Threatened Birds of Asia:
The BirdLife International Red Data Book

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HOODED CRANE

Grus monacha

Critical □ —
Endangered □ —
Vulnerable ■ C1

This crane has a small population. A lack of baseline data makes identification of a population trend problematic. Apparent recent increases may reflect improved observer coverage or the displacement of birds from degraded or destroyed sites. Given the substantial threats to its habitat, it may currently be declining or is likely to decline in the near future. These factors qualify it as Vulnerable.

DISTRIBUTION The Hooded Crane is mainly confined to eastern Russia as a breeding bird, where it nests in forested wetlands, but it may also breed in northern Mongolia, and there is a single record of nesting in north-east China. It occurs in Mongolia, North Korea and northern China on migration, and on migration and in winter in Japan, South Korea and eastern and southern China. There are also a few records from Taiwan and north-east India, and unconfirmed reports from Myanmar (see Remarks 1). Most of the global population of Hooded Cranes winters at Izumi on Kyushu in southern Japan, and there are smaller wintering populations in western Honshu in Japan, on the southern coast of South Korea, and in several wetlands in the lower Yangtze basin in China.

■ ***RUSSIA*** Until the mid-1970s, it was mistakenly thought that the Hooded Crane nested in the forest-steppe wetlands of southern Siberia, but it actually breeds in wooded swamps in larch taiga in the regions of Krasnoyarsk, Yakutia, Khabarovsk, Amur and Primorye (Neufeldt 1977), with probable breeding records in Irkutsk, Khakassia and on Sakhalin island, and records on migration in Buryatia and Chita (see below). It has also been recorded in western Siberia, in Tomsk and Novosibirsk (see Dement'ev and Gladkov 1951–1954, Walkinshaw 1973). Its breeding range covers vast areas in the lower Amur region, and the northern foothills of the Dzhudzhur range west to the Podkamennaya Tunguska drainage, but the limits are not well documented; the northern border roughly extends from the upper Vilyuy basin (on the Central Siberian plateau) south-east to the lower Amur area and south to the Olekma-Chara highlands, Chara basin, the Amur-Zeya plateau (the middle Amur valley), and Primorye (the Bikin and Iman valleys); non-breeding birds may disperse in summer well outside the breeding range to the wetlands of the Baraba steppe and Transbaykalia (Neufeldt 1977). The changes to its range in Russia are not well documented, but it has definitely disappeared from some areas in Khakassia that have been drained for farming (Prokof'ev 1988). In Yakutia, its range is naturally fragmented into three known areas, the middle part of the Aldan valley (7,000 km²), the Olekmo-Charskoe highlands (12,000 km²) and the upper Vilyuy basin (150,000 km²) (Andreev 1987). In Khabarovsk it breeds north to the Uda basin, and in the catchments of Udyl' and Kizi lakes. In Primorye, it nests in two neighbouring basins, the Bikin (main stronghold) and Iman (southern margin of the breeding range) (Pukinskiy and Il'inskiy 1977, Yu. V. Shibaev *in litt.* 1997). Several areas are known where non-breeding, apparently immature Hooded Cranes regularly occur in summer: the main areas are in the south of western and central Siberia and southern Transbaykalia, where passage cranes are also frequently recorded (Potapov and Flint 1987). Records (by province) are as follows:

■ ***Western Siberia*** near **Tomsk**, one collected, May 1915, three seen, May 1920, pair seen at Popovaya, April–May 1917, one collected at Petrovoy, May 1917, one collected at Papadeykino, May 1918, one collected at Kochenevo, undated (Dement'ev and Gladkov

1951–1954; also Walkinshaw 1973); 40 km west of **Karbysheva** (Kainsk, Kuibyshev), nest found, undated (Zalessky 1921 in Dement'ev and Gladkov 1951–1954); **Anikina** (Anikin), Spasskom region, 14 km south of Tomsk, June 1893 (Dement'ev and Gladkov 1951–1954; also Walkinshaw 1973); Chany (Chan'u) lake, **Krokhalevka** (Krokhaleva), reported to have nested, undated (Dement'ev and Gladkov 1951–1954; also Walkinshaw 1973);

■ *Krasnoyarsk* **Murukta** (Murukhta) trading post, north-east of the Chirinda basin, one pair in 1981 (Chernikov 1988); lower **Nizhnyaya Tunguska river** (Nizhniya Tunguska river), near Zhdanovo and Erema villages, one collected in 1873 and the species probably bred in this area (Sushkin 1938, Neufeldt 1977); **Kochechum river**, reported by local villagers in summer (unspecified years) (Andreev 1976); Vivi lake, nest reported, 1963, but this record requires verification (Yu. A. Simukov in Rogacheva 1992); Boyarkina Gora, Podkamennaya Tunguska river, near **Baykit** (Baikit) settlement, nesting reported in 1984 (Chernikov 1988); **Ket' river**, near the border of Krasnoyarsk, one collected, 1921 (Zalessky 1921 in Dement'ev and Gladkov 1951–1954 and Rogacheva 1992); near Julia Mine, among the left-hand tributaries of the **Chulym river**, western Minusinsk region, one collected, October 1912 (Tugarinov 1913 in Rogacheva 1992);

■ *Khakassia* near **Sarat lake**, Minusinsk depression, four birds on a floodplain meadow, August 1978 (Prokof'ev 1987 in Rogacheva 1992); **Podzaplot swamps** (Podzaplotskiye swamps), Minusinsk depression, two birds with Common Cranes *Grus grus*, May 1977 (Prokof'ev 1987 in Rogacheva 1992); **Belyy Iyus forest-steppe** (Iyus forest-steppe), Minusinsk depression, many records on spring and autumn migration, and some in summer (unspecified years) (Prokof'ev 1987 in Rogacheva 1992); **Batanakovskie Bolota**, occurred on passage and probably bred in 1976–1979, with four birds (two of them flightless) in August 1979 and a flock of 71 birds in September 1985 (Prokof'ev 1988); **Shira steppe**, Minusinsk depression, many records on spring and autumn migration, and some in summer (unspecified years) (Prokof'ev 1987 in Rogacheva 1992, Prokof'ev 1988); large swamp in the south-west part of **Chernoye lake**, Shira steppe, Minusinsk depression, pair present throughout summer 1979, later joined by two young birds not yet able to fly, local people reporting that the cranes were present from 1976–1978, seen in May 1980 but the swamp was then drained (Prokof'ev 1987 in Rogacheva 1992); Yenisey river (not mapped), one bird with a flock of Common Cranes, June 1920 (Zalessky 1921 in Rogacheva 1992);

■ *Irkutsk* upper **Nepa river**, tributary of the upper Nizhnayya Tunguska river, Katanga district, one seen in 1961, the species being reported by local people to nest in the large and impenetrable mossy bogs in the Nepa river basin (Tarasov 1965 in Rogacheva 1988); **Kada river**, Kuitunsky district, seen on an upland bog in the late 1960s (Mel'nikov *et al.* 1988); **Kuda river** (Kudalda river), catchment of northern Lake Baikal, juvenile collected in autumn (unspecified year) (Neufeldt 1977); Irkan settlement (untraced), one collected, May 1950 (Gagina 1954);

■ *Buryatia* **Kumora** (Yurbukunda), 30 km from Kumora settlement, one pair, undated (Mel'nikov *et al.* 1988); near **Novy Uoyan** settlement, one pair, undated (Mel'nikov *et al.* 1988); **Baikal lake**, "very common", 1870s (Przheval'skiy 1877–1878); **Selenga delta**, one bird, June 1979 (Mel'nikov *et al.* 1988); **Tugnuysky Nature Reserve**, four birds, April 1980 (Mel'nikov *et al.* 1988);

■ *Chita* upper **Chita river**, migratory flocks seen in May and September from 1926 to 1953 (Pavlov 1976); **Barun-Torey lake** (Torey lacustrine lowland), including Daursky Nature Reserve, flocks of hundreds of birds in June 1925 (Stegmann 1929), flocks of 3–10 birds in April–May 1963–1967 (Leont'ev 1976, Pavlov 1976), flock of 20 birds in May 1985, up to 130 birds (mostly subadults) summering in 1985–1986 (Pavlov 1976), Daursky Nature Reserve being a migration stopover for up to 500 birds (unspecified years), and colour-banded birds from there being seen at Izumi in Japan (V. Andronov *in litt.* 1997); Boroholoy river, tributary of the **Uldza river** (Uldz river), south-western Transbaykalia, up to 300 non-breeding cranes

occurring in summer (unspecified years), usually in pairs or groups of 3–6 birds (Golovushkin and Goroshko 1995);

■ ***Yakutia*** Ozhogina river, near **Arylakh** settlement, one collected, June 1950 (Vorob'ev 1963); near **Chagda** settlement, two birds, spring 1986 (Egorov and Sosnin 1989); **Syul'dzhyukyar river**, a tributary of the upper Vilyuy river, confirmed to breed on the upper Vilyuy river and several of its tributaries on the basis of enquiries among the local inhabitants and field studies in the years 1964–1966, part of the northern limit of the species's breeding range (Andreev 1976); **Akhtaranda river**, a tributary of the upper Vilyuy river, confirmed to breed on the basis of enquiries among the local inhabitants and field studies in the years 1964–1966, part of the northern limit of the species's breeding range (Andreev 1976); **Appaya river**, a tributary of the upper Vilyuy river, confirmed to breed on the basis of enquiries among the local inhabitants and field studies in the years 1964–1966, part of the northern limit of the species's breeding range (Andreev 1976); **Chona river** basin (a tributary of the upper Vilyuy river) at Ary, Sokhsolu lake and Bykya swamp, confirmed to breed on the basis of enquiries among the local inhabitants and field studies in the years 1964–1966, part of the northern limit of the species's breeding range (Andreev 1976); **Oruktakh river**, a tributary of the upper Vilyuy river, confirmed to breed on the basis of enquiries among the local inhabitants and field studies in the years 1964–1966, part of the northern limit of the species's breeding range (Andreev 1976); **Magany-yuryakh river** and **Somogo river**, tributaries of the upper Markhachan river (a left-bank tributary of the Lena river), two single birds and a mixed pair (female Hooded, male Common Crane) nesting in 1988 and 1989, local people reporting that 1–3 pairs bred in the area in the 1940s and 1950s, but with no records in 1993 and 1995 (Degtyarev and Antonov 1989b, 1995); lower reaches of the **Tokko river**, **Molbo river** and **Tyanya river**, Olekmo-Chara highlands, confirmed to breed by observations in 1954–1956 and 1961 and enquiries among the local people (Vorob'ev 1963); lower reaches of the **Turang-El'ge river** (Turan' El'ge river), **Mil' river**, **Bel'kachi river**, **Lappy river** and **Uchur river**, and tributaries of the Aldan river in its middle reaches, a family party, a pair and single birds recorded in 1988 and 1993, enquiries among local villagers confirming that it breeds (Egorov and Sosnin 1989, Degtyarev 1996); **Ulakhan-Siligile river**, tributary of the Aldan river, 25 km up from the Uchur river mouth, flocks seen in 1981–1986 (Egorov and Sosnin 1989);

■ ***Khabarovsk*** **Uda river** basin and adjacent areas, one breeding pair in 1980 (Smirenskiy and Roslyakov 1982); **Bokon lake**, scarce breeding species, two nests found in summer 1980 in sparse larch forest on marshy ground (Smirenskiy and Roslyakov 1982); **Tugur river** and **Konin river**, 3–4 nesting pairs in 1977–1986 (Babenko 1988); right bank of the middle **Amgun' river**, in the valley of the Chernyi Klyuch stream, a tributary of the Amgun', two breeding pairs in June–July 1988, in rejuvenating marshy birch–larch woods and fire-affected patches on the valley slopes (B. A. Voronov *in litt.* 1997); **Amur estuary** (Amur bay), undated (female in AMNH); **Nimelen river** (Nemelen river), **Ol'dzhikan river** and **Nilan river**, tributaries of the Amgun' river, 8–10 breeding pairs in 1977–1986 (Babenko 1988); **Imeni Poliny Osipenko**, probably a breeding site, with an adult bird satellite-tracked from Izumi in Japan (30 March 1992) arriving at this location on 5 May (having stayed at the Sanjiang Plain in China for c.3 weeks) (Higuchi *et al.* 1992); **Udyl' lake**, one pair in July 1980 (Smirenskiy and Roslyakov 1982); **Chukchagirskoye lake** (Chukchagir lake), six pairs on moss bogs near the lake and on the lakeshore in June 1972, 5–7 breeding pairs in 1977–1986 (Smirenskiy and Roslyakov 1982, Babenko 1988); valleys of the **Evur river**, **Dosmi river** and **Umikan river**, Evoron lake basin, 15 pairs in grass-moss and shrub-moss bogs, May–June 1975 (Smirenskiy and Roslyakov 1982); **Yay river**, Kizi lake, 1–2 nesting pairs in 1977–1986 (Babenko 1988); **Ol'gaka river** valley, Evoron lake basin, pair with young in July 1992, in an area of secondary *Carex–Calamagrostis* meadows amongst post-fire growth of birch *Betula alba* saplings in former larch forest (B. A. Voronov *in litt.* 1997); near **Evoron lake**, two pairs annually in April–

August 1974–1979 (Smirenskiy and Roslyakov 1982); **Elgany river**, left-bank tributary of the Gorin river, south of Evoron lake, territorial pairs in May 1986 and May 1994, local foresters reporting that a pair nests there annually (AVA); **Goryun river** (Gorin river), 30 km upstream of the Komsomol'skiy State Reserve, one pair, 1980s (Kolbin 1988); near "Zolotoy" warden station, **Komsomol'skiy Nature Reserve**, pair with two young on a larch bog in summer 1985, three birds seen in the same place in June 1986, nest found in May 1993 (Kolbin *et al.* 1994); south-west of **Tyrma**, probably a breeding site, with an adult female satellite-tracked from Izumi in Japan (25 March 1992) arriving at this location on 26 April (having stayed at the Sanjiang Plain in China 10–23 April) (Higuchi *et al.* 1992); upper Eleor river, tributary of the **Kharpi river**, rare breeder, one bird in May 1979, in marshy larch woods (Smirenskiy and Roslyakov 1982); Urmi river valley, 30 km upstream of **Talakan** settlement, Tungustka river basin, rare, single bird in a large bog, August 1976 (B. A. Voronov *in litt.* 1997); near **Chenka** (Chenki) village, Amur river, two birds in 1985–1986 (Kolbin 1988); middle course of the **Simmi river**, Bolon' lake basin, pair in May 1975, in mossy dwarf birch bog (Smirenskiy and Roslyakov 1982); **In river** basin, single birds, small flocks and pairs on a large wooded bog in April 1968–1974, probably breeding (Yakhontov 1975 in Neufeldt 1977); **Nemptu river** (Nemta river), near Krasny Yar, one breeding pair before 1975 (Yakhontov 1976d); middle reaches of the **Mukhen river**, at the confluence with the Neptu river, pair performing distraction behaviour in May–June in several years (Neufeldt 1977);

■ ***Amur*** near **Gulik** settlement, Zeya river, one passage bird in a wooded swamp ("mari") in May 1973 (V. A. Dugintsov *in litt.* 1997); **Ol'doy river** basin, reported by local people to be present throughout the summer (unspecified years) (V. Andronov *in litt.* 1997); **Umlekan river**, reported by an experienced hunter to breed in wooded swamps along the river, unspecified years (Kislenko *et al.* 1990); **upper Dep river**, single bird on an extensive wooded swamp, August (unspecified year) (Kostin and Dymin 1977); near **Fevral'skoye** (Fevral'sk) settlement, reported by local people to be present throughout the summer (unspecified years) (V. Andronov *in litt.* 1997); **Norsky Nature Reserve**, between the Nora and Selemdzha rivers, at least seven breeding pairs (unspecified years) (Darman 1995; also V. Andronov *in litt.* 1997); **Tashina river**, reported by local people to be present throughout the summer (unspecified years) (V. Andronov *in litt.* 1997); near **Rovnyy** (Rovnoe), **Kreshchenovka** and **Volkovo** villages, single birds in April 1975, April 1982 and May 1986 (Pan'kin and Dugintsov 1988); **Blagoveshchensk** (Blagowestschensk), reported by local hunters to occur on migration (unspecified years) (Stegmann 1930); **Muraviovka Wildlife Refuge**, reported to be an important site for this species, undated (V. Andronov *in litt*. 1997); Topkocha river, **Amursky Wildlife Refuge**, 36 birds in May 1977 (N. F. Eraputkin in Smirenskiy and Roslyakov 1982), this reserve being reported as an important site for the species (V. Andronov *in litt.* 1997); **Khinganskiy Nature Reserve**, Arkhara lowlands, single bird in July 1979 and nine birds in early April 1980 (Smirenskiy and Roslyakov 1982), noted on passage in spring at the Bureya river mouth (Dymin and Pan'kin 1975), 350–500 birds occurring annually on the Zeya-Bureya plain on spring migration (V. A. Dugintsov *in litt.* 1997), including 300 birds stopping over on migration in the Khinganskiy Nature Reserve and Ganukan Game Reserve (V. Andronov *in litt*. 1997); plains above the **Khingan** (Little Khingan, Chingan), April (unspecified year) (Radde in Stegmann 1930);

■ ***Jewish Autonomous Region*** near Kirga railway station, **Bira river** basin, rare breeding species, nest found in a larch-covered swamp in 1976, pair with young seen just to the north in the same habitat in June 1977 (Smirenskiy and Roslyakov 1982); near **Leninskoye** village, middle Amur valley, four birds in grass-shrub bog in May 1978 (Smirenskiy and Roslyakov 1982);

■ ***Primorye*** Bikin river basin, one of the best-studied breeding strongholds of this species, breeding occurring at 9–10 localities from the lower reaches up to the headwaters (see map in Mikhailov and Shibnev 1998) including (lower Bikin basin) **Ulitka river marrs** (1–2 pairs),

Middle Alchanskaya marr (4–8 pairs), **Bikin-Alchanskaya marr** (single wandering pairs in May 1992 and June 1997), **Kushnarikhskaya marr** (1–2 pairs), **Zmeinaya marrs** (6–8 pairs) and the **Silanshanskaya marr** (4–6 pairs); (middle Bikin basin) **Sobolinskaya marr** (1–2 pairs) and **Olonskaya marr** (3–5 pairs); and (headwaters) the upper reaches of the **Bol'shoye Kilou river** (Kilow river) and the **Zeva river** (total of 5–10 pairs), yielding a total population of 40–50 pairs including c.30 nesting pairs in 1975–1980 (Pukinskiy *et al.* 1982) and similar numbers in the 1990s (figures for individual sites are given above) (Mikhailov and Shibnev 1998); **Beytsukhe river** (Marevka river) (Beytsukhe), Iman (Bol'shaya Ussurka) river basin, breeding in small numbers (unspecified years) (Ozaki 1995 in Mikhailov and Shibnev 1998, Yu. V. Shibaev *in litt.* 1997); **Khanka lake**, a few birds in spring in the 1870s (Przheval'skiy 1877–1878), with Khanka Nature Reserve being a migration stopover for c.100 birds (V. Andronov *in litt*. 1997);

■ ***Sakhalin*** (presumably a rare breeding species in central Sakhalin, although not recorded on the Kuril islands: Nechaev 1991) unspecified localities, undated (Takahashi 1937); **Langeri river**, east coast of Sakhalin, one bird in July 1962 (Nechaev 1991); **Poronay river**, near Poronaisk settlement, one young bird collected in June 1931 (Taka-Tsukasa 1967).

■ ***MONGOLIA*** The Hooded Crane is a fairly common passage migrant in the eastern half of Mongolia, and possibly breeds in the taiga forests of Khövsgöl and Khentii provinces, because it nests immediately to the north near Ulan Ude (in Buryatia) in Russia (Bold *et al.* 1995). Records (by province) are as follows: ■ ***Dzavkhan*** **Dzavkhan river** (Zavhan river), three birds with Common Cranes, undated (Bold *et al.* 1995); ■ ***Arkhangai*** **Urd Tamir river** (Urd Tamiriin river), reported to be a summer visitor (unspecified years) (Bold 1997); **Ögiy Nuur** (Ogii lake), reported to be a summer visitor (unspecified years) (Batdelger 1996); ■ ***Bulgan*** 8 km west of **Hutag-Öndör** (Hutak Undur), two birds on a damp meadow, July 1996 (M. Köpman *per* A. Bräunlich *in litt.* 1999); ■ ***Övörkhangai*** **Ongiin river** (Ongiyn river), east of Arvaiheer town, five birds with Common Cranes, April 1974 (Bold *et al.* 1995); **Tatsain Tsagaan Nuur** (Taschgain Tavan Nuur) lake, reported to be an important site for this species, undated, proposed for establishment as a nature reserve (N. Tseveenmyadag *in litt*. 1997); ■ ***Selenge*** **Orkhon river**, reported to be a summer visitor (unspecified years) (Bold 1997); ■ ***Khentii*** Tsagaan Sum valley, eastern **Khentii** (Hengiy), seven birds, June 1971 (Bold *et al.* 1995); ■ ***Dornod*** **Galuutayn Nuur** (Galutin Nuur), flock of six, May 1999 (A. Bräunlich *in litt.* 2000); **Mongol Daguur Strictly Protected Area**, part of the Dauria International Nature Reserve, a migration stopover ground for up to 400 birds (N. Tseveenmyadag *in litt*. 1997); **Duchi river** (Duch river) valley, reported to be an important site for this species, undated (N. Tseveenmyadag *in litt*. 1997); **Uldz river** valley, flock of 43 birds near crop fields by salt lakes south of the river, June 1987 (Bold *et al.* 1995), at Uldz agricultural area, over 700 birds estimated in spring 1990, 2,079 in 1991, 107 in 1992 and 1,891 in 1994, including over 1,000 birds seen together at the end of September 1994 (Bold 1997); **Ugtam Nature Reserve**, reported to be an important site for this species, undated (Tseveenmyadag 1998); **Khaichiin Tsagaan Nuur** lakes, reported to be an important site for this species, undated (N. Tseveenmyadag *in litt*. 1997); **Kerulen river** (Kherlen river) valley, reported to be an important site for this species, undated (N. Tseveenmyadag *in litt*. 1997); **Sumburiin Tsagan Nuur** (Sumiin Tsagaan Nuur) lake, reported to be an important site for this species, undated, proposed for establishment as a strictly protected area (N. Tseveenmyadag *in litt*. 1997); Doro lake (untraced), 24 birds, April 1987, with more than 700 birds in a field just north of the lake, April 1990, and 2,079 birds in the same area, April–May 1991 (when high numbers were also observed at Lake Barun Torey [Torey lake] in Russia) (Bold *et al.* 1995), flock of five, May 1999 (A. Bräunlich *in litt.* 2000); Baga lake (untraced) and Ekhen lake (untraced), reported to be important sites for this species, undated (N. Tseveenmyadag *in litt*. 1997).

