MIGRATION OF INTERNATIONALLY IMPORTANT BLACK-FACED SPOONBILL AND CRANES IN KOREA

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Introduction

According to the dramatically environmental changes by the development and urbanization, wetlands are almost disturbed (Lee and Rhim 1999). The habitats of water birds face a variety of threats in Korea. The main threats are probably degradation and loss of habitat by development pressures (Won 1992). The influences of pollution, competition for foods, and other threats on the survival of species may also be important but have not been evaluated due to the lack of information and data. Spoonbills and cranes are well known wetland inhabits. But the disturbances on the wetlands, those birds are affected in migration, breeding and wintering.

The black-faced spoonbill is a globally threatened species (del Hoyo et al. 1992, Chong and Pak 1999), was classified as Endangered by the IUCN (Groombridge 1993, IUCN 1997) and listed as critical in BirdLife Internationals Birds to Watch 2 (Collar et al. 1994). The species is considered to be facing an extremely high risk of extinction in the wild in the immediate future, due to the potential for drastic population decreases caused by reductions in the species range or the quality of its habitat.

The cranes that regularly migrate to Korea for wintering are imperiled, and their wintering ground is recently threatened by habitat loss and environmental changes. Cranes are large birds of the wetlands, and their decline is closed to wetland destruction and degradation in Korea. Protection and appropriate management of the wintering grounds must be carried out effectively (Chan 1999).

For the conservation of spoonbills and cranes, the current status and distribution should be clearly investigated, and habitat should be protected and soundly managed. This study was carried for the basic data of proper

protection and management of the species and their habitats in western coast of South Korea.

Methods

For the basic information on the spoonbills and cranes, the papers, books, journals, and newspapers were reviewed to investigate the potential distribution of the birds in South Korea, and bird watchers, ornithologists, nature reserve staff, and fish man were interviewed from Mar. 1999 to Feb. 2000.

After the gaining of basic information on distribution of black-faced spoonbills, we have selected and surveyed in 20 islands which were mostly uninhabited islands and areas in western coast of South Korea from Mar. to Nov. 2000 (Lee et al. 2001b).

The major wintering grounds of cranes are known as Cholwon basin area, Imjin river, Han river estuary, Panmunjom, Kanghwa island, Taegu, Nakdong river, and Sunchon bay. In each wintering ground, several sub-areas were divided to survey the wintering status and distribution of cranes. We have surveyed on wintering status of cranes from 1997 to 2000 (Lee et al. 2001a).

Results and Discussion

1. Migration status of black-faced spoonbill

According to the records in South Korea, black-faced spoonbills bred at Wido island in 1916 and 1917 (Kuroda 1918), and a pair at Chilsando island in 1991 (BirdLife Aisa Council 1995). Twenty-one individuals including 14 juveniles were observed at Yudo islands in Han river estuary in Jul. 1994 and breeding pairs were estimated 5-10 pairs (Won 1994).

In Seokdo island, breeding of these species had first observed by a photographer in Jun. 1995 (Ministry of Environment 1999). Breeding of 10 pairs in Seokdo island was reported to Cultural Properties Administration in Jun. 1999 (No 1999). And also we have confirmed 22 adults including immature and 12 juveniles of the birds in Jun. 2000 (Table 1 and Fig 1). Black-faced spoonbills lay 4-6 eggs (Won 1981) but Chong et al. (1997) reported that there was no nest over three eggs among 5 nests. We confirmed 12 juveniles in Seokdo island, so we estimated at least 4 pairs bred in the island in this study.

Table 1. Observed number of black-faced spoonbills on western coast of South Korea in spring 2000

Date	Location	No. of individuals	Remark
16 May 2000	Chilsando island, Jeollanam Province	1	Immature
17 May 2000	Cheonsuman bay, Chungcheongnam Province	3	adult 2 immature 1
18 May 2000	Gyeokryeolbiyeoldo island, Chungcheongnam Province	3	adult 2 immature 1
1 June 2000	small island near by Boleumdo island, Gyeonggi Province	4	include immature
2 June 2000	Jumundo island, Gyeonggi Province	11	include immature
2 June 2000	Gaksiyeo in Seonduri, Gyeonggi Province	22	include immature
2 June 2000	Farmland in Seonduri, Gyeonggi Province	17	include immature, feed on rice paddy
17 June 2000	Seokdo island, Gyeonggi Province	34	adults and immatures 22, juveniles 12 breeding at least 4 pairs
22 June 2000	Yeochari, Gyeonggi Province	4	adult 1 immatures 3
	Total		99 individuals

Based on the satellite tracking data, Chong and Pak found 24 nests in Hambakdo island in North Korea around the DMZ of western coast of Korean Peninsula and also there are good rocky habitats for this birds to breed in Yokdo island (BirdLife International Asia Council. 1999). In 2000, Broadcasting document team have observed the breeding of black-faced spoonbill in Wido island, where was reported the breeding of the birds in 1994. Seokdo island, Yudo island, Hambakdo island and Yokdo island are located near the DMZ, where is difficult to approach for common people. These areas are considered likely to be an important breeding and summering site of them.

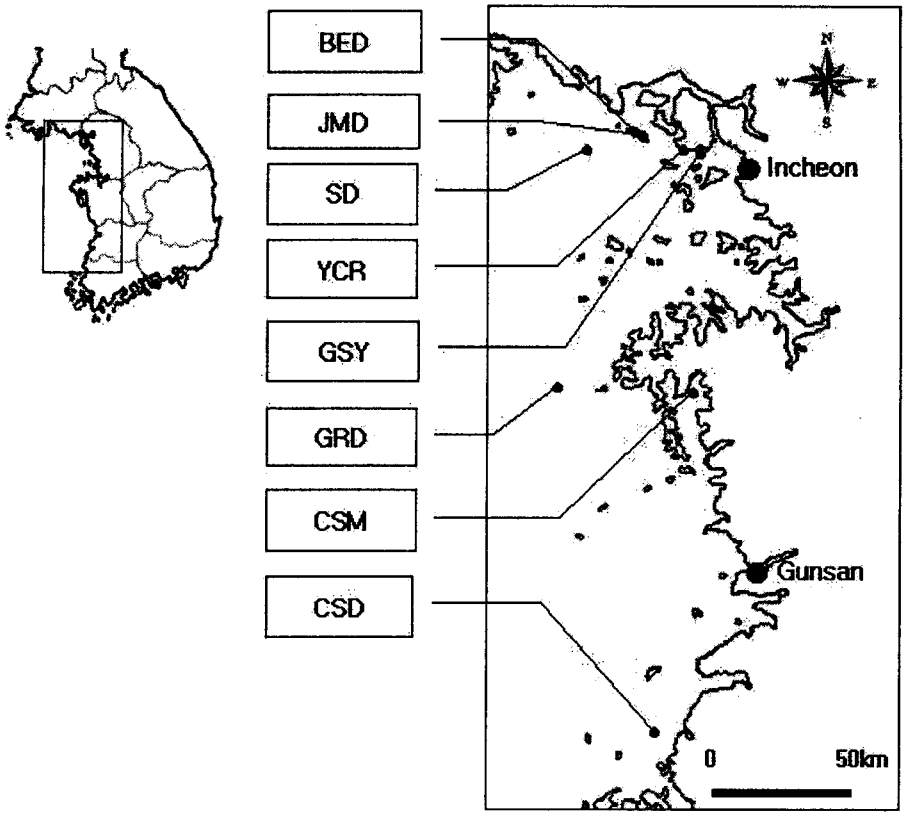

Fig. 1. Observed sites of black-faced spoonbills on western coast of South Korea in spring 2000 (BED; small island near by Boleumdo island, JMD; Jumundo island, SD; Seokdo island, YCR; Yeochari, GSY; Gaksiyeo in Seonduri, GRD; Gyeokryeolbiyeoldo island, CSM; Cheonsuman bay, CSD; Chilsando island).

Over 200 pairs of black-tailed gull *Larus crassirostris*, 50 pairs of temimncks comorant *Phalacrocorax capillatus* and 6 adults and 5 juveniles of herring gull *Larus argentatus* were also bred in Seokdo island. 6 individuals of white-rumped swift *Apus pacificus* and 1 individual of Eurasian oystercatcher *Haematopus ostralegus* were also observed in that island (Table 2). We observed the 2 adults and 3 eggs of herring gull in the small island near by Boleumdo island where the black-faced spoonbills could be bred. The breeding of herring gulls in Seokdo island and small island near by Boleumdo island are first breeding records of that birds in South Korea. Also herring gull was known as an important natural enemy of

the nesting spoonbills (Chung et al. 1996). For that reason, it is necessary to monitor the breeding of herring gulls in the islands where were known as breeding sites of black-faced spoonbills.

Table 2. Observed bird species on Seokdo island, Gyeonggi Province in 17 Jun. 2000

Species	Individuals	Remark
Phalacrocorax capillatus	150+	breeding (over 50 pairs)
Haematopus ostralegus	1	
Larus crassirostris	600+	breeding (over 200 pairs)
Larus argentatus	11	breeding (include 5 juveniles)
Apus pacificus	6	probably breeding

We also observed black-faced spoonbills at 7 sites of western coast of South Korea in this study (Table 1 and Fig. 1). Among them, Chilsando island in Jeollanam Province, Cheonsuman bay and Gyeokyeolbiyeoldo island in Chungcheongnam Province had no breeding evidences of this species, so these sites were considered as stopover on migration route of the birds. Chong et al. (1997) have discussed on the two migration routes of the birds. One is Chinese continental coast route and the other is the Korean peninsula route. Chilsando island, Gyeokyeolbiyeoldo island and Cheonsuman bay are located on the Korean peninsula route. Also this spring migration route is interpreted as another migration route compared with the results of satellite tracking in spring 1998 (BirdLife International Asia Council 1999).

The other sites are small island near by Boleumdo island, Jumundo island, Seonduri and Yeochari of Ganghwado island and Seokdo island in Gyeonggi Province. Especially, the birds were constantly observed from breeding season to post-breeding season in Seonduri and Yeochari of Ganghwado island (Table 1 and Fig 1). In Sep. 1989 and 1991, maximum 60 and 20 individuals were observed in Yeochari of Ganghwado island, respectively (Won 1990, Won et al. 1991). Also there was a record of 20 non-breeding flocks of black-faced spoonbills at Seonduri, mudflats of southern part of Ganghwado island on July 1995 (BirdLife Aisa Council

1995). And these species gathered maximum flock of 39 on fish pond in Yeochari from mid-Aug. to late in Sep. 1998 and after Sep. they were likely to moved to southern part of the Korean Peninsula along the western coast (Ministry of Environment 1999).

Abandoned fishes pond in Yeochari seems to be easily affected by human disturbance i.e. fishing activity etc. But Gaksiyeo in Seonduri is located in the middle of the wide mudflat, where is difficult to approach. There is large area of rice paddy near the mudflat as additional foraging site for the birds. Therefore, Gaksiyeo is considered as good roosting site for black-faced spoonbills.

2. Wintering status of cranes

Cranes were over-wintered at eight areas, Cholwon basin area, Imjin river, Han river estuary, Panmunjom, Kanghwa island, Taegu, Nakdong river, and Sunchon bay in Korea (Fig 2).

