Ramsar Information Sheet

Published on 22 May 2015

Viet Nam

Lang Sen Wetland Reserve

Designation date:	22 May 2015
Ramsar ID:	2227
Coordinates:	10°46'46"N 105°44'19"E
Official area (ha):	4 802,00
Number of zones:	1

https://rsis.ramsar.org/ris/2227
Created by RSIS V.1.3 on Thursday 12 November 2015

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 *(This field is limited to 2500 characters)*

Lang Sen Wetland Reserve is situated in the Plain of Reeds of the Mekong Delta. This area, which was originally dominated by seasonally inundated grasslands, has mostly been converted to agricultural land. Unlike the majority of the Mekong Delta, Lang Sen wetland is not drained by the Mekong River, but by the western branch of the Vam Co River.

According to natural geographical map of 1969, Lang Sen Wetland Reserve once occurred in an area of c. 10,000 hectares. With an area of 4,802 hectares, the site is now the second largest area of what remains of the once extensive Plain of Reed. At present, most of this area is divided into small patches for agro-forestry production purposes. Some patches are privately managed by local households, but the rest remains state-managed and was recently designated as a nature reserve (Le Phat Quoi 2013).

Lang Sen Wetland Reserve is a wetland complex comprising of a mosaic of seasonally inundated grassland, riverine Melaleuca and mixed forests, and open swamp. The site supports the best sample for natural riverine forests in the Mekong Delta. Lang Sen Wetland Reserve provides habitat for a wide diversity of waterbirds and is also highly important for fish species, especially those of conservation importance. The site regularly supports more than 20,000 waterbirds in dry season including globally threatened species such as Greater adjuntant and Sarus crane. Globally vulnerable mammals such as Indo-chinese spitting cobra, Southeast Asian softshell turtle occur in Lang Sen. Twenty seven of 87 fish species recorded in Lang Sen occur only in the lower Mekong Basin and include globally threatened species such as Mekong giant catfish, Giant carp and Siamese fighting fish.

Local communities have a long history of exploitation and utilization of Lang Sen Wetland Reserve. The name means an inundated hollow (Lang) that is dominated by floating vegetation of lotus (Sen) and water lily.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Name: Tran Ngoc Cuong

Institution/agency: Biodiversity Conservation Agency, Vietnam's Environment Protection Administration, Ministry of Natural Resources and Environment

Postal address *(This field is limited to 254 characters)*

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

From year: 1999

To year: 2014

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish): Lang Sen Wetland Reserve

Unofficial name (optional): Khu Bao ton Dat ngap nuoc Lang Sen

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Boundaries description (optional) *(This field is limited to 2500 characters)*

Lang Sen Wetland Reserve is situated in Vinh Dai, Vinh Loi and Vinh Chau A communes of Tan Hung District, Long An Province, in the Mekong Delta, Vietnam.

The reserve borders with Vinh Dai commune of Tan Hung District in the east, with Tan Hung Township in the west, with Vinh Chau A commune of Tan Hung District in the south, and with Vinh Thuan commune of Vinh Hung District in the north.

2.2.2 - General location

a) In which large administrative region does the site lie?	Long An Province
b) What is the nearest town or population centre?	Vinh Dai, Vinh Loi and Vinh Chau A communes of Tan Hung District

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):	4802
Area, in hectares (ha) as calculated from GIS boundaries	4783.05

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
WWF Terrestrial Ecoregions	This area falls within IM0164 (Tonle Sap Freshwater Swamp Forests) within Tropical & Subtropical Moist Broadleaf Forests of Indo-Malayan Region.

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 *(This field is limited to 3000 characters)*

Lang Sen's location in the upper reach of the Vietnamese section of the Mekong, and its capacity to regulate water helps to mitigate the negative impacts of floods and droughts for the entire Plain of Reeds as well as the downstream part of the Mekong Delta as the park stores water during flood season and releases slowly as flood recedes. The vast plain is acting as a natural reservoir that helped water regulation and maintained the hydrological rhythm of the entire Mekong Delta. Water in the reserve also contributes to the recharge of the local and regional aquifers benefit in the surrounding agricultural lands and agricultural communities. The near natural landscape of the park serves to break wave energy during flood season, helping to protect houses of about 20,000 people along its eastern and southern dykes. Releasing water from the park in the dry season to the Mekong and Vam Co Rivers also helps to reduce saline intrusion in the downstream area. The wetland maintains groundwater levels in the area and is an important source of freshwater during the dry season. It is also an important source of seed and larvae stock for farming activities in the surrounding area. In the rainy season it mitigates the impact of flooding in agricultural lands.

Other reasons *(This field is limited to 3000 characters)*

Almost all of the 700,000 hectares of the wetland landscape of the Plain of Reed has been converted to agricultural land making this ecosystem rare in Tonle Sap Freshwater Swamp Forests Ecoregion. With an area of c. 5,000 hectares, Lang Sen has the second largest area of what remains of the Plain of Reed (Buckton et al. 1999). The landscape of the site comprises of grasslands, open water, channels, and Melaleuca forests. The grasslands in Lang Sen also contain some typical vegetation communities of the Plain of Reeds that are not likely to be found elsewhere in Indochina. Lang Sen supports the best sample of the riverine semi-natural Melaleuca forests that is now very rare in the whole Lower Mekong Region (BirdLife International and MARD 2004).

☑ Criterion 2 : Rare species and threatened ecological communities

☑ Criterion 5 : >20,000 waterbirds

Overall waterbird numbers	>20000: 17656 (2010), 19465 (2011), 20251 (2012), 24872 (2013).
Start year	2010
Source of data:	Lang Sen Census Data (Annual Census Data collected by Lang Sen Wetland Reserve Management Board)

☑ Criterion 6 : >1% waterbird population

☑ Criterion 7 : Significant and representative fish

Justification *(This field is limited to 3000 characters)*

Lang Sen supports a complex system of natural rivers and artificial canals and therefore a very diverse fauna. Several surveys carried out in 2000s recorded 87 fish species in Lang Sen (Nguyen Phuc Bao Hoa et al. 2006, Doan Van Tien et al. 2007, WETI 2011, Le Phat Quoi 2013). Most of them are native species, typical for the lowland Mekong with many common economic species such as snakeheads or Ghanna spp., Climbing perch or Anabas testudineus, Walking catfish or Clarias spp., Bronze featherback or Notopterus notopterus, Loaches or Botia spp., Paralaubuca spp., Henichorhynchus sp. etc. Observations in Tan Hung market (Nguyen Phuc Bao Hoa et al. 2006) have revealed some more common native species such as Luciosoma bleekeri, Leiocassis siamensis etc. The Marble goby or Oxyeleotris marmorata - a high economic value species - is also observed in the market but in very few numbers. Twenty seven of 87 fish species are recorded only in the lower Mekong Basin (WETI 2011), out of which some species are listed as globally threatened by IUCN (2013) (listed in Criterion 2), and many are ranked as high and very high vulnerability by fishbase.org. Lang Sen plays a very important role in the fish protection of the area. The reserve is connected to outside areas by many canals; therefore it can serve as a “refuge” for fish from the area with high pressure fishing activities taking place. The flooded area inside the reserve is a good habitat for feeding and growing of many species (notably the Henichorhynchus siamensis with very high number caught by gill net) with young ones hatched from the beginning of rainy season. Many species like Channa spp., Anabas testudineus, and Pristolepis fasciata that occur in small sizes outside the protected area occur in big sizes in the protected area. Though these species are not endangered they play an important role in the fishery. The reserve helps protect these species until they mature and reach a breeding size (Nguyen Phuc Bao Hoa et al. 2006).

☑ Criterion 8 : Fish spawning grounds, etc.

Justification *(This field is limited to 3000 characters)*

A study from 2008-2009 in Lang Sen recorded 11 zoobenthos species, 116 algae species, and 68 zooplankton species. Those benthos and planktons are concentrated and well developed in the submerged areas of Lang Sen and provide most important forage source for fish species. There are two groups of fish found in Lang Sen: i) flowing water fishes (river fish or white fish) are those who are not sulphate resistant and well adapted to water bodies with high DO. They inhabit rivers and canals and migrate to the hollow water areas in Lang Sen for breeding. Some white fish reproduce in upstream tributaries of Mekong and Vam Co Rivers in the beginning of rainy season. Their eggs or fingerlings then drift along the current to the inundated floodplains to find more food. During high water level periods some fish reproduce in floodplain, so that fingerlings can find food right after birth. Typical for this group are: Siamese mud carp or Henicorhynchus siamensis, Puntioplites proctozysron, Long whiskers catfish or Mystus gulio, species of Notopteridae, Acanthopsis sp., Ompok bimaculatus, Hampala barb or Hampala macrolepidota, Indian glassy fish or Parambassis ranga etc; ii) stagnant water fish (or black fish) are well adapted to sulphate water and water bodies with low DO. They include more resident species such as Snakeheads or Channa spp., Climbing perch or Anabas testudineus, Catfishes or Clarias spp., and Gouramis or Trichogaster spp. etc. The wetlands of Lang Sen are an important source of food, spawning grounds, nursery and migration paths on which fish stocks, within and outside the reserve, depend (WETI 2011).

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

<no data available>

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	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA / REPTILIA	*Amyda cartilaginea*	Asiatic Softshell Turtle	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	VU on VNRB; CITES Appendix II	
CHORDATA / ACTINOPTERYGII	*Anabas testudineus*	Climbing perch	☐	☐	☐	☐	☐	☐	☑	☐					☐	☐		
CHORDATA / AVES	*Anastomus oscitans*	Asian Openbill	☐	☐	☐	☐	☐	☑	☐	☐	2000	2013		LC	☐	☐		One of the most commonly occurring waterbirds at Lang Sen as of 2013
CHORDATA / AVES	*Anhinga melanogaster*	Oriental Darter	☐	☐	☑	☐	☐	☑	☐	☐	1000	2010-2013	11	NT	☐	☐		SE Asia - 1% threshold is 100 as of 2012. 2010 - c.1000 2011-c.1200 2012-c.1300 2014-c.1000 (in wet season only. Source: Lang Sen Wetland Reserve Management Board). One of the most commonly occurring waterbirds at Lang
CHORDATA / ACTINOPTERYGII	*Betta splendens*	Siamese Fighting Fish	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐		
CHORDATA / ACTINOPTERYGII	*Catlocarpio siamensis*	Giant barb	☑	☐	☐	☐	☐	☐	☐	☐				CR	☐	☐	EN on VNRB	
CHORDATA / REPTILIA	*Cuora amboinensis*	Southeast Asian Box Turtle	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	VU on VNRB; CITES Appendix II	
CHORDATA / AVES	*Dendrocygna javanica*	Lesser Whistling Duck	☐	☐	☐	☐	☐	☑	☐	☐	1000	2013		LC	☐	☐		One of the most commonly occurring waterbirds at Lang
CHORDATA / AVES	*Egretta garzetta*	Little Egret	☐	☐	☐	☐	☐	☑	☐	☐	3000	2013		LC	☐	☐		One of the most commonly occurring waterbirds at Lang

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA / AVES	*Grus antigone*	Sarus Crane	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	VU on VNRB; CITES Appendix II; CMS Appendix II	
CHORDATA / AVES	*Grus antigone sharpii*	Eastern Sarus Crane	☐	☐	☑	☐	☐	☐	☐	☐	13	2010	1.4		☐	☐		Indochina - 1% threshold is 9. 2010 - 13 in dry season.(Source: van Zalinge et al. 2010)
CHORDATA / AVES	*Leptoptilos dubius*	Greater Adjutant	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐	DD on VNRB	
CHORDATA / ACTINOPTERYGII	*Luciosoma bleekeri*		☐	☐	☐	☐	☐	☐	☑	☐				LC	☐	☐		
CHORDATA / AVES	*Microcarbo niger*	Little Cormorant	☐	☐	☐	☐	☐	☑	☐	☐	4000	2013		LC	☐	☐		One of the most commonly occurring waterbirds at Lang
CHORDATA / REPTILIA	*Naja siamensis*	Indo-Chinese Spitting Cobra	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	EN on VNRB; CITES Appendix II	
CHORDATA / ACTINOPTERYGII	*Notopterus notopterus*	Bronze featherback	☐	☐	☐	☐	☐	☐	☑	☐				LC	☐	☐		
CHORDATA / ACTINOPTERYGII	*Oxyeleotris marmorata*	Marble goby	☐	☐	☐	☐	☐	☐	☑	☐				LC	☐	☐		
CHORDATA / ACTINOPTERYGII	*Pangasianod gigas*	Mekong giant catfish	☑	☐	☐	☐	☐	☐	☐	☐				CR	☑	☑	VU on VNRB	
CHORDATA / AVES	*Porphyrio porphyrio*	Purple Swamphen	☐	☐	☐	☐	☐	☑	☐	☐	1000	2013		LC	☐	☐		One of the most commonly occurring waterbirds at Lang Sen
CHORDATA / ACTINOPTERYGII	*Pseudomystu siamensis*		☐	☐	☐	☐	☐	☐	☑	☐					☐	☐		

(This field is limited to 2500 characters)

Note: Population size of the species that qualify for the criterion No.5 is a rough estimate as of 2013.

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

(This field is limited to 2500 characters)

Lang Sen is the only site in the Mekong Delta where semi-natural Melaleuca forest occurs along a natural river channel, and, as such, is of notable biodiversity value (Buckton et al. 1999).

The semi-natural Melaleuca forest occurs in patches in swampy areas, together with Syzygium spp., Eleocarpus hygrophilus, Ficus microcarpa and Cassia grandis. The majority of the Melaleuca forest at the site is, however, plantation forests. The ground layer of the plantation forest includes Lasia spinosa, Cayratia trifolia and Flagellaria indica (Buckton et al. 1999). Substantial areas of lotus swamp are also present at Lang Sen. This vegetation type is characteristic of the Plain of Reeds but is now seldom found anywhere to any great extent. The plant community of lotus swamp is dominated by lotus Nelumbo nucifera, as well as Nymphaea nouchali, N. pubescens and N. tetragona. Eleocharis dulcis, Ludwidgia adscendens, Centrostachys aquatica, Hymenachne acutigluma, Coix aquatica and Leersia hexandra also occur in the lotus swamp (Buckton et al. 1999).

Lang Sen is one of the 8 freshwater IBAs of Vietnam (all located in the Mekong Delta) (Tordoff, (eds.) 2002). Reports were received from 1999 to 2013 of significant numbers of large waterbirds, including the globally vulnerable Sarus Crane Grus antigone and the globally near-threatened Painted Stork Mycteria leucocephala, using the site each year for short periods, suggesting that Lang Sen may be an important stop-over area for large waterbirds en route between their breeding areas in Cambodia and their non-breeding areas in the Mekong Delta of Vietnam.

To date, 122 species of birds were recorded in the park (see Annex 3), apart from the species mentioned in criterion 2, the two globally near-threatened species also found are: Oriental Darter (Anhinga melanogaster) and Painted Stork (Mycteria leucocephala). In 6 mammal species recorded, one globally near-threatened species is Eurasian Otter Lutra lutra. In 17 reptile species recorded, Asiatic Rock Python Python molurus is ranked as globally near-threatened. Of the 87 fish species identified in Lang Sen (see Annex 5), 3 species listed by IUCN (2013) as Data Deficient (DD) are: Hypsibarbus suvattii, Mystus rhegma, and Anabas testudineus; 3 species listed as NT are: Wallago attu, Ompok bimaculatus and Clarias macrocephalus. In addition, there are 17 species ranked as High or Very High Vulnerability by fishbase.org (see Appendix 5).

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
Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		1		Rare
Xf: Freshwater, tree-dominated wetlands		2		Unique

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Cassia grandis		
Cayratia trifolia		
Centrostachys aquatica		
Coix aquatica		
Elaeocarpus hygrophilus		
Eleocharis dulcis		
Ficus microcarpa		
Flagellaria indica		
Hymenachne amplexicaulis		
Lasia spinosa		
Leersia hexandra		
Nelumbo nucifera	sacred lotus	
Nymphaea lotus		
Nymphaea nouchali		
Nymphaea tetragona		

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/ACTINOPTERYGII	Anabas testudineus					DD by IUCN, 2013
CHORDATA/ACTINOPTERYGII	Clarias macrocephalus					NT by IUCN, 2013
CHORDATA/ACTINOPTERYGII	Hypsibarbus suvattii					DD by IUCN, 2013
CHORDATA/MAMMALIA	Lutra lutra	European Otter				NT by IUCN
CHORDATA/AVES	Mycteria leucocephala	Painted Stork				NT by IUCN
CHORDATA/ACTINOPTERYGII	Mystus rhegma					DD by IUCN, 2013
CHORDATA/ACTINOPTERYGII	Ompok bimaculatus					NT by IUCN, 2013
CHORDATA/REPTILIA	Python molurus	Asiatic Rock Python				NT by IUCN
CHORDATA/ACTINOPTERYGII	Wallago attu					NT by IUCN, 2013

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Am: Tropical monsoonal (Short dry season; heavy monsoonal rains in other months)

(This field is limited to 1000 characters)

The site enjoys a tropical monsoon climate with two distinct seasons: rainy season from May to October, and dry season in the remaining months. The two dominant monsoons are the northeast and southwest monsoon. The southwest monsoon

coincides with the rainy season. This is a period of frequent and heavy precipitation, high humidity and maximum cloud cover. The northeast monsoon coincides with the dry season and produces light, infrequent precipitation, low humidity and less cloud cover. Annual rainfall is approximately 1,681 mm, most of this falls between August and November (highest in October).

The average monthly temperature is 27.2°C; May is warmest month (29.3°C) and coldest is January (25°C). The temperature variation between day and night is high (8-10°C). Total sunny time is c. 2,550 hours per year (c. 7 hours a day). Average annual humidity is approximately 80%; highest in July (84.7%) and lowest in April (76.7%).

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 0

a) Maximum elevation above sea level (in metres): 1

More than one river basin ☑

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.
(This field is limited to 1000 characters)

Mekong River, Vam Co River: Located not too far from the main channel of the Mekong River (in the upper stream of the Vietnamese section of the river) and Vam Co River, water follows into the site draining into the some canals that connects with the delta, e.g. Hong Ngu-Long An, 79, 28 and Lo Gach canals.

More on elevation: Situated in the lowest part of the Plain of Reeds, Lang Sen is dominated by the low terraces and submerged areas of approximately 93% lower than 1.0 m, and only few ancient alluvial areas occurring at 1.0 – 1.2 m.

4.4.3 - Soil

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) *(This field is limited to 1000 characters)*

The diversity of soil types in the Plain of Reeds enables the formation of the diverse landscape and biodiversity. Following Soil Taxonomy of USDA (1999), Lang Sen locates in the area of seasonal inundated sulphate soils that is dominated by typic sufalquents, typic sulfaquepts, sulfic tropaquents and sulfic tropaquepts. For more information please see the attachment VN_lit5031.docx under Additional materials and reports.

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	☐
Water inputs from surface water	☑

Water destination

Presence?
To downstream catchment

Stability of water regime

Presence?
Water levels fluctuating (including tidal)

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology: *(This field is limited to 1000 characters)*

The hydrology of the site is influenced by the hydrology of the Mekong Delta, and especially, the flow changes in the Tan Hung-Vinh Hung area. The natural river system in Lang Sen area is relatively dense, however, total flow is low due to the small catchment area.

Located not too far from the main channel of the Mekong River (in the upper stream of the Vietnamese section of the river) and Vam Co River, water follows into the site draining into the some canals that connects with the delta, e.g. Hong Ngu-Long An, 79, 28 and Lo Gach canals.

At the beginning of rainy season in May/June, water from the Mekong River is allowed to enter this area through the canals.

In mid-flooding season, water level in the Lang Sen area is between 2.5 and 3.5 meters in the high flood years (1996, 2000), and lasts for 3-4 months. Most of the rest of the area (c. 3,400 ha) has an average water level between 1.5 and 2.0 meters.

4.4.5 - Sediment regime

Please provide further information on sediment (optional): *(This field is limited to 1000 characters)*

The geology of Lang Sen wetland is formed of Pleistocene and Holocene deposits, with 6 sub-units as follows: i) marine-eolian deposits, ii) fluvial-marsh deposits, iii) fluvial-proluvideposits, iv) ancient riverbed deposits, v) marine deposits, and vi) marine-marsh deposits. In Lang Sen, marine deposits, marine-marsh deposits and fluvial-marsh deposits dominate and account for c. 4,200 ha (90% total area).

4.4.6 - Water pH

Please provide further information on pH (optional): *(This field is limited to 1000 characters)*

At the beginning of rainy season in May/June, water from the Mekong River is allowed to enter this area through the canals. Flooding water concentrates in the area of sulphate soils along 79 canal so that the water in the site is acidic (pH ~4.5). Water quality improves when the site receives more rainwater or drainage water from Mekong River in mid rainy season. In dry season, due to low tidal amplitude, the connection between canals and marshes are reduced, and pH measurements vary greatly between different parts of the site.

4.4.7 - Water salinity

<no data available>

4.4.8 - Dissolved or suspended nutrients in water

<no data available>

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 site itself: i) broadly similar ○ ii) significantly different ◉

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)	Medium
Fresh water	Drinking water for humans and/or livestock	High
Fresh water	Water for irrigated agriculture	High

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	Medium
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	Medium
Hazard reduction	Flood control, flood storage	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Scientific and educational	Educational activities and opportunities	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium

Other ecosystem service(s) not included above: *(This field is limited to 1000 characters)*

More on livelihood services: Lang Sen provides a variety of natural products, especially fishes, for the communities living inside and along its boundaries. Resource use systems in Lang Sen helps maintain traditional patterns of life. There are 427 people of 98 households live inside the reserve. Most common livelihoods of those families are agriculture, agro-forestry, husbandry and fishery. Lang Sen is surrounded by more than 30,000 people living in the buffer zone. Most of them depend on Lang Sen for their livelihood and especially aquatic resources for protein diet.

More on historical values: The site has historical values as during the American-Vietnam war this area was a stronghold of the guerrilla force, thus many battles took place in the plain (Kien Vang or Cay Gao 17 hills). The site used to be a military factory in the war time, and still maintains vestiges of transportation routes for weapons and supplies of Southern Vietnam Revolution Army.

Within the site: 427

Outside the site: 30000

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

<no data available>

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
Local authority, municipality, (sub)district, etc.	☑	☐

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	☐	☑

Provide further information on the land tenure / ownership regime (optional): *(This field is limited to 1000 characters)*

Within the Ramsar Site, 2,156 ha of Ecological Zone is now under the management of Lang Sen Wetland Reserve Management Board; 1,118 ha of Economical Zone under the management of Provincial Party Office; and 1,756 ha of Biodiversity Zone under the management of Vinh Loi and Vinh Dai Commune People's Committees.

Current land use:
a) within the Ramsar site:
2,156 ha of Ecological Zone is strictly protected area that serves for biodiversity conservation. The rest (1,118 ha of Economical Zone and 1,449 ha of Biodiversity Zone) is managed for both biodiversity conservation and economic purposes. Local households, especially who live inside the wetland reserve, can use natural resources in the reserve under supervision of reserve staff and on a limited basis.

b) in the surroundings/catchment:
The entire Plain of Reeds outside the park has been converted to agriculture land and is privately owned by individual farmers.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: *(This field is limited to 1000 characters)*

Lang Sen Wetland Reserve Management Board

Provide the name and title of the person or people with responsibility for the wetland: Truong Thanh Son, Acting Director

Postal address: *(This field is limited to 254 characters)*

Lang Sen Wetland Reserve Management Board, Ca No ward, Vinh Loi commune, Tan Hung district, Long An province

5.2 - Ecological character threats and responses (Management)

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

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	Medium impact	Medium impact	☑	☐

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Hunting and collecting terrestrial animals	High impact	High impact	☐	☑
Gathering terrestrial plants	High impact	High impact	☐	☑
Fishing and harvesting aquatic resources	High impact	High impact	☐	☑

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	Medium impact	Medium impact	☑	☐
Problematic native species	Medium impact	Medium impact	☑	☐

Please describe any other threats (optional): *(This field is limited to 2500 characters)*

More on threats:

a) within the Ramsar site:
The reserve faces a number of factors affecting its ecological character, including:

• The invasion of floating weeds (watermoss, water lettuce etc.) reduces the areas of natural lotus-water lily communities, and the areas of other grassy meadows including brown beard rice as well as preventing the natural regeneration of young Melaleuca seedlings.
• The newly developed road and canal system in the wider landscape area change the flow pattern limiting intakes of fishery stock early in the flood season, thus limiting aquatic resources productivity.
• The expansion of alien invasive species (Mimosapigra, water hyathine ect.) threatens the existing niches of native species.

b) in the surrounding area:
Poverty and dependency of local community on wetlands resources place a great pressure on the Ramsar site. As this is a developing area, infrastructure and public facilities are fairly limited. Illegal encroachment to harvest wetland plant and animal products is a serious problem causing the depletion and reduction of wildlife population inhabiting wetlands.

