

# Information Sheet on EAA Flyway Network Sites (SIS) – 2017 version

Available for download from <http://www.eaaflyway.net/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*

## Notes for compilers:

1. The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network. When there is a new nomination or an SIS update, the following sections with an asterisk (\*), from Questions 1-14 and Question 30, must be filled or updated at least so that it can justify the international importance of the habitat for migratory waterbirds.
2. The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified.
3. Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Flyway Partnership Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital versions (e.g. shapefile) of all maps.

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## 1. Name and contact details of the compiler of this form\*:

Full name: Tetsuo SHIMADA

EAAF SITE CODE FOR OFFICE USE ONLY:

Institution/agency: The Prefectural Izunuma-Uchinuma  
Environmental Foundation

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E-mail address: izunuma@circus.ocn.ne.jp

**2. Date this sheet was completed\*:**

October 2, 2014

**3. Country\*:**

Japan

**4. Name of the Flyway Network site\*:**

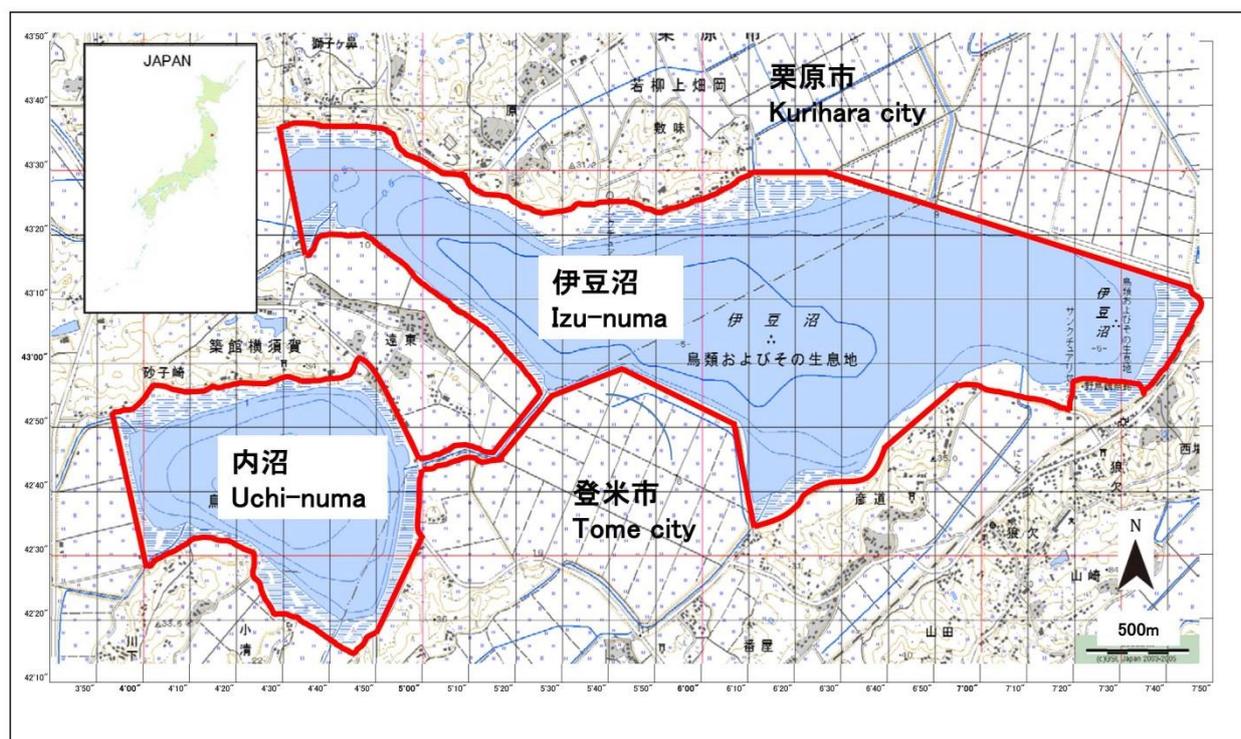
Accepted English transcription of the Site's name.

Izu-numa and Uchi-numa

**5. Map of site\*:**

The most up-to-date available and suitable map of the wetland should 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](#).

伊豆沼・内沼区域図 Izu-numa and Uchi-numa area



**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.

Latitude: 38°43' N, Longitude: 141°07' E (at the center of Lake Izunuma)

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

7m

**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.

559ha

**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.

The two lakes, Izu-numa and Uchi-numa, are surrounded by paddy fields. More than sixty thousands of waterbirds (Anatidae) such as Greater White-fronted Geese (*Anser albifrons*) and Whooper Swans (*Cygnus cygnus*) pass the winter in the lakes.

**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” criterion 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.

Izu-numa and Uchi-numa regularly supports 20,000 or more migratory waterbirds.

Maximum number of migratory waterbirds in each year				
2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
<b>46,789</b>	<b>77,399</b>	<b>96,742</b>	<b>72,431</b>	<b>69,674</b>

(Data: Monitoring sites 1000 on Anatidae by MOE-J)

Izu-numa and Uchi-numa regularly supports 1% of the individuals in a population of Greater White-fronted Goose (*Anser albifrons*), Bean Goose (*Anser fabalis middendorffii*), Whooper Swan (*Cygnus cygnus*) and Northern Pintail (*Anas acuta*).

Common name (Scientific name)	The number of individuals 1% basis (WEP5)	Maximum number of individuals				
		2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013
Greater White-fronted Goose ( <i>Anser albifrons</i> )	1,900	42,935	75,383	82,817	70,686	66,372
Bean Goose ( <i>Anser fabalis middendorffii</i> )	75	52	84	805	479	132
Whooper Swan ( <i>Cygnus cygnus</i> )	600	1,094	889	2,449	3,406	2,906
Northern Pintail ( <i>Anas acuta</i> )	2,400	2,340	2,455	8,258	3,796	2,645

" / " is the year that the number is below the criteria.

(Data: Monitoring sites 1000 on Anatidae by MOE-J)

### 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.

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### 12. Jurisdiction\*:

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

### 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.

Tohoku Regional Environmental Office, Ministry of the Environment  
3-2-23 Honcho, Aoba-ku, Sendai City, Miyagi Prefecture

### 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.

Izu-numa and Uchi-numa Wetland research reports (journal with English abstract):

[http://izunuma.org/5\\_2.html](http://izunuma.org/5_2.html)

Izu-numa and Uchi-numa nature restoration project:

<http://www.pref.miyagi.jp/soshiki/sizenhogo/00top.html>

### 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:** Izu-numa and Uchi-numa is located at the east end of Tsukidate Hill in Sendai plain.

**Geographical features:** Izu-numa and Uchi-numa are shallow freshwater lakes which are 491 ha in total. The lakes are surrounded by paddy fields and hills.

**Origin:** Izu-numa and Uchi-numa were formed by a natural levee that developed close to the confluence of Arakawa River and Hasamagawa River.

**Hydrology:** Izu-numa and Uchi-numa belong to Arakawa River system which flows into the Hasamagawa River, which is a tributary of the Kitakamigawa River flowing through Sendai Plain.

**Soil type:** Peat soil and gley soil

**Water depth:** Average depth is 0.77 m. Maximum depth is 1.6 m.

**Water permanence:** Permanent

**Fluctuations in water level:** About 1 m

**Downstream area:** About 1,500 ha

**General climate:** The average temperature of the coldest month is about 0 °C. Izu-numa and Uchi-numa are the northernmost lakes in Japan that are not likely to freeze even in the coldest season.

### 16. Physical features of the catchment area:

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

Four rivers, namely, Arakawa, Terukoshigawa, Yasawagawa, and Otagawa Rivers, flow in the catchment area (5,265 ha) of the lakes. The biggest inflow, Ara River, is 12.5 km long. These rivers flow from the hills of 100 m or lower above sea level into Izu-numa and Uchi-numa at 7m above sea level.

### 17. Hydrological values:

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

Izu-numa and Uchi-numa are located on a low-gradient plain. The rivers flow backward to Izu-numa and Uchi-numa in times of flooding, making the lakes a flood control basin.

### 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.

The whole area of Izu-numa and Uchi-numa is the habitat of aquatic plants, birds, and fishes. The depth of the water is shallow, and floating plants such as lotus (*Nelumbo nucifera*) is mostly covered with the lake. Water fringe (*Nymphoides peltata*) and water snowflake (*Nymphoides indica*) are distributed in open water of the lakes. Migratory waterbirds such as Greater White-fronted Goose (*Anser albifrons*) and Whooper Swan (*Cygnus cygnus*) visit the site to winter. The fish community consists of 36 species representing 12 families (mainly Cyprinidae) which are commonly distributed in the alluvial plain. These native fish communities in Izu-numa and Uchi-numa have been damaged by invasive alien fish species; largemouth bass (*Micropterus salmoides*).

### 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)

Twelve species of locally endangered plants range at Izu-numa and Uchi-numa. Some of the endangered species such as water snowflake (*Nymphoides indica*) and water fringe (*Nymphoides peltata*) are abundant in Izu-numa and Uchi-numa. However, they are decreasing with increasing of lotus area.

### 20. Noteworthy fauna:

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.*

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

Greater White-fronted Goose (*Anser albifrons*) [Natural Monument\*<sup>1</sup>]

Bean Goose (*Anser fabalis*) [Natural Monument\*<sup>1</sup>]

*Cercion plagiosum* [Endangered (EN)\*<sup>2</sup>]

\*1 Designated under the Law for the Protection of Cultural Properties

\*2 Red List of Threatened Wildlife of Japan. Ministry of the Environment

More than 1 % of the individuals in a population of the Small scale bitterling (*Acheilognathus typus*) inhabit in the catchment area of Izu-numa and Uchi-numa, although no bitterling has been observed in the Izu-numa and Uchi-numa recently.

**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:

With the rich fishery stock, fishery has been conducted in Izu-numa and Uchi-numa.

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:

In the past, fishery was conducted very actively with about 30 tons of annual catch, and wild rice (*Zizania latifolia*) and reed (*Phragmites australis*) were cut out and utilized as feed for livestock and as housing material respectively. Those activities contributed to removal of nutrient salts from Izu-numa and Uchi-numa. Such traditional methods of management and use of the lakes provides important insight for the consideration on the direction of current wise use.

**22. Land tenure/ownership:**

a) Within the Flyway Network site:

National land, prefectural land and private land

b) In the surrounding area:

Mainly private land

**23. Current land (including water) use:**

a) Within the Flyway Network site:

The land use of Izu-numa and Uchi-numa is limited to small areas, and there are some national and prefectural facilities such as bird-observation house. There is a pier for fishing boats. The water is used for rice cultivation in the downstream area.

b) In the surroundings/catchment:

Fifty-four percent of the catchment area is rice paddies and agricultural fields, and another 34% is forest. The area of settlement is small. The water of the inflowing rivers to Izu-numa and Uchi-numa is also used for rice cultivation.

**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:

One-third of the shoreline of the lakes is concrete embankment. More than half the water surface of Izu-numa and Uchi-numa was reclaimed by 1960's.

b) In the surrounding area:

The surrounding wetland of Izu-numa and Uchi-numa was reclaimed to become rice paddies in the past.

**25. Conservation measures taken:**

**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.

Ramsar site

Special protection area of national wildlife protection area

Natural monument

Prefectural nature conservation area

**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?:

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

Yes. The designation plan for the national wildlife protection area is in place. The plan includes the items on the conservation and management of Izu-numa and Uchi-numa.

**d)** Describe any other current management practices:

Based on "Izu-numa and Uchi-numa environmental management plan" developed by Miyagi Prefecture in 1993, several projects had been conducted such as establishing management facilities, control of invasive alien fish species, planting wild rice, mowing reeds and lotus and improving water quality by preventing pollution at source.

The lakes were selected as a model area for largemouth bass eradication by Ministry of the Environment in 2006, and the activities aimed for eradicating largemouth bass (*Micropterus salmoides*) have been conducted.

Moreover, "Izu-numa and Uchi-numa nature restoration plan" which synthesized the above conservation projects and activities was developed in 2009, and projects under the plan are going on.

A semi-annual clean-up campaign has been conducted by local organizations on the roads surrounding Izu-numa and Uchi-numa.

**26. Conservation measures proposed but not yet implemented:**

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

The following management plans have been suggested, but they are in the test phase at present.

1. Management of riparian vegetation such as willows.
2. Introduction of water from the catchment of Izu-numa for improvement of water quality.

**27. Current scientific research and facilities:**

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

1. Restoration Project of Izu-numa and Uchi-numa: Many studies are conducted to develop management techniques aimed for the recovery of the biodiversity in Izu-numa and Uchi-numa.
2. Development of techniques for the appropriate management of aquatic vegetation such as lotus and wild rice.
3. Development of techniques for the control of invasive alien species such as largemouth bass (*Micropterus salmoides*) and Golden Glow (*Rudbeckia laciniata*).
4. The ecological investigation of Greater White-fronted Goose (*Anser albifrons*).
5. Basic investigation of fauna and flora.

The field research station: The Miyagi Prefectural Izunuma-Uchinuma Environmental Foundation  
17-2 Shikimi, Wakayanagi, Kurihara, Miyagi 989-5504, 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.

There are three visitor centres, a wooden path for nature observation, a bird-observation house, and an aquatic plant garden at Izu-numa and Uchi-numa, which were established by the national and prefectural governments. Various booklets and guidebooks for CEPA are developed.

### 29. Current recreation and tourism:

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

In winter, many tourists visit Izu-numa and Uchi-numa to see Greater White-fronted Geese flying out of the lakes in flocks early in the morning. In summer, the "Lotus Festival" is conducted, inviting tourists to ride on a boat to go through the lotus which covers the lake.

### 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
<b>Residential and commercial development</b>			
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"/>
<b>Agriculture and aquaculture</b>			
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
marine and freshwater aquaculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Energy production and mining</b>			
oil and gas drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mining and quarrying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
renewable energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Transportation and service corridors</b>			
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"/>

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flight paths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Biological resource use</b>			
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"/>
<b>Human intrusions and disturbance</b>			
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"/>
<b>Natural system modifications</b>			
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"/>
<b>Invasive and other problematic species and genes</b>			
invasive non-native/alien species	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
problematic native species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
introduced genetic material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Pollution</b>			
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"/>
<b>Geological events</b>			
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"/>
<b>Climate change and severe weather</b>			

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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.**

Accumulation of Radioactive materials

## **Annex 1: Criteria 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 criteria:

- a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:
  - Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
  - Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.
  - Criterion 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;** peatswamp 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 recognised 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/geomorphical 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.