

Information Sheet on Ramsar Wetlands (RIS)

-2006-2008 version

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX.22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

FOR OFFICE USE ONLY.

1. Name and address of the compiler of this form:

Liang Xiangrong ¹, Su Bo ²

¹ Address: Room 501, Tianma Building, Yunnan Road,
Gangkou District, Fangchenggang, Guangxi
Zhuang Autonomous Region, China

Postal Code: 538001

Tel: 0086-770-3399799

Fax: 0086-770-2837266

E-mail: lxr7284@126.com

² Address: Room 501, Tianma Building, Yunnan Road, Gangkou District, Fangchenggang,
Guangxi Zhuang Autonomous Region, China

Postal code: 538001

Tel: 0086-770-3399799

Fax: 0086-770-2837266

E-mail: 13117618455@gx165.com

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

September 24, 2007

3. Country:

The People's Republic of China

4. Name of the Ramsar site:

Guangxi Beilun Estuary National Nature Reserve

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site; or
- b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site's boundary and area has not changed.

Or

If the site boundary has changed:

- i) the boundary has been delineated more accurately; or
- ii) the boundary has been extended; or
- iii) the boundary has been restricted**

If the site area has changed:

- i) the area has been measured more accurately; or
- ii) the area has been extended; or
- iii) the area has been reduced**

**** Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site:

Refer to Annex III of the Explanatory Note and Guidelines, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) a **hard copy** (required for inclusion of site in the Ramsar List):

ii) an **electronic format** (e.g. a JPEG or ArcView image) ";

√iii) a **GIS file providing geo-referenced site boundary vectors and attribute tables.**

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundary of wetland is the same as the existing nature reserve. It includes 105 km coastline, which begins from the mouth of Beilun river, the boundary river between China and Vietnam on the westernmost of China's mainland coastline, and stretches eastwards to the Malanji village in the city of Fangchenggang. It covers 3 towns and 13 villages in Dongxing and the Fangcheng district of Fangchenggang.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

108°00' - 108°16'E ; 21°31' - 21°37'N

9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

Located in Fangchenggang city, Guangxi Zhuang Autonomous Region, It is 180 km far southern to Nanning, the capital city of the province.

10. Elevation: (in meters: average and/or maximum & minimum)

1 - 2 m.

11. Area: (in hectares)

3000 ha

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Guangxi Beilun Estuary National Nature Reserve locates in the north of Beilun River opposite Vietnam, and it belongs to the tropical monsoon climate with ample sunlight and abundant precipitation. The annual average temperature is 22 °C, and the annual average precipitation is 2500 mm. Mountains, mesa and uplands interlace with each other, and high mountains go rolling on the land side bordering upon the reserve, while the seaward side is full of estuaries and bays, as well as amplitude tidal flats. The reserve is dominated with mangroves, and it is the place where mangroves are largely distributed in China, with a relatively higher diversity of halobios and birds. It is vital for keeping ecological equilibrium for both China and Vietnam and has important international values in wetlands conservation.

The wetland is one important stopover site of the flight routes of migrant birds which migrate between north east and south eastern Asia, and between Malaysia and Australia. There is a sea grass community at the low shore region of the mangroves. Moreover, an investigation in 2004 found that there exists a massive area of coral reefs in the reserve's offshore area.

Sand beach, sunlight and sea water converge at this site, it also attracts 20 minorities living here, such as Gin nationality. The charming beach, splendid minorities' culture, abundant biodiversity make it an attractive sightseeing place.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
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14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1: The reserve supports 10 true mangrove species and 5 semi-mangrove species. It is the largest contiguous stretch of mangroves in China. It is rare that there are many mangrove plants growing on the tidal flat under average sea level in Pearl Bay within the site, while in the periphery low tide region, there grows *Zostera marina* sea grass community. Also the reserve is the only site where *Heritiera littoralis* forest grows on the coastal region in Guangxi Province. The mangrove ecosystem plays a substantial role in shoreline protection by alleviating flood caused by typhoon and resisting the impact of tides.

Criterion 2: Within this site, there are 7 bird species of global threatened listed by IUCN.

