



Ramsar Information Sheet

Published on 1 February 2022

India

Khijadia Wildlife Sanctuary



Designation date	13 April 2021
Site number	2464
Coordinates	22°30'52"N 70°08'45"E
Area	511,75 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

Khijadia wildlife sanctuary is a distinctive near- natural, coastal wetland located at the watershed of Ruparel river and Kalindri in the Indian State of Gujarat and has a very special and unique ecosystem. To protect the agriculture land from the saline water and salinity ingress, Erstwhile Ruler of the Jamnagar State created Earthen Bund almost 100 years ago (in 1920). Over the period of time, fresh water started accumulating on the one side and created this wetland ecosystem, which is a unique complex of "Saltwater-Freshwater" ecosystems with variety of habitat types supporting 312 species of birds including various categories of species scheduled in Red Data List of IUCN. The main attraction of Khijadia wildlife Sanctuary is its rich avifaunal diversity that constitutes one of the most significant waterbird habitats in North-West India. Khijadia wildlife sanctuary provides a favourable habitat for resident water and land birds serving as breeding, feeding, roosting areas. Owing to its strategic location in the vicinity of the Gulf of Kachchh and on the Central Asian Flyway (CAF), this sanctuary attracts a number of migratory waterbirds serving as important wintering and staging area during migratory season, Some of the notable species migratory species are endangered and vulnerable species such as common oychard (*Aythya ferina*), and Indian Skimmer (*Rynchops albicollis*). Khijadia wetland has been identified as one of the Wetlands of International Importance by Wetlands International and an Important Bird Area (IN-088) by Birdlife International. Khijadia wildlife sanctuary was also declared as one of the Wetlands of National Importance by the Ministry of Environment and Forests, Government of India. It is also among the short-listed wetlands under Central Asian Flyway National Action Plan (CAF-NAP): 2018-2023 by MoEFCC ,2018. The Sanctuary area falls in the migratory route of bird species coming from Eurasia and the region is on the migratory path of over 100 species of birds, large number of whom find congenial wintering ground in the wetland and grasslands of Gujarat.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency	Marine National Park, Jamnagar, Gujarat.
Postal address	O/o Chief Conservator of Forests, Marine National Park, Ganjiwada, Nr. Nagnath Ghat, Indira Marg, Jamnagar – 361 001, Gujarat, India.

National Ramsar Administrative Authority

Institution/agency	Ministry of Environment, Forest and Climate Change
Postal address	Office of the Additional Secretary (Wetlands), Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi 110003

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

From year	<input type="text" value="2016"/>
To year	<input type="text" value="2020"/>

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Khijadia Wildlife Sanctuary
Unofficial name (optional)	Khijadiya Pakshi Abhyaranya

2.2 - Site location

2.2.1 - Defining the Site boundaries

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

Former maps	<input type="text" value="0"/>
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Boundaries description

Khijadia wildlife sanctuary is located virtually on the Tropic of Cancer between 22°31'27" N latitude and 70°07'17" E longitude. This wetland area is located in semi-arid region of Jamnagar district, southern coast of the Gulf of Kachchh, Gujarat in India.

North : Sea shore land and revenue areas of Jambuda village.
 East : Revenue areas of Jambuda and Khijadia villages.
 South : Gauchar land and revenue areas of Dhunvav, Khijadiya and Jambuda villages.
 West : Sea shore land and revenue areas of Khijadia, Dhunvav and Jambuda villages.

Khijadia Wildlife Sanctuary is along the southern boundary of Marine National Park and Sanctuary (MNP&S). Marine National Park & Sanctuary was declared earlier and had separate jurisdiction. Which is managed by different Range. Northern boundary of Khijadia Wildlife Sanctuary towards the coastline is the High Tide Line (HTL). The landscape is dominated by Marine Vegetation, salt pans under Sanctuary salt pans an industrial salt producing industry. Also its boundary is flanked by agricultural revenue lands and creek lets.

2.2.2 - General location

a) In which large administrative region does the site lie?	Khijadia wildlife sanctuary falls within Jamnagar District of Gujarat State, India. Khijadia Wildlife Sanctuary located virtually between 22°31'27" N and 70°07'17"E.
b) What is the nearest town or population centre?	Jamnagar which is about 12 km far from KBS.

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):

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

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	INDOMALAYAN REALM

Other biogeographic regionalisation scheme

Khijadia wildlife sanctuary falls under Thar Desert biogeographical province(4.15.7) of INDOMALAYAN REALM (Udvardy,1975)

Udvardy MDF (1975)'A Classification of the Biogeographical Provinces ofthe World', Occasional Paper 18. (International Union for Conservation of Nature and Natural Resources: Morges).

Rodger, W. A., Panwar, H. S. and Mathur, V. B., 2002. Wildlife Protected Area Network in India: A review (Executive Summary), Wildlife Institute of India. Dehradun. pp 44.

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

Khijadia wetland is a biodiversity hotspot as it supports 5 species of fishes, 4 species of prawns, 21 species of butterflies, 7 species reptiles, 183 species of plants and 7 species of mammals. Of the total 183 plant species being recorded in Khijadia wetland, 27 species are trees, 13 species shrubs, 123 species herbs and 19 species of climbers.

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Criterion 5 : >20,000 waterbirds

Overall waterbird numbers

Start year

Source of data:

Criterion 6 : >1% waterbird population

Criterion 8 : Fish spawning grounds, etc.

Justification

Water bodies of Khijadia have functioned as spawning grounds for 5 species of fishes and 4 species of shrimps. Being in a semi-arid zone, water bodies of the Khijadia are not perennial due to drought. This may affect the spawning grounds of native fish and shrimp stocks.

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

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Plantae								
TRACHEOPHYTA / MAGNOLIOPSIDA	<i>Commiphora wightii</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CR	<input type="checkbox"/>		The distribution of <i>Commiphora wightii</i> is restricted to India and Pakistan. It is valued for its gum
TRACHEOPHYTA / LILIOPSIDA	<i>Urochondra setulosa</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>		During the dry season, Fresh Water Accumulated in the Khijadia Wildlife Sanctuary supports the plant. Plant thrives on moisture stored. It indirectly helps many birds to get food.

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

Phylum	Scientific 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								
Others																	
CHORDATA / MAMMALIA	<i>Boselaphus tragocamelus</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 3 as per Wildlife Protection Act, 1972	Schedule 3 as per Wildlife Protection Act, 1972 and seen in large population.
CHORDATA / MAMMALIA	<i>Canis aureus</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 2 part 2 as per Wildlife Protection Act, 1972	Schedule 2 part 2 as per Wildlife Protection Act, 1972
CHORDATA / MAMMALIA	<i>Canis lupus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Schedule 1 part 1 as per Wildlife Protection Act, 1972	Schedule 1 part 1 as per Wildlife Protection Act, 1972
CHORDATA / MAMMALIA	<i>Funambulus palmarum</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
Fish, Mollusc and Crustacea																	
CHORDATA / ACTINOPTERYGII	<i>Boleophthalmus dussumieri</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	It is not protected under the Wildlife Protection Act, 1972 but Internationally it is least concern.	It is not protected under the Wildlife Protection Act, 1972 but Internationally it is least concern.
CHORDATA / ACTINOPTERYGII	<i>Paramugil parmatus</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	It is not protected under the Wildlife Protection Act, 1972 but Internationally it is least concern.	It is not protected under the Wildlife Protection Act, 1972 but Internationally it is least concern.
Birds																	
CHORDATA / AVES	<i>Anas poecilorhyncha</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Anhinga melanogaster</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Anser anser</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	577	2021	2.3	LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	<i>Anthropoides virgo</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Aythya ferina</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Aythya nyroca</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Calidris tenuirostris</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Circus macrourus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 1 as per Wildlife Protection Act, 1972	Schedule 1 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Dendrocygna javanica</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Ephippiorhynchus asiaticus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Fulica atra</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Gallinula chloropus</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Grus grus</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16125	2021	23	LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	<i>Haliaeetus leucoryphus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Schedule 1 as per Wildlife Protection Act, 1972	Schedule 1 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Himantopus himantopus</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Hydrophasianus chirurgus</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972

Phylum	Scientific 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>Mycteria leucocephala</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Pelecanus crispus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	78	2021	1.04	NT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Phoeniconaias minor</i>	<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"/>	3876	2021		NT	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Phoenicopterus roseus</i>	<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"/>	836	2021		LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Podiceps cristatus</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Rynchops albigollis</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Sarkidiornis melanotos</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Tachybaptus ruficollis</i>	<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"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972
CHORDATA / AVES	<i>Threskiornis melanocephalus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	Schedule 4 as per Wildlife Protection Act, 1972	Schedule 4 as per Wildlife Protection Act, 1972

1) Percentage of the total biogeographic population at the site

The main attraction of Khijadia Wildlife Sanctuary is its rich avifaunal diversity as about 312 species of birds have been recorded here. It provides a habitat to endangered and vulnerable species such as *Aythya ferina*, *Calidris tenuirostris*, *Rynchops albigollis* and other species of fauna which contribute towards maintaining the biological diversity of 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

Khijadiya wetland is a shallow, freshwater wetland with extensive marshes, adjacent to a large area of saltpans and salt marsh on the south shore of the Gulf of Kutch. Khijadia and its surrounding environment represent a mosaic of ecosystems largely comprising freshwater wetlands, brackish water impoundments, mangroves, salt pans, intertidal mudflats, and creeks. The wetland is surrounded by agricultural lands and large wasteland with prosopis dominant vegetations. The area is relatively dry, having a tropical monsoon climate, and rainfall is mainly concentrated to the months July and August. The mean maximum temperature is 40°C, and the minimum is 7°C. The average depth for the Khijadia wetland is assumed to be 1ft or, at the most, half a metre (30cm or 50cm). Storage capacity is 2.55 Mcum to 4.59Mcum, the wetland cannot hold more than this capacity and rest of the water overflows (Rao et al., 2017).

Owing to its strategic location, in the vicinity of the Gulf of Kachchh and on the Central-Asian migratory flyway, this sanctuary attracts a number of migratory water birds. Apart for avifaunal diversity, the sanctuary also acts as a hermitage for other associated organisms which interact with one another and abiotic environmental factors. These organisms include fishes, amphibians, reptiles, mammals and other microscopic and macroscopic organisms that play a significant role in bio-geocycling process.

The water bodies of the Khijadia wetland filled-up during south-west monsoon. The entire area gets submerged in water. After the monsoon is over, water gradually declines over the next couple of months. When the winter arrives, the level of water is at optimum level for water birds. Birds in large flocks and numbers visiting the Khijadia during winter. The wetlands become a mosaic of water and tall grasses, which forms perfect hiding and nesting grounds for some birds. The wetland harbours life from insects to mammals. As the months pass by, the water dries up and the area which once was full of birds now bursts into green with vegetation and it is time for the terrestrial birds to visit it. During the summer months, almost the entire area dries up and forms very important habitat for birds such as larks and pipits, until the next monsoon. In short, all through the year, the place teems with life, irrespective of the season.

Small waders, such as Little Stint, foraged on the dry banks, wet mud and water that was less than 1.27 cm deep. Medium-sized waders such as Black-winged Stilt, Greenshank and Bar-tailed Godwit required water depths up to 5 cm for feeding, while the relatively big egrets and herons fed in water as deep as 6 to 10 cm. Large birds such as Painted Stork, Lesser Flamingo and Greater Flamingo fed in water 21 to 45 cm deep. Dabbling ducks fed in water from 18 to 30 cm deep.

Significant changes in temperature, rainfall and evaporation patterns are likely to cause phonological changes in aquatic and terrestrial beings in the wetland including fishes, insects, algal growth and vegetation patterns, thus, disturbing the food web of bird population visiting the wetland. An analysis by Rao et al. (2017) of the historical dataset for temperature from 1979–2016 in the Khijadia shows that there has been a significant change in temperature in the region around Khijadiya, especially in the months of March and November at a rate of around 1.6°C per 38 years (approximately 0.4°C per decade) and air temperature in the region around Khijadiya a sharp increase in temperature within the range of 0.9°C and 1.2°C is projected in the months of March and December. A 20-years data on spatial rainfall distribution in the region around Khijadiya wetland inferred that a sharp fall in the rainfall level, in the range of 0.2mm and 0.6mm per day, is projected in the following month of September. Prevailing global warming may be the reason for the long term changes recorded.

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 >> N: Seasonal/ intermittent/ irregular rivers/ streams/ creeks	Nadi	2	135	
Fresh water > Lakes and pools >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils	Talav	1	470	

4.3 - Biological components

4.3.1 - Plant species

Invasive alien plant species

Phylum	Scientific name	Impacts
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Parthenium hysterophorus</i>	Actual (minor impacts)
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Prosopis juliflora</i>	Actual (minor impacts)

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/REPTILIA	<i>Eryx johnii</i>				It is protected under the Wildlife Protection Act, 1972 in Schedule 4. It is one of the most poached animal in the region.
CHORDATA/REPTILIA	<i>Naja naja</i>				It is protected under the Wildlife Protection Act, 1972 in Schedule 2 part 2.
CHORDATA/REPTILIA	<i>Varanus bengalensis</i>				It is protected under the Wildlife Protection Act, 1972 in Schedule 1 part 1. Illegal trading and poaching are the major threats being faced by the Indian Monitor.

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
B: Dry climate	BWh: Subtropical desert (Low-latitude desert)

The climate of the Khijadia Sanctuary is coastal tropical monsoon and classified as arid to semiarid type with four seasons. A maximum temperature of up to 44 °C is observed during the months of April and May, due to which the evaporation increases and water sources dries up rapidly, while in winter the temperature drops to 7 °C. The monsoon generally sets in the beginning of July and continues till the end of September, while the rest of the periods are almost dry.

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

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.

The site is located at the watershed of Rivers Ruparel and Kalinidi and the bird sanctuary is an outcome of two man made structures (bunds) which have been constructed to arrest fresh water from draining into the Arabian sea.

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)

Geological formation of this area is alluvial plains of Quaternary era. Soil types are salty clay, with organic matter. Sub soil is highly saline due to proximity of Gulf of Kutch and creeks.

4.4.4 - Water regime

Water permanence

Presence?	
Usually seasonal, ephemeral or intermittent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	
Water inputs from precipitation	<input checked="" type="checkbox"/>	No change

Water destination

Presence?	
Marine	No change

Stability of water regime

Presence?	
Water levels largely stable	No change

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

Sometimes during summer months the wetland dries up. However, with good rainfall the water levels are maintained until the following season. The wetland area under submergence varies depending upon the rainfall. The total area in and around the sanctuary under submergence may go beyond 5.50 sq. kms. during the years of ample rainfall. However, the average area under submergence during normal rainfall years in winter is approximately 1 sq. km.

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):

Sediment regime of freshwater bodies of the Khijadiya is not yet studied. Khijadia littoral zone consists mainly of sedimentary mudflats with scattered sandy/rocky shore habitats.

(ECD) Water turbidity and colour	1.75 NTU to 375 NTU
(ECD) Water temperature	22.80°C to 36.90°C

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):

pH varies between 7.04 to 9.55

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

Please provide further information on salinity (optional):

Khijadiya wetland in Jamnagar district has a unique geographical peculiarity, as a combination of a sweet water lake and coastal saline water marshland. The salinity content of Khijadiya's water samples ranged from 230 ppm to 42390 ppm in summer season, from 900 ppm to 11000 ppm in monsoon season and from 1980 ppm to 14000 ppm in winter season. (GEER Foundation, 2020) (ppt=part per thousand)

(ECD) Dissolved gases in water

Dissolved Oxygen: 3.00 mg/l to 7.78 mg/l

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic
- Mesotrophic
- Oligotrophic
- Dystrophic
- Unknown

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

Total Dissolved solids of Khijadia's water ranged from 2100 ppm to 70970 ppm

(ECD) Water conductivity 4.40 mS to 205.50 mS

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:

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

Please describe other ways in which the surrounding area is different:

The surrounding agricultural land is principally used by villagers for cultivation of cotton, jowar, millet, cereals etc. Generally the surrounding area has no impact on the water bodies of Khijadia and their ecology. The coastal area surrounding Khijadia is marshy and tidal influenced saline habitat which is significantly different from that of Khijadia's habitats.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Fresh water	Water for irrigated agriculture	Medium
Wetland non-food products	Livestock fodder	Low

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Erosion protection	Soil, sediment and nutrient retention	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High

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	Medium
Nutrient cycling	Carbon storage/sequestration	Medium
Pollination	Support for pollinators	High

Within the site: 1000

Outside the site: 25000

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

<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
Provincial/region/state government	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

The Khijadia wetland site is entirely within a Notified Bird Sanctuary and it is under the control and management of the Gujarat Forest Department.

5.1.2 - Management authority

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

Marine National Park, Jamnagar.
Gujarat Forest Department.

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

Shri. R. Senthil Kumaran, IFS. Deputy Conservator of Forests, Marine National Park Jamnagar.

Postal address:

O/o Chief Conservator of Forests,
Marine National Park,
Ganjiwada, Nr. Nagnath Gate, Indira Marg,
Jamnagar 361001, Gujarat, India.

E-mail address:

mnpforest@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
Unspecified development	Low impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Water abstraction	Low impact		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Annual and perennial non-timber crops		unknown impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Gathering terrestrial plants	Low impact		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Unspecified/others	Low impact		<input 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	Low impact		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Agricultural and forestry effluents	unknown impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excess heat, sound, light	unknown impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Droughts	Low impact		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please describe any other threats (optional):

Noise pollution especially due to vehicle movement from the nearby salt industries.
 Abstraction of water for irrigation, illegal grazing and collection of firewood.
 Intensification of agriculture without the adoption of modern micro irrigation practices puts pressure on the available water in the wetland.
 In addition, the use of chemical fertilizers and pesticides in the catchment area is a potential threat which may adversely affect the Khijadia wetland.

5.2.2 - Legal conservation status

Regional (international) legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Other international designation			whole

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Eco Sensitive Zone	Eco Sensitive Zone of Khijadia Wildlife Sanctuary	http://moef.gov.in/wp-content/uploads/2017/06/khijadia.pdf	whole
Wildlife Sanctuary	Khijadia Bird Sanctuary	https://forests.gujarat.gov.in/wildlife-sanctuaries.htm	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area		(IN-088)	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
Catchment management initiatives/controls	Implemented

Species

Measures	Status
Threatened/rare species management programmes	Proposed

Human Activities

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

Other:

The Khijadia wetland was declared as sanctuary under the Indian Wildlife (Protection) Act, 1972 vide Government of Gujarat, Forest & Environment Department notifications Nos. AKH-81-WLP-1081-102123/P2 dated 27-5-1981 and AKH-209/82-WLP/1081/102123-V2 dated 6-11-1982. Habitat improvement works such as increase in water storage capacity, removal of unwanted growth, preparation of mounds/islets, planting of fruit tree and enrichment of wetland by adding fish culture are being implemented in the sanctuary as per prescription of the current Management Plan.

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

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

There is an Interpretation Centre for tourists where one can get more information about birds in the sanctuary and their particular traits. There are also facilities like nature trails, watchtowers, and reclamation bunds to watch these winged visitors. Nature Education Camps are also regularly conducted in Khijadia Sanctuary during the winter months for students. This programme has proved to be very successful in bringing mass awareness on conservation issues helping the management in protection and development of the sanctuary.

URL of site-related webpage (if relevant): www.mnpcs.gov.in

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
Water regime monitoring	Proposed
Water quality	Implemented
Animal species (please specify)	Proposed
Birds	Implemented

Annual removal of the invasive Prosopis species from the wetland area and deepening of water bodies of Khijadia.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Pandey, C.N. and Teli, J. 2005. Ecology and biodiversity of Khijadiya Bird Sanctuary and its environs - a comprehensive study of the wetland complex and the avifauna at Khijadiya. GEER Foundation, pp. 143 - 20.
 Islam Zafar-il., M, and Rahmani, A, R., 2004: Important Bird Areas in India: Priority Sites for Conservation. 1133 pages, tabs, photos. Oxford University Press.
 Li, Z.W.D., Bloem, A., Delany S., Martakis G. and Quintero J. O. 2009 :Status of Waterbirds in Asia - Results of the Asian Waterbird Census: 1987-2007, Wetlands International, Kuala Lumpur, Malaysia.
 Wetlands International. 2006 : Water bird Population Estimates – Fourth Edition. Wetlands International, Wageningen, The Netherlands.

6.1.2 - Additional reports and documents

- i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<2 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
<1 file(s) uploaded>
- vi. other published literature
<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Flamboyance of flamingos (Office of the CCF MNP JAMNAGAR, 11-02-2018)



Arial view of Khijadia (office of the CCF MNP Jamnagar, 11-02-2018)



Flock of Pelican (Office of the CCF MNP JAMNAGAR, 11-02-2018)



Arial view of Khijadia (Office of the CCF MNP JAMNAGAR, 24-12-2020)



Arial view of Khijadia (Office of the CCF MNP JAMNAGAR, 25-09-2019)



Flamboyance of lesser flamingos (Office of the CCF MNP JAMNAGAR, 05-07-2015)



Flock of Pelican (Office of the CCF MNP JAMNAGAR, 27-11-2018)



Group of Painted Storks (Office of the CCF MNP JAMNAGAR, 09-07-2016)



Rosy Pelicans with Little Cormorants (Office of the CCF MNP JAMNAGAR, 12-01-2008)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation