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

Available for download from http://www.eaaflyway.net/nominating-a-site.php#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*:

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EAAF SITE CODE FOR OFFICE USE ONLY:

E	A	A	F	1	2	4

2. Date this sheet was completed*:

2016/03/03

3. Country*: Japan

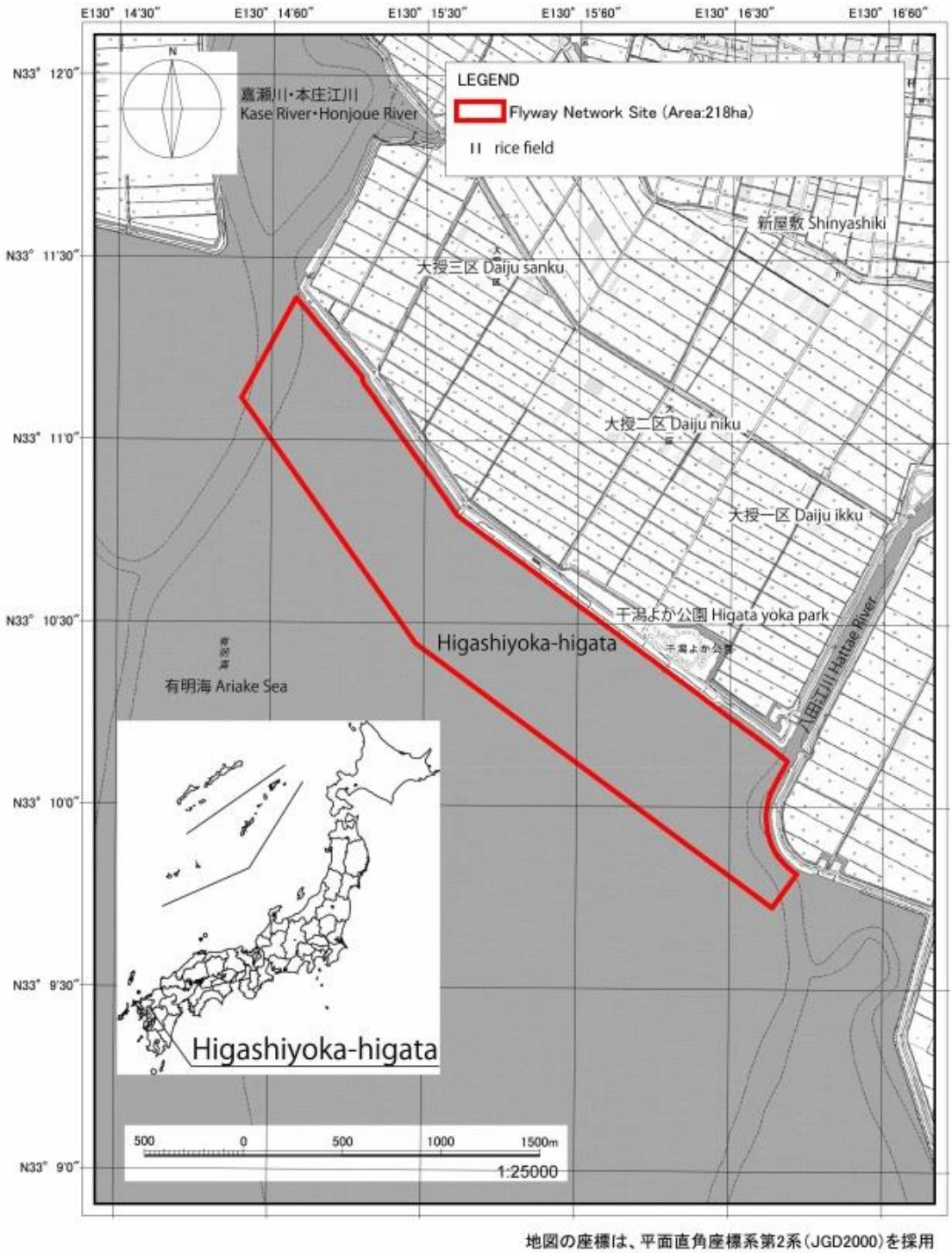
4. Name of the Flyway Network site*:

Accepted English transcription of the Site's name.

Higashiyoka-higata

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.



地図の座標は、平面直角座標系第2系（JGD2000）を採用

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.

33°10’N, 130°15’E

7. Elevation*:

(in metres: average and/or maximum & minimum)

Minimum: -2.5m, maximum: 1m

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.

218ha

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.

Higashiyoka-higata is a tidal mudflat located at the north shore of the Ariake Bay. Although it belongs to the Central Kuroshio Current biogeographic region, it has the characteristics more of inner bay than the Kuroshio Current because of the location, approximately 100km far from the baymouth. The richness in biological production of the mudflat is attributed to warm climate,

huge tidal variation and shoal which facilitate sediment deposition. It is inhabited by benthos and fish that favor muddy conditions. During the fall and spring, a number of shorebirds among other migratory birds feed on these mudflat organisms. This site is an important stopover and wintering site for migratory birds.

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.

a. The Ramsar Convention Criteria

It supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

	IUCN Red List status	Maximum population of stopover (by year)				
		2009/2010	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**
Saunders's Gull *Saundersilarus saundersi*	**VU**	**850**	**1,050**	**753**	**900**	**990**
Spoon-billed Sandpiper *Calidris pygmeus*	**CR**	**1**	**2**	**0**	**0**	**0**
Far Eastern Curlew, *Numenius madagascariensis*	**VU**	**56**	**68**	**45**	**55**	**46**
Black-faced Spoonbill *Platalea minor*	**EN**	**21**	**23**	**20**	**28**	**33**

Reference: Monitoring Sites 1000 (Shorebirds), Ministry of the Environment, Government of Japan

It regularly supports 1% of the individuals in a population of one species or subspecies of waterbird

	1% of the population	Maximum population of stopover (by year)				
		2009/2010	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**
Saunders's Gull *Saundersilarus saundersi*	**85**	**850**	**1,050**	**753**	**900**	**990**
Mongolian Plover *Charadrius mongolus*	**130**	**167**	**300**	**160**	**172**	**154**
Black-faced Spoonbill *Platalea minor*	**20**	**21**	**23**	**20**	**28**	**33**
Grey Plover *Pluvialis squatarola*	**1,000**	**790**	**1,110**	**1,130**	**1,240**	**1,260**

Reference: Monitoring Sites 1000 (Shorebirds), Ministry of the Environment, Government of Japan

b. Criteria for stopover applied to Asia-Pacific Migratory Waterbird Conservation Strategy

i It regularly supports 0.25% of the individuals in a population of one species or subspecies of waterbirds on migrations

	0.25% of the population	Maximum population of stopover (by year)				
		2009/2010	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**
Dunlin *Calidris alpina*	**1250**	**4,620**	**7,590**	**6,510**	**6,380**	**6,400**
Kentish Plover *Charadrius alexandrinus*	**250**	**380**	**240**	**282**	**257**	**324**
Bar-tailed Godwit *Limosa lapponica*	**300**	**530**	**566**	**542**	**407**	**760**
Whimbrel *Numenius phaeopus*	**138**	**198**	**250**	**430**	**415**	**465**
Common Shelduck *Tadorna tadorna*	**300**	**930**	**750**	**1,130**	**1,160**	**2,460**
Common Greenshank *Tringa nebularia*	**250**	**460**	**400**	**420**	**330**	**437**
Terek Sandpiper *Xenus cinereus*	**125**	**130**	**371**	**182**	**45**	**226**

Reference: Monitoring Sites 1000 (Shorebirds), Ministry of the Environment, Government of Japan

ii It regularly supports 5,000 or more waterbirds at one time during migration

Total number of maximum bird count on each shorebirds in spring, April and May (by year)

	2010	2011	2012	2013	2014
Number of species that was confirmed	**33**	**31**	**37**	**32**	**33**
Total of maximum numbers (individual)	**11,186**	**10,752**	**11,278**	**10,868**	**12,625**
Out of above, species that stopped over frequently					
Grey Plover *Pluvialis squatarola*	**1,110**	**1,130**	**1,240**	**1,260**	**1,170**
Red-necked Stint *Calidris ruficollis*	**370**	**610**	**740**	**720**	**1,040**
Dunlin *Calidris alpina*	**7,590**	**6,510**	**6,380**	**6,400**	**7,720**
Great Knot *Calidris tenuirostris*	**127**	**68**	**401**	**412**	**38**
Common Greenshank *Tringa nebularia*	**130**	**228**	**280**	**182**	**172**
Bar-tailed Godwit *Limosa lapponica*	**566**	**542**	**407**	**760**	**780**
Whimbrel *Numenius phaeopus*	**250**	**430**	**415**	**465**	**210**
Saunders's Gull, *Saundersilarus saundersi*	**112**	**169**	**188**	**65**	**210**
Common Shelduck *Tadorna tadorna*	**390**	**272**	**390**	**164**	**730**

Reference: Monitoring Sites 1000 (Shorebirds), Ministry of the Environment, Government of Japan,

Note: The total of maximum numbers include Saunders's Gull *Saundersilarus saundersi*, Black-faced Spoonbill *Platalea minor,* Common Shelduck *Tadorna tadorna,* beside shorebirds.

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.

G – Tidal flat

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.

Wildlife Division, Kyushu Regional Environmental Office, Ministry of the Environment
2-10-1 Kasuga, nishi-ku, Kumamoto-shi, Kumamoto-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.

- Compilation committee of Higashiyoka town history, 1982, Higashiyoka town history, published by Higashiyoka town
- Compilation committee of Ariake reclamation history 1969, Ariake reclamation history, published by Ariake Reclamation Construction Office of Kyusyu Regional Agricultural Administration Office
- Ministry of the Environment, Government of Japan, 2002, 500 Important Wetlands in Japan
  http://www.sizenken.biodic.go.jp/pc/wet_en/
- Ministry of the Environment, Government of Japan, 2012-2013, Red List in Japan (4th)
  http://www.biodic.go.jp/rdb/rdb_f.html
- Ministry of the Environment, Government of Japan, 2009-2014, Monitoring Sites 1000 (Shorebirds)
  http://www.biodic.go.jp/moni1000/moni1000/index.html
- Zenbei uchizima et.al, 1995, Nature of Japan #7 Kyusyu area, published by Iwanami Shoten

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: The geological layers, from the top to the bottom, are Ariake clay layer, Quaternary Mitagawa layer, Aso-4 pyroclastic sediment, Nakahara layer, Takagise layer, Aso-3 pyroclastic sediment, Kawasoe layer. They are composed of marine stratum such as marine sediment clay,

silt and seashell, gravel, non- marine stratum such as sand and mud, and the layer of volcanic ash and pumice stone etc.

Geography: It is a part of tidal mudflat located at the north shore of the Ariake Bay. This tidal mudflat is formed by the sediment of fine mud, transported from Chikugo River, Kase River, Rokkaku River and other, deposited due to tidal motion that reaches a maximum of 6m tidal variation.

Soil type: muddy

Water quality: Saline/brackish water, Water salinity: 2.2g/l～30.7g/l, pH: average 7.9 (minimum: 7.4, maximum: 8.8)

Water depth: 0-2m

Water permanence: permanent water present

16. Physical features of the catchment area:

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

Higashiyoka-higata is a doab between Hattae River and Honjoe River that are branch currents of Kase River. The Kase River is the main stream and has the water catchment area of 386sq km. The upper portion of the basin is mountainous land covered by forests. The middle portion is an alluvial plain created by the deposition of sediment. The downstream portion is a clayish alluvial plain. Both middle and low portions are rural and urban areas.

17. Hydrological values:

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

Regarding sediment trapping, Higashiyoka-higata is a part of the innermost section of the Ariake Bay. As the bay is highly enclosed and shallow and has huge tidal variations, the area is prone to be reclaimed spontaneously. The mudflat is increasingly formed when the fine sediments that are transported through the rivers into the bay are accumulated by tidal force. The level of accumulation is the highest in the northeast part of the Ariake Bay because a large volume of mud carried from Chikugo River catches tidal current across the bay anticlockwise, drifts towards west along the north bank. Around the of Higashiyoka-higata, the mudflat thickness increases by 3 to 4cm by every year.

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.

Higashiyoka-higata is a mudflat, located on the north shore of the Ariake Bay. Although the mudflat belongs to the Central Kuroshio Current biogeographic region, it has the characteristics more of inner bay than the Kuroshio Current due to its location, 100km away from the mouth of the Bay. The mudflat has been isolated from the outer sea since the geological era and is an important habitat for some species originated from Eurasian continent such as Great blue-spotted mudskipper *Boleophthalmus pectinirostris* and *Suaeda japonica*, which proves that Japan was once contiguous to the Eurasian Continent. The richness in biological production of the mudflat is attributed to warm climate, huge tidal variation, and shoal which facilitates sediment deposition. Since the mudflats of the Ariake Bay have been subject to land reclamation over the years, the importance of remaining mudflats have increased as habitat for benthos, fish, and shorebirds that feed on them.

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)

Suaeda japonica, National Red List (VU)

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)

-Spotted Greenshank *Tringa guttifer*, EN on IUCN Red List, CR on National Red List, Designated Endangered Species under the Law for the Conservation of Endangered Species of Wild Fauna and Flora, the Government of Japan 2002

-Great Blue-spotted Mudskipper *Boleophthalmus pectinirostris*, EN on National Red List

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:

At Higashiyoka-higata, traditional fishing techniques, unique to the mudflat, have been carried on over the years. It helps to maintain nutrient cycling at the mudflat.

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: ☑
See the description in a).

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:

Public water

b) In the surrounding area:

National land

23. Current land (including water) use:

a) Within the Flyway Network site:

Fishery

b) In the surroundings/catchment:

Agricultural land, urban district

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:

none

b) In the surrounding area:

There are growing concerns that stream regime and water quality in the mudflat might get affected by large-scaled reclamation projects in the other part of Ariake Bay. They might cause environmental degradation such as the occurrence of oxygen-deficient water and a decrease in fishery species.

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.

Higashiyoka-higata Ramsar Site

Higashiyoka-higata Special Protection Area within Higashiyoka-higata National Wildlife Protection 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?:

The designation plan of Higashiyoka-higata Special Protection Area within Higashiyoka-higata National Wildlife Protection Area is being implemented as the management plan.

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.

None.

27. Current scientific research and facilities:

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

Shorebird population census has been conducted in spring, summer and winter every year under "Monitoring sites 1000" project by Ministry of the Environment.

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.

The Higashiyoka Ramsar Club is a public organization initiated/led by Saga City Government, established in April 2014. The club is engaged in learning activities to accumulate specialized knowledge and skills, which could contribute to grooming new leaders and raising public awareness in environment conservation. 31 members are in act.

29. Current recreation and tourism:

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

- Bird watching event is held a few times a year by Wild Bird Society of Japan.
- Round bus trip that stops at Higashiyoka-higata as one of destinations is run in every weekend and national holidays.
- A festival for enjoying reddish autumn leaves of *Suaeda japonica* population which inhabits at costal land adjacent to Higashiyoka-higata is held every autumn by local organizations. In 2015, approximately 22,000 people were participated in the festival.

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	☐	☐	☐
commercial and industrial areas	☐	☐	✔
tourism and recreation areas	☐	☐	☐
Agriculture and aquaculture			
annual and perennial non-timber crops	☐	☐	☐
wood and pulp plantations	☐	☐	☐
livestock farming and ranching	☐	☐	☐
marine and freshwater aquaculture	☐	☐	✔
Energy production and mining			
oil and gas drilling	☐	☐	☐
mining and quarrying	☐	☐	☐
renewable energy	☐	☐	☐
Transportation and service corridors			
roads and railroads	☐	☐	☐
utility and service lines	☐	☐	☐
shipping lanes	☐	☐	☐
flight paths	☐	☐	☐
Biological resource use			
hunting and collecting terrestrial animals	☐	☐	☐
gathering terrestrial plants	☐	☐	☐
logging and wood harvesting	☐	☐	☐
fishing and harvesting aquatic resources	☐	☐	✔
Human intrusions and disturbance			
recreational activities	☐	☐	☐
war, civil unrest and military exercises	☐	☐	☐
work and other activities	☐	☐	☐

Natural system modifications			
fire and fire suppression	☐	☐	☐
dams and water management/use	☐	☐	☐
other ecosystem modifications	☐	☐	☐
Invasive and other problematic species and genes			
invasive non-native/alien species	☐	☐	☐
problematic native species	☐	☐	☐
introduced genetic material	☐	☐	☐
Pollution			
household sewage and urban waste water	☐	☐	☐
industrial and military effluents	☐	☐	☐
agricultural and forestry effluents	☐	☐	☐
garbage and solid waste	☐	☐	☐
air-borne pollutants	☐	☐	☐
excess energy	☐	☐	☐
Geological events			
volcanoes	☐	☐	☐
earthquakes/tsunamis	☐	☐	☐
avalanches/landslides	☐	☐	☐
Climate change and severe weather			
habitat shifting and alteration	☐	☐	☐
droughts	☐	☐	☐
temperature extremes	☐	☐	☐
storms and flooding	☐	☐	☐

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

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 charcter 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.