Species Latin name	Chinese name	Category in IUCN Red List	CITES Appendix	CMS Appendix	Class of national protected animal
<i>Platalea minor</i>	Heilianpilu	EN		I	II
<i>Egretta eulophotes</i>	Huangzuibailu	VU		I	II
<i>Anser erythropus</i>	Xiaobai'eyan	VU		I/II	
<i>Anas Formosa</i>	Hualianya	VU	II	I	
<i>Aythya baeri</i>	Qingtouqianya	VU			
<i>Aquila heliaca</i>	Baijiandiao	VU			II
<i>Larus</i>	Heizuiou	VU			

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Criterion 3: The reserve holds 240 species of large zoobenthos and 187 species of birds. Bordering upon the reserve there are more than 1400 species of higher plants in addition. Meanwhile, it is an important habitat in China for relic marine animals such as *Tachypleus tridentatus* (referred as Zhongguohou in Chinese), *Carcinoscorpius rotundicauda* (referred as Yuanweihou in Chinese).

Criterion 4: This site is located on the bird migratory route of north-eastern Asia to south-eastern Asia, and of Malaysia to Australia. It is a significant breeding habitat for waterfowls. There are 96 species listed in the “Sino-Japanese Agreement on the Protection of Migratory Birds and Their Habitats” such as *Platalea minor* (referred as Heilianpilu in Chinese) and *Anas Formosa* (referred as Hualianya in Chinese), and 38 species on the protected list by the “Sino-Australia Agreement on the Protection of Migratory Birds and Their Habitats”.

Criterion 8: The site is a significant place for halobios’ reproduction, migration, foraging, breeding and inhabiting. The mangrove’s tidal creeks are vital places for female limulus to reproduce, while infants of limulus scatter on mangrove’s tidal flats. The ancient relic species *Lingula anatina* can be found frequently on bare beach at the edge of mangroves. The mangrove stands are the foremost habitat for many economic fishery species.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Guangxi Coastal Subregion, South China Region, Oriental Realm

b) biogeographic regionalisation scheme (include reference citation):

The Biogeography of Fauna in China (Zhang Rongzu, 1999)

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Geology: The site is composed of estuary and tidal flats in intertidal zones. The parent rocks of the silt are basalt, shale and neoteric deposits which belong to marine deposits of Holocene. The shoal here is wide and flat with a lot of shallow tidal creeks. Tidal flat soils mainly are sandy and muddy, which will be largely revealed when the tide is on the ebb.

Geomorphology: The site has obvious characteristics of estuary and bay. The estuary is triangular like, and the bay like a semi closed circular with its mouth opposite to the south. Around the site principally are uplands and mesas. On the east, Bailong Peninsula becomes a natural barrier to withstand the wind and waves, and the shoal here is wide and flat with a lot of shallow tidal creeks.

Soil: Mangrove marshes mostly are salting bog soils. Fine sand is the main sediment type, holding 71.8%~97.9%. Nutritive element contents in mangrove soils are not high. For example, the total nitrogen content is merely 0.693 g/kg, while the average contents of total phosphorus and total potassium are 0.226 g/kg, 9.724 g/kg respectively. One of the main reasons for this is

mangrove soils' desertification. Over the coastal land there is typical red soil (latosol) with the depth of 1 to 1.5 meters and pH value from 5 to 6 and rich in organic matters.

Climate: Located in the tropical and subtropical monsoon maritime climate region, this site is warm in spring, hot and rainy in summer, and often attacked by typhoon in fall, wet and cold in winter. The annual mean temperature in this site is 22.3⁰C, with average temperature 28.6⁰C in July, 14.1⁰C in January, together with the extreme lowest temperature 2.8⁰C. The mean annual precipitation is 2500 mm. On average, there are 147.5 rainy days per year, most of which are between June and September. The NNE and SSW wind prevails all over the year, and its average speed is 5.1 m/s. Typhoon and storm, mostly accompanied by thunder, often occur between April and September. The typhoon can bring storms and waves to assault sea coast, so it lurks huge destructive force.

Hydrology: Diurnal tide dominates this site. The mean tidal fall is 2.25 m, and the maximum tidal fall is 4.93m. With many creeks flowing into the bay, this site has obvious estuary characteristics.

Water quality: In the rivers of the site, the temperature of surface layer is about 29⁰C in summer, and 13⁰C in winter, and the salinity is 26‰ in summer, 28‰ in winter. Dissolved oxygen concentration ranges from 5.99 mg/L to 7.66 mg/L, with an average of 7.07 mg/L. The pH value is increasing from the estuary to the top of the bay, finally up to bay mouth, with an average value of 7.86. As sea water dominates this tide, the influence of fresh water on runoff is small. The key pollution indicators such as potassium permanganate index, BOD, and ammonia nitrogen were decreasing, while petroleum was increasing from 2001 to 2004. The mean contents of TN, TP, and petroleum are 0.22 mg/L, 0.0046 mg/L and 0.040 mg/L respectively, while the mean COD is less than 2.0 mg/L.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The catchment area of this site is about 1672 km², with a population of approximately 0.3 million people. There are many rivers in the catchment, three of which are the main rivers. The largest one is Beilun River, which is the boundary river of China and Vietnam. The river is about 107 km long and its catchment area is about 1187 km². The second largest one is Jiangping River, probably 57.5 km long, rises in the southern slopes of Shiwan Mountain, its drainage area is about 337 km². Luofu River, the third largest, with a river basin area of 148 km², about 29.1 km long, rises in Diaoying Mountain.

This catchment is mainly made up of uplands and mountains, taking on a grand spectacle with a ring of rolling hills encincturing and bays surrounding. The site is characterized by luxuriant vegetations and an abundant biodiversity. The dominating vegetation forms on land are artificial coniferous forest, broad-leaved forest, coniferous and broad leaf forest, shrub, tussock and so on, while mangrove plants and semi-mangrove plants dominate the intertidal zones. Within the catchment, there is typical red soil (latosol), and this area belongs to tropical monsoon climate region. Around the coast there are estuaries, intertidal zones and sandy tidal flats, and on this region it is tropical and subtropical maritime climate.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The mangroves in Beilun Estuary National Nature Reserve can resist the impingement of waves, tides and floods. It can also effectively alleviate the damage caused by typhoons, violent tides and tsunamis. Besides, it has functions in protecting coastlines and reclaiming lands from the sea.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal:

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	H	I	J	K	Zk(a)
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Inland:

L	M	N	O	P	Q	R	Sp	Ss	Tp	Ts	U	Va	Vt	W	Xf	Xp	Y	Zg	Zk(b)
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Human-made:

1	2	3	4	5	6	7	8	9	Zk(c)
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b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

Categories	Wetland types in the site	Percentage occupied (%)
I	Mangrove wetland	42
G	Intertidal zone tidal flat wetland	22
F	Estuary wetland	15
C	Coral wetland	/
E	Sandy shore wetland	/
B	Seaweed wetland	/
A	Shallow sea wetland	/
D	Rock coast wetland	/

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

In this site, the key habitats are the semi-closed bays and open estuary coasts, as well as large intertidal zone tidal flats and sandy beaches, together with some shallow sea and rock coasts. The typical vegetation in the reserve is mangrove, while on the maritime space around the forest and

intertidal zones there are seaweed beds and coral reefs. Pearl Bay is a typical semi-closed funneled bay, communicating with Beibu Bay on the southern mouth. The width of the bay mouth is about 3.5km. Within this bay, wind and waves are not so violent that the tidal flats are planar and open. Adding on Jiangping River and Huangzhu River's inflow, this site provides favorable habitats for mangrove plants' growth.

Bruguiera gymnorhiza, *Kandelia obovata*, *Aegiceras corniculatum* and *Aricennia marina* are the principal mangrove species in this site, and they are the constructive and dominant species in most mangrove communities. While *Excoecaria agallocha*, *Acrostichum aureum* and *Acanthus ilicifolius* can be constructive and dominant species in the small mangrove plant community on the shoals of Beilun estuary and Jiangping estuary. Other species scatter on the site, not forming an obvious community.

There are plenty of fishes and zoobenthos living in the mangrove wetland that it becomes a significant site for birds to forage and inhabit. Also as one of the hot spots of regional biodiversity, this site sustains vulnerable, endangered and critically endangered species or threatened ecological communities. Locating on the passages where migrant birds flight between northeast and southeastern Asia, together between Malaysia and Australia, the wetland is a vital breeding place for water birds.

Around the wetland there are some shrimp ponds, farmlands and villages, as well as 100-500 m width forest belt along the coast and act as inhabits for some water birds such as egrets.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. ***Do not include here taxonomic lists of species present - these may be supplied as supplementary information to the RIS.***

Mangrove is the main natural plant community in the site, while *Zostera marina* sea grass community flourishes in the mangrove's periphery low tide region in Pearl Bay. Some main communities are as follow:

(1) *Aricennia marina* formation: Universally distributed in the site. The height ranges from 1.0 m to 2.5 m, and the coverage is about 40%-90%. In muddy habitat of middle inner beach, *Aricennia marina* (referred as Baigurang in Chinese) develops well enough to a 2.5 m height with obvious trunks, and their basal diameter can reach 18 cm, while in other habitats, they grow worse and branch at the neck of roots, shaping of shrub.

(2) *Kandelia candel* formation: Popularly distributed, often appears from middle beach to middle outer beach, where soils are semi-sediments. The community takes on a turquoise color, with the height of 1.8-2.5 m and the coverage is about 60%-85%. Whereas those often lopped are shaping of shrub with height of 1.0-1.5m. The predominantly species is *Kandelia candel* (referred as Qiuqie in Chinese), which has undeveloped buttress roots. And the companion species are *Aegiceras corniculatum* (referred as Tonghua in Chinese) and *Aricennia marina* (referred as Baigurang in Chinese).

(3) *Excoecaria agallocha* formation: They usually grow along the high tide mark. Those often lopped are shaping of shrub with height 0.8-6 m and coverage 30%-50%. The predominant species is *Excoecaria agallocha* (referred as Haiqi in Chinese), but on partial beach locations there are *Kandelia candel* (referred as Qiuqie in Chinese), *Aegiceras corniculatum* (referred as Tonghua in Chinese) and some other species. The community structure is single or double layered.

(4) Seaweed community: Seaweed community mainly distributes on sandy and muddy low tidal zone in Pearl Bay, and mostly focuses on the tidal beach. The community's color is aqua and the dominant species is *Zostera japonica* (referred as Aidayezao in Chinese).

(5) *Heritiera littoralis* community: The area of this rarely semi-mangrove community in the site is about 4.3 ha. Three large *Heritiera littoralis* (referred as Yinyeshu in Chinese) trees have been found on Shanxin Island, one of which is the highest in Guangxi. It is 13.6 m high and its diameter at breast height is 81 cm, and its buttress root reaches 1.7 m.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. ***Do not include here taxonomic lists of species present - these may be supplied as supplementary information to the RIS.***

There are 124 macro-zoobenthos species (under 94 genus) in the site, including 27 polychete species (under 24 genus), 48 mollusk species (under 34 genus), 35 crustacean species (under 23 genus), 1 echinoderm species (under 1 genera), 5 zoobenthos fish species (under 5 genus) and other 8 species (under 7 genus); and there are 46 zooplankton species (under 33 genus) found in the site. There are 34 fish species, 187 bird species (belonging to 49 families of 16 orders respectively) recorded in the site, and some of them are globally threatened species provided in section no 14.

The site is not only one of the habitat rich in zoobenthos, but also a very important habitat for relic marine animals, such as *Lingula anatine*, which belongs to first protection class in China, *Tachypleus tridentatus* and *Carcinoscorpius rotundicaudu*, belong to second protection class, are very common in the site, and means a lot in preserving relic marine inheritance and biodiversity.

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The mangrove wetland in Beilun Estuary has particular significance in scientific research, cultural education, tourism, community service and environmental monitoring, and has great influences on the development of marine fishery, livestock farming and agriculture.

The main activities here are prawn, fish and shellfish culture, and act as an important income to the native residents, such as Gin nationality. A visitor center has been built for natural education and training, and it become an education base for primary and middle school students.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

No.

If Yes, tick the box and describe this importance under one or more of the following categories:

i) sites which provide 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) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where 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:

24. Land tenure/ownership:

a) within the Ramsar site:

State owned.

b) in the surrounding area:

State owned. The local community uses the surrounding land.

25. Current land (including water) use:

a) within the Ramsar site:

Natural mangroves, silting beach, shallow sea area are the main landuse types here. Giving priority to protection, portions of the site are the places for villagers' sporadic seining. Meanwhile, it is the important ground for wetland research and mangrove ecological education. According to functions, this site is divided into three areas as following.

Core area: Covering 1443 ha, the core area includes the zone from Dudun to Hongshatou and all the mangrove tidal flats in Pearl Bay. With a great diversity and consecutive area, mangrove community's leaf canopy is regular and intertidal zone thrives there. Besides, original populations keep integrity with various kinds and halobios is rich in diversity. This area implements closed management and strictly prohibit destroying forests.

Experimental area: 450 ha, cover all the mangrove tidal flats and shallow sea except those in core area. Mangrove plants are scattered, but zoobenthos are abundant. The main activities here are restoration of mangroves and some research work.

Buffer area: 1260 ha, act as a buffer to alleviate the detrimental effects on the mangroves and marine environment from the human activities.

b) in the surroundings/catchment:

Ponds and farmlands are prevailing. Aquiculture and rice cultivating are the main activities in the surrounding area.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Aquiculture exerted a certain strain to the reserve formerly, but now is under control as the reserve founded.

b) in the surrounding area:

Aquiculture and agriculture might cause some potential impact.

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

- (1) National Nature Reserve was set up on April in 2000.
- (2) Wetland Commission has been founded in Fangchenggang to strengthen the management and enhance the public participation.
- (3) The bureau of the conserve has been established.
- (4) Public awareness and education on wetlands to enhance people's consciousness on wetland conservation.
- (5) Overall planning of the reserve has being compiled and has been put into practice.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia; Ib; II; III; IV; V; VI

c) Does an officially approved management plan exist; and is it being implemented?:

None

d) Describe any other current management practices:

None

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No.

29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

(1) We have had technical cooperation for years with Guangxi Mangrove Research Center, Institute of Botany, the Chinese Academy of Sciences and Guangxi Normal University focusing on ecological monitoring, bird observation, mangrove insect pests, plant culturing and ecological conservation.

(2) The visitor center has been set up and been open to the public since 2006. The center contains a specimen show hall, a multimedia propagandize hall, offices and has equipped with some related facilities.

(3) Cooperating with Guangxi Normal University since 2005 on the breeding and recovery of rare species living in mangroves and coastal wetlands.

(4) Cooperating with Guangxi Normal University on bird observation since 2000.

(5) GEF Project: Reversing Environmental Degradation in the South China Sea and Gulf of Thailand.

(6) The environmental monitoring laboratory established by Fangchenggang Oceanic Administration and the reserve, and has been put into use since 2002 for sea water chemical analysis and ecological investigation.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Beilun Estuary National Nature Reserve Visitors' Center was put into service in the first half of 2006. Since then, a lot of educational activities have been carried out. We gave lectures on mangrove to primary and middle school students, residents and officers once a year. Since 2004, undergraduate and graduate students' exercitation and training have been in process. So far, the reserve has become the practical base for life science for Guangxi Normal University. In 2006, we had made or issued 6000 booklets of 3 kinds, 6000 posters of 3 issues, 12 caution boards, 6000 DVDs, 6000 CDRoms, 7 news reports.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Some visitors came but tourism had not been organized yet.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Region jurisdiction: Fangchenggang Oceanic Administration

Superior administrator: The Department of Land and Resources of Guangxi Zhuang Autonomous Region

Function jurisdiction: State Oceanic Administration of China

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Guangxi Beilun Estuary National Nature Reserve Management

Director and Legal representative: Su Bo

Address: Room 501, Tianma Building, Yunnan Road, Gangkou District

Fangchenggang, Guangxi Zhuang Autonomous Region, China

Postal code: 538001

Tel: 0086-770-2836534

Fax: 0086-770-2837266

Email: 13117618455@gx165.com

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

1. Fan Hangqing. Mangroves - Guards of the Coast. China People's Press, 2000. (in Chinese)
2. Huang Wenqing. Mangrove of China. Higher Education Press, 2005. (in Chinese)

3. Lin Peng, Fu Qin. Environmental ecology and economic utilization of Mangrove in China. Beijing: Higher Education Press, 1995: 11~39. (in Chinese)
4. Fan Hangqing, Liang Shichu. The management of mangroves in Guangxi Province. People's Press, 1995. (in Chinese)
5. Zhang Rongzu. China Animal Geography. Beijing: Science Press, 1999. (in Chinese)