2018		2015	2016	2017	2018
<i>Anser albifrons</i>	26,246	19,000	19,830	42,220	1,900	13.8%	10.0%	10.4%	22.2%
<i>Anser fabalis middendorffi</i>	1,401	5,500	2,850	3,990	75	18.7%	73.3%	38.0%	53.2%

Maximum number of waterbird species at this site

Species	Year			
	2015	2016	2017	2018
<i>Anser albifrons</i> [1%=1,900] (Greater White-fronted Goose)	26,246	19,000	19,830	42,220
<i>Anser fabalis middendorffi</i> [1%=75] (Middendorff’s Bean Goose)	1,401	5,500	2,850	3,990

Source: Ministry of the Environment Monitoring site 1000: Waterfowl survey report (2015-2018)

3. **(Criterion 2)** This site qualifies under for supporting a globally threatened migratory waterbird species: >5 individuals *Anser erythropus* (Lesser White-fronted Goose, IUCN: VU). (Recorded as recent as April 2020).

11. Wetland Types *:

List the wetland types present (see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

- U -**Non-forested peatlands**; includes shrub or open bogs, swamps, fens.
- O -**Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.
- 7 -**Excavations**; gravel/brick/clay pits; borrow pits, mining pools.
- M -**Permanent rivers/streams/creeks**; includes waterfalls.

W -**Shrub-dominated wetlands**; shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.
Xf -**Freshwater, tree-dominated wetlands**; includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.

12. Jurisdiction *:

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

- Territorial basis: Ministry of the Environment, Ministry of Finance, and Hokkaido Government
- Functional basis: Ministry of the Environment and Hokkaido Government

13. Management authority *:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland and the title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

The Commerce Industry Division, Toyotomi Town Office
Hokkaido Regional Environmental Office, Ministry of the Environment of Japan

14. Bibliographical references *:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

- The Designated Plan of National Sarobetsu Wildlife Protection Area (Ministry of the Environment, October 2011)
- The Designated Plan of National Sarobetsu Wildlife Protection Area and Sarobetsu Special Protection Area (Ministry of the Environment, October 2011)
http://hokkaido.env.go.jp/post_16.html
- The documents of Kami-Sarobetsu Nature Restoration Projects
<http://www.env.go.jp/park/rishiri/data/index.html>
- Yuko FUJITA (2014) Sarobetsu Mire and the Wakasakanai Coastal Dune Lakes and Forests: Their structure and transformation, Hokkaido University Press.
- Ministry of the Environment Monitoring Site 1000: Waterfowl survey report (2015-2018)

15. Physical features of the site:

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

- Geology: Peatland
- Geomorphology: Plain
- Origin: Natural
- Hydrology: This site was originated from the coastal dunes and lagoons surrounded by inland hills, and the peatland was formed because of the stagnate flow of the river along the edge of wetland due to the flatland.
- Soil type: Peat
- Water quality: pH7.3 (Penke Marsh), pH4.0 (Peatland area), Poor nutrition (High moor)
- Water depth: Max. +1.8m; Min. +0.8m (Penke Marsh)
- General climate: Subarctic zone
- Annual precipitation: 1072mm
- Monthly average temperature: From -6.5 degree to 19.6 degree

16. Physical features of the catchment area:

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

- Geomorphological features: Plain
- General soil types: Peat
- Climate: Subarctic zones (Df)

17. Hydrological values:

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

This site contributes to climate stability from vast peatland.

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Flyway Network site, and the ecosystem services of the site and the benefits derived from them.

High moor, intermediate moor, low moor, lakes and swamps and rivers are scattered throughout the Sarobetsu Wetland. The vegetation of the wetland includes Sphagnum in high moor (bog), Sedge and reed bed in low moor (fen), and Sasa Bamboo in dryer area. In wetland forest, Salix, Japanese Alder, Japanese Ash and Hydrangea are distributed. Water Chestnut, Least Water Lily and Water Shield are distributed to marshes. Penke Marsh is a stopover site for Middendorf's Bean Geese, Greater White-fronted Geese, and ducks in spring and autumn.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

- *Nuphar pumila* (Least Water Lily) [Vulnerable (VU)*1]
- *Eleocharis margaritacea* [VU*1]
- *Rumex longifolius* [VU*1]
- *Chamaedaphne calyculata* (Leatherleaf) [Endangered (EN)*1]
- *Scutellaria yezoensis* [VU*1]
- *Drosera anglica* (English Sundew) [VU*1]
- *Torreyochloa natans* [Critically Endangered (CR)*1]
- *Potamogeton alpinus* [VU*1]

