

Protecting Habitats for Cranes and Black-faced Spoonbills in North-East Asia

NEASPEC Project Report

Conservation and Rehabilitation of Habitats for Key Migratory Birds in North-East Asia
with Special Emphasis on Cranes and Black-faced Spoonbills



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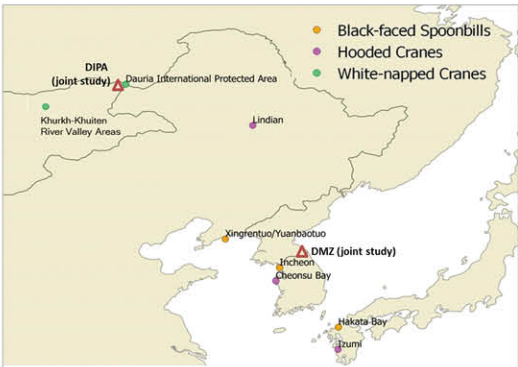
Background

Biodiversity and nature conservation have been a key building block of the work carried out by the North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC) since its establishment in 1993. Through a series of dialogues and field projects, NEASPEC member States adopted the NEASPEC Nature Conservation Strategy during the 12th Senior Officials Meeting (SOM) in 2007. Having Identified six flagship species in North-East Asia, namely, three species of feline animals (Amur Tiger, Amur Leopard and Snow Leopard) and three species of migratory birds (Black-faced Spoonbill, White-naped Crane and Hooded Crane), the Strategy, *inter alia*, suggests the following activities be taken for migratory birds: (1) develop an action plan for collaborative monitoring and research in breeding or wintering sites using of habitat assessment and gap analysis; (2) conduct research and monitoring on their breeding and wintering ecology; and (3) support range countries to work together on capacity building for habitat management, population management, monitoring and research, related law enforcement, environmental education and community development.

This NEASPEC Project “Conservation and Rehabilitation of Habitats for Key Migratory Birds in North-East Asia with special emphasis on Cranes and Black-faced Spoonbills” was implemented during 2014-2016 with the following objectives: to improve the conservation status and promote international cooperation for key wetland habitats for the flagship migratory birds; to strengthen bilateral and multilateral, and multi-level cooperation for migratory birds conservation in North-East Asia; and to contribute achieving the goals of the NEASPEC Nature Conservation Strategy and the Aichi Biodiversity Targets of the Convention of Biological Diversity (CBD) as well as sustainable development in the subregion. Under these objectives, scoping surveys, joint studies, capacity building and public awareness programs were carried out on the three NEASPEC flagship migratory bird species by national focal points and coordinating bodies. Outcomes were reported respectively at a Workshop on Nature Conservation and Transboundary Cooperation in November 2016 and SOM-21 in March 2017.



Summary: Project activities (2014-2016)

Scoping Survey	Joint Study
<p>Scoping surveys were carried out to generate consistent and comprehensive information through utilizing existing information sources, and direct consultation with local stakeholders (e.g. local governments, institutions, academia, civil society and communities).</p>	<p>Joint studies were carried out to generate information through international cooperation in: information collection and sharing, consultation of local and international stakeholders, and international joint study on selected transboundary sites.</p>
Selected Sites and Coordinating Bodies	
<p>Black-faced Spoonbills</p> <p>Coordinating body: Chinese Academy of Forestry (China)</p> <ul style="list-style-type: none"> • Xingrentuo and Yuanbaotuo at Liaoning (China) • Hakata Bay (Japan) • Han Estuary and Incheon (ROK) 	<p>Dauria International Protected Area (DIPA)</p> <p>Coordinating body: State Nature Biosphere Reserve “Daursky” (the Russian Federation)</p> <ul style="list-style-type: none"> • China, Mongolia, and the Russian Federation • Joint study: 2014-2016 (incl. 55 and 15 field trips in the Russian Federation and Mongolia, respectively)
<p>White-naped Cranes</p> <p>Coordinating body: Wildlife Science and Conservation Centre (Mongolia)</p> <ul style="list-style-type: none"> • Dalai Lake, Ergun River Basin and Huihe River (China) • Khurkh and Khuiten River Valley Areas of the Onon River Basin, and Dauria International Protected Area (Mongolia) 	<p>Korean Demilitarized Zone (DMZ)</p> <p>Coordinating body: Korean Society of Environment and Ecology</p> <ul style="list-style-type: none"> • Democratic People’s Republic of Korea and Republic of Korea • Joint study: 30 January – 4 February 2015
<p>Hooded Cranes</p> <p>Coordinating body: Korean Society of Environment and Ecology (Republic of Korea)</p> <ul style="list-style-type: none"> • Lindian (China) • Izumi (Japan) • Cheonsu Bay (Republic of Korea) 	

Key Findings and Recommendations

- Current surveys and information-sharing are intermittent and uncoordinated, which makes it difficult to understand the overall population dynamics, distribution of birds and connectivity of habitats. Thus, coordinated actions and mechanisms should be explored to conduct research and share updated information timely.
- Migratory species and their habitats are closely linked to local livelihoods and especially agricultural activities. Considering agricultural practices, subregional guidelines or specific measures to conserve key migratory birds and support agro-biodiversity management through research and local engagement should be developed at both domestic and subregional level.
- More experienced scientists are needed to continue and expand current research and monitoring work. At the same time, young scientists should be engaged through capacity building programs such as regular international nature school.

Chapter 1. Black-faced Spoonbill

The Black-faced Spoonbill (BFS) or *Platalea minor* is a large migratory waterbird which feeds primarily on small fish and shrimp in shallow waters. In the 1930s, it was described as a 'common' species in south-eastern China¹, but by 1994 it was listed as critically endangered by the International Union for Conservation of Nature (IUCN) with a global population of less than 300. Fortunately, the recorded BFS individuals recovered to 660 in 2000, but it is still listed as endangered.



Figure 1. Black-faced Spoonbill Family in border area between DPRK and ROK (© KIM Yeonsoo)

According to the International BFS Census, BFS population has increasingly rising from 660 to 3,941 between 2000 to 2017 (see Figure 2). The high return rate of tagged birds, high proportions of juveniles, and high number of observed birds also indicate a long-term growing population². However, the population growth is uneven by region. In the latest census, increase in wintering population was observed in Japan and Vietnam, whereas the number of BFS wintering in mainland China, Macao and the Republic of Korea (ROK) has declined.

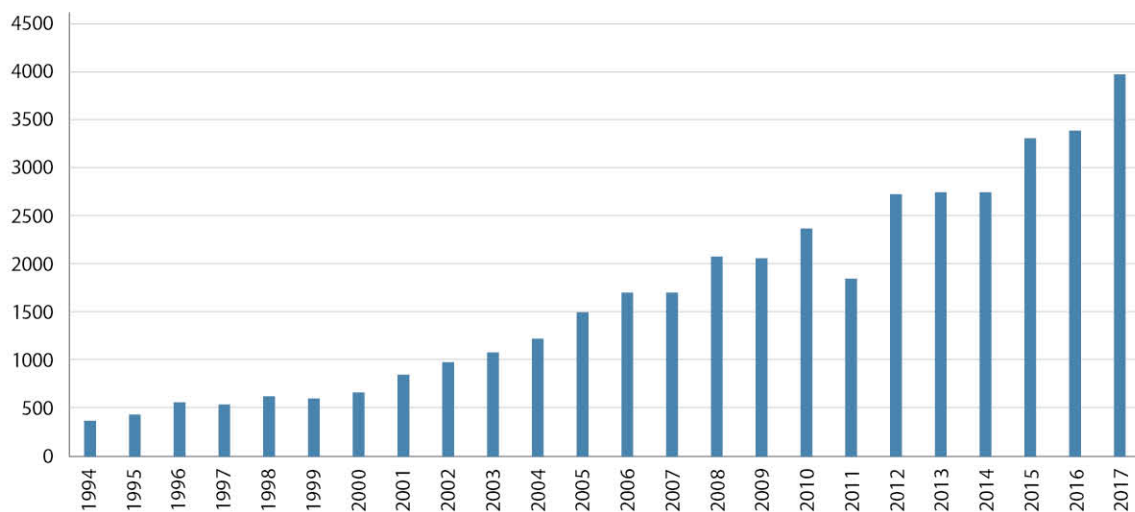


Figure 2. Black-faced Spoonbill Population from the International BFS Census (1994-2017)

Breeding grounds for BFS include the rocky islands around the eastern and northern coasts of the Yellow Sea, along the western coast of the Korean Peninsula in the Democratic People's Republic of Korea (DPRK), ROK, and northeastern China. Other breeding sites are found in the Ussuri basin in southern Primorye, Russian Far-East and inland northeastern China.

1 La Touche, J. 1931–1934 A handbook of the birds of eastern China. London, UK: Taylor & Francis

2 Sung, Y.H., Tse, I.W.L. and YU, Y.T., 2017. Population trends of the Black-faced Spoonbill *Platalea minor*: analysis of data from international synchronised censuses. Bird Conservation International, pp.1-11.

BFS winters in East Asia, almost exclusively in the coastal areas. Its major wintering grounds cover the coastal area of Kyushu in Japan, the eastern and southern coasts of China, including the Tsengwen Estuary, Tainan City, Taiwan Province of China, Deep Bay in Hong Kong, China, and expand to the northern part of Vietnam, such as the Red River Delta.



Figure 3. Black-faced Spoonbill feeding a crab at tidal pool

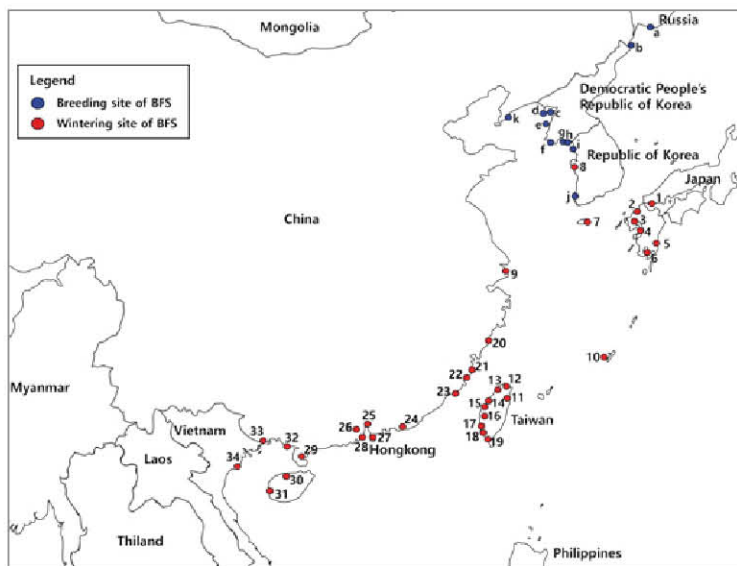


Figure 4. Location of Breeding and Wintering sites of Black-faced Spoonbill

The NEASPEC Project selected key breeding sites such as Xingrentuo and Yuanbaotuo in China, Incheon in ROK, and a wintering site at Hakata Bay in Japan for in-depth survey analyses.



Figure 5. Survey sites for Black-faced Spoonbill

1. Breeding Sites

Breeding sites surveyed in Xingrentuo and Yuanbaotuo in China and in the Han Estuary and Incheon in ROK are all in proximity to coastal plains, natural estuaries and/or tidal flats that provide important feeding grounds for black-faced spoonbills.

China: Xingrentuo and Yuanbaotuo

Xingrentuo and Yuanbaotuo are located at the Zhuanghe Estuary of the southeast Liaodong Peninsula in the Yellow Sea with temperate climate. The area is the world's second largest BFS breeding site with large open coastal mud flat as feeding grounds, and of great importance for the species conservation. The government signed an agreement with the two towns adjacent to the breeding sites, to hire staff dedicated to monitor the site during the breeding season. Protection signs have been set up, road access has also been restricted, and nest building materials have been provided at the earlier stage of breeding season. Zhuanghe municipal government has also reportedly abandoned various economic and tourism projects to protect the feeding grounds.



Figure 6. The breeding ground and the breeding population of Black-faced Spoonbills in Zhuanghe Estuary, China

During the breeding season of BFS in 2012-2014, the breeding sites at Xingrentuo in Shicheng Island and Yuanbaotuo in Wangjia Island were studied using telescopes and cameras, and the number of birds and nests were counted. Food availability and feeding habitats were studied at the BFS's feeding site, Zhuanghe Estuary.



Figure 7. Landscape of Zhuanghe Estuary and Blackfaced spoonbills

Observations

Significance

Breeding

The survey found 21 nests in 2014 (11 in Xingrentuo, Shicheng Island and 10 in Yuanbaotuo), a significant growth from 7 nests in 2012 and 17 in 2013. According to data from the Zhuanghe Wild Animal Protection Station, in autumn 2013 a total of 77 Black-faced Spoonbills were found in the Zhuanghe Estuary intertidal zone. This monitoring data represents an increase in the breeding population as well as high breeding success rate in the sites.

Feeding

No significant changes have been observed in 2013 to 2014 at the Zhuanghe Estuary feeding ground, and the retention of a large area of the feeding site has maintained the breeding population. In 2014, a Korean banded BFS sub-adult was observed at the Zhuanghe coastal beach. It reflects the close relationship between the Zhuanghe Estuary and the Korean breeding populations, and highlights the importance of the Zhuanghe Estuary feeding ground during the breeding season.

Threats

Protection measures have reportedly been undertaken during the breeding season including dedicated staff patrols, access restrictions and provision of nesting materials. However, human disturbances and economic development pressures such as recreational activities, land reclamation project, construction and development of farms and aquafarms have been recurring concerns in the Zhuanghe Estuary coastal beach.

Recommendations

- Reduce human disturbance by providing direct protection to the breeding sites
- Improve protection of the current habitats by implementing measures to prevent pollution and destruction of the wetlands through cooperation with relevant local authorities and engaging them in management improvement informed by scientific research
- Establish a national nature reserve to ensure long-term protection of BFS breeding sites
- Strengthen relationships between the protection department and local villagers
- Restore and create ecological conditions necessary for BFS breeding

Republic of Korea: Han Estuary and Incheon



Figure 8. Location of breeding sites of Black-faced Spoonbills in Incheon, Republic of Korea

Study sites in ROK consist of the Han Estuary, streams, several uninhabited islands, and one artificial island created to measure the water depth of the Namdong reservoir in Incheon. Han River, together with the Imjin and Yeseong River, creates the only natural estuary in the west coast of ROK. It is a vast tidal flat formed from earth and sand deposits. Parts of the Han Estuary are restricted to the public for military purposes.

Incheon's natural shoreline has been modified due to the construction of the Incheon International Airport in 1992 and continuous reclamation projects. A tidal flat in southern Ganghwa Island still serves as a habitat for BFS and has been designated as Korean Natural Monument for preservation. On July 10, 2014, a tidal flat near Songdo New Town in Yeonsu-gu, Incheon was designated as ROK's 19th Ramsar site, in recognition of wetlands of international importance for the conservation of global biological diversity and for sustaining human life through the maintenance of ecosystem services.

Conservation efforts for BFS and other migratory species have mainly been carried out by the Incheon BFS Network. In 2015, Incheon City has embarked a study on Incheon's natural environment to monitor wild birds and BFS throughout Incheon and its islands. The study was carried out jointly by Incheon Development Institute, University of Seoul and Incheon National University. Eco-tourism and environmental awareness also have increased around the Han Estuary area, where rice farming is common, and Ganghwa Tidal-flat serves as an exhibition and education site on wildlife conversation.



Figure 9. Artificial island in Namdong reservoir (one of BFS breeding sites in Incheon city)

The overall BFS population has increased over the years according to international census. However, further patterns and limitations on population growth, such as low hatching rate in the Namdong Reservoir, is yet to be studied.

The breeding sites this NEASPEC study focuses on areas near the Han estuary and the feeding sites along inland rice paddies and wetlands.

Observations

Significance

Tidal flats on the Han estuary are biodiversity rich and are important foraging sites for migratory waterbirds feeding on these faunas. The area also serves as a key stop-over site during spring and autumn seasons for migratory birds. In 2014, the number of BFS spotted in Ganghwa Island, Gimpo, Namdong reservoir and Siheung was 453 in total, out of which 357 were observed in Namdong reservoir. This represents 15% of the global BFS population. Roosting sites are mostly located in Ganghwa Island. Other birds such as egrets and shorebirds are also found at rice paddies and mud flats.

Breeding

In 2003, 112 nests were spotted in 5 uninhabited islands such as Yu Island, Yo Island, Soori Peak, Bi Island and Seok Island. The number of breeding sites also rose to 17 in 2013 as new sites like Mae Island, Gaksi Rock and Namdong reservoir were found.



Figure 10. Landscape of Mae Island (one of Black-faced Spoonbill breeding sites in Incheon city)

In sum, while Yu Island in the lower reaches of Han River becomes no longer a core breeding site for BFS, new breeding sites have arisen. One of them is an artificial island located in Namdong reservoir, surrounded by industrial complexes and intense human activities. It had been created to measure the water level of the reservoir, and now emerged as a valuable breeding site for 161 pairs of BFS in 2015. Despite locating within industrial complexes, it is close to feeding sites like Gojan tidal-flat and rice-paddies in Maehwa-dong, Siheung city. Seagulls have also been observed to nest on the Namdong Latex's artificial island, Mae Island and Sangyeo Rock which BFS also nest. In 2015, only 90 out of 156 nests succeeded in hatching in the Namdong reservoir artificial island which is considered low hatching rate.



Figure 11. Black-faced Spoonbills in rice paddy in Gimpo

Feeding

The tidal flats, streams, rice paddies, shallow waterways and reservoirs are found to be providing critical food source for BFS and a lot of shorebirds. Rice paddies are used by BFS at the early phase of breeding as they turn into wetlands with water being supplied for rice planting after the end of April. BFS are no longer observed in rice paddies in June after breeding, and it is believed that they turn to feed at the tidal flats. This is because of the difficulties in using rice paddies due

to the growth of rice along with juveniles' physiological characteristics and persistent interference from farmers.

Threats

Development and reclamation projects near Songdo and Incheon International Airport have dramatically reduced the size of tidal flats. There is also loss of roosting sites due to development of shrimp aquafarms and construction plans for tidal power plant on the shore of Ganghwa Island.

Recent droughts have reduced the water supply for rice farming and affected the breeding and feeding of BFS greatly as they depend on freshwater wetlands, such as rice paddies.

Human disturbances such as recreational activities and waste dumping are also critical threats to the species.

Recommendations

- Conduct further research and monitoring to identify factors that might have affected the low hatching rate of BFS and factors contributing to BFS not breeding on Yu Island while maintaining the current breeding sites in a sustainable way
- Create and expand protected sites to conserve the sites from the impact of land development projects and promote rice paddies as potential feeding sites by promoting organic farming
- Promote conservation following an integrated management approach
- Establish professional research institute, an educational and training institution for systematic research and for the promotion of public awareness activities, including ecotourism development

2. Wintering and stop-over sites

Following the end of breeding, BFS migrate to the south towards mainland, Taiwan Province of China, Hong Kong, China and Vietnam, as well as Japan. They winter almost exclusively in the coastal areas.

Japan: Hakata Bay

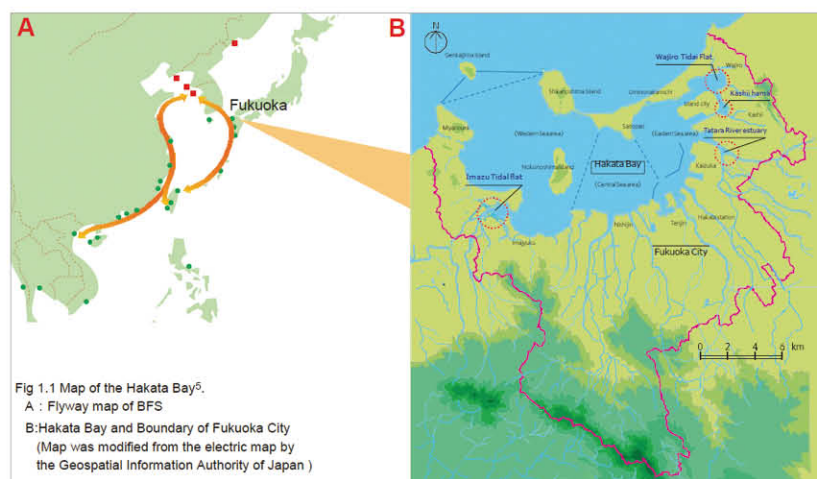


Figure 12. Map of the Hakata Bay, Japan

The wintering site selected for the NEASPEC project is Hakata Bay in Japan, located along the eastern flyway route of BFS connecting the breeding sites in eastern China and the wintering sites in South-East Asia. The site includes protected wetlands, muddy tidal flats, rivers and river mouths, etc., and is surrounded by mountains. Hakata Bay thus offers plentiful marine and fresh-water resources that can be used by BFS for wintering, roosting and stopping-over.

The area is also a well-known wild bird habitat such as the Genkai quasi-National Park and game reserve. In the eastern part of Hakata Bay, a Nature Reserve and a Special Wildlife Sanctuary were established by the Ministry of Environment in 2014 at Wajiro and Tatara. A temporary artificial wetland created by the reclamation construction of Island City has resulted in a rapid increase of water bird including BFS in the area.

A number of facilities have been established locally for environmental learning purposes, research and awareness raising. One of them is “Mamorumu Fukuoka” alongside other education facilities at Kyushu University and the Maritime Affairs and Fisheries Technology Center of Fukuoka. The Fukuoka City has also announced a Master Plan of the city, the “Basic Environment Plan” in 2014 with the idea to turn the Island City in eastern Hakata Bay into a so-called “eco-park zone” as part of environmental conservation. The Imazu flats would be made into “flats co-existence zone” where citizens would learn to appreciate rich tidal flats and their biodiversity.



Figure 13. The so-called “Eco-park Zone” in the eastern area of Fukuoka

Various activities are carried out to facilitate the migration of BFS in the area, such as cutting down the reeds at the roosting site, and removing the garbage in the estuary before migration season, especially fishing lines and fish hooks to avoid injury to BFS.

The NEASPEC project focuses on monitoring surveys for BFS, jointly conducted by several organizations including the monthly counting of BFS at wintering sites by Japan BFS Association, the Wild Bird Association of Japan, Fukuoka Branch and the Port Authority of Fuoka City. In addition, feeding and roosting survey of BFS in Hakata Bay was carried out by bird specialists using questionnaires and maps.



Figure 14. Black-faced spoonbills flying in residential area

Observations

Significance

BFS were found in Hakata Bay since the mid-1980's, first at the Imazu tidal flats. The number of BFS gradually increased year by year, reaching more than 50 birds during migration season and around 30 birds during wintering season in recent years. Given its marine and fresh-water resources at Hakata Bay, it is an important wintering and stop-over site over the eastern flyway for BFS. BFS have also been spotted roosting at Imazu tidal flat and Tataru river estuary, mostly on “nakasu”, which are sandy banks in the river mouth and estuary. The site is also a habitat for more than 200 species of wild birds (including 92 waterbird species) and other vulnerable species such as horseshoe crab, ringworm fiddler crab, hibiscus hamabo and some unique species of butterflies.

