



Ramsar Information Sheet

Myanmar

Inlay Lake Ramsar Site



Designation date	10 August 2018
Site number	2356
Coordinates	20°34'03"N 96°54'36"E
Area	5 797,55 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

Formed more than 1.5 million years ago, the Inlay Lake Ramsar Site is a freshwater lake located on the Shan Plateau of eastern Myanmar. This Site is the second largest inland lake in Myanmar and is nationally and globally significant for its biological and cultural diversity and also for the ecosystem services that it provides. In order to protect and conserve the rich biodiversity of the wetland ecosystem, Inlay Lake was established as a Wildlife Sanctuary in 1985. It was designated as the first Man and the Biosphere Reserve (MAB) of Myanmar and also one of the ASEAN Heritage Parks. The unique geological history of the Site has created conditions ideal for inhabiting numerous life forms including many endemic to the Site. Important aquatic plant species found in Inlay Lake include coontail (*Ceratophyllum demersum*), musk grass (*Chara aspera*), and Pondweed (*Potamogeton crispus*). Elephant grass known locally as Kaing is important in maintaining the structure of floating island for agriculture. Inlay carp (*Cyprinus intha*), locally called Nga-phein is an endemic fish species which is culturally symbolic and important food fish for household consumption and commercial as well. Other fish species such as Sawbwa *resplendens*, *Microrasbora erythromicron*, and *Microrasbora rubescens* are endemic to the lake, globally endangered and also commercially important for the aquarium trade. Given the importance of the Site as a critical staging ground for the migratory birds on the East Asian-Australian Flyway, the Site was listed as an Important Bird Area (IBA) in 2004. The wetland support globally threatened bird species such as the critically endangered Baer's pochard (*Aythya baeri*) and white-rumped vulture (*Gyps bengalensis*): the endangered yellow-breasted bunting (*Emberiza aureola*): and the vulnerable greater spotted eagle (*Aquila clanga*) and Sarus crane (*Grus Antigone*). Local inhabitants in Inlay Lake are unique in the way they have adopted their lifestyles and livelihoods to their biophysical environment. Most of them earn their income by traditional methods of hydroponic farming as floating garden cultivation and fishing.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

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Compiler 2

Name	Sein Tun
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2.1.2 - Period of collection of data and information used to compile the RIS

From year	1992
To year	2017

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Inlay Lake Ramsar Site
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2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<1 file(s) uploaded>

Former maps	0
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Boundaries description

"The proposed Ramsar Site is the open water area of the Inlay Lake Wildlife Sanctuary including the core zone of the Sanctuary. The boundary is as such because there is no settlement within and it is the key habitat for the resident and migratory birds. The peatlands in the area also serves as breeding grounds for the waterbirds. With no human disturbances, this area serves as an important habitat for the endemic species of Myanmar (more than 25% of the endemic fish species are found here)."

2.2.2 - General location

a) In which large administrative region does the site lie?	Southern Shan State, the Shan Plateau of East Myanmar
b) What is the nearest town or population centre?	Nyaung Shwe township

2.2.3 - For wetlands on national boundaries only

- a) Does the wetland extend onto the territory of one or more other countries? Yes No
- b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

Official area, in hectares (ha): 5797.55

Area, in hectares (ha) as calculated from GIS boundaries 5770.08

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Marine Ecoregions of the World (MEOW)	The site lies within 10b Biounit, on the Shan plateau in Southern Shan State, Myanmar, in Thanlwin River Basin which borders China to the north, Laos to the east, and Thailand to the south

Other biogeographic regionalisation scheme

The biogeographical unit used here is taken from the regional analysis of the Indo-Malayan Realm in MacKinnon (1997). This is the system adopted by the Myanmar government (Forest Department 2012).

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided	<p>Inlay Area is the high land natural freshwater lake of Inlay Region. There are many peat lands within the lake. Peat lands are very beneficial for local communities and they provide the following benefits for local communities:</p> <ol style="list-style-type: none"> 1. the reproduction zone of fish species 2. the habitats of resident and migratory birds of Inlay Lake <p>In addition, Inlay Lake supply drinking water, water for daily usage, for agriculture and irrigation. About 281 villages with 200,000 people rely on the water supply of Inlay Lake. Balu Chaung which initiated from Inlay Lake is the source of hydro power plant for Kayah State.</p> <p>The lake is flooded during the rainy season and the wetlands are formed after the rain subsides. The wetlands fed by ground water discharge, have a direct influence on stream flow, underground water recharged through wetlands, plays an important role in water supply. Besides, Inlay Lake is also the main water resource of Law Pi Ta hydro-power station, the biggest plant of Myanmar. The site plays an important role in flood control and sediment trapping of Inlay region.</p>
Other ecosystem services provided	<p>The site provides shelter, breeding and nesting sites for avian fauna, fish fauna and other aquatic fauna.</p>
Other reasons	<p>Inlay Lake has very high cultural and scenic values. Endemic fish species are abundant in Inlay Lake and it is also one of the most important lakes in Southeast Asia for fish endemism.</p> <p>The site provides water for domestic purposes and agricultural practices for local inhabitants, especially in hydroponics farming as floating garden cultivation, livelihood for fishery families and transportation for one village to another as well as for tourists who visit the lake. Importantly, the Lake provides the main protein source from fish resources (as fresh and dried/preserved fish) for the township populations and the surrounding townships. The site represents some of the most representative Highland forest and wetland in biounit 10b, the Myanmar.</p>

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification	<p>Inlay Lake wetland ecosystem supports a wealth of biodiversity and provides important habitats for migratory water birds within East Asian- Australasian Flyway. The site supports a total of 9 species of mammals, 353 birds (260 terrestrial birds and 93 water birds), 94 butterflies, 61 fishes, 23 reptiles and amphibians, and 108 plants (61 aquatic plants). It is home to over 20,000 migratory and resident birds. An area of 10.36 km² on the northern fringe of the sanctuary has been demarcated as a Bird Preservation Area and considerable proportion of an estimated 2 pairs of globally endangered Sarus crane (<i>Grus antigone</i>), three individuals of critically endangered Baer's Pochard (<i>Aythya baeri</i>), 60 individuals of White-rumped Vulture (<i>Gyps bengalensis</i>), and 500 individuals of Nearly threatened Ferruginous Pochard (<i>Aythya nyrca</i>) (Regular ILWS's Bird Census of 2015 to 2017 and Friend of Wildlife (FOW) Bird Census, 2016.) The lake also provides one of the large fishery resources within the Shan State, supporting livelihoods of large human population living in the lake dwellers. It is home to (16) indigenous fish species and not known to be found in any other part of the world. The floating leaved aquatic plants and microalgae submerged in the lake and provide different temperature zones and micro environments to the fish and plankton.</p>
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- Criterion 6 : >1% waterbird population

Criterion 7 : Significant and representative fish

Justification







Inlay lake is one of the most important lakes in South East Asia for richest freshwater fish and endemism. More than 25% of endemic fishes of Myanmar are found in Inlay Lake. Latest research on fish diversity indicates that there are around 57 fish species which occur only in the inflows and outflows water. Of these, 13 are endemic - *Microrasbora erythromicron* (EN), *Cyprinus intha* (EN), *Gymnostomus horai* (EN), *Inlecypris auropurpurea* (EN), *Microrasbora rubescens* (EN), *Neolissochilus nigrovittatus* (DD), *Sawbwa resplendens* (EN), *Yunnanilus brevis* (VU), *Channa harcourtbutleri* (NT), *Macrognathus caudicellatus* (NE), *Mastacembelus oatesii* (EN), *Physoschistura shanensis* (NT), and *Poropuntius schanicus* (DD). Inlay Carp (*Cyprinus intha*) locally called Nga-phein is culturally symbolic and important for food fish for consumption and household income. Some of these, such as the silver-blue scaleless *Sawbwa resplendens*, the *Microrasbora erythromicron*, and the *Microrasbora rubescens*, are of commercial importance for the aquarium trade. The Lake supports appreciable numbers of endangered, vulnerable and nearly threatened population of endemic fish species. Many of the fish species in the lake are sensitive to habitat degradation and are imperilled. These species act as indicators of the overall health of the ecosystem. There are around (17) introduced exotic fish species, such as *Tillapia*, African catfish and Common carp which are also major cause of changing lake's ecosystem and endemic fish life cycles.

Criterion 8 : Fish spawning grounds, etc.

Justification

The watershed area for the lake lies to a large extent to the north and west of the lake. Mainly flow by four perennial streams and have many springs and intermittent streams. For this result water quality have provided good habitat as reproducing, breeding, spawning and nursery ground for endemic fish population. Also, microorganisms in the lake can improve water quality as well as provide an important part of the food chain for fish. Some natural springs in Inlay lake such as MinYwar Spring and Yae Byone Gyi Spring are the most important spawning grounds for commercial endemic aquarium fish species *Microrasbora erythromicron*, *Sawbwa resplendens*, *Microrasbora rubescens* and *Inlecypris auropurpurea*.






































3.2 - Plant species whose presence relates to the international importance of the site






Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
<i>Paphiopedilum bellatulum</i> 	Enchanting paphiopedilum	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EN 	<input checked="" type="checkbox"/>		
<i>Paphiopedilum godefroyae</i> 	Godefroy's paphiopedilum	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EN 	<input checked="" type="checkbox"/>		
<i>Paphiopedilum parishii</i> 	Parish's paphiopedilum	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EN 	<input checked="" type="checkbox"/>		

The flora of the Inlay lake is very diverse and has a very high biomass. There are 108 of tree species, 527 of medicinal plants, 184 of orchids, 11 of bamboo, 12 species of angiosperm in Inlay lake watershed area. Important aquatic species found in Inlay lake include Coontail (*Ceratophyllum demersum*), Musk grass (*Chara aspera*), and Pondweed (*Potamogeton crispus*). Pondweed is used as a food source by both people and fish. Elephant grass, known locally as Kaing is important in the structure of floating island for agriculture.

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence ¹⁾	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
Birds																		

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	 <i>Aquila clanga</i>	Greater Spotted Eagle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA/AVES	 <i>Aythya baeri</i>	Baer's Pochard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	 <i>Emberiza aureola</i>	Yellow-breasted Bunting	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR 	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA/AVES	 <i>Grus antigone</i>	Sarus Crane	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	 <i>Gyps bengalensis</i>	White-rumped Vulture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	 <i>Himantopus himantopus</i>	Black-winged Stilt	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1648	2016	1.64	LC 	<input type="checkbox"/>	<input type="checkbox"/>		Crit 6: 1 % threshold for E & SE Asia is 1000 as of 2012.
CHORDATA/AVES	 <i>Microcarbo niger</i>	Little Cormorant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1299	2015-17	1.29	LC 	<input type="checkbox"/>	<input type="checkbox"/>		Crit 6: 1 % threshold for SE Asia is 1000 as of 2012 and the population size is the average over the three years counted.
CHORDATA/AVES	 <i>Plegadis falcinellus</i>	Glossy Ibis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1180	2015-17	4.72	LC 	<input type="checkbox"/>	<input type="checkbox"/>		Crit 6: 1 % threshold for S & SE Asia is 250 as of 2012 and the population size is the average over the three years counted.
CHORDATA/AVES	 <i>Rynchops albicollis</i>	Indian Skimmer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>		
Fish, Mollusc and Crustacea																		
CHORDATA/ACTINOPTERYGII	 <i>Channa harcourtbutleri</i>	Burmese snakehead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				NT 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	 <i>Cyprinus intha</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	 <i>Danio erythromicron</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		Crit 7/8: spawning and feeding grounds
CHORDATA/ACTINOPTERYGII	 <i>Devario auropurpureus</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		Crit 7/8: spawning and feeding grounds
CHORDATA/ACTINOPTERYGII	 <i>Gymnostomus horai</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	 <i>Inlecyrpris jayarami</i>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Crit 8: spawning and feeding grounds
CHORDATA/ACTINOPTERYGII	 <i>Macrogathus caudocellatus</i>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	 <i>Mastacembelus oatesii</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	 <i>Microrasbora rubescens</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		Crit 7/8: spawning and feeding grounds
CHORDATA/ACTINOPTERYGII	 <i>Neolissochilus nigrovittatus</i>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	 <i>Physoschistura shanensis</i>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				NT 	<input type="checkbox"/>	<input type="checkbox"/>		

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/ ACTINOPTERYGII	<i>Poropuntius scharicus</i> 		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>			
CHORDATA/ ACTINOPTERYGII	<i>Sawbwa resplendens</i> 	Sawbwa barb	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			EN 	<input type="checkbox"/>	<input type="checkbox"/>		Crit 7/8: spawning and feeding grounds	
CHORDATA/ ACTINOPTERYGII	<i>Yunnanilus brevis</i> 		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			VU 	<input type="checkbox"/>	<input type="checkbox"/>			

1) Percentage of the total biogeographic population at the site

3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

Inlay Lake support a wealth of biodiversity and provides important habitats for the various flora and fauna. There are about 108 species of trees, 527 medicinal plants, 184 orchids, 11 bamboo and 12 angiosperms in the lake watershed area. The site provide water for domestic use, irrigation and also serve as the main source of water for the biggest hydropower plant of Myanmar, Law Pi Ta hydropower station. This wetland is one of the most important lakes in Southeast Asia as it supports a rich biodiversity of endemic and freshwater fish species. Recent survey on fish diversity indicates the presence of about 57 fish species in the lake. More than 25 % of endemic fish of Myanmar are found in Inlay lake. The site is the main source of animal protein (from fish resources) for the local communities as well as the people in the surrounding area. Besides, the various ecosystem services that the Site provides, it also supports more than 180,000 local people by providing food and livelihood sources. Considering the scenic beauty and the associated local culture, the lake also serves as a prime ecotourism destination.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Lakes and pools >> O: Permanent freshwater lakes		0	2054	Representative
Fresh water > Marshes on peat soils >> U: Permanent Non-forested peatlands		3	736.9	Representative

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
1: Aquaculture ponds		1		Rare

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
seasonally flooded agricultural land	
water storage areas/ reservoirs	9

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
<i>Adenanthera pavonina</i>	Peacock Flower-fence	
<i>Adina cordifolia</i>		
<i>Aegle marmelos</i>		
<i>Albizia lebbbeck</i>	Woman's Tongue Tree	
<i>Cassia fistula</i>	Purging Cassia	
<i>Cassia renigera</i>	Burmese Pink Cassia;Burmese Cassia	
<i>Diospyros brandisiana</i>		
<i>Erythrina crista-galli</i>	Cockspur Coral Tree	
<i>Lagerstroemia speciosa</i>		
<i>Lagerstroemia villosa</i>		
<i>Morus alba indica</i>		
<i>Pajanelia longifolia</i>		
<i>Premna tomentosa</i>		
<i>Salix tetrasperma</i>		
<i>Schleichera oleosa</i>		
<i>Shorea siamensis</i>		
<i>Strychnos potatorum</i>		
<i>Tectona grandis</i>		
<i>Terminalia alata</i>		
<i>Vitex limonifolia</i>		

Invasive alien plant species

Scientific name	Common name	Impacts
<i>Eichhornia crassipes</i>		Actually (major impacts)

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Alcedo atthis</i>	Common Kingfisher				Native Forest Birds of Inlay Lake Region
CHORDATA/AVES	<i>Alcedo hercules</i>	Blyth's Kingfisher				Native Forest Birds of Inlay Lake Region
CHORDATA/AVES	<i>Alcedo meninting</i>	Blue-eared Kingfisher				Native Forest Birds of Inlay Lake Region
CHORDATA/AVES	<i>Anastomus oscitans</i>	Asian Openbill				
CHORDATA/AVES	<i>Anhinga melanogaster</i>	Darter;Oriental Darter				
CHORDATA/AVES	<i>Ardea cinerea</i>	Gray Heron;Grey Heron				
CHORDATA/AVES	<i>Ardea purpurea</i>	Purple Heron				
CHORDATA/AVES	<i>Ardeola bacchus</i>	Chinese Pond Heron;Chinese Pond-Heron				
CHORDATA/AVES	<i>Ardeola grayii</i>	Indian Pond Heron				
CHORDATA/AVES	<i>Aythya nyroca</i>	Ferruginous Duck				
CHORDATA/AVES	<i>Butorides striata</i>	Green-backed Heron				
CHORDATA/AVES	<i>Ceryle rudis</i>	Pied Kingfisher				Native Forest Birds of Inlay Lake Region
CHORDATA/AVES	<i>Dendrocygna bicolor</i>	Fulvous Whistling Duck;Fulvous Whistling-Duck				
CHORDATA/AVES	<i>Dendrocygna javanica</i>	Lesser Whistling Duck				
CHORDATA/AVES	<i>Dupetor flavicollis</i>	Black Bittern				
CHORDATA/AVES	<i>Fulica atra</i>	Eurasian Coot	11350	2016		
CHORDATA/AVES	<i>Grus antigone sharpii</i>					
CHORDATA/AVES	<i>Halcyon smymensis</i>	White-throated Kingfisher				Native Forest Birds of Inlay Lake Region
CHORDATA/AVES	<i>Ixobrychus cinnamomeus</i>	Cinnamon Bittern				
CHORDATA/AVES	<i>Ixobrychus sinensis</i>	Yellow Bittern				
CHORDATA/AVES	<i>Merops orientalis</i>	Green Bee-eater				Native Forest Birds of Inlay Lake Region
CHORDATA/AVES	<i>Nycticorax nycticorax</i>	Black-crowned Night Heron;Black-crowned Night-Heron				
CHORDATA/AVES	<i>Phalacrocorax carbo</i>	Great Cormorant				
CHORDATA/AVES	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant				
CHORDATA/AVES	<i>Podiceps cristatus</i>	Great Crested Grebe				
CHORDATA/AVES	<i>Tachybaptus ruficollis</i>	Little Grebe	16	2015		
CHORDATA/AVES	<i>Threskiornis melanocephalus</i>	Black-headed Ibis				

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Aw: Tropical savanna (Winter dry season)

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

Entire river basin

- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

4.4.3 - Soil

- Mneral
- Organic
- No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

Please provide further information on the soil (optional)

Basic rocks that can be found in some areas of the Shan Plateau are limestone, granite, and shale. Types of soil found in the catchments are mainly mountainous brown and yellow brown, classified as Cambisol and Ferrasols as per FAO classification. The watershed area in close proximity of the lake is mostly rugged with minimal flat land. the soil is composed of easily erodible types namely, red earth, loose sandy oil covering porous lime stone rocks, shale and clay.

4.4.4 - Water regime

Water permanence

Presence?
Usually permanent water present

Source of water that maintains character of the site

Presence?	Predominant water source
Water inputs from rainfall	<input type="checkbox"/>
Water inputs from surface water	<input type="checkbox"/>

Water destination

Presence?
To downstream catchment
Feeds groundwater

Stability of water regime

Presence?
Water levels largely stable

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

Inlay Lake with its associated wetland supports a wealth of biodiversity and provides important habitats for migratory water birds within East Asian Flyway. The Lake also provides one of the large fishery resources within Shan State, supporting livelihoods of a large human population living in a lake and along its fringes. Inlay Lake is also regarded as one having the highest water plant diversity in Myanmar. Major inflows into the site come via Inlay, Sagar Inn and Mobyre reservoir. It include Nanlatt Chaung (streams) from north, Thanduang and Balu Chaungs (streams) from west and Ye Pe Chaung (streams) from the northwest. The major outflow is the Balu Chaung (streams) at the southern end of the lake, which links it to Sagar lake (streams) and Mobyre Dam. Mobyre Dam is an artificial reservoir created by the impoundment of the lower Balu Chaung (streams) by the Law Pi Ta dam and hydropower station. The reservoir sits in the same shallow basin as Inlay and Sagar lakes, but is less well studied and general characteristics of water quality and depth are not known.

4.4.5 - Sediment regime

- Significant erosion of sediments occurs on the site
- Significant accretion or deposition of sediments occurs on the site
- Significant transportation of sediments occurs on or through the site
- Sediment regime is highly variable, either seasonally or inter-annually
- Sediment regime unknown

Please provide further information on sediment (optional):

Special variability of sedimentation rates is evident; mass accumulation rates (MARs) during the last 50 years were evaluated to be 0.001 g/cm2/yr for the center area of the lake, 0.025 g/cm2/yr for the lake 1km offshore, 0.25 g/cm2/yr for the marsh, 0.43 (to 1.41) g/cm2/yr for the river mouth, and 0.43 to 2.19 g/cm2/yr for the delta. Second, temporal changes of the MAR and linear sedimentation rate (LSR) in three cores (river mouth, marsh, and delta) showed higher sedimentation rates over the last 50 years compared to those in the previous period. Projections of the MARs over the last 50 years to the future enabled the periods when the marsh and lake would be filled to be calculated. The marsh would be filled in 120 years, and the lake would disappear in approximately 2200 years (higher MAR suggests this would be 700 years), if the sedimentation rates estimated in this study were uniformly applied to the entire lake and marsh areas and dredging did not occur.

4.4.6 - Water pH

- Acid (pH<5.5)
- Circumneutral (pH: 5.5-7.4)
- Alkaline (pH>7.4)
- Unknown

Please provide further information on pH (optional):

Data From Inlay Lake (coordinate - 20 38.928 N, 96 56.107E) in November , 2017 indicates; PH: (Result value -8.25mg/l, Surface Water - 5.5 - 8.5mg/l and General Waste Water- 6 - 9)

4.4.7 - Water salinity

- Fresh (<0.5 g/l)
- Mixohaline (brackish)/Mixosaline (0.5-30 g/l)
- Euhaline/Eusaline (30-40 g/l)
- Hyperhaline/Hypersaline (>40 g/l)
- Unknown

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic
- Mesotrophic
- Oligotrophic
- Dystrophic
- Unknown

Please provide further information on dissolved or suspended nutrients (optional):

According to the survey from Environment Conservation Department which was done in Nov, 2017, the available information is as follows:
 The available information is as follows :

Lead (Pb): Result value -<0.1mg/l, Surface Water - 0.05 mg/l and General Waste Water- 0.1), Copper(Cu): (Result value- 3.37 mg/l, Surface Water- 1mg/l, General Waste Water- 0.5), Arsenic(As):(Result value-0.005mg/l, Surface Water-0.1mg/l, General Waste Water- 0.1), Manganese(Mn):(Result value- 0.28mg/l, Surface Water- 1, Dissolved Oxygen(DO):(Result value- 4.4mg/l,), Nitrate(NO3):(Result value - <0.5 mg/l, Surface Water- 50mg/l),Nitrite (NO2):(Result value - <0.01mg/l), Phosphate(PO4):(Surface Water- 0.7mg/l, General Waste Water-2), Sulfate(SO4):(Result value- 3mg/l, Surface Water- 200mg/l) and COD:(Result value- 31.7mg/l, Surface Water - 1000mg/l, General Waste Water - 250

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar ii) significantly different site itself.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	High
Fresh water	Water for irrigated agriculture	High

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Erosion protection	Soil, sediment and nutrient retention	Medium
Climate regulation	Local climate regulation/buffering of change	Medium
Biological control of pests and disease	Support of predators of agricultural pests (e.g., birds feeding on locusts)	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	High
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Nutrient cycling	Carbon storage/sequestration	Medium

Within the site:

Outside the site:

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

4.5.2 - Social and cultural values

- i) the site provides 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) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

Description if applicable

The Shan Plateau and the Nyaung Shwe basins are of very high scenic value. The natural beauty of the lake attracts many tourists and local visitors, as does the unique way of life of the Inthas, the local community which is inhabiting around Inlay Lake. Floating gardens are made from masses of floating vegetation and are used to grow vegetables, particularly tomatoes, in a form of hydroponic culture. Fishing is an essential livelihood activity for many resident communities. Intha (Local Community) conducts a traditional standing technique-so-called "leg rowing" - that allows solitary fishermen to cast nets or place large basket traps while still being able maneuvering their small wooden craft. There are ancient pagodas, such as Phaung Daw Oo, Alodaw Pauk, Shwe In Daing, Taung Do around the lake and other pagodas in the surrounding hills. There are also some particularly important Shan temples around Moby reservoir.

- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) 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

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

- Inlay lake Wildlife Sanctuary: The wildlife sanctuary is managed by the Nature and Wildlife Conservation Division of the Forest Department of the Ministry of Natural Resources and Environmental Conservation.
- The Department of Fisheries: The Department of Fisheries is fully responsible for the aquatic resources in the Lake within the Ramsar site that lays outside the wildlife sanctuary are part of the jurisdiction of the Department of Fisheries within the Ministry of Agriculture, Livestock and Irrigation.
- Township Forest Department: Township Forest Department manages the catchment area of wildlife sanctuary.
- Other departments are involved to a lesser degree: Township General Administrative Department, Myanmar Police Force.

Provide the name and title of the person or people with responsibility for the wetland:

U Win Naing Thaw, Director, Nature and Wildlife Conservation Division

Postal address:

Forest Department, Ministry of Natural Resources and Environmental Conservation, Naypyitaw, Myanmar.

E-mail address:

nwcdmof@gmail.com

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Tourism and recreation areas	unknown impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	unknown impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	High impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

5.2.2 - Legal conservation status

Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
UNESCO Biosphere Reserve	Inlay Lake Biosphere Reserve		partly

Regional (international) legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Other international designation	Inlay Lake ASEAN Heritage Park		partly

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Inlay Important Bird Area		partly

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

5.2.5 - Management planning

Is there a site-specific management plan for the site? No

Has a management effectiveness assessment been undertaken for the site? Yes No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, but a plan is being prepared

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water quality	Proposed
Birds	Implemented

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

A Wetland Inventory for Myanmar (2004)
- General Information of Inle lake Wildlife Sanctuary
- Survey and census record of Inle Lake Wildlife Sanctuary
- Biodiversity Data Journal: Data paper of "A dataset of fishes in and around Inle Lake, an ancient lake of Myanmar, with DNA barcoding, photo images and CT/3D models"

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<4 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



traditional culture of Inlay Lake Wildlife Sanctuary (Soe Naing Aye (Mr.), 02-03-2015)



Birds at Inlay Lake (Soe Naing Aye (Mr.), 01-06-2016)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation