

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note 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. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

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

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

17 January 2006.

3. Country:

Republic of Korea

4. Name of the Ramsar site:

Suncheon Bay

5. Map of site included:

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

a) **hard copy** (required for inclusion of site in the Ramsar List): yes -or- *no*

b) **digital (electronic) format** (optional): yes -or- *no*

6. Geographical coordinates (latitude/longitude):

34°47'16.24"N - 34°48' 40.22"N / 127°23'24.28"E - 127°25'41.05"

7. General location:

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

Suncheon Bay is located in the middle of south coast of the Korean peninsula. Its administrative region is Suncheon city, Jeollanam-do (Province).

8. Elevation: (average and/or max. & min.)

0~7mMSL

9. Area: (in hectares)

3,550 ha

10. Overview:

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

Suncheon Bay is one of the most diverse and beautiful coastal ecosystem in South Korea. Dong-Chun (river) and Yisa-Chun flow through Suncheon City and rice fields into the northern part of the bay. The northern part of Suncheon Bay has over 500 ha of reedbed and extensive areas of *Suaeda japonica* salt marsh. Tidal-flats, largely muddy, shallow salt marshes and rice fields support a large number of birds and benthos.

11. Ramsar Criteria:

Circle or underline 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).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

12. Justification for the application of each Criterion listed in 11. 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 2: Total protected bird species is 25 species (below table). In the site, there are 2 IUCN Redlisted Endangered species, i.e. Black-faced Spoonbill *Platalea minor* and Nordmann's Green Shank *Tringa guttifer*, and 7 Vulnerable species, i.e. Chinese Egret *Egretta eulophotes*, Baikal Teal *Anas formosa*, Hooded crane *Grus monacha*, White-naped Crane *Grus vipio*, Spoonbilled Sandpiper *Eurynorhynchus pygmeus*, Saunder's Gull *Larus saundersi*, and Relict Gull *Larus relictus*. Species in the Annexes of the CITES include 14 species, also shown in the following table. Protected species by the Ministry of Environment or Natural Monument Birds by Cultural Heritage Administration are 24 species (shown below).

List of the protected bird species in Suncheon Bay

No.	English name	Scientific name	IUCN	CITES	M.E	N.M
1	Chinese Egret	<i>Egretta eulophotes</i>	VU		●	○
2	White Stock	<i>Ciconia ciconia</i>			●	○
3	Black-faced Spoonbill	<i>Platalea minor</i>	EN		●	○
4	Whooper Swan	<i>Cygnus cygnus</i>			⊙	○
5	Baikal Teal	<i>Anas formosa</i>	VU		⊙	
6	Chinese Sparrow Hawk	<i>Accipiter soloensis</i>		○		○
7	Sparrow Hawk	<i>Accipiter nisus</i>		○		○
8	Buzzard	<i>Buteo buteo</i>		○	⊙	
9	Hen Harrier	<i>Circus cyaneus</i>		○	⊙	○
10	Peregrine Falcon	<i>Falco peregrinus</i>		○	●	○
11	Merlin	<i>Falco columbarius</i>		○	⊙	
12	Kestrel	<i>Falco tinnunculus</i>		○		○
13	Hooded Crane	<i>Grus monacha</i>	VU	○	□	○
14	White-naped Crane	<i>Grus vipio</i>	VU	○	□	○
15	Oystercatcher	<i>Haematopus ostralegus</i>			□	○
16	Long-billed Ringed Plover	<i>Charadrius placidus</i>			□	
17	Spoon-billed Sandpiper	<i>Eurynorhynchus pygmeus</i>	VU		●	
18	Nordmann's Greenshank	<i>Tringa guttifer</i>	EN	○	●	
19	Asiatic Dowitcher	<i>Limnodromus semipalmatus</i>	NT			
20	Australian Curlew	<i>Numenius madagascariensis</i>	NT		□	
21	Saunder's Gull	<i>Larus saundersi</i>	VU		□	
22	Relict Gull	<i>Larus relictus</i>	VU	○	□	
23	Eurasian Eagle Owl	<i>Bubo bubo</i>		○	□	○
24	Scops Owl	<i>Otus scops</i>		○		○
25	Brown Hawk Owl	<i>Ninox scutulata</i>		○		○

IUCN : IUCN Redlist of Threatened Species (EN: endangered species, VU: vulnerable)

CITES : Species in the Annexes of CITES

M.E : Protected species by the Ministry of Environment of the Korea (●: first grade, □: second grade)

N.M : Protected species by the Cultural Property Administration of the Korea

Resource from Suncheon City. 1999

Criterion 4: Suncheon Bay is Korea's only wintering site for *Grus monacha*. According to surveys conducted by Ministry of Environment and National Institute of Environment Research from 1999 through 2004, the number of *Grus monacha* observed in Suncheon Bay ranged from as low as 79 to as high as 201. Usually, they pick on foods on agricultural land close to the Bay. Recently, however, this foraging ground has been affected by the reduction of foods and disturbance by vehicles.

Criterion 6: Based on the Winter Bird Simultaneous Census conducted by Ministry of Environment and National Institute of Environment Research (1999~2004) and Wintering Status Survey of Natural Monument Birds by Cultural Property Administration (2000~2001), a list of migratory waterfowl species, counting over 1% threshold of the entire world population are shown in the following table.

Scientific Name	English Name	Regularly supports 1% of the individuals
<i>Tadorna tadorna</i>	Common Shelduck	1,300 - 3,186 (Feb. 1999, Ministry of Environment), up to 2.45%
<i>Charadrius alexandrinus</i>	Kentish Plover	1,000 - 11,000 (Jan. 2002, Ministry of Environment & National Institute of Environmental Research), up to 11%
<i>Numenius arquata</i>	Eurasian Curlew	350 - 450 (Mar. 2000, Cultural Heritage Administration), up to 1.29 %
<i>Grus Monacha</i>	Hooded Crane	85 - 201 (Feb. 2004, Ministry of Environment & National Institute of Environmental Research), up to 2.36%
<i>Larus saundersi</i>	Saunders' Gull	85 - 305 (Jan. 2003, Ministry of Environment & National Institute of Environmental Research), up to 3.59%

13. 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:

Information on local biogeography: The bay is an indented coast located between Yeosu and Koheung peninsula. Around the bay are undulating hills with fishing and agricultural villages and numerous islands, e.g., Chang-do, Changu-do, Yeoja-do, Wonju-do, Nang-do.

b) biogeographic regionalisation scheme (include reference citation):

N/A

14. 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.

Origins: Natural

Water quality: Salinity: 1.20~ 31.09 ‰

Dissolved Oxygen: 4.91 ~11.77 mg/l (mean : 7.08 mg/l)

pH: 7.77~8.35 (mean. 8.09)

COD: 1.67~6.16 mg/l (mean: 2.93 mg/l)

SS: 9.2~130.0 mg/l (mean : 64.5 mg/l)

Water depth: 0 ~ 7 m

Water permanence: impermanent (tidal mudflat)

Tidal range: 1.5~ 4.0 m

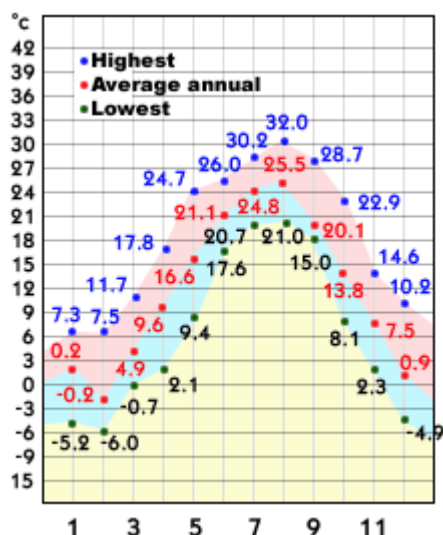
General climate:

Air temperature: mean 13°C (-10~+32°C)

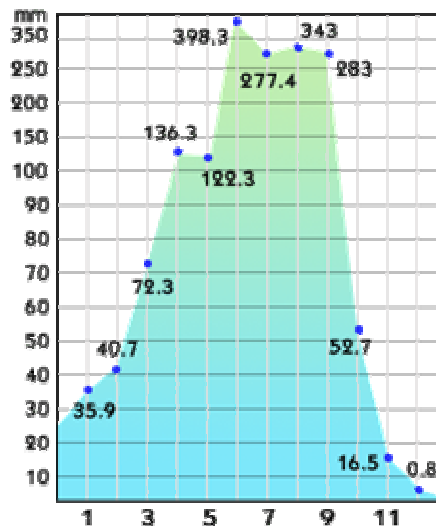
Precipitation: 1,800 mm

Air pressure: 1017 mmHg

Temperature



Precipitation



15. Physical features of the catchment area:

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

- 2nd grade stream* : Dong Stream and Esa Stream (Suncheon city), Bulkyo Stream (Bosung county)
- small-size stream* : Haeryong Stream and Kuryong Stream (Suncheon city), Kyochon Stream and Chooksan Stream (Bosung county)
 - The component materials are pebble and sand in the upper streams are sand and mud (flats) in the downstreams.
 - inhabiting fishes : 4 orders 6 families 8 genuses 21 species(, in total)
 - The length of the streams are less than 40km and the surrounding area has a rather small number of pollution sources such as industrial complexes and highly-populated areas.

16. Hydrological values:

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

○ Climate of the bay

Temperature: annual average 12.5°C, with minimum -6.4°C and maximum 33.4°C

Precipitation: 1,754mm per annum (average precipitation of the last 5 years)

Relative humidity: annual average 70%

○ Influx water quality

- For the most streams, the surrounding environment where the headstreams flow through is good conservation areas, i.e., (e.g.,) Chogye Mountain National Park. That makes little (small) changes in water quantity and sustains clean water quality.

- The Esa stream of the Suncheon city, the 2nd grade stream, has the Chuam dam that controls water quantity with the surface area of 22 km². Annually, certain amount of water is flowed into the Daedae harbor in the Suncheon bay, sustaining good environment for the coastal ecosystem: the size of distribution area of salt plants is being increased, and the benthic species are also diverse.

17. 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: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

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

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

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.

Marine/Coastal Wetland

G: Intertidal flat (largely muddy)

H: Intertidal marsh (with reedbed and *Suaeda japonica* salt marsh)

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

Suncheon Bay is a relatively clean sea area, which consists of a wide estuary tidal flat of 2,160ha and a reed community of 140ha located 3.5km downstream of Dong Stream and Esa Stream confluence.

Reeds absorb and purify pollutants and deposit floating substances. They also improve water quality by preventing soil erosion and offer habitats to other living organisms.

Suncheon Bay, a coastal wetland, is the only site in Korea where *Grus monacha* arrives regularly and such endangered waterfowls as *Ciconia boyciana* and *Platalea minor* arrive. In addition, it serves as habitats to various migratory birds including *Tadorna tadorna*, *Charadrius alexandrinus* and *Anas platyrhynchos*.

In particular, it is an area of international importance in that it connects East Asia and Australia along the flyways of migratory birds.

Suncheon Bay has high biodiversity and its biota is as follows:

- Benthic invertebrates: 5 phyla, 6 classes, 12 orders, 22 families, and 43 species
- Flora (summer halophytes): 36 families, 92 genera, and 116 species
- Birds: 8 orders, 22 families, and 73 species

The total number of bird species inhabiting in the bay is around 158, among which fifteen species are registered as the natural monuments and **thirteen species** as the internationally protected species. In addition, **nine species** are listed in the IUCN Red List, **14 species** in the annexes of CITES.

19. Noteworthy flora:

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. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

The most important (significant, noticeable) flora is the coastal plants living in the mud-sand area. In total, there are 116 wild species with 36 families and 92 genera, such as *Phragmites communis*, *Zoysia sinica*, *Avena fatua*, *Atriplex subcordata*, *Typhaceae spp.*, *Suaeda japonica*, *Phacelurus lalifolius*, *Erigeron bonariensis*, *Suaeda asparagoides*, *Limonium tetragonum*

20. 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.

At Suncheon Bay, 73 bird species belonging to 8 orders and 22 families, totaling 34,961 individuals were recorded from February 1999 through January 2004. During the survey period, 9,847 individuals arrived on an average, which meant it was not in fact an area where 20,000 individuals arrive regularly. However, a sum of the highest number of individuals observed by species was over 20,000.

The most dominant species is *Charadrius alexandrinus*, of which 11,000 individuals were observed. It was followed by *Calidris alpina* (4,330 individuals), *Tadorna tadorna* (3,186 individuals), and *Larus ridibundus* (2,043 individuals).

In Suncheon Bay, 13 rare bird species were observed including *Platalea leucorodia*, *Cygnus Cygnus*, *Cygnus columbianus*, *Buteo buteo*, *Circus cyaneus*, *Falco peregrinus*, *Falco tinnunculus*, *Grus grus*, *Grus monacha*, *Grus vipio*, *Haematopus ostralegus*, *Numenius madagascariensis*, and *Larus saundersi*.

Among birds that arrive at Suncheon Bay, 5 species counted 1% of the world's total population, including *Tadorna tadorna*, *Charadrius alexandrinus*, *Numenius arquata*, *Grus monacha* and *Larus saundersi* (see also section 12).

Benthic invertebrates include: 5 phyla 6 classes 12 orders 22 families 43 species.

21. Social and 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.

Suncheon city has beautiful sceneries with mountains, rivers, lakes and various cultural heritages such as Songgwang Temple, Seonam Temple and Nakan-eupseong Folk Village, etc. Palma (eight-horses) spirit of the Magistrate ChoiSok is honored here from the Korea Dynasty.

Fishing activities using simple tools such as small hoe or shovel are carried generally out in the tidal flat of Suncheon Bay. The major products of this kind of fishing are polychaetes, small octopus (*Octopus variabilis*), short-necked clams (*Tapes Japonica*, *Paphia undulata*), natural oysters, flat oyster (*Ostrea denselamellosa*), and purple shell (*Rapana venosa*). *Acanthogobius flavimanus* and *Boleophthalmus pectinirostris* are collected with fishing hook, and sedentary or coastal migratory species with fishing net. The number of households and persons engaged in fisheries of 3 towns in tidal flat of Suncheon Bay are 651 and 1,333, respectively. Production of fisheries at the Suncheon Bay area is 142,127 tons, 409,100 tons of seaweed, and 16,347 tons of mollusks. In case of Yongdoo fishing village, the total sales of razor clam reached about 0.8 million dollars in 2003.

22. Land tenure/ownership:

- (a) within the Ramsar site:
state-owned

- (b) in the surrounding area:
state-owned

23. Current land (including water) use:

- (a) within the Ramsar site: Fishing activities including culture
- number of families and population in fisheries : 561 houses, 2,366 people
 - number of fishing boats : 282 boats
 - Most fishing boats are small-size (less than five tons), and used for fishing in coastal area (traditional fishing gear)
 - number of fishing ground for culture : 65 sites, 1,848 ha
 - species for culture: *Anadarc tegillarca granosa*, *Scapharca subcrenata*, *Cyclina sine*, *Sinonovacula constricta*, *Crassostrea gigas*
 - stationing zoning fishery: 210 sites
 - mobile zoning fishery: 32 sites
- (b) in the surroundings/catchment: land use of the surrounding area
- target area : the area of 7 km² surrounding the Suncheon bay
 - land use:
 - upland field 2.660 km²(38%) rice paddies 0.393 km²(5.6%) forest 1.064 km²(15.2%)
 - salt pan 0.735 km²(10.5%) residential area 0.21 km²(3.0%) bare land 0.224 km²(3.2%) etc.

24. 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:
- 1. potential threat**
 - expansion of the adjacent cities (requires more sewage and wastewater treatment facilities)
 - changes in natural ecosystem (climate, erosion, etc)
 - potential development of privately-owned land around the bay
 - 2. Fisheries**
 - Fish 290 ton/year, Shellfish 1,279ton/year , others 152 ton/year, as of 2003.
- (b) in the surrounding area:

25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Wetland Protected Area (2003. 12. 31) designated by MOMAF under the Wetland Protection Act, and an Enforcement Ordinance and Suncheon Bay Natural Eco-park (2004. 10) by Suncheon City

26. Conservation measures proposed but not yet implemented:

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

Wetland Protected Area (2003.12.31) designed by MOMAF
Suncheon Bay Natural Ecopark (2004.10) by Suncheon City

Basic Management plan for Suncheon Bay will be prepared in 2006. The goal of this Plan is to *harmonized mudflat conservation* specifically between the tidal flats, migratory birds and human. The specific objectives include:

- A. Protection for biological resources and restoration of wetland
- B. Reducing the marine pollution
- C. Regular survey and monitoring
- D. Establish management framework and institutional improvement
- E. Public awareness for wetland protection

27. Current scientific research and facilities:

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

Wintering Bird Census (1999-2004, Ministry of Environment & National Institute of Environmental Research)

Suncheon Bay Natural Eco-park project (2003-2005)

Number of monitoring stations will be established by 2006 monitoring plan.

28. Current conservation education:

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

- Suncheon Bay Natural Eco-park (Hawpo and Waon region)

- Suncheon Bay Visitor Centre (2004. nov. open):

- location : 162-7, Daedae-dong, Suncheon City
- size : 3-story building (total area of 1,772 m²)
- parking lot : 2,476 m² (accomodating 155 vehicles)
-

- Observation hides and boardwalk (2 places):

- walk : Yongsan hill boardwalk (416m), Changsan boardwalk (180m), sea road (waterfront street, 4km)
- observatory : Yongsan hill observatory in construction (opening planned in 2006)

- Bird watching (by boats)

29. Current recreation and tourism:

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

Suncheon Bay Natural Eco-park (Vister Center, Hawpo and Waon region are under construction.

Mudflat experience site, observation hides for birder and boardwalk (2 places)

Bird watching boat tour (4 boats)

Eco-tour program and Theme tour for people (Suncheon City)

Average annual number of visitors or tourists: 1 million (foreigners of 10%) per year

30. Jurisdiction:

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

Ministry of Maritime Affairs and Fisheries

The jurisdiction of administration belongs to the Suncheon city of Cheonnam province.

31. 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.

- Suncheon City
- MOMAF (Ministry of Maritime Affairs and Fisheries)

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Suncheon City	Kim., Sehwan	deputy director	execution of the management programs	Suncheon city	061-749- 3071	hoan2000@paran.com

32. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

- Culture Heritage Administration (2001) Preservation and management of natural monument and scenic beauty.
- Suncheon city (1999) Ecological Survey of the Suncheon Bay. Ins. Development of the local area in Uni. of Suncheon.
- Suncheon city and Greensuncheon 21 (2003) Annual reports on Greensuncheon 21 project.
- Suncheon city (2001) Reports on execution plan of Suncheon Bay Natural Eco-park constitution.
- Suncheon city (2003) Suncheon yearbook..
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- Wintering Bird Census 1999-2004. Ministry of Environment & National Institute of Environmental Research.
- Culture Heritage Administration (2000) Wintering Bird Census of Natural Monument.
- Culture Heritage Administration (2001) Wintering Bird Census of Natural Monument II.

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