Ramsar Information Sheet

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China

Guangdong Shenzhen Futian Mangrove Wetlands

Designation date	28 October 2022
Site number	2518
Coordinates	22°31'34"N 114°00'34"E
Area	367,64 ha

Created by RSIS V.1.6 on - 11 April 2023

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

Guangdong Shenzhen Futian Mangrove Wetlands (hereinafter referred to as Futian Mangrove Wetlands), also known as Guangdong Futian Mangrove Nature Reserve, is located in the northeast coast of Shenzhen Bay (Deep Bay), where the river and sea interact with each other, mixing salt and fresh water, and having the nature of both estuary and bay, where mangroves, mudflats and fishponds together form the wetland ecosystem. Together with the Mai Po Marshes and the Inner Deep Bay in Hong Kong, it forms a complete mangrove wetland ecosystem in Shenzhen Bay (Deep Bay). As one of the six mangrove national nature reserves in China, Futian mangrove forest is a typical mangrove wetland along the southern coast of China.

The rich fine-grained sediment and fertile water-quality in the Site provide a good material basis for the development of mangrove wetlands. Mangrove plants and their epiphytic algal debris provide food sources for the development of benthic animals and fish. The extensive mudflats are densely covered with all kinds of benthic animals, which provide a rich food source for birds and are an important feeding ground for migrating birds. Among them, 13 species are listed on the IUCN Red List of Threatened Species as vulnerable or above, including the Baer's pochard (Aythya baeri), yellow-breasted bunting (Emberiza aureola), black-faced spoonbill (Platalea minor), oriental white stork (Ciconia boyciana), far eastern curlew (Numenius madagascariensis), great knot (Calidris tenuirostris), and spotted greenshank (Tringa guttifer). The average number of waterbirds recorded in the Site in the last five years exceeded 30000, with five species of waterbirds reaching 1% threshold (as available in Wetlands International WPE5) of the internationally important wetland standard. It is an important station on the international migratory corridor (East Asia-Australia) in the Eastern Hemisphere, and is an ideal wintering area and transit point for many migratory waterbirds.

In addition, the Futian Mangrove Wetlands also has important ecological values such as wave elimination, carbon sequestration, oxygen release, water purification, etc. It is of great strategic importance for the protection of wetland natural resources in the Guangdong-Hong Kong-Macao Greater Bay Area and the South China Sea.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency: Administration Bureau of Guangdong Neilingding Futian National Nature Reserve

Postal address:
No.1 Mangrove Road
Futian District
Shenzhen City
Guangdong Province
P.R.China

National Ramsar Administrative Authority

Institution/agency: Ramsar Administrative Authority of the People's Republic of China

Postal address:
No.18 Hepingli East Road
Dongcheng District Beijing 100714
P.R. China

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

From year: 2012

To year: 2021

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish): Guangdong Shenzhen Futian Mangrove Wetlands

2.2 - Site location

2.2.1 - Defining the Site boundaries

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

Former maps: 0

Boundaries description

Futian Mangrove Wetlands belongs to the Guangdong Neilingding Futian National Nature Reserve. The reserve consists of two areas, Neilingding Island and Futian Mangrove Forest. The Site is consistent within the management scope of Futian mangrove reserve, accounting for 39.89% of the total area of the reserve. The Site extends from the estuary of Xinzhou River in the east, to the Nanshan Shenzhen Bay municipal wetland park in the west; from the sea area outside the tidal flat and the Shenzhen River Estuary in the south, to Binhai Avenue and Jinggang'ao Expressway in the north, with a length of about six kilometers along the coastline and an average width of 0.7 kilometers.

2.2.2 - General location

a) In which large administrative region does the site lie? Shenzhen City, Guangdong Province, P.R. China

b) What is the nearest town or population centre? Shatou Street

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): 367.64

Area, in hectares (ha) as calculated from GIS boundaries: 367.628

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Udvardy's Biogeographical Provinces	Tropical humid forests, South Chinese Rainforest Biogeographic Province, Indomalayan Realm