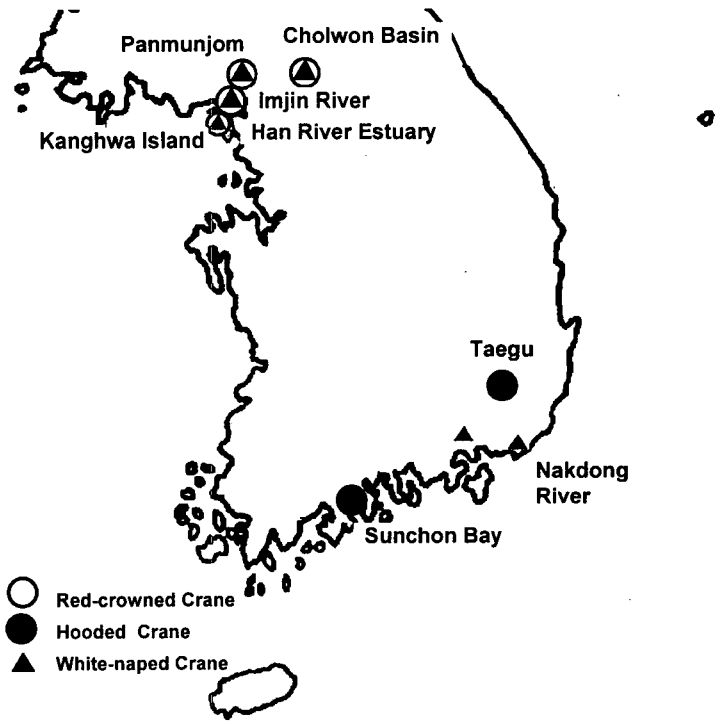

Fig. 2. Wintering grounds of cranes in South Korea

Cholwon basin is the most famous wintering ground of cranes in Korea. The Cholwon basin is part of a valley that links Pyonggyang and Seoul. A wide stretch of grassland and wetland marks the path of the DMZ across the basin. Rice paddies, in the buffer zone stretched to south from the DMZ.

The three sub-areas of the Imjin river designated Changdan, Machongni, and Chopyongdo are alike in that all include both tidal mudflats with adjacent rice paddies, all of which were used by wintering cranes at various times. The area between Changdan and the mouth of the Sachon river were known to be important stopover sites by satellite tracking research by the Wild Bird Society of Japan (Chong et al. 1994, Chong and Morishita 1996). Cranes preferred the harvested and uncleared rice paddies in this area, however the alternative of mudflats is readily available at this winter ground.

In the Han river estuary, the cranes were regularly sighted on the grassy midstream islands near the upper exit, on midstream mudflats at low tide and on mudflats along the north shore of the river. All of them were observed within this stretch of the river. Roosting was observed several times on the midstream islands and on the river ice near the islands. Also there was no disturbance in this area. Panmunjom is consisted of 50-100m of field and hills. The paddy field is alluvium soil. Every year red-crowned and white-naped cranes were wintered in this area (Chong and Morishita 1996). About 100 individuals of wintering hooded cranes were discovered at December 1996 in Sunchon bay. About the similar number of wintered at the site since (Chan 1999). Of these, wintering ground of Taegu and Nakdong river have been destroyed by automobile factory constructions, development, and dam construction, and Kanghwa island had received the impact by new-airport building.

In Korea, two wetland reserves are proposed for the international network. Both are within the DMZ. The Han river estuary and the Cholwon basin are revealed to be important areas for migratory cranes from population census and satellite data in Korea (Chong et al. 1994, Lee and Kaliher 1995). The Han river estuary, where the Han, Imjin and Sachon rivers meet, is long and shallow with a mosaic of mudflats and sedge marshes, which provide habitat for many shore birds, waterfowl, spoonbills and cranes. However the Han river estuary could be quickly transformed into one of the worlds busiest ports with reunification of Korea.

All possible government units with an interest in post-unification development with be involved in a coordinated planning effort to insure protection of at least some parts of the DMZ and wetland as reserves or

refuges for migratory birds. Thus guaranteeing their viability as migratory grounds, and to establish special management areas in the buffer zone to integrate continued agricultural practices, carefully planned historical and eco-tourism, and protection of internationally important migration birds (Lee et al. 2001a).

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