Information Sheet on EAA Flyway Network Sites (SIS) – 2013 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*:

EAAF SITE CODE FOR OFFICE USE ONLY:

E	A	A	F	1	1	9

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2. Date this sheet was completed*:

The date on which the SIS was completed (or updated)

14 December 2014

3. Country*:

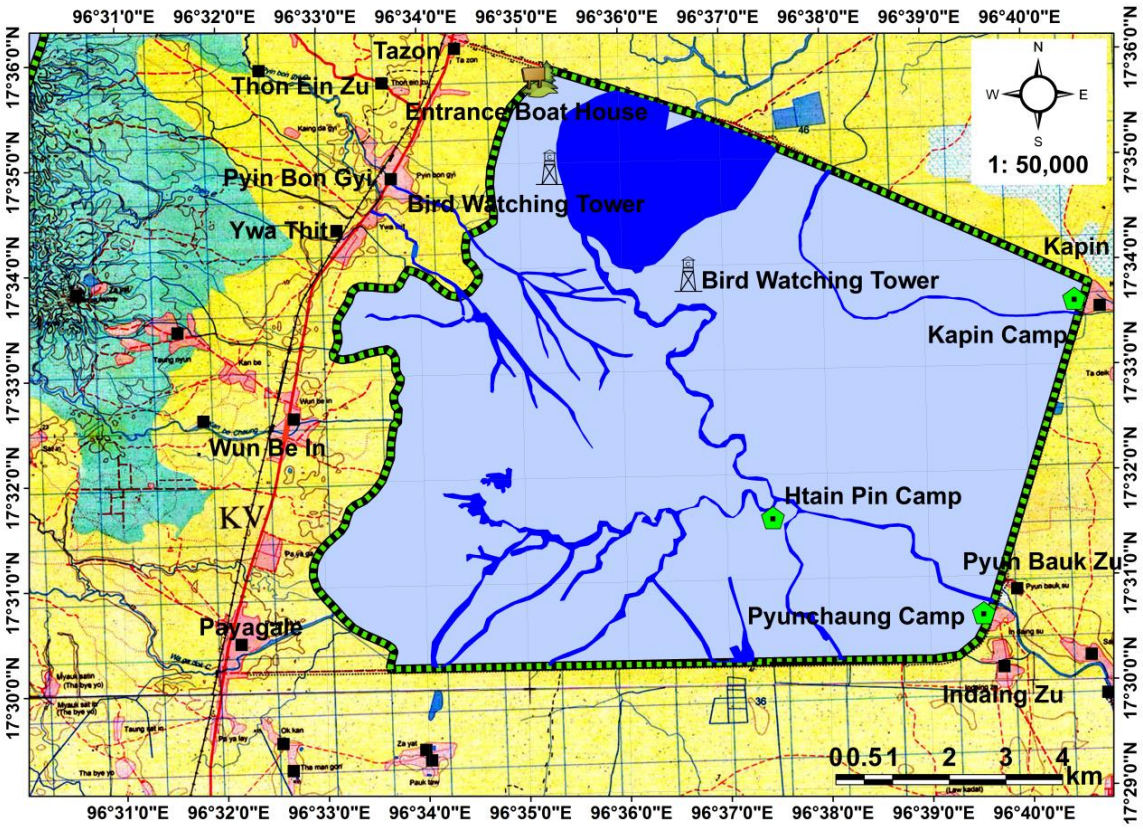
Republic of the Union of Myanmar

4. Name of the Flyway Network site*:

Moeyungyi Wetland Wildlife Sanctuary

5. Map of site*:

Map of Moeyungyi Wetland Wildlife Sanctuary



Legend

Permanenetly inundated water — **Road** — **Railway**

Inundated area in monsoon season — **Stream**

Town/Village — **Ramsar Site Boundary**

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

Latitude :17° 32'57" N
Longitude: 96° 36'58" E

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

The elevation ranges from 7-11 m above sea level.

8. Area*:

10,359 ha.

