

Globally significant birds in the Yellow Sea Ecoregion

A table of bird indicator species and their global significance

| Indicator Species | | Criteria for habitat and vulnerable species of global significance | | | |
|----------------------------------|-----------------------|--|---------------------------------|---|---|
| Scientific names | Common English names | Endemism (Definition: >50% of the population occurs in the Yellow Sea Ecoregion at some time of its life cycle.) | Criterion 2: Vulnerable Species | Criterion 3: Commercially Important Species (n/a: not applicable) | Criterion 4: Ramsar Criteria on Waterbird |
| <i>Grus japonensis</i> | Red-crowned crane | Yes | CK IUCN EN | n/a | Yes |
| <i>Grus monacha</i> | Hooded crane | Yes | CK IUCNVU | n/a | Yes |
| <i>Grus vipio</i> | White-naped crane | Yes | CK IUCNVU | n/a | Yes |
| <i>Platalea minor</i> | Black-faced spoonbill | Yes | CK IUCN EN | n/a | Yes |
| <i>Egretta eulophotes</i> | Chinese egret | Yes | CK IUCNVU | n/a | Yes |
| <i>Ciconia boyciana</i> | Oriental white stock | Yes | CK IUCN EN | n/a | Yes |
| <i>Anas formosa</i> | Baikal teal | Yes | CK IUCNVU | n/a | Yes |
| <i>Cygnus cygnus</i> | Whooper swan | Yes (10 000) | C K | n/a | Yes |
| <i>Larus saundersi</i> | Saunders's gull | Yes | CK IUCNVU | n/a | Yes |
| <i>Haemantopus ostralegus</i> | Oystercatcher | Yes | K | n/a | Yes |
| <i>Tringa guttifer</i> | Nordmann's greenshank | Yes | IUCN EN | n/a | Yes |
| <i>Eurynorhynchus pygmeus</i> | Spoonbill sandpiper | Yes | IUCN EN | n/a | Yes |
| <i>Numenius madagascariensis</i> | Far eastern curlew | Yes | IUCN NT | n/a | Yes |
| <i>Anser cygnoides</i> | Swan Goose | Yes (Korean population. Among two populations, perhaps Russian FE birds migrate to Korea.) | IUCN EN | n/a | Yes |
| <i>Grus leucogeranus</i> | Siberian crane | Yes (Staging areas in Bohai Wan) | IUCN CR | n/a | Yes |
| <i>Larus relictus</i> | Relict Gull | Yes (Non-breeding migrant. Count data limited in Korea.) | IUCN VU | n/a | Yes |

Notes

Each indicator species were assessed against Criterion 1, 2 and 3. When an indicator species meets Criterion 1 according to data available in China, then it is indicated by C (China).

Note 1: In Criterion 1,2 and 3 columns, C indicates that a criterion is applicable to the corresponding species according to data from China, K: South Korea.

Note 2: IUCN CR, IUCN EN, and IUCN VU indicate the species is classified as Critically Endangered (CR), Endangered (EN), or Vulnerable (VU) respectively in the IUCN Red List of Threatened Species.

Note 3: In Criterion 4 column Yes indicates the Ramsar criteria on waterbirds were applied to the corresponding species.

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Contact:

WWF China: Li Lifeng, WWF China, Telephone: +86 10 65227100, Telefax: +86 10 65227300, lfl@wwfchina.org, www.wwfchina.org

WWF Japan: Tobai Sadayosi, WWF Japan, tel +81 3 3769 1713 fax +81 3 3769 1717, tobai@wwf.or.jp, www.wwf.or.jp

KORDI: Pae Seonghwan, KORDI, tel +82 31 400 7752, shpae@kordi.re.kr, www.kordi.re.kr
KEI: Lee Changhee, KEI, chlee@kei.re.kr, www.kei.re.kr

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Red-crowned crane



Saunders's gull



Saunders's gull



Spoonbill sandpiper



Whooper swan

Birds of the Yellow Sea Ecoregion and their habitats



Satellite photo of Yellow Sea Ecoregion

Black-faced spoonbill

Birds of the Yellow Sea Ecoregion

About the area

The Yellow Sea Ecoregion is one of the world's largest areas of continental shelf. The Yellow Sea Ecoregion encompasses the Bohai Sea, the Yellow Sea and the East China Sea. It is a transboundary area and extends from the coastlines of China, North Korea, and South Korea to a depth of 200m.

Valuable nutrients flow from the Yangtze and Yellow rivers and combine with sunlight and shallow waters to create an area that teems with abundant marine life.

Diversity of bird species

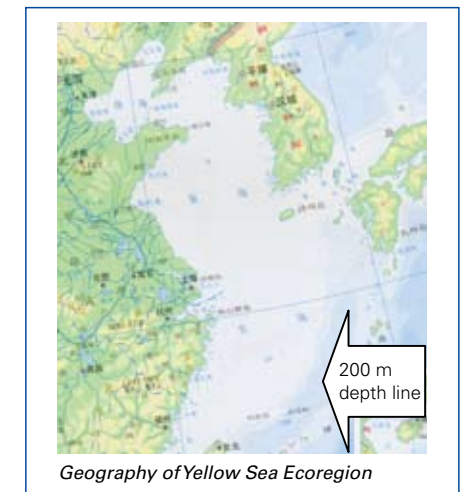
Yellow Sea Ecoregion supports a large number of wetland and marine bird species. In China, 173 species of waterbirds and 9 species of seabirds have been recorded, and in South Korea, 162 waterbirds species including egrets, ibis, storks, cranes, ducks, geese, swans, shorebirds, and gulls have been observed.

What is an ecoregion?

Biodiversity is not spread evenly across the Earth but follows complex patterns determined by climate, geology and the evolutionary history of the planet. These patterns are called ecoregions. WWF defines an ecoregion as a large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions. The boundaries of an ecoregion are not fixed and sharp, but rather encompass an area within which important ecological and evolutionary processes most strongly interact.

A refuge for migrating birds

The Yellow Sea Ecoregion is often likened to a very important 'international airport' for migratory birds. This is because each year over a million waterbirds fly to many wetlands in the Yellow Sea Ecoregion to rest and 'refuel' by feeding on rich aquatic animals and plants, so that they can safely continue their long journey to destinations as far away as Alaska or Australia. Scientific data shows that in South Korea alone, coastal wetlands support more than 10% of populations of 14 shorebird species. The Yellow Sea Ecoregion also provides habitat for 22 species listed in China's nationally compiled red list of endangered species and 11 globally threatened birds in South Korea.



Geography of Yellow Sea Ecoregion

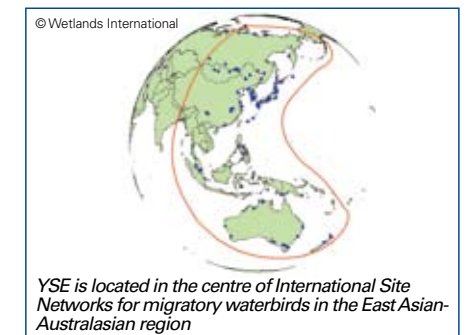
Birds and People

Historically, the hunting of waterbirds has long been a source of food as well as a commercial activity. Until recently, the hunting of shorebirds in China was done mostly for commercial purposes. But with improved economic conditions, pressure from hunting has dropped. It is now illegal in China to hunt birds in the wild.

People have converted natural wetlands in coastal areas into large areas of artificial wetlands, which now provide important habitat for waterbirds. For example, salt pans provide roosting areas for shorebirds at high tide, and estuary dams have become home for a large number of ducks, including the Baikal teal, a globally vulnerable species. Artificial wetlands may have lost the original ecological character of natural wetlands, but they nevertheless still play an important role in supporting waterbirds.

Threats to Birds

Large-scale habitat loss is the single most serious threat to waterbirds in the Yellow Sea Ecoregion. Habitat loss is mainly caused by conversion of coastal wetlands by reclamation into agricultural land, salt pans, fishponds and other industrial and urban development. In South Korea, about 43% of intertidal wetlands were lost during the 20th century. In China, about 37% of intertidal wetlands have been converted in the last 50 years. Other threats include pollution of the aquatic environment, over hunting and illegal hunting of some species, human disturbance and competition for aquatic products between people and birds. The introduction and spread of invasive alien plant species is another recognised threat to waterbirds in China.



YSE is located in the centre of International Site Networks for migratory waterbirds in the East Asian-Australasian region

The Yellow Sea Ecoregion - a Global Treasure, a Global Concern

Global Treasure

The Yellow Sea Ecoregion (203) has been selected by WWF as one of the Global 200 ecoregions, areas that are key to global biodiversity conservation. This marine ecosystem is also one of the Large Marine Ecosystems (LME) of the world.

Global Concern

The global importance of the Yellow Sea Ecoregion has been recognised by governments and the international community in recent years. Starting in 1992, the Chinese and South Korean governments together developed a transboundary approach to the management of the Yellow Sea area with the assistance of UNDP, UNEP, the World Bank, and NOAA. In 2005, a UNDP/GEF project, the Yellow Sea Large Marine Ecosystem project, was officially launched with participation of the Chinese and South Korean governments.

Meanwhile, in 2002, WWF and research institutes in China, South Korea and Japan began an assessment of Yellow Sea Ecoregion biodiversity. The objective of this regional partnership was to prioritise conservation actions based on scientific data.

An urgent need: Identifying conservation priorities at a transboundary ecoregional scale

In order to conserve the full array of biodiversity and ensure the use of its services by people are sustainable, it is necessary to conduct assessments beyond political boundaries and at an ecoregional scale.

An ecoregional approach helps ensure that we do not overlook areas that are particularly unique or threatened, allowing for smarter trade-offs and greater positive impacts that are more likely to endure over time.

Methodology - finding priority bird species and their Ecologically Important Areas

Cooperation among scientific experts from China and South Korea

Scientists from universities and environmental research institutes in China and South Korea have worked together with Wetlands International (a conservation NGO) to review and identify priority bird species and their habitats of global significance. Together they have set a common methodology and reached an agreement on priorities.

Biological Assessment

Using a set of mutually agreed criteria that are key to biodiversity conservation-representativeness, endemism, threatened status, commercial importance and Ramsar criteria on waterbirds - scientists analysed nationally available data to select appropriate indicator species and their habitat and they have compiled national biological assessment papers for China and South Korea.

Priority Area Analysis

Using a further set of criteria, experts then prioritised the previously selected indicator species and their habitat. To do this, scientists took into account endemism, threatened status, and commercial importance as a set of criteria for the Priority Area Analysis, though no species were applicable for commercial importance criterion.

Because participating scientists have conducted ground surveys themselves in the most important areas of China and South Korea, they were able

to draw very detailed maps of important areas onto a single satellite image map. Based on this detailed important area map, each area was re-examined to assess which bird indicator species are important for which areas.

Results

As a result of the above processes, scientists adopted a list and a map of areas that are critical for bird species (Bird Ecologically Important Areas (BEIAs)). 16 waterbird species were assessed as indicator species under the criteria to identify globally significant species and their habitat. Of these indicator species, 16 species met the endemism criterion as well as the venerable species criterion, but no species were applicable under the commercially important species criterion. Ramsar criteria on waterbirds were assessed not only for 16 indicator species but also for other waterbird species. Those indicator species that met any of these criteria were identified as globally significant species. Then habitat areas of these globally significant species, where those areas are critical for the survival of the species, were identified as indicator species ecologically important areas. In total, 42 Bird Ecologically Important Areas were identified.

The Yellow Sea Ecoregion Planning Programme will publish the full results of its biodiversity assessment and priority area analysis so that they become accessible by scientists and government agencies in the future.

A call to action

The results provided key data for developing a regional conservation strategy and monitoring its successes. In particular, the results will help to:

- 1) Establish a network of representative marine protected areas at the ecoregional scale;
- 2) Evaluate effectiveness of existing protected areas;
- 3) Monitor status of biodiversity.

In order to conserve these globally significant species and their habitats, various stakeholders need to take concerted actions. Community-based organisations, the scientific community, national

and local government agencies, legislative bodies, non-government organisations including religious groups, the general public, the media, donor communities, industries, consumers, and youth groups all have important roles to play. For example, national and local government agencies can contribute by strengthening cross-sectoral coordination in the establishment and improvement of the management of marine protected areas (MPAs). Filling major knowledge gaps in ecology and human impacts on indicator species is also an important action to take.



Yellow Sea Ecoregion (203)



LME #48 Yellow Sea Large Marine Ecosystem (red area)



UNDP/GEF Yellow Sea Project



WWF/KORDI/KEI Yellow Sea Ecoregion Planning Programme



Scientific experts from China, and South Korea, Japan and other countries cooperated to analyse priority areas



important bird habitat in China



important bird habitat in South Korea

Globally Significant Areas for Birds in Yellow Sea Ecoregion (China and South Korea)

- Yellow Sea Ecoregion Planning Programme -



Geographic Coordinate System : WGS-84
Projection : Lambert Conformal Conic
www.sundosoftware.com SUNDOSOFT

| Bathymetry | | Bird EIA | | | | | | | |
|------------|---------------------|----------|---------------------------------|----|---------------------|----|--|----|------------------|
| No | Bird EIA | No | Bird EIA | No | Bird EIA | No | Bird EIA | No | Bird EIA |
| 1 | Jiuduansha | 10 | Bahaiwan SW | 19 | Sihwah Lake | 28 | Seonjedo Island | 37 | Gocheonamho Lake |
| 2 | Chongming Dongtan | 11 | Bahaiwan NW | 20 | Jangdan | 29 | Daebudo Island | 38 | Gangjin Bay |
| 3 | Yancheng Coast | 12 | Bahaiwan N | 21 | Yudo | 30 | Cheonsu Bay | 39 | Suncheon Bay |
| 4 | Lianyungang Coast | 13 | Beidaihe | 22 | Ganghwado Island | 31 | Yubudo Island | 40 | Junam Reservoir |
| 5 | Jiaozhouwan | 14 | Liaodongwan N | 23 | Yeongheungdo Island | 32 | Geumgang River | 41 | Naktong Estuary |
| 6 | Rongzheng Coast | 15 | Dalianwan | 24 | Yeongjongdo Island | 33 | Mangyeonggang Estuary | 42 | Jeju-do Island |
| 7 | Laizhouwan | 16 | Changshan Islands | 25 | Songdo Island | 34 | Dongjingang Estuary | | |
| 8 | Huanghe River Delta | 17 | Yalujiang Coast | 26 | Namyang Bay | 35 | Haenam | | |
| 9 | Bahaiwan S | 18 | Hangang and Imjingang Estuaries | 27 | Asan Bay | 36 | Yeongamho, Geumho and Yeongsanho Lakes | | |