



# East Asian-Australasian Flyway Network Site Assessment Overview Report June 2013



**East Asian-Australasian Flyway Partnership**

# Contents

Summary.....	3
1. Background .....	4
2. Methods.....	4
3. Results.....	5
<b>Appendix 1. Flyway Network Sites Assessed .....</b>	<b>13</b>
<b>Appendix 2. Sample Flyway Network Site Assessment Form.....</b>	<b>15</b>
<b>Appendix 3. Listing of maximum counts for species meeting the criteria at Flyway Network Sites .....</b>	<b>22</b>
<b>Appendix 4. Number of Flyway Network Sites at which each species occurs in internationally important numbers .....</b>	<b>40</b>
<b>Appendix 5. Representation Index for key species .....</b>	<b>41</b>
<b>Appendix 6. Completed Site Assessment Forms .....</b>	<b>42</b>
Site Assessment Form.....	43

## Summary

At the request of the Fourth Meeting of the East Asian – Australasian Flyway Partnership (EAAFP), held in Korea in 2009, the EAAFP Secretariat commissioned a baseline assessment of Flyway Network Sites, which was conducted by Wetlands International and BirdLife International.

The assessment updated information on the species for which sites are internationally important, the level of monitoring of waterbirds, threats to the habitats used by key species of waterbirds and the conservation measures being implemented at the site.

The assessment covered 76 Flyway Network Sites and a total of 325 pages of Site Assessment Forms were compiled.

Key findings include:

- the total number of records of species for which Flyway Network Sites were recognised as being of international importance increased by 46%; from 446 to 651 records (compared to pre-existing documentation on the Flyway Network Sites).
- 117 species were recorded at Flyway Network Sites (45% of the species covered by the Partnership)
- >90% of the Flyway Network Sites are fully or partly within protected areas
- 60% of the Flyway Network Sites are also Ramsar listed
- 59% of sites were counted >10 times in the last 5 year period
- 49% of sites had drawn conclusions about changes in waterbird numbers from their monitoring
- The most well represented species in the Flyway Site Network (in internationally important numbers) were the Bean Goose (29% of sites), Whimbrel (20% of sites) and White-naped Crane (20% of sites)
- A total of 271 threats to key habitats was identified at Flyway Network Sites.

Challenges identified in conducting the assessment included:

- limited availability of specific boundary information for many sites
- limited accessibility to collated waterbird count data for sites
- 55% of the waterbird monitoring at sites had not been analysed
- the difficulty of applying the threat assessment consistently when a large number of people were involved in conducting the assessment
- the difficulty of assessing conservation measures at sites.

## 1. Background

At MoP 5, Partners adopted the recommendations of the Monitoring Taskforce to:

- conduct a baseline assessment of the status of Flyway Network Sites (using BirdLife’s monitoring framework for Important Bird Areas),
- prepare an overview of the status of Flyway Network Sites based on the information from the assessment, and
- conduct the assessment as a collaboration between Wetland International and BirdLife International

This report provides an overview of the information collated on the status of the Flyway Network Sites. In most cases, the assessment provides the first updated information since sites joined the international site network – in some cases over 20 years ago.

## 2. Methods

In conducting the assessment, the Flyway Network Sites were divided by country between BirdLife International and Wetlands International (Appendix 1 and summarised in Table 1). New sites added to the Network since MoP 4 were not included in the assessment.

Table 1 Number of Sites covered by Country

Country	Number Sites	Completed
Australia	17	17
China	19	10
Indonesia	2	2
Japan	29	25
Korea, DPR	2	0
Korea, Ro	7	9
Malaysia	1	1
Mongolia	5	5
New Zealand	2	2
Papua New Guinea	1	1
Philippines, The	2	2
Russia	10	0
Singapore	1	1
Thailand	1	1
<b>Total</b>	<b>99</b>	<b>76</b>

The Site Assessment Forms were designed to collect baseline information on:

- general information in the site
- the migratory waterbirds for which the site is internationally important (the key species) and the level of monitoring of these species
- habitats (Ramsar classification) for the key species of migratory waterbirds
- threats (IUCN Threat categories) to the key habitats
- conservation measures at the site.

A sample completed Site Assessment Form is shown in Appendix 2.

Information from the completed Site Assessment Forms was collated in a spreadsheet to provide a flyway level overview.

## 3. Results

### 3.1 General comments

The assessment collected information on 76 of the then 99 Flyway Network Sites. The set of completed Site Assessment Forms total over 325 pages and have been lodged in word format with the Secretariat.

A range of issues impacted on the information compiled in the Site Assessment Forms. These are important to consider as they have implications on the analysis and conclusions that can be drawn for the assessment:

1. **Limited availability of a map of the Flyway Network Site.** This is particularly important to confirm the spatial extent of the site. It is needed to understand the relationship of the waterbird count data and the Flyway Network Site and for the habitat assessment.
2. **Limited accessibility to collated waterbird count data for sites.** In many countries there is limited site and national collation of waterbird count data. Most of the existing programs are conducted by volunteer bird watchers and coordinated on a non-funded basis by a national bird organisation. Where waterbird data is collected by site staff it would be valuable to increase the level of data sharing to a national level (and then on to the flyway level).
3. **Level of collaboration between the site managers and people conducting waterbird counts.** At many sites, the management agency lacks the time and skills to conduct waterbird surveys and depends on volunteers or researchers to provide this data. A high level of collaboration between these groups is essential if the count information is to be used to inform site management.
4. **Complexity of classification systems.** Most users appeared to have little problems with the Ramsar wetland classification system. However the threat assessment using the IUCN classification and the Important Bird Area (IBA) approach was more difficult. Ideally people need to be trained to use this method in a consistent manner (as BirdLife International has done in rolling out the IBA pilot assessment activities). Analysis of the threat assessment information has to take into account that the consistency of its use will vary with experience in using the approach, between individuals and the level of knowledge about the site.
5. **Difficulty of assessing conservation measures.** In this project a “process” approach was adopted (protected area status, management planning and conservation activities) as it was considered the most feasible. However, this approach does not assess the actual success of management activities at a site.
6. **Causes of observed changes in numbers of waterbirds at a site.** A major ongoing issue in assessing site management in relation to waterbird numbers it to know if changes are related to site management or impacts elsewhere in the flyway. Changes in waterbird numbers at a site need to be assessed in the context of broader trends for the species at the flyway level.

The analysis of Site Assessment Forms is divided into the following sections:

- General information about the site
- Key species of migratory waterbirds and their monitoring
- Threats to the habitats for migratory waterbirds
- Conservation measures

### 3.2 General information

The information collected included;

- Flyway Network Site name
- Ramsar Site name (if applicable)
- Date of the most recent Ramsar Information Sheet (if applicable)
- Important Bird Area name (if applicable)

#### Flyway Network Site names

The assessment highlight one issue in relation to the existing Flyway Network Site names used by the Partnership and this was Yancheng National Nature Reserve.

The original area nominated by the Ministry of Environmental Protection (China) to the Asia - Pacific Migratory Waterbird Conservation Committee was the Yancheng Biosphere Reserve. The Jiangsu Milu National Nature

Reserve (State Forestry Administration) is also covered in this listing as it adjoins the Yancheng National Nature Reserve. The Secretariat is encouraged to see advice from the National Government Partner for China, on the boundaries of each of the apparently three component areas (Yancheng Biosphere Reserve, Yancheng National Nature Reserve and Jiangsu Milu National Nature Reserve) and if any changes should be made to the name used by the Partnership for this site.

### **Joint Ramsar and Flyway Site Network Listing**

Approximately 60% of the Flyway Network sites are also Ramsar listed. This shows the synergy of the potential strength of the Flyway Partnership continuing to be recognised as a Ramsar Regional Initiative. National Government Partner representatives that are not also the National Focal point for the Ramsar Convention, may be better able to position the Partnership work by strengthening links with their Ramsar focal points.

### **Flyway Network Site Boundaries and Maps**

In general, details on the specific boundaries of many Flyway Network Sites is limited. Enhanced spatial information is needed on the extent and tenure of Flyway Network Sites.

Figure 1. Flyway Network Sites Assessment in North Asia (green-assessed; red – not assessed)



Figure 2. Flyway Network Sites Assessment in South East Asia

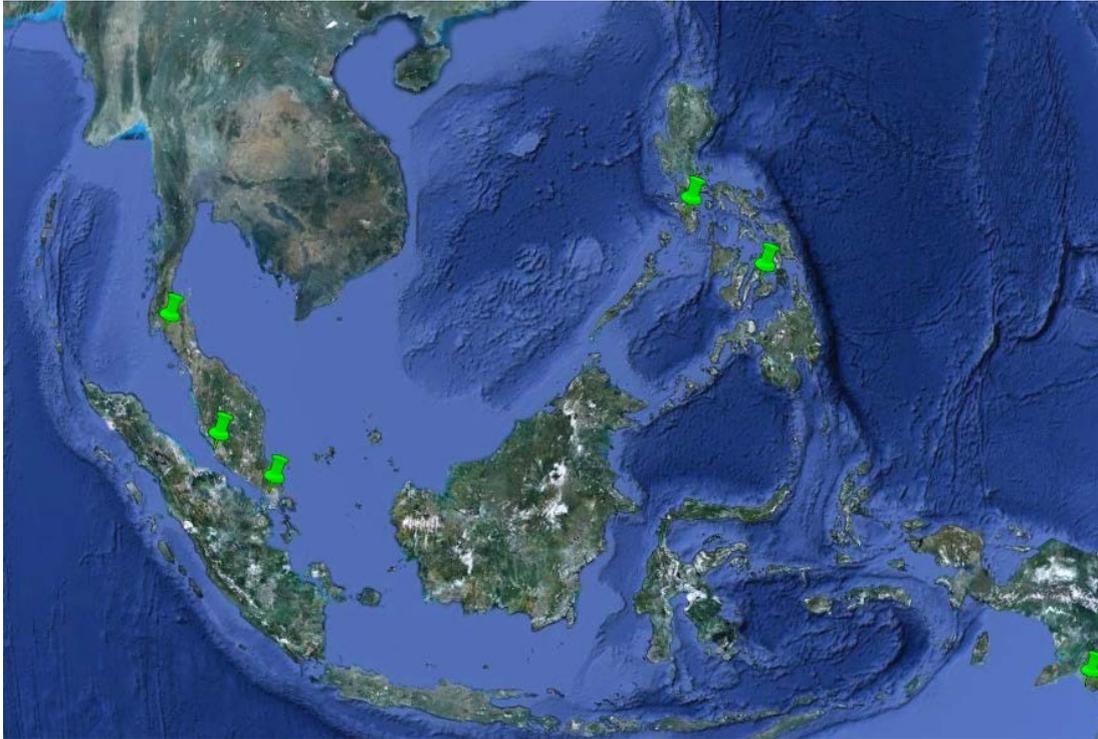
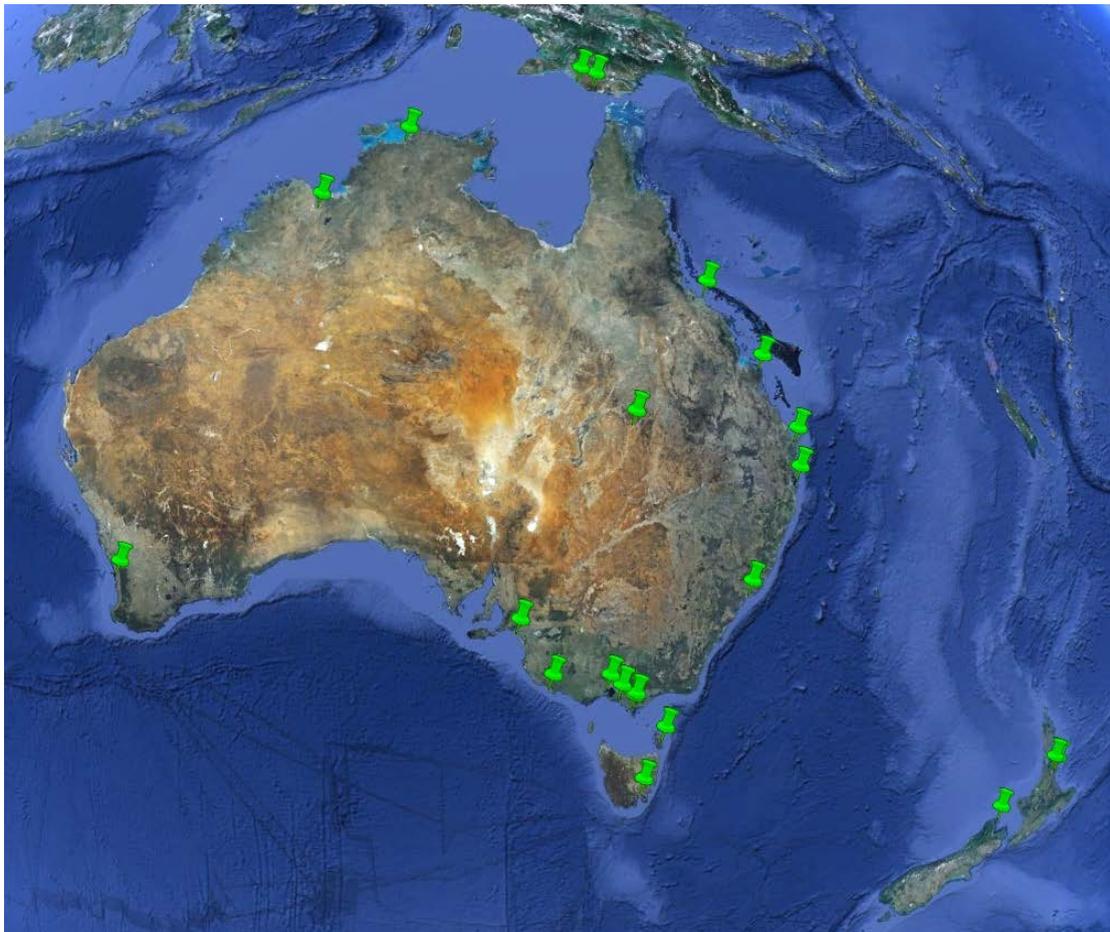


Figure 3. Flyway Network Sites Assessment in Australasia



### 3.3 Key species of migratory waterbirds and waterbird monitoring

The assessment has made a significant contribution to recognising the range of migratory species that occur in internationally important numbers at Flyway Network Sites. Across the 76 sites covered in the assessment, the total number of records of species for which the sites can be recognised as internationally important increased by 46%; from 446 to 651. The network of sites is more important than had been appreciated!

#### Referenced count information

60% of the data used to identify the site as meeting the FNS criteria was referenced in the Site Assessment Forms. This will facilitate future updates and enable checking of the information.

#### Waterbird monitoring activities and use of the data

Last 5 Years: 59% of sites were counted >10 times 17% of sites were counted 2-5 times 9% of sites were counted 6-10 times 12% unknown

How many historical counts (over 5 years ago):  
33% of sites were counted >100 times 37% of sites were counted 10 - 100 times  
18% of sites were counted 1 - 10 times  
12% unknown

Analysis of site count data:  
24% analysed  
18% partially analysed  
55% no analysis  
3% unknown

Conclusion about changes in numbers based of the analysis of site count data 49% yes  
50% no

A key point to be recognised is that considerable monitoring is happening at sites but limited amounts of this data is being contributed to national and flyway level databases. Greater waterbird count data sharing would provide a more informed understanding of changes in waterbird numbers and seasonal distribution of waterbirds.

#### Level of representation of species within the Flyway Site Network

The site assessment provides the first insight into how comprehensive the Flyway Site Network is based on the sample of 76 sites. The count data is primarily from the non-breeding and migration periods. The key points are:

- 117 species were recorded of the 204 species covered by the Partnership (Appendix 2)
- 15 species were recorded at more than 10 sites (Bean Goose (22), Whimbrel (15), White-naped Crane (15), Greater White-fronted Goose (14), Far Eastern Curlew (13), Red-necked Stint (13), Bar-tailed Godwit (12), Hooded Crane (12), Curlew Sandpiper (11), Grey-tailed Tattler (11), Ruddy Shelduck (11), Terek Sandpiper (11), Oriental (White) Stork (10), Ruddy Turnstone (10), Swan Goose (10)

A basic index of the extent to which the population of each species is supported by the network of sites was developed. It uses the percentage of the population of each key species recorded in the maximum count from each site. A comprehensive Flyway site Network would have a high representation of the population of most of the target species for the Partnership during the periods of the year that the species congregate (non-breeding and staging during migration). (The analysis showed the "representation index" ranged up to 906 (for Greater White-fronted Goose) (Appendix 3). Species with an index >100 are shown in Table 2.

Table 2 Waterbird species with a representation index >100

Anatidae	Index
Greater White-fronted Goose	906
Bean Goose	512
Spot-billed Duck	411
Baer's Pochard	326
Swan Goose	248
Baikal Teal	172
Tundra Swan	124

<b>Cranes, Storks and Spoonbills</b>	
White-naped Crane	866
Red-crowned Crane	413
Hooded Crane	130
Siberian Crane	122
Oriental (White) Stork	194
Eurasian Spoonbill	191
<b>Shorebirds</b>	
Australian Pratincole	200
Solitary Snipe	157
Spotted Redshank	128
Little Curlew	109

An index >100 means that more birds have been recorded in the sum of maximum counts than the current population estimate. Reasons for an index >100 include, the:

- time period over which the data has been collected (approx. 30 years)
- the species is highly mobile during the non-breeding period
- the habitat used by the species is highly variable between years and within the non-breeding period
- the data range used in the analysis covers a period during which the population has dramatically declined (eg. Baer's Pochard)
- birds may be counted during the non-breeding period and again during migration
- the population of the species is higher than previously estimated.

### 3.4 Major threats to the habitats of Flyway Network Sites

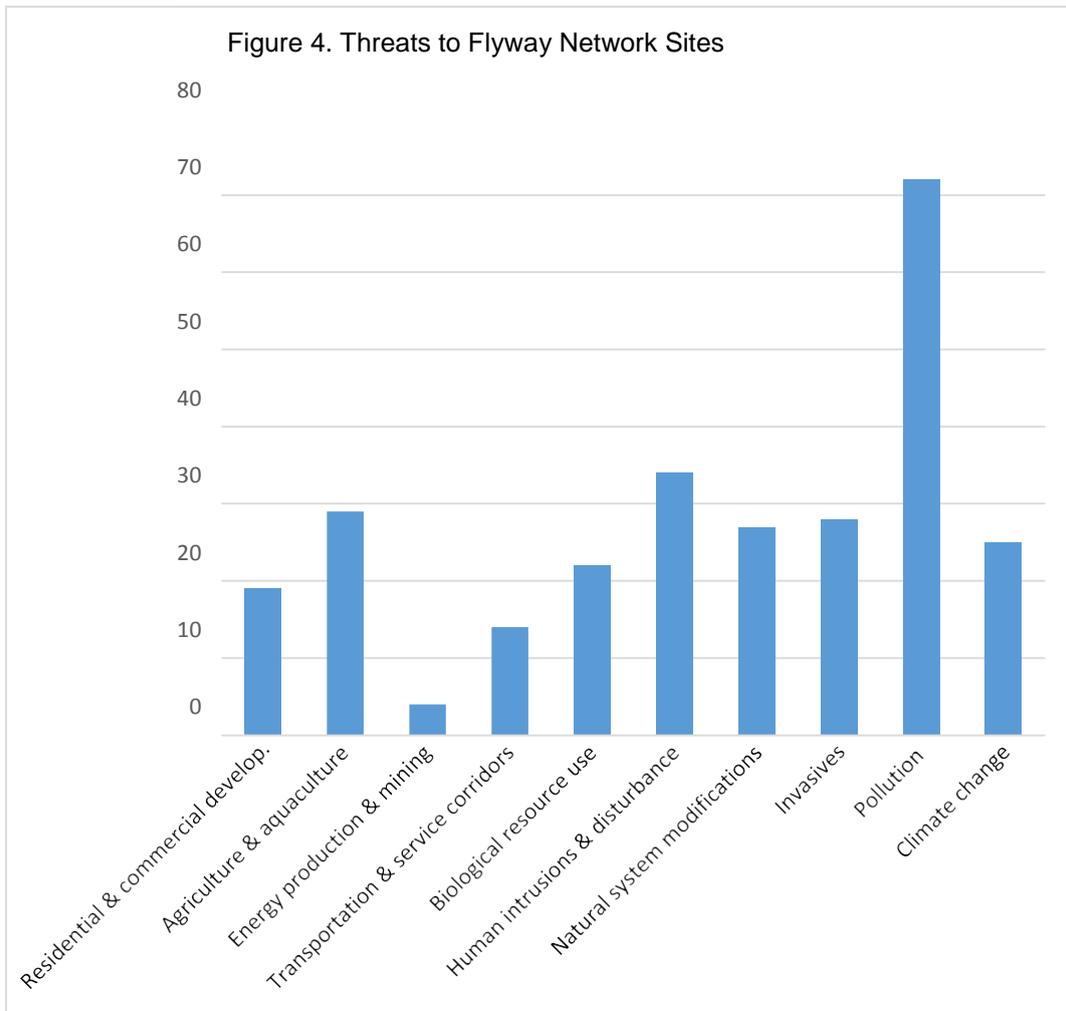
Of the site assessments conducted (67 sites), habitat classification (Ramsar) was used for 63 sites and the threat classification for 61 of the sites.

The threat assessment was conducted using the IUCN Threat Classification within the BirdLife Important Bird Area threat assessment framework. The approach requires:

- Identification of each threat (IUCN Classification)
- Identifying the key habitats (Ramsar classification) it is impacting on
- The timing of the threat (in the past, long term, near future, happening now)
- The spatial extent of the threat across the identified habitats (4 score groups)
- The severity of the potential impact of the threat on the habitats (4 score groups)

This was the most demanding element in the site assessment. It requires a high level of knowledge of the ecology of the site and a sound understanding of the application of the threat assessment framework.

A total of 271 threats were identified to habitats across 61 sites. Threats from 10 of the 11 IUCN classes were identified. The most commonly identified threat identified was pollution (Figure 4).



The highest class of severity of threat is a “>50% reduction” of the functionality of the habitat. This severity of threat, combined with it currently occurring, was identified at the following sites:

**Mongolia**

- Khurkh-Khuiten Valley (3 threats)
- Mongol Daguur Strictly Protected Area (5 threats)
- Ogii Nuur (5 threats)
- Terhiyn Tsaggan Nuur (6 threats)
- Ugtam Nature Reserve (4 threats)

**China**

- Chongming Dongtan Nature Reserve (1 threat)
- Dashangbao Black-necked Crane National Nature Reserve (1 threat)
- Poyang Hu Nature Reserve (2 threats)
- Nanjishan Wetlands Nature Reserve (1 threat)

**Thailand**

- Krabi Estuary and Bay (1 threat)

**Japan**

- Kushiro-shitsugen (2 threats)

Figure 5. Threats potentially impacting >50% of the functionality of the site

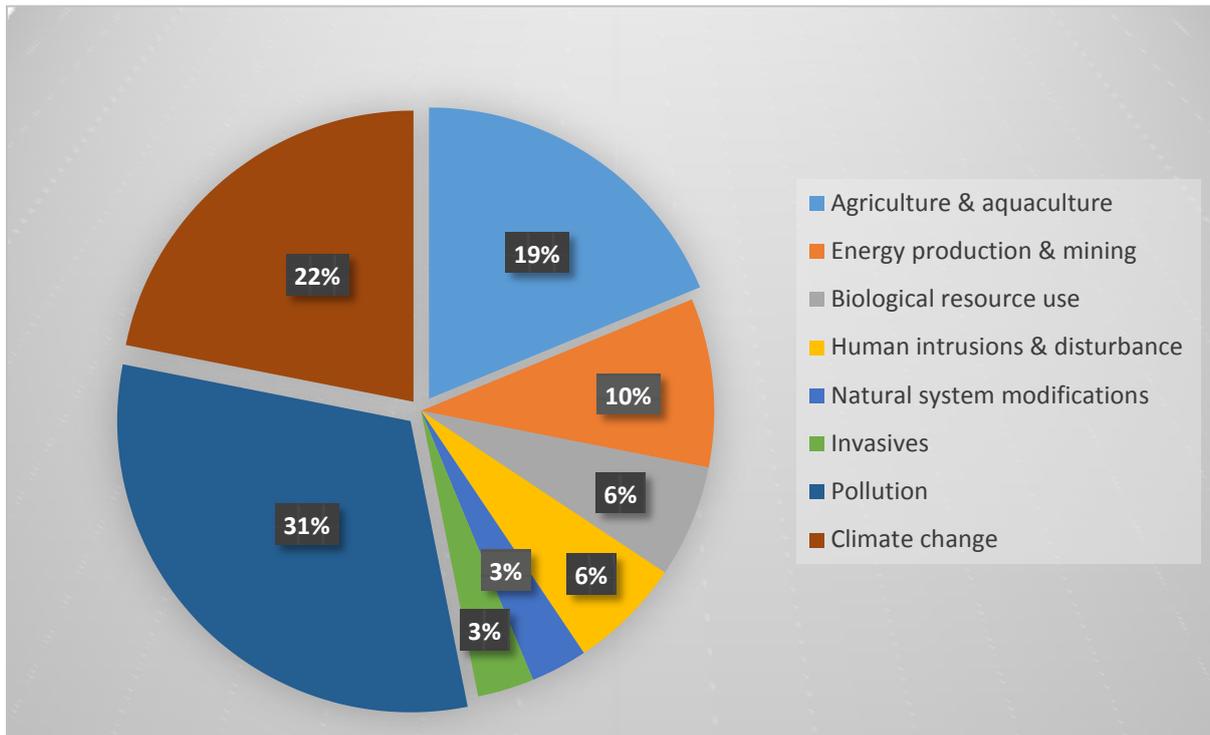


Table 3. Detailed threat types for threats potentially impacting >50% of the functionality of the site

Threat Category	Mongolia	China	Japan	Thailand
Droughts (Climate change)	5	1		
Livestock Farming & Ranching	4			
Industrial & Military Effluents	4			
Garbage & Solid Waste	4			
Mining & Quarrying	3			
Fishing & Harvesting Aquatic Resources	1	1		
Annual & perennial non-timber crops		1		
Industrial aquaculture				1
Recreational Activities		1		
Fire & Fire Suppression	1			
Problematic native species			1	
Nutrient load	1			
Agricultural & Forestry Effluents	1			
Storm and flood (Climate change)		1		

The analysis of the Site Assessment Forms suggests that the threat assessment methodology has not been applied uniformly by the range of people that were involved in completing forms. The approach is complex and the supporting materials from IUCN and BirdLife may not have been available in local languages to all of the people involved in completing the assessment forms.

The key message is that threats are site specific. Addressing threats to individual Flyway Network Sites must occur within a national and local context. The strongest role for the Partnership may be in supporting National Government Partners to develop local stakeholder planning process to access threat to sites and to plan local responses.

### 3.5 Conservation Actions

Elements in the assessment were; the legal status of the Flyway Network Site, management planning for the site, conservation activities.

The assessment found that:

- 97% of the sites were fully or partly within a protected area
- 47% were fully within a protected area
- 84% of the sites had management plans (where information was available on this)
- 50% of these management plan were current and considered comprehensive
- 95% of sites had activities for the benefit of migratory waterbirds

While these are positive signs for sites in the Flyway Site Network, Partners need to consider if the Network could be used more for non-protected areas as it is a voluntary initiative and not necessarily linked to land tenure.

## Appendix 1. Flyway Network Sites Assessed

Notes:

- WI – Wetlands International;
- BLI – BirdLife International;
- na – sites added to the Network after the commencement of the assessment.

Country	Site Name	Code	Lead	Completed
Australia	Bowling Green Bay	EAAF089	WI	Yes
Australia	Corner Inlet	EAAF009	WI	Yes
Australia	Currawinya National Park	EAAF090	WI	Yes
Australia	Discovery Bay Coastal Park	EAAF091	WI	Yes
Australia	Eight Mile Beach	EAAF110	na	
Australia	Great Sandy Strait	EAAF092	WI	Yes
Australia	Hunter Estuary Ramsar Site	EAAF010	WI	Yes
Australia	Kakadu National Park	EAAF011	WI	Yes
Australia	Logan Lagoon	EAAF012	WI	Yes
Australia	Moreton Bay	EAAF013	WI	Yes
Australia	Orielton Lagoon	EAAF014	WI	Yes
Australia	Parry Lagoons	EAAF015	WI	Yes
Australia	Port Phillip Bay (Western Shoreline) and Bellarine Peninsula	EAAF065	WI	Yes
Australia	Roebuck Bay	EAAF111	na	
Australia	Shallow Inlet	EAAF093	WI	Yes
Australia	Shoalwater Bay	EAAF094	WI	Yes
Australia	The Coorong, Lake Alexandrina & Lake Albert	EAAF016	WI	Yes
Australia	Thomsons Lake	EAAF017	WI	Yes
Australia	Western Port	EAAF066	WI	Yes
Bangladesh	Hail Haor	EAAF105	na	
Bangladesh	Hakaluki Haor	EAAF103	na	
Bangladesh	Sonadia	EAAF102	na	
Bangladesh	Tanguar Haor	EAAF104	na	
China	Anqing Yanjiang Nature Reserve	EAAF082	BLI	Yes
China	Cao Hai	EAAF067	BLI	Yes
China	Chongming Dongtan	EAAF002	BLI	Yes
China	Dalai Hu National Nature Reserve	EAAF064	BLI	Yes
China	Dashangbao Black-necked Crane National Nature Reserve	EAAF083	BLI	Yes
China	Hengshui Lake National Nature Reserve	EAAF085	BLI	No
China	Mai Po - Inner Deep Bay	EAAF003	BLI	No
China	Nandagang Wetland Nature Reserve	EAAF086	BLI	No
China	Nanjishan Wetland Nature Reserves	EAAF087	BLI	Yes
China	Poyang Hu National Nature Reserve	EAAF025	BLI	Yes
China	Sanjiang	EAAF042	BLI	No
China	Shengjin Hu	EAAF068	BLI	Yes
China	Shuangtai Hekou National Nature Reserve	EAAF004	BLI	No
China	Xiang Hai National Nature Reserve	EAAF069	BLI	No
China	Xingkai Hu National Nature Reserve	EAAF026	BLI	Yes
China	YaluJiang National Nature Reserve	EAAF043	BLI	No
China	Yancheng Biosphere Reserve	EAAF005	BLI	Yes
China	Yellow River Delta National Nature Reserve	EAAF006	BLI	No
China	Zhalong National Nature Reserve	EAAF070	BLI	No
Indonesia	Semblang National Park	EAAF108	WI	Yes
Indonesia	Wasur National Park	EAAF008	WI	Yes
Japan	Akkeshi-ko & Bekambeushi-shitsugen	EAAF029	BLI	Yes
Japan	Arao-higata	EAAF113	na	
Japan	Arasaki	EAAF030	BLI	No
Japan	Biwa-ko	EAAF047	BLI	Yes
Japan	Biwase-wan	EAAF048	BLI	Yes

Japan	Fujimae-Higata	EAAF080	BLI	Yes
Japan	Fukushimagata	EAAF049	BLI	No
Japan	Furenko and Shunkuni-tai	EAAF099	BLI	Yes
Japan	Hachirogata-Kantakuchi	EAAF088	BLI	Yes
Japan	Hyouko-suikin-koen	EAAF050	BLI	Yes
Japan	Kabukuri-numa	EAAF051	BLI	Yes
Japan	Kashima Shingomori	EAAF071	BLI	No
Japan	Katano Kamoike	EAAF052	BLI	Yes
Japan	Kejo-numa	EAAF098	BLI	Yes
Japan	Kiritappu Marsh	EAAF031	BLI	Yes
Japan	Kumagawa Estuary	EAAF081	BLI	Yes
Japan	Kushiro-shitsugen	EAAF032	BLI	Yes
Japan	Kutcharo-ko	EAAF053	BLI	No
Japan	Manko Tidal Flats	EAAF054	BLI	Yes
Japan	Miyajimanuma	EAAF055	BLI	Yes
Japan	Osaka Nankou Bird Sanctuary	EAAF076	BLI	Yes
Japan	Otomo-numa	EAAF056	BLI	Yes
Japan	Sakata	EAAF057	BLI	Yes
Japan	Shiroishi-gawa	EAAF058	BLI	Yes
Japan	Tokyo Port Wildbird Park	EAAF063	BLI	Yes
Japan	Utonai-ko	EAAF072	BLI	Yes
Japan	Yashiro	EAAF033	BLI	Yes
Japan	Yatsu Tidal Flats	EAAF059	BLI	Yes
Japan	Yonago-mizudori-kouen	EAAF060	BLI	Yes
Japan	Yoshino Estuary	EAAF061	BLI	Yes
Korea, DPR	Kumya Wetland Reserve	EAAF044	BLI	No
Korea, DPR	Mundok Wetland Reserve	EAAF045	BLI	No
Korea, Ro	Cheonsu Bay	EAAF046	WI	Yes
Korea, Ro	Cheorwon Basin	EAAF027	WI	Yes
Korea, Ro	Chilbaldo Islet	EAAF106	na	
Korea, Ro	Geum River Estuary	EAAF100	WI	Yes
Korea, Ro	Gumi Haepyeong Wetland	EAAF078	WI	Yes
Korea, Ro	Han River Estuary	EAAF028	WI	Yes
Korea, Ro	Junam Reservoir	EAAF095	WI	Yes
Korea, Ro	Nakdong Estuary	EAAF097	WI	Yes
Korea, Ro	Suncheon Bay	EAAF079	WI	Yes
Korea, Ro	Upo Wetland	EAAF096	WI	Yes
Korea, Ro	Yubu-do Tidal Flat	EAAF101	na	
Malaysia	Bako Buntal Bay	EAAF112	na	
Malaysia	Kapar Power Station Ash Ponds	EAAF077	WI	Yes
Mongolia	Khurkh-Khuiten Valley	EAAF074	BLI	Yes
Mongolia	Mongol Daguur Strictly Protected Area	EAAF024	BLI	Yes
Mongolia	Ogii Nuur	EAAF040	BLI	Yes
Mongolia	Terhiyn Tsaggan Nuur	EAAF041	BLI	Yes
Mongolia	Ugtam Nature Reserve	EAAF075	BLI	Yes
New Zealand	Farewell Spit	EAAF018	WI	Yes
New Zealand	Firth of Thames	EAAF019	WI	Yes
Papua New Guinea	Tonda Wildlife Management Area	EAAF034	WI	Yes
Philippines, The	Nauian Lake National Park	EAAF062	WI	Yes
Philippines, The	Olango Island Wildlife Sanctuary	EAAF007	WI	Yes
Russia	Biosphere Reserve and Zapovednik "Taimyrski"	EAAF035	BLI	No
Russia	Chazy Zapovednik	EAAF036	BLI	No
Russia	Daursky Nature Reserve	EAAF020	BLI	No
Russia	Khingansky Nature Reserve and Ganukan Game Reserve	EAAF021	BLI	No
Russia	Kytalyk Nature Reserve	EAAF022	BLI	No
Russia	Lake Khanka Nature Reserve	EAAF023	BLI	No
Russia	Lena Delta	EAAF037	BLI	No
Russia	Moroshechnaya Estuary	EAAF001	BLI	No
Russia	Selenga Delta in Lake Baikal	EAAF038	BLI	No
Russia	Torey Lakes	EAAF039	BLI	No
Singapore	Sungei Buloh Wetland Reserve	EAAF073	WI	Yes
Thailand	Krabi Estuary and Bay	EAAF084	BLI	Yes
USA	Yukon Delta National Wildlife Refuge	EAAF109	na	

## Appendix 2. Sample Flyway Network Site Assessment Form

### East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	The Coorong, Lake Alexandrina and Lake Albert (joined FSN 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	1. The Coorong IBA 2. Lakes Alexandrina and Albert IBA
<b>Name of Ramsar site (if listed):</b>	The Coorong and Lakes Alexandrina and Albert Wetlands (Ramsar listed in 1985)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2006 RIS update - completed during writing of the Ecological Character Description (Phillips and Muller, 2006).

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p><i>The Coorong, Lake Alexandrina and Lake Albert</i> Flyway Network Site (FNS) is defined by the boundary of "The Coorong and Lakes Alexandrina and Albert Wetlands Ramsar Site" - located at the mouth of the River Murray, about 75km south east of the city of Adelaide, South Australia. Wetlands specifically included are:</p> <ul style="list-style-type: none"> <li>• Lake Alexandrina including Tolderol, Mud Islands and Currency Creek Game Reserves, otherwise mainly Crown Lands. 76,000 ha.</li> <li>• Lake Albert. Mainly Crown Lands. 16,800 ha.</li> <li>• Coorong – mainly covering Coorong National Park and Game Reserve, otherwise mainly Crown Lands. 47,700 ha.</li> </ul> <p>The Lakes Alexandrina and Albert (the Lower Lakes) wetland systems form the mouth of the River Murray and are comprised of fresh to brackish/saline waters, connected with the Coorong. The Coorong is a shallow, saline to hypersaline, coastal lagoon system, more than 100 km in length and separated from the Southern Ocean by a narrow sand dune peninsula. The Coorong is divided by two long peninsulas into a Northern and Southern Lagoon, which contain fresh to brackish/saline waters. South of the Southern Lagoon lies a chain of shallow, ephemeral salt lakes and swampy mud flats.</p> <p>The site is one of Australia's icon wetlands supporting critically endangered, endangered, threatened and vulnerable species and ecological communities. It also supports extensive and diverse waterbird, fish and plant assemblages; reliant on its complex mosaic of wetland types. The area is a popular recreational site, while also supporting a range of commercial activities related to tourism and commercial fishing most notably. The Ngarrindjeri indigenous people have a long association with the Coorong and Lower Lakes and the site has great cultural significance for them. They retain these close links with the wetland and its biodiversity through these cultural links.</p> <p>Two IBAs overlap with the FNS. These are <i>The Lakes Alexandrina and Albert</i> IBA and <i>The Coorong</i> IBA. These two IBA's include the whole of Lake Alexandrina (76,000 ha), Lake Albert (16,800 ha) and The Coorong (49697 ha). The Coorong IBA overlaps with most of Coorong National Park, but excludes some dry parts of the park.</p>

<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>Ramsar site boundary is available at: <a href="http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#">http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#</a></li> <li>Maps of the shorebird count sites are available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a></li> </ol>
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## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

The highest count of shorebirds was in February 1982 when over 230 000 were recorded. At this time counts were made totaling 35% of the population of Sharp-tailed Sandpipers and approximately 20% of the population of Red-necked Stint and Curlew Sandpiper.

Data below are from AWSG digital database and Gosbell and Christie AWSG (2005):

Popular English Name	Scientific Name	1% Criteria	Counts	Count Dates	Reference
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	1 600	22 000 – 55 000 7 000 – 10 000	1980s 2003-2005	AWSG digital database
Red-necked Stint	<i>Calidris ruficollis</i>	3 150	54 000 – 64 000 18 000 – 46 000	1980s 2000-2005	AWSG digital database
Sanderling	<i>Calidris alba</i>	220	929 308 512 235	1982 1987 2000 2005	AWSG digital database
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	22 000 – 39 000 4 000 – 13 500	1980s 2000-2005	AWSG digital database AWSG
Common Greenshank	<i>Tringa nebularia</i>	1 000	300-500	1980-2005	AWSG digital

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

### 1.3 Are all the key populations counted?: All Some None

**If “some” please list these:**

Counting programs include, eg:

- Annual counts by AWSG.
- Monitoring and research counts by David Paton, School of Earth and Environmental Sciences, University of Adelaide, South Australia.
- Monitoring programs supported through the Living Murray Initiative and Murray Futures Program.

### 1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1    2-5    6- 10     >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10     10-100    >100

1.4.3 Contact details of organization / individual leading recent counting:

Ken Gosbell, AWSG. Email:

Maureen Christie, AWSG. Email:

David Paton, School of Earth and Environmental Sciences, University of Adelaide

1.4.4 Has the data been analysed?  yes / no / partially

- Gosbell and Christie (2005) analysed the count data obtained from the 1980s to 2005.

2. Analyses for key species recorded in the **South Lagoon, Coorong**, have been conducted to compare January 1985 numbers against mean January counts in the 8-year period 2000-2007 (Brookes *et al*2009).
3. Both of the above studies noted significant declines in numbers for 3 of the key species listed here.
4. Further analyses are being conducted by the SA Dept of Environment and Natural Resources (DENR) and projects under the “Living Murray Program”

## 1.5 Conclusions on changes in waterbird numbers

**1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?**  Yes / No

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Sharp-tailed Sandpiper	<b>Decline (63%)</b>	Brookes <i>et al</i> 2009
Red-necked Stint	<b>Decline (68%)</b>	Brookes <i>et al</i> 2009
Sanderling	<b>unknown</b>	Brookes <i>et al</i> 2009
Curlew Sandpiper	<b>Decline (94%)</b>	Brookes <i>et al</i> 2009
Common Greenshank	<b>unknown</b>	Brookes <i>et al</i> 2009

The declines in these key species and other migratory shorebirds have been significant since the mid-1980s, and particularly intensive since approximately 2000 (Gosbell & Christie 2005; Wainwright and Christie 2008; Brookes *et al* 2009). The declines in the Coorong have been far greater than evidenced elsewhere in Australia for these species (Paton 2002).

**1.6 Other comments (eg, if subjective conclusions were made about changes in populations):**

## 2. Waterbird/Habitats

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
<b>The Coorong</b>					
12.2 [E -- Sand, shingle or pebble shores] – The Coorong	1019	Sharp-tailed Sandpiper, Red-necked Stint, Sanderling, Curlew Sandpiper, Common Greenshank	0	0	Naturally dynamic; no significant changes in extent, but some threats.
12.4 [G -- Intertidal mud, sand or salt flats.] – The Coorong	2142	Sharp-tailed Sandpiper, Red-necked Stint, Sanderling, Curlew Sandpiper, Common Greenshank	0	-	Declines in quality. Extreme threats; extremely vulnerable
5.15 [R -- Seasonal/intermittent saline/brackish/alkaline lakes and flats.] – South Lagoon	1689	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	0	0	No significant changes in extent or quality. Vulnerable.

5.17 [Ss -- Seasonal/intermittent saline/brackish/alkaline marshes/pools.] – South Lagoon	985	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	0	0	No significant changes in extent or quality. Vulnerable.
<b>Lake Alexandrina and Lake Albert Wetlands</b>					
5.6 [P -- Seasonal/intermittent freshwater lakes]	120 (Lake Alexandrina)	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	-	-	Measurable declines in extent and quality. Extreme threats; highly vulnerable.
5.8 [Ts -- Seasonal/intermittent freshwater marshes/pools on inorganic soils]	941 (Lake Alexandrina)	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	-	-	Measurable declines in extent and quality. Extreme threats; vulnerable.
5.17 [Ss -- Seasonal/intermittent saline/brackish/alkaline marshes/pools.] - (Lake Alexandrina)	304	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	-	-	Measurable declines in extent and quality. Threatened and vulnerable.
5.7 [Tp -- Permanent freshwater marshes/pools]	958 (Lake Albert)	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	0	-	Declines in quality. Threatened and extremely vulnerable
5.3 [W -- Shrub-dominated wetlands]	2715	Shorebirds use only part of this total habitat area	0	0	No significant declines in extent or quality, but receive threats.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown(?)

2.2 Other comments (including if changes to habitat between FSN listing and now):

N/A

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type  (as identified in the section above)	Timing  In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent  0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity  0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7. Natural System Modifications</b> 7.2. Dams & water management/use 7.2.1 Abstraction of surface water (domestic use) 7.2.2 Abstraction of surface water (commercial use) 7.2.3 Abstraction of surface water (agricultural use) 7.2.7 Abstraction of ground water (agricultural use) 7.2.9 Small dams	G,P, Ts, Ss, Tp, W	3	2	1

7.2.10 Large dams				
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents 9.3.1 Nutrient loads 9.3.2 Soil erosion, sedimentation 9.3.3 Herbicides and pesticides Soil acidification from prolonged drying of wetland areas.	G,P, Ts, Ss, Tp	3	2	1
<b>6 Human intrusions &amp; disturbance</b> 6.1 Recreational activities	E; and direct on shorebirds	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (increased access to waterbird breeding and roost sites by foxes and pigs)	Direct on shorebirds	3	2	1

### 3.2 Other comments on threats (including management actions to address threats):

- The threats to the site overall are numerous, but are primarily driven by altered hydrological regimes and exacerbated by prolonged drought.
- Loss of the natural flow regime has had a huge impact. The natural longitudinal salinity gradient of the lagoons has been absent in recent years, reflecting the long period of limited exchange of water with barrage inflows and high evaporation in the South Lagoon. Prolonged drying of wetland areas has also resulted in soil acidification and its subsequent consequences.
- Management of direct threats to migratory waterbirds within the site includes signs and other local education about importance of maintaining habitat and protection for waterbirds.
- Surrounding lands are predominantly leasehold lands used for grazing sheep and cattle and for horticulture, and as such require cooperative management to address threats associated with these activities.
- Upstream harvesting of water and any other activity that reduces flow through the Murray-Darling catchment must be regulated to ensure regular natural floods in the wetland. Management of river catchments that could affect hydrology and ecology of the site requires cooperative arrangements between the state and federal governments and several industry and community stakeholders.
- Flushing of water in the Coorong is essential to limit the creation of hypersaline conditions. Such conditions have a major impact of migratory shorebirds.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Sharp-tailed Sandpiper				X
Red-necked Stint				X
Sanderling		X		
Curlew Sandpiper				X
Common Greenshank				x

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 34%. All of the Shorebird habitat in the Coorong portion is protected within the Coorong National Park. The Lakes Alexandrina and Albert are Crown land and as such receive some protection. Both Lakes and The Coorong receive some levels of protection under Australia's Environment Protection and Biodiversity Conservation Act (EPBC Act 1999)

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** Yes

1. *Coorong and Lakes Alexandrina and Albert Ramsar Management Plan 2000* (DEH 2000) – **Note:** A revision of the Ramsar Management Plan commenced in 2008 (Phillips *et al* 2008).
2. *Securing the Future, Long-Term Plan for the Coorong, Lower Lakes and Murray Mouth* (DEH 2010)
3. A management plan for the Coorong National Park, 1988.

**Is the Management Plan current?** Yes, but due for review

**Is it comprehensive?** Yes

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- In addition to the Ramsar site management plan, management of the site is influenced by numerous planning and policy initiatives at international, national, state, regional and local levels. Some larger initiatives include:
  - The Living Murray Initiative (Accessed 2011-11-08 at: <http://mdba.gov.au/programs/tlm>)
  - Murray Futures Program (Accessed 2011-11-08 at <http://www.waterforgood.sa.gov.au/rivers-reservoirs-aquifers/murray-futures/>)
  - "Securing the Future, Long-Term Plan for the Coorong, Lower Lakes and Murray Mouth" (DEH 2010)
- The 20-year *Securing the Future Long-Term Plan for the CLLMM* aims to introduce more variable water levels and build resilience in the region's environment, to help the site to recover from unprecedented low water levels, salinity and acidification and adapt to changing conditions.
- Major research and funding programs (on system hydrology and other environmental drivers) across a range of government, industry and community areas.
- Hydrological modelling, real-time management, emergency response and remediation programs.
- Habitat restoration to help ameliorate water quality problems (eg, restoration of riparian and lake fringe habitat zones).
- Education and awareness – on importance of maintaining habitat and protection for waterbirds; eg, visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.
- Restricted visitor access to some important waterbird breeding areas.
- Monitoring of migratory shorebirds is conducted primarily by the Australasian Wader Studies Group.

## 5. REFERENCES

AWSG digital database

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### Appendix 3. Listing of maximum counts for species meeting the criteria at Flyway Network Sites

Site #	Site Name	Country	Species	1% Criteria (WP5)	Max Count	% pop	Count Date(s)	Reference
EAAF108	Sembilang National Park	IDN	Asian Dowitcher	230	13 000	56.5	Nov-88	Verheugt et al, 1990
EAAF005	Yancheng Biosphere Reserve	CHN	Asian Dowitcher	230	945	4.1		Barter 2002
EAAF077	Kapar Power Station Ash Ponds	MAL	Asian Dowitcher	230	1	1.0	1/15/2005	Li <i>et al</i> 2006
EAAF007	Olango Island Wildlife Sanctuary	PHL	Asian Dowitcher	230	93	0.4	Nov-89	Magsalay et al 1989b
EAAF011	Kakadu National Park	AUS	Australian Pratincole	250	30 000	120.0	1980's	Morton et al 1991
EAAF034	Tonda Wildlife Management Area	PNG	Australian Pratincole	250	20 000	80.0	Jul-82	Finch et al. 1982
EAAF087	Poyang & Nanji NNR	CHN	Baer's Pochard	3	600	200.0	2004	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Baer's Pochard	3	330	110.0		AWC
EAAF068	Shengjin Hu	CHN	Baer's Pochard	3	27	10.8	1990	AWC
EAAF083	Dashangbao	CHN	Baer's Pochard	3	15	5.0	1992	AWC
EAAF046	Cheonsu Bay	KOR	Baikal Teal	5 000	61 100	12.2	Jan-97	Li et al (2009)
EAAF079	Suncheon Bay	KOR	Baikal Teal	5 000	30 000	6.0	Apr10-Mar11	Suncheon-si (2011)
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Baikal Teal	5 000	9 000	1.8	Feb-10	Cao 2013
EAAF002	Chongming Dongtan	CHN	Baikal Teal	5 000	8 000	1.6		
EAAF068	Shengjin Hu	CHN	Baikal Teal	5 000		1.0		
EAAF097	Nakdong Estuary	KOR	Baikal Teal	5 000		1.0		
EAAF096	Upo Wetland	KOR	Baikal Teal	5 000	1 500	0.3	Nov-00	?
EAAF100	Geum River Estuary	KOR	Baikal Teal	5 000	740 004	148.0	Jan-07	SIS
EAAF041	Terhiyn Tsaggan Nuur	MNG	Bar-headed Goose	72	2 600	36.1		
EAAF068	Cao Hai	CHN	Bar-headed Goose	72	2 540	35.3	2007	unknown
EAAF108	Sembilang National Park	IDN	Bar-tailed Godwit	2 790	30 000	10.8	1/1/1996	A Directory of Asian Wetlands
EAAF092	Great Sandy Strait	AUS	Bar-tailed Godwit	2 790	17 992	6.4	1/15/2001	Driscoll & Cross 2003
EAAF018	Farewell Spit	NZL	Bar-tailed Godwit	2 790	17 181	6.2	?	Sagar et al 1999
EAAF009	Corner Inlet	AUS	Bar-tailed Godwit	2 790	13 139	4.7	Jan-93	AWSG database
EAAF013	Moreton Bay	AUS	Bar-tailed Godwit	2 790	12 986	4.7	Jan-93	Driscoll 1996
EAAF019	Firth of Thames	NZL	Bar-tailed Godwit	2 790	8 867	3.2	2006	OSNZ census data
EAAF028	Han River Estuary	KOR	Bar-tailed Godwit	2 790	8 000	2.9	01-May-00	Scott 1989
EAAF094	Shoalwater Bay	AUS	Bar-tailed Godwit	2 790	5 077	1.8	Dec-95	Driscoll 1996
EAAF010	Hunter Estuary Ramsar Site	AUS	Bar-tailed Godwit	2 790	5 000	1.8	1983-1998	Herbert 2007

EAAF005	Yancheng Biosphere Reserve	CHN	Bar-tailed Godwit	2 790	2 984	1.1		Barter et al. 2002
EAAF089	Bowling Green Bay	AUS	Bar-tailed Godwit	2 790	2 103	0.8	12/13/1996	Harrison (1997)
EAAF046	Cheonsu Bay	KOR	Bar-tailed Godwit	2 790	1 752	0.6	15-Apr-98	Moore 1999
EAAF028	Han River Estuary	KOR	Bean Goose	850	34 909	41.1	winter 2009	NIBR 2009
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Bean Goose	850	29 820	35.1	2005	unknown
EAAF087	Poyang & Nanji NNR	CHN	Bean Goose	850	16 340	19.2	2005	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Bean Goose	850	3 772	4.4		AWC
EAAF027	Xingkai Hu	CHN	Bean Goose	850	3 000	3.5	1988spring	Li et al. 1994
EAAF074	Khurkh-Khuiten Valley	MNG	Bean Goose	850	1 934	2.3		
EAAF100	Geum River Estuary	KOR	Bean Goose	850	66 425	78.1	Jan-10	MoE, NIBR (2010)
EAAF049	Fuikushimagata	JAP	Bean Goose	72	5 000	69.4		
EAAF055	Miyajimanuma	JAP	Bean Goose	72	5 000	69.4		
EAAF046	Cheonsu Bay	KOR	Bean Goose	850	28 524	33.6	2005	unknown
EAAF072	Utonai-ko	JAP	Bean Goose	72	2 000	27.8		Miyabayashi 1994
EAAF098	Kejo-numa	JAP	Bean Goose	72	1 891	26.3	2010	
EAAF051	Kabukuri-numa	JAP	Bean Goose	72	1 600	22.2		
EAAF057	Sakata	JAP	Bean Goose	72	1 500	20.8		
EAAF099	Furenko and Shunkuni-tai	JAP	Bean Goose	72	1 495	20.8		
EAAF032	Kushiro-shitsugen	JAP	Bean Goose	72	950	13.2		
EAAF055	Miyajimanuma	JAP	Bean Goose	72	600	8.3		
EAAF032	Kushiro-shitsugen	JAP	Bean Goose	72	500	6.9		
EAAF096	Upo Wetland	KOR	Bean Goose	850	5 569	6.6	Dec-07	?
EAAF068	Shengjin Hu	CHN	Bean Goose	870	30 125	1.0	Dec-09	Cao 2013
EAAF060	Yonago-mizudori-kouen	JAP	Bean Goose	72		1.0		
EAAF095	Junam Reservoir	KOR	Bean Goose	850	578	0.7	Jan-10	MoE, NIBR (2010)
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Bewick's Swan	920	9 200	10.0		
EAAF053	Kutcharo-ko	JAP	Bewick's Swan	920	6 000	6.5		
EAAF049	Fuikushimagata	JAP	Bewick's Swan	920	5 000	5.4		
EAAF057	Sakata	JAP	Bewick's Swan	920	3 000	3.3		
EAAF068	Shengjin Hu	CHN	Bewick's Swan	920		1.0		
EAAF087	Poyang & Nanji NNR	CHN	Black Stork	1	32	32.0	2005	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Black Stork	1	18	18.0	2004	
EAAF068	Shengjin Hu	CHN	Black Stork	1	17	17.0	2004	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Black Stork	1	4	4.0		AWC

EAAF074	Khurkh-Khuiten Valley	MNG	Black Stork	1	15	15.0		
EAAF024	Mongol Daguur SPA	MNG	Black Stork	1		1.0		
EAAF040	Ogii Nuur	MNG	Black Stork	1		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Black Stork	1		1.0		
EAAF075	Ugtam Nature Reserve	MNG	Black Stork	1		1.0		
EAAF002	Chongming Dongtan	CHN	Black-faced Spoonbill	18	62	3.4		
EAAF005	Yancheng Biosphere Reserve	CHN	Black-faced Spoonbill	18	37	2.1		AWC
EAAF095	Junam Reservoir	KOR	Black-faced Spoonbill	18		1.0		
EAAF079	Suncheon Bay	KOR	Black-faced Spoonbill	18	8	0.4	Apr10-Mar11	Suncheon-si (2011)
EAAF096	Upo Wetland	KOR	Black-faced Spoonbill	18	4	0.2	Nov-07	?
EAAF097	Nakdong Estuary	KOR	Black-faced Spoonbill	18	1	0.1	Jan-10	MoE, NIBR (2010)
EAAF087	Poyang & Nanji NNR	CHN	Black-headed Gull	1 000	18 245	18.2		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Black-headed Gull	1 000	9 737	9.7		AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Black-headed Gull	1 000	5 266	5.3	Dec-09	Cao 2013
EAAF067	Yatsu Tidal Flats	JAP	Black-headed Gull	1 000	3 339	3.3		AWC
EAAF068	Shengjin Hu	CHN	Black-headed Gull	1 000	2 105	2.1	Nov-10	Cao 2013
EAAF080	Fujimae-Higata	JAP	Black-headed Gull	1 000	1 683	1.7		AWC
EAAF099	Furenko and Shunkuni-tai	JAP	Black-necked Grebe	100	1 052	10.5		
EAAF108	Sembilang National Park	IDN	Black-tailed Godwit	1 390	30 000	21.6	1995	Silvius 1988
EAAF087	Poyang & Nanji NNR	CHN	Black-tailed Godwit	1 390	13 260	9.5	Jan-11	Cao 2013
EAAF028	Han River Estuary	KOR	Black-tailed Godwit	1 390	10 500	7.6	01-May-00	Scott 1989
EAAF010	Hunter Estuary Ramsar Site	AUS	Black-tailed Godwit	1 390	4 000	2.9		Smith 1991 cited in Bamford et. al 2008
EAAF046	Cheonsu Bay	KOR	Black-tailed Godwit	1 390	3 935	2.8	12-May-96	Lee 1997
EAAF089	Bowling Green Bay	AUS	Black-tailed Godwit	1 390	2 058	1.5	12/13/1996	Harrison (1997)
EAAF005	Yancheng Biosphere Reserve	CHN	Black-tailed Godwit	1 390	1 686	1.2		Wang 1997
EAAF005	Yancheng Biosphere Reserve	CHN	Black-winged Stilt	250	482	1.9		Barter 2002
EAAF059	Yatsu Tidal Flats	JAP	Black-winged Stilt	250		1.0		
EAAF099	Furenko and Shunkuni-tai	JAP	Brant Goose	25	698	27.9		
EAAF031	Kiritapu	JAP	Brant Goose	25		1.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Broad-billed Sandpiper	250	1 476	5.9		AWC
EAAF087	Poyang & Nanji NNR	CHN	Caspian Tern	100	300	3.0	1988	AWC
EAAF011	Corner Inlet	AUS	Caspian Tern	100	151	1.5	Jan-87	AWSG database
EAAF007	Olango Island Wildlife Sanctuary	PHL	Chinese Egret	30	172	5.7	Nov-89	Magsalay et al 1989b
EAAF046	Cheonsu Bay	KOR	Chinese Egret	30	74	2.5	ca. 1999	

EAAF097	Nakdong Estuary	KOR	Chinese Egret	30		1.0		
EAAF079	Suncheon Bay	KOR	Chinese Egret	30		1.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Common Coot	1 000	44 694	44.7		AWC
EAAF087	Poyang & Nanji NNR	CHN	Common Coot	1,000	6 404	6.4		AWC
EAAF068	Shengjin Hu	CHN	Common Coot	1,000	2 560	2.6		AWC
EAAF087	Poyang & Nanji NNR	CHN	Common Crane	100	1 361	13.6	2007	AWC
EAAF068	Cao Hai	CHN	Common Crane	100	938	9.4	2007	unknown
EAAF005	Yancheng Biosphere Reserve	CHN	Common Crane	100	6 000	60.0		Wang Hui pers. com. (Oct 2011)
EAAF074	Khurkh-Khuiten Valley	MNG	Common Crane	100	361	3.6		
EAAF024	Mongol Daguur SPA	MNG	Common Crane	100		1.0		
EAAF028	Xingkai Hu	CHN	Common Goldeneye	1 000	11 000	11.0	-	Scott 1989
EAAF099	Furenko and Shunkuni-tai	JAP	Common Goldeneye	1 000	1 517	1.5	1986-92	Abe et al. 1995
EAAF040	Ogii Nuur	MNG	Common Goldeneye	1 000		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Common Goldeneye	1 000		1.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Common Greenshank	1 000	2 325	2.3		Wang 1997
EAAF087	Poyang & Nanji NNR	CHN	Common Greenshank	1 000	2 000	2.0	23-Jan-88	WI 2002
EAAF092	Great Sandy Strait	AUS	Common Greenshank	1 000	1 069	1.1	1/1/1990	Driscoll 1990
EAAF046	Cheonsu Bay	KOR	Common Greenshank	1 000	963	1.0	12-May-96	Lee 1997
EAAF077	Kapar Power Station Ash Ponds	MAL	Common Greenshank	1 000	840	0.8	4/6/1992	Sebastian et al, 1993
EAAF079	Suncheon Bay	KOR	Common Greenshank	1 000	797	0.8	Apr10-Mar11	Suncheon-si (2011)
EAAF016	The Coorong +	AUS	Common Greenshank	1 000	500	0.5	1980-2005	AWSG digital database
EAAF073	Sungei Buloh Wetland Reserve	SGP	Common Greenshank	1 000	280	0.3	Feb-05	
EAAF005	Yancheng Biosphere Reserve	CHN	Common Merganser	500	5 612	11.2		AWC
EAAF068	Cao Hai	CHN	Common Merganser	500	2 000	4	win1990/91	AWC
EAAF028	Han River Estuary	KOR	Common Merganser	500	1 810	3.6	2005	unknown
EAAF041	Terhiyn Tsaggan Nuur	MNG	Common Merganser	500		1.0		
EAAF028	Han River Estuary	KOR	Common Pochard	3 000	35 570	11.9		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Common Pochard	3 000	3 432	1.1		AWC
EAAF060	Yonago-mizudori-kouen	JAP	Common Pochard	3 000		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Common Pochard	3 000		1.0		
EAAF108	Sembilang National Park	IDN	Common Redshank	250	6 000	24.0	1/1/1996	A Directory of Asian Wetlands
EAAF087	Poyang & Nanji NNR	CHN	Common Redshank	250	3 000	12.0	23-Jan-88	WI 2002
EAAF005	Yancheng Biosphere Reserve	CHN	Common Redshank	250	1 944	7.8		WI 2002
EAAF068	Shengjin Hu	CHN	Common Redshank	250	904	3.6	Jan-04	Cao 2013

EAAF007	Olango Island Wildlife Sanctuary	PHL	Common Redshank	250	900	3.6	Mar-89	Magsalay et al 1989b
EAAF073	Sungei Buloh Wetland Reserve	SGP	Common Redshank	250	683	2.7	Sep-00	Gan 2002
EAAF077	Kapar Power Station Ash Ponds	MAL	Common Redshank	250	3 214	2.3	Jan-08	Bakewell 2009
EAAF005	Yancheng Biosphere Reserve	CHN	Common Sandpiper	500	1 546	3.1		Wang 1997
EAAF011	Kakadu National Park	AUS	Common Sandpiper	500	300	0.6	1980's	Morton et al 1991
EAAF005	Yancheng Biosphere Reserve	CHN	Common Shelduck	1 000	6 889	6.9		AWC
EAAF068	Cao Hai	CHN	Common Shelduck	1 250	2 000	1.6	win1990/91	AWC
EAAF087	Poyang & Nanji NNR	CHN	Common Shelduck	1 250	2 000	1.6	win1987/88	AWC
EAAF097	Nakdong Estuary	KOR	Common Shelduck	1 250	1 731	1.4	Jan-10	MoE, NIBR (2010)
EAAF079	Suncheon Bay	KOR	Common Shelduck	1 250	1 720	1.4	Apr10-Mar11	Suncheon-si (2011)
EAAF087	Poyang & Nanji NNR	CHN	Common Snipe	1 000	3 900	3.9	23-Jan-88	WI 2002
EAAF029	Xingkai Hu	CHN	Common Teal	6 000	50 000	8.3	-	Scott 1989
EAAF087	Poyang & Nanji NNR	CHN	Common Teal	6 000	19 757	3.3	2005	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Common Teal	6 000	10 161	1.7	2004	unknown
EAAF068	Shengjin Hu	CHN	Common Teal	6 000		1.0		
EAAF084	Krabi Estuary and Bay	THA	Common Tern	250	2 000	8.0		
EAAF012	Corner Inlet	AUS	Common Tern	100	250	2.5	Jan-08	AWSG database
EAAF016	The Coorong +	AUS	Curlew Sandpiper	1 350	39 000	28.9	1980s	AWSG digital database
EAAF065	Port Phillip Bay +	AUS	Curlew Sandpiper	1 350	13 323	9.9	SM, 1980's	AWSG database
EAAF009	Corner Inlet	AUS	Curlew Sandpiper	1 350	6 940	5.1	Feb-92	AWSG database
EAAF013	Moreton Bay	AUS	Curlew Sandpiper	1 350	5 229	3.9	Jan-96	AWSG 2003
EAAF010	Hunter Estuary Ramsar Site	AUS	Curlew Sandpiper	1 350	4 000	3.0	(no date)	Smith 1991
EAAF093	Shallow Inlet	AUS	Curlew Sandpiper	1 350	3 500	2.6	1-Feb-87	AWSG database 2003
EAAF017	Thompsons Lake	AUS	Curlew Sandpiper	1 350	2 500	1.9	NB 1983	AWSG digital database
EAAF066	Western Port	AUS	Curlew Sandpiper	1 350	2 500	1.9	1983	AWSG digital database
EAAF012	Logan Lagoon	AUS	Curlew Sandpiper	1 350	2 470	1.8	Mar-84	Bamford et al. 2008
EAAF077	Kapar Power Station Ash Ponds	MAL	Curlew Sandpiper	1 350	2 290	1.7	10/27/1991	Lane & Mundkur, 1992
EAAF073	Sungei Buloh Wetland Reserve	SGP	Curlew Sandpiper	1 350	972	0.7	Nov-99	Gan 2002
EAAF087	Poyang & Nanji NNR	CHN	Dalmatian Pelican	1	24	24.0	1988	AWC
EAAF068	Shengjin Hu	CHN	Dalmatian Pelican	1	2	4.0	2007	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Dalmatian Pelican	1	3	3.0		AWC
EAAF040	Ogii Nuur	MNG	Dalmatian Pelican	1		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Dalmatian Pelican	1		1.0		
EAAF074	Khurkh-Khuiten Valley	MNG	Demoiselle Crane	700	1 000	1.4		

EAAF066	Western Port	AUS	Double-banded Plover	500	1 172	2.3	?	Loyn et al. 2002
EAAF065	Port Phillip Bay +	AUS	Double-banded Plover	500	955	1.9	NB	AWSG database
EAAF009	Corner Inlet	AUS	Double-banded Plover	500	800	1.6	NB	AWSG database
EAAF093	Shallow Inlet	AUS	Double-banded Plover	500	597	1.2	17-Jun-89	AWSG database 2003
EAAF014	Orielton Lagoon	AUS	Double-banded Plover	500	290	0.6	NB 1988	Birds Tasmania database (unpubl.)
EAAF018	Farewell Spit	NZL	Double-banded Plover	500	1 442	2.9	Pre1994	Sagar et al 1999
EAAF005	Yancheng Biosphere Reserve	CHN	Dunlin	5 000	57 867	11.6		Barter et al. 2002
EAAF087	Poyang & Nanji NNR	CHN	Dunlin	5 500	58 487	10.6	2007	AWC
EAAF002	Chongming Dongtan	CHN	Dunlin	5 500	47 500	8.6		
EAAF028	Han River Estuary	KOR	Dunlin	5 500	16 400	3.0	01-May-00	Scott 1989
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Dunlin	5 500	10 709	1.9	Feb-05	Cao 2013
EAAF080	Fujimae-Higata	JAP	Dunlin	3,530	5 740	1.6		AWC
EAAF068	Shengjin Hu	CHN	Dunlin	5 500		1.0		
EAAF067	Yatsu Tidal Flats	JAP	Dunlin	5 500	2 518	1.0		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Eurasian Curlew	1 000	13 136	13.1		Barter 2004
EAAF108	Sembilang National Park	IDN	Eurasian Curlew	1 000	7 061	7.1	Oct-88	Verheugt et al, 1990
EAAF077	Kapar Power Station Ash Ponds	MAL	Eurasian Curlew	1 000	4 900	4.9	Dec-08	Bakewell 2009
EAAF097	Nakdong Estuary	KOR	Eurasian Curlew	1 000	867	0.9	Jan-10	MoE, NIBR (2010)
EAAF005	Yancheng Biosphere Reserve	CHN	Eurasian Oystercatcher	50	200	4.0		Scott 1989
EAAF087	Poyang & Nanji NNR	CHN	Eurasian Spoonbill	100	15 601	156.0	2001	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Eurasian Spoonbill	100	1 691	16.9	Dec-09	Cao 2013
EAAF068	Shengjin Hu	CHN	Eurasian Spoonbill	100	1 672	16.7	2007	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Eurasian Spoonbill	100	122	1.2		AWC
EAAF068	Shengjin Hu	CHN	Eurasian Wigeon	5,000	17 800	3.6	2006	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Eurasian Wigeon	5 000	15 680	3.1		AWC
EAAF099	Furenko and Shunkuni-tai	JAP	Eurasian Wigeon	5 000	13 645	2.7		
EAAF087	Poyang & Nanji NNR	CHN	Eurasian Wigeon	5 000	8 000	1.6	win1987/88	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Eurasian Woodcock	250	520	2.1		WI 2002
EAAF087	Poyang & Nanji NNR	CHN	Falcated Duck	780	30 000	38.5	win1987/88	AWC
EAAF030	Xingkai Hu	CHN	Falcated Duck	780	9 000	11.5	-	Scott 1989
EAAF068	Shengjin Hu	CHN	Falcated Duck	780	7 365	9.4	Feb-09	Cao 2013
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Falcated Duck	780	6 450	8.3	Feb-10	Cao 2013
EAAF099	Furenko and Shunkuni-tai	JAP	Falcated Duck	780	6 077	7.8		
EAAF005	Yancheng Biosphere Reserve	CHN	Falcated Duck	780	3 316	4.3		AWC

EAAF096	Upo Wetland	KOR	Falcated Duck	780	2 700	3.5	Oct-00	?
EAAF095	Junam Reservoir	KOR	Falcated Duck	780	63	1.0	Jan-10	MoE, NIBR (2010)
EAAF092	Great Sandy Strait	AUS	Far Eastern Curlew	320	6 018	18.8	1/1/1990	Driscoll 1990
EAAF013	Moreton Bay	AUS	Far Eastern Curlew	320	3 500	10.9	Jan-96	AWSG 2003
EAAF094	Shoalwater Bay	AUS	Far Eastern Curlew	320	2 844	8.9	Dec-95	Driscoll 1996
EAAF108	Sembilang National Park	IDN	Far Eastern Curlew	320	2 620	8.2	Oct-88	Verheugt et al, 1990
EAAF009	Corner Inlet	AUS	Far Eastern Curlew	320	2 281	7.1	Jan-93	AWSG database
EAAF005	Yancheng Biosphere Reserve	CHN	Far Eastern Curlew	320	1 718	5.4		Wang 1997
EAAF010	Hunter Estuary Ramsar Site	AUS	Far Eastern Curlew	320	900	2.8	2000	Straw 2000
EAAF066	Western Port	AUS	Far Eastern Curlew	320	872	2.7	2001-2006	AWSG digital database
EAAF065	Port Phillip Bay +	AUS	Far Eastern Curlew	320	808	2.5	NB 1986	AWSG database
EAAF093	Shallow Inlet	AUS	Far Eastern Curlew	320	622	1.9	12-Feb-83	AWSG database 2003
EAAF079	Suncheon Bay	KOR	Far Eastern Curlew	320	96	0.3	Apr10-Mar11	Suncheon-si (2011)
EAAF097	Nakdong Estuary	KOR	Far Eastern Curlew	320	89	0.3	Sep-10	Shorebird Network Korea (2010)
EAAF002	Chongming Dongtan	CHN	Far Eastern Curlew	320	650	2.0		
EAAF068	Cao Hai	CHN	Ferruginous Duck	1000	2 000	2	win1992/93	WSGCOA 1994
EAAF046	Cheonsu Bay	KOR	Gadwall	5000	12 000	2.4	win1989/90	AWC
EAAF087	Poyang & Nanji NNR	CHN	Garganey	1 000	30 000	30.0	win1987/88	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Garganey	1 000	2 157	2.2		AWC
EAAF080	Fujimae-Higata	JAP	Great Cormorant	250	3 534	14.1		AWC
EAAF087	Poyang & Nanji NNR	CHN	Great Cormorant	250	1 353	5.4	2003	AWC
EAAF068	Shengjin Hu	CHN	Great Cormorant	250	1 043	4.2	Feb-08	Cao 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Great Cormorant	250	699	2.8		AWC
EAAF024	Mongol Daguur SPA	MNG	Great Cormorant	250		1.0		
EAAF040	Ogii Nuur	MNG	Great Cormorant	250		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Great Cormorant	250		1.0		
EAAF046	Cheonsu Bay	KOR	Great Crested Grebe	250	1 103	4.4	1998	
EAAF087	Poyang & Nanji NNR	CHN	Great Crested Grebe	250	682	2.7	2005	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Great Crested Grebe	250	647	2.6	2004	
EAAF068	Shengjin Hu	CHN	Great Crested Grebe	250	304	1.2	Feb-09	Cao 2013
EAAF074	Khurkh-Khuiten Valley	MNG	Great Crested Grebe	250	250	1.0		
EAAF024	Mongol Daguur SPA	MNG	Great Crested Grebe	250		1.0		
EAAF040	Ogii Nuur	MNG	Great Crested Grebe	250		1.0		
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Great Egret	100	1 548	15.5	Dec-09	Cao 2013

EAAF068	Shengjin Hu	CHN	Great Egret	100	572	5.7	Feb-09	Cao 2013
EAAF046	Cheonsu Bay	KOR	Great Egret	100	445	4.5	win2009	NIBR 2009
EAAF028	Han River Estuary	KOR	Great Knot	2 900	7 700	2.7	01-May-00	Scott 1989
EAAF002	Chongming Dongtan	CHN	Great Knot	2 900	5 761	2.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Great Knot	2 900	3 271	1.1		AWC
EAAF077	Kapar Power Station Ash Ponds	MAL	Greater Sand Plover	790	2 500	3.2	Jan-08	Bakewell 2009
EAAF108	Sembilang National Park	IDN	Greater Sand Plover	790	2 000	2.5	SM	A Directory of Asian Wetlands. Verheugt et al, 1990
EAAF007	Olango Island Wildlife Sanctuary	PHL	Greater Sand Plover	790	2 000	2.5	Mar-89	Magsalay et al 1989b
EAAF084	Krabi Estuary and Bay	THA	Greater Sand Plover	790	300	0.4	Apr-04	John Howes
EAAF099	Furenko and Shunkuni-tai	JAP	Greater Scaup	2 000	18 370	9.2		
EAAF080	Fujimae-Higata	JAP	Greater Scaup	2,000	3 264	1.6		AWC
EAAF087	Poyang & Nanji NNR	CHN	Greater White-fronted	180	110 000	611.1	2007	AWC
EAAF068	Shengjin Hu	CHN	Greater White-fronted	180	11 796	65.5	Dec-09	Cao 2013
EAAF051	Kabukuri-numa	JAP	Greater White-fronted	1 750	100 000	57.1		
EAAF072	Utonai-ko	JAP	Greater White-fronted	1 750	98 000	56.0		Miyabayashi 1994
EAAF028	Han River Estuary	KOR	Greater White-fronted	700	13 055	18.7	2005	unknown
EAAF078	Gumi Haepyeong Wetland	KOR	Greater White-fronted	700	12 415	17.7	2006	AWC
EAAF046	Cheonsu Bay	KOR	Greater White-fronted	700	9 800	14.0	2006	unknown
EAAF100	Geum River Estuary	KOR	Greater White-fronted	700	6 965	10.0	Jan-03	SIS
EAAF098	Kejo-numa	JAP	Greater White-fronted	1 750	16 936	9.7	2010	
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Greater White-fronted	180	392	2.2	Dec-09	Cao 2013
EAAF052	Katano-kamoike	JAP	Greater White-fronted	1 750	3 505	2.0	10/2/2011	
EAAF060	Yonago-mizudori-kouen	JAP	Greater White-fronted	1 750		1.0		
EAAF027	Cheorwon Basin	KOR	Greater White-fronted	700	469	0.7	Jan-10	MoE, NIBR (2010)
EAAF055	Miyajimanuma	JAP	Greater White-fronted	1 750	70 000	40.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Green Sandpiper	250	1 115	4.5		WI 2002
EAAF068	Shengjin Hu	CHN	Green Sandpiper	250		1.0		
EAAF087	Poyang & Nanji NNR	CHN	Grey Heron	1 000	8 757	8.8		AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Grey Heron	1 000	1 630	1.6	Dec-09	Cao 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Grey Heron	1 000	1 283	1.3		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Grey Plover	1 040	5 295	5.1		Barter et al. 2002
EAAF028	Han River Estuary	KOR	Grey Plover	1 040	2 100	2.0	01-May-00	Scott 1989
EAAF060	Yatsu Tidal Flats	JAP	Grey Plover	1 040		1.0		
EAAF007	Olango Island Wildlife Sanctuary	PHL	Grey Plover	1 040	956	0.9	Oct-89	Magsalay et al 1989b

EAAF077	Kapar Power Station Ash Ponds	MAL	Grey Plover	1 040	1 000	0.8	3/26/2001	Siti, 2003
EAAF087	Poyang & Nanji NNR	CHN	Grey-headed Lapwing	250	1 700	6.8		
EAAF005	Yancheng Biosphere Reserve	CHN	Grey-headed Lapwing	250	542	2.2		Wang 1997
EAAF068	Shengjin Hu	CHN	Grey-headed Lapwing	250		1.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Greylag Goose	500	3 600	7.2		AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Greylag Goose	500	1 700	3.4	2005	unknown
EAAF087	Poyang & Nanji NNR	CHN	Greylag Goose	500	1 500	3.0		AWC
EAAF031	Xingkai Hu	CHN	Greylag Goose	500	1 000	2.0	spring1988	Li et al. 1994
EAAF092	Great Sandy Strait	AUS	Grey-tailed Tattler	440	7 680	17.5	1/1/1990	Driscoll 1990
EAAF013	Moreton Bay	AUS	Grey-tailed Tattler	440	3 736	8.5	Dec-89	Driscoll 1991
EAAF094	Shoalwater Bay	AUS	Grey-tailed Tattler	440	3 014	6.9	Dec-95	Driscoll 1996
EAAF109	Furenko and Shunkuni-tai	JAP	Grey-tailed Tattler	440	2 240	5.1		
EAAF099	Furenko and Shunkuni-tai	JAP	Grey-tailed Tattler	440	2 240	5.1		
EAAF080	Fujimae-Higata	JAP	Grey-tailed Tattler	440	512	1.2	24-May-91	EAJ 1997
EAAF064	Yatsu Tidal Flats	JAP	Grey-tailed Tattler	440	336	0.8	9/15/2001	WWF Japan 2002a
EAAF081	Kumagawa Estuary	JAP	Grey-tailed Tattler	440	321	0.7	10-May-89	EAJ 1997
EAAF079	Suncheon Bay	KOR	Grey-tailed Tattler	440	292	0.7	Apr10-Mar11	Suncheon-si (2011)
EAAF076	Osaka Nankou Bird Sanctuary	JAP	Grey-tailed Tattler	440	119	0.3	15/08/2001	
EAAF067	Yatsu Tidal Flats	JAP	Grey-tailed Tattler	440	336	0.8	15-Sep-01	WWF Japan 2002a
EAAF028	Han River Estuary	KOR	Herring Gull	570	3 197	5.6		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Herring Gull	570	3 056	5.4		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Herring Gull	570	1 152	2.0		AWC
EAAF068	Shengjin Hu	CHN	Herring Gull	570	800	1.4		AWC
EAAF024	Mongol Daguur SPA	MNG	Herring Gull	570		1.0		
EAAF040	Ogii Nuur	MNG	Herring Gull	570		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Herring Gull	570		1.0		
EAAF087	Poyang & Nanji NNR	CHN	Hooded Crane	11	590	53.6	1997	AWC
EAAF068	Shengjin Hu	CHN	Hooded Crane	11	462	42.0	1994	AWC
EAAF002	Chongming Dongtan	CHN	Hooded Crane	11	120	10.9		
EAAF078	Gumi Haepyung Wetland	KOR	Hooded Crane	105	760	7.2	Oct-11	Wetlands & Birds Korea (2011)
EAAF079	Suncheon Bay	KOR	Hooded Crane	105	509	4.8	Apr10-Mar11	Suncheon-si (2011)
EAAF024	Mongol Daguur SPA	MNG	Hooded Crane	105	400	3.8		
EAAF026	Xingkai Hu	CHN	Hooded Crane	11	40	3.6	2007	

EAAF074	Khurkh-Khuiten Valley	MNG	Hooded Crane	105		1.0		
EAAF075	Ugtam Nature Reserve	MNG	Hooded Crane	105		1.0		
EAAF096	Upo Wetland	KOR	Hooded Crane	105	39	0.4	Oct-00	?
EAAF033	Yashiro	JAP	Hooded Crane	105	30	0.3		
EAAF097	Nakdong Estuary	KOR	Hooded Crane	105	1	1.0		
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Hooded Cranes	11	450	40.9		
EAAF068	Shengjin Hu	CHN	Intermediate Egret	250	1 000	4.0	2002	
EAAF002	Chongming Dongtan	CHN	Kentish Plover	1 000	7 270	7.3		
EAAF005	Yancheng Biosphere Reserve	CHN	Kentish Plover	1 000	4 890	4.9		Wang 1997
EAAF087	Poyang & Nanji NNR	CHN	Kentish Plover	1 000	1 729	1.7	12-Dec-88	WI 2002
EAAF061	Yatsu Tidal Flats	JAP	Kentish Plover	1 000	1 424	1.4	9/18/1988	EAJ 1997
EAAF076	Osaka Nankou Bird Sanctuary	JAP	Kentish Plover	1 000	700	0.7	29/03/2001	
EAAF097	Nakdong Estuary	KOR	Kentish Plover	1 000	414	0.4	Sep-10	Shorebird Network Korea (2010)
EAAF046	Cheonsu Bay	KOR	Kentish Plover	1 000	318	0.3	12-May-96	Lee 1997
EAAF067	Yatsu Tidal Flats	JAP	Kentish Plover	1 000	1 424	1.4	18-Sep-88	EAJ 1997
EAAF084	Krabi Estuary and Bay	THA	Kentish Plover	1 000	300	0.3	Mar-04	John Howes
EAAF084	Krabi Estuary and Bay	THA	Lesser Crested Tern	250	1 200	4.8		
EAAF028	Han River Estuary	KOR	Lesser Sand Plover	355	3 500	9.9	01-May-00	Scott 1989
EAAF108	Sembilang National Park	IDN	Lesser Sand Plover	1 500	9 460	6.3	NB	A Directory of Asian Wetlands. Silvius et al 1986
EAAF007	Olango Island Wildlife Sanctuary	PHL	Lesser Sand Plover	355	1 940	5.5	Oct-89	Magsalay et al 1989b
EAAF092	Great Sandy Strait	AUS	Lesser Sand Plover	355	1 630	4.6	Feb-95	Driscoll 1998
EAAF077	Kapar Power Station Ash Ponds	MAL	Lesser Sand Plover	1 500	4 000	2.7	Dec-08	Bakewell 2009
EAAF005	Yancheng Biosphere Reserve	CHN	Lesser Sand Plover	1 200	1 787	1.5		Wang 1997
EAAF073	Sungei Buloh Wetland Reserve	SGP	Lesser Sand Plover	1 500	1 003	0.7	Jan-00	Gan 2002
EAAF062	Yatsu Tidal Flats	JAP	Lesser Sand Plover	1 330	372	0.3	4/29/1992	EAJ 1997
EAAF067	Yatsu Tidal Flats	JAP	Lesser Sand Plover	355	372	1.0	29-Apr-92	EAJ 1997
EAAF008	Wasur National Park	IDN	Lesser Sandplover	355	3 130	8.8		
EAAF002	Chongming Dongtan	CHN	Lesser Sandplover	355	1 790	5.0		
EAAF013	Moreton Bay	AUS	Lesser Sandplover	355	1 770	5.0	Jan-93	Lane & Davies 1987
EAAF084	Krabi Estuary and Bay	THA	Lesser Sandplover	1 500	3 571	2.4	Mar-04	John Howes
EAAF010	Corner Inlet	AUS	Lesser Sandplover	355	243	0.7	Jan-92	AWSG database
EAAF111	Furenko and Shunkuni-tai	JAP	Lesser Sandplover	355	242	0.7		
EAAF099	Furenko and Shunkuni-tai	JAP	Lesser Sandplover	355	242	0.7		

EAAF010	Hunter Estuary Ramsar Site	AUS	Lesser Sandplover	355	180	0.5	Feb-84	AWSG Database
EAAF087	Poyang & Nanji NNR	CHN	Lesser White-fronted	250	9 790	39.2	win1988/89	AWC
EAAF032	Xingkai Hu	CHN	Lesser White-fronted	250	7 500	30.0	spring1988	Li et al. 1994
EAAF068	Shengjin Hu	CHN	Lesser White-fronted	250	529	2.1	Feb-10	Cao 2013
EAAF011	Kakadu National Park	AUS	Little Curlew	1 800	180 000	100.0	Nov-87	Bamford 1988
EAAF034	Tonda Wildlife Management Area	PNG	Little Curlew	1 800	10 000	5.6	11/16/1985	Hicks 1985
EAAF008	Wasur National Park	IDN	Little Curlew	1 800	4 000	2.2		
EAAF015	Parry Lagoons	AUS	Little Curlew	1 800	3 000	1.7	NB 1988	Jaensch 1989
EAAF068	Shengjin Hu	CHN	Little Egret	250	500	2.0		AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Little Grebe	1000	1 595	1.6	Feb-04	Cao 2013
EAAF087	Poyang & Nanji NNR	CHN	Little Grebe	1 000	1 423	1.4		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Little Ringed Plover	250	4 658	18.6		Wang 1997
EAAF002	Chongming Dongtan	CHN	Little Ringed Plover	250	300	1.2		
EAAF076	Osaka Nankou Bird Sanctuary	JAP	Little Ringed Plover	250	198	0.8	2/11/1998	
EAAF013	Corner Inlet	AUS	Little Tern	100	322	3.2	Jan-87	AWSG database
EAAF068	Shengjin Hu	CHN	Long-billed Plover	1	8	8.0		AWC
EAAF087	Poyang & Nanji NNR	CHN	Long-billed Plover	1	4	4.0		AWC
EAAF078	Gumi Haepyeong Wetland	KOR	Long-billed Plover	1	4	4.0		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Long-toed Stint	250	1 167	4.7		Wang 1997
EAAF033	Xingkai Hu	CHN	Mallard	15 000	100 000	6.7	-	Scott 1989
EAAF046	Cheonsu Bay	KOR	Mallard	15 000	94 800	6.3	win1994/95	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Mallard	15 000	30 100	2.0		AWC
EAAF068	Cao Hai	CHN	Mallard	15 000	30 000	2.0	win1992/93	WSGCOA 1994
EAAF087	Poyang & Nanji NNR	CHN	Mallard	15 000	30 000	2.0	winter1987/88	AWC
EAAF100	Geum River Estuary	KOR	Mallard	15 000	28 252	1.9	Jan-02	SIS
EAAF028	Han River Estuary	KOR	Mallard	15 000	16 075	1.1	win1992/93	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Mandarin Duck	200	1 744	8.7		AWC
EAAF078	Gumi Haepyeong Wetland	KOR	Mandarin Duck	30	146	4.9	2006	AWC
EAAF034	Xingkai Hu	CHN	Mandarin Duck	200	256	1.3	1996spring	Li et al. 1998
EAAF005	Yancheng Biosphere Reserve	CHN	Marsh Sandpiper	1 000	9 026	9.0		Barter et al. 2002
EAAF011	Kakadu National Park	AUS	Marsh Sandpiper	1 000	1 600	1.6	Apr-92	Chatto 2003
EAAF073	Sungei Buloh Wetland Reserve	SGP	Marsh Sandpiper	1 000	486	0.5	Dec-01	<a href="http://www.sbnp.org/Wetlands/text/02-4-1-8.htm">http://www.sbnp.org/Wetlands/text/02-4-1-8.htm</a>
EAAF077	Kapar Power Station Ash Ponds	MAL	Marsh Sandpiper	1 000	250	0.3	10/25/1998	Siti, 2003

EAAF002	Chongming Dongtan	CHN	Marsh Sandpiper	1 000	1 640	1.6		
EAAF072	Utonai-ko	JAP	Mute Swan	10	17	1.7		AWC
EAAF084	Krabi Estuary and Bay	THA	Nordmann's Greenshank	4	40	10.0	Dec-96	E.T. Myers
EAAF077	Kapar Power Station Ash Ponds	MAL	Nordmann's Greenshank	4	35	8.8	Dec-08	Bakewell 2009
EAAF097	Nakdong Estuary	KOR	Nordmann's Greenshank	4	1	0.3	Sep-10	Shorebird Network Korea (2010)
EAAF079	Suncheon Bay	KOR	Nordmann's Greenshank	4	1	0.3	Apr10-Mar11	Suncheon-si (2011)
EAAF087	Poyang & Nanji NNR	CHN	Northern Lapwing	1 000	8 000	8.0		Scott 1989
EAAF068	Shengjin Hu	CHN	Northern Lapwing	1 000	2 000	2.0		AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Northern Lapwing	1 000	1 203	1.2	Dec-09	Cao 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Northern Lapwing	1 000	1 202	1.2		WI 2002
EAAF024	Mongol Daguur SPA	MNG	Northern Lapwing	1 000		1.0		
EAAF040	Ogii Nuur	MNG	Northern Lapwing	1 000		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Northern Lapwing	1 000		1.0		
EAAF035	Xingkai Hu	CHN	Northern Pintail	2,000	32 000	16.0	-	Scott 1989
EAAF087	Poyang & Nanji NNR	CHN	Northern Pintail	2,000	30 000	15.0	win1987/88	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Northern Pintail	2 000	18 770	9.4		AWC
EAAF046	Cheonsu Bay	KOR	Northern Pintail	2,000	11 102	5.6	1993-1996	Kim et al. 1996
EAAF099	Furenko and Shunkuni-tai	JAP	Northern Pintail	2,000	6 365	3.2		
EAAF080	Fujimae-Higata	JAP	Northern Pintail	2,000	6 124	3.1		AWC
EAAF068	Shengjin Hu	CHN	Northern Pintail	2,000	5 550	2.8	2006	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Northern Pintail	2,000	2 402	1.2	Feb-10	Cao 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Northern Shoveler	5 000	14 326	2.9		AWC
EAAF087	Poyang & Nanji NNR	CHN	Northern Shoveler	5 000	7 000	1.4	win1987/88	AWC
EAAF087	Poyang & Nanji NNR	CHN	Oriental (White) Stork	30	4 544	151.5	Jan-11	Cao 2013
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Oriental (White) Stork	30	513	17.1	Dec-09	Cao 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Oriental (White) Stork	30	269	9.0		AWC
EAAF068	Shengjin Hu	CHN	Oriental (White) Stork	30	250	8.3	1989	AWC
EAAF026	Xingkai Hu	CHN	Oriental (White) Stork	30	96	3.2	2011	
EAAF042	Sanjiang	CHN	Oriental (White) Stork	30		1.0		
EAAF095	Junam Reservoir	KOR	Oriental (White) Stork	30		1.0		
EAAF096	Upo Wetland	KOR	Oriental (White) Stork	30	1	1.0	Dec-04	?
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Oriental (White) Stork	30		1.0		
EAAF087	Poyang & Nanji NNR	CHN	Oriental (White) Stork	30		1.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Oriental Plover	1 450	1 717	1.2		Wang 1997

EAAF073	Sungei Buloh Wetland Reserve	SGP	Pacific Golden Plover	1 000	2 000	2.0	Jan-05	
EAAF010	Hunter Estuary Ramsar Site	AUS	Pacific Golden Plover	1 000	800	0.8	Feb-84	AWSG Database
EAAF013	Moreton Bay	AUS	Pacific Golden Plover	1 000	2 163	2.2	Jan-93	Hewish, 1999
EAAF068	Shengjin Hu	CHN	Pheasant-tailed Jacana	1 000		1.0		
EAAF087	Poyang & Nanji NNR	CHN	Pied Avocet	1 000	15 760	15.8	01-Feb-04	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Pied Avocet	1 000	9 174	9.2	Feb-05	Cao 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Pied Avocet	1 000	1 498	1.5		WI 2002
EAAF068	Shengjin Hu	CHN	Pied Avocet	1 000	1 221	1.2	Feb-11	Cao 2013
EAAF024	Mongol Daguur SPA	MNG	Pied Avocet	1 000		1.0		
EAAF040	Ogii Nuur	MNG	Pied Avocet	1 000		1.0		
EAAF087	Poyang & Nanji NNR	CHN	Pintail Snipe	250	4 800	19.2	23-Jan-88	WI 2002
EAAF005	Yancheng Biosphere Reserve	CHN	Pintail Snipe	250	1 114	4.5		WI 2002
EAAF073	Sungei Buloh Wetland Reserve	SGP	Purple Heron	100	130	1.3		AWC
EAAF018	Farewell Spit	NZL	Red Knot	990	24 227	24.5	Pre1994	Sagar et al 1999
EAAF019	Firth of Thames	NZL	Red Knot	990	7 780	7.9	2002	OSNZ census data
EAAF005	Yancheng Biosphere Reserve	CHN	Red Knot	990	3 169	3.2		Barter 2002
EAAF009	Corner Inlet	AUS	Red Knot	990	7 110	7.2	Jan-87	AWSG database
EAAF099	Furenko and Shunkuni-tai	JAP	Red-breasted Merganser	250	1 782	7.1		
EAAF005	Yancheng Biosphere Reserve	CHN	Red-crowned Crane	4	1 128	282.0	1999	Wang Hui pers. com. (Oct 2011)
EAAF027	Cheorwon Basin	KOR	Red-crowned Crane	11	882	80.2	Jan-10	MoE, NIBR (2010)
EAAF026	Xingkai Hu	CHN	Red-crowned Crane	4	193	48.3	2007	
EAAF095	Junam Reservoir	KOR	Red-crowned Crane	11		1.0		
EAAF042	Sanjiang	CHN	Red-crowned Crane	4		1.0		
EAAF074	Khurkh-Khuiten Valley	MNG	Red-crowned Crane	11		1.0		
EAAF099	Furenko and Shunkuni-tai	JAP	Red-necked Phalarope	1000	1 000	1.0	1-Sep-85	Mundkur 1993
EAAF016	The Coorong +	AUS	Red-necked Stint	3 150	64 000	20.3	1980s	AWSG digital database
EAAF065	Port Phillip Bay +	AUS	Red-necked Stint	3 150	24 552	7.8	NB	Skewes 2002
EAAF009	Corner Inlet	AUS	Red-necked Stint	3 150	22 720	7.2	Feb-01	AWSG database
EAAF005	Yancheng Biosphere Reserve	CHN	Red-necked Stint	3 150	10 073	3.2		Barter et al. 2002
EAAF066	Western Port	AUS	Red-necked Stint	3 150	8 903	2.8	2001-2006	AWSG digital database
EAAF093	Shallow Inlet	AUS	Red-necked Stint	3 150	5 421	1.7	12-Feb-83	AWSG database 2003
EAAF089	Bowling Green Bay	AUS	Red-necked Stint	3 150	4 598	1.5	8/31/1999	Birds Australia database
EAAF012	Logan Lagoon	AUS	Red-necked Stint	3 150	4 000	1.3	Feb-99	Bamford et al. 2008

EAAF007	Olango Island Wildlife Sanctuary	PHL	Red-necked Stint	3 150	3 000	1.0	Mar-89	Magsalay et al 1989b
EAAF099	Furenko and Shunkuni-tai	JAP	Red-necked Stint	3 150	2 712	0.9	1-May-00	WWF Japan 2002c
EAAF080	Fujimae-Higata	JAP	Red-necked Stint	3 150	2 474	0.8	20-Aug-89	EAJ 1997
EAAF028	Han River Estuary	KOR	Red-necked Stint	3 150	2 400	0.8	01-May-00	Scott 1989
EAAF076	Osaka Nankou Bird Sanctuary	JAP	Red-necked Stint	3 150	1 450	0.5	11/5/2001	
EAAF005	Yancheng Biosphere Reserve	CHN	Relict Gull	120	438	3.7		AWC
EAAF097	Nakdong Estuary	KOR	Relict Gull	120		1.0		
EAAF079	Suncheon Bay	KOR	Relict Gull	120	1	1.0	Apr10-Mar11	Suncheon-si (2011)
EAAF040	Ogii Nuur	MNG	Relict Gull	120		1.0		
EAAF068	Cao Hai	CHN	Ruddy Shelduck	500	20 000	40.0	win1992/93	AWC
EAAF087	Poyang & Nanji NNR	CHN	Ruddy Shelduck	500	6 175	12.4		AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Ruddy Shelduck	500	2 277	4.6		AWC
EAAF028	Han River Estuary	KOR	Ruddy Shelduck	500	1 692	3.4	2005	unknown
EAAF083	Dashangbao	CHN	Ruddy Shelduck	500	800	1.6	win1991/92	AWC
EAAF046	Cheonsu Bay	KOR	Ruddy Shelduck	500	767	1.5	win1995/96	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Ruddy Shelduck	500	674	1.3	Feb-04	Cao 2013
EAAF074	Khurkh-Khuiten Valley	MNG	Ruddy Shelduck	500	1 570	3.1		
EAAF024	Mongol Daguur SPA	MNG	Ruddy Shelduck	500		1.0		
EAAF040	Ogii Nuur	MNG	Ruddy Shelduck	500		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Ruddy Shelduck	500		1.0		
EAAF018	Farewell Spit	NZL	Ruddy Turnstone	285	1 792	6.3	Pre1994	Sagar et al 1999
EAAF110	Furenko and Shunkuni-tai	JAP	Ruddy Turnstone	285	1 253	4.4		
EAAF099	Furenko and Shunkuni-tai	JAP	Ruddy Turnstone	285	1 253	4.4		
EAAF005	Yancheng Biosphere Reserve	CHN	Ruddy Turnstone	285	919	3.2		Wang 1997
EAAF108	Sembilang National Park	IDN	Ruddy Turnstone	285	560	2.0	Oct-88	Verheugt et al, 1990
EAAF010	Hunter Estuary Ramsar Site	AUS	Ruddy Turnstone	285	520	1.8	Feb-86	AWSG Database
EAAF065	Port Phillip Bay +	AUS	Ruddy Turnstone	285	293	1.0	NB 1990	
EAAF065	Yatsu Tidal Flats	JAP	Ruddy Turnstone	285	243	0.9	5/1/2001	WWF Japan 2002a
EAAF007	Olango Island Wildlife Sanctuary	PHL	Ruddy Turnstone	285	215	0.8	Mar-89	Magsalay et al 1989b
EAAF067	Yatsu Tidal Flats	JAP	Ruddy Turnstone	285	243	0.9	01-May-01	WWF Japan 2002a
EAAF005	Yancheng Biosphere Reserve	CHN	Sanderling	220	3 095	14.1		Wang 1997
EAAF091	Discovery Bay Coastal Park	AUS	Sanderling	220	2 000	9.1	2006	Christie 2006
EAAF016	The Coorong +	AUS	Sanderling	220	929	4.2	1982	AWSG digital database

EAAF093	Shallow Inlet	AUS	Sanderling	220	769	3.5	1-Feb-99	State (DSE) database
EAAF005	Yancheng Biosphere Reserve	CHN	Saunders's Gull	71	4 000	56.3		Wang Hui pers. com. (Oct 2011)
EAAF079	Suncheon Bay	KOR	Saunders's Gull	71	740	10.4	Apr10-Mar11	Suncheon-si (2011)
EAAF046	Cheonsu Bay	KOR	Saunders's Gull	71	120	1.7	2002	
EAAF097	Nakdong Estuary	KOR	Saunders's Gull	71	118	1.7	Jan-10	MoE, NIBR (2010)
EAAF081	Kumagawa Estuary	JAP	Saunders's Gull	71	81	1.1	2007	AWC
EAAF016	The Coorong +	AUS	Sharp-tailed Sandpiper	1 600	55 000	34.4	1980s	AWSG digital database
EAAF065	Port Phillip Bay +	AUS	Sharp-tailed Sandpiper	1 600	5 971	3.7	NB	AWSG database
EAAF011	Kakadu National Park	AUS	Sharp-tailed Sandpiper	1 600	4 900	3.1	Apr-92	Chatto 2003
EAAF005	Yancheng Biosphere Reserve	CHN	Sharp-tailed Sandpiper	1 600	3 125	2.0		Barter et al. 2002
EAAF090	Currawinya National Park	AUS	Sharp-tailed Sandpiper	1 600	2 000	1.3	2/5/1983	AWSG (digital database)
EAAF087	Poyang & Nanji NNR	CHN	Siberian Crane	32	3 750	117.2	win2000	BirdLife Int. 2013
EAAF068	Shengjin Hu	CHN	Siberian Crane	32	66	2.1	1994	unknown
EAAF074	Khurkh-Khuiten Valley	MNG	Siberian Crane	32		1.0		
EAAF040	Ogii Nuur	MNG	Siberian Crane	32		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Siberian Crane	32		1.0		
EAAF046	Cheonsu Bay	KOR	Smew	250	743	3.0	win1991/92	AWC
EAAF028	Han River Estuary	KOR	Smew	250	454	1.8	win1994/95	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Smew	250	400	1.6	2004	unknown
EAAF068	Shengjin Hu	CHN	Smew	250	302	1.2	2006	AWC
EAAF027	Cheorwon Basin	KOR	Snow Goose	28		1.0	Jan-10	MoE, NIBR (2010)
EAAF046	Cheonsu Bay	KOR	Snow Goose	28	1	1.0	2005	unknown
EAAF087	Poyang & Nanji NNR	CHN	Snow Goose	28	4	0.1	win1990/91	AWC
EAAF028	Han River Estuary	KOR	Snow Goose	28	3	0.1	2003	unknown
EAAF005	Yancheng Biosphere Reserve	CHN	Solitary Snipe	1	157	157.0		WI 2002
EAAF002	Chongming Dongtan	CHN	Spoon-billed Sandpiper	1	54	27.0		
EAAF005	Yancheng Biosphere Reserve	CHN	Spoon-billed Sandpiper	1	18	18.0		AWC
EAAF097	Nakdong Estuary	KOR	Spoon-billed Sandpiper	1	3	3.0	Sep-10	Shorebird Network Korea (2010)
EAAF079	Suncheon Bay	KOR	Spoon-billed Sandpiper	1		1.0		
EAAF077	Kapar Power Station Ash Ponds	MAL	Spoon-billed Sandpiper	1	1	1.0	12/28/2008	Bakewell 2009
EAAF087	Poyang & Nanji NNR	CHN	Spot-billed Duck	100	23 584	235.8	win1988/89	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Spot-billed Duck	100	8 996	90.0		AWC
EAAF068	Shengjin Hu	CHN	Spot-billed Duck	100	3 862	38.6		AWC

EAAF028	Han River Estuary	KOR	Spot-billed Duck	100	2 814	28.1		AWC
EAAF078	Gumi Haepyeong Wetland	KOR	Spot-billed Duck	100	1 110	11.1		AWC
EAAF080	Fujimae-Higata	JAP	Spot-billed Duck	100	763	7.6		AWC
EAAF028	Han River Estuary	KOR	Spotted Greenshank	4	79	19.8	01-May-00	Scott 1989
EAAF005	Yancheng Biosphere Reserve	CHN	Spotted Greenshank	4	35	8.8		Wang 1997
EAAF108	Sembilang National Park	IDN	Spotted Greenshank	4	21	5.3	Dec-88	Verheugt et al, 1990
EAAF087	Poyang & Nanji NNR	CHN	Spotted Redshank	250	18 000	72.0		WI-BLI 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Spotted Redshank	250	7 150	28.6		Wang 1997
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Spotted Redshank	250	5 583	22.3	01-Feb-04	Barter et al. 2004
EAAF068	Shengjin Hu	CHN	Spotted Redshank	250	1 301	5.2	Dec-09	Cao 2013
EAAF087	Poyang & Nanji NNR	CHN	Swan Goose	600	76 531	127.6	Jan-11	Cao 2013
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Swan Goose	600	26 398	44.0	win2008-9	Zhang et al. 2010
EAAF068	Shengjin Hu	CHN	Swan Goose	600	24 211	40.4	2005	AWC
EAAF005	Yancheng Biosphere Reserve	CHN	Swan Goose	600	12 441	20.7		AWC
EAAF024	Mongol Daguur SPA	MNG	Swan Goose	600	6 000	10.0		
EAAF074	Khurkh-Khuiten Valley	MNG	Swan Goose	600	600	1.0		
EAAF040	Ogii Nuur	MNG	Swan Goose	600		1.0		
EAAF040	Ogii Nuur	MNG	Swan Goose	600		1.0		
EAAF041	Terhiyn Tsaggan Nuur	MNG	Swan Goose	600		1.0		
EAAF075	Ugtam Nature Reserve	MNG	Swan Goose	600		1.0		
EAAF087	Poyang & Nanji NNR	CHN	Swinhoe's Rail	1	1	1.0	Dec-95	BirdLife Int. 2013
EAAF005	Yancheng Biosphere Reserve	CHN	Temminck's Stint	100	1 638	16.4		Wang 1997
EAAF108	Sembilang National Park	IDN	Terek Sandpiper	500	5 680	11.4	Nov-88	Verheugt et al, 1990
EAAF094	Shoalwater Bay	AUS	Terek Sandpiper	500	3 410	6.8	Dec-95	Driscoll 1996
EAAF092	Great Sandy Strait	AUS	Terek Sandpiper	500	2 494	5.0	1/1/1990	Driscoll 1990
EAAF077	Kapar Power Station Ash Ponds	MAL	Terek Sandpiper	500	2 100	4.2	1/4/1991	Wetlands International, 2002 AWC
EAAF079	Suncheon Bay	KOR	Terek Sandpiper	500	1 104	2.2	Apr10-Mar11	Suncheon-si (2011)
EAAF013	Moreton Bay	AUS	Terek Sandpiper	500	779	1.6	Nov-90	Driscoll 1991
EAAF010	Hunter Estuary Ramsar Site	AUS	Terek Sandpiper	500	633	1.3	1996/97	Herbert 2007
EAAF097	Nakdong Estuary	KOR	Terek Sandpiper	500	104	1.0	Sep-10	Shorebird Network Korea (2010)
EAAF028	Han River Estuary	KOR	Terek Sandpiper	500	480	1.0	01-May-00	Scott 1989
EAAF081	Kumagawa Estuary	JAP	Terek Sandpiper	500	448	0.9	28-Aug-98	EAJ 1997
EAAF080	Fujimae-Higata	JAP	Terek Sandpiper	500	217	0.4	17-Aug-93	EAJ 1997
EAAF062	Naujan Lake National Park	PHL	Tufted Duck	2 000	12 000	6.0	Jan-00	<a href="http://www.jawgp.org/anet/ph001ea.htm">http://www.jawgp.org/anet/ph001ea.htm</a>

EAAF038	Xingkai Hu	CHN	Tufted Duck	2 000	11 000	5.5	-	Scott 1989
EAAF005	Yancheng Biosphere Reserve	CHN	Tufted Duck	2 000	2 212	1.1		AWC
EAAF087	Poyang & Nanji NNR	CHN	Tundra Swan	920	80 000	87.0	2007	AWC
EAAF082	Anqing Yanjiang Nature Reserve	CHN	Tundra Swan	920	28 450	30.9	Feb-10	Cao 2013
EAAF068	Shengjin Hu	CHN	Tundra Swan	920	5 429	5.9	2005	AWC
EAAF094	Shoalwater Bay	AUS	Whimbrel	550	7 089	12.9	Dec-95	Driscoll 1996
EAAF092	Great Sandy Strait	AUS	Whimbrel	550	3 128	5.7	1/1/1990	Driscoll 1990
EAAF077	Kapar Power Station Ash Ponds	MAL	Whimbrel	550	1 500	2.7	1/16/1994	Wetlands International, 2002
EAAF013	Moreton Bay	AUS	Whimbrel	550	1 440	2.6	Jan-96	AWSG 2003
EAAF008	Wasur National Park	IDN	Whimbrel	550	1 400	2.5	Oct-83	
EAAF002	Chongming Dongtan	CHN	Whimbrel	550	1 200	2.2		
EAAF108	Sembilang National Park	IDN	Whimbrel	550	1 000	1.8	1993	AWC Database 1993
EAAF063	Yatsu Tidal Flats	JAP	Whimbrel	550	894	1.6	5/16/1996	EAJ 1997
EAAF080	Fujimae-Higata	JAP	Whimbrel	550	515	0.9	30-Apr-93	EAJ 1997
EAAF073	Sungei Buloh Wetland Reserve	SGP	Whimbrel	550	442	0.8	Nov-03	
EAAF046	Cheonsu Bay	KOR	Whimbrel	550	432	0.8	01-May-98	Moore's 1999
EAAF028	Han River Estuary	KOR	Whimbrel	550	320	0.6	01-May-00	Scott 1989
EAAF081	Kumagawa Estuary	JAP	Whimbrel	550	280	0.5	2011	
EAAF079	Suncheon Bay	KOR	Whimbrel	550	204	0.4	Apr10-Mar11	Suncheon-si (2011)
EAAF067	Yatsu Tidal Flats	JAP	Whimbrel	550	894	1.6	16-May-96	EAJ 1997
EAAF087	Poyang & Nanji NNR	CHN	White-naped Crane	10	6 966	696.6		AWC
EAAF039	Xingkai Hu	CHN	White-naped Crane	10	837	83.7	2007	
EAAF068	Shengjin Hu	CHN	White-naped Crane	10	424	42.4	Feb-93	BirdLife International 2001
EAAF027	Cheorwon Basin	KOR	White-naped Crane	45	862	19.2	Jan-10	MoE, NIBR (2010)
EAAF095	Junam Reservoir	KOR	White-naped Crane	45	183	4.1	Jan-10	MoE, NIBR (2010)
EAAF028	Han River Estuary	KOR	White-naped Crane	45	155	3.4	1996	unknown
EAAF078	Gumi Haepyeong Wetland	KOR	White-naped Crane	45	59	1.3	Jan-10	MoE, NIBR (2010)
EAAF097	Nakdong Estuary	KOR	White-naped Crane	45		1.0		
EAAF079	Suncheon Bay	KOR	White-naped Crane	45	11	0.2	Jan-10	MoE, NIBR (2010)
EAAF074	Khurkh-Khuiten Valley	MNG	White-naped Crane	55	465	8.5		
EAAF075	Ugtam Nature Reserve	MNG	White-naped Crane	55	100	1.8		
EAAF042	Sanjiang	CHN	White-naped Crane	10		1.0		
EAAF024	Mongol Daguur SPA	MNG	White-naped Crane	55		1.0		
EAAF040	Ogii Nuur	MNG	White-naped Crane	55		1.0		

EAAF029	Akkeshi-ko +	JAP	Whooper Swan	600	10 000	16.7		
EAAF099	Furenko and Shunkuni-tai	JAP	Whooper Swan	600	5 532	9.2		
EAAF040	Xingkai Hu	CHN	Whooper Swan	600	937	1.6	1995spring	Li et al. 1998
EAAF024	Mongol Daguur SPA	MNG	Whooper Swan	600	700	1.2		
EAAF074	Khurkh-Khuiten Valley	MNG	Whooper Swan	600		1.0		
EAAF040	Ogii Nuur	MNG	Whooper Swan	600		1.0		

**Appendix 4. Number of Flyway Network Sites at which each species occurs in internationally important numbers**

Species	Number of Sites
Bean Goose	22
Whimbrel	15
White-naped Crane	15
Greater White-fronted Goose	14
Far Eastern Curlew	13
Red-necked Stint	13
Bar-tailed Godwit	12
Hooded Crane	12
Curlew Sandpiper	11
Grey-tailed Tattler	11
Ruddy Shelduck	11
Terek Sandpiper	11
Oriental (White) Stork	10
Ruddy Turnstone	10
Swan Goose	10
Black Stork	9
Kentish Plover	9
Lesser Sand Plover	9
Baikal Teal	8
Common Greenshank	8
Dunlin	8
Falcated Duck	8
Lesser Sandplover	8
Northern Pintail	8
Black-tailed Godwit	7
Common Redshank	7
Great Cormorant	7
Great Crested Grebe	7
Herring Gull	7
Mallard	7
Northern Lapwing	7
Black-faced Spoonbill	6
Black-headed Gull	6
Double-banded Plover	6
Pied Avocet	6
Red-crowned Crane	6
Spot-billed Duck	6
Whooper Swan	6
Bewick's Swan	5
Common Crane	5
Common Shelduck	5
Dalmatian Pelican	5
Grey Plover	5
Marsh Sandpiper	5
Saunders's Gull	5
Sharp-tailed Sandpiper	5
Siberian Crane	5
Spoon-billed Sandpiper	5
Asian Dowitcher	4
Baer's Pochard	4
Chinese Egret	4
Common Goldeneye	4
Common Merganser	4
Common Pochard	4
Common Teal	4
Eurasian Curlew	4
Eurasian Spoonbill	4
Eurasian Wigeon	4
Greater Sand Plover	4

Species	Number of Sites
Greylag Goose	4
Little Curlew	4
Nordmann's Greenshank	4
Red Knot	4
Relict Gull	4
Sanderling	4
Smew	4
Snow Goose	4
Spotted Redshank	4
Common Coot	3
Great Egret	3
Great Knot	3
Grey Heron	3
Grey-headed Lapwing	3
Lesser White-fronted Goose	3
Little Ringed Plover	3
Long-billed Plover	3
Mandarin Duck	3
Pacific Golden Plover	3
Spotted Greenshank	3
Tufted Duck	3
Tundra Swan	3
Australian Pratincole	2
Bar-headed Goose	2
Black-winged Stilt	2
Brant Goose	2
Caspian Tern	2
Common Sandpiper	2
Common Tern	2
Garganey	2
Greater Scaup	2
Green Sandpiper	2
Little Grebe	2
Northern Shoveler	2
Pintail Snipe	2
Black-necked Grebe	1
Broad-billed Sandpiper	1
Common Snipe	1
Demoiselle Crane	1
Eurasian Oystercatcher	1
Eurasian Woodcock	1
Ferruginous Duck	1
Gadwall	1
Hooded Crane	1
Intermediate Egret	1
Lesser Crested Tern	1
Little Egret	1
Little Tern	1
Long-toed Stint	1
Mute Swan	1
Oriental Plover	1
Pheasant-tailed Jacana	1
Purple Heron	1
Red-breasted Merganser	1
Red-necked Phalarope	1
Solitary Snipe	1
Swinhoe's Rail	1
Temminck's Stint	1

## Appendix 5. Representation Index for key species

Species	Rep. Index
Greater White-fronted Goose	906
White-naped Crane	866
Bean Goose	512
Red-crowned Crane	413
Spot-billed Duck	411
Baer's Pochard	326
Swan Goose	248
Australian Pratincole	200
Oriental (White) Stork	194
Eurasian Spoonbill	191
Baikal Teal	172
Solitary Snipe	157
Hooded Crane	130
Spotted Redshank	128
Tundra Swan	124
Siberian Crane	122
Little Curlew	109
Black Stork	90
Common Crane	88
Falcated Duck	84
Far Eastern Curlew	72
Bar-headed Goose	71
Lesser White-fronted Goose	71
Saunders's Gull	71
Ruddy Shelduck	71
Asian Dowitcher	62
Curlew Sandpiper	61
Northern Pintail	56
Common Redshank	56
Common Coot	54
Spoon-billed Sandpiper	50
Red-necked Stint	50
Grey-tailed Tattler	47
Black-tailed Godwit	47
Bar-tailed Godwit	45
Sharp-tailed Sandpiper	44
Red Knot	43
Hooded Cranes	41
Black-headed Gull	40
Dunlin	39
Whimbrel	38
Terek Sandpiper	36
Spotted Greenshank	34
Dalmatian Pelican	33
Lesser Sand Plover	32
Garganey	32
Sanderling	31
Whooper Swan	31
Pied Avocet	30
Great Cormorant	30
Brant Goose	29
Bewick's Swan	26
Eurasian Curlew	26
Great Egret	26
Ruddy Turnstone	26
Lesser Sandplover	24
Pintail Snipe	24
Mallard	22
Little Ringed Plover	21

Species	Rep. Index
Common Merganser	20
Nordmann's Greenshank	19
Kentish Plover	19
Herring Gull	17
Temminck's Stint	16
Long-billed Plover	16
Greylag Goose	16
Northern Lapwing	15
Common Pochard	15
Mandarin Duck	15
Common Goldeneye	15
Common Teal	14
Great Crested Grebe	14
Marsh Sandpiper	13
Common Shelduck	13
Tufted Duck	13
Grey Heron	12
Eurasian Wigeon	11
Greater Scaup	11
Black-necked Grebe	11
Common Tern	11
Double-banded Plover	11
Chinese Egret	10
Grey-headed Lapwing	10
Grey Plover	10
Common Greenshank	9
Greater Sand Plover	9
Smew	8
Black-faced Spoonbill	7
Red-breasted Merganser	7
Relict Gull	7
Broad-billed Sandpiper	6
Great Knot	6
Green Sandpiper	6
Pacific Golden Plover	5
Lesser Crested Tern	5
Long-toed Stint	5
Caspian Tern	5
Northern Shoveler	4
Eurasian Oystercatcher	4
Intermediate Egret	4
Common Snipe	4
Common Sandpiper	4
Little Tern	3
Little Grebe	3
Black-winged Stilt	3
Gadwall	2
Snow Goose	2
Eurasian Woodcock	2
Ferruginous Duck	2
Little Egret	2
Mute Swan	2
Demoiselle Crane	1
Purple Heron	1
Oriental Plover	1
Pheasant-tailed Jacana	1
Red-necked Phalarope	1
Swinhoe's Rail	1

## Appendix 6. Completed Site Assessment Forms

### AUSTRALIA:

EAAF089e AUS Bowling Green Bay WI SAF2013  
EAAF016e AUS Coorong WI SAF2013  
EAAF009e AUS Corner Inlet WI SAF2013  
EAAF090e AUS Currawinya WI SAF2013  
EAAF091e AUS Discovery Bay Coastal Park WI SAF2013  
EAAF092e AUS Great Sandy Strait WI SAF2013  
EAAF010e AUS Hunter Estuary WI SAF2013  
EAAF011e AUS Kakadu WI SAF2013  
EAAF012e AUS Logan Lagoon WI SAF2013  
EAAF013e AUS Moreton Bay WI SAF2013  
EAAF014e AUS Orielton Lagoon WI SAF2013  
EAAF015e AUS Parry Lagoons WI SAF2013  
EAAF065e AUS Port Philip Bay WI SAF2013  
EAAF093e AUS Shallow Inlet WI SAF2013  
EAAF094e AUS Shoalwater Bay WI SAF2013  
EAAF017e AUS Thomsons Lake WI SAF2013  
EAAF066e AUS Westernport WI SAF2013

### CHINA:

EAAF082e CHN Anqing BLI SAF2013  
EAAF067e CHN Cao Hai BLI SAF2013  
EAAF002e CHN Chongming Dongtan BLI SAF2013  
EAAF083e CHN Dashanbao BLI SAF2013  
EAAF025e CHN Poyang Hu BLI SAF2013  
EAAF087e CHN Poyang & Nanji NNR BLI SAF2013  
EAAF042e CHN Sanjiang BLI SAF2013  
EAAF068e CHN Shengjin Hu BLI SAF2013  
EAAF026e CHN Xingkai Hu BLI SAF2013  
EAAF005e CHN Yancheng BLI SAF2013

### INDONESIA:

EAAF108e IDN Sembilang WI SAF2012  
EAAF008e IDN WasurNP WI SAF2013

### JAPAN:

EAAF029e JAP Akkeshi-ko - Bekambeushi-shitsugen BLI SAF2013  
EAAF047e JAP Biwa-ko\_north j21e BLI SAF2013  
EAAF048e JAP Biwase\_Kiritappu j03\_04e BLI SAF2013  
EAAF080e JAP Fujimae-Higata BLI SAF2013  
EAAF049e JAP Fukushima-gata BLI SAF2013  
EAAF099e JAP Furenko-Shunkunita BLI SAF2013b  
EAAF088e JAP Hachirogata-Kantakuchi j10e BLI SAF2013  
EAAF051e JAP Kabukuri-numa BLI SAF2013  
EAAF052e JAP Katano Kamoike BLI SAF2013  
EAAF098e JAP Kejo-numa BLI SAF2013  
EAAF081e JAP Kumagawa Estuary BLI SAF2013  
EAAF032e JAP Kushiro-shitsugen BLI SAF2013  
EAAF053e JAP Kutcharo-ko BLI SAF2013  
EAAF055e JAP Miyajimanuma BLI SAF2013  
EAAF076e JAP Osaka Nankou Bird Sanctuary BLI SAF2013  
EAAF056e JAP Otomo-numa j09e BLI SAF2013  
EAAF057e JAP Sakata BLI SAF2013  
EAAF058e JAP Shiroishi-gawa j13e BLI SAF2013  
EAAF063e JAP Tokyo Port Wild Bird Park BLI SAF2013  
EAAF072e JAP Utonai-ko BLI SAF2013

EAAF033e JAP Yashiro BLI SAF2013  
EAAF059e JAP Yatsu Tidal Flat BLI SAF2013  
EAAF060e JAP Yonago Waterbird Sanctuary BLI SAF2013  
EAAF061e JAP Yoshino Estuary BLI SAF2013

### SOUTH KOREA:

EAAF046e KOR Cheonsu Bay WI SAF2013  
EAAF027e KOR Cheorwon Basin WI SAF2013  
EAAF100e KOR Geum River Estuary WI SAF2013  
EAAF078e KOR Gumi Haepyung WI SAF2013  
EAAF028e KOR Han River Estuary WI SAF2013  
EAAF095e KOR Junam Reservoir WI SAF2013  
EAAF097e KOR Nakdong Estuary WI SAF2013  
EAAF079e KOR Suncheon Bay WI SAF2013  
EAAF096s KOR Upo WI SAF2013

### MONGOLIA:

EAAF074e MMG Khurkh-Khuiten Valley BLI SAF2013  
EAAF024 MMG Mongol Daguur BLI SAF2013  
EAAF040e MMG Ogii Nuur BLI SAF2013  
EAAF041e MMG Terhiyn Tsagaan Nuur BLI SAF2013  
EAAF075e MMG Ugtam Nature Reserve BLI SAF2013

### MYANMAR:

EAAF077e MYA Kapar Pwr Stn Ash Ponds WI SAF2013

### NEW ZEALAND:

EAAF018e NZL Farewell Spit WI SAF2013  
EAAF019e NZL Firth of Thames WI SAF2013

### PAPUA NEW GUINEA:

EAAF034e PNG Tonda Wildlife Management Area WI SAF2013

### THE PHILIPPINES:

EAAF062e PHL Naujan Lake NP WI SAF2013  
EAAF007e PHL Olango Island WI SAF2013

### SINGAPORE:

EAAF073e SGP Sungei Buloh WI SAF2013

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER</b> (name, email and address):	Warren Lee Long
	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Oct 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Bowling Green Bay (Joined FNS 2005)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Bowling Green Bay (Listed in 1993)
<b>Date of most recent RIS:</b>	1999 (2009 RIS update completed during the Ecological Character Description is not yet accepted)

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The <i>Bowling Green Bay Flyway Network Site</i> boundary uses the Bowling Green Bay Ramsar site Boundary which includes one of the most expansive wetland complexes on the east coast of Australia. The site includes the Bowling Green Bay Dugong Protection Area, sections of the Bowling Green Bay National Park and the Bowling Green Bay Conservation Park. An extensive (approx. 3 km long) sand spit at the southern boundary of the site is the main roost area for shorebirds and seabirds that feed across intertidal flats and waters of the Bay; while other smaller sand spits in the Bay provide additional roosts.</p> <p>The site is of international significance as 1) a migratory shorebird habitat during the non-breeding season, 2) an important stronghold for a number of endangered and vulnerable marine fauna species, 3) a regionally important site for breeding waterfowl and waterbird populations, and 4) for regionally important recreational and commercial fisheries.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Map was submitted with the EAAF Site Information Sheet.</li> <li>2. kml file and maps of shorebird count sites available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a></li> <li>3. Ramsar Site boundary and wetland habitat mapping also available</li> </ol>

### 1. Migratory waterbirds

#### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAF nomination form:

Data extracted from the Site Information Sheet (for nomination into the Flyway Site Network), 2005:

Popular English Name	Scientific Name	1% Criteria	Count	Count Date(s) <sup>#</sup>	Citation
Black-tailed Godwit	<i>Limosa limosa melanuroides</i>	1 390	2 058	13-12-96	Harrison (1997)
Bar-tailed Godwit*	<i>Limosa lapponica baueri</i> *	1 550*	2 103	13-12-96	Harrison (1997)
Red-necked Stint	<i>Calidris ruficollis</i>	3 150	4 598	31-8-99	Birds Australia database

\* Bar-tailed Godwits were assumed to all be of the *baueri* subspecies/population which is understood to be the principal population in eastern Australia.

# The majority of sites in the East Asian – Australasian Flyway do not have sufficient count data to meet the Ramsar guidelines for defining the term “regularly supports”. Allowance has been made for sites in remote areas where only limited count information is available, and it is accepted that single counts can help establish the relative importance of the site for a species (Ramsar Convention 2000; Bamford et al

2008). Thus for the East Asian – Australasian flyway, Bowling Green Bay is considered to have met the 1% criterion on the basis of a limited number of counts.

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

None identified

**1.3 Are all the key populations counted?:**  All  Some  None

If “some” please list these:

For this large and relatively remote site, comprehensive count estimates have been conducted only once since 1995 (Pell and Lawler 1996). On other occasions, only some accessible roosts are counted.

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1 2-5 6-10  >10

**1.4.2 If counts from >5 years ago, then how many counts were made:** <10  10-100 >100

**1.4.3 Contact details of organization / individual leading recent counting:**

David Milton, Queensland Wader Study Group. Email:

**1.4.4 Has the data been analysed? yes / no /**  partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations? Yes /**  No

(See 1.3 above – relatively few counts have been conducted and only some accessible roosts are counted. Thus conclusions have only been made using subjective assessment from a limited dataset, and no statistical tests were used. See 1.6 below)

**1.5.2 If yes please provide details:**

N/A

**1.6 Other comments (eg, if subjective conclusions were made about changes in populations):**

Key Population	increase / no change / decline/ unkown	Reference (may also include unpublished data)
Black-tailed Godwit	unkown	
Bar-tailed Godwit	unkown	
Red-necked Stint	unkown	

Conclusions about changes in waterbird numbers carry the following caveats:

- Threats outside the site ( ie, in the Yellow Sea region) are currently more urgent than those at the site (see Wilson *et al* 2011 for large migratory species).
- Driscoll (1996) and others demonstrate that a series of large roosts exist not far away immediately outside the site; hence it is possible that some interchange may occur between roosts within and outside the Bowling Green Bay site.
- Data from ground surveys (TRBOC) at the two, principal, high tide roosts indicate considerable year-to-year variation in numbers at those roosts within the site.
- Historically, many counts have occurred at different roosts, but counts have not always been timed to achieve comprehensive coverage of the whole site for each date.

## 2. Wetland/Habitats

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

\* Changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
12.2 [E - Sand, shingle or pebble shores]	No data	Roost habitat for: Bar- tailed Godwit; Black- tailed Godwit, Red- necked Stint	0	0	No significant changes in extent or quality.
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	No data	Feeding habitat for: Bar- tailed Godwit; Black- tailed godwit, Red- necked Stint	0	0	No significant changes in extent of tidal flats. Intertidal seagrass habitat area can change, but no monitoring has occurred.

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

Habitat area estimates are totals for each of these habitat types across the whole Ramsar site. Areas predominantly used by the key migratory waterbirds may be much smaller.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing 0 - In the past 1- Happening now 2- Near future (<4 yrs) 3- Longer term (4-10 yrs)	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities	Direct on shorebirds/ loss of habitat	3	1	0
<b>11. Climate Change &amp; Severe Weather</b> 11.4. Storms & Flooding	Sand, shingle or pebble shores	3	1	0
<b>7. Natural System Modifications</b> 7.2. Water Management/Use <b>9. Pollution</b> 9.3. Agricultural & Forestry Effluents	Tidal flat meio- fauna (food items)	3	1	0

### 3.2 Other comments on threats (including management actions to address threats):

1. Increased frequency and intensity of cyclones (under climate change scenarios) may erode the existing high-tide roost areas.
2. Signs and ranger staff patrols are used help to highlight the need for habitat protection and minimization of disturbance (by humans) and predation (by feral animals) – mainly affecting roosting shorebirds.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

**NOTE:** The following estimates relate to threats affecting this site only and do not include threats operating in other parts of the flyway:

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Bar-tailed Godwit	<5%			
Black-tailed Godwit	<5%			
Red-necked Stint	<5%			

## 4. CONSERVATION MEASURES

### 4.1 *Is all or some of the site legally protected? Yes/No*      *If so, what % and what is the designation?*

Yes. Almost 100% of shorebird habitat is protected, apart from some roost areas that lie immediately outside the existing protected area (National Park/ Ramsar site) boundaries. The EAAF Network Site uses the Ramsar site boundary. Protection of different areas comes mostly under the Bowling Green Bay National Park and some areas are also within State Conservation Park. Fish Habitat Areas in some parts also provide further habitat protection.

### 4.2 *Has a management plan been prepared for the site, and if so is it current and comprehensive?*

**Management Plan has been prepared?: yes / no**      (Yes – as follows):

Management Plan for Bowling Green Bay National Park;  
Great Barrier Reef Marine Park Regulations 1983;  
Great Barrier Reef Marine Park Zoning Plan 2003;  
Reef Water Quality Protection Plan (2003 & revised in 2009)  
Cleveland Bay Fish Habitat Area 'A' (FHA-071) and Bowling Green Bay Fish Habitat Area 'A' (FHA-007) - under the Queensland Fisheries Act 1994.

**Is the Management Plan current?**      (Yes, all of the above are current)

**Is it comprehensive?**      (Yes, all are comprehensive, within their legislative parameters)

### 4.3 *What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see see IUCN classifications, Annex 1)?*

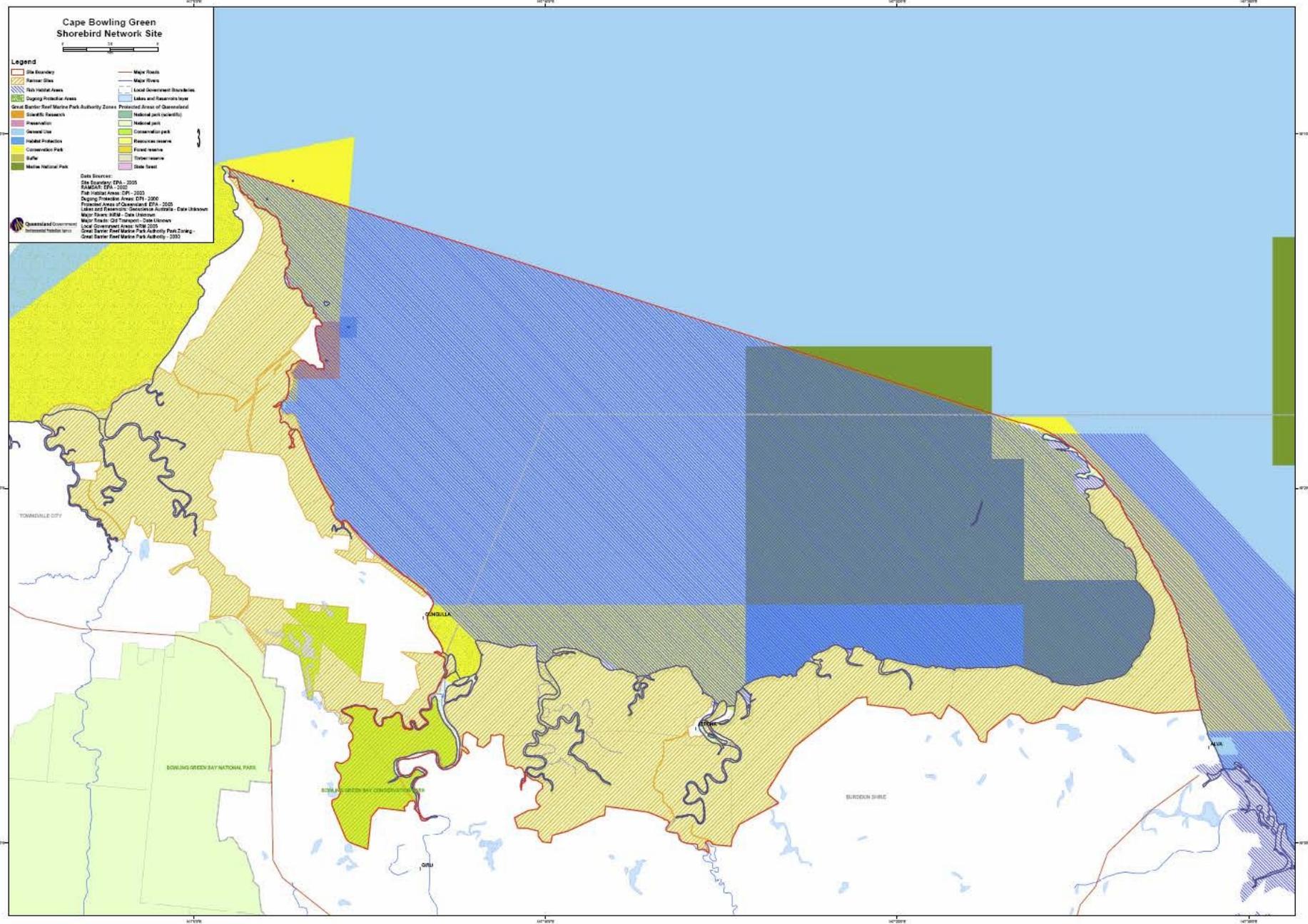
- On-site enforcement and education is limited for this moderately remote site. Signs and ranger staff are used to highlight the need for habitat protection and minimisation of disturbance (by humans) and predation (by feral animals) - mainly affecting roosting shorebirds.
- The Australian Institute of Marine Science is a large purpose-built research facility immediately adjacent to the site, dedicated to improving knowledge of the Great Barrier Reef and adjacent coastal, marine and oceanic systems. There are no conservation or research facilities dedicated to migratory waterbird conservation on-site.

## 5. REFERENCES

Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia. 239pp.

Birds Australia. Atlas of Australian Birds database, Birds Australia, Melbourne.

Harrison , F. (1997). *Cape Bowling Green, North Queensland; a site of significance for godwits*. The Stilt **31**: 41.



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	The Coorong, Lake Alexandrina and Lake Albert (joined FSN 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	1. The Coorong IBA 2. Lakes Alexandrina and Albert IBA
<b>Name of Ramsar site (if listed):</b>	The Coorong and Lakes Alexandrina and Albert Wetlands (Ramsar listed in 1985)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2006 RIS update - completed during writing of the Ecological Character Description (Phillips and Muller, 2006).

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p><i>The Coorong, Lake Alexandrina and Lake Albert</i> Flyway Network Site (FNS) is defined by the boundary of "The Coorong and Lakes Alexandrina and Albert Wetlands Ramsar Site" - located at the mouth of the River Murray, about 75km south east of the city of Adelaide, South Australia. Wetlands specifically included are:</p> <ul style="list-style-type: none"> <li>• Lake Alexandrina including Tolderol, Mud Islands and Currency Creek Game Reserves, otherwise mainly Crown Lands. 76,000 ha.</li> <li>• Lake Albert. Mainly Crown Lands. 16,800 ha.</li> <li>• Coorong – mainly covering Coorong National Park and Game Reserve, otherwise mainly Crown Lands. 47,700 ha.</li> </ul> <p>The Lakes Alexandrina and Albert (the Lower Lakes) wetland systems form the mouth of the River Murray and are comprised of fresh to brackish/saline waters, connected with the Coorong. The Coorong is a shallow, saline to hypersaline, coastal lagoon system, more than 100 km in length and separated from the Southern Ocean by a narrow sand dune peninsula. The Coorong is divided by two long peninsulas into a Northern and Southern Lagoon, which contain fresh to brackish/saline waters. South of the Southern Lagoon lies a chain of shallow, ephemeral salt lakes and swampy mud flats.</p> <p>The site is one of Australia's icon wetlands supporting critically endangered, endangered, threatened and vulnerable species and ecological communities. It also supports extensive and diverse waterbird, fish and plant assemblages; reliant on its complex mosaic of wetland types. The area is a popular recreational site, while also supporting a range of commercial activities related to tourism and commercial fishing most notably. The Ngarrindjeri indigenous people have a long association with the Coorong and Lower Lakes and the site has great cultural significance for them. They retain these close links with the wetland and its biodiversity through these cultural links.</p> <p>Two IBAs overlap with the FNS. These are <i>The Lakes Alexandrina and Albert</i> IBA and <i>The Coorong</i> IBA. These two IBA's include the whole of Lake Alexandrina (76,000 ha), Lake Albert (16,800 ha) and The Coorong (49697 ha). The Coorong IBA overlaps with most of Coorong National Park, but excludes some dry parts of the park.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Ramsar site boundary is available at: <a href="http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#">http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#</a></li> <li>2. Maps of the shorebird count sites are available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a></li> </ol>

# 1. Migratory waterbirds

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

The highest count of shorebirds was in February 1982 when over 230 000 were recorded. At this time counts were made totaling 35% of the population of Sharp-tailed Sandpipers and approximately 20% of the population of Red-necked Stint and Curlew Sandpiper.

Data below are from AWSG digital database and Gosbell and Christie AWSG (2005):

Popular English Name	Scientific Name	1% Criteria	Counts	Count Dates	Reference
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	1 600	22 000 – 55 000 7 000 – 10 000	1980s 2003-2005	AWSG digital database
Red-necked Stint	<i>Calidris ruficollis</i>	3 150	54 000 – 64 000 18 000 – 46 000	1980s 2000-2005	AWSG digital database
Sanderling	<i>Calidris alba</i>	220	929 308 512 235	1982 1987 2000 2005	AWSG digital database
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	22 000 – 39 000 4 000 – 13 500	1980s 2000-2005	AWSG digital database AWSG digital database
Common Greenshank	<i>Tringa nebularia</i>	1 000	300-500	1980-2005	AWSG digital database

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

## 1.3 Are all the key populations counted?: All Some None

If "some" please list these:

Counting programs include, eg:

- Annual counts by AWSG.
- Monitoring and research counts by David Paton, School of Earth and Environmental Sciences, University of Adelaide, South Australia.
- Monitoring programs supported through the Living Murray Initiative and Murray Futures Program.

## 1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Ken Gosbell, AWSG. Email:

Maureen Christie, AWSG. Email:

David Paton, School of Earth and Environmental Sciences, University of Adelaide

1.4.4 Has the data been analysed?  yes / no / partially

1. Gosbell and Christie (2005) analysed the count data obtained from the 1980s to 2005.
2. Analyses for key species recorded in the **South Lagoon, Coorong**, have been conducted to compare January 1985 numbers against mean January counts in the 8-year period 2000-2007 (Brookes *et al* 2009).
3. Both of the above studies noted significant declines in numbers for 3 of the key species listed here.
4. Further analyses are being conducted by the SA Dept of Environment and Natural Resources (DENR) and projects under the "Living Murray Program"

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Sharp-tailed Sandpiper	<b>Decline (63%)</b>	Brookes <i>et al</i> 2009
Red-necked Stint	<b>Decline (68%)</b>	Brookes <i>et al</i> 2009
Sanderling	<b>unknown</b>	Brookes <i>et al</i> 2009
Curlew Sandpiper	<b>Decline (94%)</b>	Brookes <i>et al</i> 2009
Common Greenshank	<b>unknown</b>	Brookes <i>et al</i> 2009

The declines in these key species and other migratory shorebirds have been significant since the mid-1980s, and particularly intensive since approximately 2000 (Gosbell & Christie 2005; Wainwright and Christie 2008; Brookes *et al* 2009). The declines in the Coorong have been far greater than evidenced elsewhere in Australia for these species (Paton 2002).

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. Waterbird/Habitats

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
<b>The Coorong</b>					
12.2 [E -- Sand, shingle or pebble shores] – The Coorong	1019	Sharp-tailed Sandpiper, Red-necked Stint, Sanderling, Curlew Sandpiper, Common Greenshank	0	0	Naturally dynamic; no significant changes in extent, but some threats.
12.4 [G -- Intertidal mud, sand or salt flats.] – The Coorong	2142	Sharp-tailed Sandpiper, Red-necked Stint, Sanderling, Curlew Sandpiper, Common Greenshank	0	-	Declines in quality. Extreme threats; extremely vulnerable
5.15 [R -- Seasonal/intermittent saline/brackish/alkaline lakes and flats.] – South Lagoon	1689	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	0	0	No significant changes in extent or quality. Vulnerable.
5.17 [Ss -- Seasonal/intermittent saline/brackish/alkaline marshes/pools.] – South Lagoon	985	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	0	0	No significant changes in extent or quality. Vulnerable.
<b>Lake Alexandrina and Lake Albert Wetlands</b>					
5.6 [P -- Seasonal/intermittent freshwater lakes]	120 (Lake Alexandrina)	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	-	-	Measurable declines in extent and quality. Extreme threats; highly vulnerable.
5.8 [Ts -- Seasonal/intermittent freshwater marshes/pools on inorganic soils]	941 (Lake Alexandrina)	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	-	-	Measurable declines in extent and quality. Extreme threats; vulnerable.

5.17 [Ss -- <b>Seasonal/intermittent saline/brackish/alkaline marshes/pools.</b> ] - (Lake Alexandrina)	304	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	-	-	Measurable declines in extent and quality. Threatened and vulnerable.
5.7 [Tp -- <b>Permanent freshwater marshes/pools</b>	958 (Lake Albert)	Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper, Common Greenshank	0	-	Declines in quality. Threatened and extremely vulnerable
5.3 [W -- <b>Shrub-dominated wetlands</b> ]	2715	Shorebirds use only part of this total habitat area	0	0	No significant declines in extent or quality, but receive threats.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown(?)

2.2 Other comments (including if changes to habitat between FSN listing and now):  
N/A

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type  (as identified in the section above)	Timing  In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent  0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity  0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7. Natural System Modifications</b> 7.2. Dams & water management/use 7.2.1 Abstraction of surface water (domestic use) 7.2.2 Abstraction of surface water (commercial use) 7.2.3 Abstraction of surface water (agricultural use) 7.2.7 Abstraction of ground water (agricultural use) 7.2.9 Small dams 7.2.10 Large dams	G,P, Ts, Ss, Tp, W	3	2	1
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents 9.3.1 Nutrient loads 9.3.2 Soil erosion, sedimentation 9.3.3 Herbicides and pesticides Soil acidification from prolonged drying of wetland areas.	G,P, Ts, Ss, Tp	3	2	1
<b>6 Human intrusions &amp; disturbance</b> 6.1 Recreational activities	E; and direct on shorebirds	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (increased access to waterbird breeding and roost sites by foxes and pigs)	Direct on shorebirds	3	2	1

### 3.2 Other comments on threats (including management actions to address threats):

- The threats to the site overall are numerous, but are primarily driven by altered hydrological regimes and exacerbated by prolonged drought.
- Loss of the natural flow regime has had a huge impact. The natural longitudinal salinity gradient of the lagoons has been absent in recent years, reflecting the long period of limited exchange of water with barrage inflows and high evaporation in the South Lagoon. Prolonged drying of wetland areas has also resulted in soil acidification and its subsequent consequences.
- Management of direct threats to migratory waterbirds within the site includes signs and other local education about importance of maintaining habitat and protection for waterbirds.
- Surrounding lands are predominantly leasehold lands used for grazing sheep and cattle and for horticulture, and as such require cooperative management to address threats associated with these activities.
- Upstream harvesting of water and any other activity that reduces flow through the Murray-Darling catchment must be regulated to ensure regular natural floods in the wetland. Management of river catchments that could affect hydrology and ecology of the site requires cooperative arrangements between the state and federal governments and several industry and community stakeholders.
- Flushing of water in the Coorong is essential to limit the creation of hypersaline conditions. Such conditions have a major impact of migratory shorebirds.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Sharp-tailed Sandpiper				X
Red-necked Stint				X
Sanderling		X		
Curlew Sandpiper				X
Common Greenshank				x

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 34%. All of the Shorebird habitat in the Coorong portion is protected within the Coorong National Park. The Lakes Alexandrina and Albert are Crown land and as such receive some protection. Both Lakes and The Coorong receive some levels of protection under Australia's Environment Protection and Biodiversity Conservation Act (EPBC Act 1999)

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** yes / no (Yes)

1. *Coorong and Lakes Alexandrina and Albert Ramsar Management Plan 2000* (DEH 2000) – **Note:** A revision of the Ramsar Management Plan commenced in 2008 (Phillips *et al* 2008).
2. *Securing the Future, Long-Term Plan for the Coorong, Lower Lakes and Murray Mouth* (DEH 2010)
3. A management plan for the Coorong National Park, 1988.

**Is the Management Plan current?:** yes / no (Yes, but due for review)

**Is it comprehensive?:** yes / no (Yes)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- In addition to the Ramsar site management plan, management of the site is influenced by numerous planning and policy initiatives at international, national, state, regional and local levels. Some larger initiatives include:
  - The Living Murray Initiative (Accessed 2011-11-08 at: <http://mdba.gov.au/programs/tlm>)
  - Murray Futures Program (Accessed 2011-11-08 at <http://www.waterforgood.sa.gov.au/rivers-reservoirs-aquifers/murray-futures/>)

- “Securing the Future, Long-Term Plan for the Coorong, Lower Lakes and Murray Mouth” (DEH 2010)
- The 20-year *Securing the Future Long-Term Plan for the CLLMM* aims to introduce more variable water levels and build resilience in the region's environment, to help the site to recover from unprecedented low water levels, salinity and acidification and adapt to changing conditions.
- Major research and funding programs (on system hydrology and other environmental drivers) across a range of government, industry and community areas.
- Hydrological modeling, real-time management, emergency response and remediation programs.
- Habitat restoration to help ameliorate water quality problems (eg, restoration of riparian and lake fringe habitat zones).
- Education and awareness – on importance of maintaining habitat and protection for waterbirds; eg, visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.
- Restricted visitor access to some important waterbird breeding areas.
- Monitoring of migratory shorebirds is conducted primarily by the Australasian Wader Studies Group.

## 5. REFERENCES

AWSG digital database

- Brookes, J.D., Lamontagne, S., Aldridge, K. T., Bengert, S., Bissett, A., Bucater, L., Cheshire, A.C., Cook, P.L.M., Deegan, B.M., Dittmann, S., Fairweather, P.G., Fernandes, M.B., Ford, P.W., Geddes, M.C., Gillanders, B.M., Grigg, N.J., Haese, R.R., Krull, E., Langley, R.A., Lester, R.E., Loo, M., Munro, A.R., Noell, C.J., Nayar, S., Paton, D.C., Reville, A.T., Rogers, D.J., Rolston, A., Sharma, S.K., Short, D.A., Tanner, J.E., Webster, I.T., Wellman, N.R. and Ye, Q. 2009. An Ecosystem Assessment Framework to Guide Management of the Coorong. Final Report of the CLLAMMecology Research Cluster. CSIRO: Water for a Healthy Country National Research Flagship, Canberra.
- Department for Environment and Heritage. 2000. *Coorong and Lakes Alexandrina and Albert Ramsar Management Plan, September 2000*. South Australia Department for Environment and Heritage.
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- Gosbell, K., and M. Christie. 2005. Wader Surveys in the Coorong and S.E. Coastal Lakes, February 2005. Unpublished report, Australasian Wader Study Group.
- Paton, D. 2002, 'Migratory waders', in Murray-Darling Basin Commission and Department of Water, Land and Biodiversity Conservation, *The Murray mouth: exploring the implications of closure or restricted flow*. pp. 65-71.
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- Phillips, B. and Muller, K. and J. Higham, (2008). *Coorong and Lakes Alexandrina and Albert Ramsar Management Plan (Revised), Pre-consultation Draft*. South Australian Department for Environment and Heritage. Adelaide, South Australia.
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## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
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<b>DATE OF ASSESSMENT:</b>	Sept 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Corner Inlet (EAAF Site# 009; Joined 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Corner Inlet IBA (Assessed in 2008)
<b>Name of Ramsar site (if listed):</b>	Corner Inlet (Ramsar listed in 1982).
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2007 RIS update was completed during writing of the Ecological Character Description (BMT WBM 2011), but is not yet available.

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Corner Inlet Flyway Network Site uses the Ramsar site boundary area (total 67,186ha). Almost all of this is encompassed in the Nooramunga and Corner Inlet Marine and Coastal Parks. The site is located at 38.73330°S, 146.21670°E, approximately 200 kilometres south-east of Melbourne. It is the most southerly marine embayment and tidal mudflat system of mainland Australia. The site is bound by Wilsons Promontory to the south and by the South Gippsland Coastline along its northern and western sides. A series of barrier islands and sandy spits form the south-eastern boundary of the site. It supports a range of complex habitats and vegetation communities including mangroves, mudflats, salt marsh communities and sea grass meadows.</p> <p>The mudflats support over 30 000 shorebirds each year. Two species regularly meet the 1% criterion at the site: Red-necked Stint <i>Calidris ruficollis</i>, Eastern Curlew <i>Numenius madagascariensis</i>. More than 5% of the flyway populations of these two species occur at the site.</p> <p>Six other species have exceeded the 1% criterion but not on a regular basis: Bar-tailed Godwit <i>Limosa lapponica</i>, Red Knot <i>Tringa brevipes</i>, Grey Plover <i>Pluvialis squatarola</i>, Double-banded Plover <i>Charadrius bicinctus</i>, Sanderling <i>Calidris alba</i>, Curlew Sandpiper <i>Calidris ferruginea</i>.</p> <p><b>Note:</b> The IBA covers a slightly larger area (total 72,006ha), which includes the whole FNS plus additional terrestrial habitat.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>Yes. (kml site-location file available at <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a>)</p> <p>Ramsar Site boundary map is available at: <a href="http://www.dse.vic.gov.au/conservation-and-environment/biodiversity/wetlands/ramsar-wetlands">http://www.dse.vic.gov.au/conservation-and-environment/biodiversity/wetlands/ramsar-wetlands</a></p>

### 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Popular English Name	Scientific Name	1% Criteria	Count	Count Date(s)	Reference
Red-necked Stint	<i>Calidris ruficollis</i>	3 150	22 720	7/02/2001	AWSG database
			17 970	NB 2002	
			15 520	NB 2003	
			16 210	NB 2004	
			12 663	NB 2005	

Far Eastern Curlew	<i>Numenius madagascariensis</i>	320	2 281 1 971 552 1 090 751 829	1/01/1993 NB 2001 NB 2002 NB 2003 NB 2004 NB 2005	AWSG database
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	3 500	02/1987	AWSG database
Double-banded Plover	<i>Charadrius bicinctus</i>	500	800	NB	AWSG database
Bar-tailed Godwit	<i>Calidris acuminata</i>	2 790	13 139	01/1987	AWSG database
Red Knot	<i>Calidris canutus</i>	990	7 110	31/01/1987	AWSG database

The Corner Inlet IBA Assessment Sheet notes that the site supports large numbers of the following species but they do not 'regularly' exceed the thresholds: Bar-tailed Godwit, Red Knot, Double-banded Plover (AWSG database).

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

English Name	Scientific Name	1% Criteria	Count	Count date(s)	Reference
Lesser Sandplover		130	243	Jan-92	AWSG database
Caspian Tern		100	151	Jan-87	AWSG database
Common Tern		100	250	Jan-08	AWSG database
Little Tern		100	322	Jan-87	AWSG database

1.3 Are all the key populations counted?:  All    Some    None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years?    1     2-5    6-10    >10  
1.4.2 If counts from >5 years ago, then how many counts were made:    <10     10-100    >100  
1.4.3 Contact details of organization / individual leading recent counting:

Victoria Wader Studies Group, Contact: Clive Minton, Email:  
Golo Maurer, BirdLife Australia, Email:

1.4.4 Has the data been analysed? yes / no /  partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?  Yes / No

Conclusions about some species have been inferred from continent- and/or flyway-scale data, rather than necessarily just from data at the site (See 1.5.2 and 1.6).

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unkown	Reference (may also include unpublished data)
Red-necked Stint	<b>no change</b>	CDTMinton et al unpubl paper
Far Eastern Curlew	<b>decline</b>	CDTMinton et al unpubl paper
Curlew Sandpiper	<b>decline</b>	Various authors have advised that the population has declined substantially in the EAA Flyway (see Hansen 2011)
Double-banded Plover#	<b>no change</b>	CDTMinton et al unpubl paper
Bar-tailed Godwit#	<b>no change</b>	CDTMinton et al unpubl paper
Red Knot #†	<b>decline</b>	CDTMinton et al unpubl paper

**1.6 Other comments (eg, if subjective conclusions were made about changes in populations):**

Declines at national and flyway scale have been advised in relation to population size of several of these species (see overview and references in Hansen 2011).

**2. Waterbird/Habitats**

**2.1 Ramsar wetland types used by key populations:**

*(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)*

\* **Changes in extent or habitat quality:** increase(+) / no change(0) / decline(-) / unknown(?)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	39,400 ha	All key species	0	0	No significant changes in extent of tidal flats. Intertidal seagrass habitat area can change, but no monitoring has occurred.
9.9 [B - Marine subtidal aquatic beds] – seagrass meadows	14,800 ha		?	?	Changes may occur, but no site-scale monitoring conducted.
12.5 [H - Intertidal marshes] - includes salt marshes, tidal brackish and freshwater marshes.	6,500 ha		0	0	No monitoring, but no significant changes in extent or quality assumed.

**2.2 Other comments (including if changes to habitat between FSN listing and now):**

N/A

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>9.2 Industrial &amp; military effluents</b> 9.2.1 Oil spills	Food species on 12.4 [G - Intertidal mud, sand or salt flats	1	1	0
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities (humans and pets disturbing feeding and roosting birds)	Direct on shorebirds	3	0	0
<b>9.3 Agricultural &amp; forestry effluents</b> 9.3.1 Nutrient loads <b>9.1 Domestic &amp; urban waste water</b> 9.1.1 Sewage	Food species on 12.4 [G - Intertidal mud, sand or salt flats]	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by feral foxes and cats)	Direct on shorebirds	3	0	0
<b>11. Climate change &amp; severe weather</b> 11.1 Habitat shifting & alteration (Sea-level rise) 11.4 Storms & flooding (increased storm surges)	G - Intertidal mud, sand or salt flats	3	2	1

3.2 Other comments on threats (including management actions to address threats):

- See 4.3 below for management responses.

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

NOTE: The following estimates relate to on-site threats only:

Key Population/s	<5%	6-25%	26-50%	>50%
Red-necked Stint	X			
Far Eastern Curlew	X			
Bar-tailed Godwit	X			
Red Knot	X			
Curlew Sandpiper	X			
Double-banded Plover	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. 58,910 ha (88 %) of the site is encompassed in the Nooramunga and Corner Inlet Marine and Coastal Parks.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

#### **Management Plan has been prepared?:**

Yes Statutory

#### Statutory Plans:

(1) Corner Inlet Ramsar Site Strategic Management Plan 2002

Non-statutory: Nil

#### **Is the Management Plan current?:**

Yes

#### **Is it comprehensive?:**

Yes

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- 1 Feralfox control program on selected barrier islands to protect nesting shore birds;
- 2 Spraying of feral weeds;
- 3 Monitoring of sewerage and storm water discharge;
- 4 An ongoing nesting shorebirds monitoring program;
- 5 Summer and winter counts since 1981 for waders and other waterbirds.
- 6 Some scientific research occurs in coastal and marine habitats on a specific needs basis and when resources are available. (Conducted by universities, research institutions, government agencies and consultants).
- 7 There are no dedicated research facilities in or adjacent to the site.
- 8 Limited patrols by park ranger staff are used to educate and enforce regulations on minimising habitat damage and disturbance to migratory waterbirds.

## 5. REFERENCES

AWSG Shorebird count database. Birds Australia, Melbourne.

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Department of Natural Resources and Environment. 2002. Corner Inlet Ramsar Site Strategic Management Plan 2002. Department of Natural Resources and Environment, Victoria. 36pp.

Hansen, B. 2011. A brief overview of literature on Waders in decline. *Stilt* **60**: 6-8.

Clive Minton, Peter Dann, Alice Ewing, Susan Taylor, Roz Jessop, Peter Anton and Robert Clemens.  
(Unpublished Paper). Population Trends of Shorebirds in Corner Inlet, Victoria, 1982-2011.

Rogers D.I., Yan, H-Y., Hassell, C.J., Boyle, A. N., Rogers, K.G., Chen, B., Zhang Z-W and Piersma, T., 2010.  
Red Knots (*Calidris canutus rogersi* and *C. c. piersmai*) depend on a small threatened staging area in Bohai Bay, China. *Emu* 110, 307-315.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Sept 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Currawinya National Park (joined FSN 2006)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Currawinya National Park (Ramsar listed in 1996).
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1999 (a 2009 Update completed during the Ecological Character Description is not yet accepted)

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>Currawinya National Park is located in southern Queensland, Australia. Wetlands within the area approximately bounded by latitude 28°40' and 29° and longitude 144° and 145°, the southern-most boundary being the Queensland/New South Wales border. Nearest town is Hungerford, 36 kilometres to the south east.</p> <p>Currawinya National Park is a Ramsar-listed park and contains one of the richest and most diverse samples of wetlands in inland Australia, consisting of a mosaic of low dunefields, freshwater and saline lakes, claypans and salt pans, dissected tablelands and low hills. Numerous plant and animal species are at the extremes of their natural distribution here, and the site includes uncommon plant communities and habitat for rare and endangered species.</p> <p>Habitats of particular importance to migratory waterbirds are Lakes Numalla (freshwater) and Wyara (saline). Some writers claim that no other wetland complex in arid or southern Australia frequently supports such large populations of waterbirds (Paynter, 1998). Migratory waterbirds (shorebirds) represent a relatively small portion of the site's biota. The wetlands of the park act as a flood control mechanism and a drought refuge for birds and wildlife, with the site frequently but not annually supporting up to 100,000 non-migratory waterbirds from 41 species.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. FSN boundary map was submitted with the EAAF Site Information Sheet.</li> <li>2. A kml file and maps of the shorebird count sites is available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a>)</li> <li>3. Ramsar site boundary and wetland habitat mapping also available</li> </ol>

### 1. MIGRATORY WATERBIRDS

#### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAF nomination form:

Data extracted from the Site Information Sheet (for nomination into the Flyway Site Network), 2005:

Popular English Name	Scientific Name	1% Criteria WP5	Count	Count Date(s)	Reference
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	1,600	2,000	05-02-83	AWSG digital database

# The majority of sites in the East Asian – Australasian Flyway do not have sufficient count data to meet the Ramsar guidelines for defining the term “regularly supports”. Allowance has been made for sites in remote areas where only limited count information is available, and it is accepted that single counts can help establish the relative importance of the site for a species (Ramsar Convention 2000; Bamford *et al* 2008). Thus for the East Asian – Australasian Flyway, Shoalwater Bay is considered to have met the 1% criterion on the basis of a limited number of counts.

Habitat and conditions as well as evidence from other wetlands in the Australian inland suggest that Sharp-tailed Sandpiper probably occurs frequently though not annually at this site, in numbers exceeding the 1% threshold.

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

None identified and few other candidate populations are expected to occur at this site in numbers exceeding their 1% threshold.

**1.3 Are all the key populations counted?:** All      Some       None

*If “some” please list these:*

No formal counts for whole site since 1998

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?**       1      2-5      6-10      >10

**1.4.2 If counts from >5 years ago, then how many counts were made:**       <10      10-100      >100

**1.4.3 Contact details of organization / individual leading recent counting:**

Roger Jaensch, c/- Wetlands International - Oceania:

Jaensch, R.P. (1998). An aerial and ground survey of waterbirds at Lakes Wyara and Numalla, Currawinya National Park, on 20-21 June 1998. An unpublished report to the Queensland Department of Environment and Heritage, Wetlands International-Oceania, Canberra.

The site management authority, Queensland Parks & Wildlife Service, is responsible for monitoring of biodiversity at the site and should be contacted to ascertain the most recent information. Over the past five years the site has either been mostly dry (due to prolonged drought), or too wet (due to floods) to be readily accessible for surveying.

**1.4.4 Has the data been analysed?** yes /  no / partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?** Yes /  No

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Sharp-tailed Sandpiper	unknown	

**1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):**

For waterbirds in arid and other inland regions of Australia, numbers at any one site typically vary greatly year-to-year in accord with naturally-driven variations in water depths and habitat availability, both on-site and elsewhere in similar regions. Migratory shorebirds either use these wetlands during drying-out phases (lakes) or after seasonal floods (floodplain swamps and marshes) if such events occur when the birds are in Australia (mainly early September to early April). Although large numbers of shorebirds may use any one important site frequently (e.g. in 5-10 years) within a 30 year period, the natural variability – and sparseness of surveys – invariably prohibits managers from drawing meaningful conclusions about trends in numbers, provided the site’s habitat integrity remains intact.

## 2. WATERBIRD HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
5.5 [O -- Permanent freshwater lakes (over 8 ha)]	N/A	Sharp-tailed Sandpiper (Lake Numalla)	0	0	No significant changes in extent or quality (other than caused by natural long-term patterns of inundation).
5.14 [Q -- Permanent saline/brackish/alkali ne lakes]		Sharp-tailed Sandpiper (Lake Wyara)	0	0	No significant changes in extent or quality (other than caused by natural long-term patterns of inundation).
5.6 [P -- Seasonal/intermittent freshwater lakes]	N/A		0	0	No significant changes in extent or quality (other than caused by natural long-term patterns of inundation).
5.15 [R -- Seasonal/intermittent saline/brackish/alkali ne lakes and flats]			0	0	No significant changes in extent or quality (other than caused by natural long-term patterns of inundation).
5.8 [Ts -- Seasonal/intermittent freshwater marshes/pools on inorganic soils]			0	0	No significant changes in extent or quality (other than caused by natural long-term patterns of inundation).

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

The large lakes tend to support highest numbers of sandpipers, especially during drying-out phases that are part of natural long-term patterns of inundation.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing	Extent	Severity
		In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7. Natural System Modifications</b> 7.2. Dams & water management/use (water abstraction from the upstream supply catchment)	O (Lake Numalla) primarily; Q (Lake Wyara) to lesser extent.	1	0	0

<b>9. Pollution</b> 9.3 Agricultural & forestry effluents (sediment loads into lakes)	Q -- Permanent saline lake (L. Wyara) and P & R -- Seasonal/intermittent freshwater and saline lakes	1	0	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (increased access to waterbird breeding and roost sites by pigs and foxes)	Direct on shorebirds, Lake Wyara	1	0	0

**3.2 Other comments on threats (including management actions to address threats):**

- Threat management at the site includes signs and other local education to inform park visitors about importance of maintaining habitat and protection for waterbirds.
- Surrounding lands are predominantly leasehold lands used for grazing cattle and sheep, and as such require cooperative management to address threats – such as overgrazing and erosion (that may contribute to lake sedimentation, especially after droughts) – associated with these activities.
- Upstream harvesting of water and any other activity that reduces flow through the catchment must be prevented or regulated to ensure regular natural floods. Such activity is very limited at present and is managed, with conservation outcomes in mind, under State-level water resource plans for the Paroo River catchment. Any changes in management of river catchments (eg, water abstraction for irrigation) that could affect hydrology and ecology of the site, will require cooperative arrangements between the state and federal governments and several industry and community stakeholders.

**3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?**

Key Population/s	<5%	6-25%	26-50%	>50%
Sharp-tailed Sandpiper	X			

## 4. CONSERVATION MEASURES

**4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?**

Yes. 100% of shorebird habitat is protected under the Currawinya National Park. The EAAF Network Site and Ramsar site both use the Currawinya National Park boundary.

**4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?**

**Management Plan has been prepared?:** yes / no (Yes – Currawinya National Park Management Plan, 2001)

**Is the Management Plan current?:** yes / no (Yes, but due for review in 2011)

**Is it comprehensive?:** yes / no (Yes)

**4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?**

- 1 The statutory management plan also recommends establishment of a scientific research base on the park, as the provision and maintenance of suitable infrastructure are likely to attract continuing research to the park, but as yet, there are no purpose-built research facilities on or adjacent to the site.
- 2 In the past, park staff regularly conducted bird surveys on the major lakes within the park and have records of species presence and abundance. Staff and monetary resources presently are insufficient to support waterbird surveys ahead of other (e.g. visitor use and alien species control) management activities.
- 3 Interpretive panels have been installed at Lakes Numalla and Wyara, illustrating the biological importance of the lakes, the relevance of their listing as “Wetlands of International Importance, especially as waterfowl habitat” under the Ramsar Convention, and the sound use of these lakes for recreation.
- 4 An information shelter has recently been constructed adjacent to the Eulo-Hungerford road, at the entrance to the ranger’s office. Information on the interpretive panels outlines the park values and provides a general orientation of the park.

## 5. REFERENCES

AWSG digital database

Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia. 239pp.

Queensland Parks and Wildlife Service (1999) Currawinya National Park – Management Plan. [online] Available: [http://www.epa.qld.gov.au/publications?id=200\[09/02/04\]](http://www.epa.qld.gov.au/publications?id=200[09/02/04]).

Ramsar Convention Bureau. (2000). Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance of the Convention on Wetlands. Ramsar Convention Bureau, Gland.

[www.ramsar.org/key\\_guide\\_list\\_e.htm](http://www.ramsar.org/key_guide_list_e.htm)



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
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<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Sept 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Discovery Bay Coastal Park (EAAF Site# 091; joined FSN 2006)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Discovery Bay to Piccaninnie Ponds IBA
<b>Name of Ramsar site (if listed):</b>	Not Listed
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	Oct 2004 Site Information Sheet for nomination to the Shorebird Site Network (before transfer to the Flyway Site Network)

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Discovery Bay Coastal Park FSN site is 10,460 ha in total size. It includes the whole of Discovery Bay Coastal Park and that part of the Discovery Bay Marine National Park that is between high and low water mark. The coastal landforms of Discovery Bay Coastal Park include beaches, coastal cliffs, headlands and dune fields. It also includes Oxbow Lake and Long Swamp of which are listed in <i>A Directory of Important Wetlands in Australia</i> (DEWHA 2008). The coastline itself is a dynamic high-energy system, and the dune fields constitute the largest area of mobile dunes in Victoria.</p> <p>The Discovery Bay Coastal Park FSN Site is the fourth most important site in Australia for the sanderling (<i>Calidris alba</i>), and has regularly supported more than 1 per cent of the flyway population. Sanderling use the whole of the coastal strip but there are concentrations around the Glenelg River mouth. Discovery Bay Coastal Park is also an important breeding area for various resident shorebird species including the endemic hooded plover (<i>Thinornis rubricollis</i>), little tern (<i>Sterna albifrons</i>), pied oystercatcher (<i>Haematopus longirostris</i>) and red-capped plover (<i>Charadrius ruficapillus</i>).</p> <p>The site also supports the globally threatened (IUCN Red List of Threatened Species - Endangered) Australasian Bittern (<i>Botaurus poiciloptilus</i>) as well as a number of species that are endangered and vulnerable under Australia's <i>Environment Protection and Biodiversity Conservation Act 1999</i>.</p> <p><b>Note:</b> The IBA also includes areas in South Australia that are contiguous with the Shorebird Site. The IBA extends along the entire coast from Green Point in South Australia to eastern Bridgewater Bay in Victoria. It includes the wetland along the drain to Green Point, Pick Swamp, Piccaninnie Ponds Conservation Park, a small parcel of private land to the north of Piccaninnie Ponds Conservation Park, and Discovery Bay Coastal Park east to the end of Discovery Bay (the remaining sections along Bridgewater Bay and Nelson Bay only support Rufous Bristlebirds amongst the key bird species). The IBA also includes the Glenelg River estuary, Long Swamp and other freshwater swamps, some small permanent freshwater lakes and pools, and some small patches of herb-rich eucalypt woodland.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>Yes. (kml site-location file available at <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a>) Site boundary map is available at: <a href="http://parkweb.vic.gov.au/explore/parks/discovery-bay-coastal-park">http://parkweb.vic.gov.au/explore/parks/discovery-bay-coastal-park</a></p>

# 1. Migratory waterbirds

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Data extracted from the Site Information Sheet (for nomination to the Flyway Site Network).

In addition to the counts below for Discovery Bay Coastal Park, sanderling counts exceeding 1000 are common in the Piccaninnie Ponds Conservation Park (Christie 2006), which is part of the IBA, but immediately outside the "Discovery Bay Coastal Park" Flyway Network Site. A count of 2000 sanderling was recorded on 2<sup>nd</sup> February, 2006 at the Piccaninnie Ponds outlet (Christie 2006).

Popular English Name	Scientific Name	1% Criteria WP5	Count	Count Date(s)	Reference
Sanderling	<i>Calidris alba</i>	220	232	21/02/1981	AWSG dd
			560	01/01/1983	AWSG dd
			610	06/10/2005	AWSG dd
			2 000	2006	Christie

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

1. No additional populations have been identified as meeting the FSN criteria.

1.3 Are all the key populations counted?:  All  Some  None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Maureen Christie, Australasian Wader Studies Group, Email:  
Golo Maurer, Birds Australia, Email:

1.4.4 Has the data been analysed?  yes / no / partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?  Yes / No

Analyses conducted on annual summer (non-breeding) season counts made from 1981 to 2008. However, the conclusions are provided with strong caveats.

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknwn	Reference (may also include unpublished data)
Sanderling	no change	

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. Waterbird/Habitats

### 2.1 Ramsar wetland types used by key populations:

\* Changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.1 [D -- Rocky marine shores]	No data	Sanderling	0	0	No significant changes in extent or quality.
12.2 [E - Sand, shingle or pebble shores]	No data	Sanderling	0	0	No significant changes in extent or quality.

2.2 Other comments (including if changes to habitat between FSN listing and now):  
N/A

## 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type  (as identified in the section above)	Timing  In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent  0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity  0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities (humans and pets disturbing feeding and roosting birds)	Direct on shorebirds	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by feral foxes and cats)	Direct on shorebirds	3	0	0

3.2 Other comments on threats (including management actions to address threats):

- See 4.3 below for management responses.

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

NOTE: The following estimates relate to on-site threats only:

Key Population/s	<5%	6-25%	26-50%	>50%
Sanderling	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. 100% of the site is encompassed in the Discovery Bay Coastal Park and intertidal portions of the Discovery Bay Marine Park.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?: yes / no**

(Yes) Sta

tutory Plans:

(1) Discovery Bay Parks Management Plan 2004 (Amended 2006)

**Is the Management Plan current?:**        **yes / no**        (Yes)

**Is it comprehensive?:**                    **yes / no**        (Yes)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- 1 Restricted areas and regulations on human recreational activities;
- 2 Education and regulatory signs throughout the Park, addressing conservation of breeding and roosting shorebirds.
- 3 Limited patrols by park ranger staff are used to educate and enforce regulations on minimising habitat damage and disturbance to migratory waterbirds;
- 4 Guided visits and educational projects for schools groups;
- 5 Feral fox and cat control program to protect nesting shore birds;
- 6 Invasive weed controls;
- 7 An ongoing nesting shorebirds monitoring program;
- 8 Summer and winter counts since 1981 for waders and other waterbirds;
- 9 Some scientific research occurs in coastal and marine habitats on a specific needs basis and when resources are available. (conducted by universities, research institutions, government agencies and consultants).
- 10 There are no dedicated research facilities in or adjacent to the site.

## 5. REFERENCES

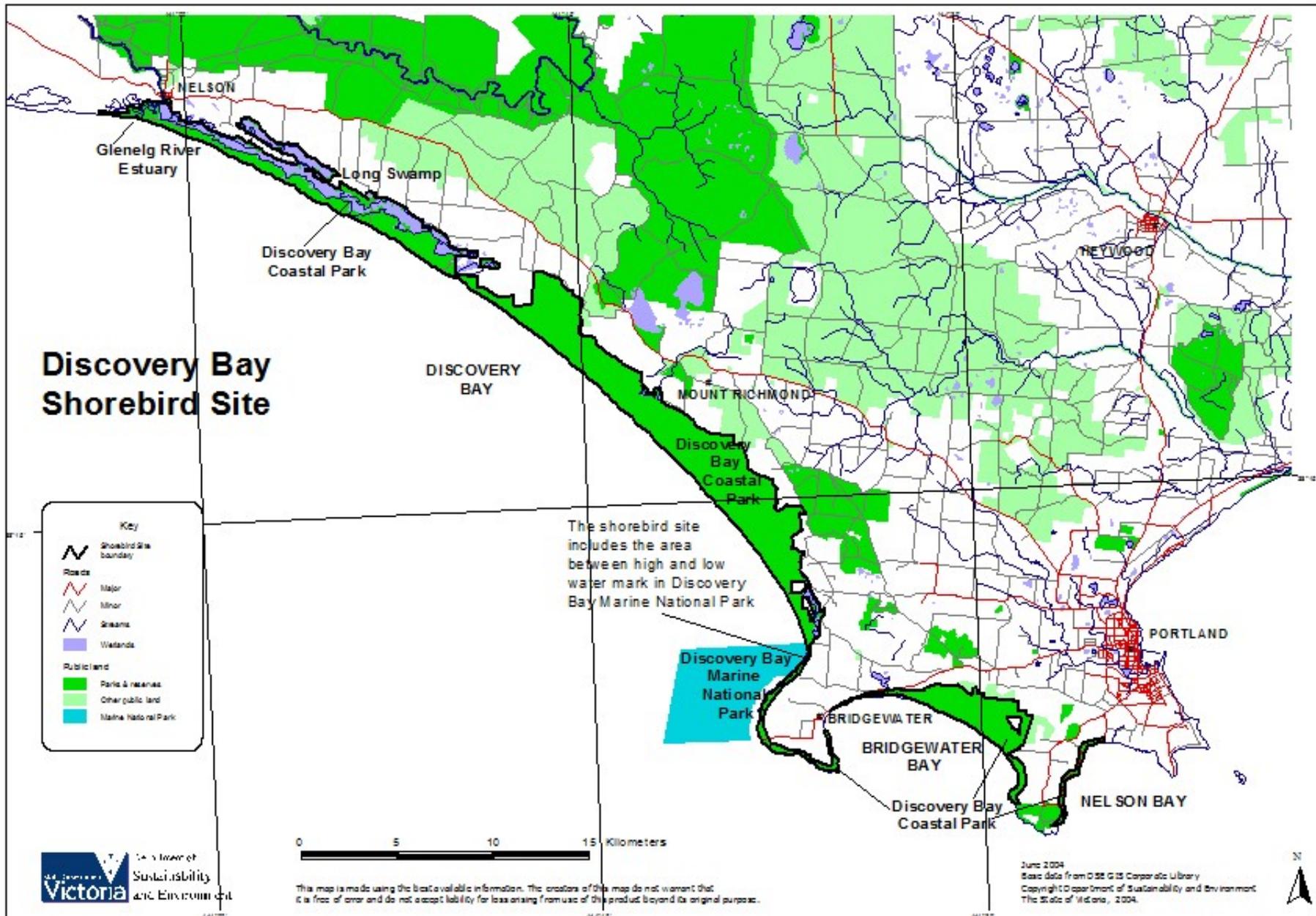
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Christie, M. (2006) Wader sites in the lower south east, South Australia. *Stilt* 50: 259-262.

DEWHA (2008) A Directory of Important Wetlands in Australia.

<http://www.environment.gov.au/water/publications/environmental/wetlands/database/> accessed June 2008.

Parks Victoria (2004). *Discovery Bay Parks Management Plan 2004 (Amended 2006)*. Parks Victoria, Melbourne. 82 pp.



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
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<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Great Sandy Strait (joined FNS in 2006)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Great Sandy Strait (includes some additional habitat north of the Flyway Network Site)
<b>Name of Ramsar site (if listed):</b>	Great Sandy Strait (Listed in 1999)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1999 (The 2009 RIS update, completed during development of the Ecological Character Description, is not yet available)

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Flyway Network Site (FNS) is defined by the Ramsar site boundary, however some feeding and roosting habitats exist immediately outside this boundary.</p> <p>Great Sandy Strait, in south-eastern Queensland, is part of the Great Sandy Marine Park and has been listed as a Ramsar Wetland of International Significance since 1999. It is a sand passage estuary between the mainland and the World Heritage-listed Fraser Island, and is the least modified of three such passages in Queensland. The 70km long Strait is between 5-15km wide, with its centre 20km east southeast of Maryborough. It is the largest area of tidal swamps within the South East Queensland bioregion, consisting of intertidal sand and mud flats (roughly one-third), extended seagrass beds, mangrove forests, salt flats and saltmarshes, and often contiguous with freshwater Melaleuca wetlands and coastal wallum swamps.</p> <p>The Great Sandy Strait is one of the three most significant roosting and feeding areas for migratory shorebirds in eastern Australia. During summer, shorebird numbers can swell to 30 000 when migratory species join resident birds in the Great Sandy Strait. Large numbers of shorebirds feed on expansive tidal flats alongside the mainland or Fraser island, or on banks in the middle of the Strait. Roosting sites near the feeding grounds are usually open areas above high tide mark (claypans, saltmarshes, sandbars, spits and mangroves) where they can see predators easily.</p> <p>The Important Bird Area (IBA) boundary is slightly larger than the Flyway Network Site (FNS), and contains all of the shorebird roosting and feeding grounds along the site.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>Yes. Map was submitted with the EAAF Site Information Sheet. (kml file available at <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a> ) Site boundary and wetland habitat mapping also available at: <a href="http://www.epa.qld.gov.au/wetlandinfo/site/MappingFandD.html">http://www.epa.qld.gov.au/wetlandinfo/site/MappingFandD.html</a></p>

# 1. MIGRATORY WATERBIRDS

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Data extracted from the Site Information Sheet (for nomination into the Flyway Site Network), 2005:

Popular English Name	Scientific Name	1% Threshold WPE5	Count	Count Date(s)	Ref.
Far Eastern Curlew	<i>Numenius madagascariensis</i>	320	6 018	01/01/90	Driscoll 1990
			5 909	15/11/97	Driscoll 1998
			4 994	Feb 1995	QWSG 1995
Bar-tailed Godwit	<i>Limosa lapponica baueri</i>	2 790	12 986	01/01/90	Driscoll 1990
			17 992	15/01/01	Driscoll & Cross 2003
			17 575	Feb 1995	QWSG 1995
Grey-tailed Tattler	<i>Tringa brevipes</i>	440	7 680	01/01/90	Driscoll 1990
			3 388	15/11/97	Driscoll 1998
			2 322	Feb 1995	QWSG 1995
Whimbrel	<i>Numenius phaeopus variegates</i>	550	3 128	01/01/90	Driscoll 1990
			1 819	Feb 95	Driscoll 1998
			2 728	Feb 1995	QWSG 1995
Lesser Sand Plover	<i>Charadrius mongolus mongolus</i> <sup>#</sup>	355	1 428	Feb 1983	AWSG Database
			1 630	Feb 95	Driscoll 1998
Common Greenshank	<i>Tringa nebularia</i>	1 000	1 069	01/01/90	Driscoll 1990
Terek Sandpiper	<i>Tringa cinerea</i>	500	2 494	01/01/90	Driscoll 1990
			528	15/11/97	Driscoll 1998

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

1.3 Are all the key populations counted?:  All  Some  None

If "some" please list these:

- The Queensland Wader Study Group (QWSG) undertakes monthly counts at key roost sites, with comprehensive counts made every 2 yrs..
- Roost counts for Grey-tailed Tattler and Common Greenshank may be under-estimates because these species often roost in mangrove branches on remote islands where they are hidden from view.

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Queensland Wader Study Group: <http://www.waders.org.au/contact-the-qwsg/> Count Coordinator: Linda Cross, Email: )

1.4.4 Has the data been analysed? yes / no /  partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations? Yes /  No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)

Far Eastern Curlew	unkown	
Bar-tailed Godwit**	unkown	
Grey-tailed Tattler	unkown	
Whimbrel	unkown	
Lesser Sand Plover <sup>#</sup>	Unknown?	
Common Greenshank	Unknown?	
Terek Sandpiper	Unknown?	

\*\* The Bar-tailed Godwit population here is regarded as part of the sub-population *Limosa lapponica baueri*.

<sup>#</sup> The Lesser Sand Plover population here is regarded as part of the sub-population *Charadrius mongolus mongolus*.

## 1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in extent* (+ / 0 / - / ?)	Changes in quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
G - Intertidal mud, sand or salt flats	N/A	Bar-tailed godwit; Far eastern curlew; Whimbrel; Lesser Sand plover; Terek sandpiper	0	0	No significant changes in extent or quality.
E - Sand, shingle or pebble shores	N/A	Bar-tailed godwit; Far eastern curlew; Whimbrel; Lesser Sand plover; Terek sandpiper	0	0	No significant changes in extent or quality.
I - Intertidal forested wetlands	N/A	Grey-tailed tattler; Common greenshank	0	0	No significant changes in extent or quality.

\*For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

N/A

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type  (as identified in the section above)	Timing  In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent  0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity  0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>6. Human Intrusions &amp; Disturbance</b> 6.1. Recreational activities (disturbance to feeding & roosting shorebirds by humans, domestic animals, vessels, aircraft)	Direct on shorebirds	3	2	1

### 3.2 Other comments on threats (including management actions to address threats):

Threat management at the site includes signs and other local education about disturbance to shorebirds. The *Marine Parks (Great Sandy) Zoning Plan 2006* also provides for a Shorebird roosting and feeding designated area across the Great Sandy Strait Ramsar site. The objects of the designated area are:

- To protect shorebirds, particularly migratory shorebirds and their habitat, and
- To minimise harm or stress caused directly or indirectly to shorebird by human activities or domestic animals.

Special management provisions relevant to meeting these objectives are outlined in the zoning plan, Penalties apply if excessive disturbance to shorebird or their habitat occurs.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Far Eastern Curlew	X			
Bar-tailed Godwit**	X			
Grey-tailed Tattler	X			
Whimbrel	X			
Mongolian Plover	X			
Common Greenshank	X			
Terek Sandpiper	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. Almost 100% of shorebird habitat is protected, apart from some roost areas that lie immediately outside the protected area boundaries. The EAAF Network Site uses the Ramsar site boundary. Protection of different areas comes mostly under the Great Sandy Marine Park, Great Sandy National Park (Fraser Island and Woody Island Sections), and Inskip Peninsular Recreation Area. Some areas are also within the Great Sandy Conservation Park and/or Fraser Island World Heritage Area. Fish Habitat Areas in some parts also include habitat protection.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** yes / no (Yes) – Great Sandy Region Management Plan 1994-2010 (2005 Revised Version) (Queensland DEH 2005).

**Is the Management Plan current?:** (No, the plan is currently under review)

**Is it comprehensive?:** (No, the plan is currently under review so it is not possible to comment on it's content at this time)

### 4.3 What conservation activities are taking place at the site to benefit migratory shorebirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- 1 Informal conservation education is conducted by local conservation groups and nature-based tourism operators – regarding habitat protection and minimisation of disturbance (by humans and pets) to feeding and roosting shorebirds.
- 2 Monthly shorebird counts are undertaken at some key high tide roost sites in the Great Sandy Strait by the Queensland Wader Study Group.
- 3 The Burnett Mary Regional Group for NRM Inc is currently rolling out the Caring for our Country Investment 2010-2012 “**Reducing Threats to the Great Sandy Strait Ramsar Wetland & Coastal Systems**” program.
- 4 As yet, there are no purpose-built research facilities on or adjacent to Great Sandy Strait.

## 5. REFERENCES

Driscoll, P.V. 1990. Survey of shorebird feeding areas and high tide roosts in the Great Sandy Strait, summer 1990. Report for the Qld Department of Environment and Heritage.

Driscoll, P V. (1998). Summary Report on Wader Surveys 1989 to 1997 in the Great Sandy Strait. Prepared by Peter Driscoll on behalf of the Queensland Wader Study Group for the QLD Department of the Environment.

Driscoll, P.V. and Cross, L. (2003). Report on wader and waterbird surveys 2001 to 2002 in the Booral area. Prepared on behalf of the Queensland Wader Study Group for the QLD Parks and Wildlife Service.

Lane 1987

QWSG 1995

Queensland Department of Environment and Heritage. 2005. Great Sandy Region Management Plan 1994-2010 (2005 Revised Version). Queensland Parks and Wildlife Service, Queensland Government. Brisbane.



## East Asian - Australasian Flyway Site Network

### Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Sept 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Hunter Estuary (joined FSN 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Hunter Estuary IBA
<b>Name of Ramsar site (if listed):</b>	Hunter Estuary (Ramsar listed in 1984).
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2002 (a 2009 Update completed during the Ecological Character Description has not yet been accepted)

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Hunter Estuary Flyway Network Site (FNS) is located near the city of Newcastle on the NSW central coast, eastern Australia. It uses the Hunter Estuary Ramsar site boundary, which comprises Kooragang Nature Reserve (2926ha, designated to the Ramsar list in 1984) and Shortland Wetlands (now called the Hunter Wetlands Centre Australia, 42ha, added in 2002). The boundary of Shortland Wetlands is 2.5 km from Kooragang Nature Reserve and is connected to it by a wildlife corridor consisting of Ironbark Creek, the Hunter River and Ash Island. The Hunter Estuary (including areas outside the FNS) is recognised as the most important area in NSW for shorebirds (Smith 1991), supporting as many as 4,800 migratory shorebirds (Straw 2000). A large shallow circular bay in the northern section, Fullerton Cove, provides the main shorebird foraging site in the estuary. The North and South Arms surround Kooragang Island, an important foraging and roosting area for shorebirds and waterfowl. The Kooragang Dykes and Stockton Sandspit, located immediately upstream of Stockton Bridge are the most important sites for the majority of roosting shorebirds in the estuary. Most of the estuary is bordered by tidal ponds, saltmarsh and mangroves. Tides at Kooragang Island range from 0.1m to 2m.</p> <p>The IBA contains the Ramsar listed 2926 hectare Kooragang Nature Reserve, the North Arm of the Hunter River, from Hexham to Stockton Bridge, and associated wetlands.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Map was submitted with the RIS (2002).</li> <li>2. A boundary description and map were also provided in the Ecological Character Description (Brereton &amp; Taylor-Wood 2010), but this document is only for the Kooragang component of the Ramsar site.</li> <li>3. A kml file and maps of the shorebird count sites is available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-">http://www.shorebirds.org.au/counting-shorebirds/sites-</a></li> </ol>

# 1. MIGRATORY WATERBIRDS

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):

English Name as used by EAAF	Scientific Name	1% Threshold WPE5	Maximum Count	Count Date(s)	Reference
Bar-tailed godwit	<i>Limosa lapponica</i>	1 550	3000-5000 2019	1983-1998 1999/2000	Herbert 2007 Herbert 2007
Black-tailed godwit	<i>Limosa limosa</i>	1 600	4000	(no date)	Smith 1991 cited in Bamford et. al 2008
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 800	4000 >2000	(no date) 1983-1998	Smith 1991 Herbert 2007
Far eastern Curlew	<i>Numenius madagascariensis</i>	380	900 555 383 578 786 617 570 520 443	2000 NB 2006 1999 2000 2001 2002 2003 2004 2005	Straw 2000 Herbert 2007 Stuart 2002-2006
Ruddy Turnstone	<i>Arenaria interpres</i>	250	520	01/02/1986	AWSG Database
Terek Sandpiper	<i>Xenus cinereus</i>	500	633	1996/97	Herbert 2007

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

English Name as used by EAAF	Scientific Name	1% Threshold WPE5	Maximum Count	Count Date(s)	Reference
Lesser Sandplover		130	180	Feb 1984	AWSG Database
Pacific Golden Plover		350	800 630 510	Feb 1984 Feb 1986 Feb 1987	AWSG Database

1.3 Are all the key populations counted?:  All  Some  None

If "some" please list these:

Counts occurred in several years between 1970 and 1998 (but not always at peak season for migratory shorebirds). Comprehensive monthly counts at key shorebird roosts have occurred since 1999.

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10 10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Hunter Bird Observers Club: Chris Herbert, Alan Stuart, Email:

1.4.4 Has the data been analysed? yes / no /  partially (Count data have been graphed, but analyses have not included full statistical treatments).

1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

**1.5.2 If yes please provide details:**

Key Population	Increase / no change / decline/ unknown	Reference (may also include unpublished data)
Far eastern curlew	Decline	Herbert 2007
Black-tailed Godwit	Decline	Herbert 2007
Bar-tailed Godwit	Decline	Herbert 2007
Terek Sandpiper	Decline	Herbert 2007
Ruddy Turnstone	Decline	Herbert 2007
Curlew Sandpiper	Decline	Herbert 2007

**1.6 Other comments (eg, if subjective conclusions were made about changes in populations):**

- Total numbers of Far Eastern Curlew at the site show a slight decline from 1999 to 2007, but numbers of over-wintering (non-breeding) birds have declined more noticeably. Maximum non-breeding season counts were between 800 and 1000 up until late 1990s, but since then numbers have usually been around 400-600 (Herbert 2007).
- The other 5 migratory shorebird species that originally met the 1% criterion have each substantially declined in numbers at the site, and since 1999 these species no longer met the 1% criterion. However, two resident shorebird species increased in numbers over the same period (Herbert 2007).

**2. WATERBIRD HABITATS****2.1 Ramsar wetland types used by key populations:**

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type (IUCN & Ramsar codes)	Extent (ha) (or N/A)	Key populations supported	Changes in extent* (+ / 0 / - / ?)	Changes in quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
G - Intertidal mud, sand or salt flats	N/A	Far Eastern Curlew	?	?	Insufficient data to assess changes in extent or quality.
H - Inter-tidal marshes (tidal and brackish marshes)	N/A	Far Eastern Curlew	-	?	Significant declines in extent before 1996, and continuing.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

**2.2 Other comments (including if changes to habitat between FSN listing and now):**

Declines in extent of saltmarsh (Rogers and Saintilan 2009), attributed to changes in tidal range and changes in the freshwater/saltwater balance, have been occurring since the time of Ramsar listing (1984) – see Outhred and Buckney (1983). The habitat declines in extent of saltmarsh have been linked to the declines in migratory shorebirds within the Kooragang component, through loss of their foraging and roosting habitat (Herbert 2007).

**3. MAJOR THREATS****3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.**

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

<b>11. Climate change &amp; severe weather</b> 11.1 Habitat shifting & alteration (sea level rise) 11.4 Storms & flooding (increased rainfall, decrease in salinity)	H - Inter-tidal marshes (tidal and brackish marshes)	3	2	0
<b>7. Natural System Modifications</b> 7.3 Other ecosystem modifications (dredging and flood mitigation)	H - Inter-tidal marshes (tidal and brackish marshes)	3	1	1
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents (sediment loads)	H - Inter-tidal marshes (tidal and brackish marshes)	3	1	1
<b>9. Pollution</b> 9.2 Industrial & military effluents (9.2.1 Oil spill events)	Direct on shorebirds	2	0	0
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities	Direct on shorebirds	3	0	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by foxes and feral and domestic cats)	Direct on shorebirds	3	0	0

### 3.2 Other comments on *threats (including management actions to address threats)*:

- Threats outside the site (ie, in the Yellow Sea region) are considered to be as important as those operating at the site (Herbert 2007).
- See 4.3 below for management responses.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

**NOTE:** The following estimates relate to **on-site threats** only:

<i>Key Population/s</i>	<5%	6-25%	26-50%	>50%
Far eastern curlew		X		

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. 100% of shorebird habitat is protected under the Kooragang National Park and Shortland Wetlands. The EAAF Network Site and Ramsar site both use the boundary of Kooragang National Park plus Shortland Wetlands.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** *yes / no* (Yes – Kooragang Nature Reserve and Hexham Swamp Nature Reserve Plan of Management, 1998)

**Is the Management Plan current?:** *yes / no* (Yes)

**Is it comprehensive?:** *yes / no* (Yes)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

#### 4.3.1 Site/area protection

#### 4.3.2 Site/area management

- National Parks and Wildlife Service (1998) - Kooragang Nature Reserve and Hexham Swamp Nature Reserve Plan of Management.
- National Parks and Wildlife Service (2004) - Pambalong Nature Reserve Plan of Management.
- The Wetland Centre (2003) - Plan of Management for public education and wetland

#### 4.3.3 Habitat & natural process restoration

- The Kooragang Wetland Rehabilitation Project has been operating for more than 10 years.
- Rehabilitation of Stockton Sandspit by joint cooperation of KWRP, NPWS and HBOC. Rehabilitation of Sandy Is and Smiths Is by NPWS. Installation of artificial roost platforms in Fullerton Cove by NPWS. Rehabilitation of Swan, Wader and Milhams Pond on Ash Island (joint project of HBOC and KWRP). Reintroduction of tidal flow to the Tomago wetlands (NPWS & KWRP).
- Hunter Central Rivers CMA commissioned WBM Oceanics (2005) to assess environmental impacts of reinstating tidal inundation of Hexham Swamp by managing floodgates on Ironbark Creek.

#### Research:

- 2 Honours theses on Bar-tailed Godwits, a PhD thesis on wader ecology and another PhD on hydrology. Monthly surveys of birds in estuary by the Hunter Bird Observers Club.

## 5. REFERENCES

- Brereton, R., and Taylor-Wood, E. (2010), Ecological Character Description of the Kooragang Component of the Hunter Estuary Wetlands Ramsar Site. Report to the Department of the Environment, Water, Heritage and the Arts, Canberra.
- Herbert, C. (2007). *Distribution, Abundance and Status of Birds in the Hunter Estuary*. Report to Newcastle City Council. Hunter Bird Observers Club. Special Publication No. 4.
- Outhred, R.K., and Buckney, R.T. (1983). Vegetation survey. In, J. (ed). *An investigation of the natural areas: Kooragang Island, Hunter River*. 1983. Report prepared by C.D. Field and Associates and Insearch Ltd. Department of Environment and Planning, Sydney.
- Rogers, K and Saintilan, N. (2004). *Monitoring the loss of saltmarsh at Kooragang Island. Progress Report 2004*. Centre for Environmental Restoration and Stewardship. Australian Catholic University National.
- Smith, P. (1991) The biology and management of waders (Suborder Charadrii) in NSW. NSW Parks and Wildlife Service, Species Management Report Number 9 (unpubl.).
- Straw, P. (2000) Hunter Estuary Wader Habitat Investigation Stage 2. Unpublished report: NSW National Parks and Wildlife Service.
- Stuart, A. 2000-2006. Hunter Bird Observers Club Hunter Region of New South Wales. Annual Bird Report Nos 7-13 for the years 1999-2005. Hunter Bird Observers Club.
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## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Kakadu National Park (Joined FSN in 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Alligator Rivers Floodplains IBA
<b>Name of Ramsar site (if listed):</b>	Kakadu National Park (Stage I listed in 1980; Stage II listed in 1989; Stage III wetland components listed in 1995; remaining Stage III extension in 2010).
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	June 2011 RIS update was completed during writing of the Ecological Character Description, 2010.

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Kakadu National Park Flyway Network Site (FNS) comprises the Kakadu National Park Ramsar site, which is located entirely within the boundaries of Kakadu National Park, located approximately 200 kilometres east of Darwin in the Northern Territory, Australia. The Kakadu National Park Ramsar site was historically two separate Ramsar sites within Kakadu National Park. These were Kakadu National Park (Stage I including wetland components of Stage III) and Kakadu National Park (Stage II). Kakadu National Park Stage I was originally listed as a Ramsar site in 1980 and expanded in 1995 to include wetland components of Stage III, while Stage II was listed in 1989 as a separate Ramsar site. The total site area is now 1 979 766 hectares. Approximately 50 percent of Kakadu National Park is Aboriginal land. Most of the remaining area of land is under claim by Aboriginal people. The Ramsar site is an iconic destination within Australia, renowned for exceptional beauty and unique biodiversity, and a variety of landforms, habitats and wildlife. It is one of the very few World Heritage sites listed for both its cultural and natural values.</p> <p>Kakadu National Park lies in a “hot humid summer” climate region of tropical northern Australia. It includes sandstone plateau communities, escarpments, extensive seasonal floodplains, estuaries, tidal flats, offshore islands, seasonal freshwater marshes and permanent freshwater pools. The rivers (of six catchments) are tidal in their lower reaches and are associated with extensive tidal flats formed from riverborne mud.</p> <p>Between September and October between 2 and 3 million waterbirds accumulate on the floodplains. More than 60 species of waterfowl occur in the wetlands including large concentrations of Magpie Geese <i>Anseranas semipalmata</i> and Wandering Whistling Duck <i>Dendrocygna arcuata</i>. These and many other species breed in the wetlands but most species are dry season migrants. 35 species of wader have been recorded, including many winter migrants to the sub-Arctic, whose first Australian landfall is the Kakadu area. 59 fish species (excluding obligate marine species) are known from the wetland including eight with narrowly restricted ranges. Breeding populations of both freshwater and estuarine crocodiles occur. The wetland is also noted for or important to the conservation of several species of waterbird, passerines, mammals, reptiles, frogs and fish. The site contains an abundance of archaeological sites and items, and an ongoing ‘living culture’ is maintained by the traditional owners of Kakadu National Park today who display a fundamental connection with the wetlands of the Ramsar site.</p> <p><b>Note:</b> The Alligator Rivers Floodplains IBA is much smaller (383151 ha). It covers only the floodplain components of the Ramsar site and adjoining floodplains immediately outside the eastern boundary of the FNS/Ramsar site. Specifically it includes four large adjacent floodplains on the Wildman, Love and Alligator creeks,</p>

	and the South Alligator, East Alligator, Magela, Cooper and Murguenella rivers. All are primarily seasonally flooded freshwater floodplains, with extensive areas of saltwater floodplains and permanent freshwater swamps.
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	Yes. 1. Ramsar Site boundary map available at: <a href="http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=2#">http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=2#</a> 2. A kml site-location and map file of current shorebird count sites is available at <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a>

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Popular English Name	Scientific Name	1% Criteria WP5	Counts	Count Date(s)	Reference
Marsh Sandpiper	<i>Tringa stagnatilis</i>	1 000	1 600	24/04/1992	Chatto 2003
Little Curlew	<i>Numenius minutes</i>	1 800	17 380 180 000	11/11/1987 1980's	Bamford 1988 Morton <i>et al</i> 1991
Common Sandpiper	<i>Actitis hypoleucos</i>	500	300	Oct 1987	Bamford 1988
Australian Pratincole	<i>Stiltia Isabella</i>	250	30 000 1 391	1980's 1987	Morton <i>et al</i> 1991 Bamford 1990
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	1 600	4 900 3 000	April 1992 May 1993	Chatto 2003 Chatto 2003

**Note:** The counts for Marsh Sandpiper and Sharp-tailed sandpiper were on wetlands near the mouth of the East Alligator River (Chatto 2003, p.160) and therefore may include birds which were just outside of the site boundary (Chatto *pers comm.* 2011). Chatto (2006) identified only low numbers of Australian Pratincole from his aerial surveys, but notes that they may have been present in much larger numbers, as demonstrated in ground surveys by Morton *et al* (1991). The Marsh Sandpiper count is extrapolated from counts near East Alligator River (Chatto 2003 p.127)

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

- No additional populations have been identified as meeting the FSN criteria.
- Chatto (2003) comments that other species may occur in numbers which exceed the threshold (terek sandpiper *Xenus cinereus*, broad-billed sandpiper *Limicola falcinellus*, grey plover *Pluvialis squatarola*, and lesser sand plover *Charadrius mongolus*), though suitable data to confirm this view are not currently available.

### 1.3 Are all the key populations counted?: All Some None If "some" please list these:

For this large and relatively remote site, comprehensive count estimates are difficult to achieve. Prior to 1990, only limited counts were made. Several hundred hours of aerial and ground surveys occurred from 1990 to 2001 inclusive (Chatto 2003, 2006). Few counts have been conducted since 2001.

### 1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made:  <10  10-100  >100

### 1.4.3 Contact details of organization / individual leading recent counting:

Biodiversity Conservation Division of the Northern Territory.  
Brydie Hill, Email:

1.4.4 Has the data been analysed? yes / no /  partially

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations? Yes /  No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Marsh Sandpiper	unknown	
Little Curlew	unknown	
Common Sandpiper	unknown	
Australian Pratincole	unknown	
Sharp-tailed Sandpiper	unknown	

## 1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

The large and remote areas here make it very difficult to achieve repeated comprehensive surveys sufficient for monitoring population sizes, so assessment of population change at the site is extremely difficult.

## 2. Waterbird/Habitats

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

\* Changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown(?)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
9.9 [B -- <b>Marine subtidal aquatic beds</b> ] – seagrass meadows	<2000ha	Common Sandpiper	?	?	Changes may occur, but no site-scale monitoring conducted.
12.1 [D -- <b>Rocky marine shores</b> ]	3.2 km of coastline		0	0	No monitoring, but no significant changes in extent or quality assumed.
12.2 [E - <b>Sand, shingle or pebble shores</b> ]	??	Common Sandpiper	0	0	No monitoring, but no significant changes in extent or quality assumed.
12.4 [G - <b>Intertidal mud, sand or salt flats</b> ] – also includes intertidal seagrass habitat.	??	Common Sandpiper	0	0	No monitoring, but no significant changes in extent or quality assumed.
12.5 [H - <b>Intertidal marshes</b> ] - includes salt marshes, tidal brackish and freshwater marshes.	??	Marsh Sandpiper, Common Sandpiper, Sharp-tailed Sandpiper	0	0	No monitoring, but no significant changes in extent or quality assumed.

12.7 [I - Intertidal forested wetlands] - mangroves	8690 ha		0	0	No monitoring, but no significant changes in extent or quality assumed.
5.8 [Ts - Seasonal/intermittent freshwater marshes/pools on inorganic soils]	??	Marsh Sandpiper, Little Curlew, Australian Pratincole, Sharp-tailed Sandpiper	0	0	No monitoring, but no significant changes in extent or quality assumed.
4.6 Subtropical/Tropical Seasonally Wet/Flooded	??	Australian Pratincole, (Little Curlew?)	?	?	

2.2 Other comments (including if changes to habitat between FSN listing and now): N/A

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
11 Climate change & severe weather 11.1 Habitat shifting & alteration	12.4 [G - Intertidal mud, sand or salt flats]	1	1	0
11 Climate change & severe weather 11.2 Droughts 11.3 Temperature extremes ...leading to: 7 Natural system modifications 7.1 Fire & fire suppression 7.1.1 Increase in fire frequency/intensity	12.2 [E - Sand, shingle or pebble shores] - Roost habitats 5.8 [Ts - Seasonal/intermittent freshwater marshes/pools on inorganic soils]	1	1	0

3.2 Other comments on threats (including management actions to address threats):

- See 4.3 below for management responses.

3.3 In summary, **in the next 10 years**, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

NOTE: The following estimates relate to on-site threats only:

Key Population/s	<5%	6-25%	26-50%	>50%
Marsh Sandpiper	X			
Little Curlew	X			
Common Sandpiper	X			
Australian Pratincole	X			
Sharp-tailed Sandpiper	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. Almost 100% of key shorebird feeding and roost habitat is protected under the National Park.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

#### *Management Plan has been prepared?*

Yes Stat

Statutory Plans:

Kakadu National Park Management Plan 2007-2014 (Director of National Parks

2007) Non-statutory:

*Is the Management Plan current?:* Yes

*Is it comprehensive?:* Yes

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- As 100% National Park, the principal land uses are conservation management, tourism and education and low levels of hunting and gathering by traditional owners living within and around the Park.
- Traditional knowledge has been critical with Parks Australia for joint monitoring and managing threats to the Ramsar site, thereby maintaining the ecological character. For example, Bininj and local community members established a buffalo control program to reduce buffalo numbers, and started to restore wetlands in the 1970s.
- Traditional owners work with Parks Australia to develop fire management strategies and annual burning plans that replicate traditional burning (Director of National Parks 2007).
- There has been extensive research, as summarised in Smyth (1995).

## 5. References:

Bamford, M.J. (1988) Kakadu National Park: A Preliminary Survey of Migratory Waders October/November 1987. RAOU Report No. 41. Royal Australasian Ornithologists Union, Melbourne.

Bamford, M.J. (1990) RAOU Survey of Migratory Waders in Kakadu National Park: Phase III. RAOU Report 70. Royal Australasian Ornithologists Union, Melbourne.

Chatto, R. (2003). *The distribution and status of shorebirds around the coast and coastal wetlands of the Northern Territory*. Technical Report 73, Parks and Wildlife Commission of the Northern Territory, Palmerston. 257pp. [http://www.nt.gov.au/nreta/publications/wildlife/science/pdf/2003\\_shorebirds\\_rpt76.pdf](http://www.nt.gov.au/nreta/publications/wildlife/science/pdf/2003_shorebirds_rpt76.pdf) (viewed 01/11/2011)

Chatto, R. (2006). *The distribution and status of waterbirds around the coast and coastal wetlands of the Northern Territory*. Technical Report 76, Parks and Wildlife Commission of the Northern Territory, Palmerston. 254pp. [http://www.nt.gov.au/nreta/publications/wildlife/science/pdf/2006\\_waterbirds\\_report76.pdf](http://www.nt.gov.au/nreta/publications/wildlife/science/pdf/2006_waterbirds_report76.pdf) (viewed 01/11/2011)

Director of National Parks (2007) Kakadu National Park Management Plan 2007-2014. Director of National Parks. [Online] <http://www.environment.gov.au/parks/publications/kakadu/pubs/management-plan.pdf>

Morton, S. R. et al. (1991). *Distribution and abundance of waterbirds on the Alligator Rivers Region, Northern Territory*. Open File Record No. 86. Office of Supervising Scientists for the Alligator Region. Jabiru.

# East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Jan 2012
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	<b>Logan Lagoon (Site # EAAF012);</b> Joined FNS in Mar 1996
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Eastern Flinders Island IBA (2257 ha) includes the Logan Lagoon FNS, plus other lagoons and the coast strip of land on the eastern side of Flinders Island.
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Logan Lagoon FSN site (2257 ha) is located at 40.16670°S 148.28330°E, situated on the south-east corner of Flinders Island, Bass Strait, Tasmania, approximately 6 km north-east of the township of Lady Barron. The site extends from the southern shore of South Chain Lagoon in the north down to Wilsons Lagoon in the south. Flinders Island had a population of 897 people in 2001 (Australian Bureau of Statistics).</p> <p>Logan Lagoon is one of three large estuarine lagoons which make up a coastal lagoon system along the south-east coast of Flinders Island, Bass Strait. It is situated within the Logan Lagoon Conservation Area. Access to the lagoon is by four-wheel drive only. The site is all less than 20 m above sea level (ASL). Maximum water depth is 1-1.5 m. The area is in a relatively natural condition except for some cleared and drained agricultural land on the western shore. The lagoon is fringed with <i>Juncus</i> reed beds whilst the surrounding land supports grassland with scattered <i>Eucalyptus</i>, <i>Allocasuarina</i> and <i>Banksia</i> trees. Being a shallow evaporative basin, the lagoon is rich in nutrients and provides abundant food for water birds.</p> <p>The <b>Eastern Flinders Island IBA</b> is much larger than the FSN site. The IBA comprises the sandy east coast and the south-eastern lagoons of Flinders Island in Bass Strait. The system is dominated by three large estuarine waterbodies: Sellars Lagoon, Cameron Inlet and Logan Lagoon.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Yes. The site boundary map is available in the Logan Lagoon Conservation Area Management Plan 2000 (DPIWE 2000).</li> <li>2. Yes. No copy yet at the EAAF Secretariat.</li> </ol>

## 1. MIGRATORY WATERBIRDS

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form** (*Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>*):

The following species have been found at the site in numbers that exceed the 1% criterion:

English Name (used by EAAFP)	Scientific Name	1% Threshold WPE5	Maximum Counts	Count Dates	Reference
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	2 470	3/1984	Bamford et al. 2008
Red-necked Stint	<i>Calidris ruficollis</i>	3 250	4 000	26/02/1999	Bamford et al. 2008

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

Nil.

**1.3 Are all the key populations counted?:**  All  Some  None

*If "some" please list these:*

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1 2-5 6-10  >10

**1.4.2 If counts from >5 years ago, then how many counts were made:** <10  10-100 >100

**1.4.3 Contact details of organization / individual leading recent counting:**

Tasmania Department of Primary Industries, Water and Environment,  
Contact: Stewart Blackhall, Wildlife Management Branch

**1.4.4 Have the data been analysed?** yes / no /  partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?**  Yes / No

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Curlew Sandpiper	Unknown	???
Red-necked Stint	Unknown	???

**1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):**

Declines at national/flyway scale have been advised in relation to population size of Curlew Sandpiper and Red-necked Stint (see summary and references in Hansen 2011).

## 2. WATERBIRD/HABITATS

**2.1 Ramsar wetland types used by key populations:**

*(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)*

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
12.3 [E --Sand, shingle or pebble shores]	?	All key species	0	0	Need local information and advice.
13.4 [J - Coastal brackish/saline lagoons; brackish to saline lagoons with at least one relatively narrow connection to the sea.]	?	All key species	0	0	Need local information and advice.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

**2.2 Other comments** (including if changes to habitat between FSN listing and now):

Due to remoteness from urban or industrial areas, relatively natural condition and protected area status, changes in habitat quality are unlikely to be major at this site. Influx of agro-chemicals potentially may impact on water quality of wetlands but this has not been investigated by the authors in regard to Logan Lagoon site.

**3. MAJOR THREATS**

**3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.**

- Threats within the site are relatively minimal (apart from disturbance from recreational vehicles and some predation by feral cats).
- Draining of the lagoon to improve nearby pasture drainage is a potential threat to the integrity of the site. Drainage ditches run into the lagoon and increased clearing could result in excessive salinity or contamination from agricultural run-off.

<b>Threat name</b> (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	<b>Habitat / Type</b> (as identified in the section above)	<b>Timing</b> In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent</b> 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity</b> 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by feral cats)	Direct on shorebirds	3	1	0
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities (Recreational vehicles)	Direct on shorebirds	3	1	0
<b>9. Pollution</b> 9.1 Domestic & urban waste water 9.3 Agricultural & forestry effluents	Food species on "J"	3	1	0

**3.2 Other comments on threats (including management actions to address threats):**

**3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?**

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Curlew Sandpiper	X			
Red-necked Stint	X			

Impacts on population size elsewhere in the flyway are more likely to significantly impact the populations of species using this site than any existing site-based impact.

**4. CONSERVATION MEASURES**

**4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?**

Yes. 100% protected within the Logan Lagoon Conservation Area.

**4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?**

**Management Plan has been prepared?:** Yes  
Logan Lagoon Conservation Area Management Plan 2000 (DPIWE 2000)

**Is the Management Plan current?:** Yes  
**Is it comprehensive (for waterbirds)?:** Yes

**4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?**

- Waterbird numbers at Logan Lagoon are counted annually.
- Conservation education.

## **5. REFERENCES**

- Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia. 239pp.
- DPIWE. 2000. Logan Lagoon Conservation Area Management Plan 2000. Parks and Wildlife Service, Department of Primary Industries, Water and Environment, Tasmania.
- Hansen, B. 2011. A brief overview of literature on Waders in decline. *Stilt* **60**: 6-8.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Sept 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Moreton Bay, Queensland (joined FSN 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Moreton Bay & Pumicestone Passage IBA
<b>Name of Ramsar site (if listed):</b>	Moreton Bay (Ramsar listed in 1993).
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1999 (a 2009 Update completed during the Ecological Character Description is not yet available)

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Moreton Bay Flyway Network Site uses the Ramsar site boundary. The site is located on the middle east coast of Australia from 27 – 28 degrees latitude, about 400 km south of the Tropic of Capricorn, and immediately adjacent to Brisbane, state capital of Queensland.</p> <p>The site boundaries are a series of discontinuous polygons that are generally limited to nearshore estuarine areas to a depth of roughly 6m below LAT (consistent with the definition of wetlands within the Convention). However, the boundary also extends selectively over State-controlled lands or similar above the high water mark in some locations including most notably, the Bay islands.</p> <p>Wetlands on the site include seagrass and shoals in the eastern banks, tidal flats and associated estuarine assemblages within the Pumicestone Passage, mangroves and saltmarsh in the southern bay, coral communities of the eastern bay, freshwater wetlands and peatland habitats on the Bay Islands and ocean beaches and foredunes on Moreton island.</p> <p>The site is one of four major locations on Australia's east coast for migratory shorebirds during the non-breeding season. It supports 40,000 to 50,000 migratory waders during their non-breeding season. At least 43 species of wading birds use the intertidal habitats, including 30 migratory species listed on international conservation agreements.</p> <p>The close proximity of the wetlands to Brisbane and other populated areas makes the site a popular recreation area for tourism, birdwatching, water based recreation, scuba diving, four wheel driving, camping and boating. Parts of the site are conservation reserves. Commercial activities such as shipping, transport and fishing also occur within the site.</p> <p><b>NOTE:</b> The IBA is defined as the intertidal area and coastal strip in the strait between the mainland and Bribie Island, and the intertidal area of Moreton Bay from the level of the south of Bribie island to Coombalah Lake and Corrigan, including the whole of Moreton Island but not North and South Stradbroke Islands or Bribie Island. The IBA area is defined by the feeding and roosting areas of migratory shorebirds and is regarded as one of three significant areas for migratory shorebirds in eastern Australia. Large numbers of waders also use the maze of estuaries and rich tidal flats.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>Yes.</p> <p>(kml Flyway Site location file available at <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a>)</p> <p>Ramsar Site boundary and wetland habitat mapping also available at: <a href="http://www.epa.qld.gov.au/wetlandinfo/site/MappingFandD.html">http://www.epa.qld.gov.au/wetlandinfo/site/MappingFandD.html</a></p>

# 1. Migratory waterbirds

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Popular English Name	Scientific Name	1% Criteria WP5	Count	Count Date(s)	Reference
Bar-tailed Godwit	<i>Limosa lapponica</i>	2 790	11 751 12 986	01/01/1996 01/01/1993	AWSG 2003 Driscoll 1996
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	5 229	01/01/1996	AWSG 2003
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>	440	3 736	01/12/1989	Driscoll 1991
Far Eastern Curlew	<i>Numenius madagascariensis</i>	320	3 500	01/01/1996	AWSG 2003
Pacific Golden Plover	<i>Pluvialis fulva</i>	1 000	2 163	01/01/1993	Hewish, 1999
Lesser Sand Plover	<i>Charadrius mongolus</i>	355	1 770	01/01/1993	Lane & Davies 1987
Whimbrel	<i>Numenius phaeopus</i>	550	1 440	01/01/1996	AWSG 2003
Terek Sandpiper	<i>Xenus cinereus</i>	500	779	01/11/1990	Driscoll 1991

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

1.3 Are all the key populations counted?:  All  Some  None

If "some" please list these:

Formal monthly counts conducted on at least 40 selected key roost sites since 1992, including other species.

## 1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10 10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Queensland Wader Study Group: <http://www.waders.org.au/contact-the-qwsg/> Count Coordinator (Linda Cross:)  
Queensland Parks and Wildlife Service (Kristy Currie:)

1.4.4 Has the data been analysed?  yes / no / partially

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unkown	Reference (may also include unpublished data)
Bar-tailed Godwit	decline	Wilson <i>et al</i> 2011
Curlew Sandpiper	no change	Wilson <i>et al</i> 2011
Grey-tailed Tattler	no change	Wilson <i>et al</i> 2011
Far Eastern Curlew	decline	Wilson <i>et al</i> 2011
Pacific Golden Plover	increase	Wilson <i>et al</i> 2011
Lesser Sand Plover	no change	Wilson <i>et al</i> 2011
Whimbrel	decline	Wilson <i>et al</i> 2011
Terek Sandpiper	no change	Wilson <i>et al</i> 2011

## 1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

- From this good quality 15-year database and rigorous set of statistical analyses (on 30 common waterbird species, including resident and migratory), declines were found primarily in migratory species.

In particular, these were species which use the Yellow Sea tidal flats as key stopover sites during migration, and in concentrated numbers at relatively few locations.

- Authors note that “process noise” in abundance data may have led to the analyses failing to detect small declines for some species.
- Some small migratory species (though not key species for this site) increased in abundance, and these mostly used relatively wider distributions of wetland stop-over sites during migration.

## 2. Waterbird/Habitats

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type (IUCN & Ramsar codes)	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.2 [E - Sand, shingle or pebble shores]	N/A	Bar-tailed Godwit, Far Eastern Curlew, Curlew Sandpiper, Pacific Golden Plover, Lesser Sand Plover, Whimbrel, Terek Sandpiper	0	0	No significant changes in extent or quality.
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	N/A	Bar-tailed Godwit, Far Eastern Curlew, Curlew Sandpiper, Pacific Golden Plover, Lesser Sand Plover, Whimbrel, Terek Sandpiper	0	0	No significant changes in extent or quality.
12.5 [H - Intertidal marshes]		Bar-tailed Godwit, Far Eastern Curlew, Curlew Sandpiper, Pacific Golden Plover, Lesser Sand Plover, Whimbrel, Terek Sandpiper	0	0	No significant changes in extent or quality.
12.7 [I - Intertidal forested wetlands]		Grey-tailed Tattler, Whimbrel, Terek Sandpiper	0	0	No significant changes in extent or quality.
9.10 [F - Estuarine waters]		Grey-tailed Tattler, Whimbrel, Terek Sandpiper	0	0	No significant changes in extent or quality.
Reclamation areas above high tide and artificial roosts, immediately adjacent to the site.		Bar-tailed Godwit, Far Eastern Curlew, Curlew Sandpiper, Pacific Golden Plover, Lesser Sand Plover, Whimbrel, Terek Sandpiper	0	0	No significant changes in extent or quality.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

N/A

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

<b>Threat name</b> (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	<b>Habitat / Type</b>  (as identified in the section above)	<b>Timing</b>  In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent</b>  0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity</b>  0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>9. Pollution</b> 9.1 Household sewage & urban waste water (organic nutrients, chemical & hydrocarbon loads) 9.2 Industrial & military effluents (9.2.1 Oil spill events) 9.3 Agricultural & forestry effluents (sediments, organic nutrients, herbicides & pesticides)	Food species on 12.4 [G - <b>Intertidal mud, sand or salt flats</b> ] – and seagrass.	3	1	0
<b>4. Transportation &amp; Service Corridors</b> 4.3. Shipping Lanes (Oil spill events)	Food species on 12.4 [G - <b>Intertidal mud, sand or salt flats</b> ]	0 & 2	1	0
<b>1. Residential &amp; commercial development</b> 1.1 Housing & urban areas 1.2 Commercial & industrial areas (habitat loss)	Roost sites - 12.2 [E - <b>Sand, shingle or pebble shores</b> ]	3	0	0
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities	Direct on shorebirds/ loss of habitat	3	2	2
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by foxes and feral and domestic cats)	Direct on shorebirds	3	0	0

### 3.2 Other comments on threats (including management actions to address threats):

- Threats outside the site (ie, in the Yellow Sea region) are more urgent than those at the site (BMT WBM 2008; Wilson *et al* 2011).
- See 4.3 below for management responses.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

**NOTE:** The following estimates relate to **on-site threats** only:

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Bar-tailed Godwit		X		
Curlew Sandpiper	X			
Grey-tailed Tattler	X			
Far Eastern Curlew		X		
Pacific Golden Plover	X			
Lesser Sand Plover	X			
Whimbrel	X			
Terek Sandpiper	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. The Flyway Network Site uses the Ramsar site boundary, which includes the Moreton Bay Marine Park and a number of National Parks, Conservation parks and other protected areas. Almost 100% of key shorebird habitat is protected under these areas.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?: yes / no**

(Yes) Sta

tutory Plans:

- (1) South East Queensland Regional Coastal Management Plan 2006,
- (2) South East Queensland Regional Water Quality Management Strategy 2001,
- (3) South East Queensland Regional Plan 2005-2006,
- (4) Marine Park (Moreton Bay) Zoning Plan 2008,
- (5) Protected Area Management Plans (for national parks, conservation parks and other protected areas in the region);
- (6) Declared Fish Habitat Areas (FHAs) under the *Fisheries Act 1994*;
- (7) Water Resource Plans prepared under the *Water Act 2000*
- (8) Fisheries Management Plans including the East Coast Trawl and Coral Reef Fin Fish fisheries
- (9) Moreton Island National Park, Cape Moreton Conservation Park & Moreton Island Recreation Area Management Plan

Non-statutory:

- (1) Shorebird Management Strategy - Moreton Bay
- (2) The Future in Balance - SEQ Catchments
- (3) SEQ Healthy Waterways Strategy – Moreton Bay Action Plan,

**Is the Management Plan current?:**        **yes / no**        (Yes)

**Is it comprehensive?:**                    **yes / no**        (Yes)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

1. Extensive scientific research and monitoring occurs in the park, conducted by universities, research institutions and government agencies. These agencies each have facilities adjacent to the site.
2. NGO group (QWSG), Queensland Parks and Wildlife staff and Port of Brisbane Pty Ltd environment staff jointly conduct regular shorebird counts at the major roosts and less regular counts at other roosts within the site.
3. Interpretive signage is installed at key roosts and other areas, illustrating the biological importance of the site, the relevance of the listing as a "Wetland of International Importance, especially as waterfowl habit" under the Ramsar Convention, and to promote wise use of the site.
4. Information shelters have also been constructed adjacent to the site and at shorebird observation hides.
5. Interpretation activities include slide shows and tours available on request for special interest groups.
6. Active patrols (applying education and enforcement) to minimize disturbance to shorebirds occurs at some locations.

## 5. REFERENCES

AWSG. 2003. Shorebird count database. Birds Australia, Melbourne.

BMT WBM. 2008. Ecological Character Description of the Moreton Bay Ramsar Site. Prepared for the Queensland Environmental Protection Agency. Brisbane.

Driscoll, P. 1991. Survey of waterbird, seabird and wader feeding areas and roosts in Pumicestone Passage, spring 1990. Unpubl. report to Queensland Department of Environment and Heritage, Brisbane, Australia.

Hewish, M. 1990. The summer 1989 population monitoring counts: increasing numbers of Bar-tailed Godwits at monitored sites in eastern Australia, 1982-1989. *Stilt* 16: 23-29.

Lane, B.A. and Davies, J.N. 1987. Shorebirds in Australia. Nelson, Melbourne.

Wilson, H.B., Kendall, B.E., Fuller, R.A., Milton, D.A. and Possingham, H.P. 2011. Analyzing variability and the rate of decline of migratory shorebirds in Moreton Bay, Australia. *Conservation Biology*, **25**(4): 758-766.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Jan 2012
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	<b>Orielton Lagoon (EAAF Site#: 014);</b> Joined FNS in Mar 1996
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Pitt Water-Orielton Lagoon Ramsar site (listed in Nov 1982)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Orielton Lagoon FSN site is located at 42.78333°S 147.50000°E on the south-east coast of Tasmania, Australia. The site is approximately 20 kilometres east of the city of Hobart, between the towns of Cambridge and Sorell. The Flyway Network Site (2920 ha) uses the Orielton Lagoon section of the The Pitt Water-Orielton Lagoon Ramsar site boundary which is 3334 ha in total. Pitt Water is an almost land-locked body of tidal salt water with a narrow entrance to Frederick Henry Bay. Orielton Lagoon is separated from Pitt Water by a causeway originally constructed in 1868. The whole area is less than 20 m ASL, and protected from the open sea by a large mid-bay spit and associated dunefield. Almost 30% of the FSN site is protected within the Pitt Water Nature Reserve. The remaining area is Unallocated Crown Land.</p> <p>Most of the site is open water fringed by saltmarsh communities, mudflats and rocky shores. The large areas of tidal mud and sand flats, and a restricted tide flow through the mouth leaves extensive areas exposed as suitable feeding areas for wading birds.</p> <p>Migratory birds utilise Orielton Lagoon and some other parts of the Ramsar wetland. These species include Double-banded Plover (which exceeds the staging criteria), Eastern Curlew, Bar-tailed Godwit, Common Greenshank, Curlew Sandpiper and Red-necked Stint. The site provides breeding habitat for a number of beach nesting shorebirds including Red-capped Plover as well as Caspian Tern. Threatened species listed in Tasmania recorded at the site include the Great-crested Grebe, Fairy Tern, and Little Tern.</p> <p>Currently the area has a diversity of land-uses, such as pastureland grazing, forestry, irrigated cropland, rural residential development, residential development, shellfish aquaculture, recreation and some nature conservation.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>Yes. The site boundaries are available in the Pitt Water-Orielton Lagoon Ramsar site are available at: <a href="http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=6#">http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=6#</a></p> <p>Yes. No copy yet at the EAAF Secretariat.</p>

# 1. MIGRATORY WATERBIRDS

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form** (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):

Migratory shorebirds that visit the area include the eastern curlew *Numenius madagascariensis*, bar-tailed godwit *Limosa lapponica*, common greenshank *Tringa nebularia*, curlew sandpiper *Calidris ferruginea*, double-banded plover *Charadrius bicinctus*, and red-necked stint *C. ruficollis*. Orielson Lagoon was included in the Flyway Site Network of the East-Asian – Australasian Partnership and is the most southerly site for migration.

English Name (used by EAAFP)	Scientific Name	1% Threshold	Maximum Counts	Count Dates	Reference
Double-banded Plover	<i>Charadrius bicinctus</i>	500	290	NB 1988	Birds Tasmania database (unpubl.)

**Note:** The Double-banded Plover population is a partial altitudinal migrant in New Zealand and west-east migrant to Australia. This site was nominated for the launch of the Shorebird Site Network in 1996. Review processes for nominations at the time were poor and the site was included on the basis that it supported >1% of the international Double-banded Plover migrant population (pers. comm.).

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

Nil.

**1.3 Are all the key populations counted?:**  All  Some  None  
If "some" please list these:

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1 2-5 6-10  >10

**1.4.2 If counts from >5 years ago, then how many counts were made:** <10  10-100 >100

**1.4.3 Contact details of organization / individual leading recent counting:**

1. Tasmania Department of Primary Industries, Water and Environment, Contact: Stewart Blackhall, Wildlife Management Branch;
2. Birds Australia, Tasmania; Contact: Priscilla Park;

**1.4.4 Have the data been analysed?** yes / no /  partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?**  Yes / No

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Double-banded Plover	decline	Birds Tasmania database (unpubl.) in Dunn 2010

From annual surveys, numbers of the east-west migratory species, the double-banded plover, have fallen since the time of listing. Records suggest that since 2002 only about half the number visit during the Tasmanian winter as those in 1982 (Birds Tasmania database (unpubl.) in Dunn 2010). In contrast, resident shorebird numbers appear to be sustained Birds Tasmania database (unpubl.) in Dunn 2010).

**1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):**

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	?	Double-banded Plover	0	0	Need local information and advice.
12.5 [H - Intertidal marshes] - includes salt marshes, tidal brackish and freshwater marshes.	?	Double-banded Plover	0	0	Need local information and advice.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Resource uses within the site include fishing, aquaculture, boating, bird watching and conservation.

Land uses in the surrounding catchment include residential, agricultural (mainly livestock grazing), conservation and recreation (including two golf courses).

Threats within the site include disturbance from humans and feral animals).

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by feral cats)	Direct on shorebirds	3	1	0

However serious threats affecting these shorebirds on nearby areas can indirectly influence numbers at the site. These threats operating external to the site are listed below.

<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities (Recreational vehicles)	Direct on shorebirds	3	1	0
<b>9. Pollution</b> 9.1 Domestic & urban waste water 9.3 Agricultural & forestry effluents	Food species on "G" and "H"	3	1	0
<b>7. Natural system modifications</b> 7.2 Dams & water management/use	G - Intertidal mud, sand or salt flats	3	1	0
<b>11. Climate change &amp; severe weather</b> 11.1 Habitat shifting & alteration (Sea-level rise)	G - Intertidal mud, sand or salt flats	1	1	1

<b>1. Residential &amp; commercial development</b> 1.1 Housing & urban areas	<b>H - Intertidal marshes</b>	3	0	0
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### 3.2 Other comments on *threats (including management actions to address threats)*:

Orielton Lagoon is separated from Pitt Water by a causeway originally constructed in 1868 and modified in 1906 and 1953. This structure constricted broad tidal flow and created a shallow (1.25 metres deep) lagoon about 265 hectares in area. The culverts under the causeway have recently been modified to allow freer water flow between Orielton Lagoon and Pitt Water.

A catastrophic decline (94% loss 1950-1990) in seagrass coverage throughout Pitt Water was attributed to an increase in nutrient levels and sedimentation (Rees 1993).

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

<i>Key Population/s</i>	<5%	6-25%	26-50%	>50%
Double-banded Plover	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes - some. Almost 30% is protected within the Pitt Water Nature Reserve. The remaining area is Unallocated Crown Land.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:**

**Yes**

Draft Management Plan, Pitt Water-Orielton Lagoon Ramsar Site Management Plan 2001 (Tasmanian Parks and Wildlife Service 2001)

**Is the Management Plan current?:**

**Yes**

**Is it comprehensive (for waterbirds)?:**

**Yes**

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Waterbird numbers at Pitt Water & Orielton Lagoons are counted annually.
- Conservation education.
- Diversion of sewage effluent from the estuary to a land disposal system
- Maintenance of infrastructure for water exchange through the causeway barrier.

## 5. REFERENCES

Birds Tasmania database (unpubl.)

Dunn, H. 2011. Pitt Water – Orielton Lagoon Tasmania - Ecological Character Description. Report to the Department of Sustainability, Environment, Water, Population and Communities. 227pp.

Rees, C.G. (1993). Tasmanian seagrass communities. Unpublished Masters Thesis. Centre for Environmental Studies, Department of Geography and Environmental Studies, University of Tasmania. Hobart.

Ramsar Information Sheet for Pitt Water-Orielton Lagoon Ramsar site. 2005.

Tasmanian Parks and Wildlife Service. 2001. *Draft Pitt Water-Orielton Lagoon Ramsar Site Management Plan*. Parks and Wildlife Service, Department of Primary Industries, Water and the Environment. Hobart.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, Roger Jaensch
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	February 2012
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Parry Lagoons (EAAF Site # 015; Joined Mar 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Ord River Floodplain Ramsar Site (Listed in 1990)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2008

BRIEF DESCRIPTION OF THE SITE:	
<b>Site Description</b>	<p>Parry Lagoons (36,111 ha) is located at 15.55000°S and 128.25000°E. It lies on the lower floodplain of the Ord River and forms a small part of the Ord River Floodplain Ramsar Site (141,453ha). The site is comprised of the Parry Lagoons Nature Reserve.</p> <p><i>Parry Lagoons</i> includes permanent and near permanent waterholes such as Marglu Billabong, and the broad area of floodplain within the Parry Lagoons Nature Reserve that is subject to periodic inundation. This area floods most wet seasons from water flowing in through Parry Creek and from spill-over from the Ord River. In the 1970's the Ord River was dammed upstream of Kununurra and this has significantly reduced inundation across Parry Lagoons.</p> <p>The site supports internationally important concentrations of shorebirds, Anatidae and herons during periods when suitable habitat is available in the early and late wet season. The grass plains near shallow open water bodies are the areas used by Australian Pratincole <i>Stiltia isabella</i>, Oriental Pratincole <i>Glareola maldivarum</i> and Little Curlew <i>Numenius minutus</i>.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Yes. Site map was submitted with the EAAF Site Information Sheet.</li> <li>2. A detailed boundary map of the Ord River Floodplain Ramsar Site is at the Dept of Conservation website: <a href="http://www.dec.wa.gov.au/content/view/814/1939/">http://www.dec.wa.gov.au/content/view/814/1939/</a></li> </ol>

### 1. MIGRATORY WATERBIRDS

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form** (*Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>*):

The site was considered internationally important for 3 species at the time of nomination: Australian Pratincole *Stiltia isabella*, Oriental Pratincole *Glareola maldivarum* and Little Curlew *Numenius minutus*.

Little Curlew is considered to regularly meet the 1% threshold. Australian Pratincole *Stiltia isabella*, which migrates (part of population) to Indonesia, has a 1% threshold of only 250 (WPE5) birds and, based on habitat and limited survey data, it is likely that the site meets this threshold at times.

The population estimate for Oriental Pratincole *Glareola maldivarum* was revised upwards by an order of magnitude (now 1% is 20,000 birds) after the site was nominated to the FSN due to the documentation of large numbers of this species on arrival at Eight Mile Beach. Apparently, no counts past or recent reach this threshold at the site.

English Name (used by EAAFP)	Scientific Name	1% Threshold	Maximum Counts	Count Dates	Reference
Little Curlew	<i>Numenius minutus</i>	1 800	3 000	Non-breeding	Jaensch 1989

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

A count of 1500 Sharp-tailed Sandpiper *Calidris acuminata* has been recorded at this site (Jaensch & Vervest 1990). Though the data do not presently support inclusion of this species in the FSN designation for Parry Lagoons, it is highly likely that at least 1600 birds occur at some times.

**1.3 Are all the key populations counted?:** All   Some  None  
**If "some" please list these:**

Generally there has been an inadequate survey effort made at this site. High seasonal and year-to-year variability in habitat, also difficult access and survey conditions at best times of year for shorebird use of the site (October to March), have hindered data collection. Few observers live near this site.

At least one systematic survey that included Little Curlew has been conducted (1980s). Some more recent surveys and opportunistic observations have been conducted by Birds Australia, consultants and individuals but not necessarily at the time of year when maximum numbers of Little Curlew might be expected to occur.

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1   2-5  6-10  >10

**1.4.2 If counts from >5 years ago, then how many counts were made:**  <10  10-100  >100

**1.4.3 Contact details of organization / individual leading recent counting:**

BirdLife Australia, Melbourne, would be the best contact point to explore availability of recent count data from among its members but this may be a time-consuming task.

Contact Golo Maurer: Birdlife Australia, Email: [g.maurer@birdsaustralia.com.au](mailto:g.maurer@birdsaustralia.com.au)

**1.4.4 Have the data been analysed?** yes / no /  partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?** Yes /  No

Data are insufficient for analysis of trends but habitat availability suggests that no long term trend is likely to have occurred in numbers of Little Curlew using the site, which would be caused by substantial deterioration in quality or extent of habitat at the site.

**1.5.2 If yes please provide details:**

**1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):**

The boundaries of the Nature Reserve include a large part but not all of the Parry Floodplains site which extended to the outer limits of the Parry floodplain. Thus it is not clear if the original count data exactly match the boundaries of the FSN site.

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
4. Grassland 4.5 Subtropical/Tropical Dry Lowland Grassland	?	Little Curlew	?	?	No information.
5.8 [Ts - Seasonal/intermittent freshwater marshes/pools on inorganic soils]	?	Little Curlew	?	?	No information.
5.17 [Ss - Seasonal/intermittent saline/brackish/alkaline marshes/pools.]	?	Little Curlew	?	?	No information.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

At this site Little Curlew uses (presumably to feed) floodplain with short grass or mostly bare ground, close to shallow water bodies where it can drink and bathe at hot times of day. Before the onset of the wet season (as early as December but sometimes much later), such habitat can be extensive at the site and on adjacent marine plains. The salinity of some parts of the floodplain (thus inhibiting woody plant growth) or bareness of small seasonal lakes ensures continuity of habitat for Little Curlew at the site. Less habitat may be available during and soon after a good wet season due to inundation and proliferation of taller grass, legumes and other wetland plants.

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

This remote site is not likely to change significantly due to direct human threats.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
7. Natural system modifications 7.2 Dams & water management/use	4.5, Ts, Ss	1	0	0
8. Invasive & other problematic species & genes 8.1 Invasive non-native/alien species	4.5	1	0	0

### 3.2 Other comments on threats (including management actions to address threats):

Potential threats affecting Little Curlew at this site might include changes to water inflows from Parry Creek (not anticipated) and loss of feeding and loafing habitat due to encroachment of woody weeds or other invasive plants (unlikely for the whole site due to soil salinity being too high in some areas).

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Little Curlew	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. 100% of the site comprises the Parry Lagoons Nature Reserve (Gazetted in 1971), vested with the Western Australian Conservation Commission and managed by the Department of Environment and Conservation. A native title claim over several reserves across the wider region by the Miriuwung Gajerrong people was ratified in December 2003. Formal processes for Aboriginal consultation and interaction in management and management planning have commenced via a Joint Management Initiative. The Joint Management Initiative involves the Miriuwung Gajerrong people and the Department of Environment and Conservation co-managing this and other reserves in the Kimberley region.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** yes / no (\_No\_)

Ord River and Parry Lagoons Nature Reserves: Draft Management Plan has been completed, but is under review (DCLM 1998).

**Is the Management Plan current?:** yes / no (\_No\_)

**Is it comprehensive (for waterbirds)?:** yes / no (\_No\_)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- The State conservation agency (DEC) provides some educational and interpretive material for this site, which includes reference to waterbirds.
- Bird hides are established at the site for visitors to observe migratory shorebirds and other waterbirds.

## 5. REFERENCES

Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia. 239pp.

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Jaensch, R.P. 1989. Birds of wetlands and grasslands in the Kimberley Division, Western Australia: some records of interest, 1981-88. RAOU Report No. 61, RAOU, Melbourne, Australia.

Jaensch, R.P. and Vervest, R.M. 1990. Waterbirds at remote wetlands in Western Australia, 1986-88. Part Two: Lake MacLeod, Shark Bay, Camballin Floodplain and Parry Floodplain. Royal Australasian Ornithologists Union Report 69, 1-40. Melbourne, Australia.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	<b>Warren Lee Long, Roger Jaensch</b>
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	February 2012
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Port Phillip Bay (Western Shoreline) and Bellarine Peninsula (EAAF Site # 065; Joined Jan 2001)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Swan Bay & Port Phillip Bay Islands IBA (Assessed 2008) and Bellarine Wetlands IBA (Assessed 2008) See below for relationship to FNS.
<b>Name of Ramsar site (if listed):</b>	Port Phillip Bay (western shoreline) and Bellarine Peninsula Ramsar Site (Listed in 1982)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2009 completed during writing of the Ecological Character Description for PPB Ramsar Site (Hale & Butcher 2009).

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>Port Phillip Bay (Western Shoreline) and Bellarine Peninsula FNS central coordinates are: 38.00240°S and 144.59700°E. The site lies within the region of: Latitude: 37° 53' S to 38° 18' S Longitude: 144° 24' E to 144° 48' E. The FSN site is 16,540 ha in area. It covers the same area as the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site <b>except in the Werribee-Avalon area where parts of the Ramsar site, that do not support shorebirds, are excluded.</b> The Port Phillips Head Marine Park includes Swan Bay and Mud Islands, and the Point Cooke Marine Sanctuary include waters at Point Cooke, which also fall within the Network site.</p> <p>The Ramsar site is larger, at 22,897 ha and comprises the six distinct areas of:</p> <ol style="list-style-type: none"> <li>1. Point Cooke / Cheetham; extending from Skeleton Creek to Point Cooke and including parts of the Cheetham wetlands;</li> <li>2. Werribee / Avalon: extending from the Werribee river to "The Spit" and including the Western Treatment Pant (WTP) [Parts of this section are not included in the Flyway Network Site];</li> <li>3. Point Wilson / Limeburners Bay: coastal strip between Point Wilson and Limeburners Bay;</li> <li>4. Swan Bay;</li> <li>5. Mud Islands; and</li> <li>6. Lake Connewarre Complex – including Reedy Lake, Hospital Swamp, Salt Swamp, the Barwon Estuary and part of Lake Murtnaghurt.</li> </ol> <p>The site includes freshwater wetlands, estuaries, intertidal shorelines, sub-tidal beds, inland saline wetlands and a wastewater treatment facility. It should be noted that there are a number of adjacent and nearby wetland areas that, while outside the site boundary, contain significant ecological values and contribute to the network of habitats that the site provides for biota such as waterbirds. The site boundary also encompasses significant areas of terrestrial vegetation in addition to these aquatic systems.</p> <p><b>Swan Bay &amp; Port Phillip Bay Islands IBA (3377 ha) and Bellarine Wetlands IBA (4565 ha) are in total 7941 ha and much smaller than the FNS/Ramsar Site. Their areas mostly overlap the FNS.</b></p> <p>The Swan Bay &amp; Port Phillip Bay Islands IBA overlaps with the Swan Bay area (including Lake Victoria, Freshwater Lake, Portarlington sewage works and Rabbit,</p>

	Duck and Swan Islands) and Mud Islands component of the Flyway Network Site and also comprises a number of small man-made stacks, including Wedge Light, Popes Eye, South Channel Island and some navigation markers across southern Port Phillip Bay. Shorebirds regularly move between these locations to feed and roost.  <b>The Bellarine Wetlands IBA</b> , located on Bellarine Peninsula near Geelong, Victoria, comprises the “Lake Connewarre Complex” component of the Flyway Network Site (ie, extensive wetlands of Reedy Lake, Hospital Swamp and Lake Connewarre) plus the Moolap salt fields, adjacent intertidal mudflats in Corio Bay and Point Henry (Birdlife 2007).
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	Yes. Site map was submitted with the EAAF Site Information Sheet, and is available in the Ecological Character Description (Hale & Butcher 2009). A general description of the site boundary also appears in the Ecological Character Description (Hale & Butcher 2009).

## 1. MIGRATORY WATERBIRDS

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form** (*Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>*):

The FNS site was recognised for the following six species, however we cannot find confirmation (in Bamford *et al.* 2008, Hale & Butcher 2009, or earlier sources) that the Ramsar/FNS site meets the 1% threshold for Grey Plover *Pluvialis squatarola*:

English Name (used by EAAFP)	Scientific Name	1% Threshold	Maximum Counts	Count Dates	Reference
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	1,600	5,971 4,170	NB Feb 1985	AWSG database AWSG database
Red-necked Stint	<i>Calidris ruficollis</i>	3,150	24,552 10,204	NB Feb 2007	Skewes 2002 AWSG database
Curlew Sandpiper	<i>Calidris ferruginea</i>	1,800	13,323 12,000	SM Feb 1983 NB	AWSG database AWSG database
Far Eastern Curlew*	<i>Numenius madagascariensis</i> *	380	808	NB 1986	AWSG database; Barter 1992
Ruddy Turnstone	<i>Arenaria interpres</i>	250	293	NB 1990	AWSG database; Barter 1992

**Note:** Only one key reference (Bamford *et al.* 2008) indicates that the site meets 1% for the Far Eastern Curlew.

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

English Name (used by EAAFP)	Scientific Name	1% Threshold	Maximum Counts	Count Dates	Reference
Double-banded Plover	<i>Charadrius bicinctus</i>	500	955 932	NB Jun 1988	AWSG database 2003

Common Greenshank *Tringa nebularia* (771 birds: Skewes 2002) may have been considered to meet the former 1% threshold at this site (600 birds: Bamford *et al.* 2008) but the present EAAFP population estimates sets the 1% threshold higher, at 1 000 birds.

**Note:** Below in this form, the populations identified in 1.1 and 1.2 are referred to as the “key populations”.

**1.3 Are all the key populations counted?:**  All  Some  None  
*If “some” please list these:*

All of the key populations have been counted at some stage as this site, next to major urban centres, has been subject to intensive survey effort by AWSG/VWSG over several decades. The present status of survey effort could be advised by VWSG.

**1.4 If counting has occurred, then:**

- 1.4.1 **How many times was the site counted in the past 5 years?** 1  2-5  6-10  >10
- 1.4.2 **If counts from >5 years ago, then how many counts were made:** <10  10-100  >100
- 1.4.3 **Contact details of organization / individual leading recent counting:**

AWSG and/or VWSG, via BirdLife Australia.  
Also unpublished data (see Hale & Butcher 2009, Table 9).

1.4.4 **Have the data been analysed?**  yes / no / partially

**1.5 Conclusions on changes in waterbird numbers**

1.5.1 **From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?**  Yes / No

Conclusions about some species have been inferred from continent- and/or flyway-scale data, rather than necessarily just from data at the site. See 1.5.2.

1.5.2 **If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Curlew Sandpiper	Decline	Various authors have advised that the population has declined substantially in the EAA Flyway.

**1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):**

Regular count data are limited to a portion of the entire site; hence the site almost certainly holds larger proportions of most if not all of the key populations.

Annual totals over 15 years (1981-1995) for the four key populations are graphed in Tables 46-49 of Hale & Butcher (2009). Numbers fluctuated significantly year-to-year but numbers of Sharp-tailed Sandpiper and Red-necked Stint stayed above the 1% threshold whereas numbers of Curlew Sandpiper and Double-banded Plover dropped below the 1% level in some of the later years. Drawing also on survey data from the 2000s (apparently from a smaller part of the FSN site), Hale & Butcher (2009) concluded with respect to these four key populations that no change in ecological character with respect to shorebird numbers has been detected; the decline of Double-banded Plover numbers may be indicative of a change in ecological character but further data are required to determine if this is a sustained trend.

**2. WATERBIRD/HABITATS**

**2.1 Ramsar wetland types used by key populations:**

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	39,400 ha	All key species	0	0	No significant changes in extent of tidal flats. Intertidal seagrass habitat area can change, but no monitoring has occurred.

9.9 [B -- <b>Marine subtidal aquatic beds</b> ] – seagrass meadows	14,800 ha	All key species	?	?	Changes may occur, but no site-scale monitoring conducted.
12.5 [H - <b>Intertidal marshes</b> ] - includes salt marshes, tidal brackish and freshwater marshes.	6,500 ha	All key species	0	0	No monitoring, but no significant changes in extent or quality assumed.
12.2 [E - <b>Sand, shingle or pebble shores</b> ]	??	All key species	0	0	No monitoring, but no significant changes in extent or quality assumed.
15.6 [8 - <b>Wastewater treatment areas</b> ]		All key species	0	0	Monitoring indicates no significant changes in extent or quality.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

## 2.2 Other comments (including if changes to habitat between FSN listing and now):

The site includes freshwater wetlands, estuaries, intertidal shorelines, sub-tidal beds, inland saline wetlands and a wastewater treatment facility. This complex and partly artificial wetland system supports complex patterns of habitat use by a large number of waterbird species. Although the artificial wetlands may be (potentially) subject to direct human manipulation, substantial losses of habitat from the natural wetlands is not known to have occurred at this site.

The Ramsar/FSN site comprises six separate areas of wetland. Hale & Butcher (2009) indicate in Table 9 the site components at which 1% thresholds have been met, as follows:

- Sharp-tailed Sandpiper: 4170 in Feb 1985 at Reedy Lake. Also 1% at Lake Connewarre, WTP & The Spit.
- Red-necked Stint: 10,204 in Feb 2007 at the WTP. Also 1% at Lake Connewarre, The Spit & Point Cook.
- Curlew Sandpiper: 12,000 in Feb 1983 at The Spit. Also 1% at Lake Connewarre, WTP & PointCook.
- Double-banded Plover (see 1.2): 932 in June 1988 at Point Wilson. Also 1% at The Spit & Point Cook.

The Far Eastern Curlew is likely to mainly use the site's intertidal habitats rather than the lakes, swamps and other freshwater wetlands.

It is therefore clear that overall the freshwater and tidal elements of the FSN site both are important habitats for the key populations supported.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type  (as identified in the section above)	Timing  In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent  0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity  0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>9.2 Industrial &amp; military effluents</b> 9.2.1 Oil spills	Food species on 12.4 [G - <b>Intertidal mud, sand or salt flats</b>	1	1	0
<b>7. Natural system modifications</b> 7.3 Other ecosystem modifications †	<b>15.6 [8 - Wastewater treatment areas]</b>	2	1	1
<b>6. Human intrusions &amp; disturbance</b>	Direct on	3	0	0

6.1 Recreational activities (humans and pets disturbing feeding and roosting birds)	shorebirds			
<b>9.3 Agricultural &amp; forestry effluents</b> 9.3.1 Nutrient loads <b>9.1 Domestic &amp; urban waste water</b> 9.1.1 Sewage	Food species on 12.4 [G - Intertidal mud, sand or salt flats]	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by feral foxes and cats)	Direct on shorebirds	3	0	0
<b>11. Climate change &amp; severe weather</b> 11.1 Habitat shifting & alteration (Sea-level rise) 11.4 Storms & flooding (increased storm surges)	G - Intertidal mud, sand or salt flats	3	2	1

### 3.2 Other comments on *threats (including management actions to address threats)*:

See Table 38 in Hale & Butcher 2009.

† Changed management regimes at the Western Treatment Plant may also reduce the suitability of this artificial wetland habitat and productivity of nearby natural waters for migratory waterbirds.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

<i>Key Population/s</i>	<5%	6-25%	26-50%	>50%
Sharp-tailed Sandpiper	X			
Red-necked Stint	X			
Curlew Sandpiper		X		
Far Eastern Curlew		X		
Grey Plover	X			
Double-banded Plover	X			
Ruddy Turnstone	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. The majority of the area is protected, but actual percentage is not available. The site comprises a number, and complex range, of tenure types and management agencies:

- Much of the area is Crown Land Reserve under the jurisdiction of Parks Victoria.
- Unreserved Crown Land is administered by the Department of Sustainability and Environment, with recreational function managed by Parks Victoria.
- The Western Treatment Plant is freehold and managed by Melbourne Water.
- Avalon Airfield is Commonwealth Land managed by Avalon Airport Australia (**This section is not in the Flyway Network Site**).
- The Department of Defence manages areas of declared naval waters and the Point Wilson Explosives area.
- Parts of the site are subject to a native title claim by the Bunurong Land Council.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

*Management Plan has been prepared?: yes / no (yes)*

**Is the Management Plan current?:**      *yes / no*      *(yes)*

**Is it comprehensive (for waterbirds)?:** *yes / no*      *(yes)*

**4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?**

There are a number of programs currently in place, which focus on communication and education about migratory waterbird conservation. These include:

**Point Cooke/Cheetham: Monument to Migration** – Viewing platform launched in 1997 with participation by members of the Wurundjeri Aboriginal Community, the project reflects three important elements of Victoria's history and development:

- historical and contemporary Aboriginal presence;
- the migratory paths of a large number of key bird species, who use the internationally significant Cheetham Wetlands as nesting stations; and
- the development of Australia and Victoria through human migration, forced and voluntary, which has enriched our nation as a tolerant, multicultural and open society.

**Swan Bay: Marine Discovery Centre** - "Promoting conservation by increasing awareness and understanding of the marine and coastal environment." Facilities include an aquarium, education for school students, training for adults and guided field activities.

**City of Greater Geelong – Nagoya / Geelong Wetlands Partnership** – an agreement signed by mayors of both cities to sustain and promote Ramsar wetlands. Activities include an on-line resource centre and live webcams from within the PPB Ramsar site and the Ramsar site in Nagoya, Japan (<http://www.geelongaustralia.com.au/wetlands/index.html>).

**Melbourne Water Communication and Education** – Resources targeted to education of school students (<http://education.melbournewater.com.au/>), interest groups such as birdwatchers and recreational fishermen and a webcam situated at Lake Borrie.

## 5. REFERENCES

AWSG Shorebird Count Database. Birds Australia, Melbourne.

Barter, M. 1992. Changing wader numbers in Swan Bay, Victoria – A cause for Concern? *The Stilt*. 21. 8-12.

BirdLife International. 2007. BirdLife's online World Bird Database: the site for bird conservation. Version 2.1. Cambridge, UK: BirdLife International. Available: <http://www.birdlife.org> (printed 23rd August 2010)

Department of Sustainability and Environment (2003). Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site. Strategic Management Plan, Victoria.

Hale, J. and Butcher, R., 2009, *Ecological Character Description of the Port Phillip Bay (western shoreline) and Bellarine Peninsula Ramsar Site*. Report to the Department of Environment, Water, Heritage and the Arts, Canberra.

Skewes, J. 2002. Report on the 2001 population monitoring counts. *The Stilt*, 41: 55-61.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, Roger Jaensch
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	February 2012
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Shallow Inlet (EAAF Site # 093; Joined in July 2006)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Shallow Inlet IBA (Assessed in 2008) Smaller in area than the FNS (see details below)
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>Shallow Inlet FNS is 2,300ha in area. It is a large, wave-dominated estuary forming a large tidal embayment with a single channel to the sea and in mostly unmodified condition. The site lies on Victoria's south-eastern coastline near Wilson's Promontory (OzEstuaries database). The FNS includes <i>Shallow Inlet Marine and Coastal Park</i>, the <i>Flora and Fauna Reserve</i> along the western shoreline, on islands in the inlet, and the <i>Shallow Inlet Saltmarsh Flora and Fauna Reserve</i> along the eastern shoreline. Both Reserves are managed as part of the Park. The site also covers the part of the <i>Waratah Bay – Shallow Inlet Coastal Reserve</i> east of Sandy Point township (ie, the peninsular of dune habitat on the bay side of the inlet).</p> <div style="text-align: center;"> </div> <p>The habitat for shorebirds includes extensive mudflats and sandy intertidal areas. Over 16,000 wading birds are recorded in Summer; representing 22 species (NRE unpublished draft). In particular, Shallow Inlet is an internationally important site for five species of migratory shorebird: Double-banded Plover (<i>Charadrius bicinctus</i>), Red-necked Stint (<i>Calidris ruficollis</i>), Sanderling (<i>Calidris alba</i>), Curlew Sandpiper (<i>Calidris ferruginea</i>) and Eastern Curlew (<i>Numenius madagascariensis</i>). Eastern Curlew, are classified as Near Threatened in the IUCN Red Databook. The site also supports significant numbers of Pacific Golden Plover and Hooded Plover.</p>

	The IBA (1835 ha) is smaller in area than the FNS and contains all of the coastal habitat in the inlet, notably intertidal mud and saltmarsh. The IBA boundary map is not currently drawn as accurately as the FNS boundary. See Shallow Inlet IBA Factsheet at: <a href="http://www.birdlife.org/datazone/sitefactsheet.php?id=23931">http://www.birdlife.org/datazone/sitefactsheet.php?id=23931</a> (BirdLife International 2012)
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	Yes. FNS Site map was submitted with the EAAF Site Information Sheet.

## 1. MIGRATORY WATERBIRDS

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form** (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):

English Name (used by EAAFP)	Scientific Name	FNS Threshold WP5	Maximum Counts	Count Dates	Reference
Red-necked Stint	<i>Calidris ruficollis</i>	3 150	5 421	12 Feb 1983	AWSG database 2003
Curllew Sandpiper	<i>Calidris ferruginea</i>	1 350	3 500	1 Feb 1987	AWSG database 2003
Sanderling	<i>Calidris alba</i>	220	769	1 Feb 1999	State (DSE) database
Far Eastern Curlew	<i>Numenius madagascariensis</i>	320	622	12 Feb 1983	AWSG database 2003
Double-banded Plover	<i>Charadrius bicinctus</i>	500	597	17 Jun 1989	AWSG database 2003

**1.2 Additional populations meeting the FNS criteria identified in this assessment (please provide additional information)**

None identified.

**1.3 Are all the key populations counted?:**  All  Some  None  
If "some" please list these:

The Australasian Wader Studies Group conducts biannual counts of the waders and the Victorian Wader Study Group conducts population monitoring of Sanderling.

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1      2-5      6-10      >10

**1.4.2 If counts from >5 years ago, then how many counts were made:** <10      10-100      >100

**1.4.3 Contact details of organization / individual leading recent counting:**

AWSG and/or Victorian Wader Study Group. Ros Jessop. Email:  
Department of Sustainability & Environment, State of Victoria: Yvette Baker

**1.4.4 Have the data been analysed?** yes / no /  partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?**  Yes / No

Conclusions about some species have been inferred from continent- and/or flyway-scale data, rather than necessarily just from data at the site (See 1.5.2 and 1.6).

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Curlew Sandpiper	<b>Decline</b>	Various authors have advised that the population has declined substantially in the EAA Flyway.

**1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):**

The counts exceeding the 1% population threshold were obtained for five species in surveys conducted between 1981 and 1990. The counts conducted in 1999, 2001, 2003 and 2004 were only completed for Sanderling. Numbers of Double-banded Plover, Red-necked Stint and Far Eastern Curlew are likely to remain high at this site, although Curlew Sandpiper numbers have declined since the 1980s at several sites across south-eastern Australia (Jessop, AWSG *pers comm* and other references, eg, Brookes et al 2009).

## 2. WATERBIRD/HABITATS

**2.1 Ramsar wetland types used by key populations:**

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type Codes: IUCN & [Ramsar]	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	?	Double-banded Plover, Red-necked Stint, Curlew Sandpiper, Eastern Curlew and Sanderling.	0	?	No information accessed; some data may exist (DSE).
12.5 [H - Intertidal marshes] - includes salt marshes, tidal brackish and freshwater marshes.	1168	Double-banded Plover, Red-necked Stint, Curlew Sandpiper and Eastern Curlew.	0	?	No information accessed; some data may exist (DSE).
13.4 [J - Coastal brackish/saline lagoons; brackish to saline lagoons with at least one relatively narrow connection to the sea.]	?	Double-banded Plover, Red-necked Stint, Curlew Sandpiper and Eastern Curlew.	0	?	No information accessed; some data may exist (DSE).
12.2 [E - Sand, shingle or pebble shores]	?	Sanderling	0	?	No information accessed; some data may exist (DSE).

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

**2.2 Other comments (including if changes to habitat between FSN listing and now):**

Habitat use is based on general preferences for these species in southern Australia. As the site is within a protected area and with limited impacts, it can be expected that the habitat has not deteriorated greatly by non-natural means.

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities (humans and pets disturbing feeding and roosting birds)	Direct on shorebirds	3	0	0
<b>9.3 Agricultural &amp; forestry effluents</b> 9.3.1 Nutrient loads <b>9.1 Domestic &amp; urban waste water</b> 9.1.1 Sewage	Food species on [G - Intertidal mud, sand or salt flats]	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by feral foxes and cats)	Direct on shorebirds	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species - <i>Spartina</i> (Cord grass)	G - Intertidal mud, sand or salt flats H - Intertidal marshes	3	1	0
<b>11. Climate change &amp; severe weather</b> 11.1 Habitat shifting & alteration (Sea-level rise) 11.4 Storms & flooding (increased storm surges)	G - Intertidal mud, sand or salt flats	3	2	1

3.2 Other comments on threats (including management actions to address threats):

*Spartina* (Cord grass) is major environmental weed which can impact negatively on shorebird habitat. It colonises estuarine areas, leads to the rapid accumulation of sediment, excludes invertebrate life from the soil strata and spreads across tidal flats resulting in the displacement of wading birds from their intertidal feeding grounds (NRE unpublished).  
Also see the original SIS.

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Red-necked Stint	X			
Curlew Sandpiper				X
Sanderling		X		
Far Eastern Curlew		X		
Double-banded Plover		X		

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. 100%. Shallow Inlet Shorebird Site is made up of Crown land as shown below:

Area of shorebird site	Land status
Shallow Inlet Marine and Coastal Park	Crown land temporarily reserved under the Crown Land (Reserves) Act 1978 for the conservation of areas of natural interest or beauty or scientific history or archaeological interest and areas for public recreation and managed under the National Parks Act 1975.
Flora and Fauna Reserve on western shoreline and islands in the inlet	Crown land temporarily reserved under the Crown Land (Reserves) Act 1978 for the conservation of native saltmarsh, flora and fauna. Reserve number Rs9805.
Shallow Inlet Saltmarsh Flora and Fauna Reserve	Crown land permanently reserved under the Crown Land (Reserves) Act 1978 for the protection of the coastline. Reserve number Rs11070
Waratah Bay – Shallow Inlet Coastal Reserve (east of Sandy Point)	Crown land permanently reserved under the Crown Land (Reserves) Act 1978 for the protection of the coastline. Reserve number Rs10892

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** yes / no (yes)

Shallow Inlet Marine and Coastal Park: Proposed Management Plan (DEC 1990)

**Is the Management Plan current?:** yes / no (???)

**Is it comprehensive (for waterbirds)?:** yes / no (???)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- The Australasian Wader Studies Group conducts biannual counts of the waders and the Victorian Wader Study Group conducts population monitoring of Sanderling.

## 5. REFERENCES

BirdLife International (2012) Important Bird Areas factsheet: Shallow Inlet. Downloaded from <http://www.birdlife.org> on 03/02/2012

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Department of Conservation, Forests and Lands (1990). Shallow Inlet Marine and Coastal Park: Proposed Management Plan. Department of Conservation, Forests and Lands. Melbourne.

# Shallow Inlet/Sandy Point, VIC

created: 28/3/2003, J. Wahl

 proposed shorebird site



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Sept 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Shoalwater Bay (EAAF Site#094; FNS since 2005)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Shoalwater Bay (Rockhampton) IBA (Smaller than FNS but still includes all migratory waterbird habitats – see Site Description below)
<b>Name of Ramsar site (if listed):</b>	Shoalwater and Corio Bays (Ramsar listed in 1996).
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2009 RIS update was completed during writing of the Ecological Character Description

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The <b>Shoalwater Bay</b> Flyway Network Site uses the Shoalwater and Corio Bays Ramsar site boundary area (total 202473 ha), which includes two discontinuous sections and encompasses approximately 330km of coastline along the central coast of the state of Queensland, Australia. Habitat for migratory waterbirds at this FNS is confined to the coastline, the majority (probably more than two-thirds) of which is suitable habitat. The site lies between 50km and 90km NE of Rockhampton.</p> <p>The site encompasses coastal and sub-coastal ecosystems which are relatively undisturbed. The area represents a climatic overlap zone with high habitat and species diversity, including an unusual mix of tropical, sub-tropical and temperate biodiversity, and is the largest wilderness area on the central Queensland coast. The wetland habitats used by migratory waterbirds vary from open sandy and rocky shorelines, estuarine embayments and inlets with large tidal flats, mangrove and seagrass systems. These wetlands support a broad range of natural values, including threatened wetland flora and fauna species, and a significant diversity and abundance of waterbirds.</p> <p>The remote location, large area and restricted access of this site make regular counting of waterbirds difficult, but also contribute to continued good condition of waterbird habitat. Therefore, whilst comprehensive surveys were conducted in only 2 distant separate years (1995 and 2007), it can be confidently assumed that the site does regularly support similar numbers of the species listed below.</p> <p>The Shoalwater Bay site regularly supports &gt; 1% of the individuals in the population of five species of migratory shorebird. The original site nomination document included an additional species (Great Knot) as meeting the 1% criterion, but evidence since then indicates that the site has not likely supported Great Knot in such numbers because data from an external area may have been included (Jaensch 2007).</p> <p><b>Note:</b> The IBA (at 48,301 ha) is smaller in area than the FNS, but still covers all wetland habitat suitable for migratory shorebirds, including all intertidal mud flats, extending from Broome Head in the north to the southern boundary of the Shoalwater Bay Military Training Area, including Akens Island, Pelican Rock and Corio Bay to the south (BirdLife International 2012). It also includes the north-eastern beaches, which have limited intertidal areas for migratory shorebirds but support non-migratory Beach Stone-curlews. The IBA excludes the marine waters within the Shoalwater Bay Training Area, some inland sections of the Ramsar site and the dry mainland portions of the Training Area. Six habitats for migratory waterbirds occur within the IBA: shallow open water systems including seagrass beds, rocky marine shores, beaches and bars, lower intertidal mudflats, mangrove communities, and supra-tidal flats.</p>

<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Map was submitted with the EAAF Site Information Sheet.</li> <li>2. kml file and maps of shorebird count sites available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a>)</li> <li>3. Ramsar Site boundary and wetland habitat mapping also available</li> </ol>
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## 1. Migratory waterbirds

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAF nomination form** (*Please use populations and their names as adopted by the EAAF and accessible at: <http://www.eaaflyway.net/population-estimates.php>*):

Data extracted from the Site Information Sheet (for nomination to the Flyway Site Network), 2005:

English Name as used by EAAF	Scientific Name	1% Threshold WP5	Maximum Count	Count Date(s)#	Reference
Bar-tailed Godwit*	<i>Limosa lapponica baueri</i> *	2 790	5 077 3 336	Dec 1995 07/03/07	Driscoll 1996 Jaensch 2008
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>	400	500 3 014 2 768	12/12/95 Dec 1995 07/03/07	QWSG database Driscoll 1996 Jaensch 2008
Far Eastern Curlew	<i>Numenius madgascariensis</i>	320	802 2 844 840	12-10-95 1995 Jan 2007	Driscoll 1995 Driscoll 1996 Jaensch 2008
Whimbrel	<i>Numenius phaeopus</i>	550	7 089 999	1995 Jan 2007	Driscoll 1996 Jaensch 2008
Terek Sandpiper	<i>Xenus cinereus</i>	500	3 410 1 275	1995 Jan 2007	Driscoll 1996 Jaensch 2008

\*Bar-tailed Godwits were assumed to all be of the *baueri* subspecies/population which is understood to be the principal population in eastern Australia. Regardless, the combined threshold for both populations of Bar-tailed Godwit in the EAA Flyway (3250) is exceeded at this site.

# The majority of sites in the East Asian – Australasian Flyway do not have sufficient count data to meet the Ramsar guidelines for defining the term “regularly supports”. Allowance has been made for sites in remote areas where only limited count information is available, and it is accepted that single counts can help establish the relative importance of the site for a species (Ramsar Convention 2000; Bamford *et al* 2008). Thus for the East Asian – Australasian Flyway, Shoalwater Bay is considered to have met the 1% criterion on the basis of a limited number of counts.

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

1. The original site nomination document included an additional species (Great Knot) as meeting the 1% criterion. Recent evidence (Jaensch 2007) suggests that Great Knot might not have met the criteria at the time of nomination to the Flyway Site Network. The original 1983 “Broadsound & Shoalwater Bay” estimate of 4200 Great Knot (Lane and Davies 1987) includes large areas in Broadsound which lie outside of the site and which support 2000-4000 Great Knot (Melzer & Jaensch 2008.). Also, the only two more recent estimates for the Shoalwater Bay site both fall well short of the 1% criterion level (Driscoll 1996, Jaensch 2007).
2. No additional populations have been identified as meeting the FSN criteria. However, the site supports a substantial number of migratory waterbird species (shorebirds and terns), some in high numbers, and further surveys may show that additional species meet the FSN criteria.

**Note:** Below in this form, the populations identified in 1.1 and 1.2 are referred to as the “key populations”.

**1.3 Have all the key populations been counted at least once since FSN listing?:**  All  Some  None  
If “some” please list these:

For this large and relatively remote site, comprehensive counts and/or estimates have been conducted in only two years since 1995. Counts occurred in December 1995 (Driscoll 1996) and again in January, March and September 2007 (Jaensch 2007).

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1       2-5    6-10    >10

**1.4.2 If counts from >5 years ago, then how many counts were made:**  <10    10-100    >100

**1.4.3 Contact details of organization / individual leading recent counting:**

Roger Jaensch, Brisbane, Queensland for Wetlands International – Oceania.

**1.4.4 Has the data been analysed?**  yes / no / partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?**  Yes / No (although the conclusions are provided with strong caveats)

**1.5.2 If yes please provide details:**

Only two non-breeding period surveys (December 1995 and January 2007) are available for making assessments of changes in numbers. In the 1995 and 2007 non-breeding period surveys, estimates of at least 23 000 shorebirds in total were derived for the site on each occasion.

Key Population	increase / no change / decline/ unknown	Reference (may include unpublished data)
Bar-tailed Godwit	Insufficient data to identify trend; 1% threshold still exceeded	Jaensch 2008
Grey-tailed Tattler	Insufficient data to identify trend; 1% threshold still exceeded	Jaensch 2008
Far Eastern Curlew	Insufficient data to identify trend; 1% threshold still exceeded	Jaensch 2008
Whimbrel	Insufficient data to identify trend; 1% threshold still exceeded	Jaensch 2008
Terek Sandpiper	Insufficient data to identify trend; 1% threshold still exceeded	Jaensch 2008

**1.6 Other comments (eg, if subjective conclusions were made about changes in populations):**

Conclusions about changes in waterbird numbers carry the following caveats:

- Whilst the count data used for making assessment of changes was comprehensive on each occasion, only two non-breeding period surveys (1995 and 2007) are available and suitable for use.
- Count methods in 1995 (boat-based) and 2007 (aerial and ground counts) are likely to have produced differences in estimates. The 1995 survey was conducted by boat and on foot over about one week. The 2007 survey was done by helicopter during one high tide, and repeated, and was supplemented with boat/foot surveys at selected major roosts on other days. Thus the 1995 boat-based counts included more high tide roosts and likely resulted in identification of more species and more accurate counts of each species at many of the roosts (undercounting invariably occurs in aerial surveys). The 2007 surveys comprised a large proportion, but not the complete set, of roost sites surveyed in 2005 and so the lower counts of many shorebirds in 2007 partly reflect differences in survey method.
- Neither the 2005 nor 2007 survey included Corio Bay. Separate count data are available for Corio Bay. No additional key populations have been identified in this part of the FNS to date, although Sand Plovers and Little Terns are could be potentially abundant at this location (R. Jaensch pers comm. 2012).

## 2. Waterbird/Habitats

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.)

\* Changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	No data	All five key populations <b>feed</b> in this habitat	0	0	No monitoring, but assumed that no significant changes have occurred in extent or quality.
12.7 [I - Intertidal forested wetlands] - mangroves	20,057 ha	Grey-tailed Tattler, Whimbrel and Terek Sandpiper <b>roost</b> in mangroves	0	0	No monitoring, but assumed that no significant changes have occurred in extent or quality.
12.5 [H - Intertidal marshes] - includes salt marshes, tidal brackish and freshwater marshes.	2,742 ha	Far Eastern Curlew, sometimes also others, <b>roosts</b> on supra-tidal salt flats	0	0	No monitoring, but assumed that no significant changes have occurred in extent or quality.
12.2 [E - Sand, shingle or pebble shores]	No data	Bar-tailed Godwit, Far Eastern Curlew and Whimbrel <b>roost</b> on sandy beaches	0	0	No monitoring, but assumed that no significant changes have occurred in extent or quality.

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

Habitats G (including G within forests of I) and B are principal feeding areas at low tide whereas habitats I, H and E are the principal locations of high tide roosts. The pattern of habitats is complex.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criterion; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>4. Transportation &amp; Service Corridors</b> 4.3. Shipping Lanes (Oil spill events)	Food species on 12.4 [G - Intertidal mud, sand or salt flats]	2	1	0
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities (water vessels and off road vehicles) 6.2. War, civil unrest & <u>military exercises</u>	<ul style="list-style-type: none"> <li>Roost habitat [E - Sand, shingle or pebble shores], Corio Bay</li> <li>Direct on shorebirds</li> </ul>	3	0	0

<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (predation on roosting birds by feral foxes and cats)	Direct on shorebirds	3	0	0
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### 3.2 Other comments on threats (including management actions to address threats):

- Threats outside the site (i.e. in the Yellow Sea region) are far more urgent and substantial than those at the site, which essentially is in near-wilderness condition (see Wilson *et al* 2011 for large migratory species).
- See 4.3 below for management responses.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

**NOTE:** The following estimates relate to **on-site threats** only:

<i>Key Population/s</i>	<i>&lt;5%</i>	<i>6-25%</i>	<i>26-50%</i>	<i>&gt;50%</i>
Bar-tailed Godwit	X			
Great Knot	X			
Grey-tailed Tattler	X			
Far Eastern Curlew	X			
Whimbrel	X			
Terek Sandpiper	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. Almost 100% of key shorebird feeding and roost habitat is protected under a mix of both State and Federal waters largely managed as Marine Park (Great Barrier Reef Marine Park and Great Barrier Reef Coast Marine Park). Some roost habitat in Corio Bay may fall immediately outside the Great Barrier Reef Coast Marine Park. Land in the Shoalwater Bay portion of the site is federal government freehold tenure, and is used principally for military training (Shoalwater Bay Training Area), which has a comprehensive and actively implemented environment management system and carries a number of wide-ranging restrictions on public entry and use of the area.

The Ramsar Site is subject to environmental impact triggers and other provisions under the federal Environment Protection and Biodiversity Conservation Act 1999.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?: yes / no**

(Yes)

Statutory Plans:

- (1) Great Barrier Reef Marine Park Zoning Plan,
- (2) Great Barrier Reef Coast Marine Park Zoning Plan
- (3) Declared Fish Habitat Areas (FHAs) under the *Fisheries Act 1994*;

Non-statutory:

- (1) Environmental Management System for the Shoalwater Bay Training Area (2006)

**Is the Management Plan current?:**      **yes / no**      (Yes)

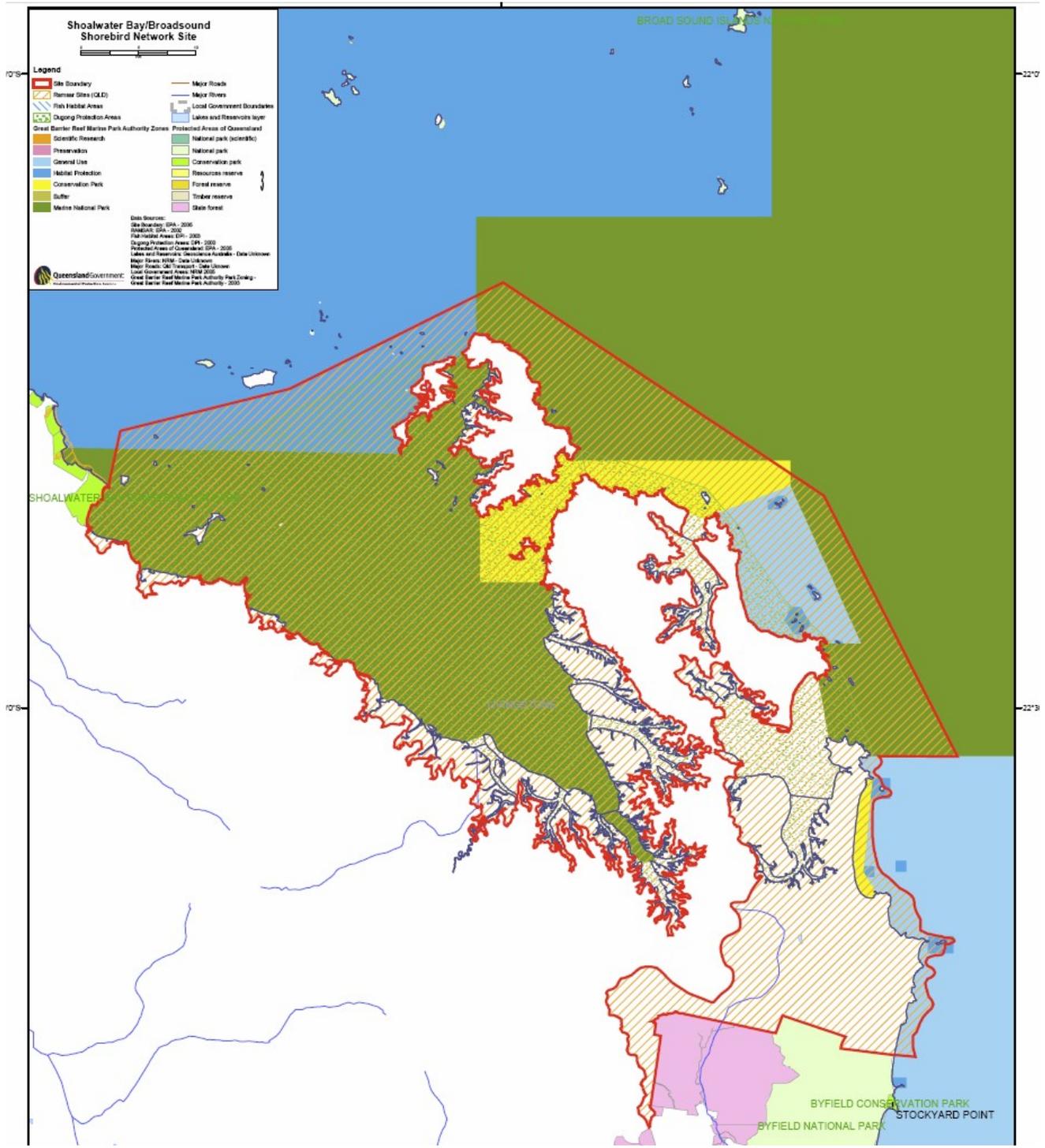
**Is it comprehensive?:**                      **yes / no**      (Yes)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- 1 Some scientific research occurs in coastal and marine habitats on a specific needs basis and when resources are available (conducted by universities, research institutions, government agencies and consultants). Currently no long-term monitoring occurring due to relative remoteness.
- 2 There are NO dedicated research facilities in or adjacent to the site, but environment ranger staff of the Australian Department of Defence operate from the training facility office, on-site.
- 3 The environmental management system being implemented for defence training operations includes measures to specifically minimise the impacts of training activities on disturbance to migratory waterbirds.
- 4 Feral animal (mostly pigs, horses and cattle) and pest plant controls are implemented.
- 5 Limited patrols by staff of Queensland Parks and Wildlife, Fisheries Queensland (through the Queensland Boating and Fisheries Patrol), and the Queensland Police Service Water Police, include education and enforcement of regulations on minimising habitat damage and disturbance to migratory waterbirds.

## 5. REFERENCES

- AWSG. 2003. Shorebird count database. Birds Australia, Melbourne.
- Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (In Press). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia.
- BirdLife International (2012) Important Bird Areas factsheet: Shoalwater Bay (Rockhampton). Downloaded from <http://www.birdlife.org> on 27/02/2012
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- Jaensch, R. 2008. A condition assessment of wetlands and waterbirds in the Shoalwater Bay Training Area. Part 4: numbers of migratory shorebirds. Unpublished report to Australian Government Department of Defence, by Wetlands International, Brisbane.
- Lane, B.A. and Davies, J.N. 1987. *Shorebirds in Australia*. Nelson, Melbourne.
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- Ramsar Convention Bureau. (2000). Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance of the Convention on Wetlands. Ramsar Convention Bureau, Gland. [www.ramsar.org/key\\_guide\\_list\\_e.htm](http://www.ramsar.org/key_guide_list_e.htm)
- Wilson, H.B., Kendall, B.E., Fuller, R.A., Milton, D.A. and Possingham, H.P. 2011. Analyzing variability and the rate of decline of migratory shorebirds in Moreton Bay, Australia. *Conservation Biology*, **25**(4): 758-766.



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	Thomsons Lake (EAAF Site# 17; joined FSN 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Forrestdale and Thomsons Lakes (Ramsar listed in June 1990)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2009 RIS update - completed during writing of the Ecological Character Description for the Forrestdale and Thomsons Lakes Ramsar Site (Maher and Davis, 2009).

BRIEF DESCRIPTION OF THE SITE:	
<b>Site Description</b>	<p>The <b>Thomsons Lake</b> Flyway Network Site (FNS) is defined by the boundary of Thomsons Lake Nature Reserve (538ha), Western Australia. It also forms one component of the Forrestdale and Thomsons Lakes Ramsar site. The site is located within the Cockburn city area, 34 km south of the capital city, Perth. Thomsons Lake is one of many inter-dunal groundwater wetlands on the Swan Coastal Plain bioregion, in the south-west of Western Australia, and is surrounded by residential, semi-rural and rural land.</p> <p>These freshwater wetlands are filled by rainfall, surface drainage (very minor) and ground water inflow. Water levels generally peak in October-November and then dry back until the winter rains in May. The mean water depth in September is approximately 1m. Waterbirds use Thomsons Lake as part of a complex of freshwater lakes, coastal shorelines and the tidal mudflats of the Swan River. Usage varies greatly in response to the availability of suitable habitat. In some years, thousands of shorebirds (primarily Red-necked Stint and Curlew Sandpiper) concentrate on Thomsons Lake as it dries back and exposes large areas of the lake bed. During these drying periods up to 22 000 waterbirds have been counted on the Lake.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>1. Ramsar site boundary is available at: <a href="http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#">http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#</a></p> <p>2. Maps of the shorebird count sites are available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a></p>

### 1. MIGRATORY WATERBIRDS

#### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Data below are from AWSG digital database:

Popular English Name	Scientific Name	1% Criteria	Counts	Count Dates	Reference
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	2 500	1983	AWSG digital database

#### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

#### 1.3 Are all the key populations counted?: All Some None

**If “some” please list these:**

Although counts have occurred several times in most years since 1981, count methods and frequency have not been consistent, making analysis of changes in populations difficult (Bamford and Bancroft 2007).

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1 2-5 6-10  >10

**1.4.2 If counts from >5 years ago, then how many counts were made:** <10 10-100  >100

**1.4.3 Contact details of organization / individual leading recent counting:**

1. Brendan Dooley, Department of Environment and Conservation, Western Australia.  
Email:
2. Mike Bamford, AWSG. Email:

**1.4.4 Have the data been analysed?**  yes / no / partially

2. Bamford and Bancroft (2007) analysed the count data obtained from the 1980s to 2007, and noted significant declines in total numbers of migratory shorebirds, including for Curlew Sandpiper.

**2.1 Conclusions on changes in waterbird numbers**

**2.1.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?**  Yes / No

**2.1.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Curlew Sandpiper	Decline	Bamford and Bancroft (2007)

Curlew Sandpiper counts met the 1% criterion at this site in 1983, but not in any year since then. No Curlew Sandpipers have been recorded at the site since 1998. Declines in all **migratory** shorebirds at this site have been significant since the mid-1980s, and particularly intensive since approximately 1997, such that they have ‘almost disappeared’ from the site since this time (Bamford and Bancroft 2007).

**2.2 Other comments (eg, if subjective conclusions were made about changes in populations):**

The declines in migratory shorebirds have corresponded with increases in riparian vegetation (predominantly *Typha orientalis*) across the lake floor, making habitats less suitable for migratory shorebirds and more suitable for other waterbird groups (Bamford and Bancroft 2007).

## 2. WATERBIRD/HABITATS

**2.1 Ramsar wetland types used by key populations:**

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
5.6 [P -- Seasonal/intermittent freshwater lakes]	538	Curlew Sandpiper	-	-	Declines in extent and quality. High threats.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

**2.2 Other comments (including if changes to habitat between FSN listing and now):**

Riparian vegetation (predominantly introduced *Typha orientalis*) has increased in extent across the lake floor and replaced large areas of shorebird habitat.

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type  (as identified in the section above)	Timing  In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent  0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity  0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7. Natural System Modifications</b> 7.2.7 Abstraction of ground water (agricultural and urban use)	P	3	3	2
<b>9. Pollution</b> 9.3.1 Nutrient loads	P	3	2	1
<b>6 Human intrusions &amp; disturbance</b> 6.1 Recreational activities (visitors, off-road bikes)	Direct on shorebirds	3	0	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species - Bulrush ( <i>Typha orientalis</i> ) - foxes and cats (very limited)	P (and direct on shorebirds)	3	1	3

3.2 Other comments on threats (including management actions to address threats):

- Threats to the site include:
  - groundwater extraction and climate change (leading to lowering of the water table and lake depths, see Davis *et al.* 2008),
  - expansion of riparian vegetation (predominantly introduced *Typha orientalis*) into shorebird habitat;
- Management of direct threats to migratory waterbirds within the site includes:
  - Management of maximum and minimum water levels (though mostly targeted to assist other waterbird groups at present)
  - Predator-proof fence
  - 1080 baiting program
  - Signs and other local education about importance of maintaining habitat and protection for waterbirds.
  - Weed control program targeting *Typha orientalis*.

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Curlew Sandpiper				X

### 4. CONSERVATION MEASURES

4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 100% of the site is protected as Thomsons Lake Nature Reserve, which is also a part of a suite of sites that form the Beeliar Regional Park. The Nature Reserve is also included on the Australian Register of the National Estate.

**4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?**

**Management Plan has been prepared?:** *yes / no* (Yes)

1. Thomson Lake Nature Reserve Management Plan 2005.

**Is the Management Plan current?:** *yes / no* (Yes)

**Is it comprehensive?:** *yes / no* (Yes)

**4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?**

- In addition to the Ramsar site management plan, management of the site is influenced by several planning and policy initiatives at international, national, state, regional and local levels, eg:
  - [Swan-Canning Estuary Water Quality Improvement Plan](#)
- Water budget (ground and surface water) and water quality management.
- Existing interpretation facilities within Thomsons Lake are limited and will be upgraded as part of the Interpretation Plan for the overall Beeliar Regional Park (CALM2005b).
- The Reserve is fenced to exclude foxes, domestic dogs and cats, and interpretative trails are provided.
- Restricted visitor access to some important waterbird breeding areas.
- Since 2004, water has been diverted into Thomsons Lake from the South Jandakot Branch Drain. This occurs for approximately 2 months over the winter after the first winter flush and aims to increase water levels for the benefit of all fauna at the site.

## 5. REFERENCES

AWSG digital database

Bamford, M.J. and Bancroft, W.J. (2007). Environmental Investigations for the Jandakot Groundwater Scheme Stage 2. Wetland Waterbird Monitoring; 1996–2006. Bamford Consulting Ecologists. Report to the Department of Water, Perth. Unpublished.

Davis, J.A., Strehlow, K. and O'Connor, J. (2008). Biomonitoring of Selected Jandakot Wetlands (Macroinvertebrates) for Jandakot Groundwater Scheme Stage 2 Public Environmental Review 1996–2008. Report to the Department of Water, Perth. Unpublished.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	Australia

<b>NAME OF FLYWAY SITE:</b>	<b>Western Port</b> (EAAF Site # 019; Joined FSN 2001)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Western Port IBA (Assessed 2008) Slightly larger than FNS (see details below)
<b>Name of Ramsar site (if listed):</b>	Western Port (Ramsar listed in June 1982)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2010 RIS update - completed during writing of the Ecological Character Description for Westernport Ramsar Site (Kellogg Brown & Root 2010).

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The <b>Western Port</b> Flyway Network Site (FNS) is defined by the boundary of Western Port Ramsar site (59,297ha), with central coordinates at 38.4167°S; 145.3333°E.</p> <p>Situated between Port Phillip Bay and Wilsons Promontory in southern Victoria, 52 km south-east of Melbourne, Western Port is a large bay off Bass Strait in southern Victoria, surrounding French Island and most of Phillip Island. Western Port is a tidal bay with numerous inlet streams. It has an unusually wide variety of habitat types and is a very good example of a saltmarsh-mangrove-seagrass wetland system.</p> <p>Key habitats for migratory waterbirds include 270 km<sup>2</sup> of intertidal mudflats intersected by deep channels and supporting vast areas of seagrass (intertidal and sub-tidal combined area of 154km<sup>2</sup>). Extensive mangrove thickets (13,700ha) and saltmarsh vegetation (31,000ha) are also important to some migratory waterbird species.</p> <p>Western Port regularly supports more than 20,000 waterbirds (DSE 2003); it is believed that these numbers have been maintained through the 2000s (Kellogg Brown &amp; Root, 2010).</p> <p>Species meeting &gt;1% criterion: Red-necked Stint <i>Calidris ruficollis</i>, Curlew Sandpiper <i>Calidris ferruginea</i>, Eastern Curlew <i>Numenius madagascariensis</i> and Double-banded Plover <i>Charadrius bicinctus</i>.</p> <p>The site is also important nationally for other waterbirds. It is estimated that it periodically supports in excess of 10,000 ducks and swans, with Black Swans <i>Cygnus atratus</i> being the most numerous species. Western Port is an important breeding area for Fairy Tern (<i>Sterna nereis</i>), Pied Cormorant <i>Phalacrocorax varius</i> and Australian Pelican (<i>Pelecanus conspicillatus</i>). Thousands of Short-tailed Shearwaters gather in the Ramsar site in autumn before embarking on their annual pan-Pacific migration: estimates of up to 250,000 birds have been made (Loyn 1978).</p> <p>The <b>Western Port IBA</b> (total area 62,301ha) also follows the Ramsar site boundary, plus some additional salt marsh on French Island which supports Orange-bellied Parrots.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Ramsar site boundary is available at: <a href="http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#">http://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=25#</a></li> <li>2. The Ramsar boundary description is available in the updated RIS 2010.</li> <li>3. Other site maps are also available in the Ecological Character Description (Kellogg Brown &amp; Root, 2010).</li> <li>4. Maps of the shorebird count sites are available at: <a href="http://www.shorebirds.org.au/counting-shorebirds/sites-maps/">http://www.shorebirds.org.au/counting-shorebirds/sites-maps/</a></li> </ol>

# 1. MIGRATORY WATERBIRDS

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Data below are from AWSG digital database:

Popular English Name	Scientific Name	1% Threshold WPE5	Counts	Count Dates	Reference
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	2 500	1983	AWSG digital database
Red-necked Stint	<i>Calidris ruficollis</i>	3 150	5 764, 8 673, 4 246, 8 903, 7 003 and 7 691	2001-2006	AWSG digital database
Far Eastern Curlew	<i>Numenius madagascariensis</i>	320	(872, 637, 557, 594, 775, 705)	(2001-2006)	AWSG digital database
Double-banded Plover	<i>Charadrius bicinctus</i>	500	1172	???	Loyn <i>et al.</i> 2002

**NB:** A Common Greenshank *Tringa nebularia* count of 492 was listed as meeting the 1% criterion at this site (Watkins 1993), but it does not meet the updated threshold level (1000).

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified.

### 1.3 Are all the key populations counted?: All Some None

If "some" please list these:

Counts of waterbirds have been conducted on a regular basis in the Ramsar site three to five times per year since 1973, by BOCA (Loyn 1975, 1980; Dann *et al.* 1994; Loyn *et al.* 1994; Loyn *et al.* 2001; BOCA 2003). Five counts were conducted each year until around 1995, at which time counts were reduced to three per year (two summer counts and one winter count). The counts have focused on high-tide roosts used by waders and other waterbirds.

### 1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10 10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Bird Observers Club of Australia (BOCA) via Birdlife Australia  
Contact: Golo Maurer, Birds Australia, Email:

1.4.4 Have the data been analysed?  yes / no / partially

### 1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Curlew Sandpiper	decline	Kellogg Brown & Root (2010) using BOCA database
Red-necked Stint	increase	Kellogg Brown & Root (2010) using BOCA database
Far Eastern Curlew	decline	Kellogg Brown & Root (2010) using BOCA database
Double-banded Plover	decline	Kellogg Brown & Root (2010) using BOCA database

1.6 Other comments (eg, if subjective conclusions were made about changes in populations): Various authors have advised that the Curlew Sandpiper population has declined substantially in the EAA Flyway (eg, Brookes *et al.* 2009). Gosbell and Clemens 2007.

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - Intertidal mud, sand or salt flats] – also includes intertidal seagrass habitat.	270km <sup>2</sup>	Feeding habitat for all key species	0	?	No monitoring, but no significant changes in extent assumed.
9.9 [B - Marine subtidal aquatic beds] – seagrass meadows	154km <sup>2</sup>	Alternative feeding habitat for all key species	?	?	No available information on the current distribution and health of seagrass within the site.
12.5 [H - Intertidal marshes] - includes salt marshes, tidal brackish and freshwater marshes.	31,000 ha	Alternative feeding habitat for all key species	0	?	No monitoring, but no significant changes in extent assumed.
12.2 [E - Sand, shingle or pebble shores]	?	Roost habitat for all key species	0	?	No monitoring, but no significant changes in extent assumed.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

Water quality in the FNS (Ramsar site) is monitored at frequencies up to fortnightly at some sites, and has not detected any changes of concern in the years from 2005 to 2007 (Kellogg Brown & Root 2010).

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities (humans & pet dogs)	Direct to shorebirds	3	1	0
<b>11. Climate change &amp; severe weather</b> 11.1 Habitat shifting & alteration (Sea-level rise) 11.4 Storms & flooding (increased storm surges)	<b>G - Intertidal mud, sand or salt flats</b>	3	2	1
<b>9. Pollution</b> 9.1 Domestic & urban waste water Nutrient loads Soil erosion, sedimentation	<b>B - Marine subtidal aquatic beds</b> – seagrass meadows; Plus direct to	3	2	1

	shorebirds and prey items.			
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> Invasive non-native/alien species - predation by foxes and cats at high-tide feeding and roost sites	Direct to shorebirds	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> Invasive non-native/alien species - <i>Spartina</i> (Cord grass)	<b>G - Intertidal mud, sand or salt flats</b> <b>H - Intertidal marshes</b>	3	1	0

### 3.2 Other comments on threats (including management actions to address threats):

- *Spartina* (Cord grass) is major environmental weed which can impact negatively on shorebird habitat. It colonises estuarine areas, leads to the rapid accumulation of sediment, excludes invertebrate life from the soil strata and spreads across tidal flats resulting in the displacement of wading birds from their intertidal feeding grounds.
- Management actions directed at addressing these threats to migratory waterbirds within the site are listed below (Section 4).

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Curlew Sandpiper	X			
Red-necked Stint	X			
Far Eastern Curlew	X			
Double-banded Plover	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

No. The proportion of protected areas within the EAAF FSN / Ramsar site is not yet available. There are several types and portions of protected area designations within the site (see a list in Appendix 1). The site also encompasses two privately owned islands, Elizabeth and Sandstone Islands (DSE 2003).

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** yes / no (Yes)  
Western Port Ramsar Site Strategic Management Plan (DSE 2003)

**Is the Management Plan current?:** yes / no (Yes)

**Is it comprehensive?:** yes / no (Yes)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Migratory waterbirds are monitored at least annually.
- Water quality is monitored frequently across the site.
- Seagrass is monitored on a less frequent basis.
- The Western Port and Mornington Peninsula Biosphere Foundation (established in 2003) forms a partnership between the Victorian government, the five local government authorities within the Biosphere, and six community roundtables.
- Public education activities: eg, Summer by the Sea - an annual coastal activity program that aims to introduce Victorians to the marine and coastal environment by hosting a range of entertaining and educational coastal activities.
- Marine Education Resource Kit developed by Parks Victoria assists teachers and students build their knowledge and understanding of the values of Victoria's marine and coastal environments: [www.parkweb.vic.gov.au/education/marinekit](http://www.parkweb.vic.gov.au/education/marinekit)

- The Coolart Reserve, managed by Parks Victoria at Somers borders the Ramsar site and has education facilities covering wetland themes, including migratory shorebirds. [http://www.parkweb.vic.gov.au/1park\\_display.cfm?park=50](http://www.parkweb.vic.gov.au/1park_display.cfm?park=50) In addition, the Marine Conservation Centre at Hastings runs regular education programs for schools as well as their own research.

## 5. REFERENCES

- Brookes, J.D., Lamontagne, S., Aldridge, K. T., Benger. S., Bissett, A., Bucater, L., Cheshire, A.C., Cook, P.L.M., Deegan, B.M., Dittmann, S., Fairweather, P.G., Fernandes, M.B., Ford, P.W., Geddes, M.C., Gillanders, B.M. , Grigg, N.J., Haese, R.R., Krull, E., Langley, R.A., Lester, R.E., Loo, M., Munro, A.R., Noell, C.J., Nayar, S., Paton, D.C., Reville, A.T., Rogers, D.J., Rolston, A., Sharma. S.K., Short, D.A., Tanner, J.E., Webster, I.T., Wellman, N.R. and Ye, Q. 2009. An Ecosystem Assessment Framework to Guide Management of the Coorong. Final Report of the CLLAMMecology Research Cluster. CSIRO: Water for a Healthy Country National Research Flagship, Canberra.
- DSE (2003) Western Port Ramsar Site Strategic Management Plan. Department of Sustainability and Environment: East Melbourne.
- Kellogg Brown & Root, 2010, Western Port Ramsar Wetland Ecological Character Description. Report for Department of Sustainability, Environment, Water, Population and Communities, Canberra.
- Loyn, R.H., McCulloch, E., Millsom, R., Living, L., Fisher, B., Saunders, K.N. and Leeke, S. (2002) Changes in numbers of water birds in Western Port, Victoria, over quarter of a century (1973-1988). pp 49-64 In Macwhirter, N., Macwhirter, P.,Saglioco, J.L. and Southwood, J. (Eds) *Le Naturaliste in Western Port 1802-2002 Commemorative Seminar Proceedings*, Cranbourne VIC, April 2002. Department of Infrastructure and Mornington Peninsula Shire, Melbourne.
- Parks Victoria (1998) French Island National Park Management Plan - October 1998. Parks Victoria: Kew.
- Watkins, D. 1993. *A National Plan for Shorebird Conservation in Australia*. Australasian Wader Studies Group, Royal Australasian Ornithologists Union, Melbourne.
- Gosbell, K., and R. Clemens. 2007. Population monitoring in Australia: some insights after 25 years and future directions. *Stilt* **50**:162-175.
- Wilson, H.B., Kendall, B.E., et al. 2011. "Analyzing Variability and the Rate of Decline of Migratory Shorebirds in Moreton Bay, Australia." *Conservation Biology* 25(4): 758-766.

## APPENDIX 1

**Table 1. Land tenure and management agencies within the Ramsar site (Source: DSE 2003)**

Area	Land tenure	Legal status	Management agency
Yaringa, French Island and Churchill Island Marine National Parks	Marine National Park	<i>National Parks Act 1975</i>	Parks Victoria
Waters and seabed	Unreserved Crown Land	<i>Land Act 1958</i>	DSE
Waters—recreation and navigation	Unreserved Crown Land	<i>Marine Act 1988</i>	Parks Victoria
Port Waters of the Port of Hastings—commercial shipping channels	Unreserved Crown Land	<i>Port Services Act 1995</i>	Victorian Channels Authority (Toll Western Port)
150 m seawards of high water mark around French Island	French Island National Park	<i>National Parks Act 1975</i>	Parks Victoria
Hanns Inlet	Declared naval waters	<i>Control of Naval Waters Act 1918</i>	Department of Defence
Shoreline near Somers	Coastal Reserve	<i>Crown Land (Reserves) Act 1978</i>	Parks Victoria
	Public Purpose Reserves	<i>Crown Land (Reserves) Act 1978</i>	Committee of Management—information not available
Shoreline from Stony Point to Jacks Beach	Coastal Reserve	<i>Crown Land (Reserves) Act 1978</i>	Stony Point–Crib Point Committee of Management
Jacks Beach to Hastings (Bittern Wetlands)	Unreserved Crown Land	<i>Land Act 1958</i>	Information not available
Shoreline from east of Tyabb to Tooradin	Coastal Reserve	<i>Crown Land (Reserves) Act 1978</i>	Parks Victoria
	Nature Conservation Reserve	<i>Wildlife Act 1975 and Land Act 1958</i>	Parks Victoria
North-eastern shoreline	Coastal Reserve	<i>Crown Land (Reserves) Act 1978</i>	Parks Victoria
	Nature Conservation Reserve	<i>Land Act 1958</i>	Parks Victoria
Shoreline near Corinella	Coastal Reserve	<i>Crown Land (Reserves) Act 1978</i>	Parks Victoria
Shoreline near Bass River	Nature Conservation Reserve	<i>Land Act 1958</i>	Parks Victoria
Churchill Island	Nature Park	<i>Crown Land (Reserves) Act 1978</i>	Phillip Island Nature Park
Shoreline near Rhyll	Coastal Reserve	<i>Crown Land (Reserves) Act 1978</i>	Parks Victoria
	Nature Park	<i>Crown Land (Reserves) Act 1978</i>	Phillip Island Nature Park
French Island Shoreline	National Park	<i>National Parks Act 1975</i>	Parks Victoria
Elizabeth and Sandstone Islands	Freehold	<i>Private Land</i>	Private
Adjacent to Quail Island Nature Conservation Reserve	Yaringa Marine National Park	<i>National Parks Act 1975</i>	Parks Victoria
Waters adjacent to the northern shore of French Island National Park	French Island Marine National Park	<i>National Parks Act 1975</i>	Parks Victoria
South of Rhyll, on the eastern shore of Phillip Island	Churchill Island Marine National Park	<i>National Parks Act 1975</i>	Parks Victoria

# East Asian - Australasian Flyway Site Network Site Assessment Form



**COMPILER'S** name, email and address:  
Zhang Hong,  
Forestry Bureau, 211 Linghu South Road, Anqing City, Anhui Province

**DATE OF ASSESSMENT:**  
11 January 2012

**COUNTRY:**  
China

**NAME OF FLYWAY SITE:**  
Anqing Yanjiang (Along the Yangtze River) Waterbird Nature  
Reserve IBA name (and relationship to Flyway Site if they are  
defined differently): Name of Ramsar site (if listed):

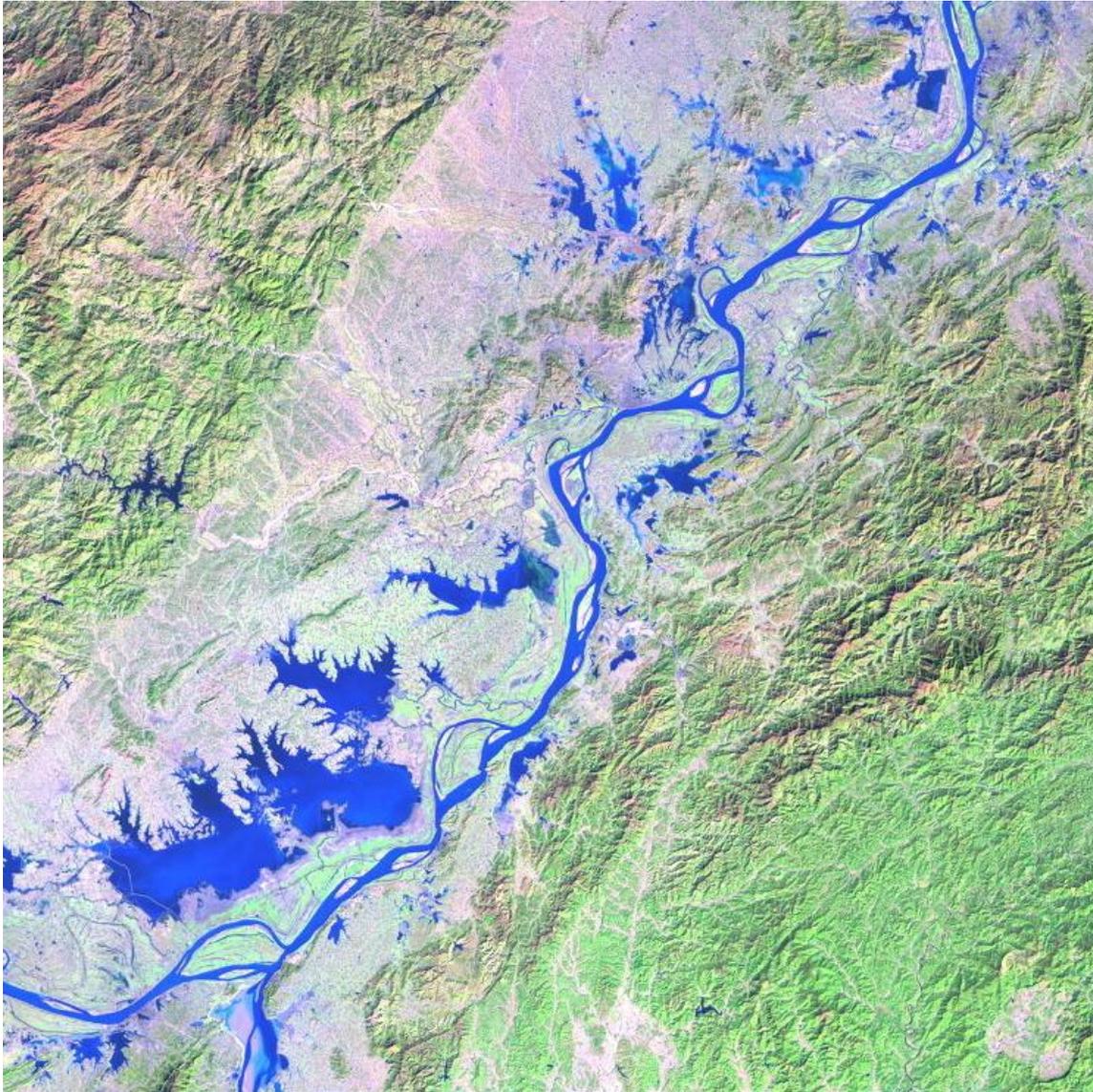
**BRIEF DESCRIPTION OF THE SITE:**

a) Site Description

The nature reserve is located at southwestern Anhui Province (Geographical coordinates: N29°05'28"—30°05'58"; E115°01'19"—117°04'11"). The total area is 120,000 ha. It covers the Huayanghe lakes (Longgan Hu, Huangda Hu, Po Hu), Caizi Hu, Baidang Hu, Chenyao Hu and Fengsha Hu. The Huayanghe lakes are located in counties of Xusong, Wangjiang and Taihu, and other lakes are located in counties of Tongcheng, Yixiu and Zongyang.

b) Are the Flyway Site boundaries clearly defined, and is a map available?

Yes. Map attached



## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

More than 30% of global wintering Hooded Cranes.

More than 7% of global wintering Oriental Storks

More than 30% of global wintering Swan Geese.

More than 10% of regional wintering Tundra Swans.

### Nomination Document

Species	Scientific Name	Minimum Populn Estimate*	1% criteria	Count	Date	References
Pied Avocet	<i>Recurvirostra avosetta</i>	25 000	250	1 955	30/01-09/02/2004	Barter <i>et al.</i> 2004 Mark Barter pers. comm.
Northern Lapwing	<i>Vanellus vanellus</i>	100 000	1000	1 586	30/01-09/02/2004	Barter <i>et al.</i> 2004 Mark Barter pers. comm.
Spotted Redshank	<i>Tringa erythropus</i>	25 000	250	7 010	30/01-09/02/2004	Barter <i>et al.</i> 2004 Mark Barter pers. comm.
Dunlin	<i>Calidris alpina</i>	950 000	9500	19 492	30/01-09/02/2004	Barter <i>et al.</i> 2004 Mark Barter pers. comm.

1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

No

Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".

Are all the key populations counted? : **All**    Some    None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years?    1    2-5    **6-10**    >10

If counts from >5 years ago, then how many:    <10    **10-100**    >100

Contact details of organization / individual leading recent counting: Zhang Hong (the compiler)

Prof Zhou Lizhi: School of Life Sciences, Anhui University Has the data been analysed? **yes** / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population            increase / no change / **decline**

If published, please give reference/s:

Conservation and Management of wetland biodiversity of the lakes along the Yangtze River in Anqing. Published by Hefei Industrial University. 2008. (in Chinese)

Other comments:

highest count at any one time on the lakes.

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Baikal Teal			9,000	Feb-10	Cao 2013
Bean Goose			29,820	2005	unknown
Black Stork			18	2004	
Black-headed Gull			5,266	Dec-09	Cao 2013
Common Teal			10,161	2004	unknown
Dunlin			10,709	Feb-05	Cao 2013
Eurasian Spoonbill			1,691	Dec-09	Cao 2013
Falcated Duck			6,450	Feb-10	Cao 2013
Great Crested Grebe			647	2004	
Great Egret			1,548	Dec-09	Cao 2013
Greater White-fronted Goose			392	Dec-09	Cao 2013
Grey Heron			1,630	Dec-09	Cao 2013
Greylag Goose			1,700	2005	unknown
Hooded Crane			333	Feb-04	Cao 2013
Little Grebe			1,595	Feb-04	Cao 2013
Northern Lapwing			1,203	Dec-09	Cao 2013
Northern Pintail			2,402	Feb-10	Cao 2013
Oriental Stork			513	Dec-09	Cao 2013
Pied Avocet			9,174	Feb-05	Cao 2013
Ruddy Shelduck			674	Feb-04	Cao 2013
Smew			400	2004	unknown
Spotted Redshank			5,583	01-Feb-04	Barter et al. 2004
Swan Goose			26,398	winter 2008-9	Zhang et al. 2010
Tundra Swan			28,450	Feb-10	Cao 2013

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

*Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.*

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O	N/A	Swan Goose, Hooded Crane, Tundra Swan, Oriental Stork	Too many fish nets in the lakes and waterbird habitat reduced.

Other comments (including if changes to habitat between FSN listing and 5 years ago):

### 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

<b>Threat name</b> (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	<b>Habitat / Type</b> (as identified in the section above)	<b>Timing:</b> In the past = 0 Long term (4-10yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent:</b> 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity:</b> 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Development for agriculture and aquaculture	O	1	2	3
Exploitation of wildlife	O	1	1	3

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      **6-25%**      26-50%      >50%

### 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation? %,

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: **yes** / no

Is it comprehensive? : **yes** / no

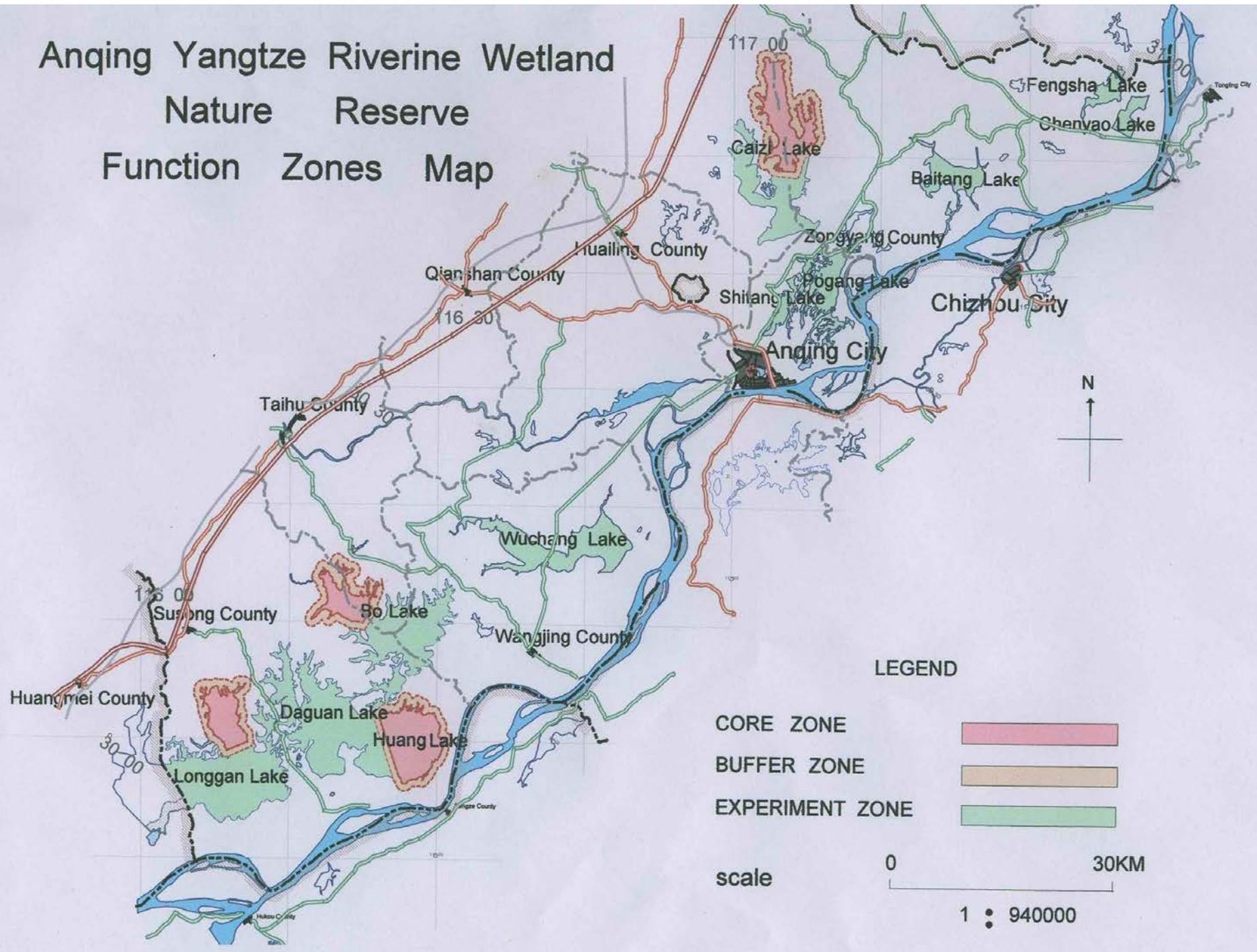
(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

Project on establishing a model wetland site. Involvement of local community on conservation activities. The nature reserve is patrolled by reserve wardens.

# Location of Anqing Yangtze Riverine Wetland Nature Reserve



# Anqing Yangtze Riverine Wetland Nature Reserve Function Zones Map



## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> Li Zhenji (李振吉) Cao Hai National Nature Reserve Management Office, 130 Yushi Road, Caohai Township, Weining County, Guizhou Province.	
<b>DATE OF ASSESSMENT:</b> 17 October 2011	<b>COUNTRY:</b> China
<b>NAME OF FLYWAY SITE:</b> Cao Hai National Nature Reserve  IBA name (and relationship to Flyway Site if they are defined differently): Cao Hai  Name of Ramsar site (if listed): Cao Hai National Nature Reserve	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Located at the foothill of Wumeng Shan in the middle of northern Yunnan-Guizhou Highland, south-west to the county seat of Weining Yi-Hui-Miao Autonomous County, northwestern Guizhou Province (26° 47' 32" —26° 52' 52" N, 104° 10' 16" —104° 20' 40" E). Total area of the nature reserve is 96km <sup>2</sup> , including the core zone ( 21.6205km <sup>2</sup> ), the buffer zone (5.3951km <sup>2</sup> ) and the experimental zone (68.9844km <sup>2</sup> ). Area of farmland in the reserve is 42.km <sup>2</sup> , and area of water surface and marshes is 25.4741km <sup>2</sup> . Forest coverage is 11.64% . Established as a provincial nature reserve in 1985, upgraded to become a national nature reserve in 1992 for conservation of the highland wetland ecosystem and Black-necked Crane.  b) Are the Flyway Site boundaries clearly defined, and is a map	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Black-necked Cranes - 10% of the global population of wintering

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bar-headed Goose			2,540	2007	unknown
Common Crane			938	2007	unknown
Common Merganser			2,000	1990/91 winter	AWC
Common Shelduck			2,000	1990/91 winter	AWC
Ferruginous Duck			2,000	1992/93 winter	WSGCOA 1994
Mallard			30,000	1992/93 winter	WSGCOA 1994
Ruddy Shelduck			20,000	1992/93 winter	AWC

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".

Are all the key populations counted? :                    **All**    Some    None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years?    1                    2-5                    6-10                    >10

If counts from >5 years ago , then how many:                    <10                    10-100                    >100

Contact details of organization / individual leading recent counting:

Has the data been analysed? yes / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes**

If yes please provide details:

Key Population    **increase** / no change / decline

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O (freshwater lake > 8 ha)	2500	Black-necked Crane	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
1. 1 Urban land development	O	3	0	0
6. 3 Other human non-productive activities	O	1	0	0
8. 1 Invasive species	O	3	0	1
9. 1 Domestic sewage	O	1	0	0

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

Because of the protection measures, the population should not decline.

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation?

**50%, O, National Nature Reserve.**

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: **yes** / no

Is it comprehensive? : **yes** / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

A comprehensive management plan on the ecosystem of Cao Hai has been approved by the Province Government. Projects related to this plan have also been submitted, including regulations on ecotourism of Cao Hai. Research Programme is being conducted by the Guizhou University and a programme on subsidizing rural people is in progress. A farm union on development and conservation has been established.

## 5. References

Waterbird Specialists Group (1994) China waterbird census original data. In 'Waterbird Research in China'. pp:192-233.

Shanghai: East China Normal University Press (in Chinese)

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> Ma Qiang. Dongtan Bird National Nature Reserve, Dongwang Avenue, Chongming Island, Shanghai, China.																					
<b>DATE OF ASSESSMENT:</b> 12 October 2011	<b>COUNTRY:</b> CHINA																				
<b>NAME OF FLYWAY SITE:</b> Chongming Dongtan IBA name (and relationship to Flyway Site if they are defined differently): Chongming Dongtan Name of Ramsar site (if listed): Chongming Dongtan Nature Reserve, Shanghai. site No.114																					
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Located on the easternmost end of Chongming Island at the Yangtze Estuary. It is the biggest muddy tidal area at the Yangtze Estuary. The reserve lies in the overlapping area of the three eco-regions: the Yangtze River, the Yellow Sea and the East China Sea. Total area is 24155 ha. Ecosystem at the reserve is in rapid succession. It supports several hundred thousand waterbirds in winter and during migration, including Hooded Cranes, Black-faced Spoonbills, and Spoon-billed Sandpipers. It is also the migration passage of many fish species, including the endangered Chinese sturgeon. b) Are the Flyway Site boundaries clearly defined, and is a map available? The reserve boundaries are well-defined and maps																					
<h3 style="color: red;">1. Migratory waterbirds</h3> <p><b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 70%;">Dunlin</td><td style="text-align: right;">47 500</td></tr> <tr><td>Far Eastern Curlew</td><td style="text-align: right;">650</td></tr> <tr><td>Great Knot</td><td style="text-align: right;">87 000 (<i>published data in English is 5 761</i>)</td></tr> <tr><td>Hooded Cranes</td><td style="text-align: right;">120 winter here annually.</td></tr> <tr><td>Kentish Plover</td><td style="text-align: right;">7 270</td></tr> <tr><td>Little Ringed Plover</td><td style="text-align: right;">300</td></tr> <tr><td>Marsh Sandpiper</td><td style="text-align: right;">1 640</td></tr> <tr><td>Mongolian Plover</td><td style="text-align: right;">1 790</td></tr> <tr><td>Spoon-billed Sandpiper</td><td style="text-align: right;">54</td></tr> <tr><td>Whimbrel</td><td style="text-align: right;">1 200</td></tr> </table> <p>About 60,000 Anatidae also winter in the reserve. During the annual spring and autumn migration, several hundred thousand shorebirds of 46 species use the reserve as stop-over site.</p> <p><b>1.2 Additional populations meeting the FSN criteria identified in this assessment (<i>please provide additional information</i>)</b></p> <p>Black-faced Spoonbills (62 birds), Baikal Teal (8000 birds)</p> <p><i>Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".</i></p>		Dunlin	47 500	Far Eastern Curlew	650	Great Knot	87 000 ( <i>published data in English is 5 761</i> )	Hooded Cranes	120 winter here annually.	Kentish Plover	7 270	Little Ringed Plover	300	Marsh Sandpiper	1 640	Mongolian Plover	1 790	Spoon-billed Sandpiper	54	Whimbrel	1 200
Dunlin	47 500																				
Far Eastern Curlew	650																				
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Hooded Cranes	120 winter here annually.																				
Kentish Plover	7 270																				
Little Ringed Plover	300																				
Marsh Sandpiper	1 640																				
Mongolian Plover	1 790																				
Spoon-billed Sandpiper	54																				
Whimbrel	1 200																				

Are all the key populations counted? : **All** Some None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 >10

If counts from >5 years ago, then how many: <10 10-100 >100

Contact details of organization / individual leading recent counting:

Ma Qiang (the compiler) and Wu Wei of the nature reserve.

Has the data been analysed? **yes** / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population increase / no change / decline

Anatidae significant decline

Cranes and shorebirds No change

**If published, please give reference/s:**

Report on the resources survey at Chongming Dongtan: 2006-2007, 2008, 2009

**Other comments:**

## 2. Wetland/Habitats

Ramsar wetland types used by key populations: **MAJOR HABITAT TYPES**

Wetland/Habitat type	Extent (ha)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
Tidal flat	10145	Shorebirds, anatidae and	Tidal area reduces as the invasive species expended on the tidal flat.
Open water Permanent shallow marine waters in most cases less than six metres deep at low tide; includes sea bays and straits.	14010	Some anatidae species.	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
8.1 Invasive species	Tidal flat	3	1	3
2.3 animal husbandry	Tidal flat	1	1	1

5.4 fishing	Open water	3	2	1
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Other comments on threats (including management actions to address threats): Invasive weed Spatamia is the biggest threat to the nature reserve at this moment.

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s	<5%	6-25%	26-50%	>50%
Anatidae	>50%			
Shorebirds	26-50%			
Cranes	>50%			

**4. CONSERVATION MEASURES**

- (1) Is all or some of the site legally protected? **Yes**  
If so, what % and what is the designation? 100%, National nature reserve
  
- (2) Has a management plan been prepared for the site, and if so is it current and comprehensive?  
  
Management Plan has been prepared?: **Yes**  
Is the Management Plan current?: **Yes**  
Is it comprehensive? : **Yes**
  
- (3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?  
  
Have published and implemented three major plans on the management of the nature reserve. An education centre established and education programme conducted. Have cooperated with NGOs to form volunteer groups for supporting research and management of the reserve. Plans on development of scientific research and education are now under preparation.

**Jaensch 2013**

Common Shelduck	1,500	2007	unknown
Saunders's Gull	500	2007	
Black-faced Spoonbill	62		
Dunlin	47,500		
Marsh Sandpiper	1,640		
Spoon-billed Sandpiper	54		
Baikal Teal	8,015	2006	unknown
Hooded Crane	145	1998	unknown
Curlew Sandpiper	805	26-Mar-01	Ma et al. 2002
Far Eastern Curlew	794	31-Mar-96	Barter et al. 1997
Great Knot	5,761	31-Mar-96	Barter et al. 1997
Greater Sand Plover, leschenaultii	481	02-May-90	Tang & Wang 1991
Kentish Plover, dealbatus	7,880	14-Mar-01	Ma et al. 2002
Lesser Sand Plover	1,790	02-May-90	Tang & Wang 1991
Little Ringed Plover	300	02-Apr-98	Barter 2002
Red-necked Stint	2,515	02-May-90	Tang & Wang 1991
Sharp-tailed Sandpiper	978	27-Apr-01	Ma et al. 2002
Spotted Redshank	383	31-Mar-96	Kelin et al. 1997
Terek Sandpiper	210	10-May-01	Ma et al. 2002
Whimbrel, variegatus	1,200	20-Apr-99	Barter 2002
Tundra Swan, jankowskii	1,200	winter1989/90	AWC
Chinese Crested Tern		Sep-04	Chan et al. 2010

# East Asian - Australasian Flyway Site Network

## Site Assessment Form



<b>COMPILER'S name, email and address:</b> Pang Chuan. 35 Fengyuan Road, Zhaoyang District, Zhaotong City, Yunnan Province	
<b>DATE OF ASSESSMENT:</b> 6 December 2011	<b>COUNTRY:</b> CHINA
<b>NAME OF FLYWAY SITE:</b> Yunnan Dashanbao Black-necked Crane National Nature Reserve <a href="http://www.dsbhjh.com/ztdsb/">www.dsbhjh.com/ztdsb/</a> , <a href="http://www.dsbbhq.com">www.dsbbhq.com</a>  IBA name (and relationship to Flyway Site if they are defined differently): Dashanbao  Name of Ramsar site (if listed): Yunnan Dashanbao Wetland	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Located at Dashanbao Township of Zhaoyang District, Zhaotong City (about 83 km from the city centre, 103°14'55"—103°23'49"E, 27°18'38"—27°29'15"N). Total area 19200 ha. Altitude 2210 – 3364 meters above sea level. Average temperature 6.2°C, annual frost –free days about 80 -125 days. Main habitats in the nature reserve are forest (3110 ha), grassland (10450 ha) and wetland (5958 ha). Dshanbao is the highest concentration of wintering Black-necked Cranes. It was promoted to be a National Nature Reserve in 2003 and listed as a Ramsar Site in 2004.  b) Are the Flyway Site boundaries clearly defined, and is a map available? The nature reserve is clearly defined (identical as the Dashanbao Township). Maps are available.	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

*Black-necked Crane - wintering ground to 16.3% of the global population.*

*During migration more than 20% of the global population of Black-necked Cranes can be found in the reserve.*

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Baer's Pochard	15	1992	AWC
Ruddy Shelduck	800	1991/92 winter	AWC

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted? :                      All   **Some**   None

If "some" please list these:

Black-necked Cranes, Bar-headed Geese, Greylag Geese, Mallards, Ruddy Shelducks, Goosanders.

If counting has occurred, then:

How many times was the site counted in the past 5 years?   1                      2-5                      6-10                      **>10**

If counts from >5 years ago , then how many:                      <10                      10-100                      **>100**

Contact details of organization / individual leading recent counting:

Pang Chuan, Zhing Xingyao  
Management Office of Yunnan Dashanbao Black-necked Crane National Nature Reserve  
Tel: 0870-2139110

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population                      increase / **no change** / decline If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

*Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.*

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
Montane wetland	5 958	Black-necked Crane and Bar-headed Goose	Restoration project on wetland. Suitable habitat increases.

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing:	Extent:	Severity:
		In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Animal husbandry	Montane wetland	1	1	2
Development of tourism	Montane wetland	3	1	1
Disturbance due to tourism	Montane wetland	3	2	3

Other comments on threats (including management actions to address threats): Tourism disturbance to Black-necked Crane has the bigger impact to the reserve.

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      **6-25%**      26-50%      >50%

## 4. CONSERVATION

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation? 100%, National Nature Reserve

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: yes / no

Is it comprehensive?: yes / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

A project on reverting farmland to wetland. Strengthen patrolling to prevent disturbance. Community work to encourage local people to protect the site. Established a Voluntary Conservation Group on Black-necked Cranes. An education centre has also been established.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> Zeng Nanjing, 490. Chunhui Road, Honggutan New District, Nanchang City, Jiangxi Province, China 330038	
<b>DATE OF ASSESSMENT:</b> 16 October 2011	<b>COUNTRY:</b> CHINA
<b>NAME OF FLYWAY SITE:</b> Jiangxi Poyang Hu National Nature Reserve  IBA name (and relationship to Flyway Site if they are defined differently): Poyang Hu  Name of Ramsar site (if listed): Poyang Hu	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description  The nature reserve is located on the northwest corner of the Poyang Hu, the biggest freshwater lake in China. Poyang lies in the lower reaches of the Yangtze in northern Jiangxi Province. Area of the nature reserve is 22400 ha. The nature reserve supports several hundred thousand waterbirds annually. It has the biggest globally wintering population of Siberian Cranes (about 3000 birds) and the biggest wintering population of Swan Geese (about 60,000 birds wintering in 2004). 10 category I species and 48 category II species of nationally protected wildlife are found in the nature reserve. 13 bird species found in the nature reserve are regarded as globally threatened species.  The nature reserve was established in June 1983 and has been listed as priority protected areas by many international organizations. It was listed on the North East Asian Crane Site Network by the State Forestry Administration in 1997.  b) Are the Flyway Site boundaries clearly defined, and is a map available?  Yes. Maps are available.	

### 1. Migratory waterbirds

#### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

The populations of Siberian Crane, White-naped Crane and Oriental Stork were surely over threshold of the Crane Network.

The following shorebird species are also found to be exceed the 1% regional population threshold:

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Black-tailed Godwit			12 000		
Dunlin			24 000		
Eastern Sand Plover			5		
Grey-headed Lapwing			1 700		
Kentish Plover			1,729	12-Dec-88	WI 2002
Little Ringed Plover			130		
Northern Lapwing			8,000		Scott 1989
Pacific Golden Plover			500		
Pied Avocet			9		
Pintail Snipe				23-Jan-88	WI 2002
Spotted Redshank			18 000		

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

Common Greenshank	2,000	23-Jan-88	WI 2002
Common Redshank	3,000	23-Jan-88	WI 2002
Common Snipe, gallinago	3,900	23-Jan-88	WI 2002
Swinhoe's Rail	1	Dec-95	BirdLife International 2001

Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".

Are all the key populations counted? : **All**    Some    None  
 All key populations are regularly counted.

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years?    1    2-5    6-10    **>10**

If counts from >5 years ago , then how many:    <10    10-100    **>100**

Contact details of organization / individual leading recent counting:

请列出负责统计的团体或个人的联络方法:

Zeng Nanjing (the compiler)    Tel: 0791-83857787

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes / **no**

If yes please provide details:

Key Population    increase / no change / decline

If published, please give reference/s:

Ecological studies of wetland and waterbirds of Poyang Hu (in Chinese) 《鄱阳湖湿地和水鸟的生态研究》

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations.

Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
M	112	Gulls and mergansers	
O	15 680	Anatidae, cranes, storks, shorebirds, grebes	
P	6 496	Anatidae, cranes, storks, shorebirds, grebes	
Tp	112	Dabbling ducks, snipes, woodcock etc	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
2.2 forestry plantation		1	1	2
2.3 livestock raising	Tp	3	1	1
5.1 hunting and collection of territorial wildlife	O			
5.2 collection of plants	Tp	3	2	3
11.1 habitat change due to climate changes	M、 O、 P、			
11.2 draught	M、 O、 P、			
11.4 storm and flood	M、 O、 P、			

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      **26-50%**      >50%

Changes in climate, draught and flood have bigger impact to wetland system and waterbirds in Poyang Hu Nature Reserve. If these factors are not under controlled we would expect an impact of higher than 25% to key populations.

## 4. CONSERVATION MEASURES

(1) Please answer the following:

Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation? 100 %, National Nature Reserve

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: **yes** / **no**

Is it comprehensive? : **yes** / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

New conservation monitoring stations have been established in the reserve. A joint committee on wintering waterbird and wetland conservation has been established. Scientific research, wintering bird monitoring are regularly conducted. Education centres have also been established.

# East Asian - Australasian Flyway Site Network

## Site Assessment Form



<b>COMPILER'S name, email and address:</b>  Wang Lingfeng	
<b>DATE OF ASSESSMENT:</b> 17 October 2011	<b>COUNTRY:</b> CHINA
<b>NAME OF FLYWAY SITE:</b> Jiangxi Poyang Hu & Nanji National Nature Reserves	
IBA name (and relationship to Flyway Site if they are defined differently): Poyang Hu (the IBA site includes the entire lake area, to which Poyang Hu National Nature Reserve and Nanji Wetland National Nature Reserve are both part of it)	
Name of Ramsar site (if listed):	
<b>BRIEF DESCRIPTION OF THE SITE:</b>	
a) Site Description <p style="margin-left: 20px;">Nanji National Nature Reserve is at the southern part of Poyang Lake, at the delta of the Gan Jiang River that flows into Poyang. Total area of the nature reserve is 33,300 ha. It is in the Nanji Township of Xinjian County, only about 60 km from Nanchang City. The nature reserve's boundary is almost overlapping with the Nanji Township. This is the biggest river-mouth type nature reserve in Jiangxi Province.</p> <p style="margin-left: 20px;">The nature reserve was established in 1997 as a provincial level reserve. In 2008 it was upgraded to become a national nature reserve. It is established for conservation of the wetland ecosystem of Gan Jiang delta in Poyang Lake.</p> <p style="margin-left: 20px;">In summer the water level is high that 90% of the reserve is submerged, leaving only two islands, Nanshan and Jishan Islands, as human settlement. In autumn and winter water level goes down and marshy habitats appears. The nature reserve supports several hundred thousand waterbirds. Including globally threatened species such as Siberian Cranes and Oriental Storks.</p>	
b) Are the Flyway Site boundaries clearly defined, and is a map available? Yes	

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

- Oriental Storks - 80% of the global wintering population
- Siberian Cranes - 30% of the global wintering population.

1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

**Not clear about the 1% threshold but Bean Geese and Swan Geese increased after the site designation.**

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted? : All **Some** None

If "some" please list these:

Avocets, Eurasian Spoonbills, Black Stork

If counting has occurred, then:

How many times was the site counted in the past 5 years?    1       2-5       6-10       **>10**

If counts from >5 years ago, then how many:    <10    10-100    **>100**

Contact details of organization / individual leading recent counting:

Wang Lingfeng (tel: 13879115130) and Yu Guanjun

Has the data been analysed? **yes** / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population    increase / no change / decline

The populations fluctuate and no trend can be deduced

If published, please give reference/s: Not published

Other comments:

*Spatial overlay needs checking*

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Baer's Pochard			600	2004	AWC
Bean Goose			16,340	2005	AWC
Black Stork			32	2005	AWC
Black-tailed Godwit			13,260	Jan-11	Cao 2013
Caspian Tern			300	1988	AWC
Common Black-headed Gull		1000	18245		AWC
Common Coot		1000	6404		AWC
Common Crane			1,361	2007	AWC
Common Greenshank			2,000	23-Jan-88	WI 2002
Common Redshank			3,000	23-Jan-88	WI 2002
Common Shelduck			2,000	1987/88winter	AWC
Common Snipe			3,900	23-Jan-88	WI 2002
Common Teal			19,757	2005	AWC
Dalmatian Pelican			24	1988	AWC
Dunlin			58,487	2007	AWC
Eurasian Spoonbill			15,601	2001	AWC
Eurasian Wigeon			8,000	winter1987/88	AWC
Falcated Duck			30,000	winter1987/88	AWC
Garganey			30,000	winter1987/88	AWC
Great Cormorant			1,353	2003	AWC
Great Crested Grebe			682	2005	AWC
Greater White-fronted Goose			110,000	2007	AWC
Grey-headed Lapwing			1,700		
Grey Heron		1000	8,757		AWC
Greylag Goose			1,500		AWC
Hooded Crane			590	1997	AWC
Kentish Plover			1,729	12-Dec-88	WI 2002
Lesser White-fronted Goose			9,790	winter1988/89	AWC
Little Grebe		1000	1423		AWC
Long-billed Plover		1	4		AWC
Mallard			30,000	winter1987/88	AWC
Northern Lapwing			8,000		Scott 1989
Northern Pintail			30,000	winter1987/88	AWC
Northern Shoveler			7,000	winter1987/88	AWC
Oriental Stork			4,544	Jan-11	Cao 2013
Pied Avocet			15,760	01-Feb-04	AWC
Pintail Snipe			4,800	23-Jan-88	WI 2002
Ruddy Shelduck			6,175		AWC
Siberian Crane			3,750	winter2000	BirdLife Int. 2013
Snow Goose			4	winter1990/91	AWC
Spot-billed Duck			23,584	winter1988/89	AWC
Spotted Redshank			18,000		WI-BLI 2013
Swan Goose			76,531	Jan-11	Cao 2013
Swinhoe's Rail			1	Dec-95	BirdLife Int. 2013
Tundra Swan			80,000	2007	AWC
White-naped Crane			6,966		AWC

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
Natural wetland	33 300	waterbirds	Human development and reclamation. Fragmentation of wetland

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing:	Extent:	Severity:
		In the past = 0 Long term (4-10yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Reclamation	Lake	3	2	2
Agricultural development	Lake	3	1	3
Tree plantation	Lake	1	2	1

Other comments on threats (including management actions to address threats): The authority of management should be clearly defined.

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation? **70%**,

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: **yes** / no

Is it comprehensive? : **yes** / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

Waterbird monitoring, patrolling, bird banding, protection of injured birds, disease monitoring, community survey, education, promotion activities at the World Wetland Day and on wildlife conservation.

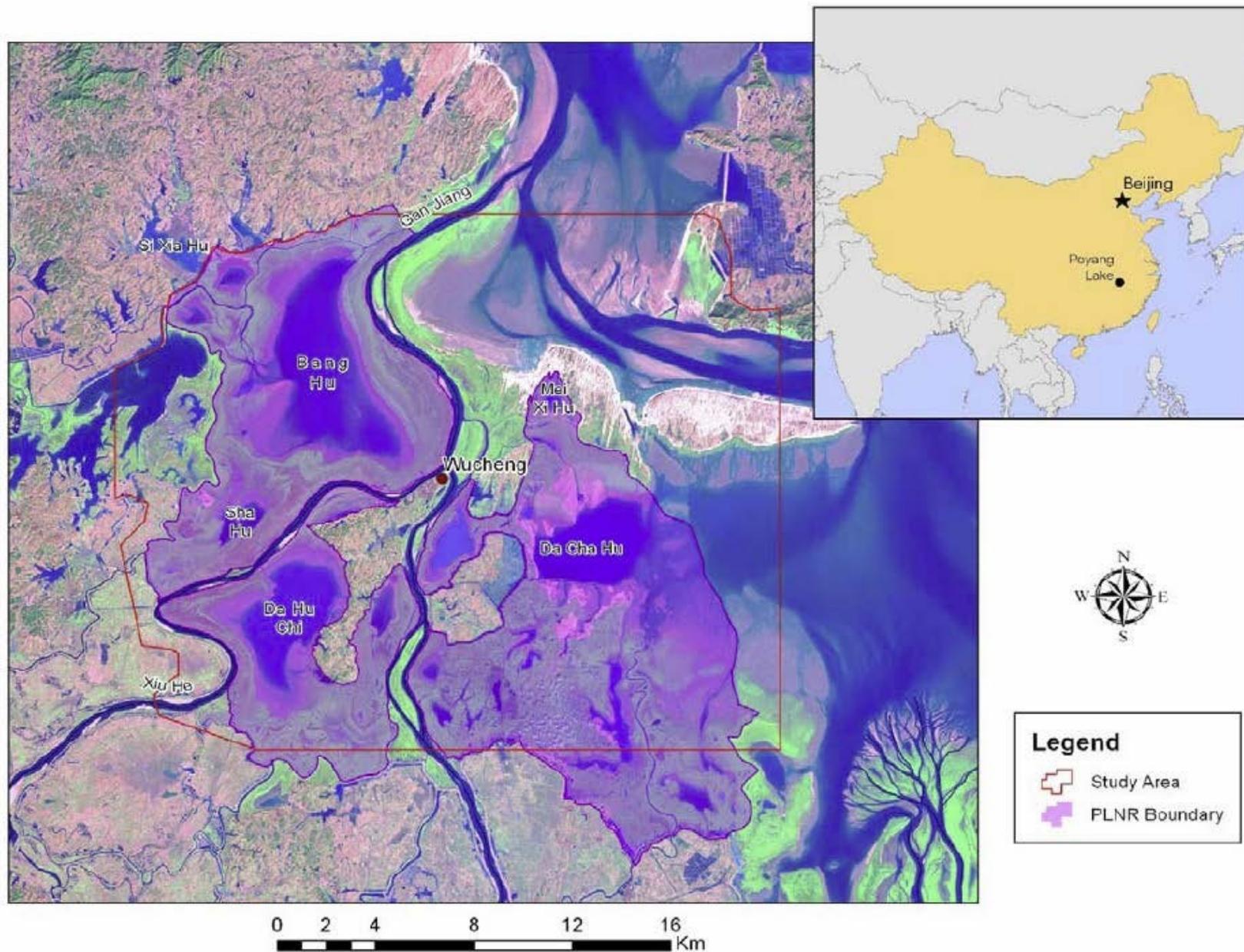


Figure 2. Poyang Lake National Nature Reserve. The base map is a LANDSAT image taken on December 10, 1999 and represents the average low water elevation (11.98 m Wu Song) in Poyang Lake. The red boundary is the study area

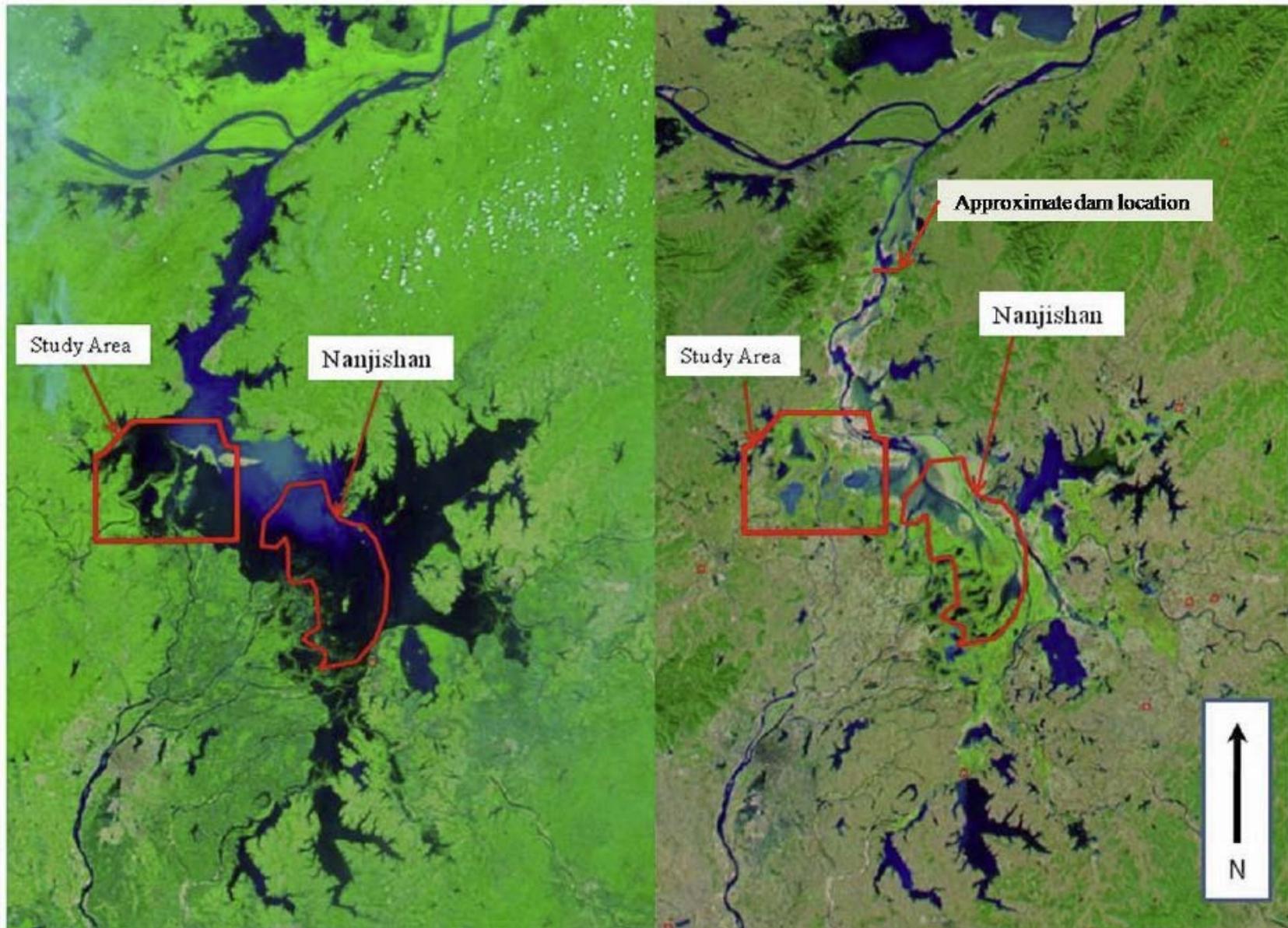


Figure 1. Poyang Lake at high water (left) and low water (right) overlaid with study area for research by PLNR and International Crane Foundation on waterbirds, water levels, and aquatic food plants, and with the location of Nanjishan Nature Reserve. Adapted from Barzen et al. (2009).

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> Liu Zunxian, : Sanjiang Nature Reserve Management Office, Fuyuan Township, Fuyuan County, Heilongjiang Province 156500, China.	
<b>DATE OF ASSESSMENT:</b> 20 December 2011	<b>COUNTRY:</b> CHINA
<b>NAME OF FLYWAY SITE:</b> Heilongjiang Sanjiang National Nature Reserve  IBA name (and relationship to Flyway Site if they are defined differently): Sanjiang Plains (the nature reserve is part of this IBA)  Name of Ramsar site (if listed): Heilongjiang Sanjiang National Nature Reserve	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Located in Fuyuan County and Tongjiang City of Heilongjiang Province, with Heilongjiang (Amur) River in the north and Ussuri River to the east. Geographic coordinates are 47°26'0"—48°22'50"N, 133°43'20"—134°46'40"E. Total area 198,089 ha. The reserve is on the convergence of two big rivers and is a permanent freshwater habitat.  b) Are the Flyway Site boundaries clearly defined, and is a map available? The reserve boundaries are well defined and maps are available.	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Recent surveys show about 50,000 to 100,000 Anatidae found in the reserve during autumn migration. High number of cormorants (20000 – 30000) has also been recorded.

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
White-naped Crane			198	Sep-99	BirdLife International 2001
Red-crowned Crane			200	1998	BirdLife International 2001
Oriental Stork			40	1984-6	BirdLife International 2001

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the “key populations”.*

Are all the key populations counted? : All **Some** None

If “some” please list these:

Oriental Stork, Red-crowned Crane and White-naped Crane

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 **2-5** 6-10 >10

If counts from >5 years ago , then how many: **<10** 10-100 >100

Contact details of organization / individual leading recent counting:

Has the data been analysed? yes / **no** / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes / no

If yes please provide details:

Key Population increase / no change / decline

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

Ramsar wetland types used by key populations:

**MAJOR HABITAT TYPES**

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
River and lake	6 003		
Marsh and floodplain	139 809		
forest	18 342		
Other comments (including if changes to habitat between FSN listing and 5 years ago):			

### 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Farming of crops Animal husbandry Aquaculture	Wet grassland	1	0	0
Deforestation Fishing	Rivers and lakes	1	0	0
Dam construction	Wet grassland	1	0	0

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation? 74%, National Nature Reserve

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: **yes** / no

Is it comprehensive? : **yes** / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

Strengthen patrolling at the reserve. Cooperation with neighbouring reserves in Russia.

# East Asian - Australasian Flyway Site Network

## Site Assessment Form

<b>COMPILER'S name, email and address:</b> Xu Wenbin Shengjin Hu Nature Reserve Management Office, Changlin Village, Dongzhi County, Chizhou City, Anhui Province.	
<b>DATE OF ASSESSMENT:</b> 19 October 2011	<b>COUNTRY:</b> China
<b>NAME OF FLYWAY SITE:</b>  Anhui Shengjin Hu National Nature Reserve IBA name (and relationship to Flyway Site if they are defined differently): Shengjin Hu Name of Ramsar site (if listed):	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description The nature is located in between Dongzhi County and Guichi District of Chizhou City, Anhui Province. (116°55' to 117°15' E, 30°15' to 30°30' N). The total area is 33340 ha (including lake area 13300 ha)  b) Are the Flyway Site boundaries clearly defined, and is map available? Yes. Maps available	

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

### **Bird species exceed 1% regional population threshold:**

Hooded Crane	Bean Goose
Siberian Crane	Pheasant-tailed Jacana
White-naped Crane	Northern Lapwing
Oriental Stork	Common Redshank
Black Stork	Dunlin
Eurasian Spoonbill	Pied Avocet
Tundra Swan	Grey-headed Lapwing
White-fronted Goose	Green Sandpiper
Swan Goose	Common Teal

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

According to the waterbird survey report of 2008-2009, 11 species exceeded the 1% threshold:

Black Stork	White-fronted Goose
Oriental Stork	Falcated Teal
Eurasian spoonbill	Baikal Teal
Tundra Swan	Hooded Crane
Swan Goose	Spotted Redshank
Bean Goose	

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Baer's Pochard		3	27	1990	AWC
Bean Goose			30,125	Dec-09	Cao 2013
Black Stork		1	17	2004	AWC
Black-headed Gull			2,105	Nov-10	Cao 2013
Common Coot		1,000	2,560		AWC
Common Moorhen			184		AWC
Common Redshank			904	Jan-04	Cao 2013
Dalmatian Pelican		1	2	2007	AWC
Dunlin			12,788	2007	AWC
Eurasian Spoonbill		100	1,672	2007	AWC
Eurasian Wigeon		5,000	17,800	2006	AWC
Falcated Duck			7,365	Feb-09	Cao 2013
Great Cormorant		250	1,043	Feb-08	Cao 2013
Great Crested Grebe			304	Feb-09	Cao 2013
Great Egret			572	Feb-09	Cao 2013
Greater White-fronted Goose			11,796	Dec-09	Cao 2013
Herring Gull		570	800		AWC
Hooded Crane		105	462	1994	AWC
Intermediate Egret			1,000	2002	
Lesser White-fronted Goose			529	Feb-10	Cao 2013
Little Egret		250	500		AWC
Long-billed Plover		1	8		AWC
Northern Lapwing		1,000	2,000		AWC
Northern Pintail		2,000	5,550	2006	AWC
Oriental (White) Stork		30	250	1989	AWC
Pied Avocet, E Asia			1,221	Feb-11	Cao 2013
Siberian Crane, Eastern			66	1994	Unknown
Smew		250	302	2006	AWC
Spot-billed Duck		100	3,862		AWC
Spotted Redshank		250	1,301	Dec-09	Cao 2013
Swan Goose		600	24,211	2005	AWC
Tundra Swan		920	5,429	2005	AWC
White-naped Crane			424	Feb-93	BirdLife Int. 2001

Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the “key populations”.

Are all the key populations counted? : **All** Some None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 **>10**

If counts from >5 years ago , then how many: <10 **10-100** >100

Contact details of organization / individual leading recent counting:

Xu Wenbin, Management Office of Shengjin Hu Nature Reserve

Tel: 13856668157 0566-- 8129993

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population increase / no change / decline

Swan Goose, Tundra Swan – decline

Falcated Teal, Baikal Teal, Bean Goose and White-fronted Goose - increase

If published, please give reference/s:

Cheng Yuanqi et.al Waterbird survey report of Shengjin Hu National Nature Reserve, Anhui Province 2008-2009. Published by China Science and Technology University. ISBN: 9787312024368

Other comments:

## 2. Wetland/Habitats

Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations.

Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type: River, Lakes, Marshes, Mudflats, Ponds and paddy field

Extent (ha) (N/A if not available)

Key populations supported:

Anatidae, shorebirds and herons

Provide comment if significant changes in habitat extent or quality in past 5 years:

Due to the flood in previous years sediment layers in part of the lake became higher and this affected the aquatic vegetation. Illegal poisoning of animals and agrichemical pollution threaten biodiversity of the reserve.

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).

For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).

Threats:

1. Development of tourism
2. Aquaculture development
3. Illegal mining
4. Poisoning of wildlife
5. Human disturbance
6. Invasive species
7. Domestic sewage and agrichemical run-off
8. Drought and flood

In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s   <5%   6-25%   26-50%   **>50%**

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation? 100%, National Nature Reserve

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: **yes** / no

Is it comprehensive? : **yes** / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

1. Established specialized management office
2. Improved capacity of officers enforcing conservation measures
3. Patrolling and study of the wintering ecology of Hooded Cranes and White-naped Cranes. While patrolling the rangers also work on promotion of environmental laws and monitoring outbreak of diseases.
4. Education programme to prevent poaching and poisoning of birds
5. Working with the community on joint conservation efforts
6. application to become a Ramsar Site
7. Research projects on bird banding and water quality monitoring

## 5. References

Cheng Yuanqi et.al Waterbird survey report of Shengjin Hu National Nature Reserve, Anhui Province  
2008-2009. Published by China Science and Technology University. ISBN: 9787312024368

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> Liu Huajin, Xingkai Hu National Nature Reserve Management Office, 198 Guangfu Road, Mishan City, Heilongjiang Province.	
<b>DATE OF ASSESSMENT:</b> 18 October 2011	<b>COUNTRY:</b> China
<b>NAME OF FLYWAY SITE:</b> Xingkai Hu National Nature Reserve  IBA name (and relationship to Flyway Site if they are defined differently): Xingkai Hu Nature Reserve  Name of Ramsar site (if listed): Xingkai Hu National Nature Reserve	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Located at the southern end of the Sanjiang Plains in NE China. It is a system of inland freshwater lake and represents the high latitude wetland system. It lies on the border between China and Russia (Called Khanka on the Russian side). The lake area is flat therefore a big lake can be formed. The lake is fringed with marshes and forest, and it is an important area to many waterbirds in NE Asia. Every year about 1.5 – 2 million waterbirds migrate through Xingkai Lake.  b) Are the Flyway Site boundaries clearly defined, and is a map available? The reserve boundary is well-defines and maps are available.	

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

- Red-crowned Cranes - 106 (May 2011)
- Oriental Storks 96 (May 2011).

From the spring census result of 2007, a total of 130,726 birds recorded. Including:

- Red-crowned Cranes 193
- White-naped Cranes 837
- Hooded Cranes 40
- Oriental Storks 6
- Geese 20 899
- Ducks 49 780

The estimated number of migratory bird is over 1.5 million.

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

Number of birds on the checklist of Xingkai Hu increased from 180 spp to 288 spp since the reserve was listed as a network site. Red-crowned Crane has increased from 62 birds in 1997 to 106 birds, and Oriental Storks from 22 birds to 96 birds.

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted? : All **Some** None

If "some" please list these:

Red-crowned Cranes and Oriental Storks.

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 **>10**

If counts from >5 years ago, then how many: <10 **10-100** >100

Contact details of organization / individual leading recent counting:

Research Division of the Xingkai Hu National Nature Reserve.

Tel: 0467-6135006 13946826186

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes / **no**

If yes please provide details:

Key Population increase / no change / decline

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O	About 30000	Red-crowned Crane, Oriental Stork.	No significant changes

Other comments (including if changes to habitat between FSN listing and 5 years ago):  
The environmental conditions is gradually improving.

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Pollution from agriculture and forestry	0	3	0	0

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s                      **6-25%**

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** / No

If so, what % and what is the designation? **100%, National Nature Reserve**

2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Is the Management Plan current?: **yes** / no

Is it comprehensive? : **yes** / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

Bean Goose	3,000	1988spring	Li et al. 1994
Common Goldeneye	11,000	-	Scott 1989
Common Teal	50,000	-	Scott 1989
Falcated Duck	9,000	-	Scott 1989
Greylag Goose	1,000	1988spring	Li et al. 1994
Lesser White-fronted Goose	7,500	1988spring	Li et al. 1994
Mallard	100,000	-	Scott 1989
Mandarin Duck	256	1996spring	Li et al. 1998
Northern Pintail	32,000	-	Scott 1989
Oriental Stork	96	2011	
Red-crowned Crane	193	2007	
Tufted Duck	11,000	-	Scott 1989
White-naped Crane	837	2007	
Whooper Swan	937	1995spring	Li et al. 1998

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> Wang Hui, Room 401, Yangguangshijicheng A Building, Jiefangnanlu road, Yancheng City, Jiangsu Province, 224005, PR CHINA	
<b>DATE OF ASSESSMENT:</b> 20 October 2011	<b>COUNTRY:</b> CHINA
<b>NAME OF FLYWAY SITE:</b> ( <i>Yancheng Biosphere Reserve including</i> ) Yancheng National Rare Birds Nature Reserve  <p style="text-align: center;"><i>There have been two nominations relating to this area. The original nomination was of the Yancheng Biosphere Reserve in 1999 (SEPA). This was followed by the issuing of a second certificate for the Milu National Nature Reserve in July 1999 (a part of the Biosphere Reserve).</i></p> IBA name (and relationship to Flyway Site if they are defined differently): Yancheng Nature Reserve  Name of Ramsar site (if listed): Yancheng National Rare Birds Nature Reserve	
<b>BRIEF DESCRIPTION OF THE SITE</b> a) Site Description On the western coast of the Pacific Ocean, adjacent to the North Jiangsu Plains. The nature reserve covers a coastline of 582 km and the total area is 2841.79 sq km. It is the biggest coastal nature reserve in China.  b) Are the Flyway Site boundaries clearly defined, and is a map available? Yes. Maps are available.	

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

1,128 Red-crowned Cranes in 1999. That was over 60% of the global population

1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

- Number of species on the bird checklist increased to 400 species.
- Breeding Saunders's Gull increased to 4 000 bird (more than 30% of the global population).
- Eurasian Crane increased to 6 000 birds (about 6% of the global population)

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted? : All **Some** None

If "some" please list these:

Wintering waterbirds and summer breeding birds, such as Red-crowned Cranes, Oriental Storks, Saunders's Gulls, Eurasian Oystercatchers.

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 **>10**

If counts from >5 years ago , then how many: <10 **10-100** >100

Contact details of organization / individual leading recent counting:

Wang Hui.

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population increase / no change / **decline**

The number of Red-crowned Crane is declining.

If published, please give reference/s: Not yet published.

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
Tidal flats	N/A	All species	Loss of tidal flat due to development and invasive species

Other comments (including if changes to habitat between FSN listing and 5 years ago):

More than 10% of wetland habitats for birds are lost.

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>(8.1)</b> Invasive species	Tidal flat	1	1	1
<b>(1)</b> Reclamation and industrialization	Tidal flat	1	2	2
<b>(7.3)</b> Natural succession of tidal area	Tidal flat	1	1	1
<b>(2.4)</b> Aquaculture development	Artificial ponds	1	2	2

Other comments on threats (including management actions to address threats):

Loans to recover wetland in Yancheng from the Asia Development Bank (2012-2017)

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s	<5%	6-25%	26-50%	>50%
Red-crowned Cranes	>50%			
Saunders's Gulls	>50%			
Eurasian Crane	26-50%			
Shorebirds	26-50%			

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? Yes / **No**

Only the core zone is legally protected.

If so, what % and what is the designation? **7%, Core zone of the protected area.**

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** / no

Has a management plan but not implemented.

Is the Management Plan current?: **yes** / no

Is it comprehensive? : **yes** / **no**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc?

Management plan for the Yancheng Nature Reserve (2008-2020), adopted by the Jiangsu Province Government. But not yet implemented.

### Additional Data

Common Name	Threshold	Max Count	Reference
Asian Dowitcher	230	945	Barter 2002
Baer's Pochard	3	330	AWC
Bar-tailed Godwit	2 790	2 984	Barter et al. 2002
Bean Goose	20	3 772	AWC
Black Stork	1	4	AWC
Black-faced Spoonbill	18	37	AWC
Black-headed Gull	1 000	9 737	AWC
Black-tailed Godwit	1 390	1 686	Wang 1997
Black-winged Stilt	250	482	Barter 2002
Broad-billed Sandpiper	250	1 476	AWC
Common Coot	1 000	44 694	AWC
Common Crane	100	6 000	Wang Hui pers. com. (Oct 2011)
Common Greenshank	1 000	2 325	Wang 1997
Common Gull/Mew Gull	250	1 152	AWC
Common Merganser	500	5 612	AWC
Common Pochard	3 000	3 432	AWC
Common Redshank	250	1 944	WI 2002
Common Sandpiper	500	1 546	Wang 1997
Common Shelduck	1 000	6 889	AWC
Dalmatian Pelican	1	3	AWC
Dunlin	5 000	57 867	Barter et al. 2002
Eurasian Curlew	1 000	13 136	Barter 2004
Eurasian Oystercatcher	50	200	Scott 1989
Eurasian Spoonbill	100	122	AWC
Eurasian Wigeon	5 000	15 680	AWC
Eurasian Woodcock	250	520	WI 2002
Falcated Teal	780	3 316	AWC

Far Eastern Curlew	320	1 718	Wang 1997
Garganey	1 000	2 157	AWC
Great Cormorant	250	699	AWC
Great Knot	2 900	3 271	AWC
Green Sandpiper	250	1 115	WI 2002
Grey Heron	1 000	1 283	AWC
Grey Plover	1 040	5 295	Barter et al. 2002
Grey-headed Lapwing	250	542	Wang 1997
Greylag Goose	500	3 600	AWC
Herring Gull	570	3 056	AWC
Kentish Plover	1 000	4 890	Wang 1997
Lesser Sand Plover	1 200	1 787	Wang 1997
Little Ringed Plover	250	4 658	Wang 1997
Long-toed Stint	250	1 167	Wang 1997
Mallard	15 000	30 100	AWC
Mandarin Duck	200	1 744	AWC
Marsh Sandpiper	1 000	9 026	Barter et al. 2002
Northern Lapwing	1 000	1 202	WI 2002
Northern Pintail	2 000	18 770	AWC
Northern Shoveler	5 000	14 326	AWC
Oriental (White) Stork	30	269	AWC
Oriental Plover	1 450	1 717	Wang 1997
Pied Avocet	1 000	1 498	WI 2002
Pintail Snipe	250	1 114	WI 2002
Red Knot	990	3 169	Barter 2002
Red-crowned Crane	4	1 128	Wang Hui pers. com. (Oct 2011)
Red-necked Stint	3 150	10 073	Barter et al. 2002
Relict Gull	120	438	AWC
Ruddy Shelduck	500	2 277	AWC
Ruddy Turnstone	285	919	Wang 1997
Sanderling	220	3 095	Wang 1997
Saunders's Gull	71	4 000	Wang Hui pers. com. (Oct 2011)
Sharp-tailed Sandpiper	1 600	3 125	Barter et al. 2002
Slaty-backed Gull	250	18	AWC
Smew	250	18	AWC
Solitary Snipe	1	157	WI 2002
Spoon-billed Sandpiper	1	18	AWC
Spot-billed Duck	100	8 996	AWC
Spotted Greenshank	4	35	Wang 1997
Spotted Redshank	250	7 150	Wang 1997
Swan Goose	600	12 441	AWC
Temminck's Stint	100	1 638	Wang 1997
Tufted Duck	2 000	2 212	AWC

## 5. References

Asian Waterbird Census. Wetlands International database.

Barter, M., 2002. Shorebirds of the Yellow Sea: Importance, Threats and Conservation Status. Wetlands International Global Series 9, International Wader Studies 12, Canberra, Australia.

Barter, M., 2004. Shorebird activities in China 18 April-17 May 2004. Unpublished report to Wetlands International - Oceania and the Department of Environment and Heritage. Australasian Wader Studies Group. Barter, M.A., Du, J.J., Wang, H., Chen, Y.Q., Gao, Z.D., Cheng, H. & Li, C.R., 2002. Shorebird numbers in the Yancheng National Nature Reserve during the 2001 Northward Migration. *The Stilt* 41: 27-34.

Scott, D.A., 1989. A Directory of Asian Wetlands. IUCN, Gland, Switzerland.

WI - Wetlands International, 2002. Asian Waterfowl Census database. Kuala Lumpur, Malaysia.

Wang, H. 1997. Shorebird use of Yancheng Biosphere, China. In Straw, P. (ed.). Shorebird conservation in the Asia-Pacific Region. Proceedings of a symposium held in Brisbane, Australia, 16-17 March 1996.

Australasian Wader Studies Group, Melbourne, Australia.

## **Wetlands International - Asia Pacific Council 1999**

Report by the Shorebird flyway Officer

### **Agenda            New sites for the East Asian-Australasian Shorebird Site Network**

#### **Yancheng Biosphere Reserve (Peoples Republic of China)**

The Yancheng Biosphere Reserve extends along 528 km of coastline covering 453 000 ha of tidal flat and coastal wetlands in Jiangsu Province. The mudflats are accreting from silt carried north from the Yangtze River. Management of the Biosphere Reserve is the responsibility of the National Environmental Protection Agency and is administered by the Jiangsu Environmental Protection Agency. The core area of the Biosphere Reserve covers 17 400 ha. There are adjacent Buffer Zones and a large Transition Area.

Yancheng is used by over 80 000 shorebirds during migration and 20 000 shorebirds during the non-breeding season. An analysis of the data collected by the Research Officer at the Reserve (Wang Hui) shows the site to meet:

- 1% criteria for 31 populations (Eurasian Oystercatcher, Black-winged Stilt, Pied Avocet, Grey Plover, Little Ringed Plover, Kentish Plover, Lesser Sand Plover, Eastern Sand Plover, Northern Lapwing, Grey-headed Lapwing, Black-tailed Godwit, Whimbrel, Eurasian Curlew, Far Eastern Curlew, Spotted Redshank, Common Redshank, Marsh Sandpiper, Common Greenshank, Spotted Greenshank, Common Sandpiper, Ruddy Turnstone, Asian Dowitcher, Great Knot, Red Knot, Sanderling, Red-necked Stint, Temminck's Stint, Long-toed Stint, Sharp-tailed Sandpiper, Dunlin, Broad-billed Sandpiper)
- staging criteria for an additional 10 populations (Oriental Pratincole, Pacific Golden Plover, Long-billed Plover, Grey-tailed Tattler, Pintail Snipe, Swinhoe's Snipe, Bar-tailed Godwit, Green Sandpiper, Terek Sandpiper, Curlew Sandpiper)
- "endangered" criteria for 2 populations (Spotted Greenshank and Spoon-billed Sandpiper).

On the basis of the number of shorebird populations of international importance, Yancheng would be the most important site in the East Asian - Australasian Shorebird Site Network.

Proposed follow-up activities include discussions for a dedication ceremony in September/October and involvement of staff in a management planning workshop in late 1999.

The nomination has come to Wetlands International - China Program from the National Environmental Protection Agency.

1% criteria for 31 populations

Asian Dowitcher,  
**Bar-tailed Godwit,**  
Black-tailed Godwit,  
Black-winged Stilt,  
Broad-billed Sandpiper,  
Common Greenshank,  
Common Redshank,  
Common Sandpiper,  
**Curlew Sandpiper,**  
Dunlin,  
Eastern Sand Plover,  
Eurasian Curlew,  
Eurasian Oystercatcher,  
Far Eastern Curlew,  
Great Knot,  
**Green Sandpiper,**  
Grey Plover,  
Grey-headed Lapwing,  
**Grey-tailed Tattler,**  
Kentish Plover,  
Lesser Sand Plover,  
Little Ringed Plover,  
**Long-billed Plover,**  
Long-toed Stint,  
Marsh Sandpiper,  
Northern Lapwing,  
**Oriental Pratincole,**  
**Pacific Golden Plover,**  
Pied Avocet,  
**Pintail Snipe,**  
Red Knot,  
Red-necked Stint,  
Ruddy Turnstone,  
Sanderling,  
Sharp-tailed Sandpiper,  
Spotted Greenshank,  
Spotted Redshank,  
**Swinhoe's Snipe,**  
Temminck's Stint,  
**Terek Sandpiper,**  
Whimbrel,

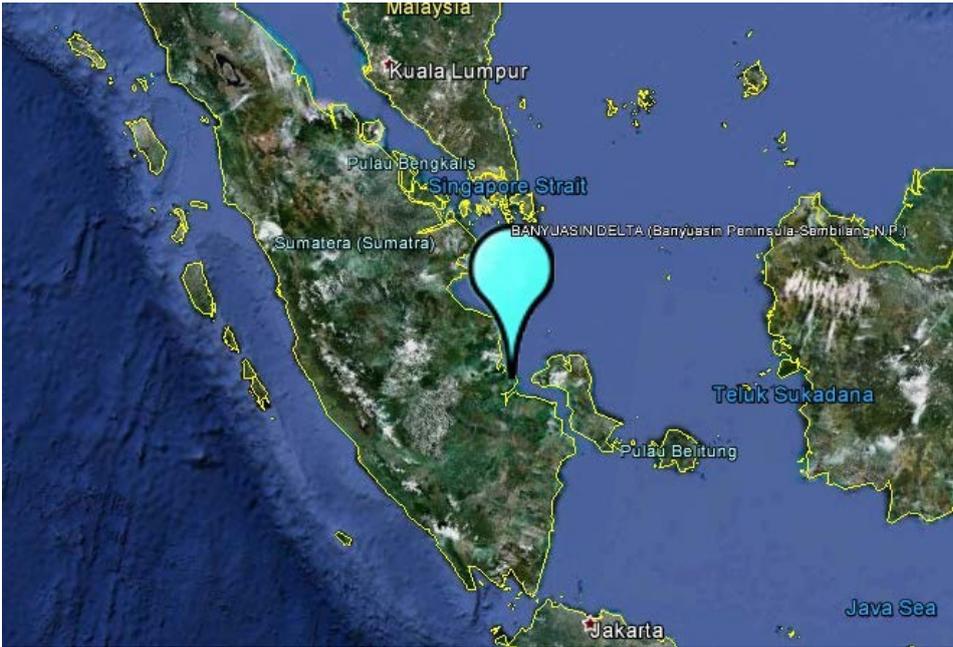
#### **Staging criteria for an additional 10 populations**

"endangered" criteria for 2 populations (Spotted Greenshank and Spoon-billed Sandpiper).

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	November 2011
<b>COUNTRY:</b>	Indonesia

<b>NAME OF FLYWAY SITE:</b>	Sembilang National Park
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Sembilang National Park (Ramsar listed in June 2006)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1 Dec 2010

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The <b>Sembilang National Park</b> boundary – is also the Ramsar site - total area: 202,896.31ha; and coordinates: 1°57'S, 104°36'E. The existing outside boundary of Sembilang National Park is taken from all the outside boundaries of the following conservation areas: Terusan Dalam Limited Production Forest (45,500 ha), Terusan Dalam Wildlife Sanctuary (29,250 ha), and Sembilang Nature Reserve (113,173 ha), including 17,827 ha of water body (Ramsar Information Sheet, Sembilang National Park, 2010).</p> <div style="text-align: center;">  </div> <p>Sembilang National Park consists of mangrove forests (45%), mud flats (2%), coastal forest, lowland tropical, forest swamp, and, freshwater and swamp peatland (9%). Mangrove forests here grow 35 km inland and are one of the best mangrove belts in the eastern shore of Sumatra. Sembilang National Park also has a large alluvial delta which serves as one of the most important habitat for migratory birds on the East Asian-Australasian Flyway (EAAF). Mangroves and mudplains provide nesting trees and feeding ground for the Milky Stork and Lesser Adjutant.</p> <p>The total number of shore birds that use this area is about 0.5-1 million (Danielsen &amp; Verheugt, 1990), It has been recorded that during the winter, almost 80,000-100,000 migratory birds use this site to feed and rest (Danielsen &amp; Verheugt, 1990). In 1984-</p>

	<p>1986, Silvius (1988) estimated 35000-40000 birds use the main tidal mudflats around Semenanjung Banyuasin.</p> <p><b>Sembilang IBA</b> – at 400,000ha - is approximately 2 times larger than the Ramsar site. It comprises the Terusan Dalam Game Reserve, Sungai Sembilang Protection Forest and production swamp forest which are located in south of Lalang River. Around 20% of this area is a conservation area, and more least 50% used for logging (legal and illegal). Remaining area is used for fisheries, mangrove conversion, ponds and plantation.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>Location map of the National Park (and Ramsar site) is available at: <a href="http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/language/en-US/Default.aspx">http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/language/en-US/Default.aspx</a></p> <p>Official site boundary map not yet available. However a general boundary map is available at: <a href="http://www.dephut.go.id/INFORMASI/TN%20INDO-ENGLISH/Sembilang_NP.htm">http://www.dephut.go.id/INFORMASI/TN%20INDO-ENGLISH/Sembilang_NP.htm</a></p>

## 1. MIGRATORY WATERBIRDS

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Popular English Name	Scientific Name	1% Criteria WP5	Counts	Count Dates	Reference
Asian Dowitcher	<i>Limnodromus semipalmatus</i>	230	13 000	Nov, 1988	Verheugt <i>et al</i> , 1990
Eurasian Curlew	<i>Numenius arquata</i>	1 000	7 061	Oct 1988	Verheugt <i>et al</i> , 1990
Far Eastern Curlew	<i>Numenius madagascariensis</i>	320	2 620	Oct 1988	Verheugt <i>et al</i> , 1990
Black-tailed Godwit	<i>Limosa limosa</i>	1 390	30 000 25 100	Jul-Aug 1985 Nov, 1988	Danielsen & Skov 1989 Verheugt <i>et al</i> , 1990
Bar-tailed Godwit	<i>Limosa lapponica menzbieri</i>	2 700	7 000 5 600	Jan 1986 Oct 1988	A Directory of Asian Wetlands Verheugt <i>et al</i> , 1990
Greater Sand Plover	<i>Charadrius leschenaultii</i>	790	2 000	SM	A Directory of Asian Wetlands Verheugt <i>et al</i> , 1990
Lesser Sand Plover	<i>Charadrius mongolus atrifrons</i>	1 500	9 460	NB, SM	A Directory of Asian Wetlands Silvius <i>et al</i> 1986
Common Redshank	<i>Tringa totanus</i>	250	5 889 6 000	Oct 1988 01/01/1986	Verheugt <i>et al</i> , 1990 A Directory of Asian Wetlands
Terek Sandpiper	<i>Xenus cinereus</i>	500	5 680	Nov 1988	Verheugt <i>et al</i> , 1990
Spotted Greenshank	<i>Tringa guttifer</i>	4	21	Dec 1988	Verheugt <i>et al</i> , 1990
Ruddy Turnstone	<i>Arenaria interpres</i>	285	560	Oct 1988	Verheugt <i>et al</i> , 1990
Whimbrel	<i>Numenius phaeopus</i>	550	1 000 750	1993 Jan 1999	AWC Database 1993 Verheugt <i>et al</i> , 1990

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

1.3 Are all the key populations counted?: All Some  None

### 1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10 >10

1.4.2 If counts from >5 years ago, then how many counts were made:  <10 10-100 >100

#### 1.4.3 Contact details of organization / individual leading recent counting:

1. Wetlands International – Indonesia Programme Office: Ferry Hasudungan, Email:
2. Head of Sembilang National Park: Mr. Tatang. Email:

1.4.4 Have the data been analysed? yes /  no / partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?** Yes /  No

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Asian Dowitcher	Unknown	
Eurasian Curlew	Unknown	
Far Eastern Curlew	Unknown	
Black-tailed Godwit	Unknown	
Bar-tailed Godwit	Unknown	
Greater Sand Plover	Unknown	
Lesser Sand Plover	Unknown	
Common Redshank	Unknown	
Terek Sandpiper	Unknown	
Ruddy Turnstone	Unknown	
Whimbrel	Unknown	

**1.6 Other comments (eg, if subjective conclusions were made about changes in populations):**

**2. WATERBIRD/HABITATS**

**2.1 Ramsar wetland types used by key populations:**

*(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)*

Wetland/Habitat type†	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 Mud Flats and Salt Flats [G -- <b>Intertidal mud, sand or salt flats.</b> ]	2%	All key species	?	?	No major changes expected for this remote area.
9.10 Estuaries [F -- <b>Estuarine waters</b> ]	???	Whimbrel, Terek Sandpiper, Ruddy Turnstone, Spotted Greenshank	?	?	No major changes expected for this remote area.
12.7 [I -- Intertidal forested wetlands	45%	Whimbrel, Terek Sandpiper, Ruddy Turnstone, Spotted Greenshank	?	?	No major changes expected for this remote area.

† IUCN and Ramsar habitat classifications and codes are used here.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

**2.2 Other comments** (including if changes to habitat between FSN listing and now):

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>5 Biological resource use</b> 5.1 Hunting & trapping terrestrial animals 5.1.1 Intentional mortality (human use)	Direct on shorebirds	3	1	0

3.2 Other comments on threats (including management actions to address threats):

Threats to the site which may affect migratory waterbirds include:  
Hunting by poachers (hunting has been illegal since ?)

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Asian Dowitcher	X			
Eurasian Curlew	X			
Far Eastern Curlew	X			
Black-tailed Godwit	X			
Bar-tailed Godwit	X			
Greater Sand Plover	X			
Lesser Sand Plover	X			
Common Redshank	X			
Terek Sandpiper	X			
Ruddy Turnstone	X			
Whimbrel	X			

### 4. CONSERVATION MEASURES

4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 100% of the site is protected.

- Sembilang National Park captures the following conservation areas: Terusan Dalam Wildlife Sanctuary, Sembilang Nature Reserve, Terusan Dalam Limited Production Forest, including 17,827 ha of water body.

However, the conservation area consists of several zones, which are:

- Core Zone, part of the national park that is in very good condition. Its physical features are still in original state and has not yet been exploited. It is designated to be fully protected. It has an area of 83,884.80 ha
- Wilderness Zone, is another protected zone, put in place to protect the core zone. This zone covers 100,418.41 ha
- Utilization Zone, a part of the national park which is designated for tourism and to provide other environmental services for local communities. Area of 356.45 ha.

- Traditional Zone is 6,237.90 ha, mostly a web of rivers which serves to accommodate local transportation routes.
- Rehabilitation/Restoration Zone is 10,465.11 ha, is specifically designated for rehabilitation/restoration activities. Specific treatment zone is 478.11 ha, which contains local villages that existed before the national park was created.

#### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

##### **Management Plan has been prepared?: yes / no**

The Sembilang National Park Management Plan (20 year) is being reviewed and subject to official approval in the near future. The management plan is not yet finished. Public consultation for the proposed management plan was held on May 2009. Based on the 2010 Annual Work Plan, the management plan is scheduled to be officially approved in 2010.

**Is the Management Plan current?:**      **yes / no**      ?  
**Is it comprehensive?:**                      **yes / no**      ?

#### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Implementation of a Conservation Village Model as part of a buffer zone development strategy.
- Indicative Zonation (prepared through public consultation process) works as a fundamental stage to guide park management.
- No permanent research station and no recent research programs in the park, however irregular and incidental research/survey/exploration work is conducted by university students, local NGOs and governmental institutions.
- Regular survey for Milky Stork (*Mycteria cinerea*) since 2007
- Regular surveys for migratory birds (by National Park staff) since 2007.

## 5. REFERENCES

AWC Database 1993

Danielsen, F. and Skov, H. 1989. The importance of South East Sumatra as a summering area for non-breeding waders, especially the Bar-tailed Godwit (*Limosa lapponica*). *The Stilt* **14**: 40-42.

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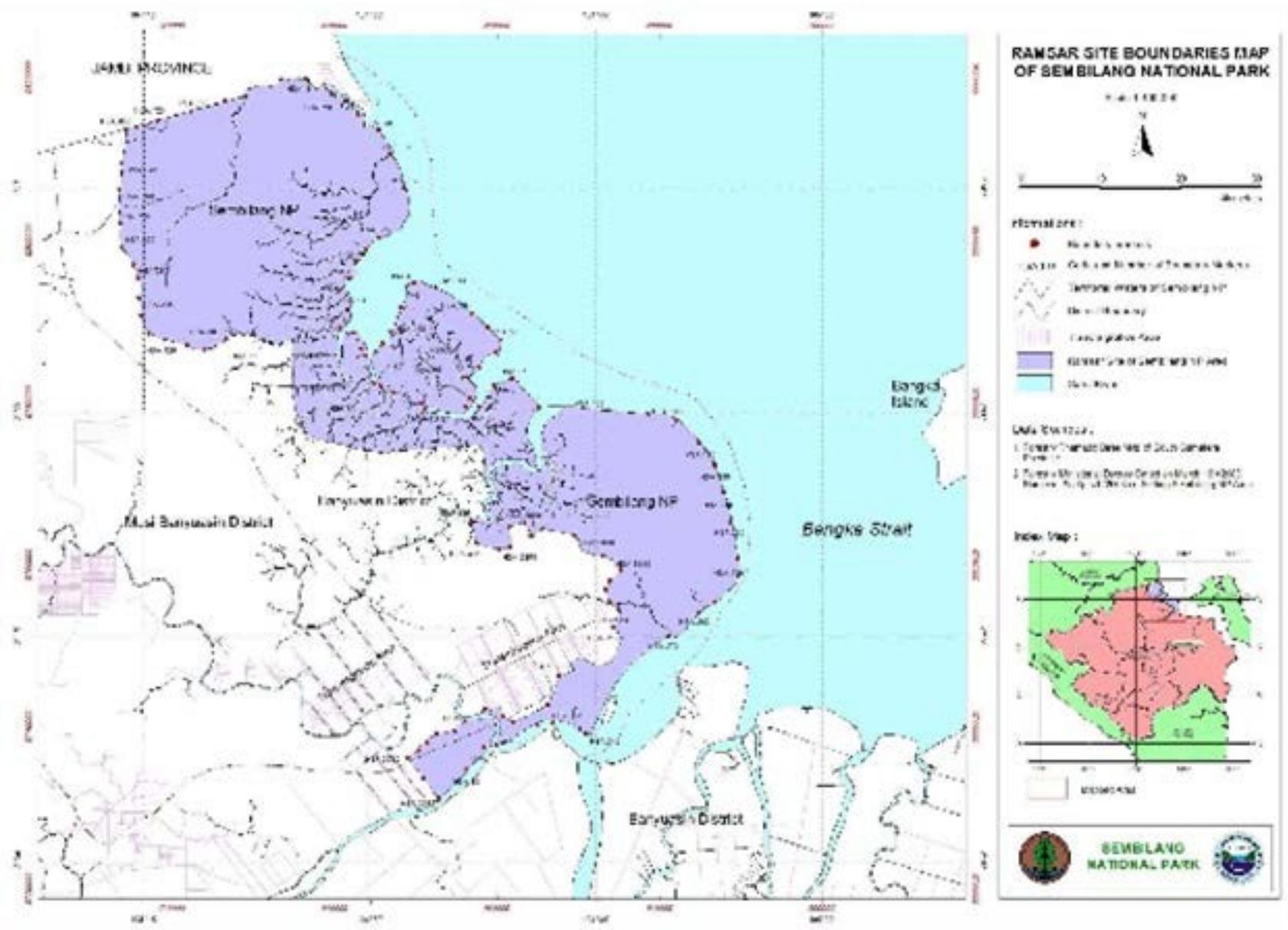
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## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	November 2011
<b>COUNTRY:</b>	Indonesia

<b>NAME OF FLYWAY SITE:</b>	Wasur National Park (joined FSN 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Wasur National Park (Ramsar listed in June 2006)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	2010 RIS update - completed during writing of the Ecological Character Description for Westernport Ramsar Site ().

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p><i>The Flyway Network Site (FNS) is defined by the boundary of Wasur National Park -also the Ramsar site (413 810 ha, or 4 138 km<sup>2</sup>). Coordinates: 8°35'S, 140°45'E. Located in the southeastern corner of the Indonesia's most easterly province - West Papua (formerly Irian Jaya), on the border with Papua New Guinea, east of Merauke, Kabupaten Merauke.</i></p> <p>Wasur National Park forms part of the largest wetland in Papua and has been the least disturbed by human activity. It is on a flat, low-lying, alluvial plain with many swamps and is dissected by numerous rivers including the Maro, Dalrii and Bensback.</p> <p>About 70% of the total area of the Park consists of savannah vegetation. The major vegetation types are Melaleuca–Eucalyptus woodlands, savannahs, grassy plains and seasonally inundated grasslands, swamps, mangroves and lowland forests (including swamp forest, monsoon forest, coastal forest, bamboo forest and large stretches of sago swamp forest) (Bishop 1984).</p> <p>The two major habitats used by shorebirds are the grasslands and the extensive coastal mudflats. Wasur is a major staging site for Little Curlew on their southward migration to Australia.</p> <p>The vast open wetland, in particular Rawa Biru Lake, has attracted various species of water fowl including migrant birds as well as wallabies and cassowaries to approach and even dwell on the Lake. The Lake is sometimes called "tanah air" (the Motherland), due to the multitude of various animals that crowd around the Lake. This is a superb place to watch animals.</p> <p>The high value of its biological diversity has led to the Park being dubbed the "Serengeti of Papua". The Park's wetland forms a very productive ecosystem, providing life support and protection for various species of fish, lobster and crab of high economic value.</p> <p>There are four groups of indigenous peoples living in the park, belonging to the tribes of Kanume, Marind, Marori and Yei, who rely on the area for food and their daily needs. There are 14 villages totalling over 2 500 people living within the Park (Silvius <i>et al</i>, 1989).</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>1. Location map of the National Park (and Ramsar site) is available at: <a href="http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/language/en-US/Default.aspx">http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/language/en-US/Default.aspx</a></p> <p>2. Site boundary map available at: <a href="http://www.wetlands.org/Reports/Country_maps/Indonesia/2ID003/2ID003_map06comp.jpg">http://www.wetlands.org/Reports/Country_maps/Indonesia/2ID003/2ID003_map06comp.jpg</a>.</p>



## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type†	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
4 Grassland 4.6 Subtropical/Tropical Seasonally Wet/Flooded Lowland	?? - and variable	Little Curlew,	?	?	Declines in extent and quality are expected, but not measured. High threats.
12.4 Mud Flats and Salt Flats [G -- Intertidal mud, sand or salt flats.]	???	Mongolian Plover	?	?	No major changes expected for this remote area.

† IUCN and Ramsar habitat classifications and codes are used here.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

2.2 Other comments (including if changes to habitat between FSN listing and now):

## 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7 Natural system modifications</b> 7.1.1 Increase in fire frequency/intensity	4.6 Grasslands	3	1	0
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species - Rusa Deer <i>Cervus timorensis</i> and Wild Boar <i>Sus scrofa</i>	4.6 Grasslands	3	1	0

3.2 Other comments on threats (including management actions to address threats):

Threats to the site which may affect migratory waterbirds include:

- Much of the park's natural flooded grassland systems are threatened by large scale changes to scrub and woodland as well as invasions of alien species such as water hyacinth and sensitive weed *Mimosa pigra*.
- The introduction of the Rusa Deer to Papua by the Dutch at Merauke in 1928, lead to an extensive spread of this species to most of the southern coastlands of the island. According to the indigenous communities of the National Park, this led to major changes to the local ecosystem, including: the

reduction of tall swamp grasses and consequent ceasing of breeding of the Australian Pelican and Magpie Goose, reduction of the Phragmites reed species, and the extensive spread of Melaleuca onto the open grasslands.

- Much of the marsh vegetation has been badly damaged by the large numbers of introduced Rusa Deer *Cervus timorensis* (see above) and Wild Boar *Sus scrofa*, and also by hunters in motor vehicles. Some coastal savanna woodland and grasslands, particularly within the Wasur Game Reserve, are illegally used by recent settlers for grazing cattle.
- There are two major road systems in the reserve; a south coastal road from Merauke to the Papua New Guinea border, and the Trans-Irian highway which bisects the reserve into two almost equal parts. In addition, there are many smaller dirt roads and trails. This accessibility has resulted in a considerable amount of illegal hunting, logging, cutting and burning. At the height of the dry season, large areas are intentionally burned, presumably as a means of driving game for the hunt and killing snakes.

**3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?**

Key Population/s	<5%	6-25%	26-50%	>50%
Little Curlew	X			
Mongolian Plover	X			

## 4. CONSERVATION MEASURES

**4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?**

Yes, 100% of the site is protected.

- The Wasur area was first designated as a Wildlife Reserve in 1978 with an area of 2,100 km<sup>2</sup>. An extended area of 4,138 km<sup>2</sup> was later declared a National Park in 1990.
- In 2006 the park was recognised as a wetland of international importance under the Ramsar Convention. Wasur shares a common border with Tonda Wildlife Management Area (WMA), another Ramsar site in neighbouring Papua New Guinea.

**4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?**

*Management Plan has been prepared?:* yes / no ?

*Is the Management Plan current?:* yes / no ?

*Is it comprehensive?:* yes / no ?

**4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?**

- Wasur National Park has been the site of a World Wide Fund for Nature (WWF) conservation and development project since 1991. The park is managed by staff at the Direktorat Jendral Perlindungan dan konservasi Alam (PKA). WWF has developed a long term commitment to working with local people to maintain the biodiversity of the site which includes assisting in the joint Tri-National program (see below).
- In 1995 a Tri-National Wetlands Program was initiated by WWF between Wasur NP, Tonda WMA and the Australian Kakadu National Park, which led to a Memorandum of Understanding between the three government conservation agencies in 2002 (Bowe, 2007). Under the program, wetland managers from each site share information on wetland management through training workshops, staff exchanges and joint research projects.

## 5. REFERENCES

- Bishop, K.D., 1984. A Preliminary Report on the Reserves of Southeast Irian Jaya (Pulau Kimaam/Dolok, Wasur, Rawa Biru, Kumbe-Merauke and Danau Bian). WWF/IUCN Project 1528. International Council for Bird Preservation.
- Bowe, Michele. (2007). *Community-Based Conservation in the Trans-Fly Region*, in Marshall A.J.: *The Ecology of Papua*, Periplus, Singapore, 2007, [ISBN 0-7946-0483-8](#)
- Silvius, M.J., Taufik, A.W. and Lambert, F.R., 1989. Conservation and Landuse of the Wasur and Rawa Biru Reserves South East Irian Jaya (Draft). PHPA-AWB/INTERWADER.
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Wasur National Park is adjoinss the boarder with Papua New Gunea



<http://www.indonesiatraveling.com/papua/papua-nature/east-papua-national-parks/2201-teluk-yotefa.html>

## Wasur - Rawa Biru National Park



### Wasur National Park

Area 4,138 km<sup>2</sup>

Tribes: 7 Yei Sota Kanum Morori Ngalum Kanum

Badi Kanum Smarki Kanum Marind

total 2,500 people

About 70% of the total area of the Park consists of savanna, while the remaining vegetation is swamp forest, monsoon forest, coastal forest, bamboo forest, grassy plains and large stretches of sago swamp forest.

The park provides habitat for a large variety of up to 358 bird species of which some 80 species are endemic to the island of New Guinea. Fish diversity is also high in the region with some 111 species found in the eco-region and a large number of these are recorded from Wasur.

The Park's wetland provides habitat for various species of lobster and crab as well. Common fauna species include the Agile Wallaby, Pesquet's Parrot, Southern Cassowary, vBlue Crowned Pigeon, Greater Bird of Paradise, King Bird of Paradise, Red Bird of Paradise, Freshwater Crocodile, and Saltwater Crocodile.

The introduction of the Rusa Deer to Papua by the Dutch at Merauke in 1928, led to an extensive spread of this species to most of the southern coastlands of the island. Wasur shares a common border with Tonda Wildlife Management Area (WMA)

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  SHIBUYA Tatsuo	
<b>DATE OF ASSESSMENT:</b> 2011/9/29	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b>  <b>Akkeshi-ko &amp; Bekambeushi-shitsugen</b>  IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Akkeshi-ko & Bekambeushi-shitsugen  Date of most recent RIS:      2003	
<b>BRIEF DESCRIPTION OF THE SITE:</b> <ul style="list-style-type: none"> <li>a) Site Description              Bekambeshi-shitsugen is a one of the rarest wetland having pristine nature. The total area reaches to about 8,300 ha. Akkeshi-ko is a brackish lake at the downstream of Bekambeushi-shitsugen. Even in the middle of winter the surface of Lake Akkeshi-ko is rarely covered totally with ice that it provides one of the important stop-over and wintering site of Whooper Swan.              Lake shores of Akkeshi-ko, downstream, middle of the stream, and tributaries of Bekambeushi River provides one of the most important breeding site of Red-crowned Crane of more than 40 pairs every year.</li> <li>b) Are the Flyway Site boundaries clearly defined, and is a map available?              Not clearly defined. Ramsar Area is clearly defined. I do not remember to have defined the border.</li> </ul>	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Red-crowned Crane more than 40 breeding pairs  
Whooper Swan >10,000 passage migrants, breeding 1 - 3,000

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

Common Teal  
Eurasian Wigeon  
Northern Pintail  
Northern Shoveler  
Greater Scaup  
Common Pochard  
Smew  
Red-breasted Merganser  
Goosander

Are all the key populations counted? : **All** Some None

(Whooper Swan, Red-crowned Crane, which are "all" of Key population. Counts of all other species depend on seasons)

If "some" please list these:

Black Brant, Whooper Swan, Bewick's Swan, Mallard, Spot-billed Duck, Common Teal, Falcated Duck, Gadwall, Eurasian Wigeon, American Wigeon, Northern Pintail, Garganey, Northern Shoveler, Common Pochard, Tufted Duck, Greater Scaup, Common Goldeneye, Smew, Red-breasted Merganser, Goosander

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1      2-5      6-10      **>10**  
If counts from >5 years ago, then how many: <10      10-100      **>100**

Contact details of organization / individual leading recent counting:  
Akkeshi WaterFowl Observation Center

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes / **no**

If yes please provide details:

Key Population increase / no change / decline

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
F, G, M		Whooper Swan	None
F, M		Red-crowned Crane	None

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs)=1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

Other comments on threats (including management actions to address threats):

Not much threat in particular.

Infectious disease can be thought to be a threat since there was a single Whooper Swan infected by H5N1 due to spraying by a neighbour

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes** If so, what % and what is the designation? **100%**,  
???: Ramsar Site; Normal Area of National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**

Is the Management Plan current?: **yes**

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

No conservation activities has been done since there is no particular threat. Awareness raising/environmental education activities on the link of living things from wetlands to the sea has been done.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> UEDA Jun Imanisi-cho, Nagahama-shi, Shiga 529-0365	
<b>DATE OF ASSESSMENT:</b> 8 March 2012	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b> Biwako Werterfowl/Wetland Center  IBA name (and relationship to Flyway Site if they are defined differently): Name of Ramsar site (if listed): Lake Biwa  Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Freshwater Lake with the largest area in Japan with Biwa-ko 65.602 ha and Nishi-no-ko 382 ha. It is conserved as a habitat of Geese and Swans with a total population about 100 000.  b) Are the Flyway Site boundaries clearly defined - Yes is a map available? - No	

### 1. Migratory waterbirds

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form EAAFP:**

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bean Goose			600		Miyabayashi 1994
Common Pochard			25,320	1989,94	Abe et al. 1995
Dunlin			75		AWC
Eurasian Wigeon			16,000	1989,94	Unknown
Gadwall			5,960	1989,94	Abe et al. 1995
Mandarin Duck			130		AWC
Spot-billed Duck			1468		AWC
Tufted Duck			18,250	1989,94	Unknown

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

None

Are all the key populations counted?      All     Some    None

If "some" please list these:

Gaviidae, Podicipedidae, Phalacrocoracidae, Anatidae, Coot

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5  6-10 >10

If counts from >5 years ago, then how many <10  10-100 >100

Contact details of organization / individual leading recent counting

Wild Bird Society of Shiga: 1255-229 Mizuho Town, Moriyama City, Shiga 524-0102

Has the data been analysed?  yes / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?  Yes / no

If yes please provide details

Key Population increase / no change / decline  
Common Coot increase

If published, please give reference/s

Wild Bird Society of Japan, Shiga Newsletter. "Nio-no-Umi No, 28", March 2012

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

#### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
自然湖沼	65,984 ha	Taiga Bean Goose	None

Other comments (including if changes to habitat between FSN listing and 5 years ago):

### 3. MAJOR THREATS factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity : 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Decline of habitats caused by human Intrusion	O: Freshwater Lakes	3	0	2

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

It is hard to speculate.

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected?  Yes /  No

If so, what % and what is the designation? 100%

Wildlife Protection Area, Quasi National Park

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive? None

Management Plan has been prepared?:      yes /  no

Is the Management Plan current?:      yes /  no

Is it comprehensive? :      yes /  no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

- Establishment of three facilities: Kohoku Wild Bird Center/Biwako Waterbird-Wetland Center; Shin-Asahi Waterbird Observation Center.
- Awareness raising / survey and research activities on wetland conservation and wildlife protection

# East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> KAIDO Masatoshi	
<b>DATE OF ASSESSMENT:</b> 2011/11/24	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b> Biwase Bay/Kiritappu Marsh  IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Kiritappu Shitugen  Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Central Part of the site comprises sphagnum peatland and is a Natural Monument "Kiritappu Plant Community forming Peatland" designated by the national government. Many brackish lakes and ponds linked to the sea remains in the marsh. At high tide time, sea water flows from rivermouth at the Biwase Bay into central part of the marsh. In winter, marsh of Kiritappu-shitsugen is covered by snows and ice as it is in the eastern part of Hokkaido where the climate is the coldest in Japan. In Spring and in Autumn, many migratory birds uses this site as their stop-over site during their migration. It is also an important habitat for Red Crowned Crane. b) Are the Flyway Site boundaries clearly defined, and is a map available? Not Available	
<h2 style="color: red;">1. Migratory waterbirds</h2> <p><b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b>          Bewick's Swan: 5 - 6,000</p> <p><b>1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)</b>          None</p> <p><i>Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".</i></p> <p>Are all the key populations counted? : <b>All</b>    Some    None</p> <p>If counting has occurred, then:          How many times was the site counted in the past 5 years?    1    2-5    6-10    <b>&gt;10</b></p> <p>If counts from &gt;5 years ago , then how many:    &lt;10    10-100    <b>&gt;100</b></p> <p>Contact details of organization / individual leading recent counting:          Hamatonbetu Kutcharo-ko Waterbird Observatory, KONISHI Kan:</p> <p>Has the data been analysed? yes / no / <b>partially</b></p> <p>Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? <b>Yes</b> / no</p> <p>If yes please provide details:          Key Population    increase / no change / <b>decline</b>          Bewick's Swan</p> <p>If published, please give reference/s:</p> <p>Other comments:</p>	

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
Q	1607	Bewick's Swan	Change in water quality (Eutrophism)

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10yrs) = 1 Near future (<4yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Change in water quality (eutrophication)	Q	3	3	2

Other comments on threats (including management actions to address threats):

### In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation? **100%, ?**

Special Area of National Wildlife Protection Area; Urban Park

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**

Is the Management Plan current?: **yes**

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Counter measures for water quality by Conservation project of national wildlife protection area, Planting activity by local conservation group, Education programme by Waterfowl Wetland Center, Water quality measures by Council for Conservation Measures

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> MAKINO Yuka, Environmental Project Division, Bureau of Environment, Nagoya City Office 3-1-1 Sannomaru, Naka-ku, Nagoya-shi, Aichi 460-8508	
<b>DATE OF ASSESSMENT:</b> 8 March 2012	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b>  <div style="text-align: center; margin-bottom: 10px;"><b>Fujimae-Higata</b></div> IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Fujimae-Higata  Date of most recent RIS:      3 October 2002	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Fujimae Higata locates to the south-west of Nagoya-shi. It is an estuarine tidal flats of Shonai-gawa, Shin-kawa, Nikko-gawa Rivers. Equipped with 3 environment education facilities. Natural Life Observation meetings are carried by the facilities.  b) Are the Flyway Site boundaries clearly defined, and is a map available? A map indicating the area designated as Ramsar wetland (Special Area of Wildlife Protection Area) is available.	

# 1. Migratory waterbirds

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form EAAFP:

- (1) Regularly supports migratory shorebirds over 20 000
- (2) Population of Grey-headed Lapwing clears the criteria of 1% total population.
- (3) 8 shorebird species, Kentish Plover, Grey Plover, Ruddy Turnstone, Red-necked Stint, Dunlin, Grey-tailed Tattler, Terek Sandpiper, Whimbrel, clear the 0.25% criteria
- (4) Nordmann's Green-shank (VU) is recorded.

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Common Black-headed Gull		1,000	1,683		AWC
Dunlin		3,530	5,740		AWC
Great Cormorant		250	3,534		AWC
Greater Scaup		2,000	3,264		AWC
Grey-tailed Tattler			512	24-May-91	EAJ 1997
Herring Gull			132		AWC
Northern Pintail		2,000	6,124		AWC
Red-necked Stint			2,474	20-Aug-89	EAJ 1997
Spot-billed Duck		100	763		AWC
Terek Sandpiper			217	17-Aug-93	EAJ 1997
Whimbrel			515	30-Apr-93	EAJ 1997

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Not in particular

Are all the key populations counted?      All      Some      None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years?      >10

If counts from >5 years ago, then how many:      >100

Contact details of organization / individual leading recent counting

環境省中部地方環境事務所名古屋自然保護官事務所 (052-389-2877)

Has the data been analysed?    yes / no /

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?      Yes /

If yes please provide details

Key Population      increase / no change / decline

If published, please give reference/s

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
G (Sandy / muddy tidal flats in intertidal area)	323	All	Not in particular

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity : 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s                      <5%            6-25%            26-50%            >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? Yes / No

If so, what % and what is the designation? 100%  
Special Protection Area under Wildlife Protection Law

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: yes / no

Is the Management Plan current?: yes / no

Is it comprehensive?: yes / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

- Three environmental education facilities are provided and carry on awareness raising activities including Wildlife Observation Meeting.
- Fujimae Higata Council provides a framework for academics, civil organisation, and administration to discuss on the issue of conservation and wise use of the tidal flat.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  KOBAYASHI Noriyuki	
<b>DATE OF ASSESSMENT:</b> 16/09/2011	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b>  <b>Fukushimagata</b>  IBA name (and relationship to Flyway Site if they are defined differently): Fukushimagata  Name of Ramsar site (if listed): N/A Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Fukushimagata is a freshwater lake located east to Agano River that flows at the centre of Echigo Plain, at Kita-ku, Niigata-shi, Niigata, Japan. Mosaic water surface opens among wide spread community of emergent plants, which provides a good habitat for waterbirds.  b) Are the Flyway Site boundaries clearly defined, clearly defined and is a map available? Available	
<h3 style="color: red;">1. Migratory waterbirds</h3> <p><b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b></p> <p style="padding-left: 40px;">Taiga Bean Goose            5000</p> <p><b>1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)</b></p> <p style="padding-left: 40px;">Bewick's Swan            5,000</p> <p>Are all the key populations counted? :    <b>All</b>    Some    None</p> <p>If "some" please list these:</p> <p>If counting has occurred, then:</p> <p style="padding-left: 20px;">How many times was the site counted in the past 5 years?    1       2-5       6-10       &gt;10</p> <p style="padding-left: 20px;">If counts from &gt;5 years ago , then how many:    &lt;10    10-100    &gt;100</p> <p>Contact details of organization / individual leading recent counting:          Mizu-no-eki "View Fukushimagata"    Ph: +81-25-387-1491</p> <p>Has the data been analysed? <b>yes</b> / no / partially</p> <p>Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? <b>Yes</b> / no</p> <p>If yes please provide details:                    Key Population    increase / <b>no change</b> / decline</p> <p>If published, please give reference/s: None</p> <p>Other comments: None</p>	

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O	N/A	Taiga Bean Goose, Bewick's Swan	None

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10yrs) = 1 Near future (<4 yrs)= 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
No answer				

Other comments on threats (including management actions to address threats):

### In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation? 100%,  
???: Special Area of National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **no**

Is the Management Plan current?: **no**

Is it comprehensive? : **no**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Natural Cultural Fund; Cleaning day of Fukushimaagata mobilising local people; Dredging for the purpose of maintaining and extending water surfaces.

# East Asian - Australasian Flyway Site Network Site Assessment Form



**COMPILER'S name, email and address:**  
TSUKUDA Hidechika  
TESHIMA Yoko

**DATE OF ASSESSMENT:**  
2010/09

**COUNTRY:**  
Japan

**NAME OF FLYWAY SITE:**

**Furenko and Shunkunitai**

IBA name (and relationship to Flyway Site if they are defined differently):

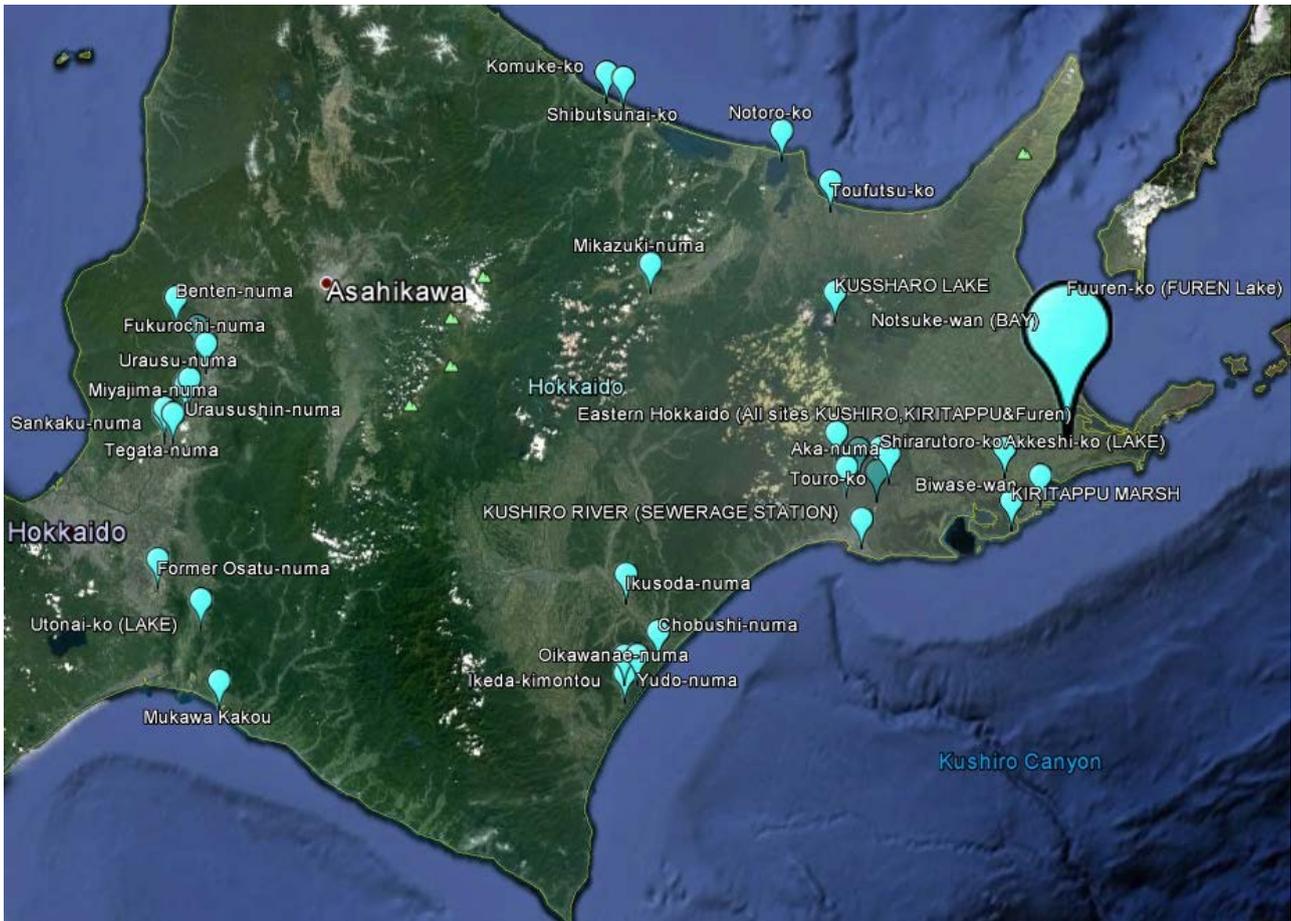
Name of Ramsar site (if listed): Furenko and Shunkunitai

Date of most recent RIS: 2011/09

**BRIEF DESCRIPTION OF THE SITE:**

a) Site Description

Furenko situated to the east of Hokkaido Island is a brackish water lake. Large area of tidal flats and sea grass bed develops around the lake. Shunkuni-tai is a sand spit formed between Furenko and Nemuro Bay. A diverse environment of forests, grasslands and salt marsh is formed on the spit.



b) Are the Flyway Site boundaries clearly defined, Clearly defined and is a map available? Available

# 1. Migratory waterbirds

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Bean Goose (Tundra)	1 495
Black Brant	698
Black-necked Grebe	1 052
Eurasian Wigeon	13 645
Falcated Duck	6 077
Greater Scaup	18 370
Grey-tailed Tattler	2 240
Lesser Sandplover	242
Northern Pintail	6 365
Red-breasted Merganser	1 782
Red-crowned Crane	35
Ruddy Turnstone	1 253
Whooper Swan	5 532

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Red-necked Stint	2,712	01-May-00	WWF Japan 2002c
Red-necked Phalarope	1,000	01-Sep-85	Mundkur 1993
Common Goldeneye	1,517	1986-92	Abe et al. 1995

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted? : All **Some** None

If "some" please list these:

Bewick's Swan  
Tundra Bean  
Goose Black  
Brant Eurasian  
Wigeon  
Falcated Duck  
Northern Pintail  
Red-breasted  
Merganser  
Red-crowned Crane  
Grey-tailed Tattler  
Ruddy Turnstone  
Lesser Sandplover

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 >10  
If counts from >5 years ago, then how many: <10 10-100 >100

Contact details of organization / individual leading recent counting:

Shunkunitai Nature Centre, Wild Bird Society of Japan: +81-153-25-3407

AOKI Yukinori: +81- 153-22-8864

Has the data been analysed? yes / **no** / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes / **no**

If yes please provide details:

Key Population increase / no change / decline

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
B, G		Whooper Swan, Tundra Bean Goose, Black Brant, Grey Tattler, Ruddy Turnstone, Lesser Sandplover	
U		Red-crowned Crane	Sandy coast has been remarkably eroded

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity. Not possible to answer the following since IUCN list is not available

Threat name (See below for a list of names of potential threats following IUCN nomenclature). will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes/No**

If so, what % and what is the designation? **100 %**,

???: Special Area of National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

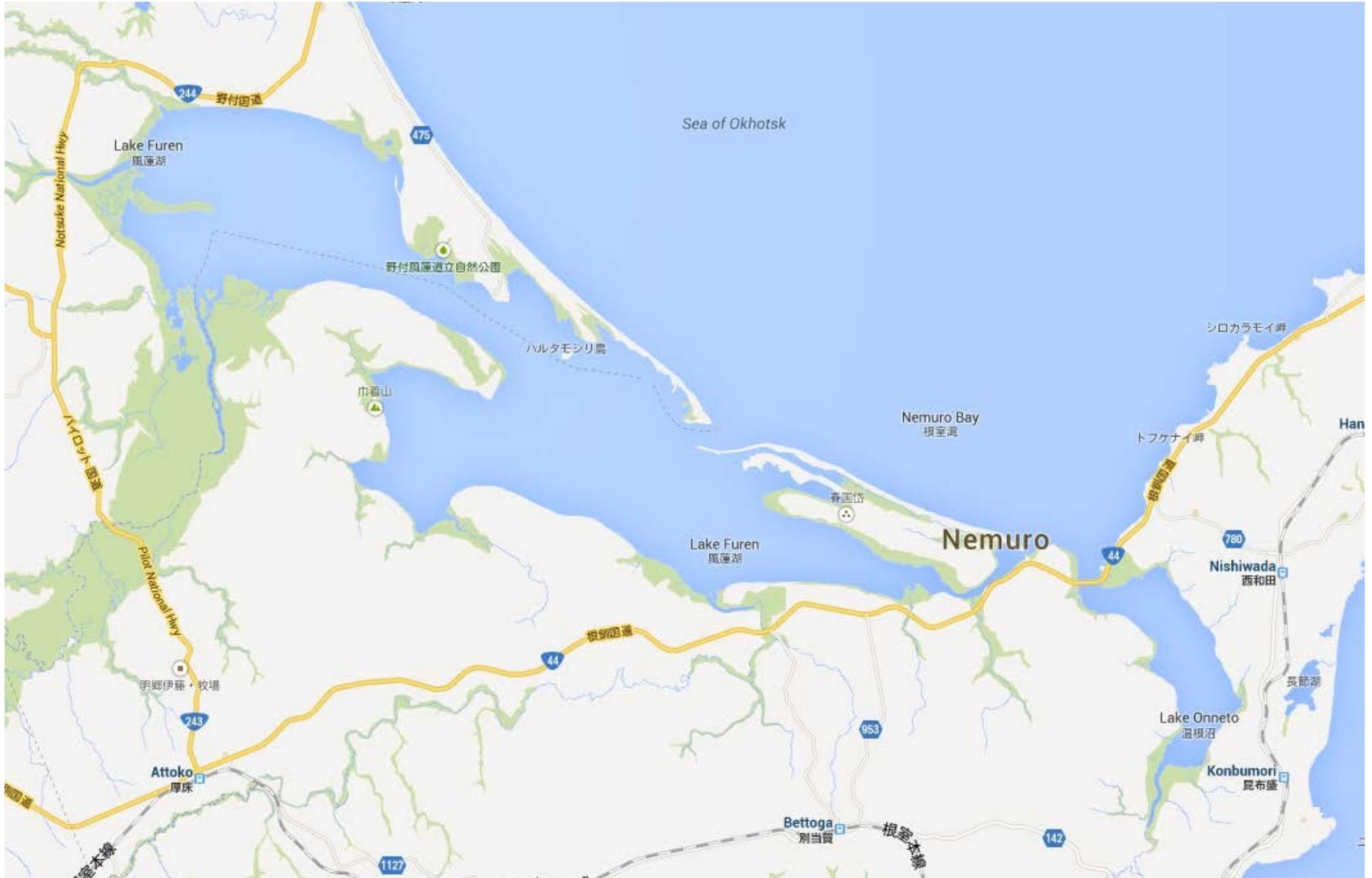
Management Plan has been prepared?: **yes / no**

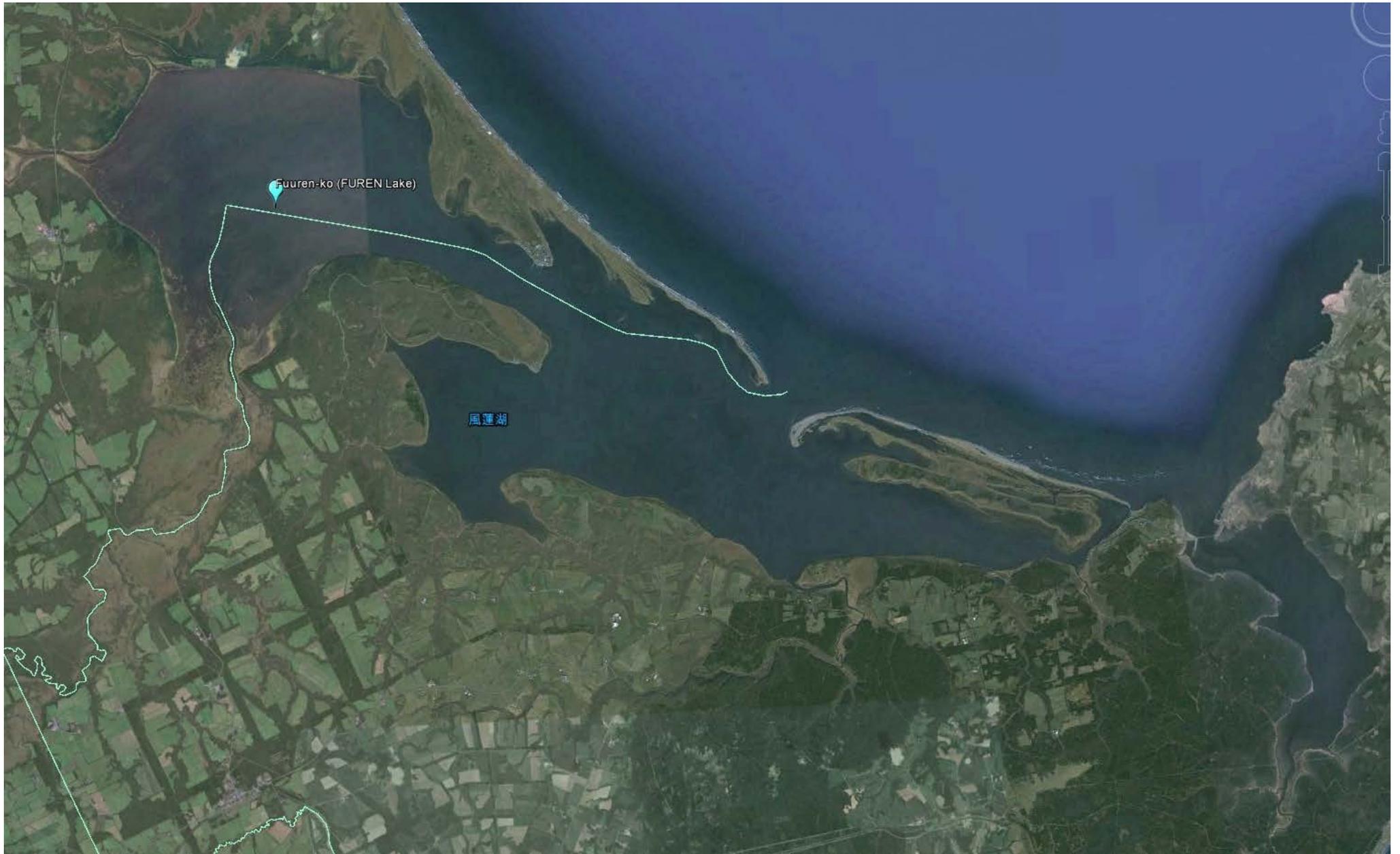
Is the Management Plan current?: **yes / no**

Is it comprehensive? : **yes / no**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Activities by citizen's groups such as Nemuro Association of Wise Use for promotion of conservation activities of Ramsar Site, Bird monitoring survey or Awareness raising activities at the nature centre in Shunkuni-tai.





## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> SHINDO Tomoya, Principal staff, Reclamation Museum, Oogata-mura 5-2 Aza-Nishi, Oogata-mura, Minami Akita-gun, Akita	
<b>DATE OF ASSESSMENT:</b> 5 March 2011	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b> <b>Hachirogata-Kantakuchi</b>  IBA name (and relationship to Flyway Site if they are defined differently): Name of Ramsar site (if listed): Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Hachirogata-Kantakuchi is a land out of a reclamation in the 1960's of Hachiro-ko Lake that used to be the second largest lake in Japan. The land still keeps to be paddies to grow rice and agricultural fields other vegetables. The vast agricultural land that is surrounded by waterways is one of large scale stop-over sites and wintering sites of Anatidae in Japan, which supports tens of thousands of Anatidae, including White-fronted Geese, Taiga Bean Geese and Tundra Bean Geese, every year from autumn through winter.  b) Are the Flyway Site boundaries clearly defined, and is a map available? Map available.	

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Population	1999	2000	2001	2002	2003
Greater White-fronted Goose	23 140	-	37 852	8 829	60 000
Taiga Bean Goose			6 818		-
Tundra Bean Goose			1 457		4 956
Taiga/Tundra Bean Goose	14 030			12 367	
Other Ducks and Geese	-	4 524		24 747	-

1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bean Goose			25,011	2007	unknown
Greater White-fronted Goose			19,000	-	Miyabayashi 1994
Northern Pintail			10,848	1990-94	Abe et al. 1995
Pacific Golden Plover			500	11-May-96	EAJ 1997
Snow Goose			8	2007	unknown
Tundra Swan			3,568	1990-94	Abe et al. 1995
Whooper Swan			4,015	1990-94	Abe et al. 1995

Are all the key populations counted?      All      Some       None

If counting has occurred, then:

How many times was the site counted in the past 5 years?

If counts from >5 years ago, then how many

Contact details of organization / individual leading recent counting

Has the data been analysed?      yes / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?      Yes /  no

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
<ul style="list-style-type: none"> <li>Inland Wetland: Permanent freshwater lake</li> <li>Artificial Wetland: Irrigation pond, reservoir, canal, waterway</li> </ul>	17,005 ha	Greater White-fronted Goose Tundra Bean Goose Taiga Bean Goose	

Other comments (including if changes to habitat between FSN listing and 5 years ago:

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity : 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s                      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected?       Yes /  No

If so, what % and what is the designation?      0.79%

National Wildlife Protection Area (Oogata Grassland Wildlife Protection Area)

国指定鳥獣保護区に指定 (大潟草原鳥獣保護区)

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?      yes /  no

Is the Management Plan current?:      yes / no

Is it comprehensive? :      yes / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

- Awareness raising activities by nature conservation organisations (Wildbird Observation)
- Establishment of Environmental Protection Act (in process)

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  ERA Makoto	
<b>DATE OF ASSESSMENT:</b>	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b>  <b>Kushiro-shitsugen</b> IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Kushiro-shitsugen  Date of most recent RIS:      1999/5/5	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description The largest marsh in Japan with an area of about 22,000 ha. 80% of its area is a marsh with reeds and sedges. Its central part is covered with high moors and mixed sphagnum bogs.  b) Are the Flyway Site boundaries clearly defined, and is a map available? Available	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Red-crowned Crane (breeding)	49 pairs (1994)
Tundra Bean Goose (stop-over)	500
Taiga Bean Goose (stop-over)	950

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Whooper 1,500 1990- AWC

Are all the key populations counted? : **Some** None

If "some" please list these:

Red-crowned Crane

If counting has occurred, then:

How many times was the site counted in the past 5 1 2-5 6-10

If counts from >5 years ago, then how many: <10 **10-100** >100

Contact details of organization / individual leading recent counting: Tancho Protection Group

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population **increase** / no change / decline

Red-crowned Crane

If published, please give reference/s:

H.Masatomi et.al Breeding status of Tancho Grus japonensis in Hokkaido 2008. J.of Community Cooperative Research Center, Shenshu Univ., 3, 33-58(2008)

Other comments:

## 2. Wetland/Habitats

Ramsar wetland types used by key populations:

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
U		Red-crowned Crane	None
O		Red-crowned Crane, Tundra Bean Goose, Taiga Bean Goose	None
Tp		Red-crowned Crane, Tundra Bean Goose, Taiga Bean Goose	None
M		Red-crowned Crane, Tundra Bean Goose, Taiga Bean Goose	None

Other comments (including if changes to habitat between FSN listing and 5 years ago):

### 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

<b>Threat name</b> (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	<b>Habitat / Type</b> (as identified in the section above)	<b>Timing:</b> In the past = 0 Long term (4-10yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent:</b> 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity:</b> 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Drying of wetlands due to incursion of soils from surrounding lands	U	3	2	2
Change of vegetation due to incursion of soils from surrounding lands	O	3	2	3

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

### 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation?

100 % National Park

64 % National Natural Monument

Unknown National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**

Is the Management Plan current?: **yes**

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Wetland restoration project, building of Nature Centres, Awareness raising projects, Survey and research projects, International exchange projects

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  SUZUKI Kohei	
<b>DATE OF ASSESSMENT:</b> 2011/9/14	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b>  <b>Kabukuri-numa</b>  IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Kabukurinuma and the surrounding rice paddies  Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b>  a) Site Description  It is a wetland that releases water to a stream that came from multiple of small and middle sized rivers. Most of the area is covered by wetland plant species such as reeds and indian rice. The lake is surrounded by rice paddies. It provides habitat for Anatidae species such as Greater White-fronted Goose, Taiga Bean Goose, Whooper Swan, Bewick's Swan, Mallard, Common Teal, Northern Pintail. It is also provides breeding habitat in summer for species breeding in reed beds including Great Reed Warbler, Black Browed Reed Warbler and Yellow Bittern. In winter, it is a wintering habitat for species including White-tailed Sea Eagle and Japanese Marsh Warbler.  b) Are the Flyway Site boundaries clearly defined, Not defined and is a map available? Available	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Greater White-fronted Goose >100,000 max.  
Taiga Bean Goose ca. 1 600 max.

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bean Goose			1,054	2005	AWC
Greater White-fronted Goose			60,698	2005	AWC
Northern Pintail			4,545	2007	AWC
Snow Goose			2	2007	AWC
Whooper Swan			753	2007	AWC

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted? : **All** Some None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 **>10**

If counts from >5 years ago, then how many: <10 10-100 **>100**

Contact details of organization / individual leading recent counting:

Kabukuri Numakko Club: Ph. +81-2229-38-1401

Nature Conservation Division, Bureau of Environment and Daily Life, Miyagi: Ph. +81-22-211-2672

Tohoku District Environment Office, Ministry of the Environment: Ph. +81-22-722-2870

Has the data been analysed? **yes** / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population increase / no change / decline

White-fronted Goose: Increase

Bean Goose: No Change

If published, please give reference/s:

Shimada and Kiyota, 2010

Other comments:

All the data of count surveys are shared by relevant organisations.

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O	52	Greater White-fronted goose, Taiga Bean Goose	
U	112	Taiga Bean Goose	
3	259	Greater White-fronted goose, Taiga Bean Goose	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Drying of land	O	0	1	0
Change in vegetation	U	3	1	1
Competition of food for Taiga Bean Goose with other species	O,U	3	1	0
Prevalence of infectious disease due to over concentration at roosting	O	1,2	3	2

Other comments on threats (including management actions to address threats):

### In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%	
Taiga Bean Goose	<5%				Competition of food
Greater White-fronted Goose		<6-25%			Infectious disease

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes/No**

If so, what % and what is the designation? 100 %,  
???: Special Area of National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**

Is the Management Plan current?: **yes**

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Monitoring of fauna and flora; Burning of reed bed; Thinning of bush; Restoration of old river flow;  
Water Level Control; Environment-friendly agriculture; Environment education; Dredging of incoming  
soil.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S name, email and address:</b> TAJIRI Hironobu	
<b>DATE OF ASSESSMENT:</b> 2011/09/15	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b> <p style="margin-left: 20px;"><b>Katano Kamoike</b></p> <p>IBA name (and relationship to Flyway Site if they are defined differently):</p> <p>Name of Ramsar site (if listed): Katano-kamoike</p> <p>Date of most recent RIS:</p>	
<b>BRIEF DESCRIPTION OF THE SITE:</b> <p>a) Site Description</p> <p>Katano-kamoike is a freshwater pond with an area of 10 ha in the city of Kaga-shi, Ishikawa Prefecture, Japan. The pond is surrounded by a small hills of less than 50 m above the sea level. Sources of water are two waterways pouring from northeast and south east of the pond and a spring on the south west of the pond. Its water goes out from a waterway dug around north west of the pond. Eastern part of the pond flourishes emergent plants including indian rice, reeds, bulrush (<i>Shoenoplectus fluviatilis</i>). At the centre to western part grows water caltrops (<i>Trapa natans</i>).</p> <p>In wintering season from September to March, Anatidae species including ca.3,000 of Greater White-fronted Goose, ca.3,000 of Tundra Bean Goose, ca. 1,000 of Baikal Teal and Ca. 3,000 of Mallard. There are also Northern Goshawk and White-tailed Sea Eagle that predate these species It is the largest in western Japan for Greater White-fronted Goose and the largest in Japan for Baikal Teal. It is thus an important wintering site for Anatidae species in the northern central Honshu Island.</p> <p>The pond has been served since the end of Yedo period that is several hundred years as a hunting ground of a hunting method called slope net hunting. There are still 20 hunters hunting with the method. In recent years, there started a new utilisation including ecotourism or education. Kamoike Observatory of Kaga-shi at the eastern part of the pond and build in 1984 serves as a basis for conservation and environmental education. There is an area of rice paddy restored by the city and volunteers of citizens manages the paddies. In summer, traditional hunters cuts overgrown emergent plants mobilising NGOs like Wild Bird Society of Japan, civil society group like Friends of Kamoike Observatory, municipal officers and others. This is a management to prevent succession of flora of the wetland.</p> <p>b) Are the Flyway Site boundaries clearly defined,      Clearly defined            and is a map available?      Available</p>	

## 1. Migratory waterbirds

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:**

Greater White-fronted Goose Population unknown

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

Greater White-fronted Goose 3,505 Maximum count in 2010-11 wintering season (10/02/2011)

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted? : **All**      Some      None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 **>10**

If counts from >5 years ago, then how many: <10 10-100 **>100**

Contact details of organization / individual leading recent counting:

Wild Bird Society of Japan: Tajiri H., Sakurai Y/ Friends of Kamoike Observatory: Yamamoto Y., Tamai K.

Has the data been analysed? yes / **no** / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes / **no**

If yes please provide details:

Key Population increase / no change / decline

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

**Ramsar wetland types used by key populations:**

*Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.*

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O	10	Greater White-fronted Goose	
3	ca. 3000	Greater White-fronted Goose	Change in environment of foraging (Decrease of rice growing area into wheat or buck wheat growing, drying of rice paddies; decline in habitat area due to re arrangement of agricultural land increasing agricultural road)

Other comments (including if changes to habitat between FSN listing and 5 years ago):

### 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
1.1.1.1. Shifting agriculture	3	0, 1, 3	3	1?
1.4.4. Transport - land/air	3	0, 1, 2	3	1?

Other comments on threats (including management actions to address threats):

Local people, Fukui Prefecture, and other stake holders are carrying out CEPA activities on the value of rice paddies as wetlands.

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      **6-25%**      26-50%      >50%

### 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation?

**100%**, ??? : Special Area of National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes** (Master plan by MoE; Basic plan and Implementation plan for Wildlife Protection Area Project)

Is the Management Plan current?: **yes** (Though, Implemented partially.)

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

- Discussions in Ecosystem Management Commission organised by local stakeholders, municipal, prefectural and national governments, research institutes and various Survey and research activities and Awareness raising activities conducted by its constituents;
- Awareness raising activities of Kamoike Observatory targeted to citizens and primary and secondary school children;
- Projects of extending Ramsar site mainly organised by Kaga-shi and MoE; Voluntary Wetland management tour (wild rice mowing) organised by Wild Bird Society of Japan.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  TAKAHASHI Katsuyuki	
<b>DATE OF ASSESSMENT:</b> 2011/9/13	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b>  <b>Kejo-numa</b> IBA name (and relationship to Flyway Site if they are defined differently): Name of Ramsar site (if listed): Kejo-numa Date of most recent RIS:	

**BRIEF DESCRIPTION OF THE SITE:**

a) Site Description

Kejo-numa is a flad-control dam used for flood control and irrigation. Based on an old reservoir built around 1690s by banking a natural lake, the present dam was completed in 1965. Incoming water is rain water and spring water from surrounding hills and controlled water for controlling flooding. Introduced fish species including carps, gibels, largemouth basses, and blue gills is using this pond. Maximum depth is less than 4 m. Water plants including lotus and indian rice grows in the water. It provides wintering habitat for Anatidae species including Greater White- fronted Goose, Tundra Bean Goose, Canada Goose (*Branta canadensis minima*), Mallard, and Northern Pintail.



b) Are the Flyway Site boundaries clearly defined, Clearly defined and is a map available? Available

**Kejonomia-damu** ca. 24 m [Kejonomia-damu,hua nu zhaodamu,kejonomadamu,けじ...](#)  
 Japan » Miyagi dam  
 N 38° 37' 37" E 140° 57' 50" 38.62694 / 140.96388 GeoNameId : 7573164

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Greater White-fronted Goose	16,936 (Max. in 2010)	
Taiga Bean Goose	2,970 (Max. in 2008)	AWC
	1,891 (Max. in 2010)	

1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

Are all the key populations counted? : **All**    Some    None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years?    1    2-5    6-10    >10

If counts from >5 years ago , then how many:    <10    10-100    >100

Contact details of organization / individual leading recent counting:

Eco Pal Kejonuma    +81-229-28-1353

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population    increase / no change / decline

Greater White-fronted Goose: Increase

Tundra Bean Goose:    Decline

If published, please give reference/s:

Tohoku District Environment Office, "Report of Anatidae Survey Project in Kejo-numa National Wildlife Protection Area and the Surrounding Area. 2010

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O, 6	34	Greater White-fronted Goose, Tundra Bean Goose	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature)	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
U				

Other comments on threats (including management actions to address threats):

Specialists, local people, and administration share the declining status of Tundra Bean Goose. Surveys on its cause is presently carried on.

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s	<5%	6-25%	26-50%	>50%
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## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation? 100%, ????: Special Area of National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

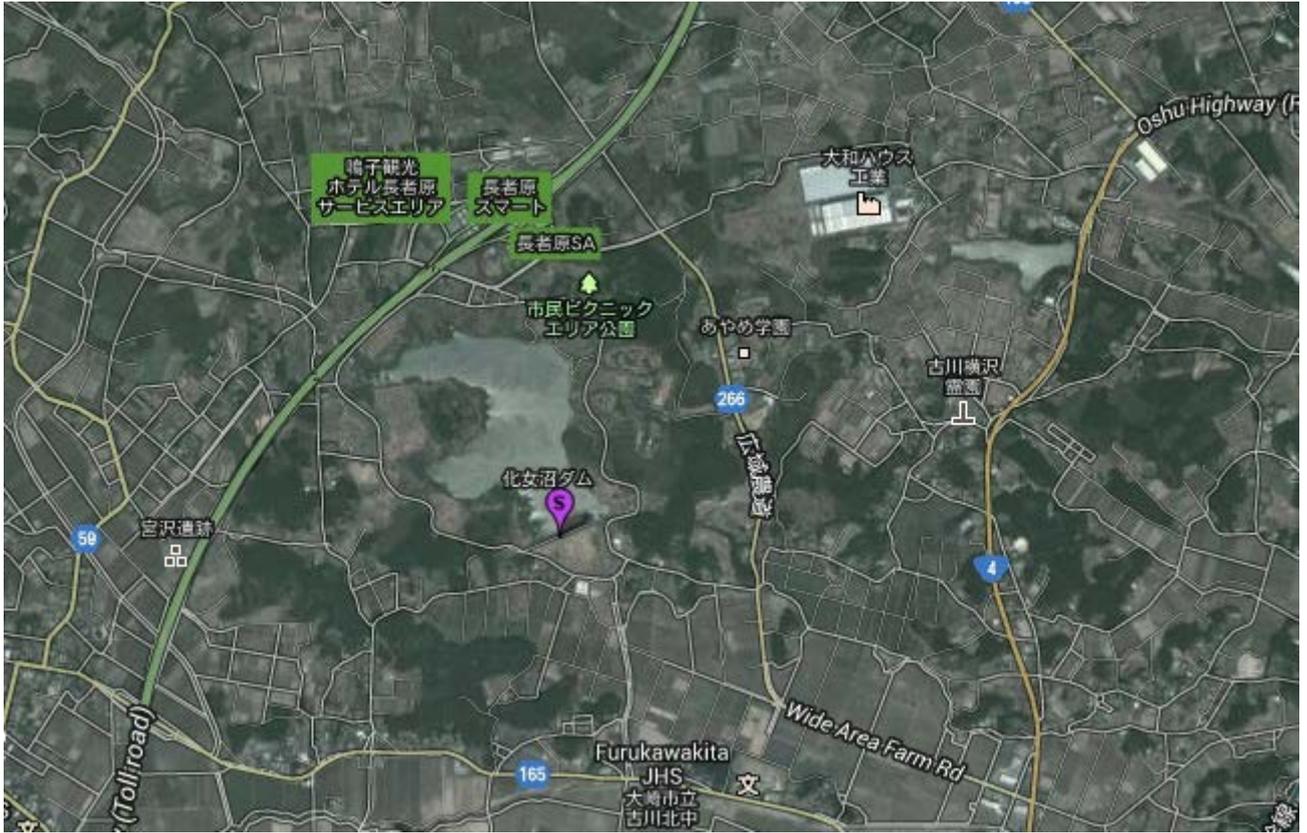
Management Plan has been prepared?: **no**

Is the Management Plan current?: **no**

Is it comprehensive? : **no**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Extermination of invasive alien species; Environmental education to citizens and school children; Monitoring of fauna and flora



## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S</b> name, email and address Fukunaga Tooru, Environment Division, Yatsushiro City Office 1-25 Matsue Shiromachi, Yatsushiro-shi, Kumamoto	
<b>DATE OF ASSESSMENT:</b> 21 November 2011	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE</b>  <b>Kumagawa Estuary</b>  IBA name (and relationship to Flyway Site if they are defined differently) Name of Ramsar site (if listed) Date of most recent RIS	
<b>BRIEF DESCRIPTION OF THE SITE</b> a) Site Description Sandy and muddy tidal flats of 180 ha at the river mouth of Kumagawa River  b) Are the Flyway Site boundaries clearly defined, and is a map available? Not defined, map not available	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Whimbrel 280 (2011)  
Terek Sandpiper 448 (28 Aug 1998) EAJ 1997  
Grey-tailed Tattler 321 (10 May 1989) EAJ 1997

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

Saunders Gull 81 (2007, AWC)

\* From Biodiversity Center, Ministry of the Environment Japan: "Quick Reports of Shorebird Monitoring Survey of National Monitoring Sites 1000 Project" 2010 (Spring, Autumn, Winter) and 2011 (Spring)

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted?  All  Some  None

\* All species are counted by Shorebird Monitoring Survey of National Monitoring Sites 1000 Project

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

If counts from >5 years ago, then how many <10  10-100  >100

Contact details of organization / individual leading recent counting  
TAKANO Sigeki, Yatsushiro Wild Bird Lovers' Association

Has the data been analysed? yes /  no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes /  no

If yes please provide details

Key Population increase / no change / decline

Other comments:

(Note by collator): Analysis of this site has been published on "Abstracts to 2004 Site Exchange Meeting" for Shorebird Monitoring Survey of National Monitoring Sites 1000 Project

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
G	500	Whimbrel Terek Sandpiper Grey-tailed Tattler	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity : 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s    <5%    6-25%    26-50%    >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected?     Yes / No

If so, what % and what is the designation?    **50%**  
Prohibition of hunting by lead bullet

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?:    yes /  no

Is the Management Plan current?:    yes / no

Is it comprehensive? :    yes / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Survey and Wildlife Observation Meeting on benthic animals and wild birds

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> KONISHI Kan	
<b>DATE OF ASSESSMENT:</b> 2011/9/14	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b> Kuccharo-ko IBA name (and relationship to Flyway Site if they are defined differently): Name of Ramsar site (if listed): Kutcharo-ko Date of most recent RIS: 2010/4/1	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Kutcharo-ko is an inland sea lake (lagoon) of 27 km in circumference. The lake comprises Oo-numa (large pond) with 5.5 km diameter and Ko-numa (small pond) 3.0 km diameter. It is a shallow lake having an average depth of 1.5 m with a maximum of 2.5 m. Its water surface is low above the sea that sea water comes into the sea when the Sea of Okhotsk 3 km downstream becomes full tide. It is an important stop-over site for waterbirds migrating between Japan and Russia.  Number of bird species observed thus far counts to about 300 (DW - species?).  Especially, 5 - 6,000 Bewick's Swan visits during migration seasons in spring and autumn.  Numbers of ducks that visits this place counts to 30 - 50,000 ducks.	
b) Are the Flyway Site boundaries clearly defined, and is a map available? Available	

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Bewick's Swan: 5 - 6,000

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None

Ducks >30 000 (DW)

Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".

Are all the key populations counted? : **All** Some None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1 2-5 6-10 >10

If counts from >5 years ago, then how many: <10 10-100 >100

Contact details of organization / individual leading recent counting:

Hamatonbetu Kutcharo-ko Waterbird Observatory, KONISHI Kan

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:

Key Population increase / no change / **decline**

Bewick's Swan

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
Q	1607	Bewick's Swan	Change in water quality (Eutrophism)

Other comments (including if changes to habitat between FSN listing and 5 years ago):

**3. MAJOR THREATS** factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

<b>Threat name</b> (See below for a list of names of potential threats following IUCN nomenclature).	<b>Habitat / Type</b> (as identified in the section above)	<b>Timing:</b> In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent:</b> 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity:</b> 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Change in water quality (eutrophication)	Q	3	3	2

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      **6-25%**      26-50%      >50%

**4. CONSERVATION MEASURES**

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation? **100%, ???**

Special Area of National Wildlife Protection Area; Urban Park

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**

Is the Management Plan current?: **yes**

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Counter measures for water quality by Conservation project of national wildlife protection area, Planting activity by local conservation group, Education programme by Waterfowl Wetland Center, Water quality measures by Council for Conservation Measures

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  Katsumi USHIYAMA:							
<b>DATE OF ASSESSMENT:</b>  2011/9/13	<b>COUNTRY:</b> Japan						
<b>NAME OF FLYWAY SITE:</b>  <b>Miyajimanuma</b> IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Miyajimanuma  Date of most recent RIS:      1999/5/5							
<b>BRIEF DESCRIPTION OF THE SITE:</b>  a) Site Description Freshwater lake surrounded by agricultural land, important habitat of migratory anatidae especially the greater white-fronted geese  b) Are the Flyway Site boundaries clearly defined,      Clearly defined and is a map available?      Available							
<h3 style="color: red;">1. Migratory waterbirds</h3> <p><b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="padding-left: 20px;">Greater White-fronted Goose</td> <td style="text-align: right;">70,000</td> </tr> <tr> <td style="padding-left: 20px;">Tundra swan</td> <td style="text-align: right;">5,000</td> </tr> <tr> <td style="padding-left: 20px;">Bean goose</td> <td style="text-align: right;">600</td> </tr> </table> <p><b>1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)</b>      None</p> <p>Are all the key populations counted? :      <b>All</b></p> <p>If counting has occurred, then:</p> <p>How many times was the site counted in the past 5 years?      1      2-5      6-10      &gt;10</p> <p>If counts from &gt;5 years ago, then how many:      &lt;10      10-100      &gt;100</p> <p>Contact details of organization / individual leading recent counting:          Miyajimanuma Waterbird and Wetland Center</p> <p>Has the data been analysed? yes / no / <b>partially</b></p> <p>Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes / <b>no</b></p> <p>If yes please provide details:</p> <p>If published, please give reference/s:</p> <p>Other comments:          Counts fluctuate regarding how the birds use the adjacent lakes. These features are planned to be analysed soon.</p>		Greater White-fronted Goose	70,000	Tundra swan	5,000	Bean goose	600
Greater White-fronted Goose	70,000						
Tundra swan	5,000						
Bean goose	600						

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
0	41	Greater white-fronted goose, Tundra swan, Bean goose	Decreasing water surface area, eutrophication
3		Greater white-fronted goose, Tundra swan	changes in agricultural methods

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Decreasing water surface / depth	0	3	3	
Eutrophication	0	3	3	
Changes in agricultural methods	0	3	2	
Alien species	0	3	3	

Other comments on threats (including management actions to address threats):

### In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation?

100% (Agricultural land not included), ??? : Special Area of National Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**

Is the Management Plan current?: **yes**

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Conservation activities by Miyajimanuma Waterbird & Wetland Center, local NGO, and local farmers.  
Research projects by Miyajimanuma Waterbird & Wetland Center, local NGO, and Universities

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> TAKAHASHI Kazuto, Division of Environmental Public Health Noshiro City Office, 1-3 Kami-machi, Noshiro-shi, Akita 016-8501	
<b>DATE OF ASSESSMENT:</b> 6 March 2011	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b> <b>Otomo-numa</b>  IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed):  Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Otomo-numa is located to the north east of Akita Prefecture to the north of North East region of Japan and is an agricultural reservoir in Noshiro Plain at the mouth of Yoneshiro River. Created in the early Edo era, it was maintained by the farmers for more than 350 years. Recently, the number of Ducks and Geese that visits this reservoir has been increased to more than 100 000 in the peak period. Thus, it plays an important role as stop-over site of migratory waterbirds.  b) Are the Flyway Site boundaries clearly defined, and is a map available? - Map available	

## 1. Migratory Waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form EAAFP:

Anatidae species with a population more than 20 000

Greater White Fronted Goose (>1%)

Taiga Bean Goose (>1%)

Whooper Swan (>1%)

Bewick's Swan (>1%)

Northern Pintail, E & SE Asia	15,000	1990-94 Abe et al. 1995
Tundra Swan, jankowskii	3,000	1990-94 Abe et al. 1995

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Are all the key populations counted? All  Some  None

If "some" please list these:

Greater White Fronted Goose, Taiga Bean Goose, Whooper Swan, Bewick's Swan

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

If counts from >5 years ago, then how many <10  10-100  >100

Contact details of organization / individual leading recent counting

Otomo Nature Society, President HATAKEYAMA Masaharu

Has the data been analysed? ye /  no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? Yes/no

If yes please provide details

Key Population increase / no change / decline

If published, please give reference/s

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations.

Please describe the habitat if it is a non-wetland type.

#### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
農業用ため池	55 ha	Greater White Fronted Goose, Taiga Bean Goose, Whooper Swan, Bewick's Swan	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

### 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

<b>Threat name</b> (See below for a list of names of potential threats following IUCN nomenclature).	<b>Habitat / Type</b> (as identified in the section above)	<b>Timing:</b> In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent:</b> 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity:</b> 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

Other comments on threats  
(including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s	<5%	6-25%	26-50%	>50%
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### 4. CONSERVATION MEASURES

Please answer the following

(1) Is all or some of the site legally protected?  Yes / No

If so, what % and what is the designation? 100%

• Prefectural Wildlife Protection Area of Akita-ken

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: yes /  no

Is the Management Plan current?: yes / no

Is it comprehensive? : yes / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> ISHII Masaharu, Director, Osaka Nankou Bird Sanctuary; Board Member, Nankou Wetland Group office@osaka-nankou-bird-sanctuary.com 3-5-30 Nankou-kita, Suminoe-ku, Osaka-shi, Osaka 559-0034	
<b>DATE OF ASSESSMENT</b> 19 November 2011	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE</b>  <p style="text-align: center;"><b>Osaka Nankou Bird Sanctuary</b></p> IBA name (and relationship to Flyway Site if they are defined differently): Osaka Nankou  Name of Ramsar site (if listed):  Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description Osaka Nankou Bird Observatory comprises wetland area with a salt water pond having tidal flats during low tide of tidal movement and vegetation area. Tidal flats supports various benthic animals including shellfish, polychaetes, Gammaridea, and crabs that attracts shorebirds. Especially, small shorebirds dominate the tidal flat such as Little Ringed Plover, Kentish Plover, Red-necked Stints, Dunlins, and Grey-tailed Tattlers.  b) Are the Flyway Site boundaries clearly defined, and is a map available? Boundaries of Nankou Bird Sanctuary as a flyway network site are clearly defined and map is also available	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form EAAFP:

Little Ringed Plover	298	02/08/2001
Kentish Plover	700	29/03/2001
Red-necked Stint	1450	11/05/2001
Grey-tailed Tattler	119	15/08/2001

\* Maximum number quoted from Information Sheet for recognition as East Asia - Australasian Shorebird Network Site dated 21 July 2003.

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

No additional species

Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".

Are all the key populations counted?  All    Some    None

If counting has occurred, then:

How many times was the site counted in the past 5 years?    1    2-5    6-10    >10    **>250**  
If counts from >5 years ago, then how many?    <10    10-100    >100    **<1500**

Contact details of organization / individual leading recent counting

Osaka Nankou Bird Sanctuary;  
Nankou Wetland Group

Has the data been analysed?  yes / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?  Yes / no

If yes please provide details:

Decline of maximum population, though its cause is unknown

Key Population    increase / no change / **decline**

If published, please give reference/s

Biodiversity Center, Ministry of the Environment Japan: "Shorebird Monitoring Survey of National Monitoring Sites 1000 Project"

Other comments

Not in particular

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
G But created artificially	12.8ha	Little Ringed Plover, Kentish Plover, Red-necked Stint, Grey-tailed Tattler	Overall land subsidence, decrease in period of tidal flat appearance

### Other comments (including if changes to habitat between FSN listing and 5 years ago):

Decrease in biomass of green algae in summer season and increase from autumn to winter

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity : 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Overall land subsidence, decrease in period of tidal flat appearance	G	3	3	3

### Other comments on threats (including management actions to address threats):

At present, observations in the change of population of shorebirds, and in the trend of environmental change are recorded.

### In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s                      <5%      6-25%      26-50%      **>50%**

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected?  Yes

If so, what % and what is the designation? 100%

Osaka Bay Prohibition Area in the Use of Particular Hunting Tools

(under Ordinance of Osaka Prefecture for Improving Wildlife Protection and Hunting, 2 July 2002)

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?:  yes

Is the Management Plan current?:  yes

Is it comprehensive? :  yes

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Citizens, NPO, and Administration are collaborating continuously in the following field of activities:

1 Environmental Monitoring and General survey on wildlife: Wildlife census on wild birds and/or wetland wildlife; Environmental monitoring, Analysis on survey result etc.

2 Environmental Protection Work: Removal of abnormally grown green algae; Wetland cleaning; Reed cutting; Vegetation control; Creation activities for wildlife habitat etc.

3 Education / Awareness Activities: Teaching observation method; Wildlife Observation Meeting; Carrying out environmental education programme etc.

4 Information Exchange among Flyway Partnership sites

# East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  KOBAYASHI Noriyuki															
<b>DATE OF ASSESSMENT:</b> 16/09/2011	<b>COUNTRY:</b> Japan														
<b>NAME OF FLYWAY SITE:</b>  <b>Sakata</b>  IBA name (and relationship to Flyway Site if they are defined differently): Sakata  Name of Ramsar site (if listed): Sakata  Date of most recent RIS:															
<b>BRIEF DESCRIPTION OF THE SITE:</b>  a) Site Description Sakata is a freshwater sand dune lake in the lower part of rows of sand dunes in Nishi-ku, Niitata-shi, Niitaga, Japan. Source of water is spring water from waterways under dunes. Vegetation is characterised by water plants on water surface to shoreline, and pine trees and agricultural fields covers the surrounding dunes. The lake has been sustainably utilised by local people as an important water reserve indispensable for their daily lives as irrigation water or as fishing place. As such, people has been keeping this area, up to now, trying to conserve the function and its status.  b) Are the Flyway Site boundaries clearly defined, and is a map available?                      Clearly defined                      Available															
<h2 style="color: red;">1. Migratory waterbirds</h2> <p><b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="padding-left: 20px;">Bewick's Swan:</td> <td style="padding-left: 40px;">ca. 3,000</td> </tr> <tr> <td style="padding-left: 20px;">Lesser Bean Goose:</td> <td style="padding-left: 40px;">1,500</td> </tr> </table> <p><b>1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)</b></p> <p>Are all the key populations counted? :    <b>All</b>    Some    None</p> <p>If counting has occurred, then:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-left: 20px;">How many times was the site counted in the past 5 years?</td> <td style="padding-left: 20px;">1</td> <td style="padding-left: 20px;">2-5</td> <td style="padding-left: 20px;">6-10</td> <td style="padding-left: 20px;"><b>≥10</b></td> </tr> <tr> <td style="padding-left: 20px;">If counts from &gt;5 years ago , then how many:</td> <td style="padding-left: 20px;">&lt;10</td> <td style="padding-left: 20px;">10-100</td> <td style="padding-left: 20px;"><b>&gt;100</b></td> <td></td> </tr> </table> <p>Contact details of organization / individual leading recent counting:                  Sakata Waterbirds/Wetland Centre: Ph: +81-25-264-3050</p> <p>Has the data been analysed? <b>yes</b> / no / partially</p> <p>Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? <b>Yes</b> / no</p> <p>If yes please provide details:                  Key Population            increase / <b>no change</b> / decline</p> <p>If published, please give reference/s:</p> <p>Other comments:</p>		Bewick's Swan:	ca. 3,000	Lesser Bean Goose:	1,500	How many times was the site counted in the past 5 years?	1	2-5	6-10	<b>≥10</b>	If counts from >5 years ago , then how many:	<10	10-100	<b>&gt;100</b>	
Bewick's Swan:	ca. 3,000														
Lesser Bean Goose:	1,500														
How many times was the site counted in the past 5 years?	1	2-5	6-10	<b>≥10</b>											
If counts from >5 years ago , then how many:	<10	10-100	<b>&gt;100</b>												

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
O	76	Bewick's Swan	Not in Particular

Other comments (including if changes to habitat between FSN listing and 5 years ago): Not in particular

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
N				

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s                      <5%              6-25%              26-50%              >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation? **100%**,  
National Wildlife Protection Area (Wildlife Protection and Hunting Law)  
Category 3 Special Park Area (Natural Parks Law)

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**  
Is the Management Plan current?: **yes**  
Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Wildlife population census; "Kata Fushin" (Cleaning Activity mobilising local people); Establishment and Promotion of Natural Environment Conservation Plan around Sakata; Nature observation and bird watching events

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> SATO Eiichi , President, Association to Save Swans in Ookawara Town Office, 19 Aza-shin-minami, Ookawara-cho, Shibata-gun, Miyagi											
<b>DATE OF ASSESSMENT:</b> 6 March 2012	<b>COUNTRY:</b> Japan										
<b>NAME OF FLYWAY SITE:</b> <b>Shiroishi-gawa</b> IBA name (and relationship to Flyway Site if they are defined differently):      None Name of Ramsar site (if listed):      None Date of most recent RIS:      None											
<div style="color: red; font-weight: bold; margin-bottom: 10px;">1. Migratory waterbirds</div> <div style="margin-bottom: 10px;"> <b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b>                  Bewick's Swan: 400 - 500             </div> <div> <b>1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)</b>                  None             </div> <p>Are all the key populations counted?      <input checked="" type="checkbox"/> All      Some      None</p> <p>If counting has occurred, then:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">How many times was the site counted in the past 5 years?</td> <td style="width: 10%; text-align: center;">1</td> <td style="width: 10%; text-align: center;">2-5</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/> 6-10</td> <td style="width: 10%; text-align: center;">&gt;10</td> </tr> <tr> <td>If counts from &gt;5 years ago, then how many?</td> <td style="text-align: center;">&lt;10</td> <td style="text-align: center;">10-100</td> <td style="text-align: center;"><input checked="" type="checkbox"/> &gt;100</td> <td></td> </tr> </table> <p>Contact details of organization / individual leading recent counting                  Association to Save Swans in Ookawara</p> <p>Has the data been analysed?      yes / <input checked="" type="checkbox"/> no / partially</p> <p>Were any conclusions made about changes in the numbers of each population for which the site meets the FSN  <input checked="" type="checkbox"/> Yes / no</p> <p>If yes please provide details                  Key Population      increase / no change / <input checked="" type="checkbox"/> decline</p> <p>If published, please give reference/s</p> <p>Other comments:                  Though not published, the site presently does not fulfil criteria for joining the site network because of voluntary restraining from feeding due to avian influenza, and the drastic change of surrounding area due to constructions of roads and bridges and land readjustment.                  Moreover, activities by only Ookawara-cho can hardly protect the wildlife, since Shiroishi-gawa River runs on other municipality.</p>		How many times was the site counted in the past 5 years?	1	2-5	<input checked="" type="checkbox"/> 6-10	>10	If counts from >5 years ago, then how many?	<10	10-100	<input checked="" type="checkbox"/> >100	
How many times was the site counted in the past 5 years?	1	2-5	<input checked="" type="checkbox"/> 6-10	>10							
If counts from >5 years ago, then how many?	<10	10-100	<input checked="" type="checkbox"/> >100								

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
M	813.6 km <sup>2</sup> (whole basin area of the river)	Bewick's Swan	None

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity : 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? Yes /  No

If so, what % and what is the designation? %

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: yes /  no

Is the Management Plan current?: yes / no

Is it comprehensive? : yes / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

No activities for conservation

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address</b> KANAI Yutaka	
<b>DATE OF ASSESSMENT</b> 30 September 2011	<b>COUNTRY</b> Japan
<b>NAME OF FLYWAY SITE</b>  <b>Tokyo Port Wild Bird Park</b>  IBA name (and relationship to Flyway Site if they are defined differently)  Name of Ramsar site (if listed)  Date of most recent RIS	
<b>BRIEF DESCRIPTION OF THE SITE</b> a) Site Description This is an artificial wetland in a reclaimed land of Tokyo Port recovering wetland environment of Tokyo Bay. It comprises tidal flats, brackish water pond, muddy wetland, marsh of emergent plants and a rice paddy.  b) Are the Flyway Site boundaries clearly defined, and is a map available? Boundaries is clearly defined and map available.	

## 1. Migratory waterbirds

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

In 1998 and 1999, Lesser Sand Plover counted to be 100 and 102 respectively, which clear the 0.25% criteria of estimated population of 88 individuals.

In 2011, maximum count of Lesser Sand Plover is 105, on 31 July 2011.

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Common Black-headed Gull		1,000	3,238		AWC
Mew Gull		250	601		AWC

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Are all the key populations counted?                      All                      Some                      None

Count 'all' and 'some'

If "some" please list these:

All bird species are counted for Census Survey. Count survey of shorebirds and ducks are conducted aside from census survey..

If counting has occurred, then:

How many times was the site counted in the past 5 years?      1      2-5      6-10       >10

If counts from >5 years ago , then how many                      <10      10-100       >100

Contact details of organization / individual leading recent counting

Tokyo Port Wild Bird Park

Has the data been analysed?      yes / no /  partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?  Yes / No

If yes please provide details

Key Population                      increase / no change / decline

Shorebirds                      decline

Ducks: Freshwater ducks                      decline

Diving ducks                      increase

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

*Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.*

#### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
Tidal Flats (G) / Brackish Pond (J)	5	Shorebirds, Ducks	
Freshwater pond / muddy wetland (Sp)	5	Ducks	

Other comments (including if changes to habitat between FSN listing and 5 years ago):

**3. MAJOR THREATS** factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

<b>Threat name</b> (See below for a list of names of potential threats following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign a score across three criteria; namely when the threat is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	<b>Habitat / Type</b> (as identified in the section above)	<b>Timing:</b> In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent:</b> 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity :</b> 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s                      <5%            6-25%            26-50%            >50%

**4. CONSERVATION MEASURES**

Please answer the following:

(1) Is all or some of the site legally protected?                      Yes

If so, what % and what is the designation? 100% Marine Park, Metropolitan Wildlife Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?:                      yes

Is the Management Plan current?:                      yes

Is it comprehensive? :                      yes

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Survey and Environmental Management (Cutting grasses and cultivation for maintaining wetlands);  
 Environment Education (Wildlife Observation)

## East Asian - Australasian Flyway Site Network Site Assessment Form



<p><b>COMPILER'S</b> name, email and address          NAKAMURA Satoshi</p> <ul style="list-style-type: none"> <li>➤ Lake Utonai Sanctuary Nature Center, Wild Bird Society of Japan (WBSJ) 150-3 Uenae, Tomakomai-shi, Hokkaido, 059-1365</li> <li>➤ Utonai-ko Wildlife Protection center 150-26 Uenae, Tomakomai-shi, Hokkaido, 059-1365</li> </ul>	
<p><b>DATE OF ASSESSMENT</b> 15 November 2011</p>	<p><b>COUNTRY</b> Japan</p>
<p><b>NAME OF FLYWAY SITE</b></p> <p><b>Utonai-ko</b></p> <p>IBA name (and relationship to Flyway Site if they are defined differently): <b>Utonai-ko/Yufutsu-gen-ya</b></p> <p>Name of Ramsar site (if listed): <b>Utonai-ko</b></p> <p>Date of most recent RIS: <b>No answer</b></p>	
<p><b>BRIEF DESCRIPTION OF THE SITE</b></p> <p>a) Site Description          Utonai-ko is located in the eastern part of Tomakomai-shi, Hokkaido. It is a fresh water lake with an area of 275 ha, distance of 9km around and an average water depth of 0.6 m. Wild Bird Society of Japan designated this area with surrounding wet grassland and forest areas as a Sanctuary in 1981. Next year, it was designated as special area of National Wildlife Protection Area in 1982. It is the fourth Ramsar Site in Japan designated in 1991.</p> <p>b) Are the Flyway Site boundaries clearly defined, and is a map available?          Sanctuary area of 510 ha is Clearly defined. Map available.</p>	

# 1. Migratory waterbirds

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form EAAFP:

Utonai-ko is an important wetland as a stop-over site for wintering migratory birds. 36 species of Ducks and Geese and Swans have been recorded. Population of Greater White-fronted Geese is increasing recently. Utonai-ko counted a record of about 98 000 individuals, which clears the 1% criteria to join the network. In spring, White-fronted Geese roosts in Utonai-ko in the night. They feed, in the daytime, spreading over wide agricultural land of the river basins of Yufutsu River to Chitose River including Atsuma and Mukawa Towns, and Chitose and Tomakomai Cities.

Aside from White-froned goose, 500 to 1000 individuals each of Bean Geese, Whooper Swans, Bewick's Swans visits regularly. Taiga Bean Geese, a subspecies of Bean Geese, are recorded with a population of about 900 individuals when joined the network, which cleas 1% of estimated population of east Asia. Whooper Swans winters every year with a population of about 100 to 300.

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bean Goose		850	2,000		Miyabayashi 1994
Greater White-fronted Goose			98,000 20,000		<i>This form, above</i> Miyabayashi 1994
Mute Swan		10	17		AWC

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Nothing in particular

Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".

Are all the key populations counted?  All    Some    None

If "some" please list these: N/A

If counting has occurred, then:

How many times was the site counted in the past 5 years?    1    2-5    6-10     >10  
Once every month x 12 months x 5 years = 60 times

If counts from >5 years ago , then how many    <10    10-100     >100  
Once every month x 12 months x 30 years = 360 times

Contact details of organization / individual leading recent counting

Lake Utonai Sanctuary Nature Center, Wild Bird Society of Japan (WBSJ)  
utonai@wbsj.org

Has the data been analysed?    yes / no /  partially  
Analysis of part of the data has been done.

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?     Yes / no

If yes please provide details

Key Population     increase / no change / decline  
Greater White-fronted Goose    Increase

If published, please give reference/s    N/A

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

#### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
0. Permanent Freshwater Lake/Pond	275ha	Greater White-fronted Goose / Bean Goose	Not in particular

Other comments (including if changes to habitat between FSN listing and 5 years ago):

Decrease of foraging ground of White-fronted Goose or Bean Goose due to development activities etc. around Ramsar wetland (510 ha)

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature.	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
	0	1	3	2

### Other comments on threats

#### (including management actions to address threats):

Development of surrounding area has been carried out until around 1980. The development is considered to have impacted remarkably to the habitat. Recently, large scale development such as this has not been done due to increase in consideration of nature

### In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Key Population/s      <5%      6-25%      26-50%      >50%

Due to the decrease of foraging ground and the population increase of White-fronted Geese and Bean Geese, impact by foraging birds on agricultural field is concerned.

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected?  Yes /  No

If so, what % and what is the designation? 100%

National Wildlife Protection Area (Special Protection Area)

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: yes /  no

Is the Management Plan current?: yes /  no

Is it comprehensive? : yes / no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

- Conservation project of Utonai-ko and Yufutsu Genya (moor) (Survey, and outreach activities)
- Awareness Raising/Education Activities for natural environment conservation at Utonai-ko Sanctuary and Utonai-ko Wildlife Protection Centre.

# East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  MASUYAMA Takeshi	
<b>DATE OF ASSESSMENT:</b> 2011/9	<b>COUNTRY:</b> Japan
<b>NAME OF FLYWAY SITE:</b>  <b>Yashiro</b> IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Not listed  Date of most recent RIS:	
<b>BRIEF DESCRIPTION OF THE SITE:</b>  a) Site Description  It is located at a basin of 300 m above the sea level including improved rice paddies of 50 ha and unimproved rice paddies of unknown area. The area is surrounded by mountains. Hooded Crane using this site roosts at wetlands at the back of paddies at the alluvial fan. Since there is a record that cranes used a non wetland bare mountain area as roosting site, people are trying to make a new roosting site recovering a part of covering plants on the side of a mountain. Local government and people has been taking various effort for the protection. There is also efforts by all the local members to design waterways considering ecosystem and decreasing agricultural chemicals and fertilisers.  b) Are the Flyway Site boundaries clearly defined, Not defined for flyway network site. (Border of Special Natural Monument site is defined.)  and is a map available?      Available	
<b style="color: red;">1. Migratory waterbirds</b> <b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b> Hooded Crane 20 – 30  <b>1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)</b> None  Are all the key populations counted? : <b>All</b> Some      None  If counting has occurred, then: How many times was the site counted in the past 5 years?                      1              2-5              6-10              >10 If counts from >5 years ago , then how many:                      <10              10-100              >100  Contact details of organization / individual leading recent counting: Board of Education, Shunan-shi  Has the data been analysed? <b>yes</b> / no / partially  Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? <b>Yes</b> / no	

If yes please provide details:

Key Population increase / no change / **decline**  
Hooded crane

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

Ramsar wetland types used by key populations:

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
3	50	Hooded Crane	None
2	N/A	Hooded Crane	None

Other comments (including if changes to habitat between FSN listing and 5 years ago):

Consolidation of rice paddies as been gradually carried out after participating in Flyway Network.  
(Construction for consolidation was carried out in non-wintering season, from fringe areas not frequently used by Hooded Cranes.)

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Aging and decrease of local people to engage in conservation of roosting sites etc.	Irrigated land	3	1	2
Invasion of wildlife to roosting and foraging sites of Hooded Crane	Irrigated land	1	0	1
Work of farmers during wintering period	Irrigated land	3	0	0
Development of surrounding area	Irrigated land	0	1	3

Other comments on threats (including management actions to address threats):

- People for improving habitats such as roosting sites are filled by calling for volunteers.
- Protection against invasion into foraging ground has not been addressed. But counter measures such as fencing roosting sites frequently used has been started.
- Farmers working in winter can be a threat to Hooded Crane. It has been agreed among farmers not to carry on agricultural work in winter considering protection of cranes and out of the feeling of people. But this trend seems to be changing recently. It may have to address this trend in near future.
- Development of surrounding area has been carried out until around 1980. The development is considered to have impacted remarkably to the habitat. Recently, large scale development such as this has not been done due to increase in consideration of nature conservation. In the same way, consolidation of agricultural land has been carried out in a way to impact least to Hooded Crane habitats

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s      <5%      6-25%      26-50%      >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes/No**

If so, what % and what is the designation? 100%,

???: Special Area of National Wildlife Protection Area; Natural Park

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **yes**

Is the Management Plan current?: **yes**

Is it comprehensive? : **yes**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

- Improvement of habitat (foraging and roosting) by local people
- Environment education implemented by research group
- Survey and Research activities by research group ad administration
- Reintroduction of hooded crane individuals implemented by administration

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address</b> CHIBA Yoshinori 1-1-1 Saginuma, Narashino-shi, Chiba, 275-8601	
<b>DATE OF ASSESSMENT</b> 24 September 2011	<b>COUNTRY</b> Japan
<b>NAME OF FLYWAY SITE</b>  <b>Yatsu tidal flats</b>  IBA name (and relationship to Flyway Site if they are defined differently) Name of Ramsar site (if listed): Yatsu-higata Date of most recent RIS: Not known	
<b>BRIEF DESCRIPTION OF THE SITE:</b> a) Site Description  <p style="margin-left: 40px;">Yatsu Tidal Flats are located in Narashino-shi, Chiba Prefecture, at the innermost part of Tokyo Bay. It looks like a square swimming pool. It is connected with Tokyo Bay by two waterways. They are tidal flats surrounded by reclaimed land.</p> <p style="margin-left: 40px;">Waterbirds of around 70 species can be seen here all the year round, such as egrets, ducks, or gulls. Many shorebirds are attracted by benthic animals living in tidal flats. There are species among them that breeds in siberia that heads for their warm wintering ground in South-East Asia and/or Australia.</p> b) Are the Flyway Site boundaries clearly defined, and is a map available? Clearly defined and map available	

# 1. Migratory waterbirds

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Black-winged Stilt, Dunlin, Grey Plover, Grey-tailed Tattler, Kentish Plover, Lesser Sand Plover, Ruddy Turnstone, Sanderling, Whimbrel

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Common Black-headed Gull			3,339		AWC
Dunlin			2,518		AWC
Grey-tailed Tattler			336	15-Sep-01	WWF Japan 2002a
Kentish Plover			1,424	18-Sep-88	EAJ 1997
Lesser Sand Plover			372	29-Apr-92	EAJ 1997
Ruddy Turnstone			243	01-May-01	WWF Japan 2002a
Whimbrel			894	16-May-96	EAJ 1997

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Are all the key populations counted?  All  Some  None

If "some" please list these:

If counting has occurred, then:

How many times was the site counted in the past 5 years? 1  2-5  6-10   >10

If counts from >5 years ago, then how many: <10  10-100   >100

Contact details of organization / individual leading recent counting

ISHIKAWA Tsutomu

Yatsu-Higata Nature Observation Center Phone:+81-47-454-8416

Has the data been analysed? yes / no /  partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?  Yes / no

If yes please provide details

Key Population increase / no change / decline

Kentish Plover increase / no change /  decline

Lesser Sand Plover increase /  no change / decline

Grey Plover increase / no change / decline

Ruddy Turnstone increase / no change / decline

Dunlin increase / no change / decline

Grey-tailed Tattler increase / no change / decline

Bar-tailed Godwit increase / no change / decline

If published, please give reference/s

"Abstracts to 2006 Site Exchange Meeting" for Shorebird Monitoring Survey of National Monitoring Sites 1000 Project (in Japanese)

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
G-Tidal Flat	40.1 (Including reed beds, also)	Black-winged Stilt, Grey Plover, Kentish Plover, Lesser Sand Plover, Eurasian Curlew, Whimbrel, Grey-tailed Tattler, Ruddy Turnstone, Sanderling, Dunlin	Sea weeds / sea lettuce excessively grows and decays occurs from early summer to autumn. As the decay becomes severer, benthic animals are damaged.

Other comments (including if changes to habitat between FSN listing and 5 years ago):

Overgrowth and decay of sea lettuces started to be remarkable after the participation in the network.

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
Decay of sea lettuce	G	1	2	3
Blue Algae	G	1	3	1
Infloated of garbages from outer bay	G	1	0	0
Change of bottom sediment and its geographical shape.	G	3	1	2
Oil contamination in Tokyo Bay	G	0	0	0

Other comments on threats (including management actions to address threats):

Conducting activities such as cleaning of floating garbages, collecting sea lettuces, experiment of covering with soil, etc.

### In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?

Exuberance of green lettuce have been occurring for more than 10 years already. It can be said to be a result of insufficient management. Moderate growth of sea lettuce seems to providing feed resources for Red-necked Stints and Ruddy Turnstones. But overwhelming decay of sea lettuce apparently impacts benthic animals in the sites, which result in an impact on foraging of shorebirds on their southward migration. (In the northward migration season in spring, quantity of green lettuce is not so large, and decays are only partial.) Change of quality and covering of tidal flat bottom sediments might impact negatively on the foraging of species that prefers crabs living in mud like Eurasian Curlews or Far Eastern Curlews.

Key Population/s            <5%    6-25%    26-50%    >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected?  Yes / No

If so, what % and what is the designation? 100%

Whole area of 41.2ha is designated as National Wildlife Protection Area and 97% or 40.1ha as Special Protection Area

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?:  yes / no "Yatsu Wildlife Protection Area Management Plan"

Is the Management Plan current?:  yes / no

Is it comprehensive? : yes /  no

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

- Sea lettuce clearing Activities by Ministry of the Environment, MOE.
- Survey of environment, Soil Cover experiment etc. as a part of conservation project of Yatsu Wildlife Protection Area by MoE
- Removal of sea lettuce, cleaning activities by local volunteer groups,
- Waterbird census, and inspection round by managing staff of wildlife protection area
- Analysis of results of waterbird census and various awareness raising activities by Yatsu Higata Nature Observation Center

# East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b>  KAMIYA Kaname																															
<b>DATE OF ASSESSMENT:</b> 2011/9/16	<b>COUNTRY:</b> Japan																														
<b>NAME OF FLYWAY SITE:</b>  <b>Yonago Waterbird Sanctuary</b>  IBA name (and relationship to Flyway Site if they are defined differently):  Name of Ramsar site (if listed): Nakaumi  Date of most recent RIS:      Not known																															
<b>BRIEF DESCRIPTION OF THE SITE:</b>  a) Site Description  A wetland on the process of reclamation was conserved as a wetland park for a habitat of waterbirds.  b) Are the Flyway Site boundaries clearly defined,      not  known and is a map available?      Not																															
<h2 style="color: red;">1. Migratory waterbirds</h2> <p><b>1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:</b></p> <p>Tundra Swan Common Pochard Greater White-fronted Goose</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 30%;">Popular English Name</th> <th style="width: 15%;">Scientific Name</th> <th style="width: 10%;">1% Criteria</th> <th style="width: 15%;">Count</th> <th style="width: 15%;">Count Date(s)</th> <th style="width: 15%;">Ref.</th> </tr> </thead> <tbody> <tr> <td>Common Pochard</td> <td></td> <td></td> <td>29,039</td> <td>2004</td> <td>unknown</td> </tr> <tr> <td>Greater Scaup</td> <td></td> <td></td> <td>21,601</td> <td>2004</td> <td>unknown</td> </tr> <tr> <td>Tufted Duck</td> <td></td> <td></td> <td>23,604</td> <td>1996/97wint</td> <td>SB-WBSJ</td> </tr> <tr> <td>Tundra Swan</td> <td></td> <td></td> <td>1,003</td> <td>1996/97wint</td> <td>EAJ count</td> </tr> </tbody> </table> <p><b>1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)</b> None</p> <p>Are all the key populations counted? :      <b>All</b>      Some      None</p> <p>If "some" please list these:</p> <p>If counting has occurred, then:                  How many times was the site counted in the past 5 years?      1      2-5      6-10      <b>&gt;10 (50)</b>                  If counts from &gt;5 years ago , then how many:      &lt;10      10-100      <b>&gt;100</b></p> <p>Contact details of organization / individual leading recent counting:                  Nakaum Waterbird International Exchange Fund Foundation      info@yonago-mizutori.com</p>		Popular English Name	Scientific Name	1% Criteria	Count	Count Date(s)	Ref.	Common Pochard			29,039	2004	unknown	Greater Scaup			21,601	2004	unknown	Tufted Duck			23,604	1996/97wint	SB-WBSJ	Tundra Swan			1,003	1996/97wint	EAJ count
Popular English Name	Scientific Name	1% Criteria	Count	Count Date(s)	Ref.																										
Common Pochard			29,039	2004	unknown																										
Greater Scaup			21,601	2004	unknown																										
Tufted Duck			23,604	1996/97wint	SB-WBSJ																										
Tundra Swan			1,003	1996/97wint	EAJ count																										

Has the data been analysed? yes / no / **partially**

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria? **Yes** / no

If yes please provide details:  
 Key Population            increase / no change / **decline**  
 Population of Bewick's Swan during the coldest season is declining.

If published, please give reference/s:

Other comments:

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

*Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.*

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years
2	28.8	Bewick's Swan	None

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.

Threat name (See below for a list of names of potential threats following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing: In the past = 0 Long term (4-10 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent: 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity: 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
The population visiting the site is decreasing because of winter-flooding of surrounding rice paddies that attracts the Bewick's Swan	Human- made pond	3	2	0
Bewick's Swans died because of an outbreak of HAPI in the neighbourhood.	Human- made pond	3	0	0

Other comments on threats (including management actions to address threats):

**In summary, in the next 10 years, if the threats are not managed, what is considered to be the potential impacts on each key population?**

Key Population/s            <5%            6-25%    26-50%    >50%

## 4. CONSERVATION MEASURES

Please answer the following:

(1) Is all or some of the site legally protected? **Yes**

If so, what % and what is the designation? 100%,

???: Special Area of National Wildlife Protection Area; Urban Park

(2) Has a management plan been prepared for the site, and if so is it current and comprehensive?

Management Plan has been prepared?: **no**

Is the Management Plan current?: **no**

Is it comprehensive? : **no**

(3) What conservation activities are taking place at the site, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see Annex 1)?

Establishing a nature centre (wetland centre); Awareness raising, survey and research, international exchange, and volunteer (wetland maintenance, weeding, garbage collection, etc.) activities.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<p><b>COMPILER'S</b> name, email and address          YAMAMOTO,          Natural Environment Division, Department of General Environment, Bureau of          Environment for Residents, Tokushima Prefectural Office          1-1 Mandai-cho, Tokushima-shi, Tokushima</p>	
<p><b>DATE OF ASSESSMENT:</b>          1 March 2012</p>	<p><b>COUNTRY:</b>          Japan</p>
<p><b>NAME OF FLYWAY SITE</b></p> <p><b>Yoshino Estuary</b></p> <p>IBA name (and relationship to Flyway Site if they are defined differently):</p> <p>Name of Ramsar site (if listed):</p> <p>Date of most recent RIS:</p>	
<p><b>BRIEF DESCRIPTION OF THE SITE:</b></p> <p>a)Site Description              Wide riverbeds and sandbars develop in the estuarine area at the mouth of Yoshino river having a width of 1.3 km. Large tidal flats dry in the low tide. More than 1000 shorebirds are observed at the largest, and more than 15 species of crabs live in tidal flat area.</p> <p>b)Are the Flyway Site boundaries clearly defined, and is a map available?              Part of the borders is clearly defined. (Map available)</p>	

## 1. Migratory waterbirds

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form EAAFP:

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Dunlin			1,185		AWC
Eurasian Wigeon			6,643	1996/97 winter	EAJ count
Great Cormorant		250	1,200		AWC
Japanese Cormorant		250	577		AWC
Spot-billed Duck		100	1,338		AWC

1.2 Additional populations meeting the FSN criteria identified in this assessment (*please provide additional information*)

*Note: Below in this form, the populations identified in 1.1 and 1.2 are referred to as the "key populations".*

Are all the key populations counted?      All      Some      None

If counting has occurred, then:

How many times was the site counted in the past 5 years?      1      2-5      6-10      >10

If counts from >5 years ago, then how many:      <10      10-100      >100

Contact details of organization / individual leading recent counting:

Has the data been analysed?      yes / no / partially

Were any conclusions made about changes in the numbers of each population for which the site meets the FSN criteria?      Yes / no

If yes please provide details:

Key Population      increase / no change / decline

If published, please give reference/s

Other comments:

## 2. Wetland/Habitats

Ramsar wetland types used by key populations:

*Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.*

### MAJOR HABITAT TYPES

Wetland/Habitat type	Extent (ha) (N/A if not available)	Key populations supported	Provide comment if significant changes in habitat extent or quality in past 5 years

Other comments (including if changes to habitat between FSN listing and 5 years ago):

## 3. MAJOR THREATS

factors adversely affecting the key habitats or directly on the key populations; their timing, scope and severity.



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	South Korea

<b>NAME OF FLYWAY SITE:</b>	Cheonsu Bay (Joined FSN 1999) Site#: 046
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Cheonsu Bay (listed in 2004). IBA# KR018
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Cheonsu Bay Flyway Network Site (FNS) is located in Chungcheongnam-do Province, on the west coast of South Korea; central coordinates are: 36.66667N. 126.40000E. The site boundary encompasses a total 13,704ha of water storage area and irrigated lands, consisting of two areas:</p> <p style="padding-left: 40px;">Seosan A district: 8,216 ha, 36°36' - 36°44'N, 126°23' - 126°30'E Seosan B district: 5,488 ha, 36°37' - 36°44'N, 126°19' - 126°23'E</p> <p>As partly water storage area, the site receives partial protection under Provincial and Seosan City governments:</p> <p>In January 1998 the wetland supported 92,000 wintering waterbirds of 38 species. Numbers of dominant species were 100,000 Baikal Teals (<i>Anas formosa</i>), 58,000 Mallards (<i>Anas platyrhynchos</i>), and 12,000 Bean Geese (<i>Anser fabalis</i>). Cheonsu Bay was one of the top eight sites in South Korea supporting shorebirds on the northward and southward migrations (Yi 2004).</p> <p>The IBA boundary area is slightly larger (15,584 ha). It's central coordinates are at 126° 25' E. 36° 37' N.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	No map or boundary description is available yet for this FNS.

# 1. MIGRATORY WATERBIRDS

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAFP nomination form:

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Baikal Teal	<i>Anas formosa</i>	5 000	61 100	Jan-97	Li et al (2009)
Bar-tailed Godwit		2 790	1,752	15-Apr-98	Moore 1999
Bean Goose		850	28,524	2005	unknown
Black-tailed Godwit		1 390	3,935	12-May-96	Lee 1997
Chinese Egret			74	ca. 1999	
Common Greenshank		1 000	963	12-May-96	Lee 1997
Gadwall			12,000	1989/90winter	AWC
Great Crested Grebe			1,103	1998	
Great Egret			445	winter 2009	NIBR 2009
Greater White-fronted Goose			9,800	2006	unknown
Kentish Plover		1000	318	12-May-96	Lee 1997
Mallard		15 000	94,800	1994/95winter	AWC
Northern Pintail			11,102	1993-1996	Kim et al. 1996
Ruddy Shelduck			767	1995/96winter	AWC
Saunders's Gull			120	2002	
Smew			743	1991/92winter	AWC
Snow Goose			1	2005	unknown
Whimbrel		550	432	01-May-98	Moore 1999

### 2010 Counts:

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Mallard	<i>Anas platyrhynchos</i>	15 000	3 423	Jan 2010	MoE, NIBR (2010)
Bean Goose†	<i>Anser fabalis</i> †	850	6 223	Jan 2010	MoE, NIBR (2010)
Bar-tailed Godwit	<i>Limosa lapponica</i>	2 790	41	Sep 2010	Shorebird Net K (2010)
Black-tailed Godwit	<i>Limosa limosa</i>	1 390	96	Sep 2010	Shorebird Net K (2010)
Common Greenshank	<i>Tringa nebularia</i>	1 000	193	Sep 2010	Shorebird Net K (2010)
Kentish Plover	<i>Charadrius alexandrinus</i>	1000	103	Sep 2010	Shorebird Net K (2010)
Whimbrel	<i>Numenius phaeopus</i>	550	368	Sep 2010	Shorebird Net K (2010)

\*\* The Bar-tailed Godwit population here is regarded as a mix of the sub-populations *Limosa lapponica baueri* and *Limosa lapponica anadyrensis*.

† The Bean Goose population here is regarded as the sub-population *serrirostris*.

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

1.3 Are all the key populations counted?:  All  Some  None

If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Birds Korea: Nial Moores

1.4.4 Has the data been analysed? yes / no /  partially

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations? Yes /  No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Baikal Teal	Unknown	
Mallard	Unknown	
Bean Goose	Unknown	
Bar-tailed Godwit	Unknown	
Black-tailed Godwit	Unknown	
Common Greenshank	Unknown	
Kentish Plover	Unknown	
Whimbrel	Unknown	

## 1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

National surveys of migratory shorebirds in 2006, 2007 and 2008 (Moores et al, 2008) detected significant declines in abundance of several shorebird species during northward and southward migrations at most of South Korea's key sites. Cheonsu Bay, where threats are considered relatively low, was not specifically noted as a site of particular risk, and the extent of change at this site was not discussed. However the overall declines across South Korea, including sites north and south of Cheonsu Bay point to likely declines for key species here as well.

## 2. WATERBIRD HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in extent* (+ /0 /- /?)	Changes in quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
G - Intertidal mud, sand or salt flats	N/A	Bar-tailed godwit; Black-tailed Godwit; Common Greenshank; Kentish Plover; Whimbrel	0	0	No significant changes in extent or quality.
15.7 Irrigated Land [3 -- <b>Irrigated land</b> ; includes irrigation channels and rice fields	N/A	Bar-tailed godwit; Far eastern curlew; Whimbrel; Mongolian plover; Terek sandpiper, Baikal Teal, Mallard, Bean Goose	0	0	No significant changes in extent or quality.
15.1 Water Storage Areas [6 -- <b>Water storage areas</b> ]	N/A	Bar-tailed godwit; Far eastern curlew; Whimbrel; Mongolian plover; Terek sandpiper	0	0	No significant changes in extent or quality.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

2.2 Other comments (including if changes to habitat between FSN listing and now): N/A

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>6. Human Intrusions &amp; Disturbance</b> 6.3 Work & other activities (disturbance to feeding & roosting shorebirds by humans)	Direct on shorebirds and anatidae	2	2	0
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents	On food items of waterbirds	3	2	1

### 3.2 Other comments on threats (including management actions to address threats):

The overall level of threat at Cheonsu Bay was assessed as low in comparison to other important shorebird sites in South Korea (Moores *et al* 2008). Highway and bridge are under construction at Seosan A district. Reduced down grain and rice straw collecting with bailer possibly influence goose population. (MoE, NIBR 2010)

Management of threats at the site includes .....???

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Baikal Teal		X		
Mallard		X		
Bean Goose		X		
Bar-tailed Godwit		X		
Black-tailed Godwit		X		
Common Greenshank		X		
Kentish Plover		X		
Whimbrel		X		

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Partially. (percent unknown) As a water storage area, the site receives partial protection under Provincial and Seosan City governments:

Forestry Division, Chungcheongnam-do Provincial Government, 287  
Sonhwa-dong, Chung-gu, Taejon 302-173, Republic of Korea.

Environmental Protection Department, Seosan-shi Official,  
492 Upnae-dong, Sosan-shi, Chungcheongnam-do, 356-020, Republic of Korea.  
TEL +82-41-660-3330 / FAX +82-41-660-3748  
URL <Korean>: <http://www.seosan.chungnam.kr>

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive (especially in regard to conservation of migratory waterbirds)?

*Management Plan has been prepared?:* No  
*Is the Management Plan current?:* No  
*Is it comprehensive?:* No

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- 1 Informal conservation education is conducted by conservation groups – regarding habitat protection and minimisation of disturbance to feeding and roosting shorebirds.
- 2 As yet, there are no purpose-built research facilities on or adjacent to the site.

## 5. REFERENCES

- Li, Z.W.D., Bloem, A., Delany S., Martakis G. and Quintero J. O. 2009. *Status of Waterbirds in Asia - Results of the Asian Waterbird Census: 1987-2007*. Wetlands International, Kuala Lumpur, Malaysia
- Moores N., Rogers D., Kim R-H., Hassell C., Gosbell K., Kim S-A & Park M-N. 2008. The 2006-2008 Saemangeum Shorebird Monitoring Program Report. Birds Korea publication, Busan.
- MoE, NIBR (2010)
- Shorebird Network Korea (2010)
- Yi, J-D. 2004. Status and Habitat Characteristics of Migratory Shorebirds in Korea. pp. 87–103. The Proceedings of the 2004 International Symposium on Migratory Birds, Gunsan, Korea. Published by the Ornithological Society of Korea
- Korean Shorebird Network. 2011. 2010 Fall Census on Shorebirds of Korea (Korean)

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, Roger Jaensch, Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	February 2012
<b>COUNTRY:</b>	South Korea

<b>NAME OF FLYWAY SITE:</b>	<b>Cheorwon Basin</b> (Site#: EAAF027) Joined FSN in March 1997.
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	<b>Cheolwon Basin IBA</b> (4332 ha) includes the FSN Site
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Cheorwon (also spelled Cheolwon) Basin Flyway Network Site (FNS) is defined by the boundary of the Cheorwon Basin Natural Monument in Gangwon Province, South Korea. Total area is 40ha. The site is located at 38.25000o North; 127.21667o East.</p> <p>The basin is in the centre of the Korean Peninsula, at significant altitude above sea level, within a mountainous landscape in the upper drainage of the Imjin River. Part of the area used by the key populations is within a controlled-access zone of the Korean Demilitarised Zone (DMZ), where disturbance may be at lower levels than elsewhere.</p> <p>The basin is crossed by four or five streams fed by abundant spring water and with a rich growth of aquatic vegetation. The area includes two small reservoirs, Hak in the south and T'ogyo in the northeast, and a small lake, Sammyong, in the west. Spring-fed marshes with <i>Cyperus exallatus</i>, <i>Carex</i> spp and <i>Miscanthus sinensis</i>, and rice paddies (Won Pyong-Oh 1989).</p> <p>The FSN encompasses a human modified landscape of small-scale rice fields (for a single summer crop) with associated small water storage reservoirs and some adjacent, near-natural river-bed wetlands. The key populations feed mainly in the rice fields, post-harvest, on fallen grain; many birds roost in the reservoir or river-bed habitats. The area is normally affected by freezing temperatures and snow falls in winter and non-breeding Anatidae and cranes visiting at that season may be partly dependent on supplementary feed provided by humans.</p> <p>The <b>Cheolwon Basin IBA</b> is much larger in area (4332 ha). It includes the Cheorwon Basin FSN Site and Natural Monument.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p><u>No</u>. A Site Information Sheet (SIS) is available but no map is provided. The boundaries of the Cheorwon Basin Natural Monument are well defined.</p>

# 1. MIGRATORY WATERBIRDS

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

The Flyway Network Site is recognized for five species: *Anser fabalis* (Bean Goose), *Anser albifrons* (Greater White-fronted Goose), *Chen caerulescens* (Snow Goose), *Grus japonensis* (Red-crowned Crane) and *Grus vipio* (White-naped Crane). All occur only in the non-breeding season (autumn and winter).

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Dates	Reference
Bean Goose†	<i>Anser fabalis</i> †	850	13,000	1993-1996	Kim et al. 1996
Greater White-fronted Goose	<i>Anser albifrons</i>	1,500	36,000	1999	AWC
Snow Goose	<i>Chen caerulescens</i>	@	21	1993-1996	Kim et al. 1996
Red-crowned Crane	<i>Grus japonensis</i>	11	882	Jan 2010	MoE, NIBR (2010)
White-naped Crane	<i>Grus vipio</i>	45	1,464	winter 2009	MoE, NIBR (2009)

† The Bean Goose population and counts here are regarded as of the sub-species *serrirostris*.

@ population estimate is 20-30 and the threshold is set as “case basis”.

## 2010 Count data:

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Dates	Reference
Bean Goose†	<i>Anser fabalis</i> †	850	12	Jan 2010	MoE, NIBR (2010)
Greater White-fronted Goose	<i>Anser albifrons</i>	1500	469	Jan 2010	MoE, NIBR (2010)
Snow Goose	<i>Chen caerulescens</i>	@			
Red-crowned Crane	<i>Grus japonensis</i>	11	882	Jan 2010	MoE, NIBR (2010)
White-naped Crane	<i>Grus vipio</i>	45	862	Jan 2010	MoE, NIBR (2010)

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Falcated Teal	780	1,278	AWC
Spot-billed Duck	100	682	AWC

1.3 Are all the key populations counted?:  All  Some  None

## 1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100  >100

### 1.4.3 Contact details of organization / individual leading recent counting:

Ministry of Environment:	Dr Yi Jeong-yeong, Email:
National Institute of Biological Research (NIER):	c/- Dr Kim Jin-han
Korean Waterbird Network:	Dr Lee Ki-sup

Annual counts of the cranes and possibly also the geese are made by one or more of the above organisations, probably more than once each autumn/winter and for more than 10 years.

1.4.4 Have the data been analysed?  yes / no / partially

The data have been analysed and summaries of numbers and trends have been presented at many national and international meetings.

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

### 1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Bean Goose†	Unknown	????
Greater White-fronted Goose	Unknown	????

Snow Goose	Unknown	????
Red-crowned Crane	increase	Yoo <i>et al.</i> 2011
White-naped Crane	Increase	Yoo <i>et al.</i> 2011

### 1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

Numbers of the key populations in any one year or season may be influenced by the severity of the winter, with waterbirds generally moving to more southerly or lower-lying parts of the Korean Peninsula as a result of extreme conditions. Whereas many Red-crowned Cranes remain at the site for most of the non-breeding season, most of the White-naped Crane normally migrate farther south, including to Kyushu, Japan.

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
15.7 [3 - Irrigated land; includes irrigation channels and rice fields]	?	All key populations	0	0	General intensification of agriculture over 10+ years.
15.1 [6 - Water storage areas (over 8 ha)]	?	All key populations	0	0	Possibly increased disturbance?
5.1 [M - Permanent rivers/streams/creeks]	?	cranes	0	0	

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

Probably the area has experienced widespread intensification of agriculture and increased human disturbance over the 15 years since FSN designation.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7. Natural System Modifications</b> 7.2 Dams & water management/use 7.2.7 Abstraction of ground water (agricultural and urban use)	<b>6 - Water storage areas</b> <b>M - Permanent rivers/streams/creeks</b>	3	2	1
<b>6 Human intrusions &amp; disturbance</b> 6.1 Recreational activities (visitors)	Direct on waterbirds	3	2	1

### 3.2 Other comments on threats (including management actions to address threats):

[ Korean researchers can provide definitive information but the main threats are probably disturbance by humans, collisions with overhead wires and the impacts on feeding habitat due to intensification of agriculture. Other possible threats are paving of farm roads, concrete lining of irrigation ditches, straightening and flattening of rice paddies, spreading liquid fertilizer in winter, collecting rice straw with baler, autumn ploughing, and increase in greenhouse area. Some area remains unploughed in winter and keeps rice straw due to Biodiversity Management Contract.(MoE, NIBR 2010) Feeding of the

cranes by humans is a contentious practice but may be artificially sustaining or building wintering numbers of the key populations at this site. ]

**3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?**

<i>Key Population/s</i>	<i>&lt;5%</i>	<i>6-25%</i>	<i>26-50%</i>	<i>&gt;50%</i>
Bean Goose†	X			
Greater White-fronted Goose	X			
Snow Goose	X			
Red-crowned Crane	X			
White-naped Crane	X			

Numbers at the site may be impacted as much by weather and external factors as by management of the key habitats. Conservation of most of the key populations will depend on a whole-of-population approach based on accurate knowledge of numbers, habitats and threats across the entire non-breeding area occupied. Part of the non-breeding area is North Korea, for which limited data are available.

## 4. CONSERVATION MEASURES

**4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?**

Yes, 40ha (100% of the site) is protected as Cheorwon Basin Natural Monument, under the Wetlands Preservation Act. This area is under the management of the Ministry of Environment.

**4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?**

*Management Plan has been prepared?:* yes  
*Is the Management Plan current?:* yes  
*Is it comprehensive?:* yes

**4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?**

Education and awareness work for the cranes at Cheorwon is conducted by the Korea Waterbird Network and other organisations.

## 5. REFERENCES

BirdLife International (2011) Important Bird Areas factsheet: Cheolwon basin. Downloaded from <http://www.birdlife.org> on 22/07/2011

MoE, NIBR (2010)

Won Pyong-Oh (1989). Cited in: *A Directory of Asian Wetlands*. Compiled by Derek A. Scott, 1989. Online version accessed 24<sup>th</sup> Jan 2012 at: <http://ramsar.wetlands.org/ToolsforParties/WetlandDirectories/ADirectoryofAsianWetlands/tabid/822/Default.aspx>

Seung-Hwa, Y., L. Ki-Sup, et al. (2011). "Long-term Monitoring Result and Factors of the Wintering Crane's Population Change in Cheorwon, Korea - Historic Change and Impact Assessment of Weather Change by the MODIS." *The Korean Journal of Ornithology* 18(1): 59-71.

Yoo *et al.* 2011

## East Asian - Australasian Flyway Site Network Site Assessment Form

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<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	October 2011
<b>COUNTRY:</b>	South Korea

<b>NAME OF FLYWAY SITE:</b>	<b>Geum River Estuary</b> (Joined FSN Dec 2010) EAAF Site#: 100
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Geum-gang River & Estuary (Assessed in 2004). IBA# KR019
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

### BRIEF DESCRIPTION OF THE SITE:

**Site Description**

The **Geum River Estuary** Flyway Network Site (FNS) is located at 36.04200° North; 126.82000° East near Gunsan City, Jeollabuk Province, on the western coast of South Korea. The site is partly in the jurisdiction of Gunsan City and partly in Seocheon County (Chungcheongnam Province) because the shared administrative boundary is mid-river. The FNS site boundary is defined primarily by the boundary of the Geum-gang River & Estuary Wildlife Reserve. However total area of the FSN site is recorded as 2,185 ha, which is slightly larger than the Wildlife Reserve (???? ha).



Geum River, is the third of four major rivers in Korea. It originates from Tteumbong Spring in Jangsu County, Jeonbuk Province and flows into the Yellow Sea through both Chungcheong Provinces. The total catchment area of Geum River is 9,810km<sup>2</sup>, and the total length is 396 km (spanning 130 km of an East-to-West distance, 160km of a North-to-South distance).

The lower reach of Geum River is an artificial coastal freshwater lake (Geumgang-ho; Geum

	<p>River Lake) of 14.85km<sup>2</sup> maintained by the Geum River Barrage (constructed in 1990) linking Seocheon County and Gunsan City. Large depositional plains have developed in this region. The Network site comprises the lake waters and narrow fringing reedbeds and islands inside the artificial levee banks of the river, as well as intertidal mudflats in the estuary immediately seaward of the barrage.</p> <p>The lake is one of the most important wintering sites of Baikal Teal in the world, and annually supports at least 100,000 and up to 300,000 individuals (about 50% of the total population). It also supports small numbers of other globally threatened and nationally protected birds such as Swan Goose (Endangered Species &amp; Natural Monument), Black-faced Spoonbill (Endangered Species &amp; Natural Monument), Eurasian Spoonbills (Natural Monument), Whooper Swans (Natural Monument), and Mandarin Duck (Natural Monument).</p> <p>The <b>Geum-gang River &amp; Estuary IBA</b> area is much larger at 12,000 ha, and includes large areas of rice paddy as well.</p>
<b>Flyway Site boundaries and map?</b>	Yes, A map and boundary description is available in the Geum Estuary Site Information Sheet (2010), available at: <a href="http://www.eaaflyway.net/information-sites-maps.php">http://www.eaaflyway.net/information-sites-maps.php</a>

## 1. MIGRATORY WATERBIRDS

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

The following information comes primarily from:

- Geum Estuary Site Information Sheet 2010
- **Korea Chapter – (Asian Wetland Directory 1989).**

Popular English Name	Scientific Name	1% Criteria WPE5	Max Count	Count Date(s)	Ref.
Baikal Teal (VU)	<i>Anas formosa</i>	5 000	740,004	Jan 2007	SIS
Mallard	<i>Anas platyrhynchos</i>	15 000	28,252	Jan 2010	SIS
Bean Goose†	<i>Anser fabalis</i> †	850	66 4250	Jan 2010	MoE, NIBR (2010)
Greater White-fronted Goose	<i>Anser albifrons</i>	700	4 256 745	Jan 2006 Jan 2010	SIS MoE, NIBR (2010)

† The Bean Goose population here is regarded as the sub-population *serrirostris*.

Note that regular count data are available from the national midwinter survey (NIBR) and from that source, mean numbers have been calculated (see the Site Information Sheet SIS).

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

The site also provides important habitat for other threatened (but considered meeting FSN criteria) and protected birds such as Swan Geese (Endangered Species & Natural Monument), Black-faced Spoonbills (Endangered Species & Natural Monument), Eurasian Spoonbills (Endangered Species & Natural Monument), Whooper Swans (Endangered Species & Natural Monument), Mandarin Ducks (Natural Monument), and Kestrels (Natural Monument).

1.3 Are all the key populations counted?:  All    Some    None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years?    1    2-5     6-10    >10

1.4.2 If counts from >5 years ago, then how many counts were made:    <10     10-100    >100

1.4.3 Contact details of organization / individual leading recent counting:

- National Institute of Environmental Research (NIER): Dr YI Jeong-Yeong, Email:
- National Institute of Biological Resources, Contact: Kim Jin-Han, Email:

1.4.4 Has the data been analysed? yes / no / **partially**

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations? Yes / **No**

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Baikal Teal	Unknown	
Mallard	Unknown	
Bean Goose	Unknown	
Greater White-fronted Goose	Unknown	

## 1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

Numbers of Baikal Teal at the site seem to have increased over the past 10-20 years. This may reflect changes in habitat at the site (the barrage is relatively new), changes in feeding habitat (expansion of rice fields), changes in availability or quality of wintering habitat in other areas, and year to year weather conditions (colder winters may force more birds to migrate farther south). Typically, the teal move south then back north along the Korean peninsula through the autumn-winter period as cold weather (water freezing at lake roosting sites) and snowfalls (covering rice grains in the feeding areas) followed by thaw, affect the teal's habitats.

## 2. WATERBIRD HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in extent* (+ / 0 / - / ?)	Changes in quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
15.1 [6 - Water storage areas (over 8 ha)]	1485	All of the key populations use the lake for roosting (loafing): the ducks by day and the geese by night.	0	?	Some data may exist but have not been accessed
5.1 [M - Permanent rivers/streams/creeks]	?	As for water storage areas, above.	0	?	

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

The site does not include rice fields (other than perhaps very small areas fringing the lake). All of the key populations depend on the rice fields adjacent, or in surrounding districts, for feeding. Teal and ducks fly out and feed by night and roost on the lake by day. Geese feed by day and roost on the lake by night. Journeys of the waterbirds to feeding areas may be substantial distances and destinations may vary according to where food is available at particular times.

It seems that this deepwater lake provides little or limited feeding habitat for the key populations and so their continued occurrence there depends on availability of external feeding habitat (rice fields). Management of the site thus requires cooperation with other landholders and agencies.

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>6. Human Intrusions &amp; Disturbance</b> 6.3 Work & other activities (disturbance to feeding & roosting waterbirds by humans)	Direct on migratory waterbirds	3	2	0
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents	On food items of waterbirds	3	2	1

3.2 Other comments on threats (including management actions to address threats):

1. Direct threats to the key populations at the site seem relatively minor. The lake is wide and the waterbirds loaf on deep open water, if necessary, far from human disturbance. Large numbers of visitors come to the lake to view the Baikal Teal flocks dispersing spectacularly (usually as a single dense flock) soon after sunset, but visitor access is controlled by the authorities and hides are available for photographers. There are visitor centres on both sides of the lake. Recreational boating (if it is permitted?) is not a cause for disturbance in winter and the birds are absent in summer.
2. Recent landscaping and modifications to 'semi-natural' habitat on parts of the site's banks under the Four Rivers Restoration Project may have reduced overall habitat for birds but possibly have not markedly affected use of the lake by the wintering key populations. However, the small islands in the lake may be significant habitat and future removal of the islands possibly may have an impact.
3. Greatest threats to use of the site by the key populations would be on the feeding areas and include:
  - Conversion of rice fields to intensive 'green-house' agriculture, where plastic covered sheds are used for vegetable and flower production, removing the open fields. This is a major trend in NE Asia and despite the vast extent of rice fields near Geum Estuary, in time the loss of rice field habitat may become critical for waterbirds in winter.
  - Ploughing of larger areas of rice field for winter sown barley (harvested in late spring): this buries the fallen grains from the summer rice crop, out of reach of the waterbirds during winter.
  - Collision with overhead wires (especially for night flying birds).
  - Use of pesticides on rice crops, residual in fallen grains, maybe a concern.

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Baikal Teal		X		
Mallard		X		
Bean Goose		X		
Greater White-fronted Goose		X		

There is probably no present reason for substantial decline in populations at this site, directly due to factors on the site or nearby. However, the long term changes listed above may eventually make an impact.

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. Almost 100% of the FSN site is protected within the Geum-gang River & Estuary Wildlife Reserve.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive (especially in regard to conservation of migratory waterbirds)?

*Management Plan has been prepared?:* No

*Is the Management Plan current?:* No

*Is it comprehensive?:* No

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

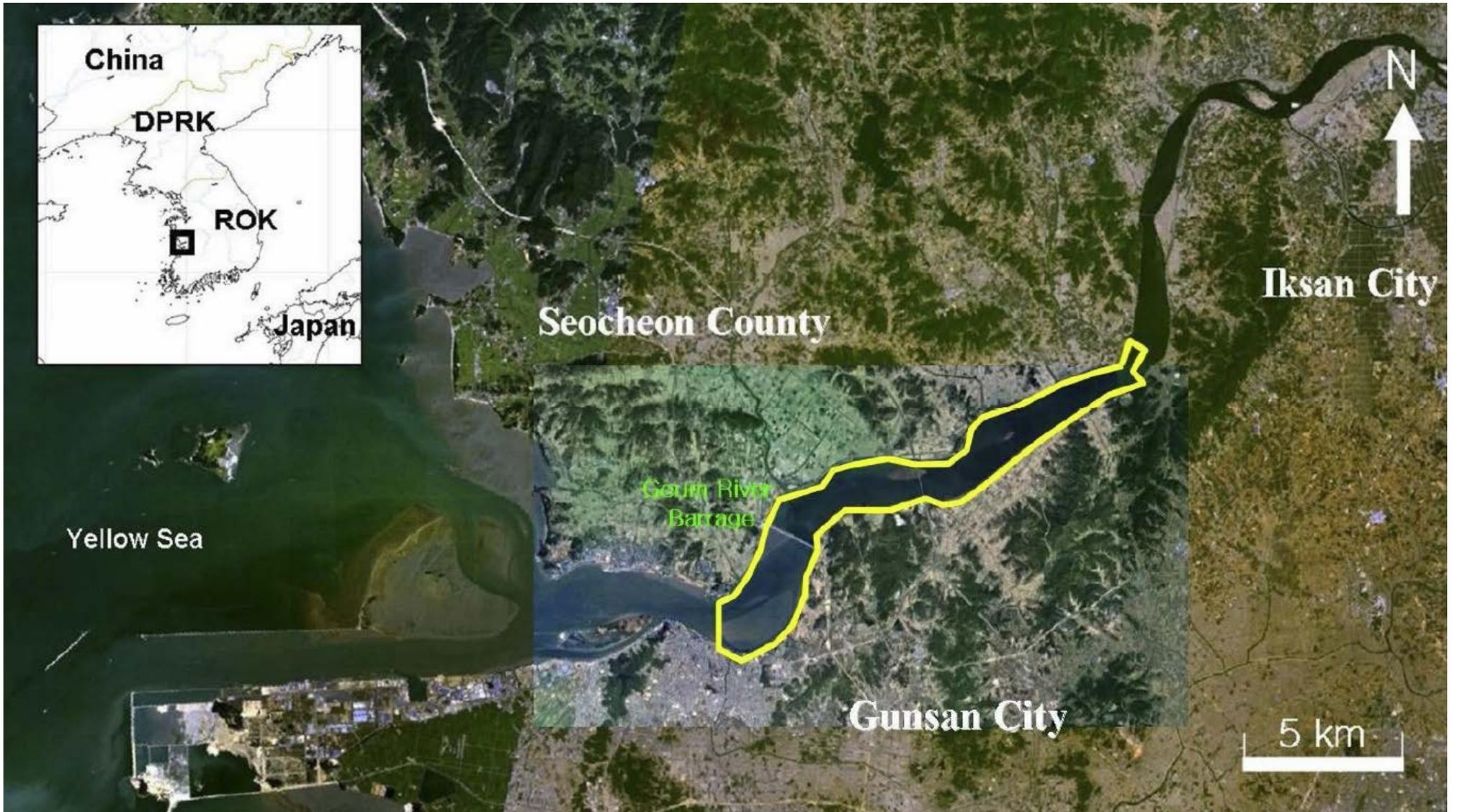
1. Informal conservation education is conducted by conservation groups – regarding habitat protection and minimisation of disturbance to feeding and roosting shorebirds.
2. The Geum River Observatory and Visitor Centre operated by Gunsan City is situated near the southern bank of the lake. It attracts large numbers of visitors every autumn-winter to view the dense flocks of teal. Educational and interpretive material is provided and there are live videos of the teal flocks on the water. Research on the waterfowl and lake is conducted by staff employed by Gunsan City at the centre. Part of the facility is shaped and painted in the form of a breeding male Baikal Teal.
3. On the opposite side of the lake, Seocheon County also operates a visitor centre with facilities for bird-watching visitors.
4. Gunsan City conducts a migratory bird festival each year, centred on the Baikal Teal. This includes nature-oriented activities as well as general community-oriented activities.

## 5. REFERENCES

MoE, NIBR (2010)

SIS: Geum Estuary Site Information Sheet (2010), available at: <http://www.eaaflyway.net/information-sites-maps.php>

Yi, J-D. 2004. Status and Habitat Characteristics of Migratory Shorebirds in Korea. pp. 87–103. The Proceedings of the 2004 International Symposium on Migratory Birds, Gunsan, Korea. Published by the Ornithological Society of Korea



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long; Roger Jaensch, Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	February 2012
<b>COUNTRY:</b>	South Korea

<b>NAME OF FLYWAY SITE:</b>	<b>Gumi Haepyung Wetland</b> (Site#: EAAF078) Joined FSN in Sept 2004
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	<b>Gumi Haepyung IBA</b> (910 ha) includes the FSN Site plus areas of rice paddy.
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The <b>Gumi Haepyung Wetland</b> Flyway Network Site (FNS) is defined primarily by the boundary of the Gumi Haepyung Wildlife Reserve in Kyungsangbuk Province (Gyeongsangbuk-do), in southern South Korea. The site is located at 36.16667° North; 128.38333° East, in the northern part of Gumi city along the Nakdong River (the longest river in Korea). Total area of the FSN site is recorded as 760 ha, which twice as large as the Wildlife Reserve (372 ha);</p> <p>The area was designated as a wildlife reserve in 1998. Along the river, there are rice paddies and barley fields which are the main feeding grounds of cranes. The area regularly supports cranes during their migration to southern Japan. 14 White-naped Cranes spent two months during the non-breeding period (northern winter) in 2002 at the site.</p> <p>The <b>Gumi Haepyung IBA</b> is 910 ha in area. It includes the 760 ha FSN site plus areas of rice paddies?</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	No.

# 1. MIGRATORY WATERBIRDS

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAFP nomination form:

The Flyway Network Site is recognized for two species:

Popular English Name	Scientific Name	1% Criteria	Counts	Count Dates	Reference
White-naped Crane	<i>Grus vipio</i>	35	59	Jan 2010	MoE, NIBR (2010)
Hooded Crane	<i>Grus monacha</i>	87	760	Oct 2011	Wetlands&Birds K (2011)

The crane populations here are regarded as the sub-populations which use the Korean Peninsula and Japan during the migration and non-breeding periods. Both these crane species are listed as "Vulnerable" in the IUCN Redlist.

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bean Goose		60	212		
Greater White-fronted Goose			12,415	2006	AWC
Long-billed Plover		1	4		
Mandarin Duck		30	146	2006	AWC
Spot-billed Duck		100	1,110		

**Note:** The Gumi Haepyung IBA also lists Bean Goose *Anser fabalis* and Greater White-fronted Goose *Anser*, but covers a slightly larger area of habitat.

1.3 Are all the key populations counted?:  All  Some  None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made:  <10  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Ministry of Environment: Dr YI Jeong-Yeong,  
National Institute of Environmental Research (NIER):

1.4.4 Have the data been analysed? yes / no /  partially

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
White-naped Crane	Unknown	
Hooded Crane	Decline	Wetlands&Birds Korea (2011)

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
15.7 Irrigated Land [3 - Irrigated land; includes irrigation channels and rice fields	?	Both key species feed in this habitat	?	?	Need local input on changes in habitat extent and quality.
5.1 [M - Permanent rivers/streams/creeks]	?	Both key species use this habitat irregularly	?	?	Need local input on changes in habitat extent and quality.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

2.2 Other comments (including if changes to habitat between FSN listing and now):

## 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7. Natural System Modifications</b> 7.2 Dams & water management/use 7.2.7 Abstraction of ground water (agricultural and urban use)	<b>M - Permanent rivers/streams/creeks</b>	3	1	1
<b>6. Human intrusions &amp; disturbance</b> 6.1 Recreational activities 6.3 Work & other activities	Direct on waterbirds	3	1	0

3.2 Other comments on threats (including management actions to address threats):

Habitat loss due to sand bank dredging and park development by the riverside is current threat to migratory birds population including Hooded Crane and Greater White-fronted Goose. (Wetlands & Birds Korea (2011))

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
White-naped Crane	X			
Hooded Crane	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, possibly 50% (actual % unknown) of the site is protected as Gumi Haepyung Wildlife Reserve. This area is under the management of the Ministry of Environment.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

*Management Plan has been prepared?:* ?

*Is the Management Plan current?:* ?

*Is it comprehensive?:* ?

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- No information available.

## 5. REFERENCES

BirdLife International (2011) Important Bird Areas factsheet: Gumi Haepyeong. Downloaded from <http://www.birdlife.org> on 22/07/2011

MoE, NIBR (2010)

Wetlands&Birds Korea (2011)

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, Roger Jaensch, Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	February 2012
<b>COUNTRY:</b>	South Korea

<b>NAME OF FLYWAY SITE:</b>	Han River Estuary (Site#: 028; Joined FSN March 1997)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Han-gang Estuary (IBA# KR004; Assessed in 2004).
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The <b>Han River Estuary</b> Flyway Network Site (FNS) is located at 37.68920° North; 126.68400° East, near Goyang City, Gyeonggi Province, on the north-western coast of South Korea. It lies within Paju and Gimpo Counties, 30 km NW of Seoul. Total area of the FSN site is 381 ha. It forms only a part of the Han River Estuary Wildlife Reserve and <u>Natural Monument</u> (2620 ha).</p> <p>The Wildlife Reserve and <u>Natural Monument</u> site includes the estuarine system of the Han River from about 25 km downstream of Seoul to its confluence with the Imjin River (Won Pyong-Oh 1989). The river is 2-3 km wide and rather shallow; there are extensive salt marshes on both banks, and large areas of mudflat are exposed at low tide. Fishing occurs in the estuary, and the adjacent alluvial plain and reclaimed land is largely under cultivation for rice.</p> <p>Salinities range from 6.9-22 p.p.t., and the pH values from 6.7-7.0. The tidal range in this region is one of the highest in the world. The marshes bordering the mudflats are dominated by <i>Suaeda japonica</i>, <i>Salsola komarovi</i>, <i>Scirpus (maritimus) fluviatilis</i> and <i>Imperata cylindrica</i> var. <i>koenigii</i>; the central parts of the marshes are dominated by <i>Phragmites (communis) longivalvis</i>, <i>Aster tripolium</i>, <i>Scirpus (maritimus) fluviatilis</i> and <i>Calamagrostis epigeios</i>. Rice paddies occur in adjacent areas (Won Pyong-Oh 1989).</p> <p>The estuary is state owned; adjacent rice paddies are privately owned. The section of the Han River Estuary in Gyoha-myeon, Paju County was designated as a Natural Monument (No.250) for White-naped Cranes in 1975. The protected area was extended to include Haseong-myeon in Gimpo County on the west side of the Estuary in 1977 (Won Pyong-Oh 1989).</p> <p>The <b>Han-gang Estuary IBA</b> (2,620 ha) uses the boundary of the Han River Estuary Wildlife Reserve and Natural Monument.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	No.

# 1. MIGRATORY WATERBIRDS

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bar-tailed Godwit			8,000	01-May-00	Scott 1989
Bean Goose			34,909	winter 2009	NIBR 2009
Black-tailed Godwit			10,500	01-May-00	Scott 1989
Common Merganser			1,810	2005	AWC
Common Pochard			35,570		AWC
Dunlin			16,400	01-May-00	Scott 1989
Great Knot			7,700	01-May-00	Scott 1989
Greater White-fronted Goose			13,055	2005	unknown
Grey Plover			2,100	01-May-00	Scott 1989
Herring Gull			3,197		AWC
Lesser Sand Plover			3,500	01-May-00	Scott 1989
Mallard			16,075	1992/93winter	AWC
Red-necked Stint			2,400	01-May-00	Scott 1989
Ruddy Shelduck			1,692	2005	unknown
Smew, E Asia			454	1994/95winter	AWC
Snow Goose			3	2003	unknown
Spot-billed Duck			2,814		AWC
Spotted Greenshank			79	01-May-00	Scott 1989
Terek Sandpiper			480	01-May-00	Scott 1989
Whimbrel			320	01-May-00	Scott 1989
White-naped Crane			155	1996	unknown

The Bean Goose population here is regarded as the sub-population *serrirostris*.

## 2010 Count Data:

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bean Goose†	<i>Anser fabalis†</i>	850	5,641	Jan 2010	MoE, NIBR (2010)
Greater White-fronted Goose	<i>Anser albifrons</i>	700	957	Jan 2010	MoE, NIBR (2010)
Goosander	<i>Mergus merganser</i>		306	Jan 2010	MoE, NIBR (2010)
Common Pochard	<i>Aythya ferina</i>		687	Jan 2010	MoE, NIBR (2010)
White-naped Crane	<i>Grus vipio</i>		17	Jan 2010	MoE, NIBR (2010)

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

1.3 Are all the key populations counted?:  All  Some  None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5  6-10 >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100 >100

1.4.3 Contact details of organization / individual leading recent counting:

National Institute of Environmental Research (NIER): Dr YI Jeong-Yeong

1.4.4 *Has the data been analysed?* yes / no / **partially**

**1.5 Conclusions on changes in waterbird numbers**

1.5.1 *Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?* Yes / **No**

1.5.2 *If yes please provide details:*

Key Population	increase / no change / decline / unknown	Reference (may also include unpublished data)
Bean Goose†	Unknown	
Greater White-fronted Goose	Unknown	
Goosander	Unknown	
Common Pochard	Unknown	
White-naped Crane	Unknown	

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD HABITATS

**2.1 Ramsar wetland types used by key populations:**

*(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)*

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in extent* (+ / 0 / - / ?)	Changes in quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - Intertidal mud, sand or salt flats]					
15.7 [3 - Irrigated land; includes irrigation channels and rice fields]					
9.10 [F - Estuarine waters]					

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

2.2 Other comments (including if changes to habitat between FSN listing and now):

N/A

## 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

The principal threat is reclamation of more salt marsh and mudflat for agricultural land. The construction of a multi-purpose dam in the 1970s at Paldang, 82 km upstream, and the filling and draining of parts of the marshes have caused changes in the tidal channels and salt concentrations in the soil. This has resulted in a great increase in the extent of *Phragmites*, *Aster*, *Imperata* and *Calamagrostis*, and decrease in the extent of *Scirpus*, *Salsola* and *Suaeda* (Won Pyong-Oh 1989).

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%

<b>6. Human Intrusions &amp; Disturbance</b> 6.3 Work & other activities (disturbance to feeding & roosting waterbirds by humans)	Direct on migratory waterbirds	3	2	0
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents	On food items of waterbirds	3	2	1
<b>7. Natural System Modifications</b> 7.2 Dams & water management/use 7.2.7 Abstraction of ground water (agricultural and urban use)	M - Permanent rivers/streams/cree ks	3	1	1

### 3.2 Other comments on *threats (including management actions to address threats)*:

There is a decrease in agricultural area due to new town and highway construction, and increasing use of greenhouse. Use of liquid fertilizer in winter disturbs feeding and roosting activities of migratory birds. (MoE, NIBR 2010) Management of threats at the site includes .....???

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

<i>Key Population/s</i>	<i>&lt;5%</i>	<i>6-25%</i>	<i>26-50%</i>	<i>&gt;50%</i>
Bean Goose†		X		
Greater White-fronted Goose		X		
Goosander		X		
Common Pochard		X		
White-naped Crane		X		

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. Approximately 15% is protected within the Han River Estuary Wildlife Reserve and Natural Monument.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive (especially in regard to conservation of migratory waterbirds)?

*Management Plan has been prepared?:* No  
*Is the Management Plan current?:* No  
*Is it comprehensive?:* No

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Several studies have been carried out on the White-naped Cranes and their habitat.
- As yet, there are no purpose-built research facilities on or adjacent to the site.

## 5. REFERENCES

BirdLife International (2011) Important Bird Areas factsheet: Han-gang estuary. Downloaded from <http://www.birdlife.org> on 22/07/2011

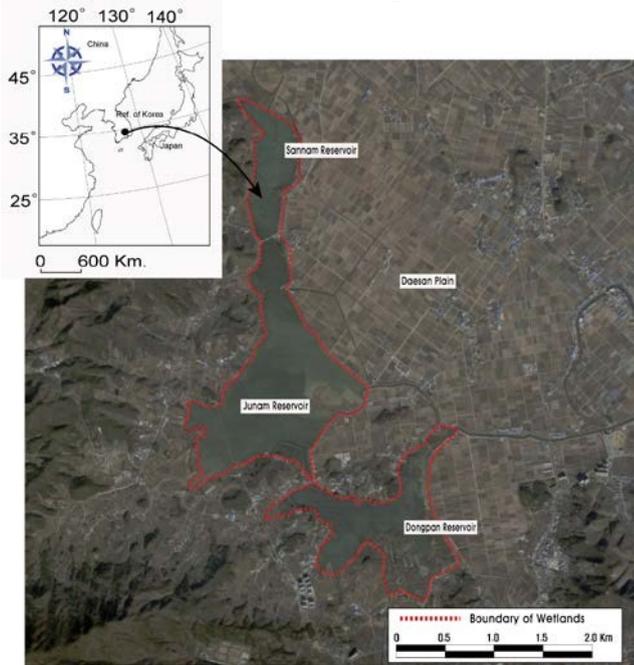
MoE, NIBR (2010)

Won Pyong-Oh (1989). Cited in: *A Directory of Asian Wetlands*. Compiled by Derek A. Scott, 1989. Online version accessed 24<sup>th</sup> Jan 2012  
at: <http://ramsar.wetlands.org/ToolsforParties/WetlandDirectories/ADirectoryofAsianWetlands/tabid/822/Default.aspx>

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	January 2012
<b>COUNTRY:</b>	Republic of Korea

<b>NAME OF FLYWAY SITE:</b>	<b>Junam Reservoir (Site#: EAAF095) (FNS since September 2008)</b>
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Junam Reservoir IBA # KR036 – listed in 2004 (Smaller than FNS but still includes all migratory waterbird habitats – see Site Description below)
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Junam Reservoir Flyway Network Site boundary area (total 602 ha?) is defined by [?]. It is located at 35.31338°N, 128.67343°E, altitude 60-80m, near the towns of ?, Gyeongsangnam Province, in the southern part of South Korea. It is a protected area and falls within the Junam Reservoir Hunting Reserve.</p> <div style="text-align: center;">  </div> <p>The water level (maximum depth 4m) is relatively constant throughout the year and the water surface does not freeze over in winter. The reservoir alone covers 307ha, and is one of three small reservoirs (others are Sannam 75ha and Tongp'an 50ha) in the upper Nakdong River catchment. Vegetation types include marshes dominated by <i>Typha orientalis</i> with some <i>Phragmites communis</i>, and an abundant growth of submergent and floating vegetation. Surrounding areas include rice paddies, barley fields and pine forests with <i>Pinus densiflora</i>.</p> <p>Junam and the other two reservoirs are an important water supply and support a significant fishery. They also provide excellent opportunities for scientific research and conservation education. Junam (also spelled Ch'unsan) Reservoir is the largest migratory bird sanctuary in Korea. Water birds roost on the reserve and move to feed in rice paddies around Daepyeong, Jimal and Yujeon Marshes, approx. 30 km to the west (Gore &amp; Won, 1971, cited in: Scott 1989, <i>A Directory of Asian Wetlands</i>)).</p> <p><b>Note:</b> The IBA (at 814 ha) is larger in area than the FNS, and also lies within the Game Sanctuary/Reserve. The IBA includes all wetland habitats suitable for</p>

	migratory waterbirds, including the reservoir (an artificial lake), rice fields and grasslands.
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	No. <ul style="list-style-type: none"> <li>• A map of the Flyway Network Site has <b>not</b> yet been developed or submitted to the EAAF Partnership Secretariat.</li> <li>• Maps of the Nakdong Natural Monument/ IBA boundary are also <b>not</b> yet available.</li> </ul>

## 1. MIGRATORY WATERBIRDS

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):**

Count data listed below is from 1980's (eg, Environment Administration 1987, cited in: Scott 1989, *A Directory of Asian Wetlands*)

More recent information on numbers of each key species using the site is needed.

Popular English Name	Scientific Name	1% Criteria WPE5	Counts	Count Dates	Reference
Bean Goose†	<i>Anser fabalis</i> †	850	578	Jan 2010	MoE, NIBR (2010)
Falcated Duck (NT)	<i>Anas falcata</i>	780	63	Jan 2010	MoE, NIBR (2010)
Baikal Teal (VU)	<i>Anas formosa</i>	5 000	339	Jan 2010	MoE, NIBR (2010)
Swan Goose	<i>Anser cygnoides</i>	600	8	Jan 2010	MoE, NIBR (2010)
Hooded Crane (VU)	<i>Grus monacha</i>	87	10	Jan 2010	MoE, NIBR (2010)
White-naped Crane#	<i>Grus vipio</i> #	45	183	Jan 2010	MoE, NIBR (2010)
Red-crowned Crane± (EN)	<i>Grus japonensis</i> ±	11			
Oriental (White) Stork (EN)	<i>Ciconia boyciana</i>	30			
Black-faced Spoonbill (EN)	<i>Platalea minor</i>	18			

† The Bean Goose population here is regarded as the sub-population *serrirostris*.

#The Swan Goose population here is regarded as the sub-population which uses the Korean peninsula and Japan during the non-breeding season.

±The Red-crowned Crane population here is regarded as the sub-population which uses the Korean peninsula during the non-breeding season, thus the current threshold for importance in the EAAF Site Network is determined on a case basis (ie, specific to the circumstances of each site).

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

**Additional populations meeting the FSN criteria include:**

?

**1.3 Have all the key populations been counted at least once since FSN listing?:**  All  Some  None  
**If "some" please list these:**

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1  2-5  6-10  >10

**1.4.2 If counts from >5 years ago, then how many counts were made:**  <10  10-100  >100

**1.4.3 Contact details of organization / individual leading recent counting:**

Ministry of Environment: Dr YI Jeong-Yeong, National Institute of Environmental Research (NIER):

**1.4.4 Has the data been analysed?** yes / no /  partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?**  Yes / No

**1.5.2 If yes please provide details:**

Key Population	Increase / no change / decline/ unknown	Reference (may include unpublished data)
Bean Goose†	Increase	MoE (1999-2010), Union of University Wild Bird Society(2011)
Falcated Duck (NT)	Unknown	
Baikal Teal (VU)	Unknown	
Swan Goose	Unknown	
Hooded Crane (VU)	Unknown	
White-naped Crane	Increase	MoE (1999-2010), Union of University Wild Bird Society(2011)
Red-crowned Crane	Unknown	
Oriental (White) Stork (EN)	Unknown	
Black-faced Spoonbill (EN)	Unknown	

**1.6 Other comments (eg, if subjective conclusions were made about changes in populations):**

**2. WATERBIRD HABITATS**

**2.1 Ramsar wetland types used by key populations:**

*(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.)*

\* **Changes in extent or habitat quality:** increase (+) / no change (0) / decline (-) / unknown (?)

The habitat types used by key waterbird species within the site have not been fully described.

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
15.1 Water Storage Areas (over 8 ha) [6 -- <b>Water storage areas</b> ]	307	Bean Goose, Falcated Duck, Baikal Teal, Swan Goose, others?	0	0	Need local input on changes in habitat extent and quality.
5.7 [Tp -- <b>Permanent freshwater marshes/pools</b> ; ponds (below 8 ha)]	?	?	0	0	Need local input on changes in habitat extent and quality.
15.7 Irrigated Land [3 -- <b>Irrigated land</b> ; includes irrigation channels and rice fields]	?	Key Anatidae and crane species use this habitat for <b>feeding</b> .			

**2.2 Other comments (including if changes to habitat between FSN listing and now):**

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

<b>Threat name</b> (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criterion; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	<b>Habitat / Type</b> (as identified in the section above)	<b>Timing</b> In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Extent</b> 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	<b>Severity</b> 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>Pollution</b> 9.1 Domestic & urban waste water 9.2 Industrial & military effluents (type unknown) Agricultural & forestry effluents	6 - Water storage areas	3	2	0
<b>6. Human intrusions &amp; disturbance</b> 6.3 Work & other activities	Direct on waterbirds	3	1	0

**3.2 Other comments on threats (including management actions to address threats):**

There is some pollution from nearby industries, and considerable disturbance from illegal hunting, fishing activities, the culture of freshwater pearls, and the cultivation of herbs for oriental medicines.

**3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?**

**NOTE:** The following estimates relate to impacts from on-site threats only:

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Bean Goose†	X			
Falcated Duck (NT)	X			
Baikal Teal (VU)	X			
Swan Goose	X			
Hooded Crane (VU)	X			
White-naped Crane	X			
Red-crowned Crane	X			
Oriental (White) Stork (EN)	X			
Black-faced Spoonbill (EN)		X		

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. (Approximately 100%). The reservoirs are owned by the County Farmland Improvement Trust; surrounding areas are privately owned. Junam Reservoir has been designated as a Game Sanctuary. Many of the wintering waterfowl are protected by the Cultural Properties Protection Law of 1962 and other laws.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** No  
Junam Reservoir is operated by the Ministry of Agriculture and Forestry.

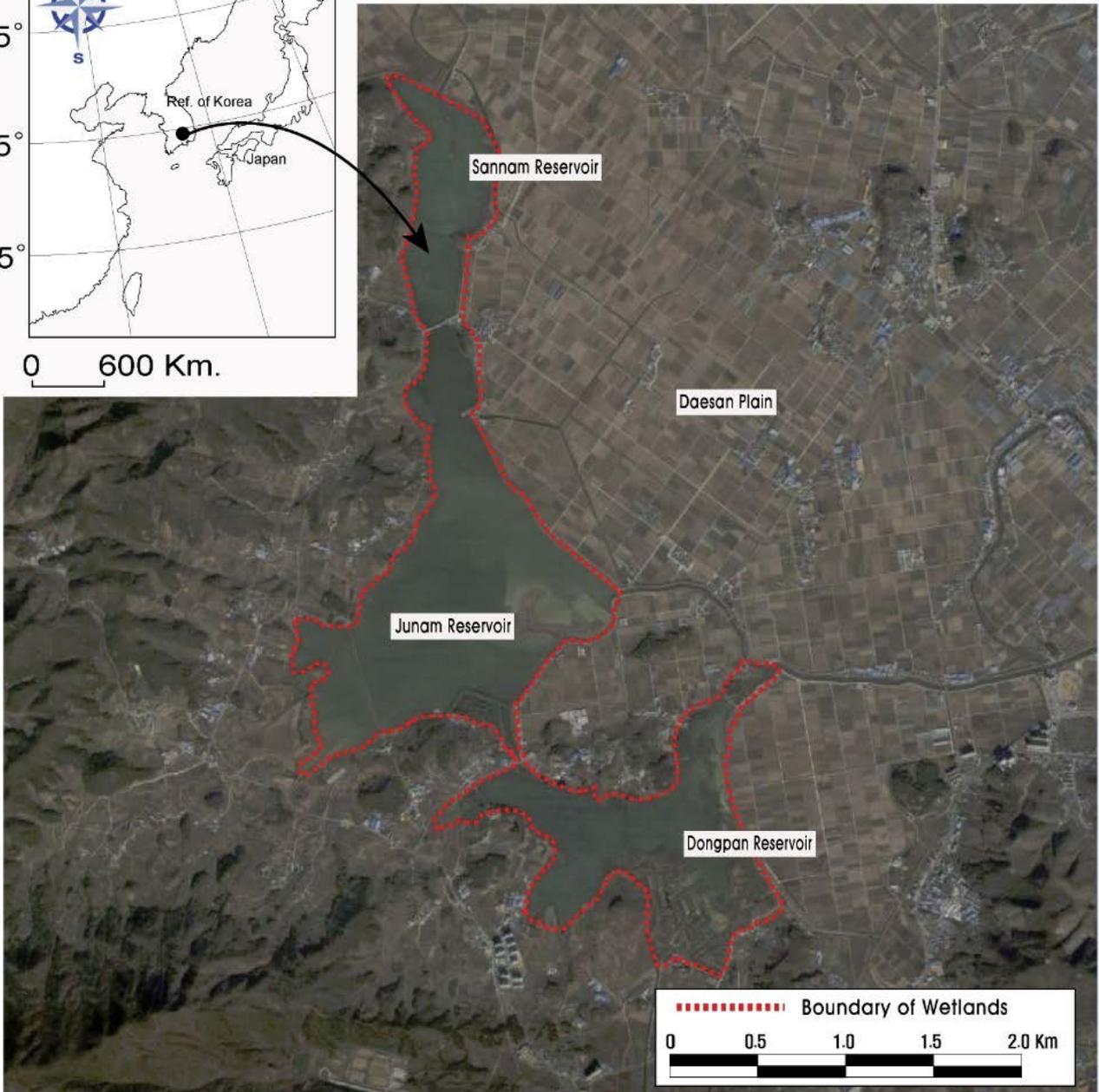
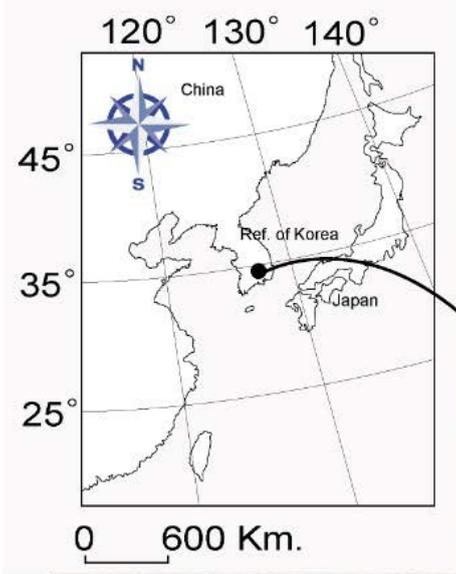
**Is the Management Plan current?:** No  
**Is it comprehensive?:** No

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Junam Reservoir Ecology Center includes an exhibition hall, central hall, and souvenir shop.

## 5. REFERENCES

- Environment Administration. (1987). Report on Upo Swamp and Junam Reservoir. Environment Administration, Seoul. Unpublished Report. Eysink, W.D. (1983).
- Gore, M.E.J. & Won Pyong-Oh. (1971). *The Birds of Korea*. Seoul: Royal Asiatic Society (Korea Branch) and Taewon Publishing Company. Cited in: *A Directory of Asian Wetlands*. Compiled by Derek A. Scott, 1989. Online version accessed 24<sup>th</sup> Jan 2012 at: <http://ramsar.wetlands.org/ToolsforParties/WetlandDirectories/ADirectoryofAsianWetlands/tabid/822/Default.aspx>
- MoE, NIBR (2010)



## East Asian - Australasian Flyway Site Network Site Assessment Form

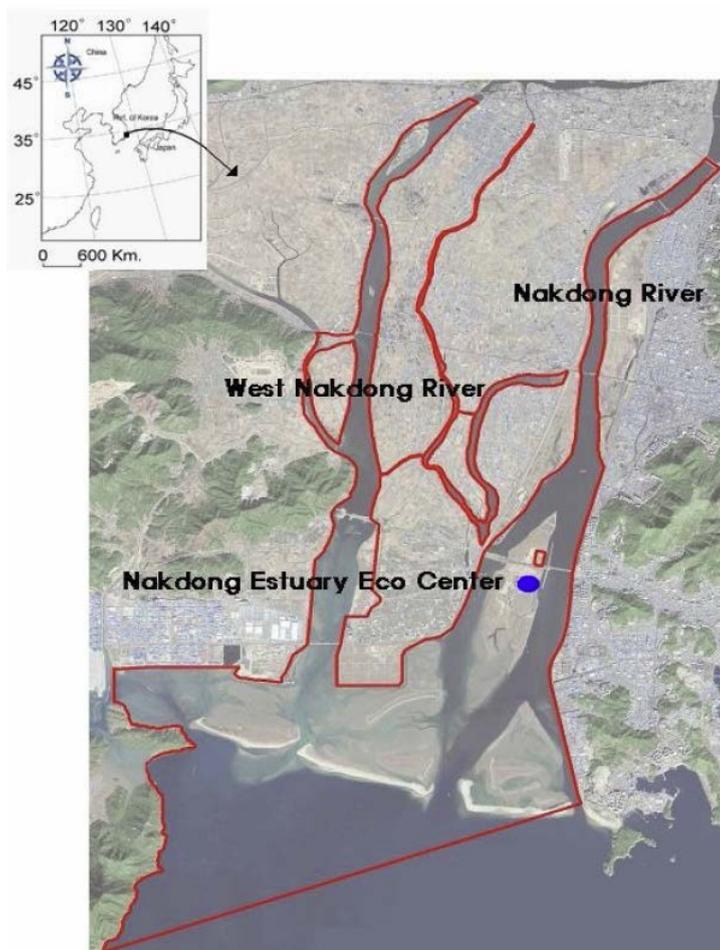
<b>COMPILER'S Name:</b>	Warren Lee Long, Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	January 2012
<b>COUNTRY:</b>	Republic of Korea

<b>NAME OF FLYWAY SITE:</b>	<b>Nakdong Estuary</b> (FNS since 2009. Site#: EAAF097)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Nakdong-gang Estuary IBA # KR037 – listed in 2004 (Smaller than FNS but still includes all migratory waterbird habitats – see Site Description below)
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

### BRIEF DESCRIPTION OF THE SITE:

#### Site Description

The **Nakdong Estuary** Flyway Network Site boundary area (total 8,849 ha?) is slightly smaller than the Nakdong Estuary Natural Monument. It is located at 35.10339°N, 128.94657°E, near Busan City, Gyeongsangnam-do Province, on the south coast of South Korea.



No specific information on the Nakdong Estuary FSN site site boundary and land tenure yet available.

	<b>Note:</b> The IBA (at 9,560 ha) is larger in area than the FNS, and uses the boundary of the Nakdong Estuary Natural Monument. The IBA still includes all wetland habitat suitable for migratory waterbirds, including all intertidal mud flats, rice fields and grasslands. The Lower Nakdonggang River Seasonal Bird Migration Site was designated as a natural monument on July 13th, 1966, and it has a large river-mouth, sand dunes, delta, Ilungdo Island, Eulsukdo Island and other surrounding islands
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	No. <ul style="list-style-type: none"> <li>• A map of the Flyway Network Site has <b>not</b> yet been developed or submitted to the EAAF Partnership Secretariat.</li> <li>• Maps of the Nakdong Natural Monument/ IBA boundary are also <b>not</b> yet available.</li> </ul>

## 1. MIGRATORY WATERBIRDS

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Data on waterbird counts provided here are from Winter Bird Simultaneous Census surveys conducted by Ministry of Environment and National Institute of Environment Research (1999~2004) and Wintering Status Surveys of Natural Monument Birds by Cultural Property Administration (2000~2001).

English Name as used by EAAFP	Scientific Name	Criteria WPE5	Max Count	Count Date(s)#	Reference
Bean Goose	<i>Anser fabalis</i>	800	3 767	2006	SIS
Common Shelduck	<i>Tadorna tadorna</i>	1 000	8 224	2006	SIS
Eurasian Curlew	<i>Numenius arquata</i>	1 000	1 844 1 010		SIS Bamford et al 2008
Falcated Teal	<i>Anas falcate</i>	780	4 345	2004-05	SIS
Great Cormorant	<i>Phalacrocorax carbo</i>	250	1 919	2004-05	SIS
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>	440	966 463	2004-05	SIS Bamford et al 2008
Herring Gull	<i>Larus argentatus</i>	570	6 577	2004-05	SIS
Hooded Crane	<i>Grus monacha</i>	EN			
Kentish Plover	<i>Charadrius alexandrinus</i>	1 000	2 561 1 768	2004-05	Bamford et al 2008 SIS
Little Tern	<i>Sterna albifrons</i>	100	5 207	2004-05	SIS
Mallard	<i>Anas platyrhynchos</i>	15 000	27 606	2004-05	SIS
Pochard	<i>Aythya farina</i>	3000	9 100	2004-05	SIS
Sanderling	<i>Calidris alba</i>	220	1 300 902	2006	Bamford et al 2008 SIS
Saunders' Gull	<i>Larus saundersi</i>	71	238 118	2006 Jan 2010	SIS MoE, NIBR (2010)
Terek Sandpiper	<i>Xenus cinereus</i>	500	790		Bamford et al 2008
White-naped Crane	<i>Grus vipio</i>	45	205	2006	SIS
Whooper Swan	<i>Cygnus cygnus</i>	660	3 413	2005-05	SIS

\* The composition of Bar-tailed Godwit sub-population(s) using this site is not yet known.

Goldeneye was also recorded on the SIS with a count of 913 (2004-2005), but this is now below the 1% criteria of 1000.

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

**Additional populations meeting the FSN criteria include:**

The site supports 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*.

English Name as used by EAAFP	Scientific Name	Criteria WPE5	Maxi Count	Count Date(s)#	Reference
Baikal Teal	<i>Anas formosa</i>	VU			
Black-faced Spoonbill	<i>Platalea minor</i>	EN	1	Jan 2010	MoE, NIBR (2010)
Black-tailed Godwit	<i>Limosa limosa</i>	348 (s)	450		Bamford et al 2008
Chinese Egret	<i>Egretta eulophotes</i>	VU			
Common Shelduck	<i>Tadorna tadorna</i>	1000	1,731	Jan 2010	MoE, NIBR (2010)
Great Knot	<i>Calidris tenuirostris</i>	950 (s)	1 420		Bamford et al 2008
Far Eastern Curlew	<i>Numenius</i>	320	635		Bamford et al 2008
Nordmann's Greenshank	<i>Tringa guttifer</i>	EN			
Red-necked Stint	<i>Calidris ruficollis</i>	3 150	10 900		Bamford et al 2008
Relict Gull	<i>Larus relictus</i>	VU			
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	1 600	3 100		Bamford et al 2008
Spoonbilled Sandpiper	<i>Eurynorhynchus pygmeus</i>	VU	3	Sep 2010	Shorebird Net K (2010)
White-naped Crane	<i>Grus vipio</i> ,	VU			

**1.3 Have all the key populations been counted at least once since FSN listing?:**  All  Some  None  
**If "some" please list these:**

**1.4 If counting has occurred, then:**

**1.4.1 How many times was the site counted in the past 5 years?** 1  2-5  6-10  >10

**1.4.2 If counts from >5 years ago, then how many counts were made:**  <10  10-100  >100

**1.4.3 Contact details of organization / individual leading recent counting:**

Birds Korea: Nial Moores, Email:  
 Ministry of Environment: Dr YI Jeong-Yeong,  
 National Institute of Environmental Research (NIER):

**1.4.4 Has the data been analysed?** yes / no /  partially

**1.5 Conclusions on changes in waterbird numbers**

**1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?**  Yes /  No

**1.5.2 If yes please provide details:**

Key Population	increase / no change / decline/ unknown	Reference (may include unpublished data)
Bar-tailed Godwit*	Unknown	
Grey-tailed Tattler	Unknown	
Far Eastern Curlew	Unknown	
Eurasian Curlew	Unknown	
Whimbrel	Unknown	
Terek Sandpiper	Unknown	
Kentish Plover	Unknown	
Common Greenshank	Unknown	
Nordmann's Greenshank	Unknown	
Spoonbilled Sandpiper	Unknown	

Hooded Crane	Unknown	
Common Shelduck	Unknown	
Baikal Teal	Unknown	
Black-faced Spoonbill (EN)	Unknown	
Chinese Egret	Unknown	
White-naped Crane	Unknown	
Saunder's Gull	Increase	MoE (1999-2010) Busan Metropolitan City (2010) Union of University Wild Bird Society(2011)
Relict Gull	Unknown	

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD HABITATS

2.1 Ramsar wetland types used by key populations:

\* **Changes in extent or habitat quality:** increase (+) / no change (0) / decline (-) / unknown (?)

Wetland/Habitat type	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - <b>Intertidal mud, sand or salt flats</b> ] – also includes intertidal seagrass habitat.	No data	Several key shorebird populations plus Black-faced Spoonbill <b>feed</b> in this habitat	?	?	?
12.5 [H - <b>Intertidal marshes</b> ] - includes salt marshes, tidal brackish and freshwater marshes.	No data	Several key shorebird populations plus Black-faced Spoonbill <b>feed</b> in this habitat	?	?	??????
12.2 [E - <b>Sand, shingle or pebble shores</b> ]	No data	All key shorebird populations <b>roost</b> on this habitat.	?	?	??????
15.7 Irrigated Land [3 -- <b>Irrigated land</b> ; includes irrigation channels and rice fields	No data	Key Anatidae, egret and crane species use this habitat.	?	?	??????
?????	No data	Saunder's Gull, Relict Gull			??????

2.2 Other comments (including if changes to habitat between FSN listing and now):

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criterion; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>9. Pollution</b> 9.1 Domestic & urban waste water 9.3 Agricultural & forestry effluents	Food species on G - <b>Intertidal mud, sand or salt flats</b>	3	2	0
<b>1. Residential &amp; commercial development</b> 1.2 Commercial & industrial areas	G - <b>Intertidal mud, sand or salt flats</b> H - <b>Intertidal marshes</b> 12.2 E - <b>Sand, shingle or pebble shores</b>	3	1	1
<b>6. Human intrusions &amp; disturbance</b> 6.3 Work & other activities	Direct on waterbirds	3	1	0

3.2 Other comments on threats (including management actions to address threats):

Other threats and disturbances are as follows;

- Construction of Busan New-port, *Scirpus planiculmis* colony declining,
- Highway construction plan including coast reclamation, passing boats and car traffic,
- Night lighting from newly constructed bridge and residential area.

Habitat transformation is also expected as sand bank area changes into land.

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

NOTE: The following estimates relate to impacts from on-site threats only:

Key Population/s	<5%	6-25%	26-50%	>50%
Bar-tailed Godwit*	X			
Grey-tailed Tattler	X			
Far Eastern Curlew	X			
Eurasian Curlew	X			
Whimbrel	X			
Terek Sandpiper	X			
Kentish Plover	X			
Common Greenshank	X			
Nordmann's Greenshank		X		
Spoonbilled Sandpiper		X		
Hooded Crane	X			
Common Shelduck	X			
Baikal Teal	X			
Black-faced Spoonbill (EN)		X		
Chinese Egret		X		
White-naped Crane		X		
Saunders' Gull		X		
Relict Gull		X		

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Not clear. Flyway Network Site boundary area (total 8,849 ha?) is slightly smaller than the Nakdong Estuary Natural Monument. It is assumed to use the Natural Monument boundary but no map available to confirm. Also no information on degree of protection associated with Natural Monuments.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

<i>Management Plan has been prepared?:</i>	No
<i>Is the Management Plan current?:</i>	No
<i>Is it comprehensive?:</i>	No

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- The Lower Nakdonggang River Seasonal Bird Migration Site was designated as a natural monument on July 13th, 1966, and it has a large river-mouth, sand dunes, delta, Ilungdo Island, Eulsukdo Island and other surrounding islands.

## 5. REFERENCES

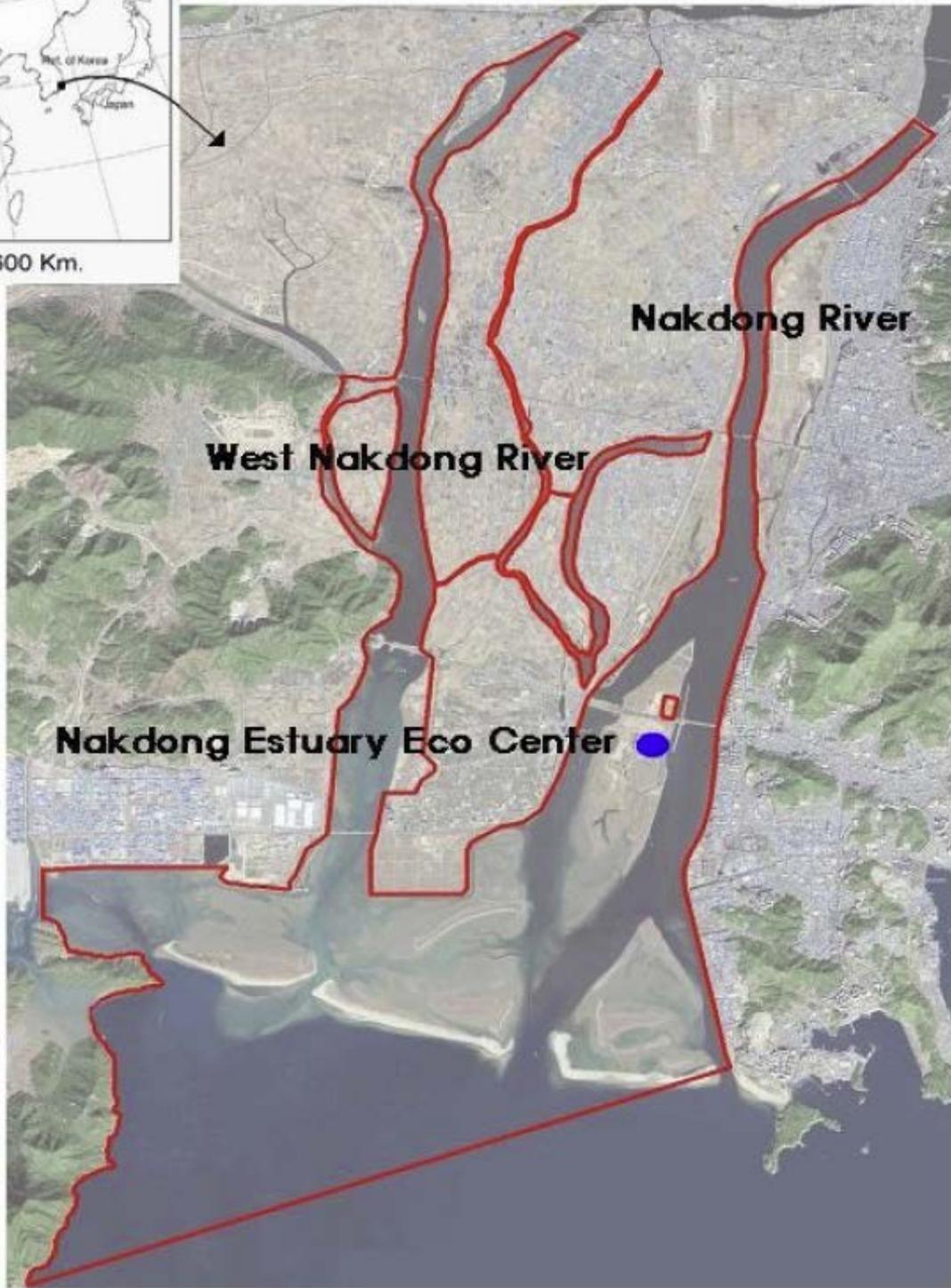
Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia.

MoE, NIBR (2010)

Nakdong-gang Estuary IBA Factsheet. KR031.  
(2004). <http://www.birdlife.org/datazone/sitefactsheet.php?id=16139>

Shorebird Network Korea (2010)

SIS, Site Information Sheet for the Nomination of Nakdong Estuary for listing in the Flyway site Network.



## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	January 2012
<b>COUNTRY:</b>	Republic of Korea

<b>NAME OF FLYWAY SITE:</b>	Suncheon Bay (FNS since 2004)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Suncheon Bay IBA (Smaller than FNS but still includes all migratory waterbird habitats – see Site Description below)
<b>Name of Ramsar site (if listed):</b>	Suncheon Bay (Ramsar listed in 1996). Ramsar Site #1594
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	Nov 2006

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Flyway Network Site boundary area (total 28,140 ha?). It is located at 34.83333°N, 127.41667°E, near Seocheon City, Chollanam Province, on the mid-south coast of South Korea.</p> <p>The Suncheon Bay Ramsar Site (3 550 ha) forms a part of the Flyway Network Site.</p> <p>Fishing activities using simple tools such as small hoe or shovel are carried out on the tidal flats of Suncheon Bay. The target species are polychaetes, small octopus (<i>Octopus variabilis</i>), short-necked clams (<i>Tapes Japonica</i>, <i>Paphia undalata</i>), natural oysters, flat oyster (<i>Ostrea denselamellosa</i>), and purple shell (<i>Rapana venosa</i>). Mariculture is also conducted for <i>Anadarac tegillarca granosa</i>, <i>Scapharca subcrenata</i>, <i>Cyclina sine</i>, <i>Sinonovacula constricta</i> and <i>Crassotrea gigas</i>.</p> <p><b>Note:</b> The IBA (at 5,000 ha) is smaller in area than the FNS, but still covers all wetland habitat suitable for migratory waterbirds, including all intertidal mud flats, rice fields and grasslands.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>No.</p> <ul style="list-style-type: none"> <li>• A map of the Flyway Network Site has not yet been developed or submitted to the EAAF Partnership Secretariat.</li> <li>• Maps of the Ramsar site and IBA are also not yet available.</li> </ul>

## 1. MIGRATORY WATERBIRDS

**1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):**

Data on waterbird counts provided here are from Winter Bird Simultaneous Census surveys conducted by Ministry of Environment and National Institute of Environment Research (1999~2004) and Wintering Status Surveys of Natural Monument Birds by Cultural Property Administration (2000~2001).

English Name as used by EAAFP	Scientific Name	Criteria	Max Count	Count Date(s)#	Reference
Bar-tailed Godwit*	<i>Limosa lapponica baueri</i> *	1600	1,393	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>	400	1,292	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Far Eastern Curlew	<i>Numenius madgascariensis</i>	380	42 96	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Eurasian Curlew	<i>Numenius arquata</i>	350	77 83	Jan 2010 Apr 2010 ~ Mar 2011	MoE, NIBR (2010) Suncheon-si (2011)
Whimbrel	<i>Numenius phaeopus</i>	550	18 204	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Terek Sandpiper	<i>Xenus cinereus</i>	500	99 1,104	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Kentish Plover	<i>Charadrius alexandrinus</i>	1000	113 235	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Common Greenshank	<i>Tringa nebularia</i>	1000	355 797	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Nordmann's Greenshank	<i>Tringa guttifer</i>	EN	1 1	Sep 2010 Apr 2010 ~ Mar 2011	Shorebird Network Korea (2010) Suncheon-si (2011)
Hooded Crane	<i>Grus monacha</i>	EN	436 509	Jan 2010 Apr 2010 ~ Mar 2011	MoE, NIBR (2010) Suncheon-si (2011)

\* The composition of Bar-tailed Godwit sub-population(s) using this site is not yet known.

**1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)**

## Additional populations meeting the FSN criteria include:

The site supports 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*.

English Name as used by EAAFP	Scientific Name	Criteria	Maximum Count	Count Date(s)#	Reference
Spoonbilled Sandpiper	<i>Eurynorhynchus pygmeus</i>	VU			
Common Shelduck	<i>Tadorna tadorna</i>	1%=1000	1,428 1,720	Jan 2010 Apr 2010 ~ Mar 2011	MoE, NIBR (2010) Suncheon-si (2011)
Baikal Teal	<i>Anas formosa</i>	VU	30,000	Apr 2010 ~ Mar 2011	Suncheon-si (2011)
Black-faced Spoonbill (EN)	<i>Platalea minor</i>	EN	8	Apr 2010 ~ Mar 2011	Suncheon-si (2011)
Chinese Egret	<i>Egretta eulophotes</i>	VU			
White-naped Crane	<i>Grus vipio</i>	VU	11 9	Jan 2010 Apr 2010 ~ Mar 2011	MoE, NIBR (2010) Suncheon-si (2011)
Saunder's Gull	<i>Larus saundersi</i>	VU 1%=71	447 740	Jan 2010 Apr 2010 ~ Mar 2011	MoE, NIER (2010) Suncheon-si (2011)
Relict Gull	<i>Larus relictus</i>	VU	1 1	Jan 2010 Apr 2010 ~ Mar 2011	MoE, NIBR (2010) Suncheon-si (2011)

1.3 Have all the key populations been counted at least once since FSN listing?:  All  Some  None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made:  <10  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Birds Korea: Nial Moores, Email:  
Ministry of Environment: Dr YI Jeong-Yeong  
National Institute of Environmental Research (NIER):

1.4.4 Has the data been analysed? yes / no /  partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 Have any conclusions been made, from analysis of counts at the site, about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may include unpublished data)
Bar-tailed Godwit*	Unknown	
Grey-tailed Tattler	Unknown	
Far Eastern Curlew	Unknown	
Eurasian Curlew	Unknown	
Whimbrel	Unknown	
Terek Sandpiper	Unknown	

Kentish Plover	Unknown	
Common Greenshank	Unknown	
Nordmann's Greenshank	Unknown	
Spoonbilled Sandpiper	Unknown	
Hooded Crane	Increase	Suncheon-si (2011)
Common Shelduck	Decrease	Suncheon-si (2011)
Baikal Teal	Unknown	
Black-faced Spoonbill (EN)	Unknown	
Chinese Egret	Unknown	
White-naped Crane	Unknown	
Saunders's Gull	Unknown	
Relict Gull	Unknown	

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please describe the habitat if it is a non-wetland type.)

\* **Changes in extent or habitat quality:** increase (+) / no change (0) / decline (-) / unknown (?)

Wetland/Habitat type	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - <b>Intertidal mud, sand or salt flats</b> ] – also includes intertidal seagrass habitat.	No data	Several key shorebird populations plus Black-faced Spoonbill <b>feed</b> in this habitat.	0	0	No monitoring, but assumed that no significant changes have occurred in extent or quality.
12.5 [H - <b>Intertidal marshes</b> ] - includes salt marshes, tidal brackish and freshwater marshes.	No data	Several key shorebird populations plus Black-faced Spoonbill <b>feed</b> in this habitat.	0	0	No monitoring, but assumed that no significant changes have occurred in extent or quality.
12.2 [E - <b>Sand, shingle or pebble shores</b> ]	No data	All key shorebird populations <b>roost</b> on this habitat.	0	0	No monitoring, but assumed that no significant changes have occurred in extent or quality.
15.7 Irrigated Land [3 -- <b>Irrigated land</b> ; includes irrigation channels and rice fields	No data	Key Anatidae, egret and crane species use this habitat.	?	?	??????
?????	No data	Saunders's Gull, Relict Gull			

2.2 Other comments (including if changes to habitat between FSN listing and now):

### 3. MAJOR THREATS

#### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criterion; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>9. Pollution</b> 9.1 Domestic & urban waste water 9.3 Agricultural & forestry effluents	Food species on G - <b>Intertidal mud, sand or salt flats</b>	3	2	0
<b>1. Residential &amp; commercial development</b> 1.2 Commercial & industrial areas	G - <b>Intertidal mud, sand or salt flats</b> H - <b>Intertidal marshes</b> 12.2 E - <b>Sand, shingle or pebble shores</b>	3	1	1

#### 3.2 Other comments on threats (including management actions to address threats):

Mortality by pesticide poisoning has accidentally occurred. Gathering sea litter from coastal mudflats and reed bed has done. Farmland are partially managed by biological diversity management contract and scenic agriculture. (Suncheon-si, 2011)

#### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

**NOTE:** The following estimates relate to impacts from **on-site threats** only:

Key Population/s	<5%	6-25%	26-50%	>50%
Bar-tailed Godwit*	X			
Grey-tailed Tattler	X			
Far Eastern Curlew	X			
Eurasian Curlew	X			
Whimbrel	X			
Terek Sandpiper	X			
Kentish Plover	X			
Common Greenshank	X			
Nordmann's Greenshank		X		
Spoonbilled Sandpiper		X		
Hooded Crane	X			
Common Shelduck	X			
Baikal Teal	X			
Black-faced Spoonbill (EN)		X		
Chinese Egret		X		
White-naped Crane		X		
Saunders' Gull		X		
Relict Gull		X		

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

- Yes, (percentage unknown).
- The site includes a Wetland Protected Area, designated in December 2003 by MOMAF under the Wetland Protection Act, and an Enforcement Ordinance. A map of the Wetland Protected Area is **not** yet available. The Suncheon Bay Ramsar Site (3550 ha) forms only a small part of the Flyway Network Site (total 28,140 ha???)

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

*Management Plan has been prepared?:* yes / no (No)

*Is the Management Plan current?:* yes / no (No)

*Is it comprehensive?:* yes / no (No)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Suncheon Bay Natural Eco-park established in October 2004 by Suncheon City
- The Suncheon Bay Eco-Museum provides for environment research, education and awareness.

## 5. REFERENCES

- Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (In Press). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia.
- Culture Heritage Administration (2000) Wintering Bird Census of Natural Monument.
- Culture Heritage Administration (2001) Wintering Bird Census of Natural Monument II.
- Ministry of Environment & National Institute of Environmental Research. Wintering Bird Census 1999-2004. MoE, NIER (2010)
- Ramsar Convention Bureau. (2000). Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance of the Convention on Wetlands. Ramsar Convention Bureau, Gland. [www.ramsar.org/key\\_guide\\_list\\_e.htm](http://www.ramsar.org/key_guide_list_e.htm)
- Shorebird Network Korea (2010) Suncheon-si (2011)
- Suncheon Bay IBA Factsheet. KR031. (2004). <http://www.birdlife.org/datazone/sitefactsheet.php?id=16139>
- Suncheon Bay Ramsar Information Sheet (2006). Ramsar Sites Database: <http://ramsar.wetlands.org/Database/AbouttheRamsarSitesDatabase/tabid/812/Default.aspx>
- Korean Shorebird Network. 2011. 2010 Fall Census on Shorebirds of Korea (Korean)

## East Asian - Australasian Flyway Site Network Site Assessment Form

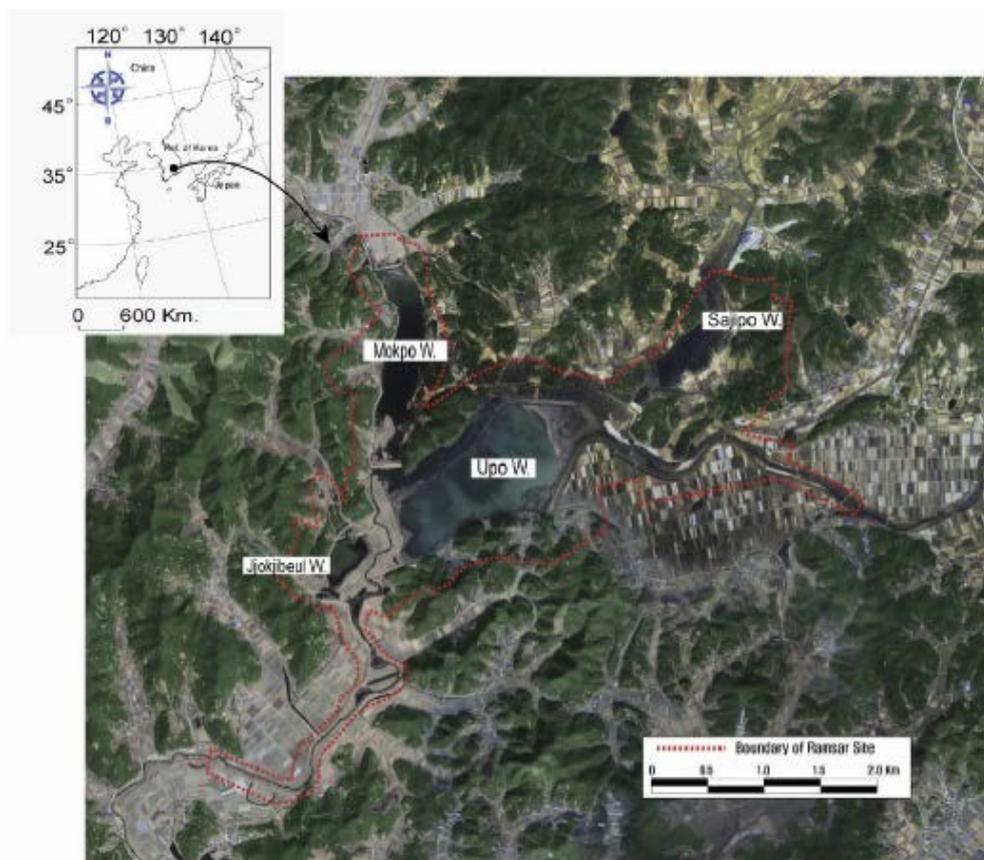
<b>COMPILER'S Name:</b>	Warren Lee Long, Hwayeon Kang
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	November 2011
<b>COUNTRY:</b>	South Korea

<b>NAME OF FLYWAY SITE:</b>	Upo Wetland (joined FSN 2008)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Upo Swamp IBA
<b>Name of Ramsar site (if listed):</b>	Upo Wetland (Ramsar listed in June 1996) Ramsar Site# 934
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1997

### BRIEF DESCRIPTION OF THE SITE:

#### Site Description

The Upo Wetland (also spelt Woopo) Flyway Network Site (FNS) is defined by the boundary of the Ramsar site in Gyeongnam Province, South Korea. Total area is 854ha; The site is located at 128° 25.00' East; 35° 33.00' North. It is 8 km northwest of Changnyeong town, and 4-5 km east of the Nakdong River (some 70 km upstream from the estuary).



▪ Map of the Upo Wetland

The FSN encompasses the Upo Swamp Natural Ecosystem Conservation Area (850ha) and made up of four shallow lakes (Upo, Mokpo, Sajipo, and Jjokjibeol), including 230 ha of water area during the summer monsoon season. It is located in the eastern part of the Nakdong River and is represented by a large oxbow lake and marshes. Surface water is permanent even in the dry season, while extensive flooding occurs in surrounding areas during the rainy season. The site also includes low hills, secondary woodland, leek and onion fields and other non-wetland habitats. As a relict area of floodplain wetland, the site also supports local farmers, fishers and a rich and representative biodiversity.

	<p>The wetlands are very important habitat and feeding area to breeding birds in summer and winter, and a particularly important wintering ground for Bean Goose (<i>Anser fabalis</i>) and other internationally important waterbirds. It regularly supports 20,000 or more waterbirds, and regularly supports 1% of the population of Tundra Bean Goose and Falcated Duck. It also supports endangered or vulnerable species: Falcated Duck, Baikal Teal, Hooded Crane, Oriental (White) Stork, Black-faced Spoonbill.</p> <p><b>Upo Swamp IBA</b> (854ha) is also bounded by Upo Swamp Natural Ecosystem Conservation Area and Ramsar site.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	Ramsar site boundary map is available in the Upo Wetland Site Information Sheet <a href="http://www.eaaflyway.net/information-sites-maps.php">http://www.eaaflyway.net/information-sites-maps.php</a>

## 1. MIGRATORY WATERBIRDS

### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

The Flyway Network Site is recognized for six species, four of which are IUCN Redlisted species.

Popular English Name	Scientific Name	1% Criteria	Counts	Count Dates	Reference
Bean Goose†	<i>Anser fabalis</i> †	850	2 173 5 569	Jan 2010 Dec 2007	MoE, NIBR (2010) ?
Falcated Duck (NT)	<i>Anas falcata</i>	780	2 700	Oct 2000	?
Baikal Teal (VU)	<i>Anas formosa</i>	5 000	1 500	Nov 2000	?
Hooded Crane (VU)	<i>Grus monacha</i>	105	39	Oct 2000	?
Oriental (White) Stork (EN)	<i>Ciconia boyciana</i>	30	1	Dec 2004	?
Black-faced Spoonbill (EN)	<i>Platalea minor</i>	18	4	Nov 2007	?

† The Bean Goose population here is regarded as the sub-population *serrirostris*.

### 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Spot-billed Duck      100      159      AWC

1.3 Are all the key populations counted?:  All      Some      None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years?      1       2-5      6-10      >10

1.4.2 If counts from >5 years ago, then how many counts were made:       <10      10-100      >100

1.4.3 Contact details of organization / individual leading recent counting:

1.4.4 Have the data been analysed? yes / no /  partially

### 1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Bean Goose†	Unknown	
Falcated Duck	Unknown	
Baikal Teal	Unknown	
Hooded Crane	Unknown	
Oriental or White Stork	Unknown	
Black-faced Spoonbill	Unknown	

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
5.6 [P -- Seasonal/intermittent freshwater lakes] (over 8ha)	230	Bean Goose, Falcated Duck, Baikal Teal, others ?	0	0	
5.7 [Tp -- Permanent freshwater marshes/pools; ponds (below 8 ha)	?	Hooded Crane, Oriental (White) Stork, others ?	0	0	

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>7. Natural System Modifications</b> 7.2 Dams & water management/use 7.2.7 Abstraction of ground water (agricultural and urban use)	<b>P -Seasonal/intermittent freshwater lakes</b> <b>Tp - Permanent freshwater marshes/pools</b>	3	2	1
<b>6 Human intrusions &amp; disturbance</b> 6.1 Recreational activities (visitors)		3	2	1

### 3.2 Other comments on threats (including management actions to address threats):

The local seasonal flood regime, once considerably more dynamic and extensive, is now largely restricted by the construction of bunds and drainage systems, with further such infrastructure being proposed. Management of direct threats to migratory waterbirds within the site includes:

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Bean Goose†				
Falcated Duck				
Baikal Teal				
Hooded Crane				
Oriental or White Stork				
Black-faced Spoonbill				

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 850ha (almost 100% of the site) is protected as Upo Swamp Natural Ecosystem Conservation Area, under the Wetlands Preservation Act. This area is under the management of the Ministry of Environment.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** Yes

**Is the Management Plan current?:** Yes

**Is it comprehensive?:** Yes

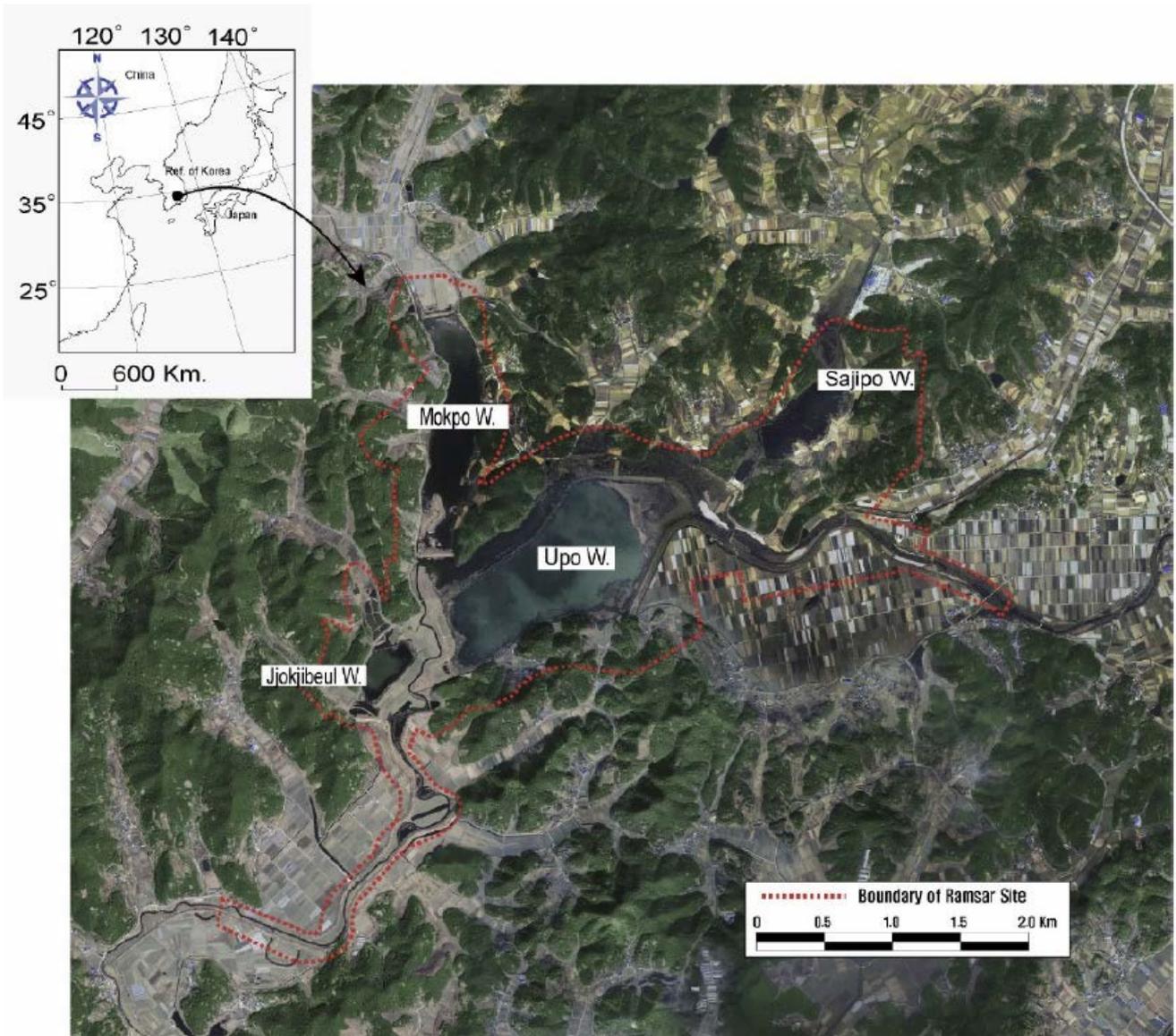
### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Upo Wetlands has been a centre of environmental education and conservation activities since the mid-1990s
- Upo was one of three demonstration sites nationwide in the UNDP-GEF Wetlands Biodiversity Project. It also forms a significant node in the Nakdong River Basin Conservation Initiative
- The Upo Wetlands Centre, housed in a large and renovated former school building, supports programs monitoring waterbird populations; organizes and conducts school education visits; guides and educates visitors; and is increasingly taking the lead in trying to find solutions that can benefit both wildlife and stakeholders (Birds Korea website: <http://www.birdskorea.org/Habitats/Wetlands/Upo/BK-HA-Upo.shtml>).
- Upo Wetland Ecosystem Pavilion was established in 2008.

## 5. REFERENCES

Upo Wetland Site Information Sheet (2008). Available at: <http://www.eaaflyway.net/information-sites-maps.php>

MoE, NIBR (2010)



▪ Map of the Upo Wetland

## East Asian - Australasian Flyway Site Network Site Assessment Form

<p><b>COMPILER'S</b> name, email and address:          Nyambayar Batbayar          Wildlife science and conservation center of Mongolia          Undram Plaza, Office 404, Bayanzurkh District          Ulaanbaatar 210351, Mongolia</p> <p>Natsagdorj Tseveenmyadag          Ornithology laboratory, Institute of Biology          Mongolian Academy of Sciences, Ulaanbaatar 210351, Mongolia</p>	
<p><b>DATE OF ASSESSMENT:</b> 18 October 2011</p>	<p><b>COUNTRY:</b> Mongolia</p>
<p><b>NAME OF FLYWAY SITE</b> (and year of designation by EAAFP):</p> <p><b>Mongol Daguur Strictly Protected Area</b></p> <p>Name of Ramsar site (if listed):        Mongol Daguur</p> <p>Date of most recent RIS:        1997</p> <p>IBA name (and relationship to Flyway Site if they are defined differently):          This site is designated as Mongol Daguur IBA (MN066) (redefined in 2007 bigger than the Ramsar Site), Also it was designated as UNESCO Biosphere Reserve in 2007</p>	
<p><b>BRIEF DESCRIPTION OF THE SITE:</b></p> <p>Form part of the Dauria International Nature Reserve. Designated as a Ramsar Site in 1997. Mongol Daguur Strictly Protected Area keeps its own peculiar type with its geography, flora and fauna and contains rare wetland species. It is an area of moist Daurian steppe (distinct from the rest of the Eastern Mongolian Steppe), with abundant lakes and ponds of different sizes, rivers, streams and wetland areas including reed beds. Generally topography of the area is characterised by plain steppe with rolling hills and low mountains.</p> <p><i>Are the Flyway Site boundaries clearly defined, and is a map available?</i>          Yes. Mongol Daguur Strictly Protected Areas and the Mongol Daguur IBA boundaries are identified and available in GIS files.</p>	

### 1. Migratory waterbirds

**Information on internationally important waterbird populations as entered on EAAFP nomination form:**

Mongol Daguur is the only site in Mongolia where six species of crane can be observed together at same time. Mongol Daguur holds a significant proportion of the global breeding population of White-naped Crane *Grus vipio* (VU) and Swan Goose *Anser cygnoides* (EN). The area is also the breeding ground of 30 White-naped Cranes and 200 Swan Geese, and migration stop-over ground for 10 Siberian Cranes and up to 400 Hooded Cranes. Over 6000 Swan Geese and 700 Whooper Swans regularly molt in this area.

Congregatory waterbirds occurring at the site in numbers exceeding 1% of their flyway populations include:

- Great Crested Grebe *Podiceps cristatus*
- Great Cormorant *Phalacrocorax carbo*
- Whooper Swan *Cygnus cygnus*
- Swan Goose *Anser cygnoides*
- Ruddy Shelduck *Tadorna ferruginea*
- White-naped Crane *Grus vipio*
- Common Crane *G. grus*
- Hooded Crane *G. monacha*
- Demoiselle Crane *Grus virgo*
- Black Stork *Ciconia nigra*
- Pied avocet *Recurvirostra avosetta*
- Mongolian Gull *Larus mongolicus*
- Northern Lapwing *Vanellus vanellus*.

**Changes since EAAFP Flyway Site nomination, including:**

- (a) populations entered on EAAFP nomination form that no longer meet the FSN criteria
- (b) additional waterbird populations that meet the FSN criteria

**Comments on monitoring of the populations meeting the FSN criteria:**

*Types of monitoring [add tick boxes for categories]*

No regular monitoring is in place at the moment. Eastern Mongolia Protected Areas Administration conducts general wildlife monitoring on irregular basis and usually lacks consistency with survey standards. Institute of Biology of the Mongolian Academy of Sciences, Mongolian-Russian Joint Biological Expedition, Wildlife Science and Conservation Center of Mongolia, Ornithology Laboratory at the National University of Mongolia, and Wildlife Conservation Society carried out various avian surveys, but none has yet established long term monitoring scheme. Individual researchers from various institutes and organizations have been best sources of information for this area.

Since 2006, Mongolian Academy of Sciences is monitoring waterbirds in the area through avian influenza surveillance activities.

*Contact details for organization / individual leading the monitoring*

General information on ecosystem and environmental issues can be found by contacting the Ministry of Nature, Environment and Tourism, Protected Areas Administration  
Government Building II, Negdsen Undestnii Gudamj – 5/1, Ulaanbaatar 210646

Administration for the Eastern Mongolia Special Protected Areas  
Eastern Mongolian Protected area administration.  
P.O. Box 401, Choibalsan City, 000007 Dornod, Mongolia

*How regularly is the site monitored* Irregular

*What proportion of the site is covered by the monitoring?* Less than 5%.

*Is the monitoring data published or used only in internal reports?*

Reports of various surveys have been used for designation of Ramsar sites, IBAs, Flyway network sites, and major national environmental documents.

*Quality of monitoring information? [add tick boxes for categories] On a 0-5 point scale: 0-no data or not assessable, 1- very poor, 2- poor, 3- modest, 4- good, 5- excellent]*

1 - No information available

## 2. Wetland/Habitats

**Ramsar wetland types used by key populations:**

Following major habitat types important for migratory birds have not been quantitatively assessed. Percentages given here are for pure approximation only. The site has been designated a year ago, and no update on habitat change is available.

Habitat type	Habitat extent (in ha, or % of site)	Significant changes in habitat extent or quality since year of EAAFP designation
N - Seasonal/intermittent/irregular rivers/streams/creeks	~5%	
P - Seasonal/intermittent freshwater lakes	~18%	
R - Seasonal/intermittent saline/brackish/alkaline lakes and flats	~2%	
Temperate Grassland	~75%	

*Other comments on major habitat types:*

Extended drought caused significant reduction water level throughout the region.

### 3. MAJOR THREATS

Factors adversely affecting the site's ecological character and the waterbirds, their scope and their severity or potential impact

<b>Threat name</b> See below for a list of potential threats (following IUCN nomenclature).	<b>Timing:</b> In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Scope:</b> 0 = Negligible (<10%) 1 = Small area (10-50%) 2 = Most of area (50-90%) 3 = Whole of site (>90%)	<b>Severity:</b> Negligible = 0 Slow = 1 Moderate = 2 Rapid = 3
1.3 Tourism & Recreation Areas	2 3	0 0	1 1
2.1 Annual & Perennial Non-Timber Crops	0 2 3	1 1 1	0 1 1
2.3 Livestock Farming & Ranching	3	3	3
3.2 Mining & Quarrying	3	0	3
4.1 Roads & Railroads	2 3	0 0	3 0
4.2 Utility & Service Lines	2 3	0 0	3 1
5.1 Hunting & Collecting Terrestrial Animals	0 1 2 3	1 1 1 1	2 3 2 2
5.2 Gathering Terrestrial Plants	0 1 2 3	1 1 1 1	2 2 2 2
5.4 Fishing & Harvesting Aquatic Resources	1 2 3	0 1 0	0 2 1
6.1 Recreational Activities	2 3	0 0	0 0
7.1 Fire & Fire Suppression	0 1 2 3	1 3 2 1	2 2 3 3
9.2 Industrial & Military Effluents	3	0	3
9.4 Garbage & Solid Waste	3	0	3
11.2 Droughts	2 3	3 3	3 3

*Other comments on threats:*

The density of human settlement is low but it is higher near lakes and river valleys. Steppe fires occur every year and cover very large areas. In 2000, the whole Mongol Daguur area was burnt by a fire started from Russia. The impact of livestock grazing and disturbance is increasing at important nesting areas due to a lack of management. There has also been recent mineral exploration, targeting gold. Over the last three years, the Ulz River has ceased to flow in several places, and, as a result, some small lakes have dried up

## 4. CONSERVATION MEASURES

**CONSERVATION MEASURES** Please answer the following three questions:

(1) Is all or some of the Flyway Site legally protected? If so, what % and what is the designation?

It is a Strictly Protected Area (103,016 ha) which is the highest category in the national protected area system. Most of the Flyway site is within the SPA.

Mongol Daguur Ramsar Site covers 210,000 ha area; its 155,393 ha is outside formal protection. Mongol Daguur IBA covers 309,440 ha area; its 176,614 ha is outside formal protection.

Mongol Daguur Biosphere Reserve area covers 732,000 ha, all inside SPA

(2) Has a management plan been prepared for the Flyway Site, and if so is it up-to-date and comprehensive?

Not specifically for the Flyway Site. But a management plan was prepared for the Mongol Daguur SPA in 2007.

(3) What conservation activities are taking place at the Flyway Site, e.g. conservation or research projects, Local Conservation Groups, education centres, etc.?

The Mongol Daguur SPA constitutes a part of the Daurian International Protected Area, which also includes the Daurian Nature Reserve (Russia) and the Dalai Lake Nature Reserve (China), established in 1994. In the framework of the GTZ (German Aid Agency) biodiversity project "Management and Conservation of Protected Areas in Eastern Mongolian Steppe", a management plan was developed. Between 1998 and 2005, UNDP implemented a multi-year conservation project for Eastern Mongolian Special Protected Areas. Through this project a wide variety of educational, conservation, and research projects implemented including activities focused on migratory birds. Local community groups were established and small grants were disseminated to them for their nature conservation and poverty reduction activities. Also research, conservation, and education activities for crane and wetland species took place through North East Asian Crane Sites Network. After UNDP project, several independent researches on white-naped crane, swan goose, whooper swans conducted recently. Mongolian gazelle survey was carried out in and adjacent sites near the Flyway Site. Satellite tracking studies for swan goose and whooper swan were carried out in 2006. Since 2008, Mongolian Academy of Sciences is monitoring waterbirds in the area through avian influenza surveillance activities.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<b>COMPILER'S name, email and address:</b> Nyambayar Batbayar Wildlife science and conservation center of Mongolia Undram Plaza, Office 404 Bayanzurkh District, Ulaanbaatar 210351, Mongolia  Natsagdorj Tsevenmyadag Ornithology laboratory, Institute of Biology Mongolian Academy of Sciences, Ulaanbaatar 210351, Mongolia	
<b>DATE OF ASSESSMENT:</b> 18 October 2011	<b>COUNTRY:</b> Mongolia
<b>NAME OF FLYWAY SITE (and year of designation by EAAFP):</b>  <b>Khurkh-Khuiten Valley</b>  IBA name (and relationship to Flyway Site if they are defined differently): Valley of Khurkh-Khutien Rivers (MN058). Identical to the Flyway Site.  Name of Ramsar site (if listed): Lakes in the Khurkh-Khuiten Valley  Date of most recent RIS: 2004	
<b>BRIEF DESCRIPTION OF THE SITE:</b> The site contains many small lakes important for birds, which concentrated in two river valleys, Khurkh and Khuiten. For this reason, the site is divided into "A" and "B" sectors. Area is located in relatively flat terrain with some forested mountains. There are reed beds and willow groves in both sectors. The site is principally used for livestock grazing and hay making, with many small-scale farms growing wheat, barley and oats.  Are the Flyway Site boundaries clearly defined, and is a map available? Yes. IBA's boundary is defined and map is available.	

## 1. Migratory waterbirds

### Information on internationally important waterbird populations as entered on EAAFP nomination form:

List species names and any data on their populations at the Flyway Site

Important breeding and staging ground for White-naped Cranes, Swan Goose and Great Bustard. More than 1% of the global population of White-naped Cranes breeds in this area.

During migration over 500 White napped Cranes regularly use this area.

Other cranes found in the area included Demoiselle Cranes *Anthropoides virgo* (breeding), Eurasian Cranes *Grus grus* (breeding), Hooded Cranes *Grus monacha* (migrating), Siberian Crane *Grus leucogeranus* (migrating), Swan Goose *Anser cygnoides*, Whooper Swan *Cygnus cygnus*, Ruddy Shelduck *Tadorna ferruginea*, and Mongolian Gull *Larus mongolicus*.

Some summer records of Red-crowned Cranes *Grus japonensis*. An estimated 5% of the eastern Asian population of Black Stork is also found in this area.

Popular English Name	Scientific Name	1% Criteria WPE5	Count	Count Date(s)	Ref.
Bean Goose			1,934	undated	
Black Stork			15	undated	
Common Crane			361	undated	
Demoiselle Crane			1,000	undated	
Great Crested Grebe			250	undated	
Hooded Crane					
Red-crowned Crane					
Ruddy Shelduck			1,570	undated	
Siberian Crane					
Swan Goose			600	undated	
White-naped Crane			465	undated	
Red-crowned Crane				undated	WI-BLI 2013
Siberian Crane				undated	WI-BLI 2013

### Changes since EAAFP Flyway Site nomination, including:

(a) populations entered on EAAFP nomination form that no longer meet the FSN criteria

(b) additional waterbird populations that meet the FSN criteria

N.A

### Comments on monitoring of the populations meeting the FSN criteria:

Types of monitoring [add tick boxes for categories]

No active monitoring program exists at the moment.

Contact details for organization / individual leading the monitoring

How regularly is the site monitored: N.A.

What proportion of the site is covered by the monitoring? N.A.

Is the monitoring data published or used only in internal reports? N.A.

Quality of monitoring information? [add tick boxes for categories] On a 0-5 point scale: 0-no data or not assessable, 1- very poor, 2- poor, 3- modest, 4- good, 5- excellent]

It is 0.

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Following major habitat types important for migratory birds have not been quantitatively assessed. Percentages given here are for pure approximation only. The site has been designated a year ago, and no update on habitat change is available.

Habitat type	Habitat extent (in ha, or % of site)	Significant changes in habitat extent or quality since year of EAAFP designation
N — Seasonal/intermittent/irregular rivers/streams/creeks	2%	
P — Seasonal/intermittent freshwater lakes (over 8 ha); includes floodplain lakes	5%	
Ts - Seasonal/intermittent freshwater marshes/pools on inorganic soils; includes sloughs, potholes, seasonally flooded meadows, sedge marshes.	<1%	
Grasslands	92%	

Other comments on major habitat types:

Significant portion of this area is agricultural lands. Cranes use the agricultural fields for feeding in fall.

## 3. MAJOR THREATS

Factors adversely affecting the site's ecological character and the waterbirds, their scope and their severity or potential impact

Threat name See below for a list of potential threats (following IUCN nomenclature).	Timing: In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Scope: 0 = Negligible (<10%) 1 = Small area (10-50%) 2 = Most of area (50-90%) 3 = Whole of site (>90%)	Severity: Negligible = 0 Slow = 1 Moderate = 2 Rapid = 3
1.3 Tourism & Recreation Areas	0	0	0
	1	0	1
	2	0	1
	3	0	0
2.1 Annual & Perennial Non-Timber Crops	0	2	1
	2	2	2
	3	2	2
2.3 Livestock Farming & Ranching	0	0	0
	1	0	1
	2	0	1
	3	0	0
4.1 Roads & Railroads	3	1	2
4.2 Utility & Service Lines	2	0	2
5.1 Hunting & Collecting Terrestrial Animals	0	0	0
	1	0	0
	2	0	0
	3	0	0
5.2 Gathering Terrestrial Plants	0	0	1
	1	0	2
	2	0	2
	3	0	1
6.1 Recreational Activities	2	0	0
	3	0	0

9.1 Household Sewage & Urban Waste Water	0 1	1 2	1 3
Water-borne sewage and non-point runoff from housing and urban areas that include nutrients, toxic chemicals and/or sediments	2 3	1 1	2 1
9.2 Industrial & Military Effluents	3	0	3
9.3 Agricultural & Forestry Effluents Water-borne pollutants from agricultural, silvicultural, and aquaculture systems that include nutrients, toxic chemicals and/or sediments including the effects of these pollutants on the site where they are applied	0 1 2 3	1 1 1 1	1 3 1 1
9.4 Garbage & Solid Waste	3	0	3
11.2 Droughts	2 3	2 2	3 3

*Other comments on threats:*

Fire and livestock overgrazing are significant threats on nesting cranes and waterbirds. Also recent expansion of agricultural areas is leading to soil erosion and degradation.

## 4. CONSERVATION MEASURES

**CONSERVATION MEASURES** Please answer the following three questions:

(1) Is all or some of the Flyway Site legally protected? If so, what % and what is the designation?

About 34,000 ha of the Ramsar designated area is outside of the State protected area (42,900 ha). 31,300 ha area of IBA has no formal protection.

(2) Has a management plan been prepared for the Flyway Site, and if so is it up-to-date and comprehensive?

No management plan exists.

(3) What conservation activities are taking place at the Flyway Site, e.g. conservation or research projects, Local Conservation Groups, education centres, etc.?

Researches from Mongolian Academy of Sciences monitor crane and waterbird populations in this area on irregular basis.

WSCC of Mongolia led a comprehensive Swan Goose survey in 2006.

Researchers from Yamashina Institute of Ornithology, Institute of Biology of MAS, National University of Mongolia have captured and put satellite transmitters on White-naped cranes.



**Changes since EAAFP Flyway Site nomination, including:**

- (a) populations entered on EAAFP nomination form that no longer meet the FSN criteria
- (b) additional waterbird populations that meet the FSN criteria

**Comments on monitoring of the populations meeting the FSN criteria:**

Types of monitoring [add tick boxes for categories]

Researchers from Mongolian Academy of Sciences have been monitoring waterbirds in this area. Also Russian-Mongolian Joint Biological Expedition is working in this area for last three decades to monitor ecosystem changes for last three decades. During 5 years implementation of JICA Ogii Lake River Basin Management Project several teams from Japan and Mongolian partner universities conducted detailed monitoring programs in aquatic and terrestrial bio diversity. During the project large amount of data and information gathered and made available to scientific and public communities. After the end of project the Ogii Lake Environmental Information Center is continuing the monitoring project.

Contact details for organization / individual leading the monitoring

A. NAMKHAI

Protected Areas Administration

Ministry of Nature, Environment, and Tourism, Government Building II

Negdsen Undestnii Gudamj – 5/1

Ulaanbaatar 210646, Mongolia

Ogii Lake Environmental Information Center

Ogiinuur sum, Arkhangai, Mongolia

Natsagdorj TSEVEENMYADAG

Ornithology laboratory, Institute of Biology

Mongolian Academy of Sciences

Ulaanbaatar 210351, Mongolia

*How regularly is the site monitored?*

Lake water level, ecosystem change, and wildlife population are monitored opportunistically by Ogii Lake Ecological Center run by local administration. Consistency with basic science requirements need to be improved. The Center was established after JICA's Ogii lake ecosystem conservation project. Mongolian Academy of Sciences conducted long term waterbird monitoring at this lake.

*What proportion of the site is covered by the monitoring?*

Not regular.

*Is the monitoring data published or used only in internal reports?*

Monitoring data are used for IBA and Ramsar site designation and for many other legal documents for the benefit of this area.

*Quality of monitoring information? [add tick boxes for categories] On a 0-5 point scale: 0-no data or not assessable, 1- very poor, 2- poor, 3- modest, 4- good, 5- excellent]*

It is 1.

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

*Please consider only the top three or four major habitat types that are of greatest importance for waterbirds. Please describe the habitat if it is a non-wetland type.*

Following major habitat types important for migratory birds have not been quantitatively assessed. Percentages given here are for pure approximation only. The site has been designated a year ago, and no update on habitat change is available.

Habitat type	Habitat extent (in ha, or % of site)	Significant changes in habitat extent or quality since year of EAAFP designation
L - Permanent inland deltas	10%	
N - Seasonal/intermittent/irregular rivers/streams/creeks	3%	
P - Seasonal/intermittent freshwater lakes (over 8 ha); includes floodplain lakes	40%	
Ts - Seasonal/intermittent freshwater marshes/pools on inorganic soils; includes sloughs, potholes, seasonally flooded meadows, sedge marshes	7%	
Grassland	40%	

Other comments on major habitat types:

Tourism and livestock herding activities are increasing in this area. Exact size of areas impacted from these need to carefully monitored.

## 3. MAJOR THREATS

Factors adversely affecting the site's ecological character and the waterbirds, their scope and their severity or potential impact

Threat name See below for a list of potential threats (following IUCN nomenclature).	Timing:	Scope:	Severity:
	In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	0 = Negligible (<10%) 1 = Small area (10-50%) 2 = Most of area (50-90%) 3 = Whole of site (>90%)	Negligible = 0 Slow = 1 Moderate = 2 Rapid = 3
1.3 Tourism & Recreation Areas	0	2	1
	2	2	3
	3	2	2
2.1 Annual & Perennial Non-Timber Crops	0	1	0
	2	1	1
	3	1	1
2.3 Livestock Farming & Ranching	0	3	3
	3	3	3
3.2 Mining & Quarrying	3	0	3
4.1 Roads & Railroads	3	1	2
4.2 Utility & Service Lines	2	0	3
	3	0	1
5.1 Hunting & Collecting Terrestrial Animals	0	1	2
	1	1	3
	2	1	2
	3	1	2

5.2 Gathering Terrestrial Plants	0	1	2
	1	1	2
	2	1	2
	3	1	2
5.4 Fishing & Harvesting Aquatic Resources	0	1	2
	1	1	3
	2	1	3
	3	1	3
6.1 Recreational Activities	2	2	3
	3	1	3
9.1 Household Sewage & Urban Waste Water Water-borne sewage and non-point runoff from housing and urban areas that include nutrients, toxic chemicals and/or sediments	0	1	1
	1	2	3
	2	1	1
	3	1	1
9.2 Industrial & Military Effluents	3	0	3
9.3 Agricultural & Forestry Effluents Water-borne pollutants from agricultural, silvicultural, and aquaculture systems that include nutrients, toxic chemicals and/or sediments including the effects of these pollutants on the site where they are applied	0	1	1
	1	1	1
	2	1	1
	3	1	1
9.4 Garbage & Solid Waste	3	0	3
11.2 Droughts	2	3	3
	3	3	3

Other comments on threats:

Vast sedge grassland meadow in the west of the lake has suffered from lack of water and precipitation in the last several years, and a big area suitable for migratory waterbirds have been temporary lost. Researchers hope the area could be recovered during rainy years. Tourism activity makes this lake very busy and vulnerable to human activities. There are 4 major tourist camps located in this site and many smaller temporary camps operate in summer.

## 4. CONSERVATION MEASURES

**CONSERVATION MEASURES** Please answer the following three questions:

(1) *Is all or some of the Flyway Site legally protected? If so, what % and what is the designation?*

The area was designated as Ramsar Site in 1998 and as NorthEast Asian Anatidae Network Site in 1999. 720 ha area of the Ramsar site lies outside formally protected area. Also 6,998 ha area of the IBA site lies outside formally protected area of approximately (8,200 ha).

(2) *Has a management plan been prepared for the Flyway Site, and if so is it up-to-date and comprehensive?*  
Yes, 2009.

(3) *What conservation activities are taking place at the Flyway Site, e.g. conservation or research projects, Local Conservation Groups, education centres, etc.?*

JICA Ogii Lake River Basin Management Project organized various conservation and educational activities aiming at local people from 2005 to 2009. The project conducted various research projects to document ecological features of the lake and surrounding area. The results were key documents for the development of the management plan.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<p><b>COMPILER'S</b> name, email and address:          Nyambayar Batbayar          Wildlife science and conservation center of Mongolia          Undram Plaza, Office 404          Bayanzurkh District, Ulaanbaatar 210351, Mongolia</p> <p>Natsagdorj Tseveenmyadag          Ornithology laboratory, Institute of Biology          Mongolian Academy of Sciences, Ulaanbaatar 210351, Mongolia</p>	
<p><b>DATE OF ASSESSMENT:</b>          18 October 2011</p>	<p><b>COUNTRY:</b>          Mongolia</p>
<p><b>NAME OF FLYWAY SITE</b> (and year of designation by EAAFP):</p> <p><b>Terhiyn Tsagaan Nuur</b>          (it should be changed to Terkhiiin Tsagaan Lake)</p> <p>IBA name (and relationship to Flyway Site if they are defined differently): Terkhiiin Tsagaan Nuur (MN031)</p> <p>Name of Ramsar site (if listed): Terhiyn Tsagaan Nuur</p> <p>Date of most recent RIS: 1998</p>	
<p><b>BRIEF DESCRIPTION OF THE SITE:</b></p> <p>The site is composed of a large freshwater lake, Terkhiiin Tsagaan Lake, many rivers and streams, and many smaller fresh water and alkaline lakes. There is an extensive wet grassland area in the west of the lake created by incoming tributary rivers. The site is surrounded by forested mountains in Khangai Mountain Range. Terkhiiin Tsagaan Lake is a cold freshwater and nutrient-poor lake formed by volcanic activity, but it is one of the important lakes in the region for waterbird migration and molting. As with most wetlands in Mongolia, land use in and around the lake is restricted to livestock grazing. Several small-scale tourist camps operate to the northeast of the lake, and there is small-scale commercial and sport-fishing. The dry steppe areas surrounding the lake are subject to overgrazing.</p> <p><i>Are the Flyway Site boundaries clearly defined, and is a map available?</i>          National Park, Ramsar site, and IBA boundaries are defined and map is available.</p>	
<p><b>1. Migratory waterbirds</b></p> <p><b>Information on internationally important waterbird populations as entered on EAAFP nomination form:</b>  <i>List species names and any data on their populations at the Flyway Site</i></p> <p>Globally Threatened species occurring at the site include</p> <ul style="list-style-type: none"> <li>• Dalmatian Pelican <i>Pelecanus crispus</i> (VU),</li> <li>• Siberian Cranes (CR), and</li> <li>• Swan Goose <i>Anser cygnoides</i> (EN).</li> </ul> <p>The site supports 1% of the flyway populations of the following congregatory waterbirds:</p> <ul style="list-style-type: none"> <li>• Bar-headed Goose <i>Anser indicus</i></li> <li>• Black Stork <i>Ciconia nigra</i>,</li> <li>• Common Goldeneye <i>Bucephala clangula</i>,</li> <li>• Common Merganser <i>Mergus merganser</i>,</li> <li>• Common Pochard <i>Aythya ferina</i>,</li> <li>• Great Cormorant <i>Phalacrocorax carbo</i>;</li> <li>• Mongolian Gull <i>Larus mongolicus</i>, and</li> <li>• Northern Lapwing <i>Vanellus vanellus</i>.</li> <li>• Ruddy Shelduck <i>Tadorna ferruginea</i>;</li> </ul> <p>About 4-5% of the global population of Bar-headed Goose <i>Anser indicus</i> regularly occur at the site. Swan Goose <i>Anser cygnoides</i> (EN) is recorded in few number in this area.</p>	

**Changes since EAAFP Flyway Site nomination, including:**

- (a) populations entered on EAAFP nomination form that no longer meet the FSN criteria
- (b) additional waterbird populations that meet the FSN criteria N.A.

**Comments on monitoring of the populations meeting the FSN criteria:**

*Types of monitoring [add tick boxes for categories]*

Wildlife Science and Conservation Center of Mongolia is leading a waterbird monitoring project in this area since 2008. Apart from this no other long term waterbird research has been done in this area.

*Contact details for organization / individual leading the monitoring*

A. NAMKHAI  
Protected Areas Administration  
Ministry of Nature, Environment, and Tourism  
Government Building II  
Negdsen Undestnii Gudamj – 5/1  
Ulaanbaatar 210646, Mongolia

Khangai Nuruu Protected Areas Administration  
Tsetserleg City, Arkhangai  
Mongolia

Nyambayar Batbayar  
Wildlife science and conservation center of Mongolia  
Undram Plaza, Office 404  
Bayanzurkh District  
Ulaanbaatar 210351  
Mongolia

*How regularly is the site monitored?*

Site is a hot spot for many ornithology expeditions for decades. But most studies were organized in expedition styles, thus no stationary data is available. Only since 2008 a project to study Bar-headed Goose and Whooper Swan is documenting waterbirds in this area regularly from breeding through molting season. Through this project many geese and swans have been color marked to study their migration.

*What proportion of the site is covered by the monitoring?*

3%

*Is the monitoring data published or used only in internal reports?*

Data is provided to the use of Khangai Nuruu Protected Areas Administration and designation of IBAs.

*Quality of monitoring information? [add tick boxes for categories] On a 0-5 point scale: 0-no data or not assessable, 1- very poor, 2- poor, 3- modest, 4- good, 5- excellent]*

It is 3. The monitoring team is small and often lacks man power to cover more area.

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

*Please consider only the top three or four major habitat types that are of greatest importance for waterbirds. Please describe the habitat if it is a non-wetland type.*

Following major habitat types important for migratory birds have not been quantitatively assessed. Percentages given here are for pure approximation only. The site has been designated a year ago, and no update on habitat change is available.

Habitat type	Habitat extent (in ha, or % of site)	Significant changes in habitat extent or quality since year of EAAFP designation
L — Permanent inland deltas	3%	
N — Seasonal/intermittent/irregular rivers/streams/creeks.	2%	
P — Seasonal/intermittent freshwater lakes (over 8 ha); includes floodplain lakes	45%	
R — Seasonal/intermittent saline/brackish/alkaline lakes and flats	15%	
Va - Alpine wetlands; includes alpine meadows, temporary waters from snowmelt	2%	
Grasslands	25%	
Ancient volcano lava land	8%	

Other comments on major habitat types:

There is one big island on the Lake which is the main nesting ground for geese, cormorants, and gulls.

### 3. MAJOR THREATS

Factors adversely affecting the site's ecological character and the waterbirds, their scope and their severity or potential impact

<b>Threat name</b> See below for a list of potential threats (following IUCN nomenclature). For each threat, please assign scores for the following three criteria, namely <i>when the threat is likely to happen (Timing)</i> , <i>how much of the site it covers (Scope)</i> and the <i>likely deterioration it will cause in bird populations and/or habitats (Severity)</i> .	<b>Timing:</b> In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Scope:</b> 0 = Negligible (<10%) 1 = Small area (10-50%) 2 = Most of area (50-90%) 3 = Whole of site (>90%)	<b>Severity:</b> Negligible = 0 Slow = 1 Moderate = 2 Rapid = 3
1.3 Tourism & Recreation Areas	0 1 2 3	2 2 2 2	1 3 2 1
2.1 Annual & Perennial Non-Timber Crops	0 2 3	1 1 1	0 1 1
2.3 Livestock Farming & Ranching	0 3	3 3	3 3
4.1 Roads & Railroads	3	1	1
4.2 Utility & Service Lines	2	0	1
5.1 Hunting & Collecting Terrestrial Animals	0 1 2 3	1 2 1 1	2 3 2 2
5.2 Gathering Terrestrial Plants	0 1 2 3	0 0 0 0	1 2 2 1
5.4 Fishing & Harvesting Aquatic Resources	0 1 2 3	1 1 1 1	2 3 3 3
6.1 Recreational Activities	2 3	2 1	3 2
9.1 Household Sewage & Urban Waste Water Water-borne sewage and non-point runoff from housing and urban areas that include nutrients, toxic chemicals and/or sediments	0 1 2 3	1 2 1 1	1 3 2 1
9.2 Industrial & Military Effluents	3	0	3
9.3 Agricultural & Forestry Effluents Water-borne pollutants from agricultural, silvicultural, and aquaculture systems that include nutrients, toxic chemicals and/or sediments including the effects of these pollutants on the site where they are applied	0 1 2 3	1 1 1 1	1 1 1 1
9.4 Garbage & Solid Waste	3	0	3
11.2 Droughts	2 3	3 3	3 3

Other comments on threats:

Concentration of tourist camps on the east side of the lake creates attraction of tourists to this area. Garbage and waste pollution has been increased and unauthorized camping and fishing is widespread in the park.

## 4. CONSERVATION MEASURES

**CONSERVATION MEASURES** Please answer the following three questions:

*(1) Is all or some of the Flyway Site legally protected? If so, what % and what is the designation?*

Ramsar site overlaps with the National Park boundary. About 2,700 ha area of the IBA lies outside of the National Park boundary. IBA area (26,800 ha) is larger than the Ramsar area.

*(2) Has a management plan been prepared for the Flyway Site, and if so is it up-to-date and comprehensive?*

No management plan exists at the moment, but a GTZ project has a plan to develop a plan for the park.

*(3) What conservation activities are taking place at the Flyway Site, e.g. conservation or research projects, Local Conservation Groups, education centres, etc.?*

GTZ's Conservation and sustainable management of natural resources program is implementing a project in Khangai Nuruu region from 2005 to 2012. Sub component of the project is to support Khorgo-Terkhiin Tsagaan Lake National Park administration and park management. Several important workshops on park management issues have been organized.

Development and Environment Centre has received a Ramsar grant to improve cooperation between local communities, the government and NGOs to reduce negative impacts and improve the management of the lake.

WSCC of Mongolia is monitoring waterbirds in the park and small scale educational activities in local town with the support of park administration.

## East Asian - Australasian Flyway Site Network Site Assessment Form



<p><b>COMPILER'S</b> name, email and address:          Nyambayar Batbayar          Wildlife science and conservation center of Mongolia          Undram Plaza, Office 404          Bayanzurkh District, Ulaanbaatar 210351, Mongolia</p> <p>Natsagdorj Tsevenmyadag          Ornithology laboratory, Institute of Biology          Mongolian Academy of Sciences, Ulaanbaatar 210351, Mongolia</p>	
<p><b>DATE OF ASSESSMENT:</b>          18 October 2011</p>	<p><b>COUNTRY:</b>          Mongolia</p>
<p><b>NAME OF FLYWAY SITE</b> (and year of designation by EAAFP):</p> <p><b>Ugtam Nature Reserve</b></p> <p>IBA name (and relationship to Flyway Site if they are defined differently): Ugtam Mountain Nature Reserve (MN065)</p> <p>Name of Ramsar site (if listed): Not a Ramsar Site</p> <p>Date of most recent RIS:</p>	
<p><b>BRIEF DESCRIPTION OF THE SITE:</b></p> <p>The site is composed of small lakes and a section of the Ulz River valley to the north, together with mountain steppe, forest steppe and grassland steppe to the south. Willow trees in the river valley provide good habitat for various bird species. Although Ugtam Mountain Nature Reserve is relatively well protected and threats are relatively low, there is very little active management at present. Livestock husbandry and hay making are the main land uses. There is also an active monastery in the mountain. Local residents use wood from forest for firewood and building livestock shelters.</p> <p><i>Are the Flyway Site boundaries clearly defined, and is a map available?</i>          Nature Reserve and IBA boundaries are defined and available</p>	
<p><b>1. Migratory waterbirds</b></p> <p><b>Information on internationally important waterbird populations as entered on EAAFP nomination form:</b>          Over 250 bird species have been recorded at the site.          Threatened species include Swan Goose <i>Anser cygnoides</i> (EN), White-naped Crane <i>Grus vipio</i> (VU), and Hooded Crane <i>G. monacha</i> (VU).          The site meets the 1% threshold for              Black Storks <i>Ciconia nigra</i>              White-napped Crane <i>Grus vipio</i>              Demoiselle Crane <i>Anthropoides virgo</i>.</p> <p>Important breeding and staging ground for White-naped Cranes. Around 10 pairs of White-naped Cranes breed in this area and about 80-100 use this area as migratory stop-over.</p> <p><b>Changes since EAAFP Flyway Site nomination, including:</b>          (a) populations entered on EAAFP nomination form that no longer meet the FSN criteria          (b) additional waterbird populations that meet the FSN criteria          N.A.</p> <p><b>Comments on monitoring of the populations meeting the FSN criteria:</b>  <i>Types of monitoring [add tick boxes for categories]</i>          General wildlife and ecosystem monitoring is carried out by the Administration for the Eastern Mongolia Special Protected Areas on irregular basis. But specific bird monitoring activity is absent.          Basic cranes and waterbird monitoring observations are done regularly by researchers from the Institute of Biology of Mongolian Academy of Sciences.</p>	

*Contact details for organization / individual leading the monitoring*

Natsagdorj TSEVEENMYADAG

Ornithology laboratory, Institute of Biology

Mongolian Academy of Sciences

Ulaanbaatar 210351, Mongolia

Tel: +976-11-453843      Mobile: 976-99152804      Email: tsevenmyadag@magicnet.mn

Administration for the Eastern Mongolia Special Protected Areas

Eastern Mongolian Protected area administration.

P.O. Box 401, Choibalsan city 000007 Dornod, Mongolia

*How regularly is the site monitored?*      Irregular. 1-2 times per year.

*What proportion of the site is covered by the monitoring?*      <2%

*Is the monitoring data published or used only in internal reports?*

Data from observations have been used to designate the site for IBA, Ramsar, and other legal documents.

*Quality of monitoring information? [add tick boxes for categories] On a 0-5 point scale: 0-no data or not assessable, 1- very poor, 2- poor, 3- modest, 4- good, 5- excellent]*

It is 2

## 2. Wetland/Habitats

### Ramsar wetland types used by key populations:

Following major habitat types important for migratory birds have not been quantitatively assessed. Percentages given here are for pure approximation only. The site has been designated a year ago, and no update on habitat change is available.

Habitat type	Habitat extent (in ha, or % of site)	Significant changes in habitat extent or quality since year of EAAFP designation
N - Seasonal/intermittent/irregular rivers/streams/creeks.	1%	
P - Seasonal/intermittent freshwater lakes (over 8 ha); includes floodplain lakes.	1%	
R - Seasonal/intermittent saline/brackish/alkaline lakes and flats.	1%	
W - Shrub-dominated wetlands; shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.	3%	
Grassland	19%	
Temperate Forest	75%	

Other comments on major habitat types:

### 3. MAJOR THREATS

Factors adversely affecting the site's ecological character and the waterbirds, their scope and their severity or potential impact

<b>Threat name</b> See below for a list of potential threats (following IUCN nomenclature). For each threat, please assign scores for the following three criteria, namely <i>when the threat is likely to happen (Timing)</i> , <i>how much of the site it covers (Scope)</i> and the <i>likely deterioration it will cause in bird populations and/or habitats (Severity)</i> .	<b>Timing:</b> In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	<b>Scope:</b> 0 = Negligible (<10%) 1 = Small area (10-50%) 2 = Most of area (50-90%) 3 = Whole of site (>90%)	<b>Severity:</b> Negligible = 0 Slow = 1 Moderate = 2 Rapid = 3
1.3 Tourism & Recreation Areas	0 2 3	0 0 0	1 1 1
2.1 Annual & Perennial Non-Timber Crops	0 2 3	1 1 1	0 1 1
2.3 Livestock Farming & Ranching	3	3	3
3.2 Mining & Quarrying	3	0	3
4.1 Roads & Railroads	2 3	0 0	3 0
4.2 Utility & Service Lines	2 3	0 0	3 1
5.1 Hunting & Collecting Terrestrial Animals	0 1 2 3	1 1 1 1	2 3 2 2
5.2 Gathering Terrestrial Plants	0 1 2 3	1 1 1 1	2 2 2 2
6.1 Recreational Activities	2 3	0 0	0 0
7.1 Fire & Fire Suppression	0 1 2 3	1 3 2 2	2 3 3 3
9.2 Industrial & Military Effluents	3	0	1
9.4 Garbage & Solid Waste	3	0	1
11.2 Droughts	2 3	3 3	3 3

Other comments on threats:

Forest fires occur frequently, and disturb the forest heavily.

Riparian tickets and forest regeneration is very slow due to frequent fire and grazing.

A government issued exploration licensed area overlaps with 20% (10,800 ha) of the Ugtam NR.

## 4. CONSERVATION MEASURES

**CONSERVATION MEASURES** Please answer the following three questions:

- (1) Is all or some of the Flyway Site legally protected? If so, what % and what is the designation?  
Over 6100 ha area of the Ugtam Mountain IBA is outside State Protected Area.
- (2) Has a management plan been prepared for the Flyway Site, and if so is it up-to-date and comprehensive?  
Yes. Not up to date.
- (3) What conservation activities are taking place at the Flyway Site, e.g. conservation or research projects, Local Conservation Groups, education centres, etc.?

UNDP Eastern Steppe Biodiversity Project carried out various educational, research, and management between 1998 and 2005. Through this project a wide variety of educational, conservation, and research projects implemented including activities focused on migratory birds. Local community groups were established and small grants were disseminated to them for their nature conservation and poverty reduction activities. Also research, conservation, and education activities for crane and wetland species took place through North East Asian Crane Sites Network.

Researchers from Mongolian Academy of Sciences is monitoring waterbirds in the area through avian influenza surveillance activities.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Jan 2012
<b>COUNTRY:</b>	Malaysia

<b>NAME OF FLYWAY SITE:</b>	Kapar Power Station Ash Ponds (Joined FNS 2003)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	North-central Selangor Coast (listed 2004) – a much larger area of coastal mangrove habitat than the FNS (see Site Description below)
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The FNS (Ash Ponds of Stesen Janaelektrik Sultan Salahuddin Abd Aziz, Kapar) is located at 03°07' N 101°19'E, 40km west of Kuala Lumpur in the state of Selangor. It is located 56 km west of Kuala Lumpur on the west coast of the peninsula. It is the largest power station in Malaysia, operating on mostly coal and to a lesser degree, gas and oil. Several man-made ash ponds, located within the station's compound, were created as means to contain the waste from burning coal. The ponds are covered by shallow water levels with a little mud, creating ten microhabitats for waterbirds (mostly shorebirds and terns) (Lane 1991). Adjacent to the power station are coastal mangrove forest, mudflats (during low tides) and open sea. The mangrove forest is dissected by an extensive network of creeks and rivulets, which join the main channels of Sungai Che Awang and Sungai Puloh. The rivers and streams in the vicinity of the power station drain into the Straits of Melaka.</p> <p>The site is 300 ha and comprises two ash ponds of the Kapar Power Station (a private coal power station belonging to Tenaga Nasional Berhad). These ash ponds are important roosting habitat for shorebirds during high tide, when the nearby coastal feeding habitats are submerged. As such, the site's importance to migratory shorebirds is integrally linked to the extensive mudflat and mangrove estuary habitats nearby.</p> <p>A total of thirty-four species of shorebirds have been recorded here. At this site, 6 species meet the 1% criteria for international importance and 4 additional species meet the 0.25% staging site criteria. The site also supports 5 globally threatened shorebird species. The ash ponds at Stesen Janaelektrik Sultan Salahuddin Abd Aziz, Kapar, (together with the nearby feeding habitats) form one of the most important roost sites for wintering and migratory shorebirds in Malaysia. Other globally threatened waterbird species recorded include Chinese Egret and Lesser Adjutant, listed as vulnerable.</p> <p>The FNS area forms just a small part of the <b>“North-central Selangor Coast” IBA</b> (Important Bird Area) which covers a very large (28,000 ha) strip of coastal mangrove, estuary and mud flat habitat.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	There is no formal map of the FNS, but a location map of the Kapar Power Station and image of the Ash pond areas is available in the Kapar Power Station Waterbirds Report 2008 (Bakewell 2009). Also see the Kapar Power Station Site Information Sheet 2003.

### 1. MIGRATORY WATERBIRDS

#### 1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form

(Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):

English Name (used by EAAFP)	Scientific Name	1% Threshold WPE5	Maximum Counts	Count Dates	Reference
Asian Dowitcher	<i>Limnodromus semipalmatus</i>	NT		15/01/2005	Li <i>et al</i> 2006
Common Greenshank	<i>Tringa nebularia</i>	1 000 250(s)	840	06/04/1992	Sebastian <i>et al</i> , 1993
Common Redshank	<i>Tringa totanus</i>	250	1 780 1 330 2 911 3 214	06/04/1992 17/10/2005 15/01/2005 Jan 2008	Sebastian <i>et al</i> , 1993 Li (pers comm.) 2005 Li <i>et al</i> 2006 Bakewell 2009
Curlew Sandpiper	<i>Calidris ferruginea</i>	1 350	2 290	27/10/1991	Lane & Mundkur, 1992
Eurasian Curlew	<i>Numenius arquata</i>	1000	1 900 1 680 1 529 4 900	03/09/2000 17/10/2005 15/01/2005 Dec 2008	Siti, 2003 Li (pers comm.) 2005 Li <i>et al</i> 2006 Bakewell 2009
Greater Sand Plover	<i>Charadrius leschenaultii</i>	250(s)	350 2 500	26 Mar 2000 Jan 2008	Siti, 2003 Bakewell 2009
Grey Plover	<i>Pluvialis squatarola</i>	790 313(s)	1 000 490	26 Mar 2001 17 Oct 2005	Siti, 2003 Li (pers comm.) 2005
Lesser Sand Plover	<i>Charadrius mongolus</i> #	1900 198(s)	1 000 2 650 4 000	20 Aug 2000 15/01/2005 Dec 2008	Siti, 2003 Li <i>et al</i> 2006 Bakewell 2009
Marsh Sandpiper	<i>Tringa stagnatilis</i>	250(s)	250	25 Oct 1998	Siti, 2003
Nordmann's Greenshank	<i>Tringa guttifer</i>	EN	35	15/01/2005 Dec 2008	Li <i>et al</i> 2006 Bakewell 2009
Spoon-billed Sandpiper	<i>Eurynorhynchus pygmeus</i>	EN	1 1	Jan 2002 7 April 2008 28 Dec 2008	Siti, 2003 Wetlands International, 2002 Bakewell 2009 Bakewell 2009
Terek Sandpiper	<i>Xenus cinereus</i>	500	2 100	4/01/1991	Wetlands International, 2002
Whimbrel	<i>Numenius phaeopus</i>	550	1 500 1 060 733	16/01/1994 17/10/2005 15/01/2005	Wetlands International, 2002 Li (pers comm.) 2005 Li <i>et al</i> 2006

†Common Redshank may include two sub-species (*ussuriensis* & *terrignotae*).

# Lesser Sand Plover may include 3 sub-species (*mongolus*, *atrifrons* & *schaeferi*). Only *schaeferi* has been recorded with certainty thus far.

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Nil.

1.3 Are all the key populations counted?:  All  Some  None

If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made:  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

Malaysian Nature Society: Mr YEAP Chin Aik (Head of Conservation)

MNS-BCC Waterbirds Group: Mr David BAKEWELL (Chair)

1.4.4 Have the data been analysed? yes / no /  partially

A database of counts from 1998-2005 has been compiled, but is still being analysed.

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

### 1.5.2 If yes please provide details:

**NB:** The following table records changes in numbers at the site from 1992 to 2008 (Bakewell 2009). The limited monitoring to date indicates declines for several key species since 1992.

However, since joining the FSN in 2003 there have been increases for some species at the site. These recent increases are thought to be due to recent declines in feeding and/or roosting habitat in other parts of the Malaysian west coast (Bakewell 2009). Data analysis is not yet sufficient to distinguish whether these changes are also the result of flyway-scale influences (YEAP Chin Aik pers comm. 2012).

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Common Greenshank	Decline	Bakewell (2009)
Common Redshank†	decline	Bakewell (2009)
Curlew Sandpiper	Decline	Bakewell (2009)
Eurasian Curlew	Decline	Bakewell (2009)
Terek Sandpiper	no change	Bakewell (2009)
Whimbrel	no change	Bakewell (2009)
Grey Plover	Decline	Bakewell (2009)
Lesser Sand Plover#	Decline	Bakewell (2009)
Greater Sand Plover	increase	Bakewell (2009)
Marsh Sandpiper	Decline	Bakewell (2009)
Nordmann's Greenshank	increase	Bakewell (2009)
Asian Dowitcher	unknown	Bakewell (2009)

## 1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):

Sebastian et al. (1993) found that the majority of the birds using the ash ponds were feeding on the mudflats at Pulau Tengah, one of the outer Klang islands.

Simple non-statistical comparisons by Li *et al* (2006) indicated declines of non-breeding period waterbird numbers (mainly shorebirds) had already occurred across Pulau Tengah and several other sites in Selangor State in the period between 1994/1995 and 2004/2005 - a 10 year period before Kapar Ash Ponds joined the Flyway Site Network. Migratory shorebirds (non-breeding period numbers) recorded within Selangor State overall declined by perhaps 30% from a total 39,034 in 1985-1986 (Silvius *et al*, 1987) to 21,390 in 2004-2005 (Li *et al* 2006). The decline may be even larger as the 2005 survey covered additional areas (Sekinchan coast to Sungai Bernam) which the 1985-86 surveys did not.

Pulau Tengah in particular used to support 10,000 – 14,000 shorebirds during the non-breeding seasons of 1985 to 1994 (Wetlands International AWC database), but only recorded 772 in January 2005. Other sites eg, Kuala Selangor (#27) and Tanjung Karang (#28), which used to record up to 5,000 shorebirds (Silvius et al. 1987), are no longer important for shorebirds today.

It is believed that loss of habitat due to economic development has contributed most to the decline of the regional shorebird populations, whilst pollution, hunting and other causes may also play some role (see **Major Threats** below).

Analysis of AWC counts from 1990 – 2008 show an overall increasing trend at the site, especially since 2003. This is thought to be due to the destruction of alternative roost sites in the surrounding coastal area.

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
15.6 Wastewater Treatment Areas [8 -- <b>Wastewater treatment areas;</b> sewage farms, settling ponds, oxidation basins, etc.]	300	All key species use the dry portions of the ash ponds as high-tide roost habitat.	The original roost site – the Phase 1 Ash pond has dried out and been colonized by vegetation	The original roost site – the Phase 1 Ash pond – is now no longer used by the power station and has dried out and been colonized by vegetation	The roost relocated from Phase 1 ashpond to Phase 2 ashpond and the 'Still Pond' after Phase 1 was retired from service. Phase 2 ashpond is gradually drying out as the power station has converted two of its four turbines in the last year to incinerate ash internally.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

No significant on-site changes have occurred. The Kapar Power Station management supports the conservation of habitats for migratory shorebirds; however future changes may be possible if there are unfavourable shifts in commercial priorities and decisions or policies of the corporation.

The usefulness of the ashponds depends entirely on their active use by the power station to off-load water and ash daily. The ashponds are slated for retirement in the near future as the power station modernizes. It is expected that, unless the ponds can be managed specifically for the birds, they will quickly become unsuitable as roost sites (Bakewell 2009). This is now an imminent possibility. So far, MNS talks with power station management have not progressed to the point where any assurance of the site's continued usefulness as a shorebird roost can be given.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threats within the site are relatively minimal (apart from disturbance from feral animals).

Threat name (following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (disturbance to roosting birds by feral dogs)	Direct on shorebirds in the Kapar Ash Ponds site.	3	3	1
<b>6. Human intrusions &amp; disturbance</b> 6.3 Work & other activities	Occasional disturbance by neighbouring village folk, not direct hunting	1	1	1

However serious threats affecting these shorebirds on their nearby feeding habitats will indirectly influence numbers at Kapar Ash Ponds. These threats operating external to the site are listed below.

YCA: does this also include the threats to the Klang islands, its foraging (maybe even roosting) sites?  
See attached IBA account.

<b>1 Residential &amp; commercial development</b> Housing & urban areas Commercial & industrial areas	G - Intertidal mud, sand or salt flats H - Inter-tidal marshes (tidal and brackish marshes)	3	1	1
<b>2 Agriculture &amp; aquaculture</b> 2.1 Annual & perennial non-timber crops 2.4 Marine & freshwater aquaculture	G - Intertidal mud, sand or salt flats H - Inter-tidal marshes (tidal and brackish marshes)	3	1	1
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents	Food species on 12.4 [G - Intertidal mud, sand or salt flats] as well as shorebirds.	3	1	1
<b>9. Pollution</b> Industrial & military effluents (9.2.1 Oil spill events)	Food species on 12.4 [G - Intertidal mud, sand or salt flats] as well as shorebirds.	3	1	1

### 3.2 Other comments on threats (including management actions to address threats):

Within the site, feral dogs (numbers unknown) roaming the power station compound, have been seen flushing the roosting birds on the ash ponds. It is unknown if they manage to catch any in this behaviour.

Off-site, land developments and activities for housing, aquaculture, agriculture, tourism and fishing are the major threats to key coastal shorebird habitats. The loss of safe high tide roost areas has been a significant impact, and is still an increasing threat, to shorebirds at many sites.

Pollution of the coastal waters via river outfalls and shipping may erode the quality of the feeding sites by depleting the prey base.

As mentioned above, the roost site is now under imminent threat as the power station takes the ash ponds offline. If not managed for shorebirds, these will quickly dry out and become vegetated, becoming unusable by shorebirds as a roost site.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Common Greenshank				X
Common Redshank†				X
Curlew Sandpiper				X
Eurasian Curlew				X
Terek Sandpiper				X
Whimbrel				X
Grey Plover				X
Lesser Sand Plover#				X
Greater Sand Plover				X
Marsh Sandpiper				X
Nordmann's Greenshank				X
Asian Dowitcher				X

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

No. However the site is privately owned and protection of key waterbird habitats is currently achieved through a policy of voluntary conservation by the company.

The site is owned by Tenaga Nasional Bhd (TNB) but run by a contracting venture, Kapar Energy Ventures

(KEV). Malaysia Nature Society (MNS) contacted KEV regarding the possible future management of the ash ponds as a shorebird site. However, as their contract covers only the running of the power station and for a limited period, KEV advised that these issues should be discussed with TNB. These talks commenced in 2010.

**4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?**

**Management Plan has been prepared? No**

The power station management system does not formally include management plans for waterbird conservation, but a policy of voluntary conservation by the company exists in cooperation with local NGOs.

**Is the Management Plan current? No**

**Is it comprehensive? No**

**4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?**

Kapar Power Station management currently supports the conservation of the ash pond roost habitats for migratory and resident shorebirds. This also includes strict restrictions on access to the site, and fencing to help control feral animals.

Malaysia Nature Society conducts monthly shorebird monitoring at the site, with cooperation of the site management.

## 5. REFERENCES

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## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Jan 2012
<b>COUNTRY:</b>	New Zealand

<b>NAME OF FLYWAY SITE:</b>	Farewell Spit (EAAF Site# 018; Joined in Mar 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Farewell Spit (Ramsar Site# 103; listed in August 1976)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1992

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Farewell Spit FNS (11 388 ha) is located at 40.50000°S, 172.83330°E (40°32'S 172°50'E), and forms the most north-western tip of South Island. The site is 38 from the town of Taka, and the nearest major city is Nelson. It is a 30 km recurved spit that reaches out into Cook Strait sheltering approximately 9 500 ha of tidalflats on the southern side, in Golden Bay. The site is between 0 and 3m above sea level (ASL). The site includes a sandspit containing barchan dunes and dune slacks, saltmarshes, a vast expanse of intertidal sand and mudflats, and areas of seagrass beds (Ramsar Information Sheet, Farewell Spit 1992).</p> <p>The sand and mudflats provide important habitat for migratory shorebirds. Wader counts have been recorded at ca. 33,000 November/December and ca. 12,000 in June/July. During the non-breeding season, the site supports approximately 15 500 Red Knot and 13 500 Bar-tailed Godwit. Farewell Spit also regularly supports substantial numbers of rare international migratory waders. These include <i>Pluvialis squatarola</i>, <i>Tringa flavipes</i>, <i>Tringa incana</i>, <i>Numenius phaeopus hudsonicus</i> <i>Tringa terek</i>, and <i>Calidris mauri</i>. The variety of dunes and their lack of disturbance from human activity also provide habitat for colonies of Caspian and White-fronted Terns, gannets and up to 14 000 Black Swans.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>The Flyway Network sites boundary is that of the Farewell Spit Nature Reserve. A map is available at: <a href="http://maps.doc.govt.nz/Viewer/Index.html?viewer=rwa">http://maps.doc.govt.nz/Viewer/Index.html?viewer=rwa</a></p>

# 1. MIGRATORY WATERBIRDS

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):

English Name (used by EAAFP)	Scientific Name	1% Threshold WPE5	Maximum Counts	Count Dates	Reference
Bar-tailed Godwit*	<i>Limosa lapponica</i>	2 790	17 181	1988	Sagar et al 1999
Double-banded Plover	<i>Charadrius bicinctus</i>	500	1 442	Pre 1994	Sagar et al 1999
Red Knot	<i>Calidris canutus</i>	500	24 227	Pre 1994	Sagar et al 1999
Ruddy Turnstone	<i>Arenaria interpres</i>	285	1 792	Pre 1994	Sagar et al 1999

The Red Knot population here is likely to be primarily comprised of the sub-species *rogersi*.

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Nil.

1.3 Are all the key populations counted?:  All  Some  None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made:  10-100 >100

1.4.3 Contact details of organization / individual leading recent counting:

Australasian Wader Studies Group (New Zealand Branch)  
Contact: David Melville;

1.4.4 Have the data been analysed? yes / no /  partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Red Knot	?	
Bar-tailed Godwit	?	
Ruddy Turnstone	?	
Double-banded Plover	?	

1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

Wetland/Habitat type	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.2 [E - <b>Sand, shingle or pebble shores</b> , includes sand bars, spits and sandy islets; dune systems and humid dune slacks]	?	All key species	0	0	Habitat boundaries very dynamic, but total area relatively stable. Remote habitats of high quality.
12.4 [G - <b>Intertidal mud, sand or salt flats</b> ] – also includes intertidal seagrass habitat.	9 500	All key species	0	0	“ “ “
12.5 [H - <b>Intertidal marshes</b> ] - includes salt marshes, tidal brackish and freshwater marshes.	?	All key species	0	0	“ “ “
5.15 [R - <b>Seasonal/intermittent saline/brackish/alkaline lakes and flats.</b> ]	?	All key species	0	0	“ “ “

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threats within this remote site are relatively minimal. Significant shipping traffic in the area presents perhaps the greatest threat through potential oil spills.

Threat name (following IUCN nomenclature).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>9. Pollution</b> Industrial & military effluents (9.2.1 Oil spill events)	Directly on shorebirds and prey items in habitats: E,G,H.	1	1	1

### 3.2 Other comments on threats (including management actions to address threats):

Public entry is by permit only, and tourist traffic to the lighthouse is tightly controlled. A major potential threat would be from an oil spill and plastics dumping from the considerable amount of shipping in the area.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Red Knot	X			
Bar-tailed Godwit	X			
Ruddy Turnstone	X			
Double-banded Plover	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. 100% of the site is protected as Farewell Spit Nature Reserve, managed by the Department of Conservation, New Zealand.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** Yes

Farewell Spit Nature Reserve and Puhonga Farm Park Management Plan, January 1990

**Is the Management Plan current?** Yes

**Is it comprehensive?** Yes

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Farewell Spit (i.e. the entire sandspit) is Crown land, status Nature Reserve, with public entry by permit only. Tourist traffic to the lighthouse is tightly controlled.
- Puhonga Visitor Centre overlooks the Spit and intertidal area. Cafe, souvenirs and information available.

## 5. REFERENCES

Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia. 239pp.

Ramsar Information Sheet, Farewell Spit. 1992. Available

at: <http://ramsar.wetlands.org/RamsarSitesInformationService/tabid/719/Default.aspx>

Sagar, P.M., Shankar, U. & N. Brown. 1999. Distribution and number of waders in New Zealand. *Notornis* **46**: 1 - 43.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, with review by Keith Woodley
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Jan 2012
<b>COUNTRY:</b>	New Zealand

<b>NAME OF FLYWAY SITE:</b>	Firth of Thames (EAAF Site# 018; Joined in Mar 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Firth of Thames (Ramsar site # 459; Listed in Jan 1990)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1991

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Firth of Thames FNS is located at 37.15000°S, 175.55000°E (37°13'S 175°23'E), 50 km east of Auckland on the North Island, New Zealand.</p> <p>The Firth of Thames is a large, north facing marine embayment. The Flyway Network Site is at elevation -1 to 2m above sea level (ASL) and consists of the mudflats, shell banks, salt marsh and mangroves of the southern and south-western parts of the bay. At low tide approximately 7 300 ha of mudflats and 1 100 ha of mangroves are exposed as feeding habitat for migratory shorebirds. The shell banks present in the area are used as high tide roosts by many birds, while adjacent grass flats are used for feeding and as roosts by some species.</p> <p>The Firth is one of New Zealand's fourth most important coastal stretches for wading birds. The site forms an important feeding ground for an average of 25,000 birds, most of which are migratory. The total number of waders may peak at as many as 40,000 migratory birds during the summer months. Some 43 shorebird species, many rare or uncommon, have been recorded at this site. The area supports particularly dense populations of shorebirds for the amount of intertidal habitat available. The Firth of Thames supports over 7 000 Bar-tailed Godwit and 4 000 Red Knot during the non-breeding season (Austral summer).</p> <p>The Miranda Shorebird Centre, situated adjacent to the site, provides education and awareness materials on shorebirds and the importance of the site.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	The Firth of Thames Ramsar site consists primarily of the intertidal flats exposed between mean low water and mean high water spring tides. The site boundaries are effectively the mean high water mark extending from the west bank of the Waihou River mouth to just south of the village of Kaiaua on the south west coast of the bay.

# 1. MIGRATORY WATERBIRDS

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):

English Name (used by EAAFP)	Scientific Name	1% Threshold WPE5	Maximum Counts	Count Dates	Reference
Red Knot	<i>Calidris canutus</i> †	500	7 780	NB 2002	OSNZ census data
Bar-tailed Godwit	<i>Limosa lapponica</i> *	12 790	8 867	NB 2006	OSNZ census data

The Red Knot population here is likely to be primarily comprised of the sub-species *rogersi*. Recent population estimates (Rogers *et al.* 2010) indicate that the 1% criterion should be revised down.

The minimum population estimate and 1% threshold used here for Bar-tailed Godwit is for the sub-population *Limosa lapponica baueri*, which these counts were comprised of (Bamford *et al* 2008).

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Nil.

1.3 Are all the key populations counted?:  All    Some    None

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years?    1    2-5    6-10     >10

1.4.2 If counts from >5 years ago, then how many counts were made:    10-100     >100

1.4.3 Contact details of organization / individual leading recent counting:

OSNZ  
Contact: Adrian Riegen

Miranda Shorebird Centre  
Contact: Keith Woodley

1.4.4 Have the data been analysed?  yes / no / partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Red Knot	Decline	Unpublished OSNZ census data
Bar-tailed Godwit	No change	Unpublished OSNZ census data

1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):

See 2.2 below

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ / 0 / - / ?)	Changes in Quality* (+ / 0 / - / ?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G - <b>Intertidal mud, sand or salt flats</b> ] – also includes intertidal seagrass habitat.	7300	All key species	(-)	(?)	Habitat quality very high. Habitat boundaries dynamic, but total area available for shorebird foraging may be declining.
12.5 [H - <b>Intertidal marshes</b> ] - includes salt marshes, tidal brackish and freshwater marshes.	?	All key species	0	(-)	Some encroachment into saltmarsh areas by adventive terrestrial plant species
12.7 [I - <b>Intertidal forested wetlands</b> ] - mangroves	1100	0	(+)	0	Continuing expansion of mangrove zone; suspected to be reducing net area of suitable foraging habitat for shorebirds
12.2 [E - <b>Sand, shingle or pebble shores</b> ]: shell/shingle banks.	40	All key species	0	0	Continuing natural accretion of shell banks – dynamic process of active sand and shell chenier plain. High tide roost sites on older shell banks subject to weed encroachment.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

It is suspected that the continuing expansion of the mangrove zone in the Firth of Thames – the net result of land use practices in the catchment (sedimentation and nutrients from intensive dairy farming, drainage, stop banks etc ) may be reducing the extent and quality of suitable shorebird foraging habitat. This may explain the decline in red knot numbers, and some other species.

### 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>9. Pollution</b> 9.3. Agricultural & Forestry Effluents Mangrove encroachment	Tidal flats (G) and shorebird food items. Tidal flats and roost sites	3	1	0

3.2 Other comments on threats (including management actions to address threats):

No changes expected in land-uses within the site, although sediment and nutrient effluents from agriculture practices in the catchment may continue to affect tidal flats and waterbird prey items in the site. Some very limited mangrove removal (pulling seedlings in critical feeding habitat areas) is conducted to maintain foraging and roosting habitat.

3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Red Knot	X			
Bar-tailed Godwit	X			

### 4. CONSERVATION MEASURES

4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

No. The site is Crown land (managed by the Department of Conservation, NZ), and currently has no special protection status. A 30 ha coastal reserve has been included as part of the Ramsar site. Land adjoining the site is under private ownership. The Hauraki District Council has designated all land adjoining the coast as "Government Purpose Wildlife Reserve". While the majority of other adjoining land is zoned rural (i.e. general farming practices are allowed), industrial use there is excluded.

4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** No  
See 4.3 below

**Is the Management Plan current?:** No  
**Is it comprehensive?:** No

4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- A Coromandel/Firth of Thames integrated coastal and catchment scoping study was recently completed, and an integrated management plan initiated. But while some small scale habitat restoration projects are in progress as part of this programme, changes in the structure of local government agencies since 2010 appear to have delayed further substantial progress.
- The future management of the Flyway Network Site at the Firth of Thames is currently undergoing a management review as a "special site" as part of the development of new Conservation Management Strategies by the Department of Conservation. Each plan/strategy outlines the resource, threats, access and use, and management philosophies and actions to be undertaken at the site. Similar management plans, in approved or draft form, exist for the other four Ramsar wetlands in New Zealand, and for many other wetlands which may in the future be nominated as new Flyway Network Sites.

- Miranda Naturalists' Trust (MNT) actively advocates for shorebirds and their habitat requirements.
- MNT operates the Miranda Shorebird Centre, situated adjacent to the site. It is an information/education centre open 7 days a week, providing interpretation, education and awareness materials on shorebirds and the importance of the site. Two bird hides provide visitors with excellent shorebird viewing experiences.
- The Ornithological Society of New Zealand conducts annual winter and summer shorebird counts on the Firth of Thames.

## 5. REFERENCES

- Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (2008). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. *Wetlands International Global Series, and International Wader Studies*. Wetlands International – Oceania. Canberra, Australia. 239pp.
- Rogers, D., H-Y. Yang, C.J. Hassell, A.N. Boyle, K.G. Rogers, B. Chen, Z-W. Zhang & T. Piersma. 2010. 'Red knots (*Calidris canutus piersmai* and *c.c. rogersi*) depend on a small threatened staging area in Bohai Bay, China'. *Emu* 110:307–31
- Ramsar Information Sheet, Firth of Thames. 1990. Available at: <http://ramsar.wetlands.org/RamsarSitesInformationService/tabid/719/Default.aspx>
- OSNZ unpublished wader census data. Ornithological Society of New Zealand.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long, Roger Jaensch
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	November 2011
<b>COUNTRY:</b>	Papua New Guinea

<b>NAME OF FLYWAY SITE:</b>	<b>Tonda Wildlife Management Area</b> (EAAF Site# 034; joined FSN April 1998)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	N/A
<b>Name of Ramsar site (if listed):</b>	Tonda Wildlife Management Area (Ramsar listed in June 2006)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The <b>Tonda Wildlife Management Area</b> Flyway Network Site (FNS) is defined by the boundary of Tonda Wildlife Management Area – which also forms the Ramsar site boundary (596 000 ha). Coordinates: 8°45'S, 141°23'E. Located in the southwestern-most corner of Papua New Guinea's Western Province, on the border with West Papua (formerly Irian Jaya), Indonesia. The site is contiguous with (directly borders) Wasur National Park FNS in West Papua, east of Merauke, Kabupaten Merauke. Morehead, Balamuk District headquarters (Western Province) is just north of the site. The Mai Kussa River bounds the site to the east. The site extends inland for about 50 km from the Torres Strait (which separates New Guinea Island from Australia) and to a maximum altitude of 45m ASL.</p> <p>An estimated 10% of the area is open grassland and savannah. Grassland is typified by mat-forming spiny mudgrass <i>Pseudoraphis spinescens</i> and seasonally-floating mats of reed <i>Phragmites karka</i>. Woodland with <i>Melaleuca</i> sp. and <i>Acacia</i> sp. is common over much of the remaining area. These areas flood with the wet season rains in December and January and hold water for over 6 months. Shorebirds use the grasslands, swamps and lagoons during southward migration when these habitats are shallow or dry but are pushed towards the coast and onto Australia with the wet season flooding.</p> <p>Like its neighbouring site, Wasur, Tonda Wildlife Management Area is a major staging site for Little Curlew on its southward migration to Australia. Data are limited but it is likely that other waterbirds (egrets, Anatidae) seasonally move between Australia and PNG in large numbers with Tonda a key part of the migration network.</p> <p>Tonda is one of the few sites in the Flyway Site Network held in customary ownership by the local people. The site is very remote and only accessible by boat or light aircraft. A tourist facility, <b>the Bensbach Lodge</b>, is on leasehold land within the site and has enabled past access to visiting ornithologists. Human population density is very low with only between 1,000-1,500 people living in the whole area (12 villages occur in the reserve). These people are primarily subsistence gardeners and hunters (also sometimes taking crocodiles for skins). They derive some income inconsistently through their landowners' committee (through fees paid by sportsmen and tourists) but overall the region suffers from limited investment in services and conservation management due to its remoteness and lack of income generating opportunities.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<p>Yes</p> <p>A site boundary will be available from the Department of Conservation, PNG..</p>

# 1. MIGRATORY WATERBIRDS

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Popular English Name	Scientific Name	FSN Threshold WPE5	Counts	Count Dates	Reference
Little Curlew	<i>Numenius minutus</i>	1 800	10,000 Thousands 2,500	16/11/1985 Oct 1990 Oct 2001	Hicks 1985 Bishop pers comm. Watkins pers comm.

Also, many hundreds (if not thousands) of Little Curlew present in a partial survey of the site, 19-23 October 1998 (R. Jaensch pers.comm.)

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Popular English Name	Scientific Name	1% Criteria	Counts	Count Dates	Reference
Australian Pratincole	<i>Stiltia isabella</i>	600	>20,000 5,000	July 1982 July 1995	Finch <i>et al.</i> 1982 Bishop 1995

Australian Pratincole is a dry season migrant from Australia and like the Little Curlew, must move to Australia once the wet seasons renders habitat in Tonda unsuitable (too wet and grassy). Numbers probably vary greatly year to year according to success of breeding in Australia and condition (dryness) of habitat in New Guinea.

Occasional surveys have identified substantial numbers of other migratory shorebirds, such as Sharp-tailed Sandpiper and Black-tailed Godwit (both in hundreds), using shallow wetlands in Tonda (Bulla Plains area) late in the dry season (southward migration) but data are insufficient to show 1% thresholds are regularly being met.

Also, high tide roosts on the Torres Strait coast – notably, mid way along the southern boundary of Tonda – have proved to hold several thousand migratory shorebirds but require further investigation to determine if any 1% thresholds are met.

**Note:** Below in this form, the populations identified in 1.1 and 1.2 are referred to as the “key populations”.

1.3 Are all the key populations counted?: All    Some     None  
 If “some” please list these:

The remoteness of this site, sparseness of infrastructure and transport and lack of resources preclude any routine counting or monitoring of waterbirds at this site. Information has accumulated from visits by ornithologists over an extended period, often under very different conditions – hence much variation in count data.

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years?    1    2-5    6-10    >10

1.4.2 If counts from >5 years ago, then how many counts were made:     <10    10-100    >100

1.4.3 Contact details of organization / individual leading recent counting:

Doug Watkins, Wetlands International.

1.4.4 Have the data been analysed? yes /  no / partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations? Yes /  No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Little Curlew	unknown	
Australian pratincole	unknown	

## 1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

Information on Flyway population size and abundance of these species at this site indicate that existing estimates are possibly well below actual numbers (Bishop 2006).

The respective proportions of the Flyway population of Little Curlew which arrive in New Guinea, or in northern Australia (direct from Asia), are not known. However, it is clear that New Guinea is a key part of the species' migration strategy and that, due to seasonal rains, all individuals in New Guinea must leave and move on to drier areas in Australia in most if not all years. (This pattern also occurs at a similar time in northern Australia as birds move farther south/inland. Habitat is normally unsuitable during northward migration back to Asia.) Natural variations in dryness of habitats and height of grassy vegetation may possibly render habitat in New Guinea (as in parts of Australia) to be sub-optimal in some years. These factors together with constraints on surveys mean that conclusions about trends in numbers of Little Curlew in New Guinea presently cannot be robust.

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type†	Extent (ha) (or N/A )	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
<b>4 Grassland</b> 4.6 Subtropical/Tropical Seasonally Wet/Flooded Lowland	???	Little Curlew	?	?	Insufficient information (see below).
12.4 Mud Flats and Salt Flats [G -- <b>Intertidal mud, sand or salt flats.</b> ]	???	Support other migratory shorebirds, numbers of which are not adequately surveyed.	Presumably 0	Presumably 0	Insufficient information.

† IUCN and Ramsar habitat classifications and codes are used here.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

The optimal grassland habitat in Tonda is confined to a (roughly circular) area between Bensbach and the coast, known as Bulla Plains; other parts of Tonda are mostly wooded or forested and thus unsuitable for the visiting shorebirds. Concerns have been raised in the past as to the extent and quality of grassland habitat due to invasion of trees and shrubs (*Melaleuca* spp.), weeds, and changes to grazing by wild animals such as rusa deer (introduced to West Papua and occurring also in Tonda). There has been some investigation of the relationships between changing fire management, woody plant invasion, grazing by deer (affected by hunting), other fauna and other factors but the present conclusions are unknown. Certainly the landowners will wish to see this important habitat sustained, at least due to its accessibility and hunting opportunities.

### 3. MAJOR THREATS

#### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

- Wild pigs have modified large areas of swamp grassland through digging. The direct or indirect impacts on Little Curlew are not clear; the disturbance possibly may directly affect vegetation and indirectly affect availability of food items for the shorebirds.
- *Cervus timorensis rusa* (Rusa Deer) crossed into Tonda from Indonesia around the turn of the 19<sup>th</sup> to 20<sup>th</sup> century; it is not native to New Guinea. The population has increased massively and has resulted in overgrazing. However, the direct or indirect impacts on Little Curlew are not clear; short grass can be favourable to Little Curlew but overgrazing likely creates imbalance in the food web on the plains.
- An unidentified tobacco/sage weed is infesting the plains.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> Invasive non-native/alien species - Rusa Deer <i>Cervus timorensis</i> and Wild Boar <i>Sus scrofa</i> - tobacco/sage weed	4.6 Grasslands	3	1	1

#### 3.2 Other comments on threats (including management actions to address threats):

Lack of adequate understanding of use of the site by shorebirds and lack of resources to investigate and conduct management actions are significant threats.

#### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Little Curlew	X			

The land system probably has substantial resilience and in any case it experiences significant natural variation year to year in terms of habitat condition. Changes that limit or even prevent use of the site by Little Curlew may well be short-lived but further investigation is required. Regardless, due to available habitat also in Wasur and in northern Australia, it is unlikely that the Flyway population size of Little Curlew will be markedly affected by changes at Tonda.

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 100% of the site is protected as a Wildlife Management Area although this status permits certain types of harvest of native animals and plants by the local customary land and resource owners. Land ownership systems in Papua New Guinea differ from European models: most of the land, sea and natural resources are owned by local people.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** Yes

Under the Fauna Protection and Control Act, the local Management Area Committees (consisting of local landowners) set rules regulating the taking of various species and restricting access to certain areas within the Tonda Wildlife Management Area

**Is the Management Plan current?:** (??)

**Is it comprehensive?:** No

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Under the Fauna Protection and Control Act, the local Management Area Committees (consisting of local landowners) set rules regulating the taking of various species and restricting access to certain areas within the Tonda Wildlife Management Area. The rules must be approved by the national government.
- The initial rules of 1975 have been amended at least four times and now provide for the issuing of licences (commercial, tourist and individual), restrict the use of guns, sets limits on size and sex of fauna taken and establish areas within which hunting is restricted. The rules also set licence and royalty fees on hunted animals and regulate the handling of monies received.
- WWF had a long term commitment to working with local people to maintain the biodiversity of the site under a joint program involving Tonda, the adjacent Wasur National Park and Kakadu National Park in Australia.

## 5. REFERENCES

Bishop pers comm.

Bishop, K.D. 1995. Papua New Guinea June 20 – July 10, 1995, Bensbach Extension July 10 – 14, 1995.

Bishop, K.D. 2006. Shorebirds in New Guinea: Their Status, Conservation and Distribution. *Stilt* 50: 103-134.

Bowe, M. (2007). Community-Based Conservation in the Trans-Fly Region, in Marshall A.J.: *The Ecology of Papua*. Periplus, Singapore, 2007, ISBN 0-7946-0483-8

Finch, B., L. Howell & A. Howell. 1982. Recent Observations. PNGBS Newsletter 37: 193–194.

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Hicks, R.K. 1990. Arrival and departure dates in the Port Moresby area of migrants from the north. *Muruk* 4 (3): 91–105.

Watkins pers comm.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
<b>Email:</b>	
<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	November 2011
<b>COUNTRY:</b>	The Philippines

<b>NAME OF FLYWAY SITE:</b>	<b>Naujan Lake National Park (Site#: EAAF062; Joined FSN in May 1999)</b>
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Lake Naujan National Park IBA (IBA # PH040; Listed in 2001)
<b>Name of Ramsar site (if listed):</b>	<b>Naujan Lake National Park (Ramsar listed in 1999) Ramsar Site# 1008</b>
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1999

### BRIEF DESCRIPTION OF THE SITE:

<b>Site Description</b>	<p><b>Naujan Lake National Park</b> Flyway Network Site (FNS) is defined by the boundary of the National Park. Total area is 14,568 ha; The site is located at 13°10'N, 121°11'E; on the northeast coast of Mindoro Island, Naujan, Oriental Mindoro, Republic of The Philippines.</p> <p>Naujan Lake is at 20m ASL and lies near to the north-east coast of Mindoro, approximately 8 km from Pinagsabangan. It is a large freshwater lake probably of volcanic origin, extending about 14 km north-to-south and 7 km east-to-west. The eastern shore is precipitous, but to the west the land rises gradually and there are large areas of shallow water with an abundant growth of aquatic vegetation. There are several hot springs along the eastern shore and the maximum depth of the lake is 45m. Three species of Anatidae are recorded in the area, namely: <i>Anas luzonica</i>, <i>Aythya fuligula</i> and <i>Dendrocygna arcuata</i>.</p> <p>The lake watershed bounds the protected area. More than 50% of the watershed, which used to have lush forest, is planted to citrus and only small patches of secondary forest are left. The plain areas within the watershed are intensively used for cultivation of paddy rice with irrigation water coming from the Lake. Surrounding it are 17 lakeshore communities. The local people use the lake as a communal fishing ground. The marshland adjacent to the Lake remains under grass and sedge. The dense growth of <i>Scirpus</i> sp. is collected and used for weaving baskets. The dense cover serves as habitat to resident and migratory waterfowls. The presence of wildlife also enhances the value of the Lake as a recreational area.</p> <p>The surrounding areas are covered in a mixture of forest, scrub and grassland with some orchards and coconut plantations. The MUFRC (Multiple-use Forest Research Center) Experimental Forest lies to the south of the lake, on very steep and broken topography at 200-1,200m (above the lake). It is in an old logging concession, which in 1980 was mostly covered by secondary growth of predominantly dipterocarp forest and a few patches of grassland and scrubland. However, no forest could be seen in this area in 1991 when viewed from Ilong Peak on Mt Halcon. The main sources of livelihood of the local people are fishing and farming. Where the marshes permit cultivation, the land has been drained, cleared and planted with rice. Important agricultural crops include citrus, coconuts, rambutans and coffee. A very profitable duck raising industry thrives in the surrounding area.</p> <p><b>Lake Naujan National Park IBA</b> also overlaps with the National Park, but the extent of overlap is not clearly stated in the IBA Factsheet (the factsheet quotes several different and conflicting figures to describe the area of the IBA, the National Park and the Ramsar site).</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. The Ramsar Information Sheet (1999) notes that a Ramsar site boundary map is available (however it is not included with the RIS).</li> <li>2. There is no boundary map of the FSN site at the EAAF Secretariat.</li> <li>3. A site location map is provided in the original FSN Site Information Sheet 1999, available at: <a href="http://www.jawgp.org/anet/ph001ea.htm">http://www.jawgp.org/anet/ph001ea.htm</a>.</li> </ol>

## 1. MIGRATORY WATERBIRDS

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form:

Popular English Name	Scientific Name	1% Criteria	Counts	Count Dates	Reference
Tufted Duck	<i>Aythya fuligula</i>	2 000	12 000 11 500 10 100	Jan 2000 Feb 2001 Jan 2002	Site Information Sheet (2003 update) <a href="http://www.jawgp.org/andph001ea.htm">http://www.jawgp.org/andph001ea.htm</a>

1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

None identified

1.3 Are all the key populations counted?:  All  Some  None  
If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1  2-5  6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100  >100

1.4.3 Contact details of organization / individual leading recent counting:

- Protected Areas and Wildlife Bureau (PAWB), Department of Environment and Natural Resources (DENR), Republic of the Philippines
- Wild Bird Society of Japan.

1.4.4 Have the data been analysed? yes /  no / partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations? Yes /  No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline / unknown	Reference (may also include unpublished data)
Tufted Duck	-	

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Habitat area estimates are from the Ramsar Information Sheet 1999. Area of swamp habitat is likely to be decreasing through conversion to agricultural land-uses.

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
5.5 [O - Permanent freshwater lakes] (over 8ha)	8125	Tufted Duck	0	?	Need local input on changes in habitat extent and quality.
5.4 [U - Non-forested peatlands; includes shrub or open bogs, swamps, fens.]	1412	Tufted Duck?	?	?	Need local input on changes in habitat extent and quality.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

### 2.2 Other comments (including if changes to habitat between FSN listing and now):

Area of swamp habitat is likely to be decreasing through conversion to agricultural land-uses.

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>2. Agriculture &amp; aquaculture</b> 2.1 Annual & perennial non-timber crops	<b>U - Non-forested peatlands; includes shrub or open bogs, swamps, fens.</b>	3	1	0
<b>9. Pollution</b> 9.3 Agricultural & forestry effluents 9.3.3 Herbicides and pesticides	<b>O - Permanent freshwater lakes</b>	3	2	1

### 3.2 Other comments on threats (including management actions to address threats):

- The lake is open to commercial fishing subject to certain limitations, but the enforcement of these regulations and other park regulations is reported to be poor. The Department of Environment and Natural Resources (DENR) has expressed the desire to establish a crocodile farm and crocodile sanctuary at the lake.
- The lake is rich in nutrients and supports a major fishery of both demersal and pelagic species. Most of the inhabitants of the region depend on the lake for their livelihood. Because of the increase in the human population in the area, the demand on the lake's natural resources has grown rapidly.
- Increasing conversion of swamp habitat to agricultural and residential land-uses.
- Use of agricultural chemicals increasing in surrounding areas.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

<b>Key Population/s</b>	<b>&lt;5%</b>	<b>6-25%</b>	<b>26-50%</b>	<b>&gt;50%</b>
Tufted Duck	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 100% of the site is protected as Naujan Lake National Park (declared in 1956), under the jurisdiction of Department of Environment and natural Resources, Philippines. It is also included in the National Integrated Protected Areas System (NIPAS).

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

**Management Plan has been prepared?:** Yes

A management plan was being developed in 1999, but is not currently available.

**Is the Management Plan current?:** Yes

**Is it comprehensive?:** Yes

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Limnological laboratory and experimental fish pond (established by Department of Agriculture - Bureau of Fisheries Resources and Aquaculture).
- Ongoing water quality and resource monitoring (by DENR Region IV, Protected Areas and Wildlife Bureau (PAWB) and Wild Bird Society of Japan)

## 5. REFERENCES

BirdLife International (2012) Important Bird Areas factsheet: Lake Naujan National Park. Downloaded from <http://www.birdlife.org> on 23/02/2012

Ramsar Information Sheet for Naujan Lake National Park. 1999. Downloaded 12/12/2011 from: <http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/Default.aspx>

Site Information Sheet, Naujan Lake National Park Anatidae Site Network. 1999, available at: <http://www.jawgp.org/anet/ph001ea.htm>.

## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
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<b>DATE OF ASSESSMENT:</b>	November 2011
<b>COUNTRY:</b>	The Philippines

<b>NAME OF FLYWAY SITE:</b>	Olango Island Wildlife Sanctuary (EAAF Site# 007; joined FSN 1996)
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Olango Island IBA (PH 069)
<b>Name of Ramsar site (if listed):</b>	Olango Island Wildlife Sanctuary (Ramsar listed in 1994)
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	1994

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p><i>The Flyway Network Site (FNS) is defined by the boundary of Olango Island Wildlife Sanctuary – which is also the Ramsar site boundary – total area 5 800 ha. Central coordinates of the site are: 10°16'N, 124°03'E. Olango Island is located between Cebu and Bohol Islands, 4 km east of Mactan Island and 15 km east of Cebu City, Cebu Province, central Philippines. The climate is humid tropical with not very pronounced seasons.</i></p> <p><i>Olango Island FSN site is situated on the southern side of a low-lying island with 1m tidal range. It has extensive coralline intertidal sandflats, some mangrove areas and seagrass beds, offshore coral reefs and islets. Tidal flats and seagrass are extensive, but the site is also characterised by the mangrove forest, dominated by <i>Avicennia alba</i> along the seaward edge and in the accreting zone. The intertidal flats serve as foraging grounds for the birds while the highest grounds are used for roosting sites at high tide.</i></p> <p><i>Olango Island Wildlife Sanctuary (declared in May 1992) is one of the most important areas for migratory waterbirds in the Philippines. The site is an important staging and wintering ground for shorebirds. Over 10,000 shorebirds have been recorded at one time, and the total number using the site may be as many as 50,000. Eurasian Curlew <i>Numenius arquata</i> is particularly common. Up to 48 Asian Dowitcher <i>Limnodromus semipalmatus</i> were recorded in autumn 1987, making Olango Island the most important site for this rare threatened species in the Philippines.</i></p> <p><i>Species meeting the &gt;1% criterion: Eurasian Curlew <i>Numenius arquata</i>, Grey Plover <i>Pluvialis squatarola</i>, Lesser Sand Plover <i>Charadrius mongolus</i>, Common Redshank <i>Tringa totanus</i> and Broad-billed Sandpiper <i>Limicola falcinellus</i></i></p> <p><i>Species meeting the staging criterion: Ruddy Turnstone <i>Arenaria interpres</i>, Asian Dowitcher <i>Limnodromus semipalmatus</i> and Red-necked Stint <i>Calidris ruficollis</i>.</i></p> <p><i>Other waterbirds occurring in noteworthy numbers include <i>Egretta garzetta</i>, <i>Casmerodius albus</i> and <i>Anas luzonica</i>.</i></p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	<ol style="list-style-type: none"> <li>1. Location map of the National Park (and Ramsar site) is available at: <a href="http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/language/en-US/Default.aspx">http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/language/en-US/Default.aspx</a></li> <li>2. Site boundary map available at: <a href="http://www.wetlands.org/Reports/Country_maps/Indonesia/2ID003/2ID003_map06comp.jpg">http://www.wetlands.org/Reports/Country_maps/Indonesia/2ID003/2ID003_map06comp.jpg</a>.</li> </ol>

# 1. MIGRATORY WATERBIRDS

## 1.1 List the migratory waterbird populations for which the site was recognized on the EAAF nomination form:

At the time of joining the FSN (1996), six (6) species were considered to meet the 1% and or staging thresholds (see Olango Island EAAF Site Information Summary):

- *Limnodromus semipalmatus* (Asian Dowitcher)
- *Tringa totanus* (Common Redshank)
- *Pluvialis squatarola* (Grey Plover)
- *Charadrius mongolus* (Lesser Sandplover)
- *Calidris ruficollis* (Red-necked Stint);
- *Arenaria interpres* (Ruddy Turnstone)

Survey counts for this assessment come primarily from two periods:

1. Preliminary surveys carried out by the Asian Wetland Bureau, Philippines in 1987 (Magsalay *et al* 1989a)
2. Monthly counts conducted throughout 1989 (Magsalay *et al* 1989b).
3. Regular surveys conducted between January 1999 and August 2000, and monthly surveys throughout 1996 (Mapalo unpublished data, in Mapalo *et al* 2001).

Whimbrel (see Magsalay *et al* 1989a) has also been quoted as meeting the 1% criteria at Olango Island, but no evidence is found to support this.

Popular English Name	Scientific Name	FSN Criteria WPE5	Counts	Count Dates	Reference
Asian Dowitcher	<i>Limnodromus semipalmatus</i>	57(s)	93 48	Nov 1989 SM 1987	Magsalay <i>et al</i> 1989b Magsalay <i>et al</i> 1989a
Common Redshank	<i>Tringa totanus</i>	250	900 419 396	Mar 1989 Mar 1996 Feb 1996	Magsalay <i>et al</i> 1989a Mapalo <i>et al</i> 2001 Mapalo <i>et al</i> 2001
Grey Plover	<i>Pluvialis squatarola</i>	1 040	1 196 1 146	16/12/1999 26/11/1999	Mapalo <i>et al</i> 2001 Mapalo <i>et al</i> 2001
Lesser Sand Plover	<i>Charadrius mongolus</i>	355	1 940 792	Oct 1989 Mar 1989	Magsalay <i>et al</i> 1989b Magsalay <i>et al</i> 1989b
Red-necked Stint	<i>Calidris ruficollis</i>	3 150 788(s)	3 000 2 512 2 493	Mar 1989 Oct 1989	Magsalay <i>et al</i> 1989b Magsalay <i>et al</i> 1989b
Ruddy Turnstone	<i>Arenaria interpres</i>	71(s)	215 204	Mar 1989 Aug 1989	Magsalay <i>et al</i> 1989b Magsalay <i>et al</i> 1989b

Asian Dowitcher, Ruddy Turnstone and Red-necked Stints may be a non-breeding visitors rather than staging through the site.

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

Popular English Name	Scientific Name	FSN Threshold WPE5	Counts	Count Dates	Reference
Greater Sandplover	<i>Charadrius leschenaultii</i>	790	2 000 1 100	May 1987 Mar 1989	Magsalay <i>et al</i> 1989a Magsalay <i>et al</i> 1989b
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>	110s	416	Jan 1993	AWC Databases
Chinese Egret	<i>Egretta eulophotes</i>	30	172 153 91	Nov 1989 Mar 1996 Mar 1989	Magsalay <i>et al</i> 1989b Mapalo <i>et al</i> 2001 Magsalay <i>et al</i> 1989b
Little Tern	<i>Sterna albifrons</i>	100	585 515 303	Oct 1989 Sept 1989 Nov 1989	Magsalay <i>et al</i> 1989b
Common Tern	<i>Sterna hirundo</i>	250	3 112 1 812 1 639 1 211	23/11/1999 Feb 1996 Mar 1996 25/01/2000	Mapalo <i>et al</i> 2001

1.3 Are all the key populations counted?: All Some  None

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10 >10

1.4.2 If counts from >5 years ago, then how many counts were made:  <10 10-100 >100

1.4.3 Contact details of organization / individual leading recent counting:

Protected Area and Wildlife Division  
Department of Environment and Natural Resources  
Environmental Management and Protected Area Service  
DENR Region 7, Banliad, Mandaue City, The Philippines  
Ph.: +63 32 346 9177 Fax: +63 32 346 1647

1.4.4 Have the data been analysed? yes /  no / partially

## 1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations? Yes /  No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Red-necked Stint		
Grey Plover, Black-bellied Plover		
Lesser Sand Plover#		
Common Redshank†		
Ruddy Turnstone		
Asian Dowitcher		
Greater Sandplover		
Grey-tailed Tattler		
Eurasian Curlew		
Chinese Egret		

1.6 Other comments (eg, if subjective conclusions were made about changes in populations):

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type†	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
12.4 [G -- Intertidal mud, sand or salt flats.]	2900	All key species	?	?	No major changes expected.
12.7 [I -- Intertidal forested wetlands	??	No key species – but some other migrants	?	?	No major changes expected.

† IUCN and Ramsar habitat classifications and codes are used here.

\* For changes in extent or habitat quality: increase (+) / no change (0) / decline (-) / unknown (?)

2.2 Other comments (including if changes to habitat between FSN listing and now):

## 3. MAJOR THREATS

3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening (Timing), how much of the habitat it impacts (Extent) and the likely deterioration of functionality it will cause to the habitat (Severity).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>5 Biological resource use</b> 5.1 Hunting & trapping terrestrial animals 5.1.1 Intentional mortality (human use)	Direct on shorebirds (esp. Eurasian Curlew)	3	2	2

<b>5 Biological resource use</b> 5.4 Fishing & harvesting aquatic resources 5.4.1 Intentional mortality (human use - subsistence/small scale)	Prey items of all key shorebird species; (G – Tidal flats)	3	1	1
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### 3.2 Other comments on threats (including management actions to address threats):

Threats to the site which may affect migratory waterbirds include:

- Heavy hunting pressure on shorebirds by organised hunting parties from Cebu, especially on large species such as *Numenius arquata*.
- Habitat damage and harvesting of shorebird prey items (Gleaning of the tidalflats for sea urchins and commercial shells and fishing are most important).

Other threats to the site include:

- Extremely heavy pressure on the coastal resources, with serious over-exploitation.
- Sea level rise is considered an important threat at this low-lying island site.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Red-necked Stint	X			
Grey Plover	X			
Lesser Sand Plover#	X			
Common Redshank†	X			
Ruddy Turnstone	X			
Asian Dowitcher	X			
Greater Sandplover	X			
Grey-tailed Tattler	X			
Eurasian Curlew	X			
Chinese Egret	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes, 100% of the site is protected. Olango was declared as a Wildlife Sanctuary in 1992.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

#### **Management Plan has been prepared?:**

Olango Island Wildlife Sanctuary has a formal management plan which was being updated as of 1998.

#### **Is the Management Plan current?:**

#### **Is it comprehensive?:**

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- Preliminary surveys were carried out by the Asian Wetland Bureau, Philippines in 1987/1988.
- Monthly counts were conducted throughout 1989.
- In April 1988, the district council on Olango Island enacted an ordinance to ban hunting on the island.
- Some intertidal areas have been replanted with *Rhizophora* spp. and other areas are being considered for rehabilitation as part of a government scheme.
- The University of San Carlos maintains research facilities on the nearby island of Mactan.

## 5. REFERENCES

Asian Waterfowl Census Databases

BirdLife International (2011) Important Bird Areas factsheet: Olango Island. Downloaded from <http://www.birdlife.org> on 22/07/2011

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## East Asian - Australasian Flyway Site Network Site Assessment Form

<b>COMPILER'S Name:</b>	Warren Lee Long
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<b>Address:</b>	c/- Wetlands International – Oceania, PO Box 4573 Kingston ACT 2604, AUSTRALIA
<b>DATE OF ASSESSMENT:</b>	Jan 2012
<b>COUNTRY:</b>	Republic of Singapore

<b>NAME OF FLYWAY SITE:</b>	<b>Sungei Buloh Wetland Reserve (Site # EAAF073)</b> Joined FNS 20 June 2003
<b>IBA name (and relationship to Flyway Site if they are defined differently):</b>	Kranji IBA (200ha) includes the entire Sungei Buloh Wetland Reserve FNS, plus areas further along the coast and inland.
<b>Name of Ramsar site (if listed):</b>	N/A
<b>Date of most recent Ramsar Information Sheet (RIS)</b>	N/A

<b>BRIEF DESCRIPTION OF THE SITE:</b>	
<b>Site Description</b>	<p>The Sungei Buloh Wetland Reserve (SBWR) FNS is located at 1.45000°N 103.71670°E, situated about 20 km from the Central Business District of Singapore. The coastal wetland site is 130 ha and fronts the West Johor Straits. It is located on State land belonging to the Government of the Republic of Singapore. This land was designated as a nature park and opened to the public since 6 December 1993. The site is gazetted as a Wetland Reserve in 2002. It is also an ASEAN Heritage site.</p> <p>The site has a coastal wetlands system consisting primarily of a number of wetland habitat types including brackish water prawn ponds, riverine estuaries, intertidal mudflats, mature mangroves and fringing mangroves. There is an island (Pulau Buloh) of mature mangroves located just off the coast.</p> <p>Besides being a place of enjoyment and quiet recreation, the Wetland Reserve is also a place for nature education and research, as well as for conservation programmes.</p> <p>Counts exceeding the 1% criteria for Pacific Golden Plover (<i>Pluvialis fulva</i>) and Lesser Sand Plover (<i>Charadrius mongolus</i>) have been recorded at Sungei Buloh. In the case of the Pacific Golden Plover there were a number of counts &gt;1% criterion during the 1992 – 1998 period. The site has had one count &gt;1% criterion for Lesser Sand Plover.</p> <p>Counts in excess of the staging criteria have been recorded for Whimbrel, Common Redshank, Marsh Sandpiper, Common Greenshank and Curlew Sandpiper.</p> <p>The park is also the only site in Singapore with a heronry composed of breeding populations of Grey Heron <i>Ardea cinerea</i> and Purple Heron <i>Ardea purpurea</i> in the 1990s.</p> <p>The Kranji IBA (Important Bird Area) covers a larger (200 ha) strip of coastal mangrove, estuary and mud flat habitat.</p>
<b>Are the Flyway Site boundaries clearly defined, and is a map available?</b>	A location map of the site was provided with the Site Information Sheet.

### 1. MIGRATORY WATERBIRDS

1.1 List the migratory waterbird populations for which the site was recognized on the EAAFP nomination form (Please use populations and their names as adopted by the EAAFP and accessible at: <http://www.eaaflyway.net/population-estimates.php>):

The following species have been found at the site in numbers that exceed the 1% criterion:

English Name (used by EAAFP)	Scientific Name	FSN Threshold WPE 5	Maximum Counts	Count Dates	Reference
Pacific Golden Plover	<i>Pluvialis fulva</i>	1000	2000	Jan 2005	

The following species are considered to meet the staging criteria of the Flyway Site Network:

English Name (used by EAAFP)	Scientific Name	1% Threshold	Maximum Counts	Count Dates	Reference
Lesser Sand Plover#	<i>Charadrius mongolus</i> #	1900 375	1003	Jan 2000	Gan 2002
Curlew Sandpiper	<i>Calidris ferruginea</i>	1800	972	Nov 1999	Gan 2002
Common Redshank†	<i>Tringa totanus</i> †	350 93(s)	683	Sep 2000	Gan 2002
Marsh Sandpiper	<i>Tringa stagnatilis</i>	900 250(s)	486	Dec 2001	<a href="http://www.sbnp.org/Wetlands/text/02-4-1-8.htm">http://www.sbnp.org/Wetlands/text/02-4-1-8.htm</a>
Common Greenshank	<i>Tringa nebularia</i>	1000 250(s)	280	Feb 2005	
Whimbrel	<i>Numenius phaeopus</i>	550 138(s)	442	Nov 2003	

Lesser Sand Plover may include 3 sub-species (*mongolus*, *atrifrons* & *schaeferi*). Common Redshank may include two sub-species (*ussuriensis* & *terrignotae*).

## 1.2 Additional populations meeting the FSN criteria identified in this assessment (please provide additional information)

English Name (used by EAAFP)	Scientific Name	FSN Threshold WPE 5	Maximum Counts	Count Dates	Reference
Purple Heron		100	130		AWC

1.3 Are all the key populations counted?:  All  Some  None

If "some" please list these:

1.4 If counting has occurred, then:

1.4.1 How many times was the site counted in the past 5 years? 1 2-5 6-10  >10

1.4.2 If counts from >5 years ago, then how many counts were made: <10  10-100 >100

1.4.3 Contact details of organization / individual leading recent counting:

Sharon Chan, National Parks Board, Sungei Buloh Wetland Reserve

1.4.4 Have the data been analysed? yes / no /  partially

1.5 Conclusions on changes in waterbird numbers

1.5.1 From analysis of counts at the site, have any conclusions been made about changes in the numbers of each of the key populations?  Yes / No

1.5.2 If yes please provide details:

Key Population	increase / no change / decline/ unknown	Reference (may also include unpublished data)
Pacific Golden Plover	Unknown	???
Lesser Sand Plover#	Unknown	???
Curlew Sandpiper	Unknown	???
Common Redshank†	Unknown	???
Marsh Sandpiper	Unknown	???
Common Greenshank	Unknown	???
Whimbrel	Unknown	???

1.6 Other comments (eg, if subjective conclusions were made about changes in waterbird numbers):

## 2. WATERBIRD/HABITATS

### 2.1 Ramsar wetland types used by key populations:

(Please consider only the top three or four habitat types that are of greatest importance for the key populations. Please also describe the habitat if it is a non-wetland type.)

Wetland/Habitat type	Extent (ha) (or N/A)	Key populations supported	Changes in Extent* (+ /0 /- /?)	Changes in Quality* (+ /0 /- /?)	Comment on changes in habitat extent or quality in past 5 years
G - Intertidal mud, sand or salt flats	?	All key species	0	0	Need local information and advice.
H - Inter-tidal marshes (tidal and brackish marshes)	?	All key species	0	0	Need local information and advice.
5.1 [M - Permanent rivers/streams/creeks]	?	Common Greenshank, Whimbrel	0	0	Need local information and advice.

\* For changes in extent or habitat quality: increase(+) / no change(0) / decline(-) / unknown(?)

2.2 Other comments (including if changes to habitat between FSN listing and now):

## 3. MAJOR THREATS

### 3.1 Factors adversely affecting the key habitats or directly on the key populations; noting the timing, scope and severity of their impacts.

Threats within the site are relatively minimal (apart from disturbance from feral animals).

Threat name (following IUCN nomenclature). For each threat to each key habitat (as identified in the section above), please assign scores against each criteria; namely when the threat (and potential impact) is happening ( <b>Timing</b> ), how much of the habitat it impacts ( <b>Extent</b> ) and the likely deterioration of functionality it will cause to the habitat ( <b>Severity</b> ).	Habitat / Type (as identified in the section above)	Timing In the past = 0 Long term (>4 yrs) = 1 Near future (<4 yrs) = 2 Happening now = 3	Extent 0 = <10% 1 = 10-50% 2 = 50-90% 3 = >90%	Severity 0 = <10% 1 = 10-25% 2 = 26%-50% 3 = >50%
<b>8. Invasive &amp; Other Problematic Species &amp; Genes</b> 8.1. Invasive non-native/alien species (disturbance to roosting birds by feral dogs)	Direct on shorebirds	3	1	0

However serious threats affecting these shorebirds on nearby feeding habitats can indirectly influence numbers at the site. These threats operating external to the site are listed below.

<b>1 Residential &amp; commercial development</b> Housing & urban areas Commercial & industrial areas	G - Intertidal mud, sand or salt flats H - Inter-tidal marshes (tidal and brackish marshes)	3	1	1
<b>2 Agriculture &amp; aquaculture</b> 2.1 Annual & perennial non-timber crops 2.4 Marine & freshwater aquaculture	G - Intertidal mud, sand or salt flats H - Inter-tidal marshes (tidal and brackish marshes)	3	1	1
<b>9. Pollution</b> 9.1 Domestic & urban waste water 9.3 Agricultural & forestry effluents	Food species on 12.4 [G - Intertidal mud, sand or salt flats] as well as shorebirds.	3	1	1

<b>9. Pollution</b> Industrial & military effluents (9.2.1 Oil spill events)	Food species on 12.4 [G - <b>Intertidal mud, sand or salt flats</b> ] as well as shorebirds.	3	1	1
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### 3.2 Other comments on *threats (including management actions to address threats)*:

Off-site, land developments and activities for housing, aquaculture, agriculture, tourism and fishing are the major threats to key coastal shorebird habitats. The loss of safe high tide roost areas has been a significant impact, and is still an increasing threat, to shorebirds at many sites nearby.

Pollution of the coastal waters via river outfalls and shipping may erode the quality of the feeding sites by depleting the prey base.

### 3.3 In summary, in the next 10 years, if the threats are not managed, what is considered to be the magnitude of the potential impacts on each key population?

Key Population/s	<5%	6-25%	26-50%	>50%
Common Greenshank	X			
Common Redshank†	X			
Curlew Sandpiper	X			
Eurasian Curlew	X			
Terek Sandpiper	X			
Whimbrel	X			
Grey Plover	X			
Lesser Sand Plover#	X			
Greater Sand Plover	X			
Marsh Sandpiper	X			
Nordmann's Greenshank	X			
Asian Dowitcher	X			

## 4. CONSERVATION MEASURES

### 4.1 Is all or some of the site legally protected? Yes/No If so, what % and what is the designation?

Yes. 100% protected as a Wetland Reserve, managed by the National Parks Board, Parks Management Department, Republic of Singapore.

### 4.2 Has a management plan been prepared for the site, and if so is it current and comprehensive?

*Management Plan has been prepared?:* yes / no (\_ Yes\_)

*Is the Management Plan current?:* yes / no (\_ Yes\_)

*Is it comprehensive (for waterbirds)?:* yes / no (\_ Yes\_)

### 4.3 What conservation activities are taking place at the site to benefit migratory waterbirds, e.g. conservation/ research projects, Local Conservation Groups, education centres, etc (see IUCN classifications, Annex 1)?

- The National Parks Act and the Parks and Trees Act helps to protect the reserve from animal poaching, tree-felling and any misuse.
- The management plan has been implemented, and monitoring of water quality, taking of bird census, bird ringing, flora and fauna surveys and other related works are conducted regularly for conservation management purposes.

## 5. REFERENCES

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Published in 2016 by EAAFP Secretariat

The EAAFP provides a framework for international cooperation, aimed at protecting migratory waterbirds, their habitat and the livelihoods of people dependent upon them.

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