

Threatened Birds of Asia:

The BirdLife International Red Data Book

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BLACK-FACED SPOONBILL

Platalea minor

Critical —

Endangered C1; C2b

Vulnerable A2c; D1



This spoonbill has a single, very small population. A lack of baseline data makes identifying a population trend problematic. Apparent recent increases may reflect improved observer coverage or the displacement of birds from degraded and destroyed sites. Substantial threats to its habitat suggest it is declining or likely to decline in the near future, qualifying it as Endangered.

DISTRIBUTION The only known breeding grounds of the Black-faced Spoonbill are on islands around the eastern and northern coasts of the Yellow Sea, along the western coast of the Korean Peninsula (in both North and South Korea) and in north-east China. Birds have also been reported in summer in the Russian Far East and inland in north-east China, but so far breeding has not been proved in these areas. It winters in East Asia, almost exclusively in coastal areas, and the three major wintering grounds are the Tsengwen estuary on Taiwan, Deep Bay in Hong Kong and the Red River delta in Vietnam. Smaller numbers winter on Kyushu and Okinawa in Japan, on Cheju island in South Korea, and at Yancheng and on Hainan in mainland China, and it has also been recorded in winter in Macao, Thailand and Cambodia, and possibly in the Philippines and Brunei (see Remarks 1).

■ **RUSSIA** It is only known by a few records in southern Primorye, although Y. Shibaev *in litt.* (1996) suggested that there may be breeding sites in the Ussuri basin in southern Primorye. Records are as follows:

■ **Primorye Murav'inyi bay**, Peter the Great bay, one seen several times in coastal shallows, July–August 1995 (Nechaev and Shibaev 1996); **Sivuch'ya bay**, Peter the Great bay, near the Tumen (Tumangan) river mouth, subadult (a different bird to the one in Murav'inyi bay) shot on the shore of a saltwater lagoon, August 1995 (Y. Shibaev *in litt.* 1996, 1997).

■ **JAPAN** Austin and Kuroda (1953) considered that this species was probably never more than a rare winter visitor to Japan, but Brazil (1991) suggested that it was formerly not uncommon in winter on Kyushu. It has been recorded from all parts of Japan in winter or on migration, although it is very rare in eastern and northern Japan, and there have been some records in summer. Courtship behaviour was observed in Ishikawa prefecture on Honshu in summer 1996, but there have been no confirmed breeding records. All of the regular wintering grounds are on Kyushu (Hakata bay, Ariake bay, Mannose-gawa and Izumi) and on Okinawa (Manko). Records (by island and prefecture) are as follows:

Hokkaido **Komuke-ko** lake, Monbetsu-shi, adult, May 1998 (*Birder* 98/7); **Notoro-ko** lake and Notoro Port, Abashiri-shi, juvenile, June 1997 (*Birder* 97/8); Hashirikotan, **Bekkai-cho**, Notsuke-gun, one, August 1997 (*Birder* 97/11), one, September 1998 (*Birder* 98/11, 98/12); **Kaminokuni-cho**, Hiyama-gun, one (in summer plumage), March 1987 (WBSJ 1987);

Honshu ■ **Aomori** Jusan-ko lake, **Shiura-mura**, Kitatsugaru-gun, one, August 1997 (Y. Yajima *in litt.* 1998); ■ **Iwate** **Tsugaruishi-gawa river mouth**, Miyako-shi, January 1996 (WBSJ Miyako Chapter database); ■ **Miyagi** Kamo coast, **Sendai-shi**, August 1979 (WBSJ Miyagi Chapter 1992), juvenile, November 1990 (WBSJ 1991); Torinoumi, **Watari-cho**, Watari-gun, one, February–August 1991 (WBSJ Miyagi Chapter 1992); ■ **Akita** **Hachiro-gata**, Tennenomachi, Minamiakita-gun, August 1987 (WBSJ 1987); ■ **Yamagata** **Mogami-gawa river mouth**, Sakata-shi, juvenile, August 1997 (*Birder* 97/11); ■ **Saitama** Tone-gawa river, **Honjo-shi**, one, December 1987 (WBSJ 1987); ■ **Chiba** **Funabashi** Seaside Park, Funabashi-shi, juvenile,

December 1992 (*Birder* 93/3); **Yatsu tidal flat**, Narashino-shi, one, November–December 1992 (WBSJ 1993), one, May–June 1993 (*Birder* 93/8), single juveniles, August and November 1993, December 1994 (*Birder* 93/11, 94/1, 94/3); **Ichinomiya-gawa river mouth**, Ichinomiya-machi, Chosei-gun, single birds, January and April 1999 (*Birder* 99/3, 99/6); unspecified localities, collected before 1922 (Austin and Kuroda 1953), 1975 and 1977 (Takano 1981); ■ **Tokyo Tokyo Port Bird Park**, one, February 1996 (WBSJ 1997a); **Kasai Seaside Park**, Edogawa-ku, juvenile, February–April 1996 (*Birder* 96/5, 96/6), one, January 1997 (*Birder* 97/3), one, July–September 1997 (*Birder* 97/10, 97/11, 97/12), one, November–December 1997 (*Birder* 98/2, 98/3), one, May–September 1998 (*Birder* 98/7, 98/9, 98/10, 98/11, 98/12), one, May and July 1999 (*Birder* 99/8, 99/9), and indeed one throughout winter 1998/1999 (Y. Shigeta and M. Fukuda *in litt.* 1999); ■ **Niigata Shinano-gawa river**, from Yoita-machi to Teradomari-machi, Santo-gun, August (unspecified year) (Wild Bird Society of Nagaoka 1988); **Hamochi-machi**, Sado-gun, one, June 1991 (WBSJ 1991); Aga-kawa river, **Yokogoshi-machi**, Nakakanbara-gun, one collected, November 1956 (Shirai 1957); unspecified locality, 1956 (Takano 1981); ■ **Toyama Kurobe-gawa river mouth**, Kurobe-shi, June 1995 (WBSJ Toyama Chapter database); **Shimminato-shi**, at Kaio-machi, May 1987 and April 1988 (WBSJ Toyama Chapter database), at Koshinogata reclamation, one (in summer plumage) in May 1987 (WBSJ 1987) and an immature in April 1988 (WBSJ 1988); **Joganji-gawa river mouth**, Toyama-shi, April 1987 (WBSJ 1987), May 1988 and June 1995 (WBSJ Toyama Chapter database); Toyama Ohashi, **Jintsu-gawa river**, Toyama-shi, November 1991 (WBSJ Toyama Chapter database); ■ **Ishikawa Kawashiri-gawa river mouth** and **Kahoku-gata** marsh, Tatsuruhama-cho, one (in summer plumage), May–December 1995 (WBSJ 1997a), up to three birds (two adults and a juvenile), May–September 1996, courtship display and carrying of nesting material being observed in July, but no nesting, copulation or eggs seen (Daimon 1997; also WBSJ 1998), one, May–June 1998 (*Birder* 98/7), one, June 1999 (*Birder* 99/8); Yuchi-gata (untraced), one reported to have been collected, undated (Austin and Kuroda 1953); ■ **Nagano Chikuma-gawa river**, Saku-shi, two, December 1986 (WBSJ 1987); **Asashina-mura**, Kitasaku-gun, two, December 1986 (WBSJ 1987); ■ **Shizuoka Fuji-gawa river mouth**, November 1981, November 1984 and November 1992 (WBSJ Minamifuji Chapter database); Kado-ike Pond, **Numazu-shi**, November 1992 (WBSJ Minamifuji Chapter database); Bentenjima island, **Hamana-ko** lake, January 1993 (WBSJ Totomi Chapter database); Shinohara-cho, **Hamamatsu-shi**, November 1989 and April 1991 (WBSJ Totomi Chapter database); **Magome-gawa river mouth**, Hamamatsu-shi, January 1991 (WBSJ Totomi Chapter database); **Tenryu-gawa river mouth**, April 1987 (WBSJ Totomi Chapter database); unspecified locality, 1973 (Takano 1981); ■ **Aichi Isshiki-cho**, Hazu-gun, two (in summer plumage), March 1987 (WBSJ 1987); unspecified localities, 1973 and 1975 (Takano 1981); ■ **Kyoto Kumihama bay**, juvenile, December 1988 (Government of Kyoto 1993); **Kumihama-cho**, Kumano-gun, one, January 1988 (WBSJ 1988); ■ **Osaka Osaka-nanko Bird Park**, Suminoe-ku, one, December 1995 to January 1996 (*Birder* 96/3); **Kumeda-ike** pond, Kishiwada-shi, one, November 1993 (*Birder* 93/1); ■ **Wakayama Wakaura**, Wakayama-shi, one, May 1996 (WBSJ Wakayama Chapter database); **Arida-gawa river**, one, May 1996 (WBSJ Wakayama Chapter database); Aizu-gawa river mouth, **Tanabe-shi**, two, December 1990 (WBSJ 1991); **Nachikatsuura-cho**, Higashimuro-gun, one, December 1992 to September 1993 (WBSJ 1994); **Ota-gawa river**, Nachikatsuura-machi, Higashimuro-gun, single birds, December 1992 and September 1993 (WBSJ Wakayama Chapter database); ■ **Tottori Yonago Waterbird Park** and Hikona reclamation, Yonago-shi, occasional visitor in winter (usually staying until March), November 1984, one in 1986, two in 1987, one in 1988, three in 1989, two in 1990, one in 1991 and 1993, two in 1994, one in 1995–1997, roosting in the reclaimed land and waterways in the sanctuary (30 ha) (Editorial board, History of Yonago City 1997), two, January 1993 (*Birder* 93/3), three, November 1994 (*Birder* 94/3), one, January 1997 (*Birder* 97/4), one, November 1996, one, August 1998, but none in winter 1998/1999 (Y. Nagano *in litt.* 1999); ■ **Shimane Nakano-**

umi lake, Yasugi city, one, August 1998 (same bird as at Yonago in August 1998) (Y. Nagano *in litt.* 1998); **Iinashi-gawa river mouth**, Yasugi-shi, January 1997 (WBSJ Tottori Chapter database); ■ **Okayama Harbour island**, **Kurashiki-shi**, juvenile, November 1998 to January 1999 (A. Yamazaki *in litt.* 1999); ■ **Hiroshima Minoshima landfill**, **Fukuyama-shi**, three, December 1977, three, January 1980 (WBSJ Hiroshima Branch 1998), three, December 1981, three, January 1984 (WBSJ Hiroshima Chapter database); Hachiman-gawa river, **Hiroshima-shi**, juvenile, December 1987 (WBSJ 1987); **Yawata-gawa river mouth**, Nishi-ku, Hiroshima-shi, one, December 1987 (WBSJ Hiroshima Branch 1998); ■ **Yamaguchi Minamiwakuni-machi**, **Iwakuni-shi**, one, May 1995 (WBSJ Ehime Chapter database); **Shimonoseki-shi**, one, May 1975 (WBSJ Yamaguchi Chapter 1976), one, April 1992 (WBSJ 1993); **Ajisu reclamation**, Ajisu-cho, Yoshiki-gun, at the Doroishi-gawa river, May 1986 (WBSJ Ehime Chapter database), one at “Ajisu tidal flat”, October 1986 (WBSJ 1987), two, December 1997 to January 1998 (*Birder* 98/3); **Ozu-machi**, Iwakuni-shi, one (in summer plumage), May 1995 (*Birder* 95/7);

Shikoku ■ **Tokushima Yoshino-gawa river mouth**, Tokushima-shi, November 1997 (WBSJ Tokushima Chapter database), seven, November 1997, and five in lotus paddy on the north bank of the Yoshino-gawa river, Sendai-cho, November 1997 (Y. Kominami *in litt.* 1997); Kawauchi-cho, **Tokushima-shi**, November 1997 (WBSJ Tokushima Chapter database); **Naka-gawa river mouth**, Anan-shi, juvenile, November 1985 (WBSJ 1986); ■ **Ehime Kamo-gawa river mouth**, September 1977 (Ishihara 1982), single birds, May–June 1996, April 1997 and November 1997 (WBSJ Ehime Branch database), one, winter 1998/1999 (*Birder* 99/5); **Shigenobu-gawa river mouth**, Masaki-cho, Iyo-gun, and Matsuyama-shi, single birds, May 1995 and December 1997 (WBSJ Ehime Branch database), juvenile, September–October 1998 (*Birder* 98/12, 99/1), adult and immature, January 1999 (*Birder* 99/3); ■ **Kochi Tosashimizu-shi**, May 1981 (Ishihara 1982);

Kyushu ■ **Fukuoka Sone tidal flat**, Kokuraminami-ku, Kitakyushu-shi, single birds in May and November 1989 and May 1998 (WBSJ Kitakyushu Chapter database); **Wajiro tidal flat**, east end of Hakata bay, Higashi-ku, Fukuoka-shi, regular winter visitor (probably involving the same birds as at Imazu: H. Yamamoto *in litt.* 1999), 10 birds very near Wajiro at island City Umetatechi, November 1995 (*Birder* 96/1), up to 14, November 1996 (*Birder* 97/1, H. Furushiro *in litt.* 1998), up to 13, November 1997 (*Birder* 98/3), up to 15, winter 1998/1999 (*Birder* 99/1, 99/6), up to 25, winter 1999/2000 (H. Yamamoto *in litt.* 1999, 2000), the latest spring record being on 28 May 1997 (*Birder* 97/8); **Kashii Park Port**, Fukuoka-shi, very near Wajiro, one, December 1993 (*Birder* 94/2), one, January 1993 (*Birder* 93/3), juvenile, July 1993 (*Birder* 93/9), 11 birds, January 1998 (*Birder* 98/3); **Imazu tidal flat**, west end of Hakata bay, Fukuoka-shi, regular winter visitor, 7–8 birds, November 1993 to March 1994 (*Birder* 94/2, 94/5), winter census counts of nine in 1993/1994, 14 in winter 1994/1995, more than 20 in winter 1995/1996, 15 in January 1997, 25 in January 1998 and 24 in January 1999 (Dahmer and Felley 1999), also recorded as 10 birds, April 1997 (*Birder* 97/6), 28, November 1997 (Y. Kominami *in litt.* 1997), 20, January 1998 (*Birder* 98/3), 22, December 1998 (*Birder* 99/3), 21, March 1999 (*Birder* 99/5), and 13 roosting on a small island (“Nakashu”) in the middle of the river channel, March 2000 (SC); Sanmon-gun (untraced), one photographed, December 1927 (Kawaguchi 1928 in Austin and Kuroda 1953); ■ **Saga Daijyu-garami**, Higashiyoka-cho, **Saga-gun**, near Daijyu-garami, immature, May 1998 (*Birder* 98/7), one, March 1999 (*Birder* 99/6), three immatures, May 1999 (*Birder* 99/8); **Kokuzo reclamation**, May 1991 (Wild Bird Society of Saga 1997); **Kashima-gawa river mouth**, March 1996 (Wild Bird Society of Saga 1997); **Ariake-kai coast**, October 1983 (Wild Bird Society of Saga 1997); **Kashima-shi**, immature, May 1998 (*Birder* 98/7); ■ **Nagasaki Goto islands**, one collected, 1885 (Austin and Kuroda 1953; also Shirai 1957); **Isahaya reclamation** (Isahaya tidal flat), Isahaya-shi, regularly in the late 1970s and the 1980s (Brazil 1991), one, November 1996 (*Birder* 97/2), one, November 1997 (Y. Kominami *in litt.* 1997), one, December 1998 (*Birder*

99/3); Oe-kaigan shore (untraced), Takaki-cho, Kitatakaki-gun, one, October 1996 (*Birder* 97/1); ■ **Kumamoto Uto-gun**, one collected, March 1923 (Austin and Kuroda 1953; also Shirai 1957), one at Shiranuhi-machi coast, December 1987 (WBSJ 1987); **Shiranuhi-machi** (Shiranui-cho) coast, Uto-gun, five (probably subadults), February 1999 (K. Ozaki *in litt.* 1999); Ogawa-machi (untraced), Shimomashiki-gun, one, January 1996 (WBSJ 1997a); ■ **Oita Nakatsu-shi**, one at Oonita coast, November 1998 (*Birder* 99/2), immature at Higashihama, June 1999 (*Birder* 99/9); **Otome** coast, Usa-shi, one, April 1998 (*Birder* 98/7); Ender, **Kitsuki**, Kitsuki-shi, one, November 1995 (*Birder* 96/1); ■ **Miyazaki Hitotsuse-gawa river mouth**, Shintomi-cho, Koyu-gun, four, January 1993 (*Birder* 93/3), juvenile, December 1993 (*Birder* 94/2), one, November 1996 (*Birder* 97/2), two, December 1997 (*Birder* 98/3), one, February 1998 (*Birder* 98/4); ■ **Kagoshima Izumi** (Arasaki), formerly wintering regularly at until about 1939 (Udagawa 1953 in Brazil 1991), one at Euchu-gawa river mouth and Arasaki, winter 1995/1996 (*Birder* 96/3, 96/7), at least two at the crane roost at Arasaki, March 2000 (SC); **Takaonochi**, Izumi-gun, at Takaono-gawa river mouth, one in August 1996, two in September 1996 (*Birder* 96/11), and two in April 1998 (*Birder* 98/7), at Izumi eastern reclamation, one in winter 1995/1996 (*Birder* 96/3), three in December 1997 (*Birder* 98/3), up to four immatures from December 1997 to March 1998, mainly staying inside the crane reserve (Y. Katoh *in litt.* 1999), two immatures in April–May 1998 (*Birder* 98/7), adult and two juveniles in January 1999 (Y. Katoh *in litt.* 1999), immature in April 1999 (*Birder* 99/6), and one in May 1999 (*Birder* 99/7); Suzaki, **Kajiki-cho**, Aira-gun, one, May 1999 (*Birder* 99/8), seven, November–December 1999 (K. Shirao *per* Y. Kanai *in litt.* 1999); **Beppu-gawa** river, Aira-cho, one, January 1998 (K. Ozaki *in litt.* 1998), one, March 1998 (*Birder* 98/5); **Kagoshima-shi**, one, November 1993 (*Birder* 94/1); **Shin-kawa** river and **Mannose-gawa** river, Kaseda city, maximum counts of four in December 1992 to March 1993 (*Birder* 93/4, 93/5), six in 1993/1994 (*Birder* 94/2), four in 1994/1995, present until April 1995 (*Birder* 95/6), five, November 1995 to April 1996 (*Birder* 96/7), 10 in 1996/1997 (*Birder* 97/3), 26, November 1997 (Y. Kominami *in litt.* 1997), 19, January 1998 (K. Ozaki *in litt.* 1998), 20, April 1998, 10, May 1998 (*Birder* 98/6, 98/7), 17, March 1999, four, April 1999 (*Birder* 99/5, 99/6), with winter counts of six in 1993/1994, eight in January 1997, 19 in January 1998 and 12 in January 1999 (Dahmer and Felley 1999); **Anraku estuary**, Shibushi-cho, one, January 1999 (Y. Nakagami *in litt.* 1999), one, February 1998 (*Birder* 98/4); **Kamiyaku-cho**, Kayu-shima island, one, May 1990 (WBSJ 1990);

Amami-shoto, undated (OSJ 2000);

Tokuno-shima island, four at Tokuno-shima Airport tidal flat, October–December 1995 (WBSJ 1997a);

Okinawa island, **Manko**, 1–2 birds usually near Manko and/or Yone, six winters in the period 1977–1986 (McWhirter *et al.* 1996), Tomigusuku-son, Shimajiri-gun and Naha-shi, one, March 1995 (*Birder* 95/6), six, January 1996 (*Birder* 96/3), adult (in summer plumage), March 1997 (*Birder* 97/6), nine, January 1998 (Dahmer and Felley 1999), seven, February 1999 (K. Ozaki *in litt.* 1999), one, April 1999 (*Birder* 99/7); Gushi-higata, **Gushi**, Naha-shi, juvenile, September 1997 (*Birder* 97/12); Yone tidal flat, **Tomigusuku-son**, Shimajiri-gun, adult (in summer plumage), March 1997 (*Birder* 97/6), one, September 1997 (*Birder* 97/12), one, January 1998 (Dahmer and Felley 1999), seven, January 1999 (N. Ichida verbally 1999); unspecified locality, November 1973 and December 1976 (Takara 1979); Senaga (not mapped), March–April 1975 (Bruce 1975a);

Minami-daito-jima, undated (OSJ 2000);

Irabu-jima island, two at Sawada, January 1998 (Dahmer and Felley 1999);

Miyako-jima island, December 1979 (Brazil 1991), single birds on Ikema near Miyako-jima in January 1980 and November 1993 (McWhirter *et al.* 1996), one at Yonaha bay, January 1998 (Dahmer and Felley 1999);

Ishigaki-jima island, April 1920 and May 1976 (Takara 1979), 1976 (Takano 1981), one, March 1998 (*Birder* 98/5);

Iriomote-jima island, March 1967 (Takara 1979), juvenile, March 1995 (*Birder* 95/6), juvenile, December 1995 to January 1996 (*Birder* 95/3).

■ **KOREA** ■ **NORTH KOREA** There are important breeding grounds of this species on islets off the west coast of North Korea, including the colonies on the islands of Taegam-do, Sogam-do, Sonchonrap-ro and Solbatsem-do in North Pyongan, and Tok-do in South Pyongan. Satellite-tracking of wintering birds from Taiwan and Hong Kong has indicated that islands in the Demilitarised Zone (DMZ), which currently divides North Korea from South Korea, are probably the most important breeding grounds of this species in the world. Records (by province) are as follows: ■ **North Hamgyong Tumen river** (Tumangan), 20–30 birds, October (unspecified year) (Yamashina 1941), assuming that this record was within present-day North Korea, not far from the Russian border (SC); unspecified locality, January 1910 (Austin 1948, specimen in YIO); ■ **North Pyongan Synuiju**, undated (Sonobe 1987); **Yongampo** (Riugunpo), April 1929 (male in YIO); **Hakso-ri**, Yomju-gun, four collected, October 1955 (Won 1963); **Tasa-do** island, collected, May 1954 (Won 1963, Tomek 1999); **Sonchon**, collected in May 1957 (Won 1963), more than 10 birds reported at Sekhwa, Senchon county, during a questionnaire survey in 1998 (Chong and Pak 1999); **Jongju**, undated (Sonobe 1987), reported at Namho (more than 10 birds), Seima, Aedo (dong), and at Bosan during a questionnaire survey in 1998 (Chong and Pak 1999); **Kwaksan** (Gwaksan), undated (Sonobe 1987), reported at Samdan during a questionnaire survey in 1998 (Chong and Pak 1999); **Wonha-ri**, Paksan-gun, collected, June 1951 (Won 1963; also Tomek 1999); **Chongchon-gang estuary**, recorded on migration, undated (Scott 1989, Chong and Morishita 1996); **Ae-do** island, six birds in summer 1998, and on nearby **Hyengze-do** island, six birds but no nests in summer 1997, and on **Zung-do** island, five birds in summer 1997 and six birds and two nests in summer 1998 (Chong and Pak 1999); **Taegam-do** (Tegam-do) island, an important breeding site of this species (designated as a seabird breeding sanctuary), undated (Chong and Morishita 1996; also Sonobe 1987); **Sogam-do** island, an important breeding site of this species, undated (Chong and Morishita 1996; also Sonobe 1987), July 1989 (Fiebig 1993, 1995 in Tomek 1999), and found on the following nearby islands: **Dongsolbatsem** island, four birds and one nest in summer 1997 and two birds in summer 1998, **Namsolbatsem** island, five birds and one nest in summer 1997 and five birds and one nest in summer 1998, **Oksem** island, five birds but no nests in summer 1997, **Sesolbatsem** island, six birds and two nests in summer 1997 and three birds and one nest in summer 1998 (Chong and Pak 1999); **Batoggisem** island, five birds and one nest in summer 1997 and three birds in summer 1998, on nearby **Danssem** island, four birds in summer 1997, and on **Zamori** island, three birds and one nest in summer 1997 (Chong and Pak 1999); **Chamcha-do** island, Cholsan county, breeding, undated (Chong *et al.* 1996c); **Unmu-do** island, undated, designated as a seabird breeding sanctuary (Chong and Morishita 1996); **Sorap-to** (Sonchonrap-do) island, an important breeding site of this species, undated, which has been designated as a seabird breeding sanctuary (Chong and Morishita 1996; also Sonobe 1987); Dekseung, Ryongchon county, reported during a questionnaire survey in 1998 (Chong and Pak 1999); ■ **South Pyongan Anju**, October 1931 (Won Hong-koo in Tomek 1999); **Chungsan**, collected in March 1958 (Won 1963), recorded at Janganri, undated (Sonobe 1987); **Tok-do** (Dokdo) island, Onchon county, breeding, undated (Sonobe 1987, Chong *et al.* 1996c), 19 birds and five nests, summer 1997, eight birds and two nests, July 1998 (Chong and Pak 1999); **Onchon**, undated (Sonobe 1987), reported at Unha during a questionnaire survey in 1998 (Chong and Pak 1999); **Toksom** (Toksome), Ryonggang-gun, a large breeding colony, with flocks of birds often seen, undated (Won 1963); during a questionnaire survey in 1998, reported at Dongrim, Mundok county, and Sinsong, Pyongwon county (Chong and Pak 1999); ■ **South Hwanghae Gurang-ri**, Ongjin county, 25 birds in three flocks, September 1998 (Chong and Pak 1999); **Haeju** (“Kaishu”), one adult collected 1917 (N. Kuroda 1918); Zangsong-ri, **Ongjin county**, 16 birds, September

1998 (Chong and Pak 1999); **Honam-ri**, Yen-an county, 23 birds in one flock, September 1998 (Chong and Pak 1999); **Yongsan-ri** (Yengsan-ri), Chongdan county, 70 birds in four flocks (the largest of 46 birds), September 1998 (Chong and Pak 1999); **Gakhouido** and **Ryongmaedo** islands, 31 birds, summer 1997 (Chong and Pak 1999); **Yemzen-gu**, Yen-an county, 29 birds in three flocks, September 1998 (Chong and Pak 1999); during a questionnaire survey in 1998, reported at Sinpung (more than 10 birds), Geumhak and Namchon, Chongdan county; Haenam, Yen-an county; Punghae, Gwail county; Gokjeng, Ryongyon county; Bupo and Sayen, Gangryong county; Sewon, Byekseng county; Geumseng, Baecheon county; Buyang (more than 10 birds), Taetan county; and Gukgong (more than 10 birds), Jangsong and Namhae, Ongjin county (Chong and Pak 1999); ■ **Kaesong** during a questionnaire survey in 1998, reported at Wolzeng, Sinheung and Zogang (Chong and Pak 1999).