*1 Red List of Threatened Wildlife of Japan. Ministry of the Environment of Japan

20. Noteworthy fauna (Threatened status):

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

Species	IUCN (Global) ¹	MoEJ Red List ²	J-Nationally Endangered Species ³	J-National Natural Monument ⁴
<i>Branta hutchinsii leucopareia</i> (Aleutian Cackling Goose)	LC	CR	J-NES	
<i>Anser albifrons frontalis</i> (Greater White-fronted Goose)	LC	NT		J-NNM
<i>Anser erythropus</i> (Lesser White-fronted Goose)	VU	EN		
<i>Anser fabalis serrirostris</i> (Bean Goose)	LC	VU		J-NNM
<i>Anser fabalis middendorffi</i> (Bean Goose)	LC	NT		
<i>Sibirionetta formosa</i> (Baikal Teal)	LC	VU		
<i>Grus japonensis</i> (Red-crowned Crane)	EN	EN	J-NES	J-NNM
<i>Haliaeetus albicilla albicilla</i> (White-tailed Eagle)	LC	VU		J-NNM
<i>Haliaeetus pelagicus pelagicus</i> (Steller's Sea-eagle)	VU	VU	J-NES	J-NNM
<i>Falco peregrinus japonensis</i> (Peregrine Falcon)	LC	VU	J-NES	
<i>Circus spilonotus spilonotus</i> (Eastern Marsh Harrier)	LC	EN	J-NES	
<i>Emberiza aureola ornata</i> (Yellow-breasted Bunting)	CR	CR	J-NES	
<i>Sorex minutissimus hawkeri</i> (Hawker's Least Shrew)	LC	VU	J-NES	
<i>Hucho perryi</i> (Japanese Huchen)	CR	EN		
<i>Zootoca vivipara</i> (Viviparous Lizard)	LC	VU		

*1 The IUCN Red List of Threatened Species

*2 MoEJ The Red List of Threatened Species of Japan. Ministry of the Environment of Japan

*3 J-NES - Nationally endangered species of wild fauna and flora by the Act on Conservation of Endangered Species of Wild Fauna and Flora

*4 Japan National Natural Monument

21. Social, economic and cultural values:

a) Describe if the site has any general social, economic and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

This site is a part of the Rishiri-Rebun-Sarobetsu National Park, and many visitors come to see a panoramic view of the wetland beautifully coloured by seasonal flowers and birds with Mt. Rishiri towering on the horizon from spring to autumn. Its surrounding area is used as pasture land.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? (Double-click the checkbox to check and choose "Checked" under "Default Value" from "Check Box Form Field Options" window)

If yes, tick the box and describe this importance under one or more of the following categories:

- I. Sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- II. Sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- III. Sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- IV. Sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

22. Land tenure/ownership:

a) Within the Flyway Network site:

National land and Hokkaido Prefectural land

b) In the surrounding area:

National land, Local government land, and Private land

23. Current land (including water) use:

a) Within the Flyway Network site:

No fishing rights. No residence.

b) In the surroundings/catchment:

Wetland, Pasture land

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

a) Within the Flyway Network site:

- In the past, peat mining was operated in a part of the site, but it is no longer operated.
- Wetlands progressed to dryness and Sasa bamboo grasses spreading and invading to wetland vegetation because the groundwater level of the wetland got lower due to the construction of drainage channels and switching the Sarobetsu River for promoting drainage from the pasture land.
- As the result of sediments inflow to Penke Marsh by switching rivers, the lake area has been halved, and the lake area is going to decreasing year after year.

b) In the surrounding area:

Constructing the drainage channels and switching river flow caused the drying of wetland and spreading of Sasa bamboo grasses.

25. Conservation measures taken:

Kami-Sarobetsu Nature Restoration Project includes constructing buffer zones between the wetland and pastures in the surrounding areas to prevent the wetland from drying out and conducting test removal of Sasa bamboo to prevent their expansion, conducting actual condition survey of sediment inflow to Penke Marsh, and recovering vegetation of bare ground at the former peat mining site.

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Flyway Network site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

- Sarobetsu Special Protection Area of the National Wildlife Protection Area (Protection and Control of Wild Birds and Mammals and Hunting Management Law)

Capturing wildlife is prohibited in principle in the area. It is required to obtain permission from the Minister of the Environment for installing of artificial structure, reclaiming of the water body and felling tree and bamboo, etc. in the Special Protection Area.

- Rishiri-Rebun-Sarobetsu National Park, Special Protection Area, Special Area (National Parks Law)

It is required to obtain permission from the Minister of the Environment for installing of artificial structure, felling tree, collecting sediments, increasing or decreasing the amount of water in rivers, etc.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate, see Annex 3):

Ia ; Ib ; II ; III ; IV ; V ; VI ; N/A

c) Does an officially approved management plan exist; and is it being implemented?

- The Management Plan of Sarobetsu National Wildlife Protection Area and Special Protection Area (Ministry of the Environment, October 2011): In progress
- The Certificate of Designation of Rishiri-Rebun-Sarobetsu National Park (Ministry of the Environment, August 2003): In progress
- The management plan of Rishiri-Rebun-Sarobetsu National Park (Hokkaido Regional Office of the Ministry of the Environment, June 2007): In progress
- The Plan of the Sarobetsu Nature Restoration Projects (The Sarobetsu Nature Restoration Projects Council, February 2006): In progress
- The plan of the Sarobetsu Nature Restoration Projects (Hokkaido Regional Office of the Ministry of the Environment, July 2009): In progress

If yes, is it being implemented? If no, is one being planned?

They are being implemented.

d) Describe any other current management practices:

26. Conservation measures proposed but not yet implemented:

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

27. Current scientific research and facilities:

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

- Survey of Geese and ducks (the Monitoring Site 1000) (Biodiversity Center of Japan)
- Survey of influence of Ezo-shika deers in Sarobetsu area (Ministry of the Environment)
- Survey of breeding of Yellow-breasted Buntings in Sarobetsu area (Ministry of the Environment)
- Survey of breeding of Eastern Marsh Harriers in Sarobetsu area (Ministry of the Environment)
- Survey of Investigation method study of breeding of Japanese Crane by drone (Ministry of the Environment)
- Monitoring survey of outside groundwater level of the Sarobetsu Nature Restoration Projects (Ministry of the Environment)
- Bird survey project in the northern Hokkaido contributing to the vulnerability mapping of birds and wind-power generation (Wild Bird Society of Japan)

28. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

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

Sarobetsu Wetland Center provides nature information, and boardwalks where visitors enjoy the wetland landscape and observe wildflowers and birds in and around the wetland.

29. Current recreation and tourism:

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

About 35,000 visitors come to the Sarobetsu Wetland Center per year. The centre regularly provides programs of environment education, guided walk, nature observation events, hands-on learning, lectures, and workshops. Many visitors come in the seasons of blooming wild wetland flowers such as daylily, and breeding of wild birds such as Yellow-breasted Bunting from spring to autumn.

30. Threats *:

Which of the following threats is present historically – when the threat stopped but the effects are still there (H), currently (C) or potentially (P)?

	Historically	Currently	Potentially
Residential and commercial development			
housing and urban areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
commercial and industrial areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tourism and recreation areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agriculture and aquaculture			
annual and perennial non-timber crops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wood and pulp plantations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
livestock farming and ranching	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
marine and freshwater aquaculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy production and mining			
oil and gas drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mining and quarrying	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
renewable energy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Transportation and service corridors			
roads and railroads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
utility and service lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
shipping lanes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
flight paths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biological resource use			
hunting and collecting terrestrial animals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
gathering terrestrial plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
logging and wood harvesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fishing and harvesting aquatic resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human intrusions and disturbance			
recreational activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
war, civil unrest and military exercises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
work and other activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural system modifications			
fire and fire suppression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

dams and water management/use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other ecosystem modifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Invasive and other problematic species and genes

invasive non-native/alien species	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
problematic native species	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
introduced genetic material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Pollution

household sewage and urban waste water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
industrial and military effluents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
agricultural and forestry effluents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
garbage and solid waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
air-borne pollutants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
excess energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Geological events

volcanoes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
earthquakes/tsunamis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
avalanches/landslides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Climate change and severe weather

habitat shifting and alteration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
droughts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
temperature extremes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
storms and flooding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please write here any additional threats and comments/queries you have on the threats.

Annex 1: Criterion for the inclusion of sites in the Flyway Site Network

(From the Partnership Text)

To be considered for inclusion in the Flyway Site Network, this Partnership adopts the following criterion:

- a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:
 - Criteria 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
 - Criteria 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.
 - Criteria 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.
- b. The staging criteria as applied under the Asia - Pacific Migratory Waterbird Conservation Strategy. That is:
 - i. A staging site should be considered internationally important if it regularly supports 0.25% of individuals in a population of one species or subspecies of waterbirds on migration.
 - ii. A staging site should be considered internationally important if it regularly supports 5,000 or more waterbirds at one time during migration.
- c. Under exceptional circumstances a site can be nominated if it supports migratory waterbirds at a level or stage of their life cycle important to the maintenance of flyway populations. Justification of such nominations will be considered by the Partnership on a case-by-case basis.

Annex 2: Ramsar Classification System for Wetland Type

The codes are based upon the Ramsar Classification System for Wetland Type as approved by Recommendation 4.7 and amended by Resolutions VI.5 and VII.11 of the Conference of the Contracting Parties. The categories listed herein are intended to provide only a very broad framework to aid rapid identification of the main wetland habitats represented at each site.

To assist in identification of the correct Wetland Types to list in section 19 of the RIS, the Secretariat has provided below tabulations for Marine/Coastal Wetlands and Inland Wetlands of some of the characteristics of each Wetland Type.

Marine/Coastal Wetlands

- A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits.
- B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows.
- C -- **Coral reefs**.
- D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs.
- E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks.
- F -- **Estuarine waters**; permanent water of estuaries and estuarine systems of deltas.
- G -- **Intertidal mud, sand or salt flats**.
- H -- **Intertidal marshes**; includes salt marshes, salt meadows, saltings, raised salt marshes; includes tidal brackish and freshwater marshes.
- I -- **Intertidal forested wetlands**; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.
- J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea.
- K -- **Coastal freshwater lagoons**; includes freshwater delta lagoons.
- Zk(a) – **Karst and other subterranean hydrological systems**, marine/coastal

Inland Wetlands

- L -- **Permanent inland deltas**.
- M -- **Permanent rivers/streams/creeks**; includes waterfalls.
- N -- **Seasonal/intermittent/irregular rivers/streams/creeks**.
- O -- **Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.
- P -- **Seasonal/intermittent freshwater lakes** (over 8 ha); includes floodplain lakes.
- Q -- **Permanent saline/brackish/alkaline lakes**.
- R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats**.
- Sp -- **Permanent saline/brackish/alkaline marshes/pools**.
- Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools**.
- Tp -- **Permanent freshwater marshes/pools**; ponds (below 8 ha), marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season.
- Ts -- **Seasonal/intermittent freshwater marshes/pools on inorganic soils**; includes sloughs, potholes, seasonally flooded meadows, sedge marshes.
- U -- **Non-forested peatlands**; includes shrub or open bogs, swamps, fens.
- Va -- **Alpine wetlands**; includes alpine meadows, temporary waters from snowmelt.
- Vt -- **Tundra wetlands**; includes tundra pools, temporary waters from snowmelt.
- W -- **Shrub-dominated wetlands**; shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.
- Xf -- **Freshwater, tree-dominated wetlands**; includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.

- Xp -- **Forested peatlands**; peat swamp forests.
- Y -- **Freshwater springs; oases.**
- Zg -- **Geothermal wetlands**
- Zk(b) – **Karst and other subterranean hydrological systems, inland**

Note: “**floodplain**” is a broad term used to refer to one or more wetland types, which may include examples from the R, Ss, Ts, W, Xf, Xp, or other wetland types. Some examples of floodplain wetlands are seasonally inundated grassland (including natural wet meadows), shrublands, woodlands and forests. Floodplain wetlands are not listed as a specific wetland type herein.

Human-made wetlands

- 1 -- **Aquaculture** (e.g., fish/shrimp) **ponds**
- 2 -- **Ponds**; includes farm ponds, stock ponds, small tanks; (generally below 8 ha).
- 3 -- **Irrigated land**; includes irrigation channels and rice fields.
- 4 -- **Seasonally flooded agricultural land** (including intensively managed or grazed wet meadow or pasture).
- 5 -- **Salt exploitation sites**; salt pans, salines, etc.
- 6 -- **Water storage areas**; reservoirs/barrages/dams/impoundments (generally over 8 ha).
- 7 -- **Excavations**; gravel/brick/clay pits; borrow pits, mining pools.
- 8 -- **Wastewater treatment areas**; sewage farms, settling ponds, oxidation basins, etc.
- 9 -- **Canals and drainage channels, ditches.**
- Zk(c) -- **Karst and other subterranean hydrological systems, human-made**

Annex 3: IUCN Protected Areas Categories System

IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognized by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation.

Ia Strict Nature Reserve

Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

Ib Wilderness Area

Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park

Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature

Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area

Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape

A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources

Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems.