

S07-5 Conservation of sites important for birds in China

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Abstract As one of the mega-diversity countries of the world, China supports about 1 300 species of birds, including 87 globally threatened species and a large number of endemic species. The work of 12 ornithologists during 1998–2001 identified 422 Important Bird Areas (IBAs) in mainland China, while future surveys of the more remote areas in Yunnan, Sichuan, Fujian and Tibet will no doubt lead to the identification of more. Most IBAs identified so far hold significant numbers of globally threatened species and restricted-range species, while about 24% of the sites support large concentrations of congregatory species, especially waterbirds. The main threats to these sites are habitat loss due to deforestation and agricultural intensification, over-exploitation of natural resources and pollution. Conservation of these sites is considered essential for the preservation of birds and other biodiversity in China. This work needs effective collaboration between the Chinese Government and conservation organizations, such as BirdLife International. Although a large number of IBAs have been protected nationally, further effort is needed to protect those not yet included in the reserve system. In addition, adequate training of reserve staff is essential.

Key words Important Bird Areas, Threatened species, Conservation, China

1 Introduction

The Important Bird Area (IBA) program of BirdLife International is a worldwide cooperative project aimed at identifying, monitoring and protecting a network of critical sites for birds globally, and to use birds as flagships in biodiversity conservation. Documentation of IBAs and their subsequent protection has, in particular, proven to be an important conservation tool in Europe (Heath and Evans, 2000). Such work is even more important in developing countries, where the number of threatened species is greater and threats are more acute (Zheng and Wang, 1998; BirdLife International, 2000, 2001).

China is a large country in East Asia, with a land area of 9.6 million km² and sea area of 4.73 million km². A complex geological history and varied natural environments make China one of the 12 “megadiversity countries” in the world (McNeely et al., 1990). It supports a high diversity of plants, animals and microorganisms. So far, over 30 000 species of seed-plants and 6 300 species of vertebrates have been recorded (SEPA, 1998). Crossing two zoogeographical realms, the Palaearctic and Oriental, China is also particularly rich in birds. Some 1 300 species of birds have been recorded in the country, including nearly 100 endemic or near-endemic species (Cheng, 2000; Zheng, 2002).

China holds 20% of the world human population and has over 7 000 years of agricultural history. With the human population continuing to increase over the past 50 years, a large proportion of the natural habitats for birds has been turned over to farmland and towns. As well, over-hunting,

illegal poaching and the wide use of pesticides have been caused declines in many species (SEPA, 1998). As a result, more and more species are threatened with extinction. 87 species of birds in China are listed as globally threatened in the Asian Red Data Book, comprising five Critically Endangered, twelve Endangered and 70 Vulnerable (BirdLife International, 2001). One is also Conservation Dependent, 45 are Near-threatened and one is Data Deficient. Conservation of the avifauna of China is thus of global significance. Given that birds are good indicators of environmental quality, the conservation of IBAs in China will not only benefit birdlife but also improve habitats and contribute to the conservation of ecosystems and biodiversity generally.

The China IBA project is just one part of the Asian IBA program which was launched at the BirdLife Asia Conference in Coimbatore, India, in November 1996. Supported by the Wild Bird Society of Japan, the China IBA project was begun in early December 1998. Its first step focused on producing inventories of internationally recognized sites vital for the conservation of Chinese birds. This paper reports the progress of that work.

2 Methods

Twelve senior ornithologists from all parts of China were invited to work on the project. Several workshops were held up to 2002, identifying IBAs using four standard global IBA criteria:

A1 Species of global conservation concern — significant numbers of a globally threatened species regularly

Table 1 IBAs in China: location, number and size

Region	Area (km ²)	Number of IBAs	Total IBA Area (ha)	IBA area/ Region area
Anhui	139 600	4	51 814	0.37
Beijing	16 808	5	48 160	2.87
Chongqing	82 000	6	127 800	1.56
Fujian	123 800	7	831 429	6.72
Gansu	453 694	16	14 276 470	31.5
Guangdong	212 000	13	75 991	0.36
Guangxi	236 661	38	1 600 617	6.76
Guizhou	176 128	5	112 200	0.64
Hainan	33 920	10	70 529	2.08
Hebei	187 700	6	95 907	0.51
Helongjiang	453 900	33	1 719 609	3.76
Henan	167 000	9	172 256	1.03
Hubei	185 900	7	1 119 967	6.02
Hunan	211 830	20	654 891	3.09
Inner Mongolia	1 183 000	26	7 770 442	6.57
Jiangxi	102 600	3	534 300	5.21
Jiangsu	166 900	6	72 670	0.44
Jilin	187 400	15	919 298	4.9
Liaoning	145 900	14	336 618	2.31
Ningxia	66 400	5	739 400	11.1
Qinghai	721 200	13	10 321 300	14.3
Shaanxi	205 603	14	383 292	1.86
Shanghai	6 341	1	32 610	5.14
Shanxi	156 266	7	75 747	0.48
Shandong	156 700	6	335 700	2.14
Sichuan	485 000	30	2 121 077	4.37
Tianjin	11 305	1	6 000	0.53
Tibet	1 200 000	23	49 914 220	41.6
Xinjiang	1 660 000	42	4 884 400	2.94
Yunnan	394 000	17	8 898 697	22.6
Zhejiang	101 800	20	193 141	1.90
TOTAL	9 631 356	422	108 496 552	11.3

Table 2 Distribution of size-classes of IBAs in China (n=405)

Size (ha)	Number of IBAs	Percentage (%)
<1 000	25	6.17
1 000–5 000	45	11.1
5 001–10 000	56	13.8
10 001–100 000	181	44.7
100 000–500 000	66	36.5
>500 000	33	8.15

Table 3 Frequency of use of IBA criteria for identifying IBAs in China

Criteria	Number of IBAs	Percentage (%)
A1	376	89.1
A2	54	12.8
A3	34	8.05
A4i	31	7.35
A4ii	9	2.13
A4iii	19	4.50
A4iv	22	5.21

For explanation of criteria, see Methods, above.

present, or other species of global conservation concern.

A2 Restricted-range species — presence of a significant component of restricted-range species, the breeding ranges of which define an Endemic Bird Area (EBA) or Secondary Area (SA).

A3 Biome-restricted species — presence of a significant assemblage of the species, the breeding ranges of which are largely or wholly confined to one biome.

A4 Congregations — (i) presence, on a regular basis, of >1% of a biogeographic population of a congregatory waterbird species; (ii) presence, on a regular basis, of >1% of the global population of a congregatory seabird or terrestrial species; (iii) presence, on a regular basis, of >20 000 waterbirds or >10 000 pairs of seabirds of one or more species; (iv) a “bottleneck” site through which at least 20 000 storks (Ciconiidae), raptors (Falconiformes) or cranes (Gruidae) regularly pass or use as stopovers during spring or autumn migration.

This exercise produced a foundation list of IBAs in China. Participant researchers were then allotted series of IBAs, and charged with the responsibility of gathering information from each, to be entered on standardized forms. The required information was sourced from the Asian Red Data Book and other literature, personal knowledge, and from National Wildlife Surveys carried out in China between 1995–2000. With our encouragement, many local researchers provided much useful information. All data were then compiled, translated into English and loaded on to a computerized database designed by the Wild Bird Society of Japan. The IBA for Hong Kong was established by the Hong Kong Bird Watching Society, and that in Taiwan by local researchers there.

3 Results

3.1 Distribution and size of IBAs in China

By the end of 2001, 422 IBAs had been identified on the mainland of China (Table 1). If we include the IBAs in Taiwan (53), Hong Kong (2) and Macao (1), total IBAs for China sum to 478. Xinjiang, Guangxi, Heilongjiang and Sichuan provinces hold the most IBAs, with more than 30 in each (Table 1). Both Shanghai and Tianjin hold only one each. The areas covered by the IBAs vary with region. Aside from a few sites that have not yet been defined accurately, they vary from a few hectares to over 33 million ha. The smallest is Daniao’ao of Longhui County, Hunan Province, which is an important site for passerine migration; during that event, millions of birds pass through it. The largest is the Qiangtang Plateau in Tibet (33 792 000 ha). Compared to province size, Tibet, Guansu and Yunnan have larger areas under IBA designation than other regions. Table 2 shows the distribution of size-classes of IBAs in China. It indicates that 81.2% of the IBAs are between 100 km² and 5 000 km² in area.

3.2 Coverage of IBAs for biodiversity conservation in China

The 422 IBAs in mainland China cover 1 084 966 km², which is about 11.3% of total land area (Table 1). Among them, 376 hold at least one globally threatened species and 31 are important for waterbird congregations (Table 3). Of the 17 Critically Endangered and Endangered species found in China, 77% occur in at least one IBA (Table 4). Of the 12 Endemic Bird Areas (EBA) identified in mainland China, 52 IBAs are designated within 9 of them.

3.3 Conservation status of IBAs in China

56% of IBA sites are established nature reserves, while the remainder have no protection. The main threats to IBAs are disturbance from human activity (53%), over-exploitation of natural resources (38%), habitat loss due to deforestation (29%) and agricultural intensification (23%). Moreover, surveys of IBAs in established nature reserves found that over 70% of reserve staff lacked the knowledge to manage the sites effectively.

During this first stage of IBA work in China, the outputs and new findings have already had effect. Several new nature reserves have been established at IBAs, and management at existing nature reserves has been improved. For example, the Beidagang Reservoir of Tianjin was set up as a provincial nature reserve in 2001 after 800 oriental white storks (*Ciconia boyciana*) and a large congregation of waterbirds were found there by the researchers from Beijing Normal University. Dongzhai Nature Reserve was also promoted from a provincial nature reserve to a national nature reserve because it was found to hold a viable population of the threatened pheasant, *Syrmaticus reevesii*.

4 Discussion

Although many field surveys have been carried out in China since 1950s, information on the status of birds is missing from many regions, especially from the more remote areas of Tibet, Xinjiang, Yunnan, Inner Mongolia and Fujian (Cheng, 1997; Zheng and Wang, 1998). Further IBAs will doubtless be identified in these regions, from surveys that still need to be done. In the interim, the China IBA data base is being revised year by year as more information becomes available.

The China IBA project is long-term, with identification of IBAs only the first step. Current results can be expected to influence site protection by local and central Government agencies. Conservation of IBAs is not only very important for the survival of the birds, but also of benefit to other wildlife living in them as well. As flagship species, birds are good indicators of the state of the environment (Zheng, 1995), such that protecting IBAs is an important step towards conserving biodiversity as a whole (Bibby et al., 1992).

Monitoring IBAs is a core task for the China IBA project, and it should form the major program of work for IBA compilers over the next five years. For this, effective collaboration between the Chinese Government and conservation organizations, such as BirdLife International,

Table 4 The number of IBAs in China supporting Critically Endangered and Endangered bird species

Species	English name	Category of threat ¹	Number of IBAs
<i>Fregata andrewsi</i>	Christmas Island frigatebird	Critically Endangered	0
<i>Grus leucogeranus</i>	Siberian white crane	Critically Endangered	33
<i>Gyps bengalensis</i>	white-rumped vulture	Critically Endangered	0
<i>Pseudibis davisoni</i>	white-shouldered Ibis	Critically Endangered	1
<i>Sterna bernsteini</i>	Chinese crested tern	Critically Endangered	0
<i>Anser cygnoides</i>	swan goose	Endangered	79
<i>Arborophila rufipectus</i>	Sichuan partridge	Endangered	7
<i>Ciconia boyciana</i>	oriental white stork	Endangered	60
<i>Gorsachius goisagi</i>	Japanese night-heron	Endangered	0
<i>Gorsachius magnificus</i>	white-eared night-heron	Endangered	10
<i>Grus japonensis</i>	red-crowned crane	Endangered	57
<i>Ketupa blakistoni</i>	Blakiston's fish-owl	Endangered	10
<i>Mergus squamatus</i>	scaly-sided merganser	Endangered	47
<i>Nipponia nippon</i>	crested ibis	Endangered	5
<i>Oxyura leucocephala</i>	white-headed duck	Endangered	5
<i>Platalea minor</i>	black-faced spoonbill	Endangered	13
<i>Tringa guttifer</i>	spotted greenshank	Endangered	7

¹ after Collar et al., 2001

WWF and IUCN, is needed. In the national action plan for biodiversity conservation in China, for example, the Government has listed 155 important sites for conserving natural ecosystems (SEPB, 1994). WWF, in turn, has put forward its Ecoregions-based Conservation Strategy in recent years, and nineteen of these are located in China. By working together, these conservation bodies can only be more effective.

In the recent years, the Chinese Government has begun paying more attention to the protection of biodiversity. A series of environmental laws and regulations have been formulated and issued, together with the establishment of over 1 200 nature reserves by the end of 2001. However, with rapid development in most areas, current measures are inadequate. Although a large number of IBAs have been protected nationally, further effort is needed to set aside those not yet included. Habitat destruction, deforestation and agricultural intensification need to be controlled, and over-exploitation of natural resources and disturbance to birds from human activities should be stopped.

To improve the management of nature reserves is another task. At present, many nature reserves have no effective management, because both managers and staff have little or no experience in protecting and maintaining natural areas and resources. Training of reserve staff is yet another essential.

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