■ **SOUTH KOREA** This species breeds in South Korea, and also occurs on passage and in winter. Most breeding sites are in or near to the DMZ in Kyonggi, but there have also been some breeding records in South Cholla. It occurs more widely on passage, and southern Kanghwa island in Kyonggi is an important staging ground for post-breeding birds before their southward migration. Eastern Cheju island is the only regular wintering ground in South Korea, although there are some (mainly unconfirmed: see Remarks 1) reports of wintering birds on the western and southern coasts. Records (by province) are as follows: ■ **Kyonggi and Seoul Yu-do** islet (7 ha), western section of the DMZ, 5–10 pairs estimated to be breeding on the south side of the island (the north side is inside the DMZ and cannot be visited), maximum of 14 juveniles seen, July 1994 (Won 1995), four adults seen and breeding suspected, June 1996 (Han Sang-hoon *in litt.* 1997), 20 birds including one breeding pair, July 1998 (Kim Jin-han *in litt.* 1998); **Kyoha river**, Paju-gun, immature female collected, October (unspecified year) (Han Sang-hoon *in litt.* 1997); **Kanghwa island**, the most important migratory staging area for this species in South Korea, particularly at Yocha-ri reservoir and Sundu-ri mudflat in southern Kanghwa (Han Sang-hoon *in litt.* 1997), up to 110, August–September 1989 (Han Sang-hoon *in litt.* 1997, Lee Woo-shin *in litt.* 1998, Park Jin-young *in litt.* 1999), up to 14 at Yocha-ri, August–October 1991 (Won 1991), one west of Kanghwa Bridge, May 1993 (Cresswell *et al.* 1993), 85–90 in the south of the island, September–October 1997 (Kim Soo-il *in litt.* 1997), up to 89, July–September 1998 (Kim Jin-han *in litt.* 1998), 81, August 1999 (Park Jin-young *in litt.* 1999), these numbers almost certainly reflecting a considerable turnover of migrating birds, as two peaks shown in late July and early September 1997 (Park Jin-young *in litt.* 1999); **Yongjong island**, eight, August 1999 (Park Jin-young *in litt.* 1999); Bolom island, **Inchon**, 2–3 birds occur annually in spring (Lee Woo-shin *in litt.* 1998); near **Won-do** (Woo-do) islet, Kanghwa-gun, at least 10 adults and at least four nests on Hae-do and one breeding pair with three eggs on Bi-do, June 1995 (Han Sang-hoon *in litt.* 1997); **Taebu-do**, one, August 1999 (Park Jin-young *in litt.* 1999); Han river, 1–3 birds reported to winter every year (Lee Woo-shin *in litt.* 1998), but there are doubts about the identification of these birds (Park Jin-young *in litt.* 1999); ■ **South Chungchong Kum river**, four, November 1996, one, April 1997 (Lee Woo-shin *in litt.* 1998); Cheonsu bay, up to 20 reported to winter annually (Lee Woo-shin *in litt.* 1998), but there is doubt about the identification of these birds (Park Jin-young *in litt.* 1999); ■ **South Kyongsang** 15 km east of **Chinhae**, immature female collected in wet rice stubblefields, December 1959 (Fennell and King 1964); **Nakdong estuary**, formerly a regular autumn passage site and occasionally wintering area, five, December 1968 and December 1969, up to three, June–July 1973 (Severinghaus *et al.* 1995), four at Changja-dung, September 1987 (Won 1988); **Pusan** (Fusan), December 1884 (male in USNM; also Austin 1948, Won 1963); Chunam reservoir (Junam) and Dongpan reservoirs, regularly reported in 1988–1996 (Forestry Research Institute, Korea 1992, Yu and Hahm 1994, Hahm 1997), but there is doubt about the identification of these birds (Park Jin-young *in litt.* 1999); ■ **North Cholla** Jik-do islet, **Kunsan**, male and female collected, March 1914, breeding suspected (Han Sang-hoon *in litt.* 1997, Kim Jin-han *in litt.* 1998); **Tongjin estuary**, Saemankeum area, recorded on passage and

occasionally in winter, up to 14, August–September 1999 (Park Jin-young *in litt.* 1999), seen in winter 1998 and 14 in December 1999 (Park Jin-young *in litt.* 1999); **Wi-do** (Ui-do, “Ito”) islet, breeding, six eggs collected, July 1917 (Yamashina 1941, Austin 1948, Han Sang-hoon *in litt.* 1997; also Kim Jin-han *in litt.* 1998); ■ **South Cholla Chilsan island**, one juvenile and one egg, 1991 (Kim Jin-han *in litt.* 1998); **Yonggwang-gun**, breeding, one adult bird, one juvenile and one egg, June 1992 (Han Sang-hoon *in litt.* 1997); **Taejon** (Daejon-meon), collected in April 1937 (Han Sang-hoon *in litt.* 1997); **Suncheon bay**, one, November 1996 to March 1997 (Han Sang-hoon *in litt.* 1997), with up to 15 birds on Jangsan mudflat, and four on Daedae mudflat, November 1998 (Kim Sooil *in litt.* 1998, Hang Sang-hoon *in litt.* 1999); ■ **Cheju** Cheju island, three by the coast, November 1987 to February 1988 (Han Sang-hoon *in litt.* 1997), not more than five birds wintering prior to 1988, but in the late 1990s c.20 birds, moving between the following three fish farms (Kim *et al.* 1998, Dahmer and Felley 1999): **Hado-ri** Fish Farm, up to 19, October 1996 to February 1997 (Park and Kim 1997), up to 12, October–November 1997 (Han Sang-hoon *in litt.* 1997), up to 19, January 1998 (Han Sang-hoon *in litt.* 1998); **Songsanpo** (Seongsanpo) Fish Farm, up to six on an area of fishponds and saltpans, winter 1988/1989 (Kennerley 1990b), three immatures, April 1993 (Cresswell *et al.* 1993), up to 15, winter 1993/1994 and 1995/1996 (Han Sang-hoon *in litt.* 1997), but only recorded twice (in nine visits), winter 1996/1997 (Park and Kim 1997), maximum of nine, January 1998 (Han Sang-hoon *in litt.* 1998), eight adults and six immatures, January 1999 (Han Sang-hoon *in litt.* 1999); Ochori Fish Farm, **Cheju island**, 12 birds, March 1997 (Han Sang-hoon *in litt.* 1997).

■ **CHINA** ■ **MAINLAND CHINA** The species has occurred widely along the eastern and southern coasts of China on passage, and there are also a few inland records, which indicate that they may breed in the inner north-east: see Remarks 2 but also 3). The first confirmed breeding record was in 1999, when three pairs were found nesting on an islet off the coast of Liaoning. Some birds winter along the coast of China, mainly between Jiangsu and Hainan. Records (by province) are as follows:

■ **Heilongjiang** near **Harbin**, by the Songhua Jiang (Sungari river), female collected in May 1932 and a male in May 1933 (Loukashkin in Piechocki 1956);

■ **Jilin** Changlong, the core area of **Xianghai National Nature Reserve**, two in a flock of Eurasian Spoonbills *Platalea leucorodia*, April 1999 (Sun Xiangwu *per* K. Fukui *in litt.* 1999); **Hunchun**, lower Tumen river, Wangqing, Changbai Shan mountains, “flocks” reported on passage in March and October (before 1980) and staying for c.20 days in marshes with egrets and herons (Fu Tongsheng *et al.* 1984), but not seen in this area in more than 20 years (Zhao Zhengjie 1985);

■ **Liaoning** **Chaoyang district** and Yalu Jiang estuary, 30–45 annually on reservoirs at these sites in March (Qiu Yingjie 1998); **Yalu Jiang** river, collected in April 1929 (Mizuno 1934); **Xingren Tuo** island, Changshan islands (see Remarks 4), three breeding pairs, one non-breeding pair and one female, June–August 1999, reported by local people to have started breeding there in 1998 (Ding Changqing *et al.* 1999c, 2000);

■ **Inner Mongolia** Dalai lake Nature Reserve (Hulun Nur), Hulun Buir League, six reported by reserve staff in April 1998, but a photograph was not clear enough to confirm the identification (Liu Songtao *in litt.* 1998);

■ **Sichuan** suburb of **Nanchong city**, 280 m, November 1957 (specimen in SUCN); **Changshou reservoir** (Changshou Hu), Xinfu reservoir, Yingshan county, “rare” during surveys in 1965 to 1982 (Deng Qixiang and Yu Zhiwei 1983);

■ **Guizhou** **Cao Hai** lake, two females collected, 2,300 m, November 1975 (Wu Zhikang *et al.* 1986), 2–3 birds, winter 1984 (Zhu Jingyi *et al.* 1998), 10 birds, January 1991 (Waterbird Specialist Group 1994);

■ **Beijing** **Beijing**, one seen at the lake near the Drum Tower (near Beihai Park in the centre of Beijing), May 1924 (Gee *et al.* 1924);

■ **Shandong Changshan islands** (see Remarks 4), Changdao county, May (unspecified years) (Fan Qiangdong and Xu Jianmin 1996); **Qingdao** (Tsingtao), April 1938 (Lefevre 1962), “rare”, undated (Liu Daiji *et al.* 1994);

■ **Jiangsu Lianyungang**, May 1985 (specimen in ASCN); **Guan He estuary**, two satellite-tracked birds (from Mai Po), June 1999 (WBSJ Research Center database); near **Guanyun county**, probably by the Xinyi He river, one satellite-tracked bird (code A21, from Mai Po in Hong Kong), April 1999 (WBSJ Research Center database); one satellite-tracked bird (code A21, from Mai Po in Hong Kong) c.50 km due east of the mouth of the **Sheyang He** river, April 1999 (WBSJ Research Center database); Yancheng Nature Reserve, occurs on migration and in winter, and some summer records, usually at **Sheyang salt works** and **Dongsha islands** (core area of the reserve), highest counts on migration being 24 birds in May 1990, 38 in October 1991, 23 in September 1993, six in May 1994, 64 in November 1994, 10 in March 1995, 30 in May 1996, 32 in October 1996, 40 in March 1997, 49 in September 1997, 13 in April 1998, with highest counts in winter of 11 in December 1989, five in December 1991, two in January 1993, 25 in January 1994, 71 in February 1995, 15 in 1995/1996, 40 in March 1997, two in January 1998 (Wang Hui *per* Zheng Guangmei *in litt.* 1998, Dahmer and Felley 1999), with two collecting nesting materials at Xialaohu, 1990s (Hou Yunqiu and Qian Fawen 1998), 29 birds at Sheyang salt works, June–July 1998 (Waterbird Specialist Group 1994, Shan Kai 1998, Wang Hui *in litt.* to Zheng Guangmei 1998, Dahmer and Felley 1999), six, summer 1999 (Wang Hui *in litt.* 1999); two satellite-tracked birds (from Mai Po) at the **Dongtai He river mouth**, April 1999 (WBSJ Research Center database); **Lüsi Gang**, Nantong city, one satellite-tracked bird (code A06, from Mai Po), April 1999 (WBSJ Research Center database);

■ **Shanghai** eastern **Chongming Dao** island, groups of 11 and five, April and May 1990 (Kennerley 1990b), one satellite-tracked bird (from Mai Po), March 1999 (WBSJ Research Center database), but none located in this area in winter 1997/1998 (Lu Jianjian *in litt.* 1998); **Baoshan**, six seen in flight, November 1998 (Wang Tianhou *per* Gao Yuren *in litt.* 1999); **Jiudian Sha**, Yangtze estuary, 27 seen, October 1989 (Kennerley 1990b), 13, January 1997 (Dahmer and Felley 1999), four, December 1997, 11, December 1998 (Lu Jianjian *in litt.* 1998); **Shanghai**, one collected in the lower Yangtze valley, November (unspecified year) (Styan 1891), male collected in “Shanghai area”, July 1927 (Sowerby 1943), on the east coast of Shanghai, near Jiangzhen, in April 1998, groups of 34 birds seen flying [at 31°08'N 121°49'E], 16 and 12 feeding [at 31°09'N 121°49'E] (Lu Jianjian *in litt.* 1998, Cui Zhixing *in litt.* 1998);

■ **Zhejiang Hangzhou bay**, two males collected, undated (Zhuge Yang 1990); **Xiangshan Gang** bay, one satellite-tracked bird (from Tainan on Taiwan), May 1998 (WBSJ Research Center database); **Sanmen bay**, one satellite-tracked bird (from Tainan on Taiwan, the Xiangshan Gang bird), May 1998 (WBSJ Research Center database); **Lingkun island**, Wenzhou city, seven, April 1999 (Ding Ping 1999, undated); **Wenzhou bay**, two satellite-tracked birds (from Mai Po in Hong Kong), including one on **Damen island**, between Wenzhou bay and Yueqing bay, March 1999 (WBSJ Research Center database); **Yongxinzhen** (Yongxin), Wenzhou bay, up to two, April–May 1999 (Ding Ping 1999, undated); **Feiyun Jiang** and **Ao Jiang** estuaries, Wenzhou, one satellite-tracked bird (from Tainan on Taiwan), May 1998 (WBSJ Research Center database);

■ **Fujian** (note that Jinmen Dao island is under the administration of Taipei) **Fuzhou** (Foochow), November 1884 (specimen in AMNH), October 1886, November 1890 and January 1894 (four specimens in BMNH; also La Touche 1892), undated (two specimens in ASCN), December 1929 (specimen in WUCN), June 1959 and undated (two specimens in NEFUCN); **Fuqing river mouth** (Futsing), December (unspecified years) (Caldwell and Caldwell 1931); **Meizhou bay**, one satellite-tracked bird (from Mai Po in Hong Kong), March 1999 (WBSJ Research Center database); **Quanzhou bay**, one satellite-tracked bird (from Mai Po in Hong Kong), March 1999 (WBSJ Research Center database); **Jinmen Dao** (Chin-men Tao, Kinmen or Quemoy) island, one, winter 1989, five, winter 1990, six, winter 1991, single

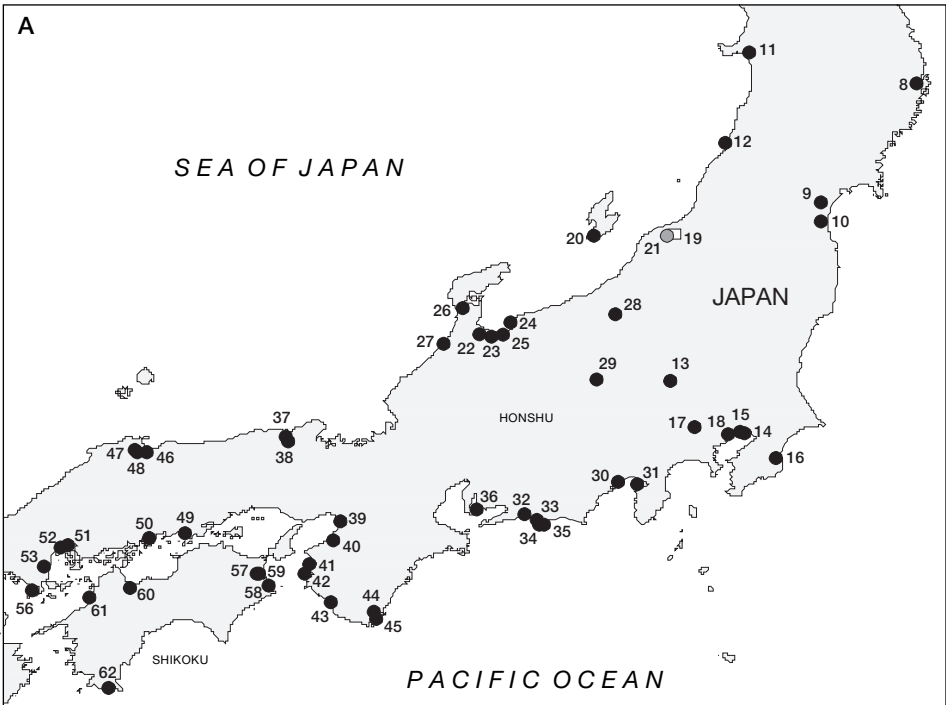
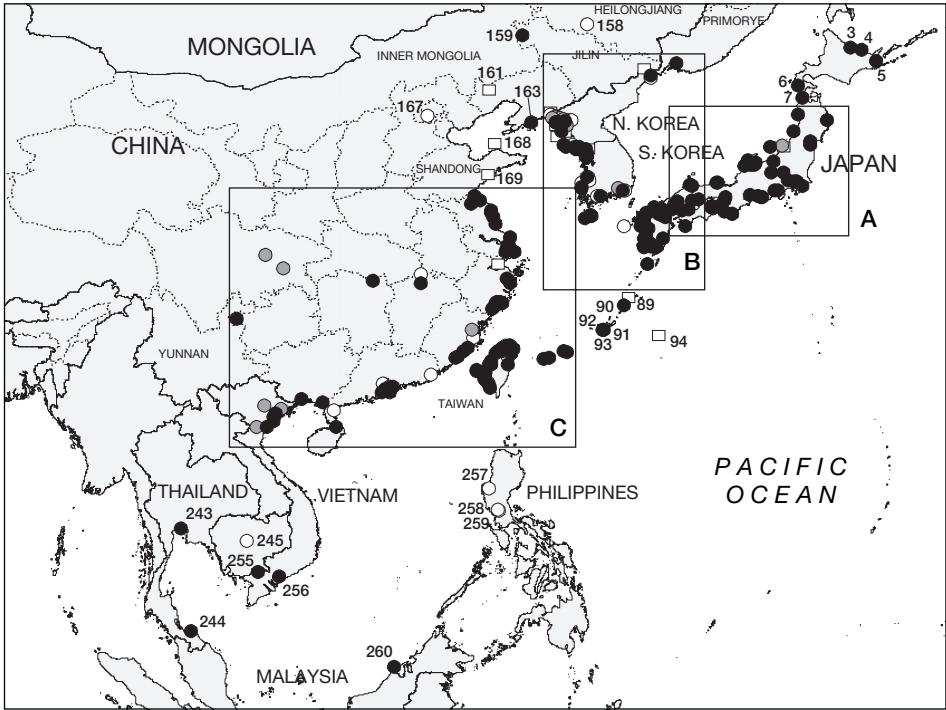
birds on the Wuchiang estuary (Wujiang) in 1994 and 1996, and 16 birds there in 1995 (CWBF database), **Lieh-yü Tao** (Lieuu) island, Jinmen Dao island, single birds in 1992 and 1994 (CWBF database); **Majiang** (untraced), November 1963 (male in LAUCN);

■ **Jiangxi Jiujiang** (Kiukiang), Yangtze valley, October 1888 (specimen in BMNH); **Poyang Hu Nature Reserve**, at least two photographed at Dahu Chi in a mixed flock with Eurasian Spoonbills, January 1986 (Kennerley 1987), two single located amongst flocks totalling over 1,000 Eurasian Spoonbills, December 1989 (Kennerley 1990b);

■ **Hunan Dong Dongting Hu Nature Reserve** (East Dongting lake), two, March 1992 (Lei Gang *in litt.* 1997);

The distribution of Black-faced Spoonbill *Platalea minor* (maps opposite): (1) Murav'inyi bay; (2) Sivuch'ya bay; (3) Komuke-ko; (4) Notoro-ko; (5) Bekkai-cho; (6) Kaminokuni-cho; (7) Shiura-mura; (8) Tsugaruishi-gawa river mouth; (9) Sendai-shi; (10) Watari-cho; (11) Hachiro-gata; (12) Mogami-gawa river mouth; (13) Honjo-shi; (14) Funabashi; (15) Yatsu tidal flat; (16) Ichinomiya-gawa river mouth; (17) Tokyo; (18) Kasai; (19) Shinano-gawa; (20) Hamochi-machi; (21) Yokogoshi-machi; (22) Kurobe-gawa river mouth; (23) Shimminato-shi; (24) Joganji-gawa river mouth; (25) Jintsu-gawa; (26) Kawashiri-gawa river mouth; (27) Kahoku-gata; (28) Chikuma-gawa; (29) Asashina-mura; (30) Fuji-gawa river mouth; (31) Numazu-shi; (32) Hamana-ko; (33) Hamamatsu-shi; (34) Magome-gawa river mouth; (35) Tenryu-gawa river mouth; (36) Isshiki-cho; (37) Kumihama bay; (38) Kumihama-cho; (39) Osaka; (40) Kumeda-ike; (41) Wakaura; (42) Arida-gawa; (43) Tanabe-shi; (44) Nachikatsuura-cho; (45) Ota-gawa; (46) Yonago Waterbird Park; (47) Nakano-umi; (48) Inashi-gawa river mouth; (49) Kurashiki-shi; (50) Fukuyama-shi; (51) Hiroshima-shi; (52) Yawata-gawa river mouth; (53) Iwakuni-shi; (54) Shimonoseki-shi; (55) Aiju reclamation; (56) Ozu-machi; (57) Yoshino-gawa river mouth; (58) Tokushima-shi; (59) Naka-gawa river mouth; (60) Kamo-gawa river mouth; (61) Shigenobu-gawa river mouth; (62) Tosashimizu-shi; (63) Sone tidal flat; (64) Wajiro tidal flat; (65) Kashii; (66) Imazu tidal flat; (67) Saga-gun; (68) Kokuzo reclamation; (69) Kashima-gawa river mouth; (70) Ariake-kai; (71) Kashima-shi; (72) Goto islands; (73) Isahaya reclamation; (74) Uto-gun; (75) Shiranuhi-machi; (76) Nakatsu-shi; (77) Otome; (78) Kitsuki; (79) Hitotsuse-gawa river mouth; (80) Izumi; (81) Takaono-cho; (82) Kajiki-cho; (83) Beppu-gawa; (84) Kagoshima-shi; (85) Shin-kawa; (86) Anraku estuary; (87) Manose-gawa; (88) Kamiyaku-cho; (89) Amami islands; (90) Tokuno-shima; (91) Manko; (92) Gushi; (93) Tomigusuku-son; (94) Minami-daito-jima; (95) Irabu-jima; (96) Miyako-jima; (97) Ishigaki-jima; (98) Iriomote-jima; (99) Tumen river; (100) Synuiju; (101) Yongampo; (102) Hakso-ri; (103) Tasa-do; (104) Sonchon; (105) Jongju; (106) Kwaksan; (107) Wonha-ri; (108) Chongchong-gang estuary; (109) Ae-do; (110) Hyengze-do; (111) Zung-do; (112) Taegam-do; (113) Dongsolbatsem; (114) Namsolbatsem; (115) Oksem; (116) Sesolbatsem; (117) Sogam-do; (118) Batoggisem; (119) Dansem; (120) Zamori; (121) Chamcha-do; (122) Unmu-do; (123) Sorap-to; (124) Anju; (125) Chungsan; (126) Tok-do; (127) Onchon; (128) Toksom; (129) Gurang-ri; (130) Haeju; (131) Ongjin county; (132) Honam-ri; (133) Yongsan-ri; (134) Gakhouido; (135) Ryongmaedo; (136) Yemzen-gu; (137) Yu-do; (138) Kyoha river; (139) Kangwha island; (140) Yongjong island; (141) Inchon; (142) Won-do; (143) Taebu-do; (144) Kum river; (145) Chinhae; (146) Nakdong estuary; (147) Pusan; (148) Kunsan; (149) Tongjin estuary; (150) Wi-do; (151) Chilsan island; (152) Yonggwang-gun; (153) Taejon; (154) Suncheon bay; (155) Hado-ri; (156) Songsanpo; (157) Cheju island; (158) Harbin; (159) Xianghai National Nature Reserve; (160) Hunchun; (161) Chaoyang district; (162) Yalu Jiang; (163) Xingren Tu; (164) Nanchong city; (165) Changshou reservoir; (166) Cao Hai; (167) Beijing; (168) Changshan islands; (169) Qingdao; (170) Lianyungang; (171) Guan He estuary; (172) Guanyun county; (173) Sheyang He; (174) Sheyang salt works; (175) Dongsha islands; (176) Dongtai He river mouth; (177) Lüsi Gang; (178) Chongming Gang; (179) Baoshan; (180) Jiudian Sha; (181) Shanghai; (182) Hangzhou bay; (183) Xiangshan Gang; (184) Sanmen bay; (185) Damen island; (186) Lingkun island; (187) Wenzhou bay; (188) Yongxingzhen; (189) Feiyun Jiang; (190) Ao Jiang; (191) Fuzhou; (192) Fuqing river mouth; (193) Meizhou bay; (194) Quanzhou bay; (195) Jinmen Dao; (196) Lieh-yü Tao; (197) Jiujiang; (198) Poyang Hu Nature Reserve; (199) Dong Dongting Hu Nature Reserve; (200) Fangcheng county; (201) Shankou Mangroves National Nature Reserve; (202) Shantou; (203) Zhu Jiang delta; (204) Futian Nature Reserve; (205) Donghai Dao; (206) Dongzhaigang Nature Reserve; (207) Starling inlet; (208) Mai Po; (209) Tsim Bei Tsui; (210) Tin Shui Wai; (211) Tai Lam Chung reservoir; (212) Cheung Chau; (213) Macao; (214) Chinshan; (215) Yehliu; (216) Tanshui; (217) Kuantu; (218) Shetzü; (219) Tayuan; (220) Tienliaoayang; (221) Tachuang; (222) Chu-an; (223) Kangnan; (224) Wentitsun; (225) Lanyang estuary; (226) Chungkang estuary; (227) Litse; (228) Ilan county; (229) Tatu estuary; (230) Lungching Sewage Treatment Plant; (231) Changhua county; (232) Hanpao; (233) Hualien estuary; (234) Makung; (235) Hsingjen; (236) Aoku; (237) Tsengwen estuary; (238) Anping; (239) Tainan city; (240) Kangshan; (241) Chuhou; (242) Kaoping estuary; (243) Bang Pu; (244) Pattani bay; (245) Kompong Thom; (246) Bac Ninh; (247) Hong Gai; (248) An Hai; (249) Don Son; (250) Van Uc estuary; (251) Thai Thuy; (252) Xuan Thuy Nature Reserve; (253) Thanh Hoa; (254) Nghia Hung; (255) Tram Chim Nature Reserve; (256) Can Gio; (257) Dagupan; (258) Obando; (259) Manila; (260) Seria.

○ Historical (pre-1950) ● Fairly recent (1950–1979) ● Recent (1980–present) □ Undated



■ **Guangxi** Wutou, **Fangcheng county**, 11 birds on a (seriously threatened) tidal flat, March 1996 (Zhou Fang *in litt.* 1996); **Shankou Mangroves National Nature Reserve** (Shankou Hongshulin), Hepu county, seven on a tidal flat in the Dandou area with an egret flock, April 1995, five on tidal flat, December 1997 (Zhou Fang *in litt.* 1996, Zhou Fang *per* Zheng Guangmei *in litt.* 1998); Zhenzhu bay and Qinzhou bay, east of Wutou, spoonbill-like birds reported by local people in an area being claimed for economic developments (Zhou Fang *in litt.* 1996);

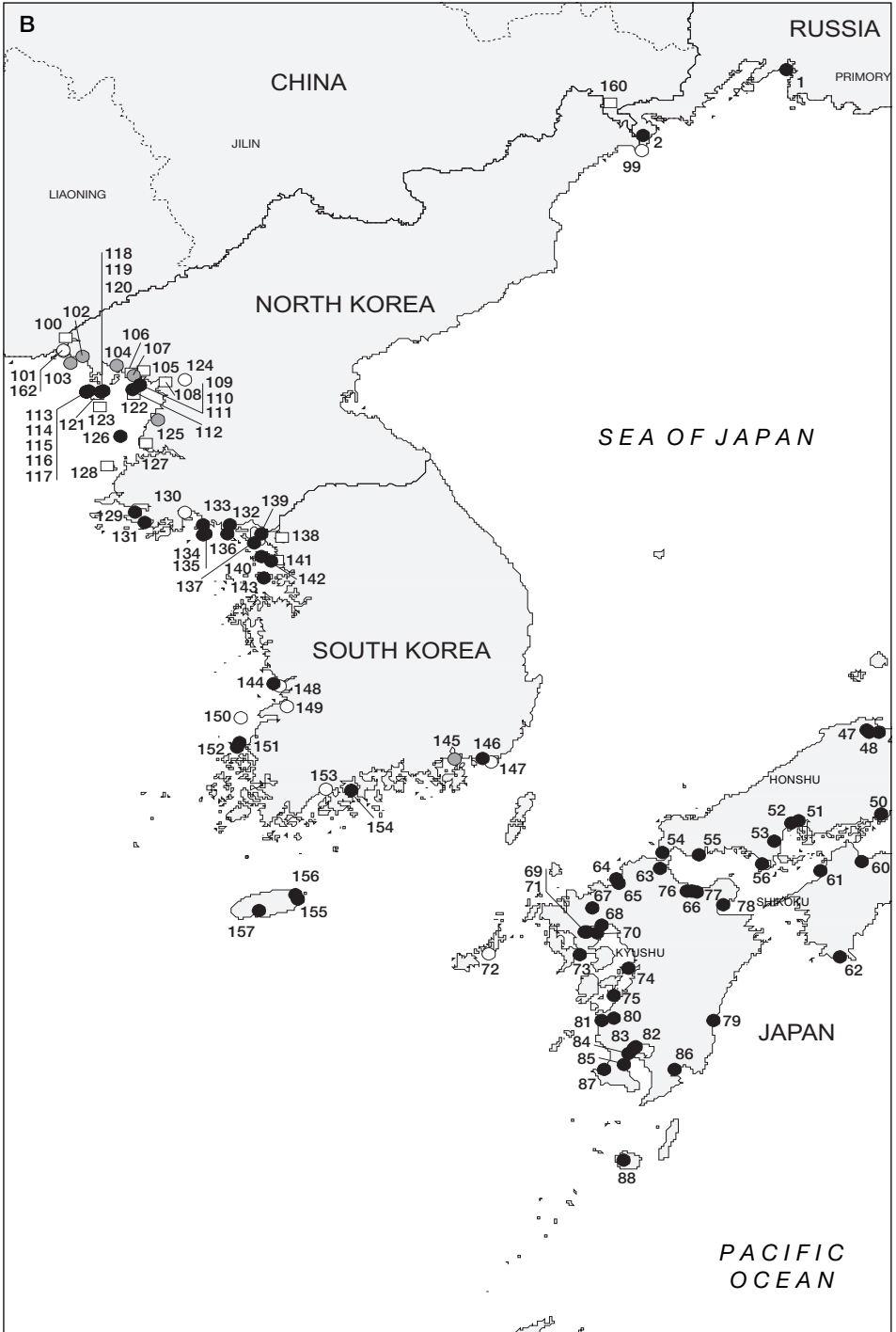
■ **Guangdong** **Shantou** (Swatow), early winter 1887 (female in AMNH), “common” throughout winter (La Touche 1892); **Zhu Jiang delta** (Pearl river, delta area of “east river” and “west river”), small numbers present annually in December and January (unspecified years), and birds sold in Guangzhou (Canton, Kanton) market (Mell 1922); **Futian Nature Reserve**, Deep Bay, part of the same flock as at Mai Po in Hong Kong, with winter counts of 32 birds in January 1997, 25 in January 1998 (Dahmer and Felley 1999), and 48, December 1999 (Yu Yat-tung *in litt.* 1999); **Donghai Dao** (Tan-hai island), Zhanjiang city (Kouang-tcheou), two males collected in November 1932 and a female in October 1933, while “one or two flocks of up to 60 birds...all winter at the L’Estoc canal, between Tan-hai island and the Territory” (Jabouille 1935; specimen in BMNH);

■ **Hainan Dongzhaigang Nature Reserve**, Qionghshan county, four, January 1987, 26, November 1987 (Deng Juxie *et al.* 1989), 11, February 1992 (SC), 13, December 1992, nine, winter 1993/1994, six, early 1996, three, winter 1997/1998, their numbers decreasing because of human disturbance and illegal hunting (Gao Yuren *per* Zheng Guangmei *in litt.* 1998), with winter census counts of nine in 1993/1994, six in 1994/1995, six in 1995/1996, four in January 1997, three in January 1998, and three in January 1999 (Dahmer and Felley 1999).

■ **HONG KONG** It is mainly a winter visitor to the Deep Bay area, but a few birds have also occurred in summer and at other sites in Hong Kong, with records as follows: **Starling inlet**, 24 soaring high and drifting west (towards Deep Bay), October 1994 (HKBWS database); Deep Bay, including **Mai Po**, **Tsim Bei Tsui** and **Tin Shui Wai**, where the species is an annual winter visitor with some summer records (at least one in August 1974, one in June 1981, one in July 1985, three in June 1987, one in June 1989, one in August 1992 at Tin Shui Wai and one in July 1994: HKBWS database), having been an occasional visitor from 1958 to the 1970s, with usually fewer than 15 birds present from October to April (maximum of 21 in 1976), the number present in winter increasing to c.20–50 birds in the 1980s, and c.60–100 birds were found wintering from 1990–1995 (HKBWS database), in recent years the mid-winter census figures being 50 in 1988–1990, 70 in 1993/1994, 78 in 1994/1995, 99 in 1995/

The distribution of Black-faced Spoonbill *Platalea minor* (map B opposite): (46) Yonago Waterbird Park; (47) Nakano-umi; (48) linashi-gawa river mouth; (49) Kurashiki-shi; (50) Fukuyama-shi; (51) Hiroshima-shi; (52) Yawata-gawa river mouth; (53) Iwakuni-shi; (54) Shimonoseki-shi; (55) Ajisu reclamation; (56) Ozu-machi; (60) Kamo-gawa river mouth; (61) Shigenobu-gawa river mouth; (62) Tosashimizu-shi; (63) Sone tidal flat; (64) Wajiro tidal flat; (65) Kashii; (66) Imazu tidal flat; (67) Saga-gun; (68) Kokuzo reclamation; (69) Kashima-gawa river mouth; (70) Ariake-kai; (71) Kashima-shi; (72) Goto islands; (73) Isahaya reclamation; (74) Uto-gun; (75) Shiranuhi-machi; (76) Nakatsu-shi; (77) Otome; (78) Kitsuki; (79) Hitotsuse-gawa river mouth; (80) Izumi; (81) Takaono-cho; (82) Kajiki-cho; (83) Beppu-gawa; (84) Kagoshima-shi; (85) Shin-kawa; (86) Anraku estuary; (87) Manose-gawa; (88) Kamiyaku-cho; (89) Tumen river; (100) Synuiju; (101) Yongampo; (102) Haksori; (103) Tasa-do; (104) Sonchon; (105) Jongju; (106) Kwaksan; (107) Wonha-ri; (108) Chongchon-gang estuary; (109) Ae-do; (110) Hyengze-do; (111) Zung-do; (112) Taegam-do; (113) Dongsolbatsem; (114) Namsolbatsem; (115) Oksem; (116) Sesolbatsem; (117) Sogam-do; (118) Batoggisem; (119) Dansem; (120) Zamori; (121) Chamcha-do; (122) Unmu-do; (123) Sorap-to; (124) Anju; (125) Chungsan; (126) Tok-do; (127) Onchon; (128) Toksom; (129) Gurang-ri; (130) Haeju; (131) Ongjin county; (132) Honam-ri; (133) Yongsan-ri; (134) Gakhouido; (135) Ryongmaedo; (136) Yemzen-gu; (137) Yu-do; (138) Kyoha river; (139) Kanghwa island; (140) Yongjong island; (141) Inchon; (142) Won-do; (143) Taebu-do; (144) Kum river; (145) Chinhae; (146) Nakdong estuary; (147) Pusan; (148) Kunsan; (149) Tongjin estuary; (150) Wi-do; (151) Chilsan island; (152) Yonggwang-gun; (153) Taejon; (154) Suncheon bay; (155) Hado-ri; (156) Songsanpo; (157) Cheju island; (160) Hunchun; (162) Yalu Jiang.

○ Historical (pre-1950) ● Fairly recent (1950–1979) ● Recent (1980–present) □ Undated



1996, 69 in January 1997, 88 in January 1998 and 96 in January 1999 (Dahmer and Felley 1999), the maximum count in Inner Deep Bay being 164 in early December 1999 (T. Dahmer *in litt.* 1999), while 130 birds were counted at Mai Po in December 1999 when 48 were simultaneously counted at Futian (in Guangdong) (Yu Yat-tung *in litt.* 1999); **Tai Lam Chung reservoir**, flock of c.30 birds flying over, April 1966 (Chalmers 1986); **Cheung Chau**, three, March 1994 heading eastwards over the sea (HKBWS database).

■ **MACAO** There have been a few recent records in winter: tidal mudflats adjacent to the Taipa-Coloane causeway, **Macao**, nine, January 1998, 12 birds, January 1999 (Dahmer and Felley 1999, P. Aston *per M. Felley in litt.* 1999).



The distribution of Black-faced Spoonbill *Platalea minor* (map C): (164) Nanchong city; (165) Changshou reservoir; (166) Cao Hai; (170) Lianyungang; (171) Guan He estuary; (172) Guanyun county; (173) Sheyang He; (174) Sheyang Salt Works; (175) Dongsha islands; (176) Dongtai He river mouth; (177) Lūsi Gang; (178) Chongming Dao; (179) Baoshan; (180) Jiudian Sha; (181) Shanghai; (182) Hangzhou bay; (183) Xiangshan Gang; (184) Sanmen bay; (185) Damen island; (186) Lingkun island; (187) Wenzhou bay; (188) Yongxingzhen; (189) Feiyun Jiang; (190) Ao Jiang; (191) Fuzhou; (192) Fuqing river mouth; (193) Meizhou bay; (194) Quanzhou bay; (195) Jinmen Dao; (196) Lieh-yū Tao; (197) Jiujiang; (198) Poyang Hu Nature Reserve; (199) Dong Dongting Hu Nature Reserve; (200) Fangcheng county; (201) Shankou Mangroves National Nature Reserve; (202) Shantou; (203) Zhu Jiang delta; (204) Futian Nature Reserve; (205) Donghai Dao; (206) Dongzhaigang Nature Reserve; (207) Starling inlet; (208) Mai Po; (209) Tsim Bei Tsui; (210) Tin Shui Wai; (211) Tai Lam Chung reservoir; (212) Cheung Chau; (213) Macao; (214) Chinshan; (215) Yehliu; (216) Tanshui; (217) Kuantu; (218) Shetzu; (219) Tayuan; (220) Tienliaoyang; (221) Tachuang; (222) Chu-an; (223) Kangnan; (224) Wentitsun; (225) Lanyang estuary; (226) Chungkang estuary; (227) Litse; (228) Ilan county; (229) Tatu estuary; (230) Lungching Sewage Treatment Plant; (231) Changhua county; (232) Hanpao; (233) Hualien estuary; (234) Makung; (235) Hsingjen; (236) Aoku; (237) Tsengwen estuary; (238) Anping; (239) Tainan city; (240) Kangshan; (241) Chuhou; (242) Kaoping estuary; (246) Bac Ninh; (247) Hong Gai; (248) An Hai; (249) Don Son; (250) Van Uc estuary; (251) Thai Thuy; (252) Xuan Thuy Nature Reserve; (253) Thanh Hoa; (254) Nghia Hung.

○ Historical (pre-1950) ● Fairly recent (1950–1979) ● Recent (1980–present) □ Undated

■ **TAIWAN** The Black-faced Spoonbill is a winter visitor to Taiwan, mainly to the west coast, and the Tsengwen estuary in Tainan supports the largest wintering flock of Black-faced Spoonbills in the world. Some birds also winter annually in Ilan county in north-eastern Taiwan. Records are as follows (for records on Jinmen Dao island, see under Fujian province above): **Chinshan** and **Yehliu**, Taipei, one in 1995 (CWBF database); **Tanshui** (Tamsay), Taipei, March 1864 (female in BMNH); **Kuantu**, Taipei, single birds recorded almost annually, maximum of three in early 1994 (CWBF database); **Shetzu**, Taipei, single birds in 1995 and 1996 (Fang Woei-horng 1997); **Tayuan**, Taoyuan county, one in 1995, two in 1996 (CWBF database); **Tienliaoyang**, Taipei, one in 1997 (CWBF database); **Tachuang**, Hsinchu county, two birds in 1996 and 1998 (CWBF database); **Chu-an**, Changhwa county, one in 1984, one in 1985, six in 1986 and one in 1990 (CWBF database); **Kangnan**, Hsinchu county, several records in the 1990s, maximum of nine in early 1996 (CWBF database); **Wentitsun** (Wenti), Ilan county, eight in 1998 (CWBF database); **Lanyang estuary**, Ilan county, five, January 1997 (Fang Woei-horng 1998a), 10 birds in 1989, recorded annually, usually fewer than 10 birds (CWBF database); **Chungkang estuary**, Miaoli county, two in 1996, five in 1997 (CWBF database); **Litse** (Wu-shih-erh-chia, Litzechien), Ilan county, two in 1989, four in January 1997, probably the same birds as at Lanyang estuary (Fang Woei-horng 1998a); **Ilan county**, one collected, March 1925 (Dien Zuh-ming 1955); near **Tatu estuary**, Taichung and Changhua counties, four, January 1997 (Fang Woei-horng 1998a), recorded annually, up to six birds (CWBF database); **Lungching Sewage Treatment Plant**, Taichung, four in 1996 (CWBF database); Changyukumiao, **Changhua county**, seven in 1998 (CWBF database); **Hanpao**, Changhwa county, six in 1996 (CWBF database); **Hualien estuary**, Hualien county, one in 1995 (CWBF database); **Makung** island, Penghu county, one in early 1992 (CWBF database); **Hsingjen** Tsai-yuan, Penghu county, one in January 1997 (Fang Woei-horng 1998a), one or two birds recorded wintering but not annually (CWBF database); **Aoku**, Chiayi county, recorded annually since 1994, usually fewer than 10 birds but 193 recorded in 1996 (CWBF database); **Tsengwen estuary**, Tainan, the most important wintering ground of this species in the world, wintering flock of 100–200 birds discovered in the 1980s, with numbers increasing during the 1990s, with winter census counts of 206 birds in 1993/1994, 286 in 1994/1995, more than 300 in 1995/1996, 298 in January 1997, 321 in January 1998, 363 in January 1999 (Dahmer and Felley 1999), maximum of 339 birds in winter 1997/1998 (CWBF database), 348 birds, November 1998 (Hsueh Tien-te *in litt.* 1998), and a new maximum of 527 in December 1999 (Hsueh Tien-te *in litt.* 1999); **Anping**, Tainan, April 1929 (immature in YIO), c.50 wintering birds occurred annually (Yamashina 1941); Szutsau, **Tainan city**, as an overspill site from the Tsengwen estuary, with up to 230 recorded (CWBF database); Tsuo-hsing, **Kangshan**, Kauhsiung, October 1932 (adult in YIO); **Chuhou** (Chuhu), Kauhsiung, one in 1991 (CWBF database), two in spring 1994 (Kauhsiung Bird Society database); **Kaoping estuary** (Kauping estuary), Kauhsiung and Pingtung counties, five in 1994 (Chang Chin-lung *in litt.* 1998).

■ **THAILAND** It is a very rare winter visitor, with records as follows: **Bang Pu** (Bang Poo), three immatures on mudflats and prawn-ponds, January–March 1989 (*Bangkok Bird Club Bull.* 6, 3 [1989]: 10–11); **Pattani bay**, immature on mudflats, February–March 1988 (Round *et al.* 1988, Ardseungnern 1991), one, January 1992 (AWB database), another possible record, October or November 1998 (N. Ruttanadukul *per* U. Treesucon *in litt.* 1998).

■ **CAMBODIA** Delacour and Jabouille (1931) reported that this species was rare but widespread in the country, but there have been no recent records (Thomas 1964, Sun Hean *in litt.* 1997), and it only appears to have been reported at a single site (see Remarks 5): **Kompong Thom**, apparently seen in “some numbers”, January 1928 (Delacour 1929b).

■ **VIETNAM** It is a winter visitor, mainly to northern Vietnam, especially in the coastal zone of the Red River delta (see Remarks 5). Records are as follows: **Bac Ninh** province, four

in a pool amongst ricefields, March 1958 (Fischer 1961); between Bac Ninh and **Hong Gai** (Hongay), five birds flying, July 1963 (Fischer 1974); **An Hai** district, Hai Phong, one in spring 1996 (Pedersen and Nguyen Huy Thang 1996); **Do Son**, 4–7 birds (or more) foraging in flood pools, September 1962 (Fischer 1965); **Van Uc estuary**, Hai Phong, three, March 1994 (Pedersen *et al.* 1998), maximum of 16 birds (including up to six immatures), February–March 1996, three, February 1997 (J. C. Eames and Nguyen Cu *in litt.* 1997); **Thai Thuy** district, Thai Binh, including the Thai Binh estuary, maximum of 23, February–April 1996, 14, March 1997 (possibly the same birds as at the nearby Van Uc estuary) (Nguyen Cu 1998, J. C. Eames and Nguyen Cu *in litt.* 1999), one, January 1999 (Dahmer and Felley 1999), four, December 1999 (A. W. Tordoff verbally 2000); **Xuan Thuy Nature Reserve**, Nam Dinh, 32 birds, over half immatures, March 1988 (Scott 1988, Hancock *et al.* 1992), with between 20 and 104 birds (including up to 20 immatures) wintering (October to May) at this site from 1988 onwards, its feeding areas being concentrated on the tidal flats of the ends of Con Lu and Con Mo islands inside the nature reserve, the most important site being in the middle of Con Lu island by the Tra river (Le Dien Duc 1995, Le Trong Trai *in litt.* 1996, Nguyen Cu 1998, Pedersen *et al.* 1998, Dahmer and Felley 1999); coast of **Thanh Hoa** province, one, October 1962 (Fischer 1965); **Nghia Hung** district, Nam Dinh, including the Cua Day estuary, 28 birds (including two immatures), spring 1993 (Carlberg 1993), a maximum of 41 birds roosting, between February and May 1994 (Pedersen *et al.* 1998), 10 birds, February 1995 (Nguyen Cu *in litt.* 1997), 16 birds, February 1996 (A. Pedersen and Nguyen Huy Thang *in litt.* 1997), 12 (including four immatures), March 1997 (Le Trong Trai *in litt.* 1997); **Tram Chim Nature Reserve**, Dong Thap, single bird seen and photographed amongst a flock of Painted Storks *Mycteria leucocephala*, January 1994 (J. C. Eames and Nguyen Cu *in litt.* 1997); **Can Gio** district, Ho Chi Minh City, single adult seen roosting with Grey Herons *Ardea cinerea* in a drained shrimp-pond, March 1996 (Nguyen Cu *in litt.* 1999).

■ **PHILIPPINES** If it has occurred at all in the Philippines (there being some question as to whether Black-faced or Eurasian Spoonbills were involved) it was possibly never more than a rare winter visitor, with no flocks exceeding six individuals observed (Dickinson *et al.* 1991). It is only known from the following records (accepted here with some uncertainty), all on Luzon:

Luzon Dagupan, Pangasinan province, “not uncommon”, with one head collected and tentatively assigned to *P. minor*, November 1907 (McGregor 1909–1910), and a single immature female apparently collected, October 1914 (McGregor 1916); Balauarte, **Obando**, Bulacan province, two spoonbills seen, November 1910, where according to local fishermen the species was well known though not common (McGregor 1916); **Manila**, six birds, possibly this species, reported shot in January 1905 (see McGregor 1906b).

■ **BRUNEI** A single bird was reported in early 1985, but it has been suggested that this record may possibly refer to the Royal Spoonbill *Platalea regia*, which has been recorded in Indonesia (Kennerley 1990b; see Andrew 1992); **Seria**, one seen and photographed, January–April 1985, while an unidentified spoonbill over Serasa in January 1985 may have been the same bird, with the comment being made that “perhaps previous records of spoonbills in Borneo are this species and not Eurasian Spoonbills *Platalea leucorodia* as claimed” (Mann 1987, 1988).

POPULATION The historical status of the Black-faced Spoonbill is poorly understood, and it is therefore not possible to determine whether its numbers have changed significantly in the recent past. However, Won (1963) and Gore and Won (1971) reported that larger flocks were seen around the breeding grounds before the Korean War (1950–1953) than are found at present, indicating that a decline may have occurred around that time. La Touche (1925–1934) described it as “common on the south-east China coast, where it may be met with in small parties”, also indicating that it was more numerous in the late nineteenth and early twentieth centuries than at present.

There has been considerable interest in this species since the late 1980s, when Kennerley (1990b) published a review that showed that the known population of Black-faced Spoonbills at that time was only 288 individuals. Since then the known population gradually increased to over 700 birds in December 1999, as a result of increased survey effort and improved international coordination of the study of this species (see below for details). However, there have been real increases in the numbers at the Tsengwen estuary on Taiwan and at Deep Bay in Hong Kong, presumably as wintering birds have become more concentrated at the less disturbed sites (they have declined at the more disturbed site at Dongzhaigang on Hainan), rather than because of a real increase in total global population. Although the total number of this species appears currently to be stable or even increasing, the concentration of a high proportion of its population at a few sites during both the breeding and non-breeding seasons makes it highly vulnerable to natural or artificial catastrophe, particularly as many of the key sites are under pressure and not adequately protected (see Threats).

A coordinated international census of wintering Black-faced Spoonbills began in the mid-1990s and covers most of the known wintering grounds; since 1997 the total count (which is conducted in mid-January) has exceeded 520 birds (Dahmer and Felley 1999). In November–December 1999, 527 birds were seen at the Tsengwen estuary on Taiwan (Hsueh Tien-te *in litt.* 1999), 164 birds in Hong Kong (T. D. Dahmer *in litt.* 1999), and 25 birds in Fukuoka (H. Yamamoto *in litt.* 1999), indicating that the total global population almost certainly exceeds 700 birds. A summary of the numbers counted at the key wintering sites is given below (from Dahmer and Felley 1999 unless otherwise stated):

- Tsengwen estuary, Taiwan: up to 363 birds (in January 1999), maximum count of 527 in December 1999 (Hsieh Tien-te *in litt.* 1999);
- Mai Po and Inner Deep Bay, Hong Kong, and Futian Nature Reserve, Guangdong, mainland China: up to 99 birds (in 1995/1996), maximum count of 178 (130 at Mai Po and 48 at Futian) in December 1999 (Yu Yat-tung *in litt.* 1999);
- Red River delta and Xuan Thuy Nature Reserve, Vietnam: up to 104 birds (in 1995/1996) (see Distribution);
- Hakata bay (including Imazu and Wajiro tidal flats), Fukuoka, Japan: up to 25 birds (in January 1998), maximum count of 28 in November 1997 (Y. Kominami *in litt.* 1997);
- Cheju island, South Korea: up to 19 birds (in January 1998), maximum count of 19–25 birds in January 1998 (Han Sang-hoon *in litt.* 1998);
- Mannose and Shin-kawa rivers, Japan: up to 26 birds (in November 1997).

Several sites along the coast of mainland China could support similar numbers to some of the above localities, for example Yancheng in Jiangsu, where the entire nature reserve was not covered because of a lack of sufficient fieldworkers, and there could be some important undiscovered wintering sites in south-east China (Dahmer and Felley 1999) and the coastal zone of Quang Ninh province in Vietnam (A. W. Tordoff verbally 2000).

ECOLOGY Habitat All known breeding sites are on small islands, where the birds usually nest on cliffs with other waterbird species (Won 1995, Chong *et al.* 1996c, Ding Wenning verbally 1999). In North Korea, they share their nesting grounds with Grey Heron, Pelagic Cormorant *Phalacrocorax pelagicus*, Black-tailed Gull *Larus crassirostris* and Herring Gull *L. argentatus* (Chong *et al.* 1996a). At Yu-do, in the DMZ of South Korea, they nest with Great Egret *Casmerodius albus*, Little Egret *Egretta garzetta*, Grey Heron and Black-crowned Night-heron *Nycticorax nycticorax* (Won 1995). On the Changshan islands in Liaoning, they nest with Chinese Egret *E. eulophotes* (see relevant account), Herring Gull and Black-tailed Gulls (Ding Changqing *et al.* 2000). They need tidal flats for foraging, so it is essential that good-quality feeding areas are within flying distance of the nesting sites (Chong Jong-ryol verbally 1995).

The Black-faced Spoonbill is mainly found in intertidal habitats on the coast, in contrast to the Eurasian Spoonbill which occurs in a much wider range of fresh, brackish or salt

water habitats (see Hancock *et al.* 1992). Most of its main wintering grounds are in brackish wetlands near river mouths, with mudflats exposed at low tides, and several of the more southerly sites are mangrove wetlands (e.g. the Red River delta, Shankou, Dongzhaigang, Inner Deep Bay and Manko; the Tsengwen estuary was formerly fringed with mangroves) (SC). There are a few winter records from the inland freshwater wetlands at Poyang Hu, Dongting Hu and Cao Hai, but birds do not normally winter at these sites (SC). They usually roost in flocks at undisturbed sites during the daytime, for example at the centre of a big reclaimed sandflat at Chi-ku on the Tsengwen estuary (SC), on the bunds of tidal shrimp-ponds (*gei wai*) at Mai Po in Inner Deep Bay (SC), in mangroves at high tide at Dongzhaigang and Shankou (SC, Zhou Fang *per* Zheng Guangmei *in litt.* 1998), on offshore sandflats and islands in the Red River delta (Nguyen Cu *in litt.* 1997) and on rocky outcrops (or in rice-paddies in cold winters) on Cheju island (Kim *et al.* 1998).

In the 1980s and early 1990s, the Black-faced Spoonbills at Deep Bay all roosted together (Kennerley 1990b), but as their numbers increased there in the late 1990s, they frequently roosted in several separate flocks (C. Swennen *in litt.* 1999). In southern China, they forage on tidal flats or in channels amongst mangroves at low tide, and sometimes in recently drained aquacultural ponds, usually in company with egrets, herons or Eurasian Spoonbills (Zhou Fang *per* Zheng Guangmei *in litt.* 1998, SC). In Vietnam, they feed on tidal flats and mangrove channels but do not feed in the aquaculture ponds inside the reserve because of the intense human activities there (Nguyen Cu 1998, Pedersen *et al.* 1998). In Hakata bay in Japan, they also feed on tidal flats (SC) but on Cheju in South Korea and the Tsengwen estuary on Taiwan they feed mainly in fishponds (Kim *et al.* 1998, Wang Ying 1998).

Food This species usually forages in flocks, in Inner Deep Bay, of 4–25 birds (Kennerley 1990b), but after the wintering population increased there in the late 1990s, flocks of up to 84 have been seen feeding together (Yu Yat-tung *in litt.* 1999). At the Tsengwen estuary on Taiwan birds seldom feed in the daytime, and if they do they move from their roosting flat at Chi-ku to nearby fishponds or to Szutsau in small numbers (Yen 1994). Recent research in North Korea during the breeding season has found that males also forage primarily at night there (Chong *et al.* 1996c). In Hong Kong they do not necessarily feed after dark, and the timing of foraging appears to be determined more by the availability of food (for example, the draining of a fishpond or tidal pond) (SC). At Imazu in Hakata bay in Japan, wintering birds fed most actively when the tide started to rise (Chong *et al.* 1996b). Black-faced Spoonbills in Hong Kong feed in mid-water, and their beaks apparently never touch the bottom substrate (C. Swennen *in litt.* 1999). A study in Hong Kong found that almost all (98.8%) prey items were too small to be identified in the field, but immature birds tended to catch large African mouthbrooders *Tilapia* that were too big for them to handle (Leader 1998a). Black-faced Spoonbills seem to prefer fish and shrimps in Hong Kong, probably mainly the most abundant shrimp *Macrobrachium nipponensis* and fish *Gambusia affinis* species, but they also take crabs; most of their prey items are less than 5 cm length, but fish of up to bill length are regularly taken (C. Swennen *in litt.* 1999, Yu Yat-tung *in litt.* 1999). Wintering birds at Hakata bay in Japan were observed to feed on fish *Mugil cephalus* and young horseshoe crabs (Chong *et al.* 1996b). The stomach of an immature female collected in Chinhay in Korea contained many small freshwater shrimps (Fennell and King 1964). The wintering birds of Cheju are likely to feed on the following species of fish: *Mugil cephalus*, *Lateolabrax japonicus*, *Tridentiger obscurus* and *Chaenogobius urotaenia* (Kim *et al.* 1998). On the breeding grounds at Tok-do in North Korea the main food items are fish, particularly *Acanthogobius flavinanus* (Chong *et al.* 1996c). The stomachs of three birds in Korea contained fish, shrimps, small crabs, polychaete worms and the larvae of Diptera and Lepidoptera (Won 1963). In 78% of observations at the Cua Day estuary in Vietnam, foraging birds were observed close to the mangrove edge where a high density of *Tellina* (a bivalve) and gastropods occurred (Pedersen *et al.* 1998).

Breeding Courtship to egg-laying take one to two weeks, beginning in early May (Severinghaus *et al.* 1995, Chong *et al.* 1996a). At a colony in Korea the nests were built on cliffs, at an average of 42.4 m above the ground, 1.2–15 m apart and among colonies of herons, cormorants and gulls, with competition between this species and Grey Heron for nest sites (Chong *et al.* 1996a). In China, the birds on the Changshan islands in Liaoning were in a mixed colony with Chinese Egrets, Black-tailed Gulls and Herring Gulls, but no evidence of predation of spoonbill eggs by gulls was found (Ding Changqing *et al.* 2000). Of five nests observed at a colony in North Korea, one was newly built and the other four were re-used old nests, including two old Grey Heron nests; the nesting birds regularly added sticks to the nests during incubation, brooding and fledging (Chong *et al.* 1996a). In these nests, three eggs were laid per brood (one egg was laid every second day), and egg-laying began in late May to early June; in three out of the five nests, eggs were predated by Herring Gulls and the spoonbills laid replacement clutches within two weeks (Chong *et al.* 1996a). At the colony in China, nesting started on 9 May, three chicks hatched on 18 June and the nestlings fledged on 2 August; the eggs from two nests were collected by fishermen, and the pairs laid second broods in mid-July (Ding Changqing *et al.* 2000). The breeding success of the five pairs studied in Korea was low, and of the 20 eggs laid during the season, six were destroyed by Herring Gulls, five did not hatch, three chicks fell from their nests and were killed, and only six chicks fledged (Chong *et al.* 1996a). The nestlings were fed on average 4.4 times daily, almost exclusively on gobies *Acanthogobius flavimanus* (Chong *et al.* 1996a). The nestlings fledged in July at approximately five weeks of age, after which the parents and young stayed near the nesting island, the young became independent of the adults in mid-August and began migrating between the end of August and the beginning of September (Severinghaus *et al.* 1995). Won (1963) stated that 4–6 eggs are laid per nest, but all clutches observed on Taegam-do, Sogam-do and Tok-do since 1981 had no more than three eggs (Chong *et al.* 1996a).

Migration Satellite-tracking of birds wintering in Hong Kong and Taiwan were initiated in the winters of 1997/1998 and 1998/1999 (Ueta *et al.* in prep.). In 1997/1998, only one bird was successfully tracked from the Tsengwen estuary in Taiwan to Zhejiang in mainland China, where it was located on the estuary of the Ao Jiang river in early May 1998 and at Xiangshan Gang bay and Sanmen bay in mid-May 1998, but then the signal ceased (WBSJ Research Center database). In 1998/1999, several birds were successfully tracked: birds from the Tsengwen estuary moved to northern Taiwan and onwards to the coast of northern Fujian, and then these birds and the birds tracked from Mai Po in Hong Kong travelled northwards along the coast of eastern China, and by late June 1999 almost all of them ended up on islands near the western coast of the DMZ of the Korean Peninsula (WBSJ Research Center database). Two birds stayed at the Guan He estuary in Jiangsu in June, and may have summered in that area (WBSJ Research Center database). Unfortunately, the satellite-tracking did not provide full details of the migratory route from northern Jiangsu to the western coast of Korea (WBSJ Research Center database). However, the lack of records of this species at Beidaihe in Hebei during intensive migration studies during the 1980s and 1990s (see, e.g., Williams 1986, Williams *et al.* 1992) suggests that it takes a direct route across the Yellow Sea to the breeding grounds in Korea (Kennerley 1990b).

Colour bands were placed on Black-faced Spoonbills in Hong Kong and Tainan in 1997/1998 and 1998/1999, and this study has shown that there is some interchange of birds between these two sites, and with other wintering sites (Hsueh Tien-te *in litt.* 1998, 1999, Yu Yat-tung *in litt.* 1998, 1999). Of two nestlings from Tok-do island in North Korea (banded in July 1995), one was seen at Izumi on Kyushu in Japan in November 1995, but the other arrived at the Red River delta in Vietnam in December 1995, indicating that birds from the same breeding locality may winter in very different places (Chong *et al.* 1996b). Won (1963) reported that birds arrived in northern Korea in March and departed in October and November, but more

recent observations indicate that they arrive at the breeding sites from late April to May (Severinghaus *et al.* 1995). The wintering birds in Taiwan, Hong Kong and Vietnam usually arrive there in October and stay until May (Yen 1994, Chalmers 1986, Pedersen *et al.* 1998).

THREATS *Habitat loss* *Japan* The construction of an artificial island at the eastern end of Hakata bay destroyed a large area of tidal mudflats and caused water quality at the Wajiro tidal flat to deteriorate (Y. Wagi and H. Yamamoto *in litt.* 1998). The extensive tidal flat of Ariake bay at Isahaya has been dammed and dried up since 1997 (SC). *Korea* The threats to the breeding and foraging sites used by this species in North Korea are unknown. The nesting sites in the DMZ, probably the most important breeding grounds for this species in the world, are afforded protection by the current security situation on the Korean Peninsula, but could be opened up for development and increased disturbance should the situation change in the future. Ongoing and planned large-scale reclamation projects on the western coast of South Korea could destroy large areas of Black-faced Spoonbill habitat: for example, the construction of Incheon International Airport in the mid-1990s led to the reclamation of areas of wetland on Sammok and Yongjong islands, where small number of Black-faced Spoonbills used to occur; there have been no records on Sammok since 1996 and numbers on Yongjong have declined to fewer than five since 1995 (Park *et al.* 1997). *Mainland China* Habitat destruction is probably the biggest threat to this species in southern China, where mangroves and tidal flats are being reclaimed for city development and aquaculture; coastal wetlands are also being converted to fish- and shrimp-ponds in northern China; it has been estimated that c.21,900 km² of tidal wetland (c.50% of the total area of coastal wetlands) and 13,000 km² of lakes have been reclaimed in mainland China since 1949 (Shen Maocheng 2000). In Jiangsu, economic development on the coast has driven the Red-crowned Cranes *Grus japonensis* to concentrate in the core area of Yancheng Nature Reserve (Ma Zhijun verbally 2000), and the Black-faced Spoonbills at Yancheng probably face similar pressures. The situation with the migration stop-over sites in Zhejiang and Fujian (Quanzhou bay, Meizhou bay, Wenzhou bay etc.) is unknown, but they are very close to large and growing cities, where economic development and pressure on coastal wetlands is probably severe. In Guangdong, development in the Shenzhen Special Economic Zone has greatly reduced the area of Futian Nature Reserve in Deep Bay, as fishponds have been reclaimed and the nature reserve has been reduced to a narrow strip of mangroves along the northern coast of the bay (SC). In Guangxi, construction of fishponds and port facilities is destroying the species's wintering habitats (Zhou Fang *per* Zheng Guangmei *in litt.* 1998). On Hainan, large areas of mangroves and tidal flats have been converted into shrimp-ponds at Sanjiang, the site where the species roosts in Dongzhaigang (Zou Fasheng *et al.* 1999), and much of coastal wetland has been converted into coconut and other plantations (SC). *Hong Kong* The area of fishponds around Deep Bay has been greatly reduced in the last 30 years due to the development of housing estates and container storage (for further details see Threats under Spoon-billed Sandpiper *Eurynorhynchus pygmeus*). *Taiwan* The main wintering ground at the Tsengwen estuary faces pressure from industrial development: the reclaimed land at Chi-ku has been proposed for development as an industrial estate, and although this plan is now shelved, another industrial estate (Bin-nan) is planned north of Chi-ku that could destroy many of the feeding sites used by the spoonbills (SC; see *Oriental Bird Club Bull.* 20 [1994]: 22). A proposed highway on the west coast of Taiwan would destroy coastal habitats of this species, especially in Tainan and Hsinchu; as it is, wetlands along the west coast and in Ilan county already face a number of development pressures (SC). *Vietnam* Aquaculture development has been causing the loss of inter-tidal mudflats in the Red River delta, but deposition and accretion of sediment may be creating suitable habitat rapidly enough to compensate for this (J. C. Eames *in litt.* 1997, Pedersen *et al.* 1998). Dams on the Red and Black Rivers upstream of Hanoi may be reducing the amount of sediment reaching the delta, although extensive

deforestation in the watersheds of these rivers could be having the opposite effect (Le Dien Duc 1995, A. W. Tordoff verbally 2000).

Pollution Given its reliance on intertidal habitats on the coast, with much of its wintering population concentrated at a handful of key sites, the Black-faced Spoonbill is potentially highly sensitive to the effects of pollution. *Mainland China* Most of its wintering and migratory sites in China are on the southern and eastern coasts, where economic development and urbanisation is the fastest in China, and pollution from industry, domestic sewage and agrochemicals is generally severe; it has been estimated that 63.1% of the rivers in the seven main river systems in China are polluted (Shen Maocheng 2000). *Hong Kong* Inner Deep Bay is suffering severe pollution from both Hong Kong and Shenzhen in mainland China (see Threats under Spoon-billed Sandpiper). *Taiwan* Industrial development could also cause pollution and increase the level of disturbance at the Tsengwen estuary (SC). *Vietnam* Pesticides and fertilisers are used extensively in the paddies around the Red River delta, and run-off will drain into the wetland area (Le Dien Duc 1995).

Hunting and egg collection *Russia* One of the two birds recorded in Russia was shot (see Distribution), indicating that hunting may be a threat to this species there. *Mainland China* At Xingren Tuo island in Liaoning, local people collect birds' eggs for food and even set fire to the previous year's withered grass in order to find the nests and eggs more easily (Ding Changqing *et al.* 2000). Hunting is a threat to all migratory birds in Guangxi, and fish-farmers regard herons and egrets (for which Black-faced Spoonbill could be mistaken) as pests to be shot (Zhou Fang *in litt.* 1996). Hunting has occasionally been reported on the Shenzhen side of Deep Bay since the late 1980s (police officers from mainland China were even reported to have shot waterbirds inside the nature reserve) and mudskipper fishermen from China sometimes catch and sell birds (SC). One Eurasian Spoonbill was found shot dead there by poachers from China in late 1996 (Gao Yuren *in litt.* 1997). On Hainan, hunting is a major threat to Black-faced Spoonbills (Gao Yuren *per* Zheng Guangmei *in litt.* 1998). Bird shooting is a serious problem even inside the core protected area of Dongzhaigang Nature Reserve, and as shooting is sometimes carried out by police, the wardens of the nature reserve do not dare to interfere (Shi Haitao *in litt.* 1998). *Hong Kong* A Black-faced Spoonbill was killed by swallowing a fish-hook in January 2000, in a trap set by fish-farmers to kill birds that feed in fishponds; in 1998 and 1999 more than 500 fish-eating birds were killed by fish-hooks or nets that are occasionally (and illegally) set at fishponds near Deep Bay (C. Ma verbally 2000). *Taiwan* At Chi-ku in Tainan, one bird was shot dead and another seriously injured in November 1992 (*United Daily News, Taiwan*: 1 December 1992), apparently by local people frustrated because the presence of this threatened species was preventing the reclamation of the mudflats as a development area (*Oriental Bird Club Bull.* 20 [1994]: 22). *Vietnam* Trapping and shooting of shorebirds and wildfowl (using mist-nets, air-guns and shot-guns) for consumption by villagers at delta sites in Vietnam (a practice frequently recorded in Xuan Thuy Nature Reserve in the past) used to pose a potential threat at the two main Red River delta wintering sites of the species (Nguyen Cu *in litt.* 1997). Along the 12 km of coastline in Nghia Hung district, 19.9 km of mist-nets were recorded with a catching area of 79,440 m², and there were believed to be 37 hunters operating in the area (Pedersen and Nguyen Huy Thang 1996). These activities presumably have a considerable impact on the local avifauna in general (almost no resident birds occur there any more), but whether mist-netting affects Black-faced Spoonbill populations there is not clear, although this species has been hunted at least on occasions (Le Dien Duc 1993b).

Disturbance *Korea* Disturbance from photographers is a potential threat to this species at the breeding colonies, and is already believed to have adversely affected breeding success at some colonies in South Korea (SC). *Mainland China* After the breeding site was discovered in Liaoning, four photographers from Taiwan visited the island and aroused the curiosity of local people, and subsequently the incubating birds were disturbed many times by visitors,

which caused the second broods there to fail (Ding Changqing and Ding Wenning verbally 1999, Ding Changqing *et al.* 2000). In Guangxi, disturbance caused by tourism is one of the main threats to Black-faced Spoonbills (Zhou Fang *per* Zheng Guangmei *in litt.* 1998). Dongzhaigang Nature Reserve is famous for its mangrove habitats and attracts many tourists, who were already causing some disturbance in 1992, and this problem is now believed to have increased (SC). *Vietnam* Some human inhabitants of the coastal zone of the Red River delta actively exploit populations of molluscs and crabs in the intertidal zones and this causes disturbance to foraging waterbirds (Pedersen *et al.* 1998). If *Tellina* (a bivalve) is important in the diet of this species, which is likely given the diet of Eurasian Spoonbill, a certain degree of conflict is to be expected with the human population of the area, as this mollusc is increasingly collected to provide food for domestic ducks and crabs (Pedersen *et al.* 1998).

Predation At the breeding site on Tok-do in North Korea, the Herring Gull is the main predator of spoonbill eggs (Chong *et al.* 1996a).

MEASURES TAKEN *International cooperation* An international workshop on the conservation of this species was held in Taipei in January 1995, and a Black-faced Spoonbill Action Plan was produced in the same year (Severinghaus *et al.* 1995). Follow-up workshops have been held in Beijing (1996) and Tokyo (1997), also involving experts from all range countries, and the Wild Bird Society of Japan (WBSJ) was nominated as the secretariat of the Black-faced Spoonbill conservation network (SC). Since then many of the recommendations in the Action Plan and from the workshops have been implemented, including the production of education leaflets and posters on the conservation of this species, joint censuses, cooperation on satellite-tracking to study its migration and studies at key sites in all range countries (SC).

Legislation The species is included on the Red List of Japan, which means that its conservation importance is recognised and it can be used as a reference species in environmental impact assessment for development projects (Environment Agency of Japan *in litt.* 1999). In South Korea, it was designated as Natural Monument no. 205 on 30 May 1968 (Lee Woo-shin *in litt.* 1998), in mainland China it is a National Protected Species (Second Class) (Conservation Division, Ministry of Forestry of China 1994), in Taiwan it is protected as a Category I (highest priority) protected species, on the list announced on 23 December 1995 (CWBF *in litt.* 1998), but in Vietnam the species is not yet officially protected, although it is listed in the Vietnamese Red Data Book (Nguyen Cu 1998).

Protected areas and habitat conservation *Japan* Regular wintering sites at Izumi-Takaono in Kagoshima and Manko on Okinawa have been designated as National Wildlife Protection Areas, and occasional wintering grounds at Yatsu in Chiba and Nakaumi in Tottori and Shimane are also National Wildlife Protection Areas; Manko was designated as a Ramsar site in 1999, and the designation of important wintering sites at Hakata bay in Fukuoka and Ariake-kai in Fukuoka and Saga as National Wildlife Protection Areas is in progress (as of 1999) (Environment Agency of Japan *in litt.* 1999). *Korea* Taegam-do, Unmu-do, Sonchonrap-do and Tok-do in North Korea have all been designated as seabird breeding sanctuaries (Chong 1987), and Tok-do is designated as a State Natural Monument (Chong *et al.* 1996c). *Mainland China* Several of the important sites for this species have already been designated as protected areas, including Yancheng Nature Reserve in Jiangsu, Shankou Nature Reserve in Guangxi, Futian Nature Reserve in Guangdong and Dongzhaigang Nature Reserve on Hainan (which was designated as a Ramsar site in 1992) (see Distribution, and MacKinnon *et al.* 1996 for conservation recommendations at these reserves). The newly discovered breeding site at Xingren Tuo island in Liaoning has been designated as a non-hunting area, and people are not supposed to land on the island without permission from the Forestry Department (Ding Changqing *et al.* 2000, undated). *Hong Kong* Details of conservation measures taken in the Deep Bay area are given under Spoon-billed Sandpiper. WWF Hong Kong (which

manages Mai Po marshes in Inner Deep Bay) has been cooperating with Futian Nature Reserve on the conservation of Deep Bay, including the drafting of an education programme for Futian, and since 1995 Mai Po and Inner Deep Bay have become a Ramsar site, and more wetlands at Inner Deep Bay will be protected as a wetland park for conservation and education purposes (SC). *Taiwan* Following the shooting of several Black-faced Spoonbills in Tainan county in the early 1990s (see Threats), the government froze the potential development plans for the area, and during winter 1993/1994 local bird clubs mounted a round-the-clock watch to ensure the birds were not shot at, which was apparently successful as no birds were known to have been injured (*Oriental Bird Club Bull.* 20 [1994]: 22). *Vietnam* Xuan Thuy and Tien Hai have been established as nature reserves (Nguyen Cu 1998). Xuan Thuy was established as the first Ramsar site in Vietnam in 1989, and in 1995 the area was designated a nature reserve (120 km²) containing extensive areas of intertidal mudflats (Pedersen and Nguyen Huy Thang 1996).

Research Recent international satellite-tracking studies have added considerably to knowledge of the migratory movements of this species, and have identified some important breeding and passage sites (e.g. Ueta *et al.* in prep.). Questionnaires in national languages have been produced by the Wild Bird Society of Japan and distributed in Russia, China, North Korea and South Korea to ask for details of sightings of Black-faced Spoonbills (SC). An international census of wintering birds was conducted in 1997, 1998 and 1999 (Dahmer and Felley 1999). *Korea* Several important studies have been completed on the breeding biology and population status of this species (e.g. Chong *et al.* 1996a, Chong and Pak 1999). *Vietnam* In 1996, surveys by BirdLife/FIPI resulted in the identification of all wetlands in the Red River delta which support the species (Pedersen and Nguyen Huy Thang 1996).

Conservation education Posters and leaflets in local languages have been produced by the Chinese Wild Bird Federation and distributed to range countries for promotion of public awareness on the status of the Black-faced Spoonbills (Ichida 1999). *Taiwan* The Chinese Wild Bird Federation has produced pamphlets and posters for public education on the conservation of this species in Taiwan, and many other government and private organisations there have also become involved with Black-faced Spoonbill conservation; the more active ones include the Love-your-hometown Foundation, the Wetland Conservation Union and the Chi-gu Coastal Area Protection Association formed by fishermen from the region, Environmental Protection Union with many scholars as its members, the Black-faced Spoonbill Conservation Center (formed by the previous four groups), and the Provincial Endemic Species Research and Conservation Center (Severinghaus 1999).

Captive breeding A breeding programme for this species started at Tama Zoo in Tokyo, Japan, in the mid-1990s, and a total of 21 eggs were laid from 1996 to 1998 and four chicks were successfully raised (T. Hosoda *in litt.* 1999).

MEASURES PROPOSED **Protected areas** *Japan* Important wintering grounds at Hakata bay and Ariake bay should be protected and managed for the conservation of Black-faced Spoonbills and other waterbirds dependent on the tidal flats there. If suitable roosting and feeding sites are maintained on Kyushu and Okinawa, it is likely that more wintering Black-faced Spoonbills will visit Japan. A large, natural waterbird sanctuary on Kyushu or Okinawa and preferably both (similar to those on Hokkaido or at Mai Po in Hong Kong) would greatly benefit the conservation of waterbirds in southern Japan. *Korea* Conservation of the feeding sites used by this species is crucial to the continued success of the breeding colonies in North Korea (Chong *et al.* 1996c). Islands in the Demilitarised Zone (DMZ), which currently divides North Korea from South Korea, are probably the most important breeding grounds of this species in the world (see Distribution), and the DMZ also supports important breeding populations of Chinese Egret and wintering populations of Red-crowned and White-necked Cranes *Grus vipio* (see relevant texts), as well as being the least developed and disturbed

area on the entire Korean Peninsula. The DMZ is afforded protection by the current security situation in Korea, but could be opened up for development and increased disturbance should the situation change in the future. Plans need to be put into place in advance, to ensure that critical sites within the DMZ are protected from development and disturbance, possibly including the designation of these sites as new protected areas, or of the most important portions as a "peace park" to commemorate the reconciliation of past political divisions. In South Korea, the breeding grounds at Yu-do islet should be designated as a Cultural Monument (Won 1995), and important wetland sites for this species (and other threatened waterbirds) along the western and southern coasts should be protected and managed for conservation and education purposes. *Mainland China* The recently discovered breeding site in Liaoning should be protected (for this species and the Chinese Egret), and the wetlands in Wenzhou bay protected as new nature reserves. The management of some of the existing nature reserves needs to be improved, to reduce human disturbance and to stop illegal poaching. Management plans should be drafted and implemented at sites important for Black-faced Spoonbills, sites suitable for roosting protected from development and disturbance, and water pollution monitored and strictly controlled. *Hong Kong* All of the Inner Deep Bay area requires protection and management in a similar way to Mai Po, and further cooperation is needed with the authorities in Shenzhen to help improve the situation and management of Futian Nature Reserve. *Taiwan* The main wintering ground of the Black-faced Spoonbill in Tainan county should be fully protected and properly managed to make sure all important sites for roosting and feeding are included inside the protected area. It has already been suggested that a protected area (of several square kilometres) be established at Tsengwen estuary, but the proposed boundary does not include many of the important feeding areas of Black-faced Spoonbills in Tainan (Liu Liang-li verbally 2000). Other sites on the west coast of Taiwan and in Ilan county should also be protected. *Vietnam* The management plan for Xuan Thuy and Tien Hai Nature Reserve in Vietnam needs to be fully revised to ensure that national protected area management legislation and international guidelines are closely followed (Nguyen Cu 1998). During 2000, a BirdLife International Vietnam Programme project at Xuan Thuy was aiming to increase capacity of protected-area management staff, promote sustainable aquacultural practices, and prevent further mangrove planting on intertidal mudflats (A. W. Tordoff verbally 2000). Management plans are required for the coastal zone of Nghia Hung district to promote the sustainable use of marine resources, especially on the tidal flats and offshore islands, and Thai Binh estuary and Van Uc estuary should be established as a nature reserve (Nguyen Cu 1998). It has been proposed that a management plan be completed for Thai Thuy Nature Reserve, which will encompass the habitat around the Thai Binh estuary (Nguyen Cu *in litt.* 1997). The important feeding and roosting site at the Cua Day estuary in the Red River delta deserves recognition as a Ramsar site and a nationally recognised nature reserve at the earliest opportunity (Pedersen *et al.* 1998).

Reduction of disturbance and hunting Research at nesting sites should be designed so that it does not disturb the breeding birds (Chong *et al.* 1996c). In Vietnam, the forest protection department of Nam Dinh province has expressed interest in addressing the problem of mist-netting and hunting in coastal localities (Pedersen and Nguyen Huy Thang 1996), but no action has yet been taken (Nguyen Cu *in litt.* 1997). Given the difficulties of implementing hunting and trapping regulations, resources might be most effectively focused on a series of small reserves sited in crucial feeding and roosting areas in the Red River delta (Pedersen *et al.* 1998).

Control of predators Chong *et al.* (1996c) proposed that the Herring Gull colonies be removed from the southern side of Tok-do island in North Korea to reduce predation of the Black-faced Spoonbills there.

Research Mainland China A survey is needed of the islands in Liaoning (and possible also in Shandong) to identify other possible nesting sites in China. Studies should also be

carried out in the passage and wintering sites, for example at Yancheng in Jiangsu, to identify the most important sites within the reserve for this species. Surveys should be conducted in the poorly known coastal wetlands in Fujian and Zhejiang, to identify any important sites for waterbird conservation which warrant designation as new nature reserves. *Vietnam* Systematic counts and monitoring of this species and the threats that it faces are required at sites in Vietnam (Nguyen Cu 1998). Surveys are required to determine whether there is a small wintering population of this species in the Mekong Delta (Nguyen Cu *in litt.* 1997), and to assess the status of this species in the coastal zone of Quang Ninh province (A. W. Tordoff verbally 2000).

Conservation education Education programmes are urgently required in mainland China to promote public awareness of the status of this species and the importance of coastal wetlands. Taiwan, South Korea and Japan can provide good examples of this type of educational activity. In Vietnam, education programmes addressing the concept of sustainable harvesting of marine resources are important, and the Black-faced Spoonbill would make an ideal figurehead species (Nguyen Cu *in litt.* 1997).

REMARKS (1) The identification of this species can be problematical, because of its similarity to the Eurasian Spoonbill *Platalea leucorodia*, with which it often forms mixed flocks. The sight records listed in the Distribution section should therefore be regarded with some caution; for example there appears to have been a problem with the identification of some wintering spoonbills in South Korea (Park Jin-young *in litt.* 1999). Great care should be taken to ensure that the features that distinguish the two species (see, e.g., Robson 2000) are carefully checked when spoonbills are seen in the field within the potential range of the Black-faced Spoonbill. (2) According to the curator of Shanghai Zoo, a young spoonbill collected from a breeding site in Dorbod Mongol (Taikang) county, Qiqihar, Heilongjiang (near to what is now Zhalong Nature Reserve) in the 1970s was found to be a Black-faced Spoonbill when it matured in the zoo; this bird mated with a Eurasian Spoonbill at the zoo and lived there until 1992 (Gao Yuren *per* Zheng Guangmei *in litt.* 1998). This suggests that Black-faced Spoonbills were possibly breeding in freshwater wetlands in north-east China in the 1970s. (3) Feng Lingfei (1991) reported that a specimen of Black-faced Spoonbill had been collected at Ulansuhai Nur in Inner Mongolia, but Xing Lianlian (verbally 1996) confirmed that this report was based on a misidentification and that there was no confirmed record of this species in Inner Mongolia. (4) The Changshan islands in Shandong are not the same as those in Liaoning. (5) Delacour and Jabouille (1925) reported that the Eurasian Spoonbill was “numerous in the mangroves” of coastal Vietnam in winter during the 1920s, but these reports presumably related to the Black-faced Spoonbill, as the first definite record of Eurasian Spoonbill in Vietnam was as recently as January 1996 (Eames 1996b). This presumed misidentification casts some doubt on the single record of Black-faced Spoonbill from Cambodia (Delacour 1929b; Delacour and Jabouille 1940); indeed, the species has recently been removed from the Cambodian list (C. M. Poole *in litt.* 1999, 2001).