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Nature Reserve	LangSen		whole

5.2.3 - IUCN protected areas categories (2008)

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention ☑

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Hydrology management/restoration	Proposed

Species

Measures	Status
Control of invasive alien plants	Proposed
Control of invasive alien animals	Proposed

Human Activities

Measures	Status
Harvest controls/poaching enforcement	Proposed
Regulation/management of recreational activities	Partially implemented
Communication, education, and participation and awareness activities	Implemented
Research	Proposed

Other: *(This field is limited to 2500 characters)*

Lang Sen has a nature reserve status, which receives the second highest level of protection by Viet Nam law. A proposal for upgrading Lang Sen to the national park status was signed by Long An Provincial People's Committee, but not yet accepted by Prime Minister.

The main conservation measures planned for Lang Sen Wetland Reserve include:
- Preparation and implementation of action plans to conserve natural wetland ecosystems including seasonally inundated grasslands and lotus/water lily swamps, which provides important habitats for key species such as Sarus Crane (Antigone antigone), Painted Stork (Mycteria leucocephala), Oriental Darter (Anhinga melanogaster) as well as otters, pythons, turtoirs, Mekong giant catfish (Pangasianodon gigas) and other important fish species.
- Ecological rehabilitation of the values and functions of wetlands that are typical for an original Plain of Reeds. Controlling alien invasive species, e.g. Mimosa pigra, Pistia stratiotes, apple snail (Pomacea canaliculata), is important part of this task.
- Infrastructure development to serve for conservation purposes.
- Protection of Lang Sen Wetland Reserve from illegal activities and encroachments.
- Provision of a field ground for research on the wetland ecology of the Plain of Reeds.
- Support local authorities in developing the buffer zone economy: In these activities, many Community Sustainable Resource Use Groups were established with the participation of 120 households in Vinh Loi and Vinh Dai communes.
- In collaboration with the National Administration of Tourism to prepare a plan for ecotourism development in Lang Sen: Lang Sen is preparing a plan for ecotourism development, when approved, the ecotourism activities will be implemented (hoped by the end of 2014).

The reserve has a conservation awareness programme operating at and targeting local community to raise their awareness on the importance of conservation of wetlands. This programme was integrated with the livelihood improvement activities and in different forms such as: communication campaigns, meetings, distribution of posters, leaflet and other materials etc.

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

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? Please select a value

5.2.7 - Monitoring implemented or proposed

(This field is limited to 2500 characters)

The reserve has a technical department for conducting monitoring of resources and impacts of management actions. However, the department has 4 staff and the lack of research equipment limits their functions. Most of research done in Lang Sen area were supported by outside institutions, especially international ones, for example, IUCN and CARE in 2004-2005 period, and WWF from 2007 to date.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

(This field is limited to 2500 characters)

The list of bibliographical references is attached as a separate document to Additional reports and documents: Other published literature.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<1 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
<2 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

Anastomus oscitans (*Dr. Tran Ngoc Cuong, CEPA Focal Point for Viet Nam, 17-11-2011*)

Egretta garzetta (*Dr. Tran Ngoc Cuong, CEPA Focal Point for Viet Nam, 17-11-2011*)

Phalacrocrorax niger (*Dr. Tran Ngoc Cuong, CEPA Focal Point for Viet Nam, 31-07-2013*)

Anhinga melanogaster (*Dr. Tran Ngoc Cuong, CEPA Focal Point for Viet Nam, 14-04-2014*)

Dendrocygna javanica (*Dr. Tran Ngoc Cuong, CEPA Focal Point for Viet Nam, 17-03-2012*)

Grus antigone sharpii (*Dr. Tran Ngoc Cuong, CEPA Focal Point for Viet Nam, 31-12-2009*)

Porphyrio porphyrio (*Dr. Tran Ngoc Cuong, CEPA Focal Point for Viet Nam, 17-03-2012*)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation: 2015-05-22