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	The hydrology of Futian Mangrove Wetlands is mainly influenced by the tides of Shenzhen Bay, which is a semi-enclosed coastal water body directly connected to the outer sea, with the characteristics of estuary and bay. The river and the sea interact with each other, mixing salt and fresh water, and there are tidal phenomena. Its tidal type is irregular semi-daily tide, and the tidal difference is not large. When tide waves enter the inner bay of Shenzhen Bay, their power is greatly weakened due to the shallow water depth, resulting in sediment deposition in the estuary.
Other ecosystem services provided	Futian Mangrove Wetlands is a typical coastal mangrove wetland ecosystem, with a large area of natural mangroves preserved, extending from the estuary of Xinzhou River in the east to Shenzhen Bay Park in the west, which is about five kilometres long, containing 11 species, seven families and nine genera of true mangroves, and nine species, six families and seven genera of semi-mangroves. The spatial distribution of the community is obviously zonal. At the front edge of the beach near the low tide, the main mangrove community is Kandelia candel & Aegiceras corniculatum corniculate community. The mangrove community in the middle tide zone is the striped Kandelia candel & Aricennia marina community; the mangrove community in the high tide zone is dominated by black mangrove (Bruguiera gymnorhiza), Excoecaria agallocha and Acrostichum aureurm. Some semi-mangrove plants such as Heritiera littoralis, Sea hibiscus (Hibiscus tiliaceus), seaside mahoe (Thespesia populnea) and Clerodendron inerme can be seen along the embankment. In terms of spatial characteristics, Futian mangrove landscape is not highly fragmented. The proportion of each community is relatively disparate, the dominant species are apparent, and the aggregation of mangrove in the Site is high with low landscape dispersion. The Site has a subtropical monsoon climate, suffering from many typhoons and other extreme weather attacks every year. Mangroves adapt to the tide and flood attacks, being able to bear strong wind and wave. In addition, the dense root system of mangroves can slow down the speed of water flow, sink the suspended particles in the water, promote the soil formation, and play a great role in dyke protection. The mangrove forest in the Site covers an area of about 93.75 ha and play an important role in climate regulation. The average primary production of mangroves is 11t/(ha.a), the total annual carbon sequestration is 1031t and the total oxygen release is 1227t. The Site have high ability of absorbing and depositing heavy metals, degrading organic pollution, filtering pollutants from land-based sources and reducing the occurrence of red tide in the sea. They play a purifying role for the urban sewage discharged into Shenzhen Bay and reduces the occurrence of red tide in Shenzhen Bay. Relevant studies have shown that mangroves have a purification efficiency of up to 80% for sewage.

☑ Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information

Three Critically Endangered species (CR) of IUCN Red List of Threatened Species were monitored in Futian Mangrove Wetlands: Diospyros vaccinioides, Baer's pochard (Aythya baeri) and yellow-breasted bunting (Emberiza aureola); six species of Endangered animals (EN): Acer sino-oblongum, far eastern curlew (Numenius madagascariensis), great knot(Calidris tenuirostris), spotted greenshank (Tringa guttifer), oriental white stork (Ciconia boyciana), and black-faced spoonbill (Platalea minor); and nine species of Vulnerable (VU) : Artocarpus hypargyreus. Chinese agarwood (Aquilaria sinensis), common pochard (Aythya ferina), Saunder's gull (Saundersilarus saundersi), Chinese egret (Egretta eulophotes), greater spotted eagle (Clanga clanga), eastern imperial eagle (Aquila heliaca), collared crow (Corvus pectoralis), and Zhoushan cobra (Naja atra); see 3.2, 3.3 for the details.

Futian Mangrove Wetland is a typical coastal mangrove wetland ecosystem, with a large area of natural mangroves, providing good habitat and sufficient food sources for marine animals and birds. Sound insulation walls and protective forest belts have been built at the boundary of the reserve to reduce the impact of noise generated by urban roads and human activities on the living environment of birds in the reserve. And other measures to supports the conservation can be found in Section 5.2.4.

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

Optional text box to provide further information

Futian Mangrove Wetlands is an important part of the coastal wetland ecosystem in Shenzhen Bay, South China Sea, and play an important role in maintaining biodiversity. A total of 346 species of plants, eight species of amphibians, eleven species of reptiles, 257 species of birds, six species of animals, 267 species of insects, 29 species of fish, 17 species of crustaceans, 89 species of benthic animals and 30 species of marine nematodes have been recorded.
The Site is a typical coastal mangrove wetland ecosystem, with a large area of natural mangroves preserved, and the mangrove wetlands provide a good habitat for marine animals and birds. The Site provides sufficient food sources for birds such as far Eastern Curlew (Numenius madagascariensis), great knot (Calidris tenuirostris), spotted greenshank (Tringa guttifer), oriental stork (Ciconia boyciana), etc. They are good habitats for a large number of wintering waterfowls such as black-faced spoonbill (Platalea minor), pied avocet (Recurvirostra avosetta), and are important nodes on the migration route of migratory birds from East Asia to Australasia. The China Biological Diversity Protection Action Plan classifies the reserve as a B-III key conservation site. From October to April of the next year, more than 30,000 migratory birds from Siberia or Australasia take Shenzhen Bay as a "refueling station" and "wintering site". The resident birds' list is provided in Appendix 1 of 6.1.2.

☑ Criterion 5 : >20,000 waterbirds

Overall waterbird numbers: 34854

Start year: 2017

End year: 2021

Source of data: 2017-2021 Bird investigation and monitoring report on Guangdong Neilingding Futian National Nature Reserve

Optional text box to provide further information

Based on the coastal wetland restoration and reconstruction and species conservation projects carried out by the management agencies in Futian Mangrove Wetlands, the habitat function for birds of the mangrove wetland has been improved and the biodiversity has been significantly enhanced. The total number of waterbirds breeding and overwintering here from 2017-2021 exceeded 30,000 on average, respectively: 36,669, 22,751, 40,671, 34,561 and 39620. The number of waterbirds observed is shown in Appendix 2 of 6.1.2.

☑ Criterion 6 : >1% waterbird population

Optional text box to provide further information	Based on monitoring data from 2017-2021, there are five waterfowl species in Futian Mangrove Wetlands that exceed 1% of their population in a given area, namely black-faced spoonbill (Platalea minor), pied avocet (Recurvirostra avosetta), curlew sandpiper (Calidris ferruginea), tufted duck (Aythya fuligula), and great cormorant (Phalacrocorax carbo). See 3.3 for details.

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	*Acer sino-oblongum*	☑	☐	☐	EN	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Aquilaria sinensis*	☑	☐	☐	VU	☐	National Protection Class II	
TRACHEOPHYTA / MAGNOLIOPSIDA	*Artocarpus hypargyreus*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Diospyros vaccinioides*	☑	☐	☐	CR	☐		

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 / REPTILIA	*Naja atra*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐		
Birds																	
CHORDATA / AVES	*Aquila clanga*	☑	☑	☐	☐	☐	☐	☐	☐					☐	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Aquila heliaca*	☑	☑	☐	☐	☐	☐	☐	☐				VU	☑	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Aythya baeri*	☑	☑	☐	☐	☐	☐	☐	☐				CR	☐	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Aythya ferina*	☑	☑	☐	☐	☐	☑	☐	☐				VU	☐	☐		Crit4:Overwintering in this Site
CHORDATA / AVES	*Aythya fuligula*	☐	☐	☑	☐	☐	☑	☐	☐	3857	2017-2021	1.61	LC	☐	☐		Crit4:Overwintering in this Site;Crit 6: 1 % threshold for the population of E & SE Asia (non-bre) is 2400 as of 2012.
CHORDATA / AVES	*Calidris ferruginea*	☐	☐	☑	☐	☐	☑	☐	☐	3584	2017-2021	2.56	NT	☐	☐		Crit4:Overwintering in this Site;Crit 6: 1 % threshold for the population of E, SE Asia & Australia (non-bre) is 1400 as of 2012.
CHORDATA / AVES	*Calidris tenuirostris*	☑	☑	☐	☐	☐	☐	☐	☐				EN	☐	☑	National Protection Class Ⅱ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Chroicocephalus saundersi*	☑	☑	☐	☐	☐	☐	☐	☐					☐	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Ciconia boyciana*	☑	☑	☐	☐	☐	☐	☐	☐				EN	☑	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Corvus pectoralis*	☑	☑	☐	☐	☐	☐	☐	☐				VU	☐	☐		Crit4:Stopover in this Site
CHORDATA / AVES	*Egretta eulophotes*	☑	☑	☐	☐	☐	☐	☐	☐				VU	☐	☑	National Protection Class Ⅰ	Crit4:Breeding in this Site
CHORDATA / AVES	*Emberiza aureola*	☑	☑	☐	☐	☐	☐	☐	☐				CR	☐	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Numenius madagascariensis*	☑	☑	☐	☐	☐	☐	☐	☐				EN	☐	☑	National Protection Class Ⅱ	Crit4:Overwintering in this Site
CHORDATA / AVES	*Phalacrocorax carbo sinensis*	☐	☑	☑	☐	☐	☑	☐	☐	3380	2017-2021	3.38		☐	☐		Crit4:Overwintering in this Site;Crit 6: 1 % threshold for the population of sinensis,E,SE Asia(non-bre) is 1000 as of 2002.
CHORDATA / AVES	*Platalea minor*	☑	☑	☑	☐	☐	☑	☐	☐	98	2017-2021	4.91	EN	☐	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site;Crit 6: 1 % threshold for the population of minor is 20 as of 2012.
CHORDATA / AVES	*Recurvirostra avosetta*	☐	☑	☑	☐	☐	☑	☐	☐	2513	2017-2021	2.51	LC	☐	☐		Crit4:Overwintering in this Site;Crit 6: 1 % threshold for the population fo E Asia is 1000 as of 2002.
CHORDATA / AVES	*Tringa guttifer*	☑	☑	☐	☐	☐	☐	☐	☐				EN	☑	☑	National Protection Class Ⅰ	Crit4:Overwintering in this Site

1) Percentage of the total biogeographic population at the site

The number of waterbirds observed is shown in Appendix 2 of 6.1.2. (useful For Criterion 5)

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

Futian Mangrove Wetlands is located in the tropical humid forests biome, and South Chinese Rainforest Biogeographic Province in the Indomalayan Realm. With a humid subtropical climate, the site is dry in winter and hot in summer. The altitude is 0~3.8 m. The soils of the Site mainly include tidal flat saline soil, mangrove tidal flat saline soil and marsh tidal flat saline soil.
The site is located in the northeast coast of Shenzhen Bay, adjacent to Hong Kong Mai Po Marshes and Inner Deep Bay Wetlands. The wetland types in the Site include intertidal mudflats, intertidal forest wetlands and aquatic ponds, forming typical coastal mangrove wetland ecosystems. Influenced by the change of sea level, hydrodynamic characteristics and material accumulation process, the Site mainly has geomorphic features of alluvial plain, coastal sandbank, mangrove mudflat, bare tidal flat and tidal flat waterway.
The main protected components of Futian Mangrove Wetlands are mangrove ecosystem and waterfowls. Due to different habitat conditions such as salinity and soil quality, mangroves and birds show a clear zonal distribution from the coast to the beach. At high tide, the broad sea surface from Shenzhen estuary and Fengtang estuary to Chegongmiao is densely distributed with Anatidae birds such as tufted duck (Aythya fuligula), northern shoveler (Spatula clypeata), Eurasian wigeon (Mareca penelope), and Eurasian teal (Anas crecca). The number of birds is often higher than 10,000 in winter from December to February. In the mudflats outside the mangroves after the tide setting out, there are grey heron (Ardea cinerea), black winged stilt (Himantopus himantopus), pied avocet (Recurvirostra avosetta) and other wading birds; In the reed scrub of Jiwei fish ponds, the small habitats are complex and diverse due to the transition from wetland to land, attracting a variety of birds including natatorial bird, wading birds, songbirds and some raptors. This reflects the interactions among food chains of birds, fish and plants within the mangrove wetland ecosystem.
In addition, the large area of natural mangroves in Futian Mangrove Wetlands is important for the ecological functions of wind and wave control, siltation elimination, dyke protection, seawater cleaning and air purification, ensuring that the habitat of migratory birds is not disturbed by humanity and the natural habitat is well preserved. According to the research and evaluation of relevant methods, the total value of bird resources in Futian Mangrove Wetland is 326.5385 million yuan, the value of dam reinforcing is 3.635 million yuan, the value of oxygen released by the wetland is 670000 yuan per year, and the value of water purification function is about 22.8 million yuan per year.

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

Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
G: Intertidal mud, sand or salt flats		1	195.05	Representative
I: Intertidal forested wetlands		2	98.22	Unique

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type
1: Aquaculture ponds		3	59.46

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/MAGNOLIOPSIDA	*Acanthus ilicifolius*	true mangrove plant
TRACHEOPHYTA/POLYPODIOPSIDA	*Acrostichum aureum*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Aegiceras corniculatum*	true mangrove plant
TRACHEOPHYTA/POLYPODIOPSIDA	*Alsophila spinulosa*	National Protection Class II
TRACHEOPHYTA/MAGNOLIOPSIDA	*Avicennia marina*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Bontia bontioides*	semi-mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Bruguiera gymnorhiza*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Bruguiera sexangula*	true mangrove plant
TRACHEOPHYTA/POLYPODIOPSIDA	*Ceratopteris thalictroides*	National Protection Class II
TRACHEOPHYTA/MAGNOLIOPSIDA	*Cerbera manghas*	semi-mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Clerodendrum inerme*	Dominant species
TRACHEOPHYTA/MAGNOLIOPSIDA	*Excoecaria agallocha*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Heritiera littoralis*	semi-mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Kandelia obovata*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Ormosia henryi*	National Protection Class II
TRACHEOPHYTA/MAGNOLIOPSIDA	*Pluchea indica*	semi-mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Pongamia pinnata*	semi-mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Rhizophora stylosa*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Sonneratia apetala*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Sonneratia caseolaris*	true mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Taliparitі hamabo*	semi-mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Taliparitі tiliaceum*	semi-mangrove plant, and the synonym of Hibiscus tiliaceus
TRACHEOPHYTA/MAGNOLIOPSIDA	*Thespesia populnea*	semi-mangrove plant
TRACHEOPHYTA/MAGNOLIOPSIDA	*Volkameria inermis*	semi-mangrove plant
TRACHEOPHYTA/LILIOPSIDA	*Zoysia sinica*	National Protection Class II

Invasive alien plant species

Phylum	Scientific name	Impacts
TRACHEOPHYTA/MAGNOLIOPSIDA	*Leucaena leucocephala*	Actual (minor impacts)

Optional text box to provide further information

There are four criteria for the selection of species in the List of Wild Plants under Key State Protection: 1, endangered species with very small number and narrow distribution range; 2, endangered and rare species with important economic, scientific and cultural values; 3, wild populations of important crops and related species with genetic value; 4, the species with important economic value, and resources are sharply reduced due to over-exploitation and utilization.

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/AVES	*Accipiter gularis*				National Protection Class II
CHORDATA/AVES	*Accipiter nisus*				National Protection Class II

Phylum	Scientific name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	*Accipiter soloensis*				National Protection Class II
CHORDATA/AVES	*Accipiter trivirgatus*				National Protection Class II
CHORDATA/AVES	*Accipiter virgatus*				National Protection Class II
CHORDATA/AVES	*Anas clypeata*				Dominant species
CHORDATA/AVES	*Anas crecca*				Dominant species
CHORDATA/AVES	*Anas formosa*				National Protection Class II
CHORDATA/AVES	*Anas penelope*				Dominant species
CHORDATA/AVES	*Aquila fasciata*				National Protection Class II
CHORDATA/AVES	*Ardea cinerea*				Dominant species
CHORDATA/AVES	*Arenaria interpres*				National Protection Class II
CHORDATA/AVES	*Aviceda leuphotes*				National Protection Class II
CHORDATA/AVES	*Bubo bubo*				National Protection Class II
CHORDATA/AVES	*Butastur indicus*				National Protection Class II
CHORDATA/AVES	*Buteo japonicus*				National Protection Class II
CHORDATA/AVES	*Centropus sinensis*				National Protection Class II
CHORDATA/AVES	*Ciconia nigra*				National Protection Class I
CHORDATA/AVES	*Circus melanoleucos*				National Protection Class II
CHORDATA/AVES	*Circus spilonotus*				National Protection Class II
CHORDATA/AVES	*Cygnus columbianus*				National Protection Class II
CHORDATA/AVES	*Egretta sacra*				National Protection Class II
CHORDATA/AVES	*Elanus caeruleus*				National Protection Class II
CHORDATA/AVES	*Falco peregrinus*				National Protection Class II
CHORDATA/AVES	*Falco subbuteo*				National Protection Class II
CHORDATA/AVES	*Falco tinnunculus*				National Protection Class II
CHORDATA/AVES	*Fregata ariel*				National Protection Class I
CHORDATA/AVES	*Glaucidium cuculoides*				National Protection Class II
CHORDATA/AVES	*Halcyon smyrnensis*				National Protection Class II
CHORDATA/AVES	*Haliaeetus leucogaster*				National Protection Class I

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/AVES	*Himantopus himantopus*				Dominant species
CHORDATA/AVES	*Hydrophasianus chirurgus*				National Protection Class II
CHORDATA/AVES	*Limicola falcinellus*				National Protection Class II
CHORDATA/AVES	*Limnodromus semipalmatus*				National Protection Class II
CHORDATA/AVES	*Luscinia calliope*				National Protection Class II
CHORDATA/AVES	*Luscinia svecica*				National Protection Class II
CHORDATA/AVES	*Merops philippinus*				National Protection Class II
CHORDATA/AVES	*Milvus migrans*				National Protection Class II
CHORDATA/AVES	*Nettapus coromandelianus*				National Protection Class II
CHORDATA/AVES	*Nisaetus nipalensis*				National Protection Class II
CHORDATA/AVES	*Numenius arquata*				National Protection Class II
CHORDATA/AVES	*Otus lettia*				National Protection Class II
CHORDATA/AVES	*Pandion haliaetus*				National Protection Class II
CHORDATA/AVES	*Pelecanus crispus*				National Protection Class I
CHORDATA/AVES	*Pernis ptilorhynchus*				National Protection Class II
CHORDATA/AVES	*Phalacrocorax pelagicus*				National Protection Class II
CHORDATA/AVES	*Platalea leucorodia*				National Protection Class II
CHORDATA/AVES	*Podiceps nigricollis*				National Protection Class II
CHORDATA/MAMMALIA	*Prionailurus bengalensis*				National Protection Class II
CHORDATA/AVES	*Psittacula krameri*				National Protection Class II
CHORDATA/AVES	*Spilornis cheela*				National Protection Class II
CHORDATA/AVES	*Threskiornis melanocephalus*				National Protection Class I
ARTHROPODA/INSECTA	*Troides helena*				National Protection Class II
CHORDATA/AVES	*Zosterops erythropleurus*				National Protection Class II

Optional text box to provide further information

Wild animals have important ecological value. The State Council of the People's Republic of China has approved and issued the list of rare and endangered wild animals under national key protection, and the protection of these wild animals has been raised to the legal level.

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
C: Moist Mid-Latitude climate with mild winters	Cwa: Humid subtropical (Mild with dry winter, hot summer)

4.4.2 - Geomorphic setting

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

a) Maximum elevation above sea level (in metres): 4

- [ ] Entire river basin
- [ ] Upper part of river basin
- [ ] Middle part of river basin
- [x] Lower part of river basin
- [ ] More than one river basin
- [ ] Not in river basin
- [x] 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.

Pearl River Basin and Shenzhen Bay, South China Sea

4.4.3 - Soil

- [ ] Mineral
- [x] 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 soils of the Site mainly include tidal flat saline soil, mangrove tidal flat saline soil and marsh tidal flat saline soil. The tidal flat saline soil is distributed in the intertidal zone, which is periodically submerged by seawater. The soil has a high salt content, low total nitrogen and available nitrogen content, and there is no development layer in the soil; Mangrove tidal flat saline soil is a kind of coastal tidal flat saline soil developed under the condition of mangrove community growth. The mangrove is rich in dead branches and leaves, and the humus content can reach three to five centimeters. From the shore to outer beach, the nutrient element content has a downward trend; The marsh tidal flat saline soil is developed in the process of swamping and salinization. The soil is mainly distributed in the low-lying areas with rich freshwater resources or winding rivers. The soil contains a certain amount of salt and rich organic matter.

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 precipitation	☑	No change
Water inputs from surface water	☑	No change
Marine water	☑	No change

Water destination

Presence?	
Marine	No change

Stability of water regime

Presence?	
Water levels fluctuating (including tidal)	No change

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

The hydrological characteristics of Futian Mangrove Wetlands is mainly influenced by the tide of Shenzhen Bay. Shenzhen Bay is a semi-enclosed shallow bay, where water depth decreases from inside to outside the bay with the deepest depth reaching six meters, the average depth reaching three meters. It belongs to the weak tidal area with average water volume 3.3×108 m³. The tidal characteristics are typical alternating current. The water flow direction is generally paralleled with the isobath or consistent with the direction of the sink. The average duration of rising tide is less than the falling tide, and the flow speed of the both tide is about one meter/second.
In addition, The Site is also affected by the Pearl River, Shenzhen River, Fengtang River and other small rivers flowing through the land area and finally injecting into Shenzhen Bay. The annual flow of the Pearl River is 3.08×108 m3, which has a significant impact on the water quality along Shenzhen Bay. In the rainy season in summer, the Pearl River has the transport function from the northwest to the southeast and from the estuary to the sea. It causes the lowest salinity in Shenzhen Bay in this season, and brings a lot of sediment and various organic and inorganic substances. Shenzhen River also has a great impact on Shenzhen Bay. Its downstream main stream is a salty tidal river with an annual runoff of 2.043×108 m3. In addition, there are Xinzhou River, Dasha River, Fengtang River and Shenzhen municipal drainage injecting into Shenzhen Bay.

4.4.5 - Sediment regime

- [ ] Significant erosion of sediments occurs on the site
- [x] 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):

The growth of mangroves promotes the siltation of the beach and the siltation rate of mangrove tidal flat can reach one to five centimeters per year.

4.4.6 - Water pH

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

Please provide further information on pH (optional):

The pH value ranges from six point nine six to eight, with an annual average of seven point five three, which is alkaline. The highest value was measured in May, and the lowest value was measured in July.

4.4.7 - Water salinity

- [ ] Fresh (<0.5 g/l)
- [x] 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):

The salinity ranges from one point five seven to twelve point one five.

(ECD) Dissolved gases in water

The dissolved oxygen ranges from four point two eight to seven point six nine, with an average value of six point three two mg/l throughout the year. The highest value was measured in August, and the lowest value was measured in October.

4.4.8 - Dissolved or suspended nutrients in water

- [ ] Eutrophic
- [x] Mesotrophic
- [ ] Oligotrophic
- [ ] Dystrophic
- [ ] Unknown

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 ◉

- [x] 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:

On the north side of this Site, there are two expressways: Binhai Avenue and Guangshen Expressway, which separate the Site from the built-up area of Futian District. A 560 meters soundproof wall has been built to reduce the noise impact on birds. The south side of this Site is the shallow water area of Shenzhen Bay mudflats, which is an integral part with the Site. The east side is Futian Mangrove Ecological Park. The west side is Shenzhen Bay Park and mudflats and shallow bay, which has less human activities and less impact on Futian Mangrove Wetlands, being a good buffer zone.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

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

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	Low
Erosion protection	Soil, sediment and nutrient retention	High
Pollution control and detoxification	Water purification/waste treatment or dilution	High
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climactic processes	High
Biological control of pests and disease	Support of predators of agricultural pests (e.g., birds feeding on locusts)	High
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	Low
Spiritual and inspirational	Inspiration	High
Spiritual and inspirational	Contemporary cultural significance, including for arts and creative inspiration, and including existence values	High
Spiritual and inspirational	Aesthetic and sense of place values	High
Scientific and educational	Educational activities and opportunities	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Long-term monitoring site	High
Scientific and educational	Major scientific study site	High

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	High
Soil formation	Sediment retention	High
Soil formation	Accumulation of organic matter	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	High
Nutrient cycling	Carbon storage/sequestration	High
Pollination	Support for pollinators	High

Within the site: 60

Outside the site: 1,000,000

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

Where economic studies or assessments of economic valuation have been undertaken at the site, it would be helpful to provide information on where the results of such studies may be located (e.g. website links, citation of published literature):

Habitat value of migratory birds: Using methods such as protective expenditure method, market value method and cost substitution method, the economic value of birds is comprehensively calculated according to the multiplicative relationship between the market price of different classes of birds stipulated in notice on the charging measures of terrestrial wild bird resources protection management fee(1996) and management expense stipulated in notice on the charging measures of terrestrial wild animal resources protection management fee(1992), as well as the GDP of the area. The total value of bird resources in the Site is 326,538,500 yuan, based on a comprehensive calculation of the economic value, ecological value (manure, pest control, foraging food value) and social value (scientific research, ecotourism and nature education value).
Wave elimination and dike protection value: The coastline distributed with mangroves can provide typhoon disaster protection benefits of 80000 yuan/(km. a) and ecological conservation benefits of 647000 yuan/(km. a) for the embankment. The calculated wave attenuation value is 400000 yuan, and the value of the berm is 3.235 million yuan.
The value of carbon sequestration and oxygen release: the area of mangrove in this area is 93.75ha, and the total annual carbon fixation is 1031t. The total annual carbon dioxide absorption in the area is 1681t, and the total oxygen release is 1227t. The value of carbon dioxide absorption is calculated by carbon tax method, which is 1.56 million yuan. The value of oxygen released from the wetland is calculated by the alternative market method, which is 670,000 yuan.
The value of water purification: mangrove wetland has high ability of absorbing and depositing heavy metals, as well as significant function of degrading organic pollution, filtering pollutants from land source into the sea and reducing the occurrence of red tide in the sea. Relevant research shows that the mangrove forest has a purification efficiency of up to 80% for sewage. The value of water purification function of the Site is about 22.8 million yuan/year.

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
National/Federal government	☑	☑

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: Administration Bureau of Guangdong Neilingding Futian National Nature Reserve

Provide the name and/or title of the person or people with responsibility for the wetland: Director, Zibing Deng

Postal address: No.1 Mangrove Road 518037
Futian District
Shenzhen City
Guangdong Province
P.R. China

E-mail address: dengzibing@isc.szpl.gov

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	☐	☑

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Drainage	Low impact		☑	☑

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	Low impact		☐	☑
Shipping lanes	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		☐	☑
Excess heat, sound, light	Low impact		☐	☑

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Storms and flooding	Low impact		☑	☑
Temperature extremes		Low impact	☑	☑

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
National Important Wetland	Futian Mangrove National Important Wetland, Futian District, Shenzhen, Guangdong Province		whole
National Nature Reserve	Guangdong Neilingding Futian National Nature Reserve		partly

5.2.3 - IUCN protected areas categories (2008)

Ia Strict Nature Reserve ☐

Ib Wilderness Area: protected area managed mainly for wilderness protection ☑

II National Park: protected area managed mainly for ecosystem protection and recreation ☐

III Natural Monument: protected area managed mainly for conservation of specific natural features ☐

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

V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation ☐

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems ☐

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Improvement of water quality	Implemented
Habitat manipulation/enhancement	Implemented
Hydrology management/restoration	Implemented
Re-vegetation	Implemented
Land conversion controls	Implemented

Species

Measures	Status
Threatened/rare species management programmes	Implemented
Control of invasive alien plants	Implemented
Control of invasive alien animals	Implemented

Human Activities

Measures	Status
Regulation/management of wastes	Implemented
Livestock management/exclusion (excluding fisheries)	Implemented
Fisheries management/regulation	Implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

Other:

Shenzhen Futian Mangrove Reserve (hereinafter referred to as Futian Reserve) is a part of Guangdong Neilingding Futian National Nature Reserve, which was established in 1984 as "Neilingding Provincial Nature Reserve"; In 1988, the "Neilingding Island-Futian National Nature Reserve" was established; In 2020, Futian Reserve was included in the list of national important wetlands.
In 2002, the Guangdong Neilingding Futian National Nature Reserve Administration was established and entrusted by the Guangdong Provincial Forestry Bureau to the Shenzhen Forestry Bureau. The main functions are: implementing national laws, regulations, guidelines and policies on nature reserves; formulating unified management guidelines for nature reserves; investigating natural resources and establishing files, organizing environmental monitoring and protecting the natural environment as well as natural resources in reserves; organizing or coordinating relevant departments to carry out scientific research on nature reserves; conducting nature reserve propaganda and education.
The reserve controls pollution entering the Futian Mangrove Wetlands and optimizes the environment around the Site. Construct soundproof walls and shelterbelt at the boundary of the reserve to reduce the impact of noise generated by urban roads and human activities on bird habitat in the reserve. Control and scientifically manage street lights, billboards and neon signs around the reserve, set up reserve warning signs on surrounding roads to prompt passing vehicles to control lights, speed and honking, and increase greenbelts to improve the light environment.
More than 1,500 meters of guided science education trails have been built in the Site, including bird-watching kiosks, bird-watching boats, science tunnels, science panels, science education platforms, nature classrooms, nursery experience bases and other science education facilities. It has also developed several nature educational courses in conjunction with the Mangrove Foundation, as well as science education materials. It has been awarded as the national science education base and the first batch of national nature education schools (bases). In addition, it is currently building a China Mangrove Wetland Museum with the National Forestry and Grassland Administration, with a total construction area of about 39,500m2, aiming to build a national top-class museum, an international top-class mangrove wetland science education center and a mangrove wetland research center.

5.2.5 - Management planning

Is there a site-specific management plan for the site? In preparation

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

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

5.2.6 - Planning for restoration

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

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Soil quality	Proposed
Plant community	Implemented
Plant species	Implemented
Animal community	Implemented
Animal species (please specify)	Implemented
Birds	Implemented

Over the years, the management department of the Site has cooperated with several universities and scientific research institutes to carry out a series of background monitoring and scientific research work, providing scientific and technical support for the protection and ecological restoration of coastal mangrove wetlands.
The following monitoring projects were carried out: monitoring of bird dynamics, mangrove plant growth, benthic biodiversity, water quality, planktonic biodiversity, global synchronization survey of black-faced spoonbills (Platalea minor), algae status, etc in the Site. The annual biodiversity monitoring report was compiled.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Guangdong Neilingding Futian National Nature Reserve Administration. 2020. Master Plan of Guangdong Neilingding Island-Futian National Nature Reserve (2021-2030).
Xuemin Zhao. 2005. Homeland for harmonious coexistence of man and nature: wetlands conservation in China. China Forestry Publishing House. Beijing.
Hangqing Fan, Shichu Liang. 1995. Mangrove Research and Management in China. Science Press. Beijing.
Bosun Wang. 2002. Mangrove Ecosystem and its Sustainable Development in Shenzhen Bay. Science Press. Beijing.
Baowen Liao. 2010. Mangrove Restoration and Rehabilitation Technology in China. Science Press. Beijing.
Jinquan Zhang. 2016. Guangdong Nature Reserves (Updated). China Forestry Publishing House. Beijing.
Department of Wildlife Protection, State Forestry Administration. 2001. Introduction to Modern Management of Nature Reserves. China Forestry Publishing House. Beijing.
Wenqing Wang, Jianbin Shi, et al. 2021. Research of Conservation and Restoration Strategy of Mangrove Wetlands in China. China Environment Publishing Group. Beijing
Udvardy M. 1975. Classification of the Biogeographical Provinces of the World. IUCN Occasional Paper No. 18

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<3 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)
<no file available>

iii. a description of the site in a national or regional wetland inventory
<no file available>

iv. relevant Article 3.2 reports
<no file available>

v. site management plan
<no file available>

vi. other published literature
<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:


Wetland overview (*Zijie Zhong, 25-01-2021*)


Wetland·City (*Suixing Tian, 14-02-2019*)


Wetland sunset (*Zhongxiao Zhou, 25-01-2022*)


Platalea minor (*Jianxiang Li, 06-12-2012*)


egrets (*Jianxiang Li, 15-11-2015*)


Platalea minor foraging (*Jianxiang Li, 30-12-2015*)


Recurvirostra avosetta (*Xiangrong Lu, 12-03-2019*)


Himantopus himantopus (*Jianxiang Li, 03-11-2014*)


Calidris ferruginea (*Xingchao Zhu, 07-04-2019*)


Platalea minor (*Xingchao Zhu, 13-01-2022*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation: 2022-10-28