9. General overview of the site*:

The site is a shallow rectangular human-made reservoir bounded on three sides by embankments. It floods in the wet season (May-October), and from October to March hosts over 20,000 migratory waterbirds. These include the globally threatened Baer's Pochard *Aythya baeri* and Sarus Crane *Grus antigone,* as well as >1% of the regional population of the Northern Pintail *Anas acuta*.

The water at the site is drawn down through sluice-gates to irrigate rice-fields downstream, and the site becomes progressively drier through the dry season leaving flat areas of mud, grassland, marsh and some permanent open water to a maximum depth of 2m. The local communities use the site for fishing, grazing, duck-rearing and some rice-growing; and there is a small tourist facility for visiting birdwatchers.

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.

A2 (A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.)

The site supports four species listed by the IUCN Red List in one of the status categories specified in this criterion, as follows:

Species Name	Common Name	IUCN Red List	CITES	CMS

Aythya baeri	Baer's Pochard	CR		I,II
Grus antigone	Sarus Crane	VU	II	II

A5 (A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.)

Six waterbirds count totals from the period 1994-2001 (Davies et al., 2004) averaged 9,063 and no individual year's total topped 20,000, indicating that the site did not meet this criterion over that period. More recently however the survey from November 2009 to March 2010 gave an average of 23,937 and a peak of 32,861 (Wildlife Sanctuary data, unpublished); and a survey from February 2012 gave a total of 21,927 waterbirds (Wildlife Sanctuary data, unpublished). Peak numbers normally occur in January, and these surveys are transect-based, so they may underestimate the true total numbers currently supported.

The site may even qualify under Criterion 5 on the basis of one species alone, since the 2009-2010 survey includes a count of 20,000 Northern Pintail *Anas acuta.*

A6 (A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbirds.)

The East and South-East Asian population of Northern Pintail *Anas acuta* is estimated at 200,000-300,000, and the commonly accepted 1% threshold for this species is 2,400 birds (5th Edition Waterbird PoP. Estimates http://wpe.voidwalkers.nl/view/2270).

Unpublished Wildlife Sanctuary data for Moeyungyi in 2009-2010 include a monthly Northern Pintail average of 15,000 (6%) and peak of 20,000 (8%); while a survey in February 2012 (January is normally the month of peak numbers) gave a figure of 8,000 birds (3.2%).

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.

O, P
6

12. Jurisdiction*:

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

The Wildlife Sanctuary is managed by the Nature and Wildlife Conservation Division of the Forest Department of the Ministry of Environmental Conservation and Forestry. Since it is a man-made reservoir with particular aims for irrigation, the Ministry of Agricultural and Irrigation also have the authority to regulate the water-level of the reservoir. The Fishery Department has overlapping jurisdiction over the fish resources within the Wildlife Sanctuary.

Other departments are involved to a lesser degree; General Administration Department, Ministry of Hotels and Tourism, and Village authorities.

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. Wherever possible provide tne title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

Ms. Thin Thin Yu, Park Warden, Pyin-pon-gyi Township, Bago Region, Myanmar
Tel: +95 52 70168, Email: nwcdfdmof@gmail.com

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.

Abell *et al.* (2008). Freshwater Ecoregions of the World: a new map of biogeographic units for freshwater biodiversity conservation. Bioscience 58 (5): 403-414.

Das,I (2010). A field guide to the reptiles of Thailand and South-East Asia. Asia Books Co Ltd.

Davies J, Sebastian AC and Chan S (2004). A Wetland Inventory for Myanmar. Ministry of the Environment, Japan.

Delany S and Scott D (2006). Waterbird Population Estimates, fourth edition. Published by Wetlands International.

Istituto Oikos and Biodiversity and Nature Conservation Association of Myanmar (2011). Myanmar protected areas: context, current status and challenges. Ancora Libri, Milan.

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.

The entire site consists of a shallow rectangular man-made freshwater storage reservoir in a mostly flat floodplain area, constructed in 1878 by bunding. It is bounded on three of its four sides by linear water-retention embankments of up to 9 m in height.

Water flows in from the west, from two main streams and one smaller one (the Pyinpon, Pha Yar Ka Lay and Wanbei In). Outflow is through one main stream in the south-east (Zwebat), another smaller one in the north-east (Kabin/Binchidaing), and some small channels to the south.

The monsoon climate features temperatures ranging from 20-33° C and average annual rainfall of around 3,000 mm, most of which falls in the wet season from May to October, with a peak in July and August.

In the wet season the entire site floods, with maximum water levels of around 4.3 m in September with a minimum depths of around 0.8 m. Water is drawn down through sluice-gates on the outflow channels to irrigate rice fields downstream, and the site becomes progressively drier through the dry season leaving flat areas of mud,

grassland, marsh and some permanent open water to a maximum depth of 2 m. Earlier maps show only a small area of this permanent open water in the centre of the northern part of the site, but in reality a larger area of some 1,500 ha persists year-round, in the north-western part. The water has pH 6.5.

16. Physical features of the catchment area:

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

The site is surrounded by agricultural land, much of which is flat and seasonally floods in the prevailing monsoonal climate. The original vegetation of lowland tropical rainforests or moist deciduous forest was probably cleared several hundred years ago.

The geology of the area is predominantly alluvial, and soils are mostly sandy loams. There are four other water storage reservoirs in the upstream catchment. The catchment rises to the Bago Yoe Ma hills, where the headwaters have their source.

17. Hydrological values:

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

Originally constructed as a reservoir to provide water to the Bago-Sittaung canal (linking the Bago and Sittaung rivers) for transport of timber by boat, the site now functions as a source of freshwater to cultivate rice downstream.

The reservoir also provides some incidental flood control benefit, and there is a flood protection embankment adjacent to the site on its northern edge (outside the designated area).

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 site is a man-made seasonally-flooded freshwater reservoir, consisting entirely of open water, reed beds and emergent aquatic vegetation in the height of the wet season (August-September), and at other times of year having a varying mix of exposed mud, marsh plant communities (lotus, water lilies, reeds and aquatic grasses), areas of rice cultivation and some permanent open water. A few trees and shrubs grow on the embankments. Clumps of vegetation periodically break free to form floating islands.

There is a varied breeding bird community, and from October to March the site supports large congregations of migratory waterbirds. It performs an important role for birds in the wider landscape by providing roost-sites (trees) for egrets and (floating islands) for raptors, and some of the waterbird groups move on a daily basis between the site and the nearby Gulf of Mottoma.

Principal ecosystem services include irrigation water supply, subsistence fishing and farming, and tourism (see section 25 below).

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)

Several species of lotus *Nymphaea* spp and *Netumbo* spp occur widely in the site.

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)

Over 70 species of waterbirds have been recorded at the site (see species list appended), with large congregations of migrants being present during the northern winter. This includes especially high numbers of Northern Pintails (up to 20,000), with up to 5,000 Little Egrets, 5,000 Purple Swamphens, 2,000 Asian Open-billed Storks, and 2,000 Little Cormorants (most of these recent figures are from one year only). Other species include Painted Stork, Spot-billed Pelican, Black-headed Ibis, Lesser Whistling Duck, Baer's Pochard, Cotton Pygmy Goose, Pheasant-tailed Jacana, Bronze-winged Jacana, Whiskered Tern, Greater Spotted Eagle, Oriental Pratincole and Pacific Golden Plover. Sarus Cranes are resident.

Three of the bird species are globally threatened: Sarus Crane, Baer's Pochard and Greater Spotted Eagle *Aquila clanga*; while Black-headed Ibis and Spot-billed Pelican are classified as Near Threatened.

At least 48 fish species occur in the site (see species list appended), including Striped Snakehead, Great Snakehead, Grey Featherback, Walking Catfish, Swamp Eel and Spotted Spiny Eel.

Two species of turtle that are endemic to Myanmar are present: Burmese Eyed Turtle *Morenia ocellata* (IUCN Red List status: Vulnerable), and Burmese Flapshell Turtle *Lissemys scutata* (IUCN Red List status: Data Deficient).

Snakes include the Reticulated Python *Python reticulatus (= Broghammerus reticulatus)* and the Burmese Python (Rock Python) *Python molurus bivittatus*; both of which are listed on CITES Appendix II.

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:

There are cultural traditions associated with the use of the site (and surrounding area) for fishing; such as ceremonies to propitiate against harm to fishermen from snakes (though these ceremonies are not unique to this area).

Pyinbongyi village, adjacent to the site, is well-known for its production of dried fish (*Channa* spp) from the area.

A small Buddhist temple is situated on an island in the northern part of the site.

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: ☐

Human occupation and use of the proposed site brings significant cultural values linked to its conservation and ecological functioning;

- There are 17 villages in the area, 9 of which are very close to the proposed site. The inhabitants of these villages mainly rely on rice cultivation for their livelihoods, although some villages very close to the site rely on fishing and duck farming to a lesser degree
- Low-impact agriculture and free grazing of cattle help maintain a mixed mosaic habitat containing wallows and waterholes that provide food to cranes, storks and ibises
- Cattle may also help maintain waterbird-friendly lake margins in some areas
- Artisanal fishing practices and organised community fisheries management help maintain the lake ecosystem and avoid the "necessity" for species introductions seen elsewhere in Myanmar
- Extraction of threads from Lotus *Nymphaea spp* to make lotus robe also provides additional job opportunities to local villagers as well as maintaining the ecological balance of this species.

22. Land tenure/ownership:

a) Within the Flyway Network site:

Under the 2008 constitution, all land in Myanmar is owned by the State, and the local communities have to use the land under the license or long lease. In terms of management authority, the Wildlife Sanctuary itself is classified as Protected Area under the management of the Ministry of Environmental Conservation and Forestry.

b) In the surrounding area:

Some of the agricultural land as well as irrigation tunnels are under the management of the Ministry of Agriculture and Irrigation. The rests, such as village grazing land, farm land are managed by the Local communities.

23. Current land (including water) use:

a) Within the Flyway Network site:

The site formerly stored and supplied water for timber transport by boat. Nowadays it is used as a source of freshwater for adjacent rice-growing areas, enabling the fields to yield two crops per year. Water storage is managed by sluice gates under the control of the Ministry of Agriculture Irrigation Department in conjunction with the regional government of Bago Region. Inflow from the western

side of the site is through two main gates and one smaller one (the Pyinpon, Wanbei In and Pha Yar Ka Lay streams). Outflow is through two gates on the rivers leaving the site to the east (the main one being the Zwebat in the south-east, and the smaller being the Kabin/Binchidaing in the north-east); with around six smaller gates on the streams leaving the site to the south.

There are long-established small-scale fishing activities, using traps, nets and hook & line, some small incidental collection of freshwater shellfish and some poaching of other wildlife at an insignificant level. An area of up to 400 ha within the western part of the proposed site is subject to rice cultivation by villagers from the adjacent village of Pyinbongyi.

There is some small-scale (but rapidly increasing) domestic duck-rearing, and some cattle/water-buffalo grazing. Some use is made of fibres from the lotus plants in weaving cloth, but the extent of this use in the proposed site is small.

b) In the surroundings/catchment:

The wider area around the reserve is inhabited by around 30,000 people in some 15 villages who depend on fishing and rice farming for their livelihood. Frogs are also collected for food. Fishing rights are licensed by the Ministry of Livestock & Fisheries by competitive tender. At times of low water levels some redistribution of water in areas surrounding the site takes place by sluice management and pumping.

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:

Management of the site is not fully coordinated. While the Forest Department in the Ministry of Environmental Conservation and Forestry is responsible for the conservation of the Wildlife Sanctuary, the Irrigation Department in the Ministry of Agriculture and Irrigation is responsible for the upkeep of the reservoir dykes walls and sluice gates. Each year in February the Irrigation Department releases water from the reservoir to supply the surrounding rice fields. The Forest Department have had no formal role in influencing the decision-making on this, and there are concerns that excessive draw-down dries the site too much and for too long, negatively impacting the waterbird populations that are present in the site at this time of year.

The Irrigation Department plans to repair and increase the height of the retaining embankments by about 0.6m, with a view to increasing water levels in the site. The potential environmental impacts (positive or negative) of this have not yet been assessed.

Sedimentation is said to be progressively increasing in the site. Local authorities have allowed expansion of rice-growing inside the site against the recommendations of the Forest Department.

The small-scale fishing activities with traps, nets and hook & line are not regarded as having an adverse effect on fish populations, although the disturbance caused to

birds when this takes place in prohibited core areas can be a problem. Instances of illegal electro-fishing occur and these are more harmful.

The unofficial (though long-established) domestic duck-rearing which takes place in the site is also regarded as undesirable, and the extent of this is rapidly increasing. The impact of the uncontrolled cattle/water-buffalo grazing is unknown.

Invasive species include the Giant Sensitive Tree *Mimosa pigra* growing along the northern boundary, and a modest extent of Water hyacinth *Eichhornia crassipes*.

Lack of resources for management of the Sanctuary is cited as a key negative factor, including a shortage of funds, equipment, trained staff and capacity to undertake biological monitoring and enforcement wardening patrols.

b) In the surrounding area:

Most of the people inhabiting the areas around the site live at subsistence level and have a poor awareness of the full values of the site.

Pesticide use in rice fields in the surrounding area is said to be increasing. Most of this relates to areas downstream of the site, but the situation needs to be monitored. Some unlicensed fishing activities take place.

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.

The site was established as a Wetland Wildlife Sanctuary in 1988 for the protection of waterbirds and their habitats.

In 2004, the site has been designated as Ramsar Site and still regarded as the only Ramsar Site for Myanmar.

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?

The Site is being managed by the Annual operational plan which was developed in line with the functions of the park warden office outlined in the Law. No comprehensive management plan have been adopted, but under planning in cooperation with the Norwegian Environment Agency under the bilateral program between Norway and Myanmar.

d) Describe any other current management practices:

The sanctuary is managed by up to six field staff, with others looking after the education centre, office and other facilities.

Wardens patrol the site to deter and detect unauthorised activities, and a guard post (there were formerly three) is maintained at the entry point in the north-west of the site. Capacity for this is low, with at present only one boat available for patrols.

A broad zonation approach is adopted for guiding visitor access and fishing use. No access or fishing is allowed in the *core zone* (in the central-eastern part of the site, where waterbird nesting takes place). Research can be undertaken in the *transition zone*, and access for other authorised purposes is permitted in the *buffer zone*.

Officially no fishing is permitted in the core and transition zones of the Wildlife Sanctuary but the low-level use of nets and hook & line in the buffer zone is generally tolerated as its impact is small. Enforcement action is however taken against instances of electrofishing when these are detected, generally involving instruction to leave the area but also including confiscation of equipment.

Water hyacinth is observed to be invasive. This is not a major problem to date but occasionally its growth blocks the channels used by boats, and it is then removed manually.

Surveys and monitoring of birds and fish are also carried out.

26. Conservation measures proposed but not yet implemented:

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

Project for wetland conservation and capacity support is being implemented in cooperation with Norwegian Environment Agency under the Norway-Myanmar bilateral cooperation project in Biodiversity Conservation and Protected Area Management.

Discussions have begun since 2012 to put in place a negotiation process between the Forest Department and Irrigation Department concerning water level management in the site.

Management options in the upper catchment are being considered by the township Forest Department to address concerns about increasing sedimentation in the site.

27. Current scientific research and facilities:

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

In 1999 the Wild Bird Society of Japan, supported by the Ministry of the Environment of Japan, carried out a baseline study of the site, including research on the fauna and flora, and water quality.

Midwinter bird counts are undertaken regularly by the staff from the Park. Biodiversity Survey have been carried out by the Biodiversity and Nature Conservation Association of Myanmar (BANCA) and the Myanmar Bird and Nature Society (MBNS).

Students and staff from the Universities at Yangon and Bago conduct fish surveys and other research at the site.

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.

An Environmental Education Centre was established to provide visitors' opportunities to learn about the site as well as the importance of wetlands. The Centre was upgraded in 2014 with financial support from Norwegian Enviornment Agency.

Some CEPA activities are being conducted for local students. The sanctuary staff wish to initiate similar programmes for the wider local community

Local awareness of the fishing restrictions in the site is said to be good; although adherence to these is variable

29. Current recreation and tourism:

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

In 1998, the Forest Department contracted the private Shwe Pyi Aye Travel & Tour Company to develop the site for wildlife tourism and operate it as a joint venture with the Department. Boardwalks, a restaurant and accommodation for visitors have been installed near to an entry point in the north-west of the site.

Visitors come mainly for bird-watching, including being taken around the site by small open boat. The main visitor season is generally from around November until January, February or March (depending on the seasonal fall in water levels). Overnight stays have averaged around 60 per year since 2007, with up to an additional 50 day-visitors recorded at the visitor centre; (excluding local school groups etc), although casual visitors to other parts of the site are likely to make for a higher total overall.

A viewing tower for bird-watching was constructed close to the accommodation area.

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.

Threats to the proposed FNS include the use of illegal fishing techniques such as electric fishing, agricultural incursion by nearby communities (rice farming and cattle grazing), overfishing during the dry season, the overuse of water for agriculture, pesticide pollution, and the introduction of exotic species (by the Department of Fisheries).

These threats are compounded by the very low level of income in the community, a lack of awareness of conservation among local people, a lack of resources for the Wildlife Sanctuary for conservation work, and insufficient communication and cooperation between relevant government departments (such as between the FD and the Irrigation Department on the regulation of water level) to address the challenges.

Duck farming by people living close to the PA may represent a threat, and needs to be assessed.

Appendix 1: List of waterbirds recorded at Moyingyi Wetland Wildlife Sanctuary

Over 130 bird species in total have been recorded in the Moyingi Wetland Wildlife Sanctuary Ramsar site. The water-birds are as follows:

Sr.	English name	Scientific name	Myanmar name
1	Little Grebe	*Tachybaptus ruficollis*	Tazi Hmout
2	Sarus Crane	*Grus antigone*	Gyo Gya
3	Glossy Ibis	*Plegadis falcinellus*	Hkayu Sok
4	Black-headed Ibis	*Threskiornis melanocephalus*	Hkayu Sok Ahpa
5	Red-naped Ibis	*Pseudibis papillosa*	Hkayu Sok Ahpya
6	Spot-billed Pelican	*Pelecanus philippensis*	Wun Po
7	Great White Pelican	*Pelecanus onocrotalus*	Setkatwet
8	Painted Stork	*Mycteria leucocephala*	Hnget Kya
9	Asian Openbill	*Anastomus oscitans*	Hnget Kya
10	Woolly-necked Stork	*Ciconia episcopus*	Ghi Gyin Sut
11	Eurasian Spoonbill	*Platalea leucorodia*	
12	Little Egret	*Egretta garzetta*	Byaing
13	Great Egret	*Casmerodius albus*	Byaing Ngan
14	Intermediate Egret	*Mesophoyx intermedia*	Tharrawaddy Byaing
15	Eastern Cattle Egret	*Bubulcus coromandus*	Kyew Kyaung
16	Grey Heron	*Ardea cinerea*	Nga Hit
17	Purple Heron	*Ardea purpurea*	Nga Hit Mwe
18	Indian Pond Heron	*Ardeola grayii*	Byaing Auk
19	Chinese Pond Heron	*Ardeola bacchus*	Byaing Auk
20	Black-crowned Night Heron	*Nycticorax nycticorax*	Lin Wet
21	Cinnamon Bittern	*Ixobrychus cinnamomeus*	Sat Byaing
22	Darter	*Anhinga melanogaster*	Uban
23	Little Cormorant	*Phalacrocorax niger*	Din Gyi
24	Great Cormorant	*Phalacrocorax carbo*	Din Gyi
25	Lesser Whistling Duck	*Dendrocyna javanica*	Sit Sali
26	Comb Duck	*Sarkidiornis melanotos*	
27	Ruddy Shelduck	*Tadorna ferruginea*	Hintha
28	Northern Pintail	*Anas acuta*	Be Yit
29	Garganey	*Anas querquedula*	Be Bya Galay
30	Common Teal	*Anas crecca*	Be Gaung Gya
31	Northern Shoveler	*Anas clypeata*	
32	Baer's Pochard	*Aythya baeri*	
33	Tufted Duck	*Aythya fuligula*	
34	Spot-billed Duck	*Anas poecilorhyncha*	Wun Be
35	Cotton Pygmy Goose	*Nettapus coromandelianus*	Kalaget
36	Purple Swamphen	*Porphyrio porphyrio*	Baung Dok
37	Common Moorhen	*Gallinula chloropus*	Ye Gyet
38	White-breasted Waterhen	*Amaurornis phoenicurus*	Ye Gyet Ma
39	Common Coot	*Fulica atra*	Ye Gyet Don
40	Watercock	*Gallicrex cinerea*	
41	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Kyar Phat Ninn
42	Bronze-winged Jacana	*Metopidius indicus*	Bi Gya
43	Ruddy-breasted Crake	*Porzana fusca*	
44	Slaty-breasted Rail	*Gallirallus striatus*	
45	Eastern Water Rail	*Rallus indicus*	
46	Common Snipe	*Gallinago gallinago*	Sanaik

Sr.	English name	Scientific name	Myanmar name
47	Pintail Snipe	*Gallinago stenura*	
48	Spotted Redshank	*Tringa erythropus*	
49	Common Greenshank	*Tringa nebularia*	
50	Black-tailed Godwit	*Limosa limosa*	
51	Marsh Sandpiper	*Tringa stagnatilis*	
52	Green Sandpiper	*Tringa ochropus*	
53	Wood Sandpiper	*Tringa glareola*	
54	Common Sandpiper	*Actitis hypoleucos*	
55	Black-winged Stilt	*Himantopus himantopus*	Daung Lan Chidauk
56	Little Ringed Plover	*Charadrius dubius*	
57	Kentish Plover	*Charadrius alexandrinus*	
58	Greater Sand Plover	*Charadrius leschenaultii*	Dilone Gaung
59	Pacific Golden Plover	*Pluvialis fulva*	Talaing Gaung
60	Oriental Pratincole	*Glareola maldivarum*	Thaung Din
61	Grey-headed Lapwing	*Vanellus cinereus*	Tit Tit Du
62	Temminck's Stint	*Calidris temminckii*	
63	Little Tern	*Sterna albifrons*	Myit Hwe
64	Whiskered Tern	*Chlidonias hybridus*	Myit Hwe
65	White-winged Tern	*Chlidonias leucopterus*	
66	Brown-headed Gull	*Chroichocephalus brunnicephalus*	Zin Yaw
67	Western Marsh Harrier	*Circus aeruginosus*	Daung Sun
68	Eastern Marsh Harrier	*Circus spilonotus*	Daung Sun
69	Osprey	*Pandion haliaetus*	Wun Let
70	Common Kingfisher	*Alcedo atthis*	Bein Nyin
71	White-throated Kingfisher	*Halcyon smyrnensis*	Bein Nyin
72	Black-capped Kingfisher	*Halcyon pileata*	Bein Nyin
73	Grey wagtail	*Motacilla cinerea*	Mi Nyanut Hnget
74	Black-browed Reed Warbler	*Acrocephalus crochalus*	
75	Blunt-winged Warbler	*Acrocephalus concinens*	
76	Oriental Reed Warbler	*Acrocephalus orientalis*	
77	Pallas' Grasshopper Warbler	*Locustella certhiola*	

Appendix 2: List of fish recorded at Moyingyi Wetland Wildlife Sanctuary

Sr.	Family	Scientific name	Myanmar name	English name*
1	Adrianichthyidae	*Oryzias minutillus*	Nga chi kha	Dwarf medaca
2	Ambassidae	*Parambassis ranga*	Nga zin zat	Glass fish
3	Anabantidae	*Anabas testudineus*	Nga pyae ma	Climbing perch
4	Anguillidae	*Anguilla bicolor*	Nga lin ban	Indonesian shortfin eel
5	Badidae	*Badis ruber*	Nga mee laung	Red chameleon fish
6	Bagridae	*Aorichthys aor*	Nga gyaung	Long-whiskered catfish
7	Bagaridae	*Mystus bleekeri*	Nga zin yine	Day's mystus
8	Bagaridae	*Mystus cavasius*	Nga zin yine	Gangetic mystus
9	Bagaridae	*Mystus pulcher*	Nga zin yine	Pulcher mystus
10	Bagaridae	*Mystus vittatus*	Nga zin yine	Stripped dwarf catfish
11	Bagridae	*Mystus microphthalmus*	Nga ike	Freshwater cat fish
12	Belonidae	*Xenentodon cancila*	Nga phaung yoe	Freshwater gar fish
13	Channidae	*Channa gachua*	Nga gaung doe	Dwarf snakehead
14	Channidae	*Channa marulius*	Nga yant dainn	Great snake head
15	Channidae	*Channa orientalis*	Nga yant	Walking snakehead
16	Channidae	*Channa panaw*	Nga panaw	Snakehead fish
17	Channidae	*Channa striata*	Nga yant	Striped snakehead
18	Cichilidae	*Oreochromis niloticus*	Tilapia	Nile tilapia
19	Clariidae	*Clarias batrachus*	Nga khu	Walking catfish
20	Cobitidae	*Lepidocephalichthys berdmorei*	Nga tha le doe	Burmese loach
21	Cobitidae	*Lepidocephalichthys hasseltii*	Nga tha le doe	Loach
22	Cyprinidae	*Amblypharyngodon mola*	Nga be phyu	Mola carplet
23	Cyprinidae	*Cyprinus carpio*	Shwe wa nga gyin	Carp
24	Cyprinidae	*Esomus danricus*	Nga mort tort	Flying barb
25	Cyprinidae	*Oreichthys cosuatis*	Nga khonema daung shae	Hi-fin barb
26	Cyprinidae	*Osteobrama belangeri*	Nga phant ma	Manipur osteobrama
27	Cyprinidae	*Osteobrama cunma*	Nga phant ma	Cunma osteobrama
28	Cyprinidae	*Puntius chola*	Nga khone ma	Swamp barb
29	Cyprinidae	*Puntius sophore*	Nga khone ma	Pool barb
30	Cyprinidae	*Puntius tetrarupagus*	Nga khone ma	Swamp barb
31	Cyprinidae	*Rasbora neilgherriensis*	Nga daung zin	Slender rasbora
32	Gobiidae	*Glossogobius giuris*	Ka tha boe	Bar eyed goby, Tank goby
33	Heteropneustidae	*Heteropenustes fossilis*	Nga gyee	Stinging catfish
34	Latidae	*Lates calcarifer*	Ka ka dit	Barramundi
35	Mastacembelidae	*Macrognathus aculeatus*	Nga mway doe	Lesser spiny eel

Sr.	Family	Scientific name	Myanmar name	English name*
36	Mastacembelidae	*Macrognathus zebrinus*	Nga mway doe	Zebra spiny eel
37	Mastacembelidae	*Mastacembelus armatus*	Myawe na ga, Nga mway htoe kyar	Zig-zag eel
38	Nandidae	*Nandus marmoralus*	Nga wat ma	Gangetic leaffish
39	Notopteridae	*Notopterus notopterus*	Nga phe	Bronze feather back
40	Osphronemidae	*Osphronemus goramy*	Nga phyinn thalat	Giant gourami
41	Osphronemidae	*Trichogaster labiosus*	Go yar mee	Thick lipped gourami
42	Osphronemidae	*Trichogaster pectoralis*	Be larr, Go yar mee lay	Snakeskin gourami
43	Schilbeidae	*Pseudeutropius auctirostris*		Schilbid catfish
44	Siluridae	*Ompok bimaculatus*	Nga nu than	Butter catfish
45	Siluridae	*Wallago attu*	Nga bat	Wallago, Boal, Freshwater shark
46	Synbranchidae	*Monopterus albus*	Nha shint ni	Asian swamp eel
47	Synbranchidae	*Monopterus cuchia*	Nga shint mwe	Spotted spiny eel, Cuchia eel
48	Tetraodontidae	*Monotrete leiurus*	Nga pu tin	Puffer fish

**Source: Fishbase*

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.