The wintering numbers of BFS at Imazu has been stabilized over the last 10 years with around 20 birds. During the winter period, the number of aquatic animals decreases, and BFS need to scatter around a wide range to feed inland where the water is shallow. Inland feeding, however, results in some conflicts with resident and urban developments. Some site-specific problems at Hakata Bay include water quality and sometimes competition for food with the Great Cormorant. However, BFS have also been observed to join strengths with Great Cormorants and Herons to fish in group.

Recently, a new wintering site at Honshu was found in Yamaguchi Bay. One tagged juvenile BFS with solar GPS tracking visited Yamaguchi Bay in 2012. GPS tracking data (2012-2015) suggests that it stayed in the middle of the bay throughout the winter.

As a stop-over site, migration usually starts around mid-October, with 10 individuals at Imazu, 8 at Tatara and 17 at Wajiro in 2014. The recorded number during this period is higher than the wintering season. The increasing numbers during north-migration season shows that both Imazu and Tatara, especially Wajiro, are mainly used as stop-over site as it provides enough food and resting areas. As BFS can only feed in shallow water zones with muddy bottoms, they tend to first visit open wetland space such as tidal flats and estuaries for resting and feeding upon arrival.

Threats

Major threats to BFS include human disturbances such as tourism, industrialization, urbanization, and agro- and aqua-culture; pollution from industrial, agricultural and household origin, poor water quality, biochemical and chemical oxygen demand; and climate change-induced heavy rains and associated sea level changes. Conflicts with resident and urban development have also recently been spreading into inland freshwater wetland. For instance, Kyushu University was relocated near Imazu, where the Imazu Bridge was rebuilt to provide better transportation services.

Recommendations

- Increase public awareness by international exchange programs for children and international workshops
- Protect the new inland area where BFS are recently found
- Register as an EAAFP flyway site
- List more wintering sites in China for conservation and rehabilitation
- Conduct further study on the distribution of BFS' food resources in the aquatic field including the "group fishing" behavior of BFS, Great Cormorants and/or Herons which collaborate in catching schools of fish together

Chapter 2. White-naped Crane



Figure 15. White-naped Cranes (© KIM Yeonsoo)

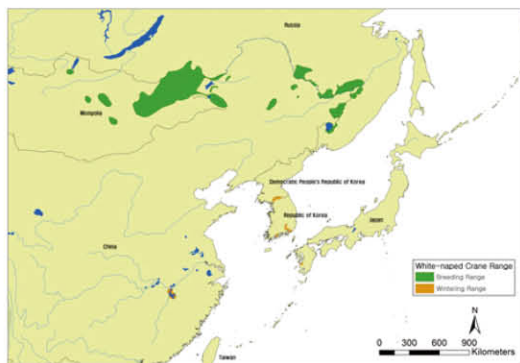


Figure 16. Range of White-naped Cranes in East Asia (Source: International Crane Foundation)

White-naped Crane (WNC) or *Grus vipio* is listed as a globally vulnerable species by the IUCN. It has experienced a rapid and on-going population decline largely due to the loss of wetlands to agriculture and economic development. WNC is only found in East Asia and breeds in wetlands of grassland steppe in northeastern Mongolia, northeastern China, and the adjacent areas of southeastern Russia. It migrates along the Songwen plain and Gulf of Bohai to its wintering grounds in the Yangtze basin, mainly at Poyang Lake and along the Korean peninsula to the Korean Demilitarized Zone (DMZ) at the border area

between DPRK and ROK and to southern Kyushu in Japan. The total population of WNC is estimated at 4,900-6,500. About 3,000 individuals in the western portion of the breeding range migrate south through China, resting at areas on the Yellow River delta and wintering at wetlands in the middle Yangtze River valley. Approximately 2,000 birds in the eastern portion of the breeding range migrate south through the Korean peninsula.

NEASPEC project targeted the following sites for survey, including their breeding and congregation sites at Dalai Lake, Ergun River Basin, and Huihe River in China; and Khurkh and Khuiten River Valleys in eastern Mongolia, and the Dauria International Protected Area at the borders of the Russian Federation, Mongolia and China.



Figure 17. Survey sites for White-naped Cranes

1. Breeding sites

China: Dalai Lake, Huihe River and Ergun River Basin

Dalai Lake National Nature Reserve (NR) is located in the northeast of the Inner Mongolia Autonomous Region in an area of 740,000 ha with wetlands, rivers, large and small lakes. Huihe National Nature Reserve (NNR) is located in the same region covering an area of 346,848 ha and is listed in the Chinese Biosphere Reserves Network (CBRN) in 2007 with rich biodiversity with over 316 bird species recorded. The Ergun Wetland NR borders China and the Russian Federation. It is an expansive flood plain which forms a delta at the junction of the Ergun River. It is part of two globally important ecoregions: the Daurian steppe ecoregion and the Heilongjiang River Basin ecoregion. This closed ecosystem is composed of lakes, prairies and forests, and presents the most intact wetland in China.



Figure 18. Scoping survey sites for White-naped Cranes in China

Under the NEASPEC project, a WNC population counting was carried out in August and September 2014. Two to four sample points were selected in Ulam Noel Wetland, Aoka Wetland, Quanhe River, Hulieyetu Wetland, Ergun River Wetland, Huyetuo Lake, Morigelie Wetland, Huihe Xiboqiao, Sifang Mountain, Heying, Hongqidui, Nanhui, Beihui, Chagan Mountain, Luotuo Bozi, Dali Wetland, Haolibao, Erdaogou, Sanpaozi, Modamuji, and other sites separately, through direct scanning and counting methods. A crane survey was conducted on the Huihe River in the 2014 spring migration season by the NR staff.

Observations

Significance

Huihe NNR shows very rich biodiversity that 316 bird species were recorded in 56 families. It plays an important role in preserving the stability of the regional biodiversity. The area is also an important ecological barrier and migration stopover site.

Breeding

The Dalai Lake Nature Reserve, Ergun River and Huihe River are breeding sites for cranes, great bustard, swan goose, and various waterfowl species. In the summer of 2014, 36 WNCs were recorded in Huihe area including eight families and ten single WNCs. None were recorded at Dalai Lake or Ergun River but 72 cranes of the other 4 species (including Hooded Cranes) were observed among waterfowl.

Congregation and Migration

During the 2014 spring migration, 22 and 29 WNCs were observed respectively in April and May in Huihe River. Alongside WNCs, other crane species were observed, including 53 Red-crowned Cranes, 34 Common Cranes, 18 Demoiselle Cranes and 29 Hooded Cranes.

Table 1. White-naped cranes observed in 2014 in the project survey sites

	Huihe River, China	Dalai Lake and Ergun River, China	KK Valleys, Mongolia
Spring 2014			160
April 2014	22	-	-
May 2014	29	-	-
Summer 2014	36	0	-
Autumn 2014	-	-	1,790

Threats

The sites face local threats such as human disturbances from oil exploitation and leakage, groundwater resources depletion and tourism, which are (in)directly impacting crane migration and breeding. Habitat fragmentation and degradation due to droughts and low precipitation result in the shrinking of lakes.

Recommendations

- Reduce potential interference and destruction by human activities
- Preserve ecological characteristics as much as possible and prevent further wetland and biodiversity decline

2. Congregation sites before migration

Mongolia: Khurkh and Khuiten River Valleys of the Onon River Basin, and Dauria International Protected Area

The Khurkh-Khuiten (KK) River Valleys are internationally important wet grasslands. The valleys provide critical staging and molting grounds for the species. For this project, nest and population monitoring was carried out at a local level, and at the subregional level a scoping survey was conducted to identify critical sites for pre-migration congregation of WNCs throughout Eastern-Mongolia.

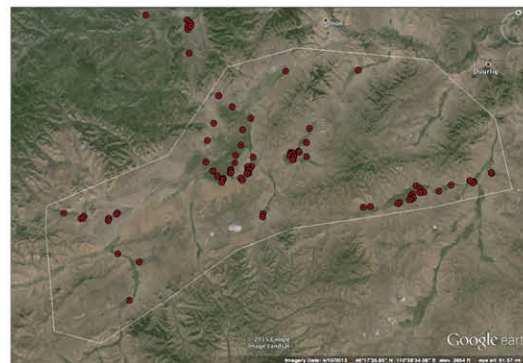


Figure 19. Geographic distribution of the 14 sites included in the survey

Observations

Significance

This survey has been the first extensive autumn survey carried out in eastern Mongolia, covering 80% of potential crane habitats of the two major flight routes. Several critical sites were identified including where four different crane species congregate before migration, and one additional breeding site (only one was known before). In total, 1,790 WNCs were found at 41 sites which exceeds the current population estimate of 1,500; and that during the breeding season in 2014, 80 pairs of WNC were spotted nesting in KK River Valleys.

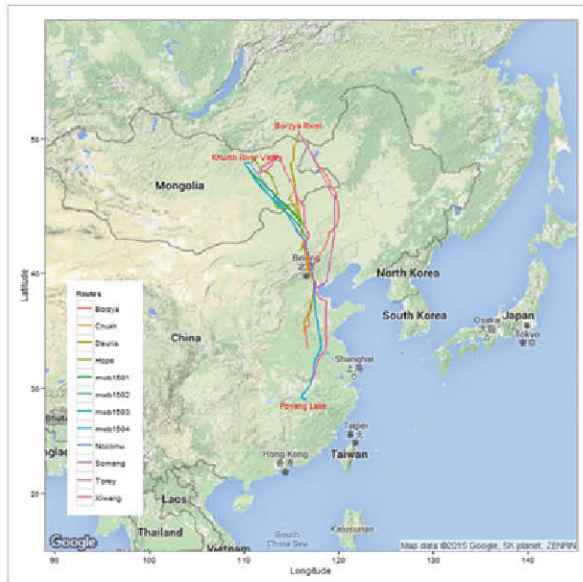


Figure 20. Migration routes of White-naped Cranes from the Khurkh and Khuiten River Valleys and the Dauria International Protected Area

The Onon river basin was found to support 46-60% of the regional WNC population, including Khurkh River Valley (18%), Norovlin Crop Field (19.5-33.7%), and Sainsariin Lake (8.2%), as they congregate before autumn migration. This implies the site’s significance for WNC conservation. Some WNC were also found to not move onto staging areas but stayed at the breeding ground until migration.

Threats

Climate change and droughts in the KK River Valleys have lowered water levels, which result in the changes in the habitat that no longer favorable for crane breeding. The extensive use of agricultural land by the cranes has been a potential problem due to consumption of crop by the cranes, as it might cause conflict with farmers or endanger them through pesticides ingestion. The area is also facing habitat fragmentation and degradation due to the rising number of goats and sheep in the area which has increased by three-fold in the last decade, and the increased grazing has also affected the plant regeneration regime.

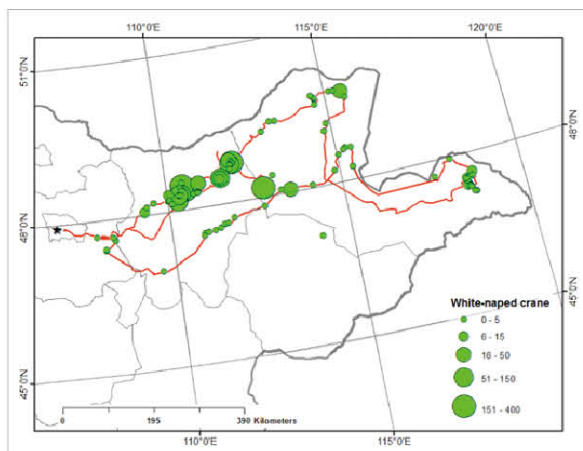


Figure 21. Locations of White-naped Crane records during the survey in eastern Mongolia

Recommendations

- Strengthen habitat protection by: (i) upgrading the protection status from a local to a national level and establishing "Khurkh and Khuiten River Valley Nature Reserve"; and (ii) identifying key crane habitats for targeted actions and address water shortage and conservation issues
- Increase research capacity, train young scientists and raise awareness
- Improve monitoring of: (i) crane populations, (ii) emerging threats (e.g. pesticide uses and wetland loss) and (iii) impact of climatic factors by establishing a network of small-scale meteorological stations in DIPA and the Khurkh Valley
- Increase experience sharing and collaboration amongst researchers, locals and managers



Figure 22. White-naped and Eurasian Cranes at crop fields in Norovlin

Chapter 3. Hooded Crane



Figure 23. Hooded Cranes (© KIM Yeonsoo)

Hooded Crane (HC) or *Grus monacha* is a globally vulnerable species according to the IUCN due to its small population and distribution restricted to fewer than ten wintering sites with a relatively small combined area. The substantial threats to its limited habitat have been a key challenge in its conservation.

Hooded Crane breeds in south-central and southeastern Siberia and possibly Mongolia. Recently other breeding sites have been found in some region of Heilongjiang province, China. They migrate along the Yellow River to their wintering grounds in the Yangtze basin, mainly at Dongting Lake, Poyang Lake and Chongming Dongtan and along the west coast of the Korean peninsula to Suncheon bay, Republic of Korea and to Izumi, southern Kyushu in Japan. The majority of the population winters at Izumi in Japan, with small numbers wintering in China and ROK. It is estimated that 1,050-1,150 birds winter in China. The wintering number in Suncheon bay, ROK, has been increased since 1996 to over 1,000 individuals in 2014.

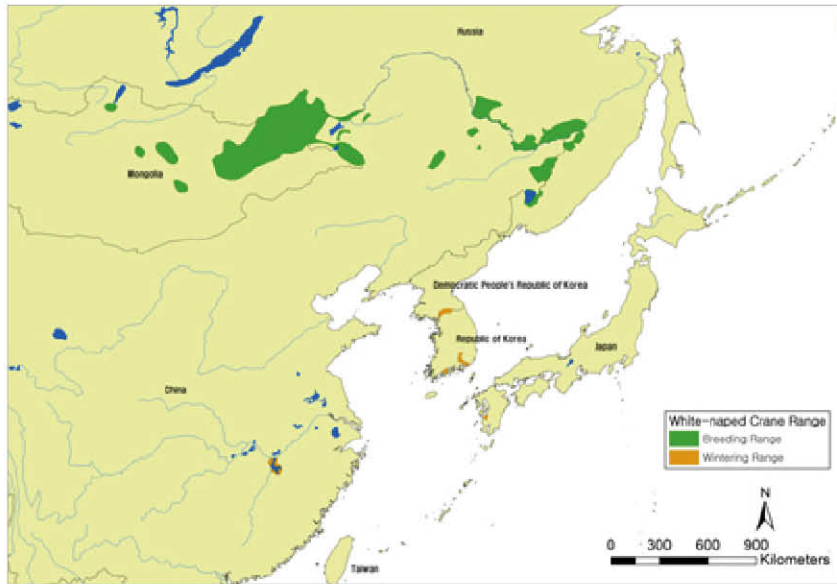


Figure 24. Range of Hooded Cranes in East Asia (Source: International Crane Foundation)

The surveyed sites of the project include breeding sites in Lindian County, Heilongjiang province of China, and wintering sites at Cheonsu Bay in the ROK and Izumi in Japan.



Figure 25. Survey sites for Hooded Cranes

1. Breeding sites

China: Lindian

Lindian County is a breeding area for HC in northeastern China. The County has a flat terrain at the lower reaches of the Wuyuer river basin. It consists of Dongsheng Reservoir, the Wuyuer and Shuangyang Rivers with Guoshi Ecological Lake as the core area of large, mature and most intact original wetland areas in China. Lindian wetland has large areas of grasslands, ponds, lakes, rivers and reed meadows.



Figure 26. Lindian County, a stopover site of Hooded Cranes in China

For NEASPEC project, several centralized waterfowl distribution areas were selected, and 2 to 5 observation points were set up in each site. The status of waterfowl resources was investigated, and observations were carried out as close to the lake as possible. A total of two 3-day surveys were conducted.

Observations

Significance

In April and May 2015, 230 and 450 HCs were observed respectively among other waterfowl including 14 Red-crowned Cranes, four White-naped Cranes, 47 Common Cranes, and four Oriental White Storks. Swamps in the area support the breeding population as resting areas, and the nearby corn fields are used for feeding sites.

Recommendations

- Establish a national nature reserve for better protection
- Strictly prohibit illegal hunting
- Promote local monitoring and protection efforts
- Raise public and local authority awareness

Threats

Despite being one of the key breeding sites for HC, there has been a lack of effective management put into place in the area with no or insufficient protection measures, and illegal hunting has become the most prominent concern. Furthermore, pollution of the wetland has threatened the habitats for HC. For instance, pollution from chemical plants and paper mills in the past has now been replaced by domestic waste pollution from local farmland.

2. Stop-over and wintering sites

HC migrate towards the south to winter. Field survey was carried out in their major stop-over and wintering sites, namely the Cheonsu Bay in the ROK and Izumi in Japan.

Republic of Korea: Cheonsu Bay

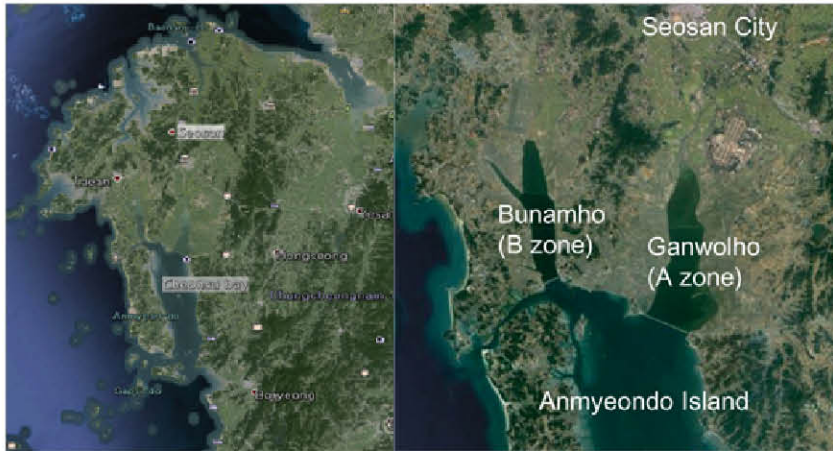


Figure 27. Location map of Cheonsu Bay (left in 2015)

Cheonsu Bay is a narrow (2 km wide) and long (40 km long) bay in Chungcheong Province in ROK surrounded by farmlands, lakes and neighboring streams, forests, reservoirs and rural villages. Its high tidal range makes it a suitable place to coastal fishery and fishing farms. From 1980 to 1995 tidal flats of the bay were reclaimed and subsequently used for intensive farming for grains. Paddy fields gave rise to many small waterways and reservoirs, which became very significant habitats and feeding sites for migratory birds as they can eat fallen grains left behind after harvest.

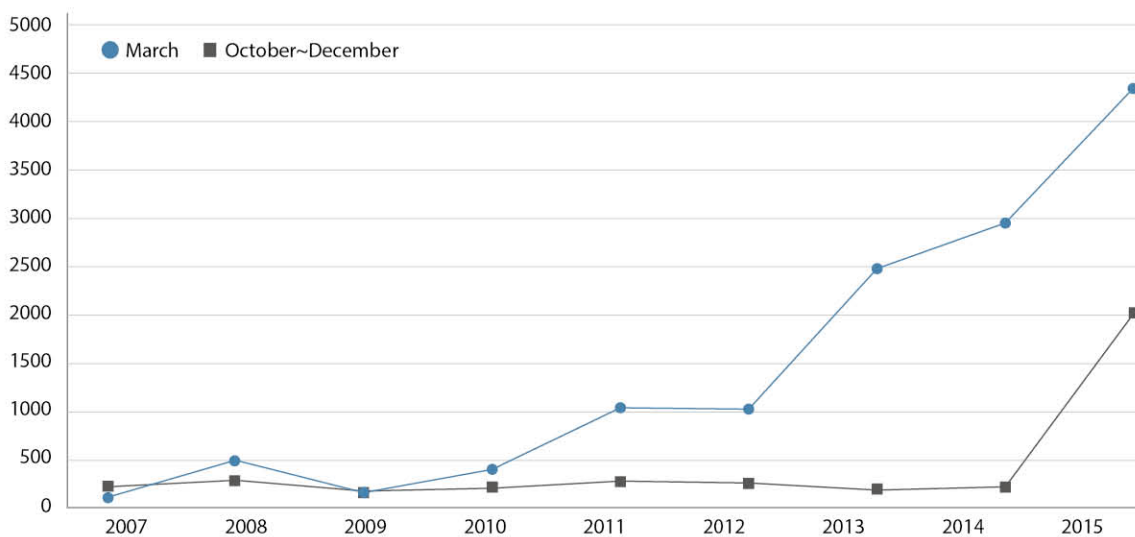


Figure 28. Number of Hooded Cranes in Cheonsu Bay (2007-2015)

The status of winter migratory birds at Cheonsu Bay has been monitored through a census of winter migratory birds conducted nationwide by the Ministry of Environment every January since 1999, followed by the monitoring reports on bimonthly monitoring activities in Cheonsu Bay published since 2007. The annual census of migratory birds shows that Cheonsu Bay is an important stop-over and wintering site for HC and many other migratory species.

In view of its ecological importance, several protection and conservation measures have been put into place, including that: (1) Cheonsu Bay was designated as a wildlife reserve in 2009; (2) a payment system of ecosystem services was established in 2003 to provide feed and resting grounds; (3) artificial feeding of migratory waterbirds took place since 2007, through establishing feeding sites on water-filled rice paddies and farm roads; and (4) since 2010, a large eco-tourism development project has been established including a migratory bird museum and observatory facilities. Treatment and rehabilitation, breeding support and research on migratory birds were organized by the Wild Animal Treatment Center, along with national and international events for public awareness raising.



Figure 29. Seosan BirdLand, Wetland Center (left) and Migratory bird observatory (right)

Observations

Significance

Cheonsu Bay is an important stop-over and wintering place of Hooded Crane and many other birds migrating to Suncheon Bay in ROK or Izumi in Japan. Cheonsu Bay supports up to 7,150,000 birds covering 320 species to date, including migrating populations of threatened Baikal Teal and Bean Goose, as well as rare and endangered species such as Oriental White-Stork, Hooded Crane, Eurasian Spoonbill and Black-faced Spoonbill.

The stop-over population during the migration seasons have been steadily increasing over the years. HC moving north observed during a day was 2,515 in March 2013 and increased to more than 3,000 in March 2014 and further to 4,435 in March 2015.

Cheonsu Bay is also an important wintering site. At least seven HC winter in the bay since 2014, and for the first time in October 2015, 2,048 HC were spotted during a period when they normally move south. This may be attributed by the absence of Haepyong wetlands as a stop-over site along one of the two migratory routes thus many HC changed their route. It is estimated that all HC moving north are traveling via Cheonsu Bay.

Threats

HC has been negatively influenced by various human activities, such as (1) intensive agriculture and the use of pesticides and fertilizers, (2) land reclamation for intensive agriculture, and (3) agricultural practices, for instance, the late reaping of rice which causes insufficient food for the birds arriving before the harvest.

Recommendations

- Designate as a protected area and design biodiversity programs by the government
- Implement measures to ensure economic benefits through eco-tourism led by local communities, while protecting HC's habitats
- Integrate sustainable regional development plans with environmental ecological planning
- Engage domestic and international stakeholders on conservation issues, especially the landowners

Japan: Izumi

As one of Japan's 500 important wetlands selected by the Ministry of Environment, Izumi is reclaimed land surrounded by the Yatsushiro Sea in the north and by mountains in the east and south. In the plain, three rivers flow towards the Yatsushiro Sea, and there is a delta near the mouths of the rivers which has been the center of migration grounds for cranes. The site includes the Izumi-Takaono Wildlife Protection Area and Special National Natural Monument. The area is currently used as farmland, mainly for rice and chicken farming as well as built-up area.



Figure 30. Location of Izumi, Japan

Some farmlands are prohibited to access during winter for the crane protection. During winter migration, patrols for cranes are conducted every day for early detection of injured, sick, dead and weakened birds. Sick or injured birds are brought to a crane protection center. The Izumi City Crane Observation Center carries out research on the population of wintering cranes in Izumi and on the use of the dispersion areas, etc. It also engages in programmes that promotes conversation education through organizing public events such as exhibitions and lectures for students. In the leased lands in Arasaki and the east reclaimed land, cranes are fed with wheat every morning from November until the next March.

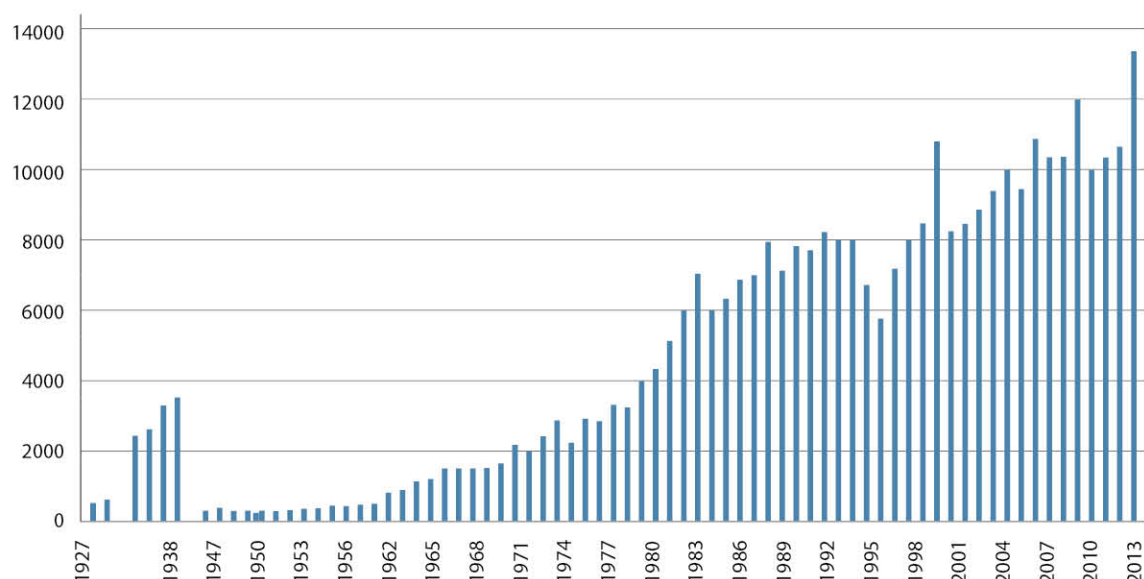


Figure 31. Number of Hooded Cranes in Izumi

Izumi City Crane Observation Center, Kagoshima Crane Conservancy and Crane Park Izumi have conducted population monitoring and associated research on a number of birds.

Observations

Significance

Observations on the sites shows that the observed number of HC at Izumi can reach over 13,000 which is equal or even slightly above the current estimated global population of 11,500 HC in 2006. During two separate days in November 2014, 11,802 and 13,472 HC were spotted, and this indicates that about 90% HC population winters in Izumi. The number of wintering cranes has increased over the years, and their migration has also become earlier, shifting to early October. Overall, Izumi is the world’s largest wintering ground for HC and internationally critical in supporting the global population of this endangered species.

Table 2. Number of Hooded Cranes observed by the project survey

		Cheonsu Bay, ROK	Izumi, Japan
Stop-over	March 2013	2,515	-
	March 2014	3,000	-
	March 2015	4,435	-
Winter	November 2014	-	11,802 – 13,472
	October 2015	2,048	

Threats

General threats are tourism and human disturbances, including increase of solar panels, roads, controlled fires, and agro- and aqua-culture practices. Although agriculture leftovers produce food for cranes, changes in agricultural practices led to a decrease of rice leftover after harvest.

Disease outbreak is another major threat to the species. Poultry farming is common in Izumi, and the highly pathogenic avian flu virus, which was detected in cranes in winters of 2010-2011 and 2014-2015, has caused friction with poultry farmers posing serious threats to their farms. In this regard, disinfection procedures, monthly crane excrement examinations and water examinations have been set up in response. Artificial feeding of cranes also attracted ducks and caused damage to seaweed farms.



Figure 32. Cranes foraging wheat on the feeding station in Arasaki

Recommendations

- Develop a joint action to designate more protected areas in the region
- Increase public awareness as cranes are coexisting with local communities
- Consider dispersing the HC population as the environmental capacity of the area has been exceeded. This can be achieved through varying the methods and periods for feeding.
- Develop new methods for artificial feeding

Chapter 4. Joint Studies at Transboundary Habitats

There are over a hundred transboundary protected areas along international borders in North-East Asia, over 20 of which are adjoining protected areas in neighboring countries. These habitats are often relatively undisturbed due to restricted access at the border area, with different level of cooperation and management. To effectively manage these transboundary habitats, transboundary cooperation is essential to collect and share information, to devise suitable management options for each country and for the habitat as a whole, as well as to implement and monitor management actions.

Two transboundary habitats are selected for the NEASPEC joint study in 2014-2016 as follows:

- *Korean Demilitarized Zone (DMZ)* between the Democratic People’s Republic of Korea (DPRK) and the Republic of Korea (ROK)
- *Dauria International Protected Area (DIPA)* between China, Mongolia and the Russian Federation

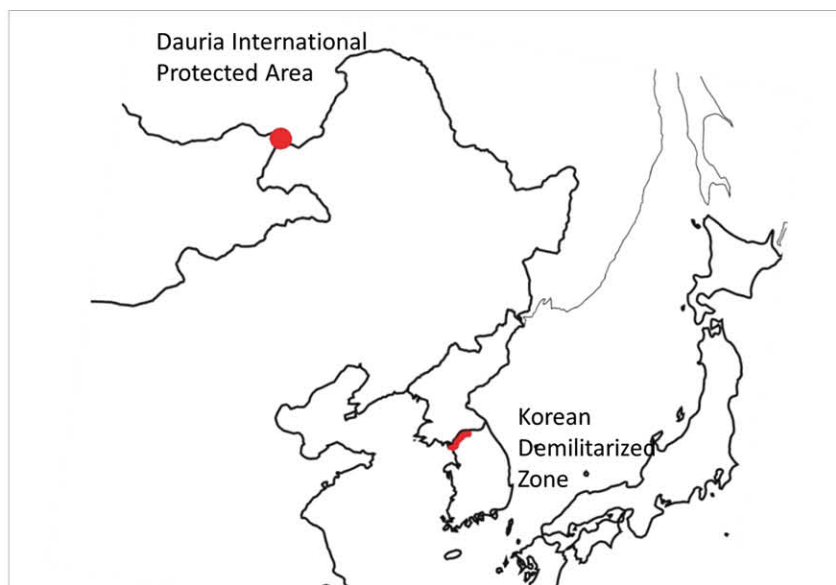


Figure 33. Joint study sites for transboundary habitats

Both are major habitats for Cranes, but they are of very different nature. The DMZ is relatively close to human settlements and in proximity of more development projects, whereas DIPA is more isolated and challenged by human activities such as hunting and herding. These two sites showcase the diverse nature of transboundary habitats and the range of human factors to be incorporated in joint conservation planning and actions.

Korean Demilitarized Zone (DMZ)

The Korean Demilitarized Zone Area includes the Demilitarized Zone (DMZ) and the Civilian Controlled Zone (CCZ), which is 250 km (160 miles) long and approximately 4-20 km wide running across the Korean Peninsula and known for their unique biodiversity and ecosystems. The middle and western parts of the DMZ are an important wintering habitat for many migratory waterbirds, especially for around 2,000 of the endangered White-naped Crane and several hundred birds of Red-crowned Crane (*Grus japonensis*) in North-East Asia encompassing a diversity of habitats such as rice paddies, river valley, riverine wetlands, mountains, and reservoirs, and supporting the needs for feeding, foraging and resting.



Figure 34. Study sites at DMZ

For the joint study at DMZ, NEASPEC Focal Points, NEASPEC Secretariat, EAAFP, BirdLife International, WWF, International Crane Foundation, Hanns Seidel Foundation, Korea National Park Service, and more than 100 local participants participated in the discussion on habitats and their conservation. The study has found that the number of wintering cranes increased from 2,032 (2011) to 2,877 (2014). Particularly, Cheorwon was the important wintering site for over six species of cranes including a rapidly increasing number of WNC that more than doubled from 2012 to 2014/2015 season (see table 3).

Table 3. Number of selected crane species observed in the study sites at the DMZ

		2011	2012	2014/2015 winter
Cheorwon	Red-crowned crane	607	540	476
	White-naped crane	1,108	1,351	2,816
Yeoncheon	Red-crowned crane			181
	White-naped crane			200
Paju	Red-crowned crane			7
	White-naped crane			93
Imjin River Area	Red-crowned crane	24	11	2
	White-naped crane	34	67	151

Observations

Significance

Cheorwon is located in the middle of the Korean DMZ area consisting of important crane habitats such as rice paddies, Hantan river valley, riverine wetlands, mountains and residential areas. From 2011 to 2014, 6 species of cranes were recorded wintering in Cheorwon, including Red-crowned Crane, WNC, HC, Eurasian Crane, Sandhill Crane, and Siberian Crane.

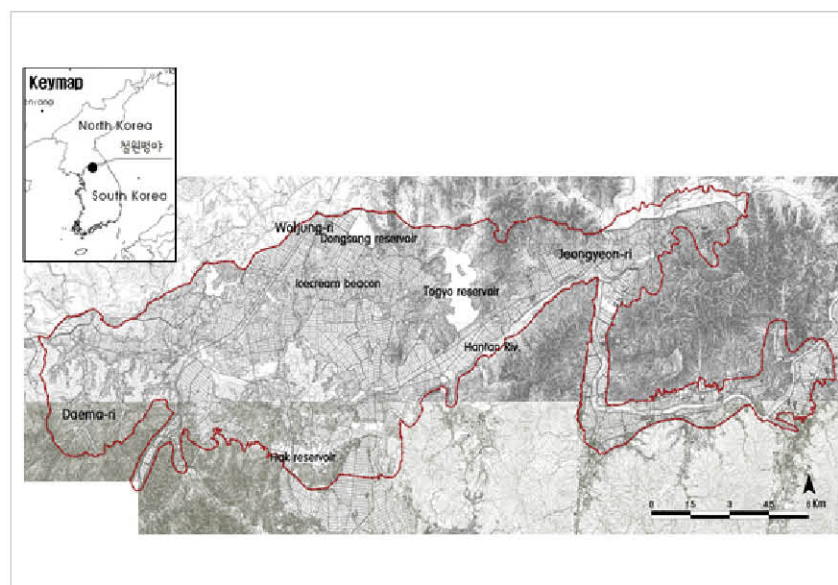


Figure 35. Survey area in Cheorwon (Korean DMZ)

WNC wintering in Cheorwon uses riverine wetlands and shallow water of Hantan River and nearby reservoirs as roosting sites. They also roost on the ice of reservoir in freezing temperatures. The main feeding sites are rice paddies. Many WNC also uses open areas such as adjusted and flattened rice paddies as stop-over sites during migration.

Upon the survey, the number of Red-crowned Crane in December 2011, 2012 and 2014 were 607, 540 and 476 respectively, and that during the same period of time, counts of WNC were 1,108, 1,351 and 2,816 respectively.

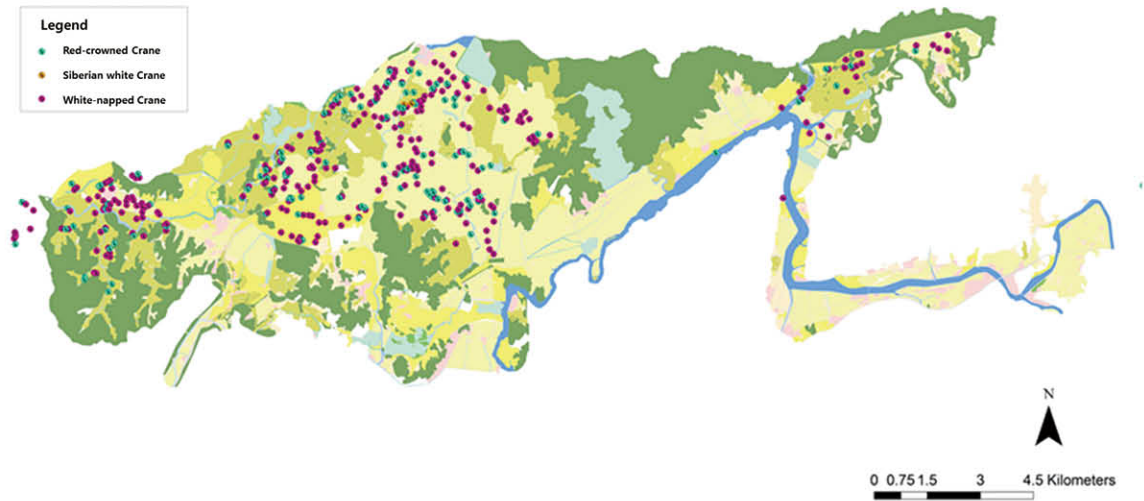


Figure 36. Distribution of Cranes in Cherwon (as of December 2014)

Yeoncheon is adjacent to Cheorwon on its western side. With total habitat size of about 40 ha, Imjin River, river wetlands and valleys are the main habitats for cranes. The mountainous rice paddies and streams are especially important for foraging and roosting of cranes, respectively, and WNC wintering in Yeoncheon usually uses shallow water or the rapids of Imjin River as roosting and foraging sites. The birds mainly take dropped grains in mountainous rice paddies.

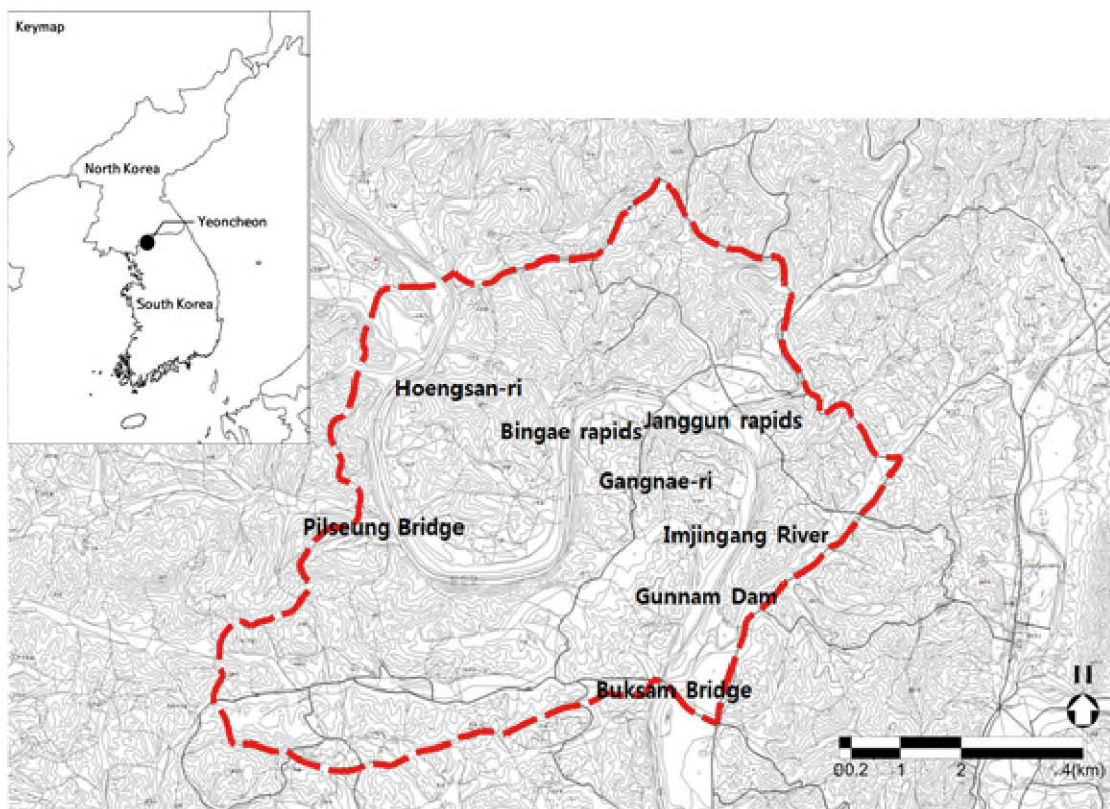


Figure 37. Survey area in Korean DMZ

Annual surveys from 2005 to 2014 has shown an increase mainly of the Red-crowned crane and WNC population. From the NEASPEC survey conducted in January 2015, 200 WNC, 181 Red-crowned cranes and 1 individual of Siberian crane were observed in Yeoncheon.

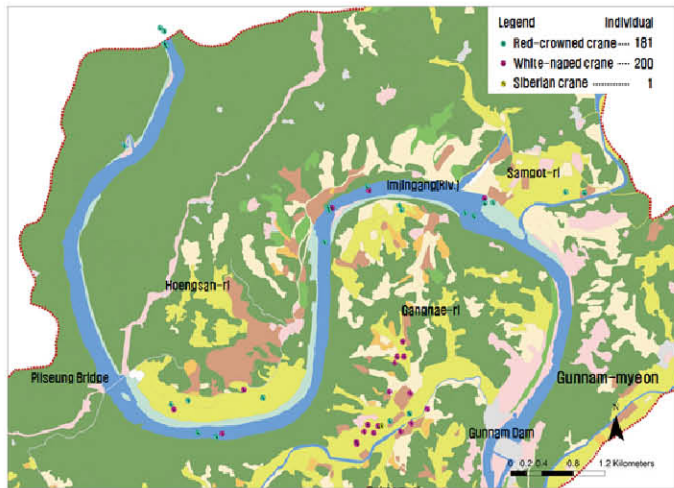


Figure 38. Distribution of White-naped Cranes in Yeoncheon (as of January 2015)

Located at the west part of Korean DMZ, *Paju and Imjin river area* comprises mountain, riverine wetlands, rice paddies and residential areas. Cranes usually use riverine wetlands and rice paddies as their main habitats.

During the survey in January 2015, 93 WNC and 7 Red-crowned cranes were observed. WNC wintering around Imjin river use shallow water and wetlands in the DMZ as roosting site. Rice paddies and shallow riverine wetlands of Imjin River were identified as foraging sites of the birds. Some recent national annual surveys on WNC’s wintering since 1999 indicates the following highlights that: (1) 24, 11 and 2 Red-crowned cranes were observed in 2011, 2012 and 2014 respectively; and (2) 34, 64 and 151 WNC were counted in 2011, 2012 and 2014 respectively.

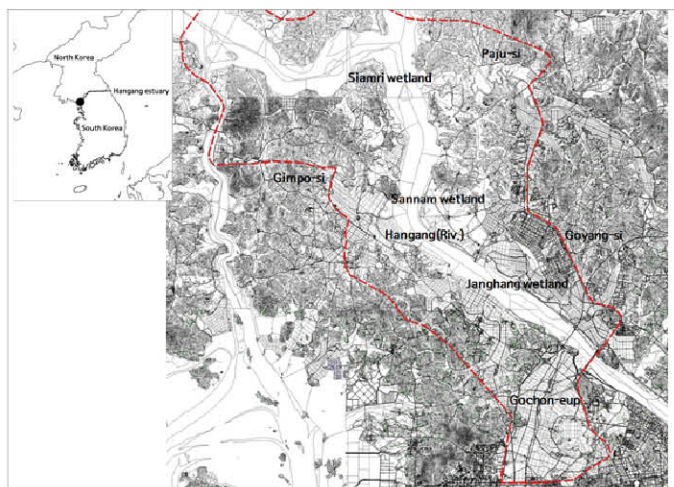


Figure 39. Survey area in Paju and Imjin River

Han Estuary is large, natural river-mouth ecosystem in between DPRK and ROK. With total habitat size of about 2,620 ha, riverine wetlands and tidal-flat are the major types of habitat observed. As brackish water affected by strong tides by the Yellow Sea, the biodiversity of migratory waterbirds in Han Estuary is very high.

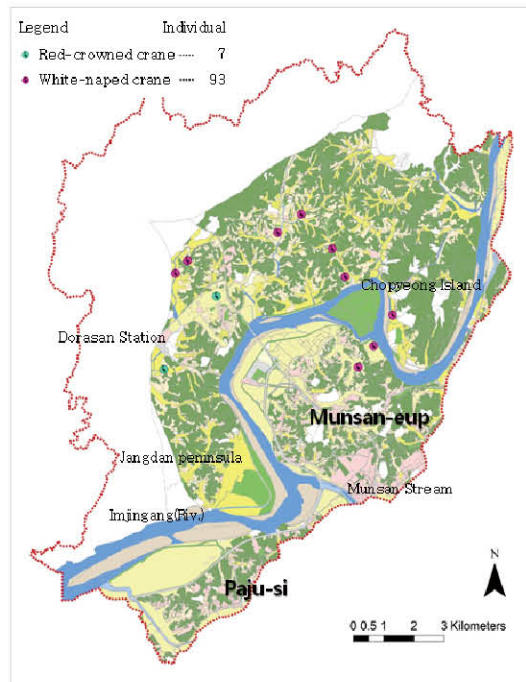


Figure 40. Distribution of White-naped Cranes and Red-crowned cranes in Paju (as of January 2015)

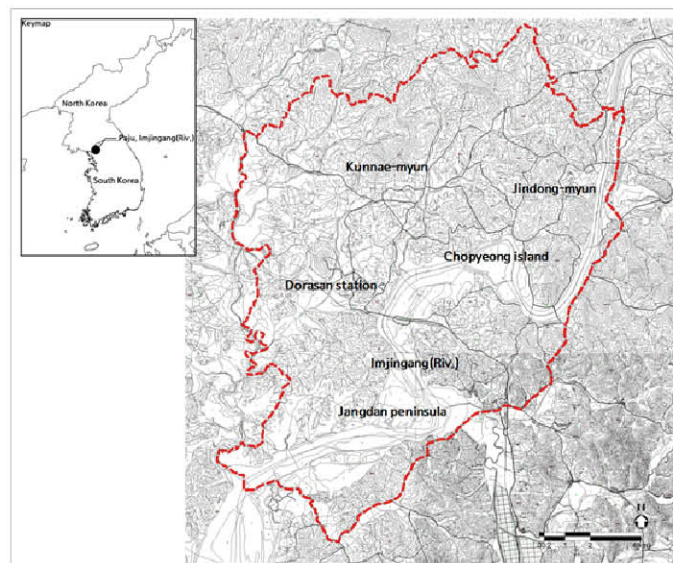


Figure 41. Location of Han Estuary (Inside of the red line is survey area)

For WNC, flattened rice paddies and streams are identified as the main habitat type, and their main foraging sites are rice paddies with dropped grains and tidal-flat with benthic organisms such as lugworm. Shallow water of the riverside is used as roosting sites. Most of the rice paddies, however, were lost to urbanization in the past decades. 7 WNC were observed in 2014, but only one WNC was observed in January 2015 during the joint survey.

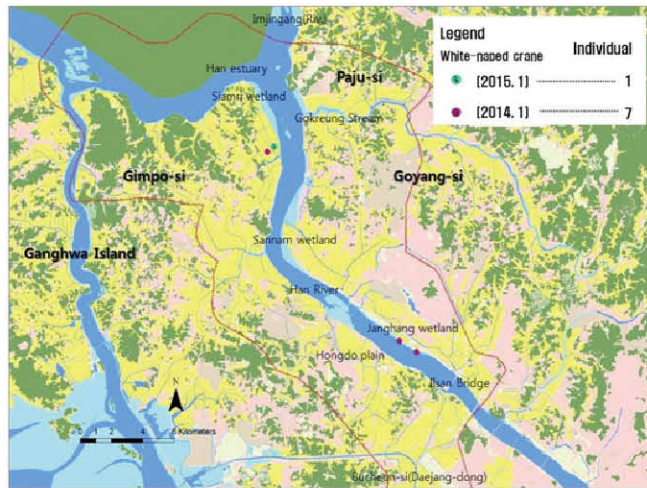


Figure 42. Appearance of White-naped Cranes in Han Estuary during survey in 2014 and 2015

Threats

Notwithstanding that most cranes have observed wintering in the DMZ over the last five years, as human activities intensified in the area, it poses various threats to the birds.

Some key threats are identified as the following: (1) intensified habitat loss and fragmentation by rapid urbanization and ongoing development projects such as building construction, extension of roads, and increasing agricultural field; (2) the increase number of tourists, birdwatchers and photographers with inappropriate behavior in the absence of proper guidelines, which disturbs stable wintering of the birds and hinders their choices of habitats; and (3) changes of water regime due to construction projects which flattened rice paddies.

Recommendations

- Develop a detailed and accurate map of crane habitats, followed by the identification and expansion of priority areas for conservation
- Develop an ecotourism programme, visitor centers for education, and guidance for visitors and tourists to raise public awareness and change their behaviors
- Prohibit artificial feeding by tourists as it results in the collectivization of cranes which is highly likely to undermine the system of the DMZ crane population highly dependent on nature
- Enhance the cooperation among countries in North-East Asia through developing a conservation strategy to link wintering sites in DPRK and DMZ
- Develop a regional action plan based on international strategies with a focus on cranes

Dauria International Protected Area (DIPA)

DIPA was established in 1994, located in the center of the Transboundary Daurian Steppe Ecological Region with vast wetlands, steppes and forests. Total area of DIPA is more than 19,000 km², including big wetlands, waste steppes, rocks and forest. It is one of the globally known ecological area that includes following three national nature reserves across the border of the Russian Federation, Mongolia and China. These national reservers are Ramsar Sites for the recognition of internationally important wetlands, internationally Important Bird Areas (IBAs) and Key Sites for Cranes in North-East Asia (EAAFP) (see Figure 43):

- (1) National Nature Biosphere Reserve “Dalai Lake” (Dalai Lake NR) located in Inner Mongolia Autonomous Region, China;
- (2) Mongol-daguur Strictly Protected Area (Mongol-daguur SPA) located in Darnod Aimag (Darnod Region), Mongolia; and
- (3) State Nature Biosphere Reserve “Daursky” (Daursky NR) located in Zabaikalsky Kray (Zabaikalsky Region), the Russian Federation.

DIPA has a long history in cross-border cooperation in conservation. The Dauria Transboundary Monitoring Network (DTMN) established in 2010 has conducted several activities such as annual meetings, long-term monitoring of waterbirds (including WNC) and wetlands, and studies on the impact of climate change and anthropogenic activities on the Russian-Mongolian border to support the sustainable use of natural resources. DTMN is unique international cooperation in North-East Asia that provides projections on ecosystem changes and develops proposals for their long-term preservaton, sustainable use both in the territory of each country and in the transboundary region as a whole.



Figure 43. Dauria International Protected Area (DIPA)

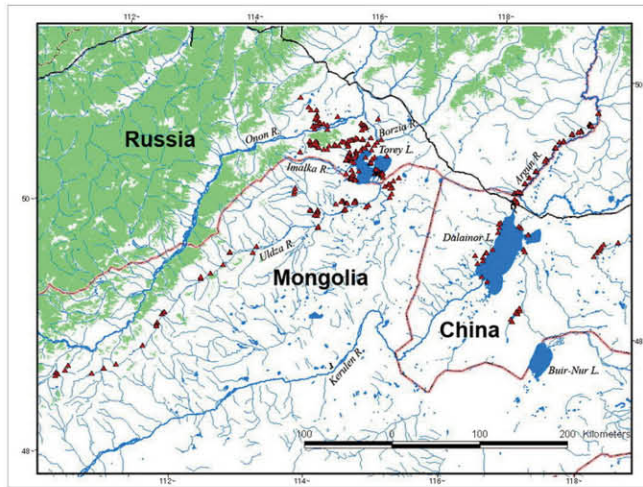


Figure 44. Dauria Transboundary Monitoring Network (DTMN)

This NEASPEC Project provides a critical and timely census of the Crane population status and their habitat use since the last one carried out in 1995 in the Daurian area in the Russian Federation. This comprehensive census also covers the entire breeding area of the western population of WNC in the Russian Federation, and generates essential information to understand the long-term dynamics for conservation of WNC in the entire Dauria region. Several project partners and collaborating organizations³ jointly carried out the NEASPEC project activities during 2014-2016, and have made 55 field trips using a car in the Russian Federation and 15 field trips in Mongolia. Moreover, during June and July 2016, a whole census on WNC population was made in the Daurian area in the Russian Federation by car and a small helicopter, in the Daurian Steppes by car, and the Onon wetlands by a helicopter where car access is very difficult.



Figure 45. The Avia-census on the Onon River Wetlands (28-29 July 2016)

³ For more details, please refer to the (draft) project report (pages 199-200) submitted to SOM-21, available at http://www.neaspec.org/sites/default/files/NC%20Annex%20III.%20Project%20report_NEASPEC%20MB_Mar2017.pdf

Observations

Significance

This census produces critical updates in population and habitat status of WNC in DIPA.

A most important finding of the census is that the breeding success has declined in both long-term and short-term monitoring. The number of successfully breeding pairs declined significantly from 15 pairs in 2014 to 10 in 2015 and 8 in 2016. The situation is similar on the Russian and Mongolian territories of the Daurian Steppes. The average number of chicks in a brood declined from 1.8 in 2014, to 1.7 in 2015 and 1.5 in 2016. The long-term breeding population of WNC has also halved in the last 20 years, from 100 pairs observed in 1995 to 45 in 2016. Breeding pairs percentage has lowered as only 36% of territorial pairs had chicks.

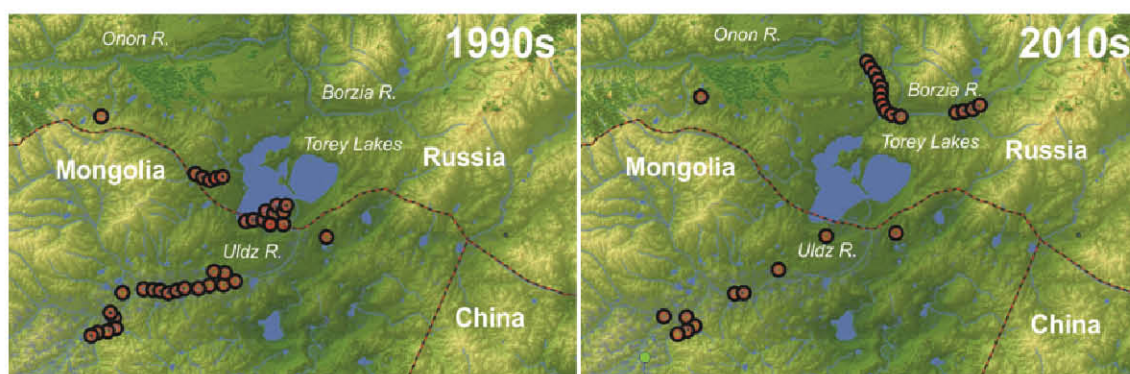


Figure 46. Distribution of WNC breeding pairs in Daurian Steppes (monitored in Mongolia and the Russian Federation)

The study also observes significant changes in the distribution of nesting sites over the last 20 years. In the 1990s, up to 15 pairs of cranes nested on the Torey Lakes in the Daurian NR. However, during the drier years in 2000s, wetlands on the Torey Lakes dried up and became unsuitable for breeding, while wetlands on the Borzia River, originally too swampy for breeding, dried up partially and became available for breeding (See Figure 47). Consequently, WNC have stopped breeding on the Torey Lakes since 2009, and up to 15 pairs breed on the Borzia River instead which is outside of the protected areas. It is found that overall 15% of the breeding population was thus protected during the wet years, and only 2% is protected in the dry period.

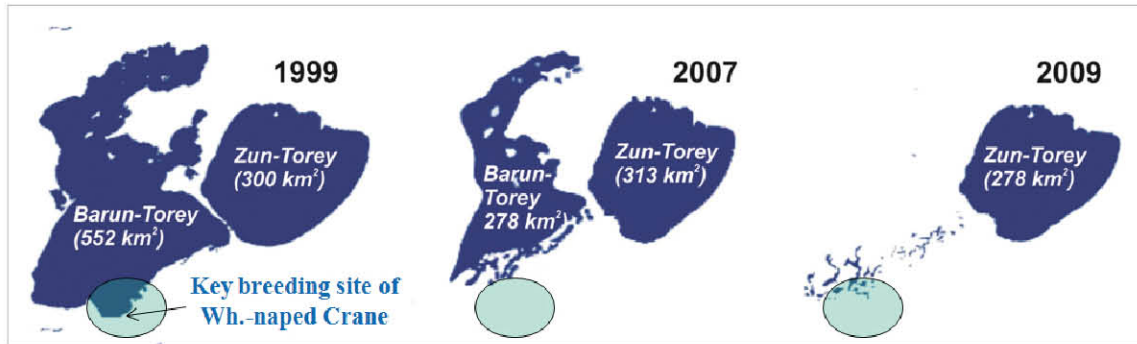


Figure 47. Long term dynamic of the Torey Lakes and key breeding WNC habitats in Daursky NR



Figure 48. WNC breeding habitats in wet 1990s (left) and dry 2010s (right)

The NEASPEC Project activities also has supported a number of conservation actions. One of them is a proposal for the expansion of the Daursky NR and the national level Nature Refuge “Dolina Dzerena” (managed and protected by Daursky NR) to protect more breeding pairs of WNC.

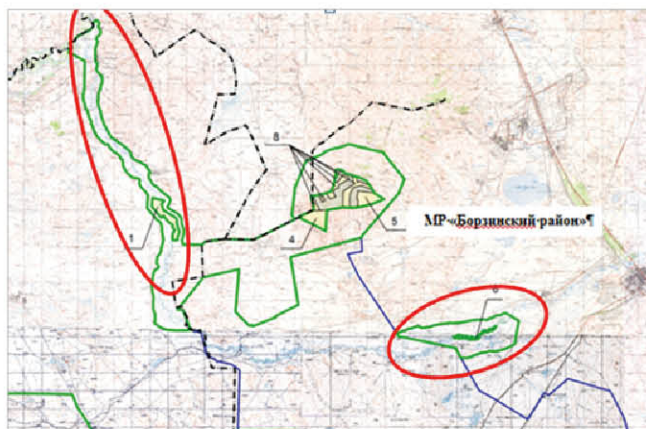


Figure 49. Scheme of expansion of the Daursky NR (green line) and the Nature Refuge “Dolina Dzerena” (red circles)

Another proposal on the establishment of a new nature protected area, Refuge “Duldurginsky”, at the regional level was prepared and shared with the Government of Zabaikalsky Krai in 2016. A subsequent meeting joined by the local community and government was organized, and the proposed Duldurginsky Refuge was included in the plan of establishing a new protected area for 2017.

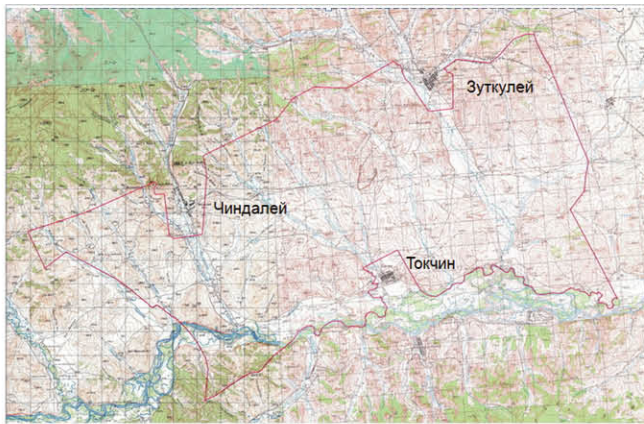


Figure 50. The future of Duldurginsky Refuge

A report on the latest WNC status and proposed actions in Daursky was presented at the meeting of the Red Book Commission of Zabaikalsky Krai in December 2016. Among the proposed conservation actions, the most important one is to establish a new nature protected area for WNC on the Onon River, namely Refuges “Uchirka” and “Swan Lake”. The Government of Zabaikalsky Krai included these habitats in its official plan and confirmed preparation of special regional program for study and conservation of WNC.

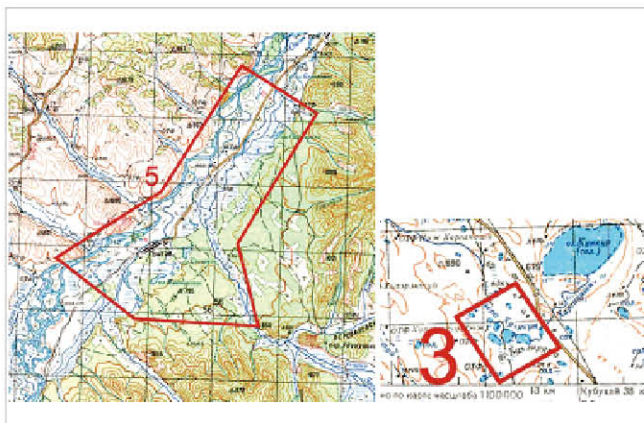


Figure 51. The planned regional level Refuges: “Uchirka” (No. 5) and “Swan Lake” (No. 3)

Threats

Climate change and subsequent droughts transform or dry up wetlands. The number of crane populations, accordingly, has been reduced, and cranes have been redistributed to the suitable wetlands nearby. Most cranes are now inhabiting outside the protected areas with greater exposure to anthropogenic threats. One of them is spring hunting in the Russian Dauria from May, which disturbs breeding WNC and many other waterbird species. As WNC starts to lay eggs in the third period of April, up to 60% of breeding pairs of WNC may lost clutches due to hunting disturbances. Anthropogenic and livestock activities can also disturb breeding of birds at the wetlands, and this impact can be exacerbated by further concentration of livestock for water during dry years. For instance, horses prefer to feed and rest near water sources, thus threatening the breeding sites of WNC resulting in low breeding success.

Spring floodplain grassfires set by humans have destroyed almost half of the crane breeding habitats. The fire is set to dry previous year's vegetation for improving the quality of the pastures. Other anthropogenic threats include illegal hunting using cranes for food in Russian Dauria, illegal shooting of cranes by farmers due to crop depredation, electric power line collisions, changes in hydrology, loss of suitable habitat due to water control projects, and loss of habitats due to mining development.

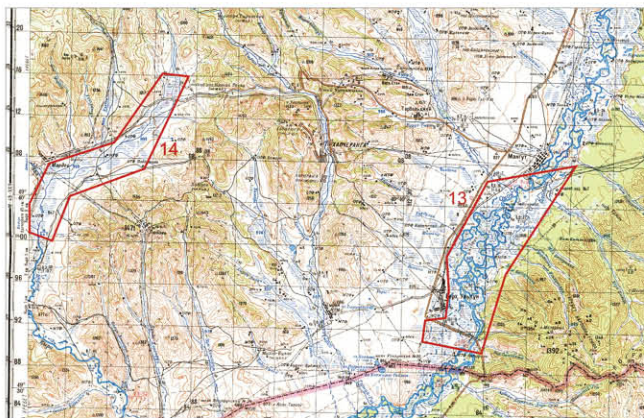


Figure 52. The two planned "peace areas"

Recommendations

- Expand the existing nature protected areas and establish new nature protected areas, especially in the Onon River basin
- Stop spring hunting or reduce negative influence of spring hunting to WNC in the Russian Federation, and establish special "peace areas" at the key breeding sites of WNC in Dauria (Figure 52)
- Stop or reduce negative effects of disturbance to WNCs, such as preventing grassfires and crop depredation, studying on the interference of electric power lines, and educating hunters
- Continue research and monitoring of WNC population, distribution and migration; study ecology, threats, limiting factors using GPS\GSM loggers and Platform Transmitter Terminal (PTT); and support DTMN's monitoring activities such as annual ground monitoring and aerial monitoring at least once every five years

Chapter 5. Conclusion and Recommendations

As the first project implemented for NEASPEC migratory bird flagship species since the adoption of the NEASPEC Nature Conservation Strategy in 2007, national focal points and resource persons, under the guidance of the NEASPEC Secretariat, have identified key habitats for ensuring the survival of Black-faced Spoonbill, White-naped Crane and Hooded Crane in North-East Asia. Through the scoping surveys undertaken by the Project over each key habitat, the latest ecological, economic and social conditions have been analyzed and eventually led to the suggestions for further regional and international cooperation for the conservation and rehabilitation of those sites. It is expected that each scoping survey and its outcomes would contribute to the harmonization of data, survey and monitoring methodologies and techniques among key habitats.



Figure 53. Joint study on the Borzia River in DIPA in June 2015(joined by experts from China and the Russian Federation)

Two joint studies in the transboundary areas were successfully conducted with multilateral participation including experts, practitioners and residents in each region at various levels. It was very meaningful that participants could share their experience, knowledge and information about the border area in different perspectives and discussed conservation and management plan.

The Project confirmed main threatening factors to habitats for key migratory birds in the subregion: (1) loss and degradation of habitats due to climate change, (2) change of water regime, (3) on-going development projects, and (4) human interferences. For the follow-up actions under the NEASPEC framework, the following is suggested by national focal points and resource persons of the Project:

- ▶ **Black-faced Spoonbill:** Securing tidal flats, particularly in the Yellow Sea eco-region, is the pressing need to ensure the survival of BFS. When raising chicks, water-filled rice paddy within a radius of 20 km from breeding grounds becomes critical to provide freshwater and food. More attention should be paid to the uninhabited islands in the west coast of DPRK, where the breeding grounds of BFS discovered in the mid-1990s. Thus, it is necessary for range countries to cooperate to investigate and monitor those islands and tidal flats in the west coast of DPRK.
- ▶ **White-naped Crane:** It is urgently required to identify the number of population and its trend and to simultaneous monitor in September when WNCs are gathering to migrate to south.
- ▶ **Hooded Crane:** As most wintering population is concentrated in the Izumi in Japan, securing more wintering areas to disperse the population is required. In recent years, it was found that more than 1,000 HCs have regularly wintered in Suncheon Bay in ROK, as a best practice to disperse population. It is urgent, therefore, to secure a stable foraging and roosting sites in Cheonsu Bay in ROK, where thousands of HCs use to roost during migration to south and north. Under the NEASPEC framework, comparative studies should be conducted among wintering sites, i.e. Chongmingdongtan in China, Cheonsu Bay and Suncheon Bay in ROK, and Izumi and Yashiro in Japan.
- ▶ **Overall,** guidelines for local farmers on farming practices to share best practices and enhance biodiversity should be developed as both Cranes and Black-faced Spoonbills are closely linked to agriculture. The guidelines can also encourage and help NEASPEC member States to adjust and coordinate their domestic policies, for example, through agreements on agricultural practices to contribute to the conservation of key migratory birds and their habitats in North-East Asia. Once the guideline is developed, NEASPEC member countries would carry out collaboration projects among similar areas such as comparative study on the habitat conservation and agriculture between White-naped Cranes' habitats in Mongolia and ROK.



Figure 54. Involvement of local people to conservation of White-naped Crane

► **Transboundary areas:** One of the key findings of the joint project is that the current protected areas are no longer be enough to conserve the species under concern, thus the boundary of the existing protected areas should be expanded. For instance, the number of breeding population outside DIPA has been growing over the last 20 years, and there is an urgent need to expand the protected area in order to properly protect the whole bird population, and to sustain what has been reached on nature conversation in the past decade in the subregion. In the case of DMZ, adequate legal protection measures are needed for rice paddies in Cheorwon as it is constantly used by cranes as foraging sites. In this connection, NEASPEC could utilize the expert network established through the Project and conduct joint study or local community awareness raising programme in other transboundary areas in North-East Asia.

It is also critical to note that the key habitats in North-East Asia for the concerned species are not properly protected by domestic law yet, which has been demonstrated through the field survey on the breeding grounds of White-naped Cranes in northeastern part of Mongolia, and the stop-over and wintering grounds of Hooded Cranes in Cheonsu Bay in ROK. Therefore, it is recommended that each government stipulate and enforce laws and regulations to conserve and rehabilitate those key habitats.

North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC)

NEASPEC is a comprehensive intergovernmental cooperation framework, established in 1993 by six member states, namely, China, Democratic People's Republic of Korea, Japan, Mongolia, Republic of Korea and the Russian Federation. Senior Officials Meeting (SOM) is held annually as the governing body and principal vehicle for the evolution of NEASPEC. UNESCAP-ENEA Office functions as the NEASPEC Secretariat.

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