Ramsar Information Sheet

Published on 1 February 2020

India

Nangal Wildlife Sanctuary

Designation date	26 September 2019
Site number	2407
Coordinates	31°23'46"N 76°22'16"E
Area	116,00 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

Nangal Wildlife Sanctuary is a human-made reservoir, which came into existence as a result of the Bhakra-Nangal Project in 1961. The Bhakra-Nangal Dams are among the first river valley multipurpose developmental projects undertaken by India immediately after independence. The Bhakra Dam is constructed across the river Sutlej and at a height of 207.26 m is the second highest dam in India. Some 13 km downstream of the Bhakra Dam, another dam was constructed across the Sutlej near the town of Nangal with the purpose of using it as a backup in case of fluctuation of the Bhakra Dam water levels. The construction of this dam, which is 29 m high and 304.8 m long, has led to the formation of a reservoir, which over the course of time has become a good habitat for wildlife.

The surrounding forests are rich in wildlife as it is situated in the highly eco-sensitive Shiwalik foothills and the presence of the reservoir has attracted several resident as well as migratory birds, making it a vibrant wetland. Recognising the ecological significance of the wetland, the Government of Punjab declared the wetland as a Wildlife Sanctuary in 2009. Nangal Sanctuary is a very important and strategic refuelling base for the very long distance/route migratory birds. Species of high conservation significance such as Axis porcinus, Manis crassicaudata, Panthera pardus, Sterna acuticauda, Aythya farina, Aythya nyroca, Ciconia episcopus, Clanga clanga, Neophron percnopterusm, Mycteria leucocephala, Haliaeetus leucoryphus, Python molurus, Ompok pabda, Chitala chitala, Tor putitora, Cirrhinus cirrhosis and Wallago attu have been reported in the Nangal wildlife sanctuary. Department of Forests and Wildlife Preservation, Punjab along with WWF-India annually conducts Asian water bird census in Nangal wildlife sanctuary. The annual water bird count of Nangal wildlife sanctuary varies between 5312-6113. A total of 55 migratory water birds were recorded during Asian water bird census conducted in Nangal wildlife sanctuary from 2017-2019.

The Sanctuary attracts huge tourists as the wetland is not only famous for its wildlife but because of its historic importance. It was on the banks of the Nangal dam that Indian PM Nehru and Chinese PM Chou En Lai formalised the "Panchsheel" or the five Principles of Peaceful Coexistence in 1954.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

Name	Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden, Punjab.
Institution/agency	Department of Forests & Wildlife Preservation.
Postal address	Forest Complex, Tower no 2, 2nd floor, Sec -68, S.A.S Nagar, Punjab.
E-mail	cwlwpunjab@gmail.com
Phone	0172-2298010

Compiler 2

Name	Rivers, Wetlands and Water Policy
Institution/agency	World Wide Fund for Nature - India
Postal address	172-B, Max Muller Marg, Lodi Estate, New Delhi - 110 003
E-mail	gkanwar@wwfindia.net
Phone	011-43516280

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

From year	2012
To year	2019

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Nangal Wildlife Sanctuary

2.2 - Site location

2.2.1 - Defining the Site boundaries

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

Former maps	0

Boundaries description

The site's boundary is exactly the same as the Nangal Wildlife Sanctuary. It is located at a distance of about 100 km from Chandigarh in Punjab in northwest India. The wetland is situated at 31°22'N 76°23'E / 31°.37'N, 76°.38'E and has an average elevation of about 1069 feet (326 metres).

NORTH: Boundary of Himachal Pradesh and private land of village Swamipur bagh and Khera bagh.

SOUTH: Urban area of Nangal town and expanse of Sutlej River.

EAST: Private / Urban land of villages Talwara, Dabheta and Hambewal.

WEST: Private land of village Bhabour Sahib and Naya Nangal

2.2.2 - General location

a) In which large administrative region does the site lie?	Rupnagar
b) What is the nearest town or population centre?	Nangal

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): 116

Area, in hectares (ha) as calculated from GIS boundaries: 116.353

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Freshwater Ecoregions of the World (FEOW)	Lower & Middle Indus

Other biogeographic regionalisation scheme

Biogreographic regionalization scheme: Terrestrial Eco-regions of the World.

Scientific Code: IM1304
Eco-Zone: Indomalayan
Biome: Desert and xeric scrub-land
Eco-region: Northwestern scrub forest
Country: India. North-western part in State of Punjab.

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

<no data available>

☑ Criterion 2 : Rare species and threatened ecological communities

☑ Criterion 3 : Biological diversity

Justification: Species of conservation significance - Axis porcinus, Manis crassicaudata, Panthera pardus, Python molurus, Ompok pabda, Chitala chitala, Tor putitora, Cirrhinus cirrhosis and Wallago attu.

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 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
Birds																		
CHORDATA / AVES	*Aquila clanga*	Greater Spotted Eagle	☑	☐	☐	☐	☐	☐	☐	☐					☐	☐	Vulnerable	
CHORDATA / AVES	*Aythya ferina*	Common Pochard	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐		
CHORDATA / AVES	*Haliaeetus leucoryphus*	Pallas's Fish Eagle	☑	☐	☐	☐	☑	☐	☐	☐				EN	☐	☑		
CHORDATA / AVES	*Mycteria leucocephala*	Painted Stork	☐	☐	☐	☐	☑	☐	☐	☐				NT	☐	☐		
CHORDATA / AVES	*Neophron percnopterus*	Egyptian Vulture	☑	☐	☐	☐	☑	☐	☐	☐				EN	☐	☑		
CHORDATA / AVES	*Sterna acuticauda*	Black-bellied Tern	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐		
Others																		
CHORDATA / MAMMALIA	*Axis porcinus*	Hog deer	☑	☐	☐	☐	☑	☐	☐	☐				EN	☐	☐		
CHORDATA / MAMMALIA	*Manis crassicaudata*	Indian Pangolin	☑	☐	☐	☐	☑	☐	☐	☐				EN	☑	☐		
CHORDATA / MAMMALIA	*Panthera pardus*	Leopard	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☐		
CHORDATA / REPTILIA	*Python molurus*	India Rock Python	☐	☐	☐	☐	☑	☐	☐	☐					☐	☐	Near Threatened	

1) Percentage of the total biogeographic population at the site

Note

Other accepted scientific name/synonym of important species are:

1. Greater spotted eagle: Clanga clanga (IUCN), Aquila clanga
2. Indian rock Python : Python molurus molurus (IUCN); Python molurus, (Linnaeus, 1758)

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

Nangal Wildlife Sanctuary has abundant flora and fauna. It supports migratory waterbirds both in summer and winter. It provides important feeding & nesting areas for a wide range of resident waterbirds. The wildlife sanctuary offers a variety of habitats to different bird's species throughout the year. It is an abode to several vulnerable and near threatened species. These include hog deer, Indian pangolin, Indian rock python, common pochard, ferruginous pochard and Pallas's fish eagle. The characteristic vegetation of the wetland includes Typha elephantine, Phragmites karka and tall grasses, mainly Saccharum spontaneum and Saccharum bengalense. There are also Cenchrus species (anjan grass) in sandy places and Desmostachys bipinnata (dab) flourishes under dry conditions. Vetiveria zizanoides, Arundo donax (nara), Eragrostis atrovirens, Cyperus rotundus, Cyperus difformis (nut grass) are the other major species in the marshy areas. Some of the plankton identified from Nangal wetland are Ulothrix sp., Pinnullaria sp., Scenedesmus sp., Chlorella sp., Spirogyra sp., Volvox sp., Chlamydomonas sp., Ankoistrodesmus sp., Navicula sp., Keratella sp., Euglena sp., Diatoma sp., and Brachionus sp.

Nangal Wildlife Sanctuary is an important ecosystem for its significant hydrological values it helps to regulate the water cycle, stabilize micro-climate, helps in recharging of groundwater and maintains the quality and quantity of water. It plays a major role in trapping the sediments and also in preventing and reducing the heavy flow of water and save public and property from devastating floods. It also regulates nutrient cycling which help in optimum functioning of hydrological, ecological and biological processes of nature.

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 > Flowing water >> M: Permanent rivers/ streams/ creeks		4		

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
6: Water storage areas/Reservoirs	Nangal	1	116	

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Aegle marmelos	Bel	
Bambusa bambos	Bamboo	
Calotropis procera	Aak	
Cassia fistula	Amaltas	
Nelumbo nucifera	sacred lotus	
Phoenix sylvestris	Khajur	
Phyllanthus emblica	Amla	
Terminalia arjuna	Arjun	

Invasive alien plant species

Scientific name	Common name	Impacts	
Eichhornia crassipes	Water Hyacinth	Potentially	No change

4.3.2 - Animal species

<no data available>

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
B: Dry climate	BWk: Mid-latitude desert (Mid-latitude desert)

Not known

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 326

a) Maximum elevation above sea level (in metres): 330

- 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 ☐

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.

Sutlej River Basin

4.4.3 - Soil

- Mineral ☑
- 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)

The soil is moderately acidic in reaction and sandy loam in texture in the wetland.

4.4.4 - Water regime

Water permanence

Presence?	
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	
Water inputs from rainfall	☐	No change
Water inputs from surface water	☑	No change

Water destination

Presence?	
To downstream catchment	No change
Feeds groundwater	No change

Stability of water regime

Presence?	
Water levels largely stable	No change

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 ☑

(ECD) Water turbidity and colour	Clear
(ECD) Light - reaching wetland	Not assessed
(ECD) Water temperature	24-25 degree Celsius (in summer), 16-19 degree Celsius (in winter)

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):

The quality of water in river Sutlej at Nangal reservoir conforms to Class-C in October, 2016 and Class-B in April, 2017 as per Designated Best Use (DBU). The water quality deteriorates due to Total Coli-form count.

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 ☐

(ECD) Dissolved gases in water

Oxygen reliable in water.

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic ☐

Mesotrophic ☑

Oligotrophic ☐

Dystrophic ☐

Unknown ☐

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

Not investigated.

(ECD) Dissolved organic carbon	Not investigated.
(ECD) Redox potential of water and sediments	Not investigated.
(ECD) Water conductivity	Conductivity(µs/cm) 170-355

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 ◉

Surrounding area has greater urbanisation or development ☐

Surrounding area has higher human population density ☐

Surrounding area has more intensive agricultural use ☑

Surrounding area has significantly different land cover or habitat types ☑

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	Water for irrigated agriculture	Medium
Wetland non-food products	Reeds and fibre	Low

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	Low
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	Low
Spiritual and inspirational	Spiritual and religious values	Medium
Scientific and educational	Educational activities and opportunities	Low

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	Medium
Pollination	Support for pollinators	Low

Other ecosystem service(s) not included above:

Nangal wetland system helps to regulate the water cycle, stabilize micro-climate, helps in recharging of groundwater and maintains the quality and quantity of water. It plays a major role in trapping the sediments and also in preventing and reducing the heavy flow of water. This helps saves lives and property in the surrounding villages from devastating floods. It also regulates nutrient cycling which help in optimising the productivity of the floodplains of the surrounding villages. More than 150,000 people of the surrounding villages are directly benefiting from the ecosystem services of the wetland and nearly half a million downstream are indirectly benefited.

Within the site: Nil (no inhabitants)

Outside the site: 500000

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 ☐

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 ☐

<no data available>

4.6 - Ecological processes

(ECD) Primary production: Unknown and not investigated

(ECD) Nutrient cycling: Unknown and not investigated

(ECD) Carbon cycling: Unknown and not investigated

(ECD) Animal reproductive productivity: Unknown and not investigated

(ECD) Vegetational productivity, pollination, regeneration processes, succession, role of fire, etc.: Unknown and not investigated

(ECD) Notable species interactions, including grazing, predation, competition, diseases and pathogens	Unknown and not investigated
(ECD) Notable aspects concerning animal and plant dispersal	Unknown and not investigated
(ECD) Notable aspects concerning migration	The wildlife sanctuary is used by migratory birds in both summer and winter seasons.
(ECD) Pressures and trends concerning any of the above, and/or concerning ecosystem integrity	Unknown and not investigated

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.	☐	☑
Public land (unspecified)	☐	☑
National/Federal government	☐	☑
Provincial/region/state government	☑	☐

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Cooperative/collective (e.g., farmers cooperative)	☐	☑
Other types of private/individual owner(s)	☐	☑
Religious body/organization	☐	☑

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: Rupnagar Wildlife Division, Department of Forests and Wildlife Preservation, Punjab

Provide the name and title of the person or people with responsibility for the wetland: DFO Wildlife (Rupnagar)

Postal address: DFO Wildlife
(Rupnagar)

E-mail address: dfowildliferopar@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
Housing and urban areas		Low impact	☐	☑
Tourism and recreation areas	Low impact		☑	☑

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Canalisation and river regulation	Low impact		☑	☑

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Annual and perennial non-timber crops	Low impact		☑	☑

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Gathering terrestrial plants		Low impact	☑	☑
Logging and wood harvesting	Low impact		☑	☑

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	Low impact		☑	☑

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Dams and water management/use	Low 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	Low impact		☑	☑

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Household sewage, urban waste water	Low impact		☑	☑
Agricultural and forestry effluents	Low impact		☑	☑
Garbage and solid waste	Low impact		☑	☑

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Wildlife Sanctuary	Nangal Wildlife Sanctaury	http://www.pbforests.gov.in/community_reserves.html	whole

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

Habitat

Measures	Status
Soil management	Partially implemented
Re-vegetation	Partially implemented
Catchment management initiatives/controls	Partially implemented

Human Activities

Measures	Status
Fisheries management/regulation	Implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Partially implemented
Communication, education, and participation and awareness activities	Partially 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 need identified

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Birds	Implemented
Animal species (please specify)	Proposed

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

1. Kanwar, G. 2019. Short Communication on water bird census in wetlands of Punjab to Asian Water bird Count, 2019. Published by Wetland International.
2. Ladhar, S.S. and Brraich, O.S. 2005. Biological Diversity in Wetlands of Punjab - A Check List. Punjab State Council for Science and Technology, Chandigarh.
3. Punjab State Council for Science and Technology (PSCST). 1994. Nangal Reservoir-The Lake of National Importance. Chandigarh: Punjab State Council for Science and Technology.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<no file available>

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>

<no data available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

Nangal wetland (*Gitanjali Kanwar, 02-01-2019*)

Bar-headed Geese and Greater white-fronted Geese at Nangal wetland (*Gitanjali Kanwar, 11-01-2019*)

Landscape view of Nangal wetland. (*Rochishnu Dutta, 10-02-2018*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation	2019-09-26