■ ***JAPAN*** This species was reported to be common on Hokkaido in the eighteenth century (Masatomi 1999). It declined in numbers into the twentieth century, but over the past 50 years it has undergone a steady increase, and it is now by far the most numerous crane in Japan with almost the entire world population wintering in the country, although it is almost confined to just two localities, Izumi in southern Kyushu and Yashiro in western Honshu; it is also found regularly as a migrant or winter bird at Nakamura on Shikoku, and occasional birds can turn up anywhere in the country. Records (by island and prefecture) are as follows:

Hokkaido **Abashiri**, undated (Brazil 1991); **Kitahama**, Abashiri-shi, five, April 1996 (Katoh 1997); **Rumoi**, undated (Brazil 1991); **Nemuro**, undated (Wildlife Information Center, Hokkaido 1985); **Shakotan peninsula**, Shakotan-gun, eight, August 1996 (*Birder* 96/10); **Tobetsu-cho**, Ishikari-gun, five, April 1996 (*Birder* 96/6, Katoh 1997); **Yoichi-cho**, Yoichi-gun, five, April 1996 (Katoh 1997, WBSJ database); **Ishikari**, undated (Brazil 1991); **Kushiro**, undated (Brazil 1991); Ikuchise, **Urahoro-cho**, Tokachi-gun, two, November 1996 (*Birder* 97/2); **Iburi**, undated (Brazil 1991); **Taiki**, Tokachi district, April–May 1981 (Iijima 1983, 1986, Brazil 1991; also Wildlife Information Center, Hokkaido 1985); **Kitahiyama-cho**, Setana-gun, 56 birds, April 1996 (Katoh 1997); **Wakamatsu**, Kitahiyama-cho, Setana-gun, 16 birds, April 1996 (*Birder* 96/7); **Shiriuchi-cho**, Kamiiso-gun, up to 34 birds, April 1996 (Katoh 1997, WBSJ database); **Oshima**, undated (Wildlife Information Center, Hokkaido 1985); **Matsumae**, two, April 1996 (WBSJ database);

Honshu ■ ***Miyagi*** unspecified localities, undated (OSJ 2000); ■ ***Akita*** **Hachiro-gata** and Wakami-machi, Minami-akita-gun, up to six, December 1980–January 1981 (Ogasawara *et al*. 1982); **Minami-akita**, 29 birds, April 1996 (WBSJ database); **Wakimoto**, Oga-shi, five, January 1981 (Ogasawara *et al.* 1982); **Nikaho-machi**, Yuri-gun, 23 birds, April 1996 (Katoh 1997, WBSJ database); ■ ***Yamagata*** unspecified localities, undated (OSJ 2000); ■ ***Chiba*** **Inba**, four, November 1995 (WBSJ database); Hirose, **Tateyama-shi**, five adults and two juveniles, November 1995 (*Birder* 96/1); **Shiigi**, Misaki-machi, Isumi-gun, three adults and one juvenile, February 1996 (*Birder* 96/2); ■ ***Tokyo*** **Tokyo**, recorded in 1874 (WBSJ 1975); **Tachikawa-shi** (Tachigawa-shi), 110 birds flying over, October 1949 (WBSJ 1975); **Takao-san** mountain, Tokyo, two, November 1974 (WBSJ 1975); ■ ***Kanagawa*** **Yokohama**, undated (Austin and Kuroda 1953); ■ ***Niigata*** **Sado island**, undated (OSJ 2000); **Kubiki-mura**, Nakakubiki-kun, one in rice paddies, November 1991 (Nakamura 1994), one, March 1996 (Katoh 1997); unspecified localities, undated (Brazil 1991); ■ ***Ishikawa*** Rokusai-machi, **Kashima-gun**, two adults and one immature, December 1994–March 1995 (WBSJ 1996, WBSJ database); **Nanao-shi**, one, March–April 1995 (WBSJ database); **Kahoku-gun**, one, March 1995 (WBSJ database); **Kaga-shi**, seven, March 1996 (WBSJ database); unspecified localities, undated (Brazil 1991); ■ ***Fukui*** **Awara-cho**, Sakai-gun, three, February 1980 (Fukui Prefecture 1982); **Mikuni-cho**, Sakai-gun, seven, January 1970 (Fukui Prefecture 1982); Sakai-cho, **Sakai-gun**, one, December 1980 (Fukui Prefecture 1982); ■ ***Shizuoka*** **Fuji-gun**, six, November–December 1995 (WBSJ database); **Ukishima-numa** lake, Numazu-shi and Enoo, Fuji-shi, November 1995 (WBSJ Minamifuji Chapter database), one adult and one juvenile, December 1995 (*Birder* 96/2); **Shimizu**, one, November 1995 (WBSJ database); Asaba-cho, **Iwata-gun**, four, November 1994 (WBSJ 1996, WBSJ database), December 1995, two adults, January 1998 (WBSJ Totomi Chapter database); **O-ike** pond, two adults, March 1998 (WBSJ Totomi Chapter database); **Toyoda-cho**, Iwata-gun, two adults and one juvenile, January 1995 (WBSJ Totomi Chapter database); **Tenryu-gawa river mouth**, two adults, February 1998 (WBSJ Totomi Chapter database); ■ ***Aichi*** **Tahara-cho**, Atsumi-kun, three, March 1996 (Katoh 1997); ■ ***Mie*** **Mihama-cho**, Minamimuro-gun, one adult, October 1993 (*Birder* 94/1), one adult, January 1994 (*Birder* 94/3); Minamimuro (undated), seven, November 1995–February 1996 (WBSJ database); unspecified localities, undated (Brazil 1991); ■ ***Kyoto*** unspecified localities, undated (OSJ 2000); ■ ***Hyogo*** Shin-ike pond, **Inami-cho**, Kako-gun, one, November 1997 (K. Matsushige *in litt.* 1998); unspecified localities, undated (Brazil 1991); ■ ***Wakayama*** **Kino-kawa** river,

Wakayama-shi, 34 birds, December 1997–February 1998 (WBSJ Wakayama database); Mihama-cho, **Hidaka-gun**, two, November 1985 (WBSJ 1986); **Wada**, Mihama-cho, Hidaka-gun, up to 34 birds, November–December 1997 (WBSJ Wakayama database); Tomoda-gawa river, **Shirahama-cho**, Nishimuro-gun, two adults, December 1987 (WBSJ 1987); ■ ***Tottori*** **Ketaka-cho**, Ketaka-gun, December 1996 (WBSJ Tottori Chapter database); Minami, Koyama-cho, **Tottori-shi**, October 1994 (WBSJ Tottori Chapter database); **Kawara-cho**, Yazu-gun, April 1993 (WBSJ Tottori Chapter database); unspecified localities, undated (Brazil 1991); ■ ***Shimane*** **Hii-gawa** river, Hirata-shi, two, November 1994 (*Birder* 95/1); **Hikawa-cho**, Hikawa-gun, 10 birds, March 1978 (Uchida 1982); **Izumo-shi**, two, November 1930 (Uchida 1982); ■ ***Okayama*** **Kojima**, one, March 1996 (WBSJ database); ■ ***Hiroshima*** Kabehigashi, Asakita-ku, **Hiroshima-shi**, one juvenile, January 1991 (WBSJ Hiroshima Branch 1998); ■ ***Yamaguchi*** **Yashiro**, a regular wintering ground (c.19 km^2) for c.20–30 birds, the second most important wintering ground for this species in Japan (N. Kawamura *in litt.* 1997), with up to 100 birds wintering since 1974 (Brazil 1991); **Ajisu reclamation**, Ajisu-cho, one seen flying at the south of the reclamation, November 1998, one on the rice paddy and reclamation, December 1998 (*Birder* 99/1, 99/2); unspecified locality, undated (Austin and Kuroda 1953);

Hachijo-jima island, Izu islands, reported to occur on migration, before 1926 (Momiyama in Yamashina 1942);

Shikoku ■ ***Tokushima*** **Anan-shi**, at Shimahara, Hikaino-cho, four in November 1980 and 10 in December 1980 (Ishihara 1982), at Higaino-cho in December 1980 (WBSJ Tokushima Chapter 1988), at Nakabayashi-cho in November 1997, and 23 birds at Anan-shi in November 1997 (WBSJ Tokushima Chapter database); ■ ***Ehime*** Tani, **Yawatahama-shi**, two, November 1997 (WBSJ Ehime Chapter database); **Minato**, Saijo-shi, one, February 1998 (WBSJ Ehime Chapter database); Daimyojin-gawa river mouth, Takasu, **Toyo-shi**, one, November 1997 (*Birder* 98/1); **Saijo-shi**, one at Ebisu in November 1997 (WBSJ Ehime Chapter database), one at Teizuishimo, December 1997–January 1998 (*Birder* 98/3, WBSJ Ehime Chapter database); Furukawaminami, **Matsuyama-shi**, five, November 1997 (WBSJ Ehime Chapter database); Shutsusaku, **Masaki-cho**, Iyo-gun, three, November 1997 (WBSJ Ehime Chapter database); **Ozu-shi**, one at Naruno, November 1997 (WBSJ Ehime Chapter database), up to four at Tokumori, November 1997 (*Birder* 98/1); Shionashi, **Seto-cho**, Nishiuwa-gun, five, November 1994 (WBSJ Ehime Chapter database); **Uwa-cho**, Higashiuwa-gun, at Nagaosa, two in January 1995 (*Birder* 95/3) and four in January–February 1995 (WBSJ Ehime Chapter database), at Yamada, 10 adults and two juveniles in November 1997 (*Birder* 98/2) and 13 birds in December 1997 (WBSJ Ehime Chapter database); Mima-cho, **Kitauwa-gun**, up to three in December 1994–February 1995 (WBSJ Ehime Chapter database); **Johen-cho**, Minamiuwa-gun, one wounded bird found, November 1968 (Ishihara 1982), at Shimomidori, four in November 1994 and January and March 1995, and two in October 1995 (*Birder* 95/3, WBSJ Ehime Chapter database), 11 birds at Toiguchi and up to 12 birds at Toyoda in November 1997 (WBSJ Ehime Chapter database); **Komo Cape**, Nishiumi-cho, Minamiuwa-gun, three, October 1993 (*Birder* 93/12); ■ ***Kochi*** **Kagami-cho**, Kami-gun, five, October 1980 (Y. Sawada *in litt.* 1998); **Aki-shi**, one, December 1972, five, November 1979 (Y. Sawada *in litt.* 1998), 16 birds flying towards Tokushima prefecture, undated (Ishihara 1982); **Nankoku-shi**, up to 14 birds, October–November 1980 (Y. Sawada *in litt.* 1998); **Haruno-cho**, Agawa-gun, six, February 1985, two, November 1986 (Y. Sawada *in litt.* 1998); **Tosa-shi**, one at the coast, November 1969 (Ishihara 1982), two, November 1985, four, November 1986 (Y. Sawada *in litt.* 1998); **Susaki-shi**, two adult and one juvenile, November 1972 (Y. Sawada *in litt.* 1998), one, November 1973 (Ishihara 1982); **Nakamura-shi**, mainly in the rice paddies along the rivers Nakasuji-gawa and Shimanto-gawa, two, November 1978, five, November 1979–February 1980, at least 35 in November 1980 of which c.16 remained from December 1980–February 1981, 11 birds, November 1982, three, November 1983, six, February 1985, two,

November 1985–February 1986, up to four, November–December 1986, up to 56 in late autumn and five birds wintering 1987–1988 (Y. Sawada *in litt.* 1998), two, January 1994 (*Birder* 95/3), 20 adults and two juveniles, November 1997 (*Birder* 98/1); **Sukumo-shi**, one, February 1977, up to eight, October–December 1980, three, November 1981, five, November 1982, five, November 1983, two, November 1985–March 1986, up to three, November 1986–December 1986 (Y. Sawada *in litt.* 1998), three at Wada, November 1997 (WBSJ Kochi Chapter database); **Matsuda-gawa** river, four, November 1942 (Udagawa 1953 in Brazil 1991); **Ootsuki-cho**, Hata-gun, 11 birds, November 1973, eight, November 1986 (Y. Sawada *in litt.* 1998); **Shimizu**, Tosashimizu-shi, four, November 1997 (*Birder* 98/1);

Kyushu ■ ***Fukuoka*** **Yugawa**, Kokuraminami-ku, Kitakyushu-shi, 56 birds, March 1989 (K. Samoto *in litt.* 1998); **Imazu**, Nishi-ku, Fukuoka-shi, occasional winter visitor from 1985/1986 to 1988/1989 (Ohsako 1994), up to 220 birds, November 1993 (*Birder* 94/1); Saigawa-machi, **Miyako-gun**, one, March 1989 (S. Nakamura *in litt.* 1998); ■ ***Saga*** **Hizen-cho**, Higashimatsuura-gun, occasionally recorded in winter or on migration (Wild Bird Society of Saga 1997); **Karatsu-shi**, occasionally recorded in winter or on migration, undated (Wild Bird Society of Saga 1997); **Imari-shi**, occasionally recorded in winter or on migration (Wild Bird Society of Saga 1997); **Kawasoe-machi**, Saga-gun, occasionally recorded in winter or on migration (Wild Bird Society of Saga 1997); **Kashima-shi**, occasionally recorded in winter or on migration (Wild Bird Society of Saga 1997); ■ ***Nagasaki*** **Tsushima** island, as a spring stopover site for birds wintering on Honshu and Kyushu, February and March (Brazil 1991); **Isahaya reclamation**, Isajhaya-shi, occasional winter visitor from 1985/1986 to 1988/1989 (Ohsako 1994), three, February 1986 (WBSJ 1986), one, February 1996 (WBSJ database), two adults and one juvenile, October 1996 (*Birder* 97/1), four, December 1998 (*Birder* 99/3); ■ ***Kumamoto*** **Amakusa**, occasional winter visitor from 1985/1986 to 1988/1989 (Ohsako 1994); ■ ***Oita*** unspecified localities, undated (OSJ 2000); ■ ***Kagoshima*** **Izumi** (also known as Arasaki or Izumi-Takaono Wildlife Protection Area, c.8.42 km^2), Izumi city and Takaono-cho, by far the largest wintering population in the world (see Population for details of changes in number), with more than 8,500 birds, winter 1999/2000 (SC); **Akune**, undated (Austin and Kuroda 1953);

Takara-jima island, Tokara islands, 12 birds, March 1979 (Anezaki 1999);

Okinawa island, one on Nanizato, Kin-cho, November 1992 (McWhirter *et al.* 1996);

Ishigaki-jima island, adult on Nagura, March 1994 (McWhirter *et al.* 1996).

■ ***KOREA*** ■ ***NORTH KOREA*** The Hooded Crane occurs in North Korea from November to April, but is more numerous on spring and autumn passage than in winter, with flocks of 200–400 birds seen in March and November, whereas wintering flocks usually number only c.30 birds (Tomek 1999). Records (by province) are as follows: ■ ***South Hamgyong*** **Kumya Wetland Reserve**, a migration stopover, six, March 1993 (Chong *et al.* 1994); unspecified localities, collected in January 1911 and November and December 1913 (Austin 1948); ■ ***North Pyongan*** **Cholsan county**, seen on spring migration (unspecified years) (Pak U-il *in litt.* 1998); **Chongchon-gang estuary**, an important migration stopover, 1,000 birds, May 1981 (Chong and Morishita 1996; also J. Fiebig in Tomek 1999); ■ ***South Pyongan*** **Tongrimri**, March 1987 (Chung Jong-ryol 1988 in Tomek 1999); **Anju**, collected in April 1932 (Won Hong-koo in Tomek 1999; also Austin 1948); **Mundok**, an important migration stopover site identified at Sukchon area by satellite-tracking, with 1,500–2,500 birds recorded on migration from 1993 to 1997 and a wetland reserve (c.30 km^2) being established in 1995 (Chong *et al.* 1994, Pak U-il *in litt.* 1998); **Onchon county**, seen on spring migration (unspecified years) (Pak U-il *in litt.* 1998); ■ ***Kangwon*** **Anbyon**, February 1990 (J. Fiebig in Tomek 1999); ■ ***South Hwanghae*** **Onchon**, December 1988 and November 1989 (J. Fiebig in Tomek 1999); **Ryongyon**, one, January 1999 (Chong Jong-ryol *in litt.* 1999); **Suiya-ri**, c.100 km west of Kaesong, 20 birds, March 1929 (Kobayashi 1931; also Austin 1948); ■ ***Kaesong*** **Kaesong**,

February 1955 and March 1956 (Won Hong-koo in Tomek 1999); **Panmun**, seen on spring migration (unspecified years) (Pak U-il *in litt.* 1998).

■ ***SOUTH KOREA*** The species occurs on the west coast on migration, and a flock wintered near Taegu in North Kyongsang until the mid-1990s. A major wintering ground was recently discovered at Suncheon bay in South Cholla, and small numbers have been recorded wintering at several other localities. Records (by province) are as follows: ■ ***Kangwon*** **Cheolweon** (Cholwon) basin, single birds in November 1992, March 1993 (two) and March 1994, seven in November 1993 (Pae *et al.* 1996), up to eight, November 1997–March 1998 (Kim Jin-han *in litt.* 1998), one, February 1999 (MOE Korea 1999); ■ ***Kyonggi and Seoul*** **Han estuary** and Imjin river estuary, Kimpo, two, November 1997 to February 1998 (Kim Jin-han *in litt.* 1998), 100 birds, April 1998, 11 dying of poisoning (see Threats) (Chan 1998); **Seoul**, March 1940 (two specimens in MCZ); **Suwon**, several flocks of up to 200 birds, January–March 1946 (Austin 1948); unspecified localities, collected in March 1909, April 1910 and December 1940 (Austin 1948); ■ ***North Chungchong*** unspecified locality, collected in February 1914 (Austin 1948); ■ ***South Chungchong*** **Asan** (Gazan), December 1900 (specimen in MCZ); **Cheonsu bay** (Cheonsu lake, Kanwol lake), 12 birds, February 1999 (MOE Korea 1999); ■ ***North Kyongsang*** Hwawon, Paho-dong, Seo-gu, western **Taegu**, recorded in winter from 1984 to 1996, with 200–300 birds observed at Taegu and Koryong-gun in 1985, 135 birds in 1995, but almost none from 1996 onwards (Cho 1995, Lee Woo-shin *in litt.* 1998), only four in January 1999, despite much searching, and "this area appears ruined for this species" (Sutherland and Son a Kim 1999), yet c.1,300 were observed on passage in late October 2000 (Hee Cheon Park *in litt.* 2000); unspecified locality, collected in December 1900 (Austin 1948); ■ ***South Kyongsang*** **Chunam reservoir** (Junam), passage migrant, 203 birds in November 1991 (Yu and Hahm 1994); **Pusan**, January 1906 (specimen in YIO; also Woo *et al.* 1997); unspecified locality, collected in December 1883 (Austin 1948); ■ ***South Cholla*** **Mokpo**, January–February 1930 (five specimens in YIO; also Austin 1948); **Suncheon bay**, one satellite-tracked bird from Izumi (in Japan) staying overnight at Yosu near Suncheon bay in March 1992 (Higuchi *et al.* 1992), wintering population discovered in 1996–1997, with 85 birds, November 1997 to March 1998 (Kim Jin-han *in litt.* 1998), c.120 birds, 1999–2000 (Kim Jin-han verbally 2000); unspecified localities, collected in February 1915 and January 1927 (Austin 1948); ■ ***Cheju*** **Cheju island** (Quelpart island), undated (Kuroda and Mori 1918).

■ ***CHINA*** ■ ***MAINLAND CHINA*** This species has been found nesting once in Heilongjiang, and non-breeding summering birds are sometimes recorded in eastern Inner Mongolia and western Heilongjiang, but it is mainly a passage migrant and winter visitor in mainland China. On migration, some are seen at Beidaihe in Hebei (on the Gulf of Bohai), en route to and from their wintering grounds on wetlands and farmland in Hubei, Anhui, Jiangxi and Hunan or tidal flats in Jiangsu and Shanghai, and there are a few records in south-west China (Wang Qishan *in litt.* 1998). Records (by province) are as follows:

■ ***Heilongjiang*** **Zhan He** river, south-central Xunke county, near Bei'an city, the only known breeding site in China, nest with two eggs in May 1993, but no nest found in 1994 (Li Lin *et al.* 1996), five birds in June 1999 but no breeding reported (Piao Renzhu 1999); Chaoyang tree farm, **Dailing**, Yichun city, where a juvenile was found in the grasslands in September 1991 but later died (Liu Bowen and Sun Zhaofeng. 1992); **Zhalong National Nature Reserve**, Lindian county, passage migrant in April–May and October at the wetlands in Lindian reed farm in the north-east of the nature reserve, in autumn, with 457 birds in 1983, 482 in 1984, 465 in 1985 and 417 in 1986 (Li Jinlu *et al.* 1987), four, July 1987 (P. Alström, U. Olsson and D. Zetterström *in litt*. 2000), while in autumn 1999 more Hooded Cranes were found in the western part of the nature reserve than in previous years, with over 400 birds estimated there in October 1999 (Li Changyou *et al.* 1999); Hongqi tree farm, **Daqing city**, an

autumn migration stopover site, up to 100 birds in September–October (Guo Yumin 1999); **Anda city**, adult collected in April 1941 (Wang Qishan *in litt.* 1998);

■ *Jilin* **Melmeg Nature Reserve** (Momoge), Zhenlai county, flocks of seven and 11 birds in April 1985 (Wu Zhigang and Han Xiaodong 1992); **Xianghai National Nature Reserve**, Tongyu county, a stopover site on migration (unspecified years) (Lu Jianjian 1990);

■ *Liaoning* **Maquanzi**, Fushun county, several birds on migration in April 1983 (Qiu Yingjie 1991); **Huishan reservoir**, Shenyang city, several birds on migration in April 1984 (Qiu Yingjie 1991), two collected in April 1986 and May 1988 (Wang Qishan *in litt.* 1998); **Shuangtai Hekou National Nature Reserve** and adjacent areas (Panjin wetlands), a rare passage migrant with one record in the 1990s, 20 birds in Beizhen county on the edge of Panjin wetland in April 1997, five of them taking poisoned baits on farmland and three of them dying (Yang Fulin *et al.* 1998); **Liujiahe**, Fengcheng county, several birds on migration in March 1987 (Qiu Yingjie 1991); **Fenghuang Shan Nature Reserve**, Fengcheng county, undated (Liu Donglai *et al.* 1996); **Yalu Jiang estuary**, Dandong city, on the border between China and North Korea, several birds on migration on a small island in the estuary in Donggou county in November 1987 (Qiu Yingjie 1991; also Lu Jianjian 1990);

■ *Inner Mongolia* **Huret**, Chen Barag banner, Hulun Buir league, total of 47 birds (including 5–8 subadults) in three flocks on the steppe 7 km north-east of Huret in June 1998, local herdsmen reporting that the species had not been found in the area before but that c.50 birds appeared in May 1998 (Li Xiaomin 1998); between the **Orqohan river** (Urkichikhan, Orkichi) and Urkichi-khan river, May 1934 (Piechocki 1956); near **Yakeshi** (Yakchih), May 1934 (Piechocki 1956); near **Hailar**, one collected in July 1933 (Piechocki 1956); **Horqin Nature Reserve**, four birds in August 1988 (Arongqiqige *in litt.* 1998);

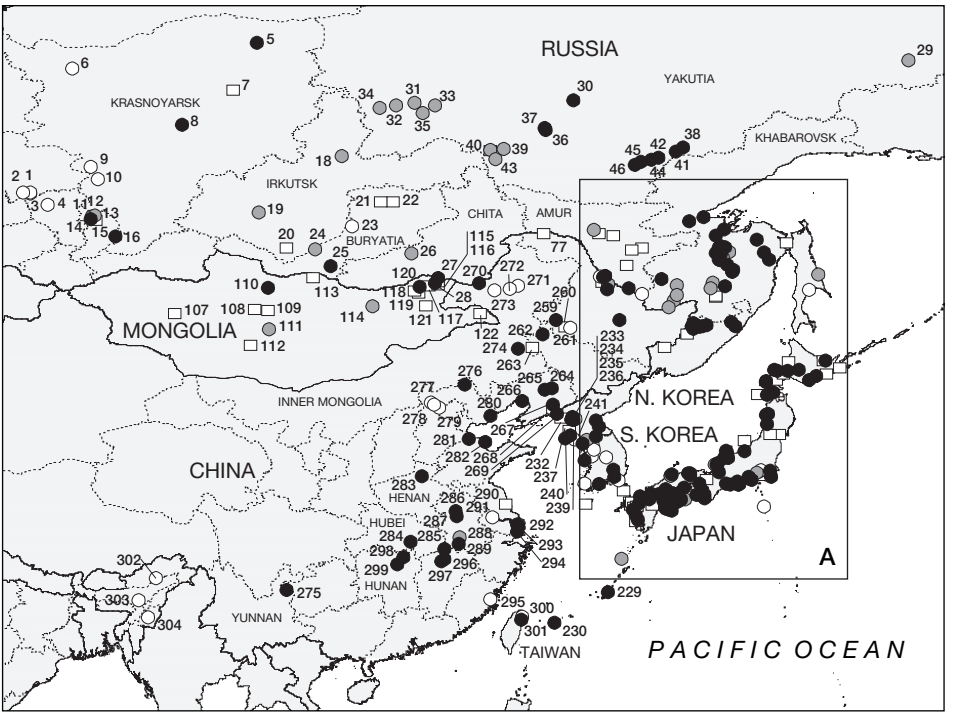
■ *Guizhou* **Cao Hai** lake, vagrant, single birds in March 1985 and from November 1985 to March 1986 (Zhu Jingyi *et al.* 1998);

■ *Hebei* **Saihanmiao Shan** (Saihanba), Weichang county, April 1992 (Hou Jianhua *et al.* 1997); between **Zhangjiakou** (Kalgan) settlement and Dalai Nur lake, south-west of Da Hinggan Ling mountains (Bol'shoi Khingan), "large numbers" in March–April 1871 (Przheval'skiy 1877–1878); **Xuanhua county** (Suen-Hoa-Fou), small numbers on passage, mid-nineteenth century (David 1867); **Huailai** (Huai Lai), north-west of Beijing, one collected in October 1924 (Wilder 1925a); **Beidaihe**, possibly some, October 1942, totals of 10 (plus 50–100 birds possibly of this species) in March and 31 (plus 100 possibles) in November 1943, 36 (plus 14 possibles) in October–November 1944 and 55–85 (plus some possibles) in October–November 1945 (Hemmingsen and Guildal 1968), 309 birds, March–April 1985 (Williams 1986), 527 in October–November 1986, 45 in October–November 1987, 92–94 in October–November 1988, 115 in October–November 1989 and 452 in November 1990 (Williams *et al.* 1992);

■ *Shandong* **Chengkou saltworks**, north-eastern Wudi county, four birds, December 1984 to January 1985 (Liu Tieying and Zhang Wendong 1987), three birds in Wudi county in October 1984 and one there in April 1985 (Ji Jiayi and Yu Xinjian 1990); **Yellow River Delta Nature Reserve**, a migration staging ground from late March to early April and mid-October to early November (Zhao Yanmao and Song Chaoshu 1995), with one satellite-tracked bird from Daursky Nature Reserve in Russia arriving in the north-west of the delta in October 1992 and then moving to southern Tengxian county (Higuchi *et al.* 1994), and c.25 birds on migration on farmland at Yiqian'er inside the nature reserve, unspecified year (Lü Juanzhang *et al.* 1998);

■ *Henan* **Pangzhai** (Yu-bei Huanghe Gudao Nature Reserve or Old Yellow River Channel Nature Reserve), a passage migrant, seven birds on spring migration and 11 birds on autumn migration in 1985–1987 (Xu Xinjie *et al.* 1990);

■ *Hubei* **Chen Hu Nature Reserve**, Hanyang county, one of the largest of the "Wuhan lakes", on the Yangtze River floodplain, 64 birds in winter 1994 and 127 in January 1996 (Hu Hongxing *per* Wang Qishan *in litt.* 1998), with reserve guards reporting that c.60 Hooded

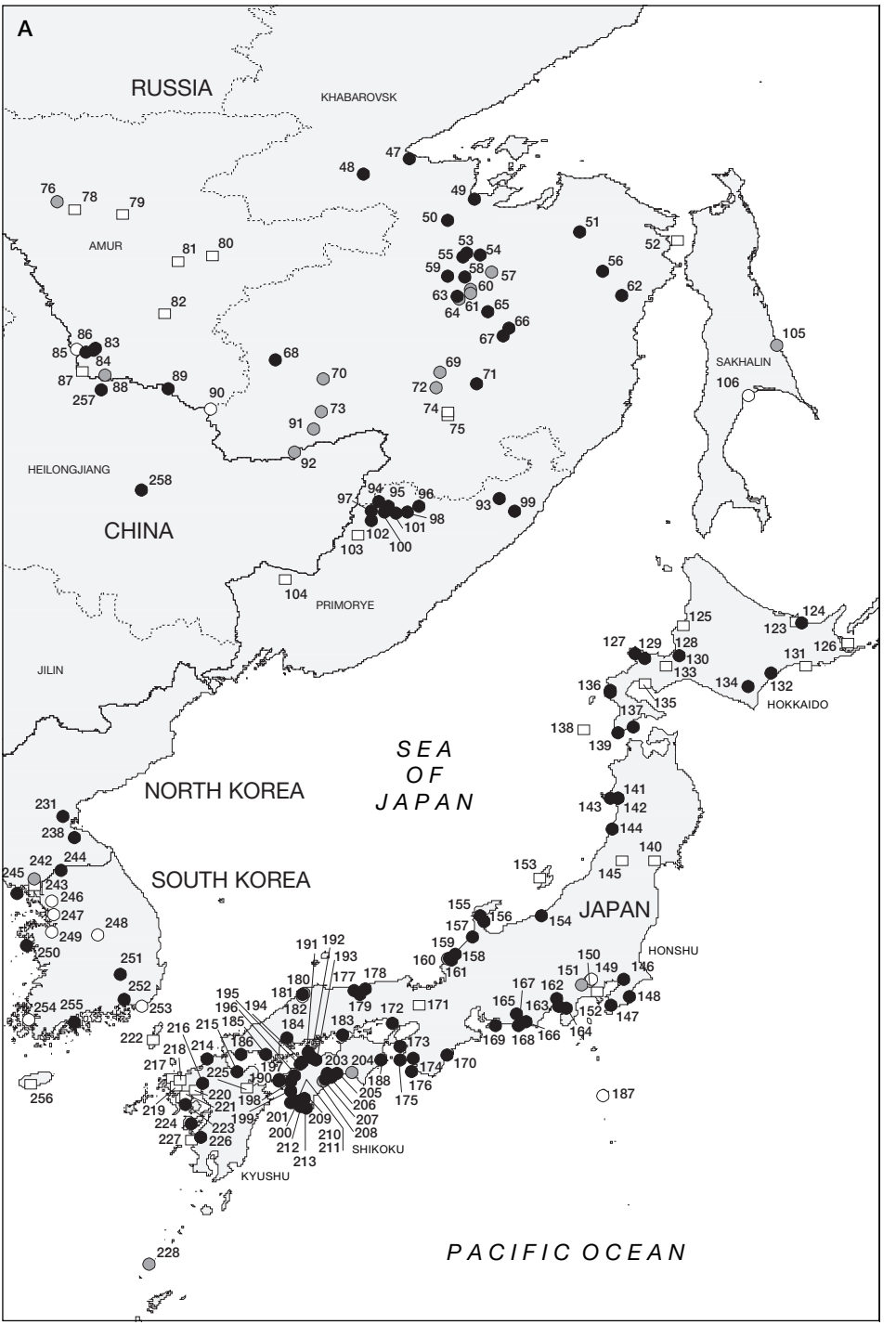


Cranes winter annually, and 127 birds seen flying over in December 1995 (Hu Hongxing 1997); **Longgan Hu Nature Reserve**, Huangmei county, usually in rice paddies near Zhang Hu, Chai Hu and Wanmou Hu lakes and Dakou Power Station, 400–500 birds usually recorded in late October to late December, and c.300 birds in January–February, with the largest numbers at Wanmou Hu where 415 birds were recorded in December in the late 1980s and early 1990s (Hu Hongxing *et al.* 1994), with 46 birds in March 1987 and 407 in December 1988 (Zhao Xuegang 1992), c.250 birds regularly wintering at Konglong since 1992 (Hu Hongxing *per* Wang Qishan *in litt.* 1998), but, following the conversion of some of the paddies inside the nature reserve into cotton fields and lotus ponds, the total number of wintering Hooded Cranes declining to 135 birds in 1997 (Hu Hongxing 1997), with 190 in winter 1998–1999 (Hu Hongxing *in litt.* 1999);

■ ***Anhui*** **Huai He** river floodplains, including Tangduo Hu lake in Yingshang county and Chengdong Hu and Chengxi Hu lakes in Huoqiu county, one satellite-tracked bird staying for two nights in October 1992, in an area that is flooded in summer and where agricultural pressure is light (Higuchi *et al.* 1994); **Wabu Hu** lake, Shouxian county, three birds on the southern shore in winter 1978 (Ding Wenning and Zhou Fuzhang 1986), adult male collected in January 1983 (Wang Qishan *in litt.* 1998); **Caizi Hu** lake, Zongyang county, reported to be a wintering ground in the late 1970s, but no recent information (Ding Wenning and Zhou Fuzhang 1986); **Shengjin Hu Nature Reserve**, a wintering ground (discovered in 1980) where birds usually feed on a 10 km^2 marsh in the core of the reserve just south of Yuqing village at the northern end of the lake (Liu Zhengyuan 1997), 214 birds in January 1990, 370 in January 1991 (Waterbird Specialist Group 1994), numbers increasing to 462 birds in 1993 and 453 in 1994 (Wang Qishan *in litt.* 1998), but from 1994 many moving to the Yang'etou grassland in the middle of the lake (c.8 km from the core area of the reserve), where they increased from

The distribution of Hooded Crane *Grus monacha* (map opposite): (1) Tomsk; (2) Karbysheva; (3) Anikina; (4) Krokhalevka; (5) Murukta; (6) Nizhnyaya Tunguska river; (7) Kochechum river; (8) Baykit; (9) Ket' river; (10) Chulym river; (11) Sarat lake; (12) Podzaplot swamps; (13) Belyy Iyus forest-steppe; (14) Batanakovskie Bolota; (15) Shira steppe; (16) Chernoye lake; (17) unallocated; (18) Nepa river; (19) Kada river; (20) Kuda river; (21) Kumora; (22) Novy Uoyan; (23) Baikal lake; (24) Selenga delta; (25) Tugnuysky Nature Reserve; (26) Chita river; (27) Barun-Torey lake; (28) Uldza river; (29) Arylakh; (30) Chagda; (31) Syul'dzhyukyar river; (32) Akhtaranda river; (33) Appaya river; (34) Chona river; (35) Oruktakh river; (36) Magany-yuryakh river; (37) Somogo river; (38) Turang-El'ge river; (39) Tokko river; (40) Molbo river; (41) Mil' river; (42) Bel'kachi river; (43) Tyanya river; (44) Lappy river; (45) Uchur river; (46) Ulakhan-Siligile river; (47) Uda river; (48) Bokon lake; (49) Tugur river; (50) Konin river; (51) Amgun' river; (52) Amur estuary; (53) Nimelen river; (54) Ol'dzhikan river; (55) Imeni Poliny Osipenko; (56) Udyl' lake; (57) Evur river; (58) Chukchagirskoye lake; (59) Nilan river; (60) Dosmi river; (61) Umikan river; (62) Yay river; (63) Ol'gaka river; (64) Evoron lake; (65) Elgany river; (66) Goryun river; (67) Komsomol'skiy State Reserve; (68) Tyrma; (69) Kharpi river; (70) Talakan; (71) Chenka; (72) Simmi river; (73) In river; (74) Nemptu river; (75) Mukhen river; (76) Gulik; (77) Ol'doy river; (78) Umlekan river; (79) upper Dep river; (80) Fevral'skoye; (81) Norsky Nature Reserve; (82) Tashina river; (83) Rovnyy; (84) Kreshchenovka; (85) Blagoveshchensk; (86) Volkovo; (87) Muraviovka Wildlife Refuge; (88) Amursky Wildlife Refuge; (89) Khinganskiy Nature Reserve; (90) Khingan; (91) Bira river; (92) Leninskoye; (93) Bol'shoye Kilou river; (94) Ulitka river marrs; (95) Middle Alchanskaya marr; (96) Sobolinskaya marr; (97) Bikin-Alchanskaya marr; (98) Olonskaya marr; (99) Zeva river; (100) Kushnarikhskaya marr; (101) Zmeinaya marrs; (102) Silanshanskaya marr; (103) Beytsukhe river; (104) Khanka lake; (105) Langeri river; (106) Poronay river; (107) Dzavkhan river; (108) Urd Tamir river; (109) Ögiy Nuur; (110) Hutag-Öndör; (111) Ongiin river; (112) Tatsain Tsagaan Nuur; (113) Orkhon river; (114) Khentii; (115) Galuutayn Nuur; (116) Mongol Daguur Strictly Protected Area; (117) Duchi river; (118) Uldz river; (119) Ugtam Nature Reserve; (120) Khaichiin Tsagaan Nuur; (121) Kerulen river; (122) Sumburiin Tsagan Nuur; (123) Abashiri; (124) Kitahama; (125) Rumoi; (126) Nemuro; (127) Shakotan peninsula; (128) Tobetsu-cho; (129) Yoichi-cho; (130) Ishikari; (131) Kushiro; (132) Urahoro-cho; (133) Iburi; (134) Taiki; (135) Kitahiyama-cho; (136) Wakamatsu; (137) Shiriuchi-cho; (138) Oshima; (139) Matsumae; (140) Miyagi; (141) Hachiro-gata; (142) Minami-akita; (143) Wakimoto; (144) Nikaho-machi; (145) Yamagata; (146) Inba; (147) Tateyama-shi; (148) Shiigi; (149) Tokyo; (150) Tachikawa-shi; (151) Takao-san; (152) Yokohama; (153) Sado island; (154) Kubiki-mura; (155) Kashima-gun; (156) Nanao-shi; (157) Kahoku-gun; (158) Kaga-shi; (159) Awara-cho; (160) Mikuni-cho; (161) Sakai-gun; (162) Fuji-gun; (163) Ukishima-numa; (164) Shimizu; (165) Iwata-gun; (166) O-ike; (167) Toyoda-cho; (168) Tenryu-gawa river mouth; (169) Tahara-cho; (170) Mihama-cho; (171) Kyoto; (172) Inami-cho; (173) Kino-kawa; (174) Hidaka-gun; (175) Wada; (176) Shirahama-cho; (177) Ketaka-cho; (178) Tottori-shi; (179) Kawara-cho; (180) Hii-gawa; (181) Hikawa-cho; (182) Izumo-shi; (183) Kojima; (184) Hiroshima-shi; (185) Yashiro; (186) Ajisu reclamation; (187) Hachijo-jima; (188) Anan-shi; (189) unallocated; (190) Yawatahama-shi; (191) Minato; (192) Toyo-shi; (193) Saijo-shi; (194) Matsuyama-shi; (195) Masaki-cho; (196) Ozu-shi; (197) Seto-cho; (198) Uwa-cho; (199) Kitauwa-gun; (200) Johen-cho; (201) Komo Cape; (202) unallocated; (203) Kagami-cho; (204) Aki-shi; (205) Nankoku-shi; (206) Haruno-cho; (207) Tosa-shi; (208) Susaki-shi; (209) Nakamura-shi; (210) Sukumo-shi; (211) Matsuda-gawa; (212) Ootsuki-cho; (213) Shimizu; (214) Yugawa; (215) Imazu; (216) Miyaki-gun; (217) Hizen-cho; (218) Karatsu-shi; (219) Imari-shi; (220) Kawasoe-machi; (221) Kashima-shi; (222) Tsushima; (223) Isahaya reclamation; (224) Amakusa; (225) Oita; (226) Izumi; (227) Akune; (228) Takara-jima; (229) Okinawa island; (230) Ishigaki-jima; (231) Kumya Wetland Reserve; (232) Cholsan county; (233) Chongchon-gang estuary; (234) Tongrimri; (235) Anju; (236) Mundok; (237) Onchon county; (238) Anbyon; (239) Onchon; (240) Ryongyon; (241) Suiya-ri; (242) Kaesong; (243) Panmun; (244) Cheolweon; (245) Han estuary; (246) Seoul; (247) Suwon; (248) North Chungchong; (249) Asan; (250) Cheonsu bay; (251) Taegu; (252) Chunam reservoir; (253) Pusan; (254) Mokpo; (255) Suncheon bay; (256) Cheju island; (257) Zhan He; (258) Dailing; (259) Zhalong National Nature Reserve; (260) Daqing city; (261) Anda city; (262) Melmeg Nature Reserve; (263) Xianghai National Nature Reserve; (264) Maquanzi; (265) Huishan reservoir; (266) Shuangtai Hekou National Nature Reserve; (267) Liujiahe; (268) Fenghuang Shan Nature Reserve; (269) Yalu Jiang estuary; (270) Huret; (271) Orqohan river; (272) Yakeshi; (273) Hailar; (274) Horqin Nature Reserve; (275) Cao Hai; (276) Saihanmiao Shan; (277) Zhangjiakou; (278) Xuanhua county; (279) Huailai; (280) Beidaihe; (281) Chengkou saltworks; (282) Yellow River Delta Nature Reserve; (283) Pangzhai; (284) Chen Hu Nature Reserve; (285) Longgan Hu Nature Reserve; (286) Huai He; (287) Wabu Hu; (288) Caizi Hu; (289) Shengjin Hu Nature Reserve; (290) Yancheng Nature Reserve; (291) Zhenjiang; (292) Xinglong Dongsha island Nature Reserve; (293) Chongming Dao; (294) Shanghai; (295) Fuzhou; (296) Poyang Hu Nature Reserve; (297) Yongxiu county; (298) Dong Dongting Hu Nature Reserve; (299) Wanzi Hu; (300) Hsinchuang; (301) Lotung; (302) Subansiri river; (303) North Cachar Hills district; (304) Bishenpur.

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


A
RUSSIA
KHABAROVSK
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HEILONGJIANG
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JAPAN
SHIKOKU
KYUSHU
NORTH KOREA
SOUTH KOREA
SEA OF JAPAN
PACIFIC OCEAN

the usual 40–50 birds to 150–180 birds (Liu Zhengyuan 1997), and up to 400 birds in 1998, mainly in wetlands in the Shanghu area, following the recovery of aquatic vegetation (85% coverage in 1998 compared to 10% coverage in 1996) and higher rainfall in 1997–1998 (Liu Zhengyuan and Xu Wenbin 1998);

■ ***Jiangsu*** Yancheng marshes, including **Yancheng Nature Reserve**, passage migrant, unspecified years (Wang Hui 1991); **Zhenjiang** (Chinkiang, Kinkiang), December 1888 (specimen in BMNH); **Xinglong Dongsha island Nature Reserve** ("Xinglongsha"), Qidong city, a wintering site, but birds becoming rare in recent years, 32 in January 1989, 10 in January 1990 and 10 in January 1991, none in 1993–1995 (Environmental Protection Bureau of Qidong *per* Wang Qishan *in litt.* 1998), although in another report there were 56 birds in January 1990 (Zhou Shi'e *per* Wang Qishan *in litt.* 1998); unspecified part of the lower Yangtze valley (probably in this province and in Anhui), "the commonest crane, found all along the Yangtze in winter" (Styan 1891); unspecified localities, adult male and adult female collected in 1905 (Wang Qishan *in litt.* 1998);

■ ***Shanghai*** eastern tidal flats of **Chongming Dao** island, a wintering ground of Hooded Cranes, 21 birds in January 1987 (Zhou Haizhong 1991a), 21 birds in January 1990 and 11 in January 1991 (Lu Jianjian 1990), c.70–80 wintering in 1993–1994 (Yu Kuai 1997), 145 birds between Baigang and Liangtonggang in December 1997 (Yu Kuai 1998b), nine birds in November 1998 (Cui Zhixing *per* Gao Yuren *in litt.* 1999); **Shanghai**, February 1889 and winter (unspecified year) (two specimens in BMNH), adult male collected in December 1987 (Wang Qishan *in litt.* 1998);

The distribution of Hooded Crane *Grus monacha* (map A opposite): (47) Uda river; (48) Bokon lake; (49) Tugur river; (50) Konin river; (51) Amgun' river; (52) Amur estuary; (53) Nimelen river; (54) Ol'dzhikan river; (55) Imeni Poliny Osipenko; (56) Udyl' lake; (57) Evur river; (58) Chukchagirskoye lake; (59) Nilan river; (60) Dosmi river; (61) Umikan river; (62) Yay river; (63) Ol'gaka river; (64) Evoron lake; (65) Elgany river; (66) Goryun river; (67) Komsomol'skiy State Reserve; (68) Tyrma; (69) Kharpi river; (70) Talakan; (71) Chenka; (72) Simmi river; (73) In river; (74) Nemptu river; (75) Mukhen river; (76) Gulik; (77) Ol'doy river; (78) Umlekan river; (79) Dep river; (80) Fevral'skoye; (81) Norsky Nature Reserve; (82) Tashina river; (83) Rovnyy; (84) Kreshchenovka; (85) Blagoveshchensk; (86) Volkovo; (87) Muraviovka Wildlife Refuge; (88) Amursky Wildlife Refuge; (89) Khinganskiy Nature Reserve; (90) Khingan; (91) Bira river; (92) Leninskoye; (93) Bol'shoye Kilou river; (94) Ulitka river marrs; (95) Middle Alchanskaya marr; (96) Sobolinskaya marr; (97) Bikin-Alchanskaya marr; (98) Olonskaya marr; (99) Zeva river; (100) Kushnarikhskaya marr; (101) Zmeinaya marrs; (102) Silanshanskaya marr; (103) Beytsukhe river; (104) Khanka lake; (105) Langeri river; (106) Poronay river; (123) Abashiri; (124) Kitahama; (125) Rumoi; (126) Nemuro; (127) Shakotan peninsula; (128) Tobetsu-cho; (129) Yoichi-cho; (130) Ishikari; (131) Kushiro; (132) Urahoro-cho; (133) Iburi; (134) Taiki; (135) Kitahiyama-cho; (136) Wakamatsu; (137) Shiriuchi-cho; (138) Oshima; (139) Matsumae; (140) Miyagi; (141) Hachiro-gata; (142) Minami-akita; (143) Wakimoto; (144) Nikaho-machi; (145) Yamagata; (146) Inba; (147) Tateyama-shi; (148) Shiigi; (149) Tokyo; (150) Tachikawa-shi; (151) Takao-san; (152) Yokohama; (153) Sado island; (154) Kubiki-mura; (155) Kashima-gun; (156) Nanao-shi; (157) Kahoku-gun; (158) Kaga-shi; (159) Awara-cho; (160) Mikuni-cho; (161) Sakai-gun; (162) Fuji-gun; (163) Ukishima-numa; (164) Shimizu; (165) Iwata-gun; (166) O-ike; (167) Toyoda-cho; (168) Tenryu-gawa river mouth; (169) Tahara-cho; (170) Mihama-cho; (171) Kyoto; (172) Inami-cho; (173) Kino-kawa; (174) Hidaka-gun; (175) Wada; (176) Shirahama-cho; (177) Ketaka-cho; (178) Tottori-shi; (179) Kawara-cho; (180) Hii-gawa; (181) Hikawa-cho; (182) Izumo-shi; (183) Kojima; (184) Hiroshima-shi; (185) Yashiro; (186) Ajisu reclamation; (187) Hachijo-jima; (188) Anan-shi; (189) unallocated; (190) Yawatahama-shi; (191) Minato; (192) Toyo-shi; (193) Saijo-shi; (194) Matsuyama-shi; (195) Masaki-cho; (196) Ozu-shi; (197) Seto-cho; (198) Uwa-cho; (199) Kitauwa-gun; (200) Johen-cho; (201) Komo Cape; (202) unallocated; (203) Kagami-cho; (204) Aki-shi; (205) Nankoku-shi; (206) Haruno-cho; (207) Tosa-shi; (208) Susaki-shi; (209) Nakamura-shi; (210) Sukumo-shi; (211) Matsuda-gawa; (212) Ootsuki-cho; (213) Shimizu; (214) Yugawa; (215) Imazu; (216) Miyaki-gun; (217) Hizen-cho; (218) Karatsu-shi; (219) Imari-shi; (220) Kawasoe-machi; (221) Kashima-shi; (222) Tsushima; (223) Isahaya reclamation; (224) Amakusa; (225) Oita; (226) Izumi; (227) Akune; (228) Takara-jima; (231) Kumya Wetland Reserve; (238) Anbyon; (242) Kaesong; (243) Panmun; (244) Cheolweon; (245) Han estuary; (246) Seoul; (247) Suwon; (248) North Chungchong; (249) Asan; (250) Cheonsu bay; (251) Taegu; (252) Chunam reservoir; (253) Pusan; (254) Mokpo; (255) Suncheon bay; (256) Cheju island; (257) Zhan He; (258) Dailing.

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

■ *Fujian* **Fuzhou**, January 1932 (specimen in WUCN);

■ *Jiangxi* **Poyang Hu Nature Reserve**, an important wintering ground, 155 birds at Dahu Chi, 12 birds at Changhu Chi and three birds at Zhonghu Chi lakes in December 1985–January 1986 (Kennerley 1987), recent counts (where there was more than one count, the higher census figure was chosen) being of 113 birds in 1988, 178 in 1989, 96 in 1990, 95 in 1991, 140 in 1992, 111 in 1993, 78 in 1994, 62 in 1995, 101 in 1996 and 208 in 1997 (Song Xiangjin *et al*. 1995, Song Xiangjin *per* Wang Qishan *in litt.* 1998, Liu Zhiyong and Zhao Jinsheng 1998); Nan Hu lake, **Yongxiu county**, near Poyang Hu Nature Reserve, up to 155 birds in December 1998 (Zeng Nanjing *et al.* 1999);

■ *Hunan* **Dong Dongting Hu Nature Reserve**, an important wintering ground, in the nature reserve, birds usually staying near Jianxin farm and on rice paddies behind the dykes (Lei Gang *et al.* 1997), with recent counts of 110 birds in 1988, 159 in 1989, 106 in 1990, 28 in 1991, 87 in 1992, 22 in 1993, 53 in 1994 (Gui Xiaojie 1995), 49 in 1995 and 45 in 1996 (Lei Gang *et al.* 1997); **Wanzi Hu** lake, southern part of Dongting Hu, three birds in January 1990 (Waterbird Specialist Group 1994).

■ *TAIWAN* It is known by just a few records, mainly in the north-east, as follows: **Hsinchuang**, Taipei, one collected in 1943 (Lin Wen-horn 1997); **Lotung** (Luotung) town, Ilan county, six birds in 1978, three birds in September 1997, two of which remained until January 1998 (Chan 1998), and the third until April 1998 (Fang Woei-horng *in litt.* 1999).

■ ***INDIA*** It was a very rare visitor to India in the nineteenth century, with records (by state) as follows:

■ *Assam* lower **Subansiri river**, North Lakhimpur district, two flocks seen, of seven and eight birds, undated (Baker 1922–1930); **North Cachar Hills district**, one young bird collected in December 1899 (Baker 1922–1930);

■ *Manipur* between Booree Bazar and **Bishenpur** (Bishnoopoor), a "small flock", March pre-1881 (Hume 1888), undoubtably this species (see, e.g., Baker 1922–1930); unspecified localities, six individuals shot, December 1897 to January 1898, but apparently regular in winter (Higgins 1933–1934).

POPULATION Recent estimates of the global population of Hooded Cranes have included: 9,400–9,600 birds (Meine and Archibald 1996); 9,230–9,300 birds, including 8,230–8,300 wintering in Japan and Korea and 1,000 in the Yangtze valley in China (Rose and Scott 1997); and 9,150 birds, including c.8,000 wintering at Izumi and c.50 at Yashiro and elsewhere in Japan, c.100 wintering in Korea, and 1,000 wintering in China (Chan 1999). Although little is known about historical changes in the distribution of this species, its numbers are known to have risen and fallen dramatically since the 1920s (or at least to have shifted between areas in such a way as to convey the impression of major population changes), and at present its population is probably as large as at any point this century (Meine and Archibald 1996). Its mainland wintering population has obviously declined since the nineteenth century, as Styan (1891) described it as the commonest crane in the Yangtze valley in winter. By contrast, in Japan the wintering population had recovered from near extinction in the early twentieth century to over 8,000 birds now (see below). However, the current wintering population there is dependent on supplementary feeding, and probably could not be naturally sustained in southern Japan (SC).

Russia In Yakutia, the breeding grounds are presumed to hold 7–9% of the world population, as some 300 Hooded Cranes migrate across the Khabarovsk region in spring north to Yakutia (Roslyakov 1995), and approximately the same numbers cross the Amur region (Yu. A. Darman *in litt.* 1997). In the Khabarovsk region, 15–20 pairs breed in the lake Evoron basin, 10–15 in the lake Bolon' basin, and the total population in the region numbers at least 35–40 pairs (Roslyakov 1977, 1981b). Only single birds and small groups

have been recorded in the Upper Amur region (Dymin and Pan'kin 1975, Kostin and Dymin 1977, Smirenskiy and Roslyakov 1982, Pan'kin and Dugintsov 1988, Kislenko *et al.* 1990). In Primorye, 14–16 pairs nest in the lower parts of the Bikin basin, 12–15 non-breeders summer there, and a total of c.50 pairs nest in the entire Bikin basin (Pukinskiy and Il'inskiy 1977, Pukinskiy *et al.* 1982). The numbers in the Iman basin are not known, but appear to be significantly lower (see Distribution). The above figures (although somewhat outdated) together give a rough estimate of 400 documented breeding pairs in Russia, and given that many parts of Yakutia, Khabarovsk and Amur remain poorly surveyed (especially the areas around the regional boundaries), it remains unclear whether the apparent gaps in breeding distribution are natural or simply reflect an incomplete dataset (AVA). Its population trends are not well documented, but Przheval'skiy (1877–1878) found it "very common" near lake Baikal, where it is not currently known to be numerous, and local people in Yakutia have reported that there has been a slight decrease in the last 50 years (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997).

Mongolia Large numbers of migratory birds have recently been found in Dornod province, including several counts of more than 1,000 birds (see Distribution).

Japan This species was formerly (presumably until the nineteenth century) a fairly common winter visitor throughout Japan from southern Hokkaido to Kyushu, but by the mid-twentieth century its numbers had been reduced to just a "few handfuls" wintering at Izumi on Kyushu and Yashiro in western Honshu (Austin and Kuroda 1953). At Izumi, the earliest census figure was c.400 wintering birds in 1927–1928, and by 1939–1940 there were 3,435 birds; no census was conducted from 1940 to 1946, but the census in 1947–1948 revealed that only 250 birds remained, and the wintering population stayed at 200–400 individuals until winter 1961–1962, when 723 were recorded; artificial feeding began at Izumi the following winter, and the number of Hooded Cranes subsequently increased to 1,000–1,500 birds in 1963–1969, 2,000–3,000 in 1970–1976, rising rapidly to 4,273 in 1980–1981, 7,036 in 1983–1984, 7,893 in 1988–1989 and 8,258 in 1992–1993; in 1995–1997 their numbers decreased to 6,706 and then 5,747 birds, but recovered again in 1997–1998 (Eguchi *et al.* 1993, Crane Park Izumi *in litt.* 1998). In winter 1999–2000, more than 8,500 Hooded Cranes wintered at Izumi (SC). At Yashiro, 10 birds were found in 1867, and following the protection of this site and a ban on crane hunting their numbers started to increase, to c.100 birds in 1921–1922 and a peak of 355 birds in 1940–1941; following the Second World War, there were 200 birds in 1947–1948 and their numbers remained at 100–200 from 1947 to 1966; however, they declined to c.100 birds in the 1970s, and to 89 in winter 1978–1979, and since then number have remained below 100 birds; their numbers fluctuated during the 1980s, but were usually c.60–70 birds, but they declined from 48 birds in 1990–1991 to 20–27 birds in the mid-1990s, and there were only 17 in 1998–1999, the lowest count in the last 100 years (N. Kawamura *in litt.* 1999).

South Korea This species was a "not uncommon" winter visitor in Korea until the mid-twentieth century (Austin 1948), but in recent years the only known wintering flock had been near Taegu in North Kyongsang, where 200–300 birds were seen in 1985 and 135 in 1995, although it had almost disappeared there from 1996 onwards (Cho 1995, Lee Woo-shin *in litt.* 1998). However, another wintering flock (perhaps including some of the Taegu birds) was found at Suncheon bay in South Cholla in 1996–1997, with 85 birds in 1997–1998, increasing to 120 in 1999–2000 (Kim Jin-han verbally 2000).

China The wintering population of Hooded Cranes in China is estimated at roughly c.1,000 birds, including c.350 at Shengjin Hu, c.100 at Poyang Hu, c.50 at Dong Dongting Hu, c.100 at Xinglong Dongsha and Chongming, c.250 at Longgan Hu, c.100 at Chen Hu and the "Wuhan lakes", plus a few birds in other, little-known areas (Wang Qishan *in litt.* 1998; see Table 1). Although this is higher than some previous estimates, the apparent increase is probably the result of more intensive survey effort in the 1980s and 1990s rather than a genuine increase, and in reality its population is probably declining (Wang Qishan *in litt.*

Table 1. Wintering counts of Hooded Cranes at key sites in China (based on Gui Xiaojie 1995, Song Xiangjin *et al.* 1995, Hu Hongxing 1997, Lei Gang *et al*. 1997, Liu Zhiyong and Zhao Jinsheng 1998, Yu Kuai 1998a, Wang Qishan *in litt.* 1998). Note that a dash indicates no count, not no birds.

Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Shengjin Hu lake, Anhui	81	360	276	275	287	358	238	309	462	453	115	130	400
Poyang Hu lake, Jiangxi	200	361	115	113	178	96	95	140	111	78	62	101	208
Dong Dongting Hu lake, Hunan	140	180	93	110	159	106	28	87	22	53	49	45	–
Xinglong Dongsha, Jiangsu	–	–	–	32	10	10	0	0	0	0	–	–	–
Chongming Dao island, Shanghai	–	21	–	–	21	11	0	0	70–80	0?	–	–	145
Longgan Hu lake, Hubei	–	46	375	407	300	–	–	–	–	–	135	21	–
Chen Hu lake, Hubei	–	–	–	–	–	–	–	–	–	64	127	–	–

1998; see Table 1). The historical status of this species in China is not well documented: it was described by Styan (1891) as the commonest crane in the Yangtze valley in winter, and by Hemmingsen (1951) as "not uncommon" on migration at Beidaihe in Hebei in the early 1940s, indicating that it probably declined substantially in China during the twentieth century. The construction of the Three Gorges Dam will affect almost all of its the wintering grounds in China, and could potentially cause further declines in its numbers there in the future (see Threats).

ECOLOGY ***Habitat*** This species nests on remote wooded upland bogs (called locally "tumara" by Yakutians and "mari" by Russians) on gently sloping foothills and flat river terraces, mostly within the permafrost zone (Pukinskiy *et al.* 1982). The distribution of suitable habitats appears to be highly uneven within the breeding range, for example in the Bikin river basin these bogs, found at elevations of 600–700 m, occupy only 7–12% of the area explored (9,000 km^2) (Pukinskiy *et al.* 1982). The wooded bogs are surrounded by belts of sparse larch *Larix dahurica* stands and dense brush of dwarf birches *Betula ovalifolia* and *B. middendorfii*, willows *Salix myrtilloides* and heaths *Cassandra caliculata*, *Ledum palustre*, *Vaccinium uliginosum*, and a ground layer of cranberry *Oxycoccus quadripetalis* and *Drosera*; the central parts of the nesting bogs are treeless, and overgrown with hydrophilic plants, *Equisetum*, *Carex*, *Eriophorum*, *Menyanthes trifoliata*, *Iris*, etc., and the nests are typically located in the transition between the wooded and open parts of the bog, 50–100 m from the edge (Pukinskiy and Il'inskiy 1977, Pukinskiy *et al.* 1982). The birds avoid areas that are either too open or too densely forested (Meine and Archibald 1996). The nest in Heilongjiang was at the western edge of the Xiao Hinggan Ling mountains, near a marsh in a valley bottom dominated by short vegetation including *Carex*, *Deyeuxia angustifolia* and *Sparganiam*, and with a small, shallow pond (c.50 m^2 and c.45 cm deep); the marsh was surrounded by a forest, and the nest was located c.120 m from the trees (Wang Qishan *in litt*. 1998). Non-breeding birds often spend the summer well away from the breeding grounds, on swampy lakeshores in steppe habitats (Radde 1863, Stegmann 1929), in shallow open wetlands, natural grasslands, and agricultural fields in southern Siberia, north-eastern Mongolia and northern China (Meine and Archibald 1996).

On migration and in winter, Hooded Cranes utilise a wide variety of habitats: in China, they tend to roost along the shores of rivers and shallow lakes, and to forage along the muddy edges of lakes and in nearby grasslands, grassy marshes, rice paddies and agricultural fields (Meine and Archibald 1996). In Korea and Japan they are found on agricultural land, and at Suncheon bay in South Korea they roost on tidal flats at night (SC). On spring migration in Russia they feed on farmland (V. A. Dugintsov *in litt.* 1997). At migratory stopovers in China they occur in three major types of habitat: (1) freshwater marshes (including *Phragmites* reedbed and *Carex* marsh) and wet grasslands, surrounded by grassland, farmland and fishponds (at Zhalong, Melmeg and Xianghai in north-east China); (2) coastal wetlands,

with wide intertidal mudflats, coastal marshland, saltworks, fishponds and prawn ponds, with dominant vegetation including *Phragmites*, *Typha* and *Carex* (at the Gulf of Bohai, Yalu estuary, Beidaihe and Yellow River Delta); (3) floodplains and lakeshores, and nearby farmland (at the Yellow River and Huai He river, Pangzhai Nature Reserve, Wabu Hu lake and floodplains in Huoqiu county) (Wang Qishan *in litt.* 1998). In the wintering areas they occur in two major types of habitat: (1) freshwater lakeshores, their main habitat in the lower Yangtze basin, where the water level in the lakes gradually falls in winter and exposes large areas of marsh and grassland; (2) coastal tidal mudflats (on eastern Chongming Dao and Xinglong Dongsha islands) (Wang Qishan *in litt.* 1998). At Poyang Hu wintering birds mostly roost on drained lakes, and at Dong Dongting Hu they mainly roost in rice paddies, grassland or mudflats (Zhou Haizhong 1991b).

In South Korea, most of the natural wintering habitat of this species has long since been altered by development, and the flock that wintered in Taegu used harvested and fallow fields as feeding and resting sites (Lee Woo-shin *in litt.* 1998), and roosted on sandbars in a river (Cho 1995). At Suncheon bay, the cranes usually roost on a tidal flat in the middle of the bay at night, and feed on nearby farmland during the daytime; they are quite wary, and keep at least c.500 m from people, and in winter 1999–2000 they were observed to form family territories (Y. Kanai and Kim Jin-han verbally 2000). In Japan, this species prefers harvested ricefields at Izumi, and at Yashiro it roosts in harvested ricefields, on open land and at the edge of ponds (Ohsako 1994; see Kawamura 1975). At Yashiro, it feeds in rice paddies away from houses, forests and roads, and (unlike at Izumi) maintains family territories (N. Kawamura *in litt.* 1998). The wintering grounds at Izumi are relatively open, and the cranes have become used to the presence of people and vehicles (SC).

Food On the breeding grounds in Russia, the diet is essentially vegetarian, including several varieties of woodland berries (cranberry, blueberry, low bush cowberry), shoots and flowers of cottongrass and the fruits of sedges, but they also eat some animals, including frogs, Siberian salamanders, molluscs and insect larvae (Andreev 1976, Pukinskiy and Il'inskiy 1977). On spring migration, they feed on crops of wheat, corn and buckwheat (V. A. Dugintsov *in litt.* 1997). Migrants at the Yellow River delta feed mainly on wheat shoots and soybean, and also eat some invertebrates (Zhao Yanmao and Song Chaoshu 1995). The wintering birds in the lower Yangtze basin feed mainly on aquatic plants and on grains in farmland; at Shengjin Hu lake they feed mainly on the roots of *Vallisneria spiralis*, and at Poyang Hu lake they mainly eat the stems and roots of *Cyperus*, and rice and wheat grain on farmland (Wang Qishan *in litt.* 1998). At East Dongting Hu lake they consume rice grains, and also take clams, snails and young roots (Zhou Haizhong 1991b). At Longgan Hu lake they subsist largely on wasted grain in the paddyfields, and in spring on the roots of *Cynodon dactylon*, and they forage in large flocks or in family groups (Hu Hongxing *et al.* 1994). On the tidal flats of eastern Chongming island, they focus on the corms of *Scirpus mariqueter* (Sun Zhenhua *et al.* 1990). An analysis of the dropping of wintering birds near Taegu in South Korea found that 95% of their diet was rice grains or rice straw from the paddyfields, while less than 2% was plant tubers from upland fields and c.0.1% was animal materials (Cho 1995). The droppings of wintering cranes at Suncheon bay were also found to contain mainly rice, but the birds there have also been observed foraging on the tidal flats, presumably taking some benthos (Y. Kanai verbally 1999). Wintering birds at Izumi and Yashiro in Japan mainly feed on fallen rice grains and food provided by human, including rice, wheat, maize and loach (N. Kawamura *in litt.* 1998).

Breeding The first nest of this species was not discovered until 1974, and since the mid-1970s research has shown that it breeds in remote, widely scattered bogs and wooded marshes in eastern Siberia (Meine and Archibald 1996). It is monogamous, and birds attain maturity at 3–4 years (Potapov and Flint 1987). They arrive at the Bikin basin in Primorye in pairs or small flocks by early April (Pukinskiy *et al.* 1982), in the lower Gorin river in Krasnoyarsk

they were first observed in the last week of April (Kolbin *et al.* 1994), and they arrived at the Syul'dzhukyur settlement area in Yakutia on 7 May (Andreev 1976). The average breeding density in the Bikin basin was one pair per 20–25 km^2, but the size of the breeding territory usually depends on the size of the bog being used for nesting and is relatively small, e.g. 4–6 km^2 in the Bikin basin (Pukinskiy *et al.* 1982) or even 2 km^2 at Komsomol'sk reserve in Krasnoyarsk (Kolbin *et al.* 1994). In the Bikin basin, clutches are laid on 15–20 April, the usual clutch size is two (n=8), but a few clutches may contain only one egg (Pukinskiy *et al.* 1982). Both parents incubate, but the males are only slightly involved in the earlier stages, in contrast to the hatching period; the hatching period in the Bikin basin area is in the last week of May, and at Gorin on 4–6 June (Pukinskiy and Il'inskiy 1977, Kolbin *et al.* 1994). The siblings hatch c.24 hours apart, but the older chicks were never observed to be aggressive towards the second chicks; for two months after hatching (until mid-August) the brood wanders within the nesting swamp, and by 20 August the juveniles start to fly, and the family parties leave their breeding sites (Kolbin *et al.* 1994). In Yakutia, where the Hooded Crane is sympatric with the Common Crane, they may form mixed pairs (Andreev 1976). Hybrid Hooded × Common Cranes have been observed at Izumi in Japan since the late 1970s, and up to six hybrids are now recorded there annually, and a possible hybrid was seen at Suncheon bay in South Korea in 1998–1999 and 1999–2000 (SC).

Migration This species migrates between its breeding grounds in Russia and its wintering areas in Japan, South Korea and mainland China. Satellite-tracking has revealed three different migration routes used by wintering birds from Izumi in Japan (although two of these routes were only followed by single birds): the first bird moved over the central part of the Korean Peninsula, and only stopped when it reached China, then resumed its journey by flying north-east to Lake Khanka, and so north to the breeding grounds; the second bird rested at Sukchon, near Mundok in North Korea, then took a north-easterly course to Lake Khanka before heading north to the breeding grounds; the third route was taken by several birds, which rested in the Yonan-gun area, then moved to Mundok via Nampo at the mouth of the Taedong river and Kumsan (Chong *et al.* 1994). Observations at Beidaihe on the coast of Hebei have shown that most of the Chinese wintering population migrates through this area (Williams *et al.* 1992). Satellite-tracking data show that some birds from Daursky Nature Reserve in Chita stop over at the Yellow River delta on migration to Poyang Hu lake in the lower Yangtze valley (Higuchi *et al.* 1994), but colour-banding studies indicate that some birds from Daursky also migrate to Izumi in Japan (Ozaki and Baba 1994). All five birds banded on the breeding grounds in Primorye, in the Bikin river basin and 50 km to the south at the Marevka river, and four of the seven birds banded at Daursky, were seen at Izumi (Ozaki and Baba 1994). During spring 1996 up to 56 birds (probably from Izumi) were seen following a previously unknown migration route in Japan, along Honshu to Hokkaido (Katoh 1997), presumably en route to the breeding grounds in Siberia via Sakhalin, but this migration along Honshu has not been reported since (SC). Colour-banding has revealed that some birds (usually immatures) change their wintering grounds from year to year: two birds banded at Izumi stayed one winter at Taegu in South Korea but returned to Izumi the following year, and a crane banded at the Bikin river in 1985 was seen at Izumi in November 1985 but at Yashiro in November 1987 (Ozaki and Baba 1994).

In Russia, flocks of 3–5 birds (occasionally up to 20) migrate through the Arkhara lowlands in Amur in the period 10–30 April (Andronov 1987). Further north, in the Vilyuy basin in Yakutia, migration was observed on 19–20 May 1965 (data *per* AVA). Autumn migration at the Arkhara and Bureya rivers occurs in the last two weeks of September, usually involving larger flocks than in spring (34–46 birds), with the latest observation on 12 October 1978 (data *per* AVA). There are apparently two flyways used on southward migration, one south-east across the Zeya-Bureya plain, and the other south-south-west from Primorye along the Greater Khingan range (Neufeldt 1977). At Izumi in Japan, this species arrives in

October to November, with peak numbers in December, and its departure starts in early March (later than the White-naped Cranes *Grus vipio* wintering at Izumi), with the peak in late March to early April (Crane Park Izumi *in litt.* 1998). At Yashiro, wintering birds arrive from late October to early November and depart from late February to early March (N. Kawamura *in litt.* 1998). This species migrates along the west coast of North Korea in late March to early April, usually in small flocks of 5–6 birds (but flocks of 30–100 have been observed), and they pass through this area without stopping unless the weather is bad (Chong 1987). In China, up to 100 birds can be found from mid-September to late October at their migration staging site at Hongqi tree farm in Heilongjiang, and southward migration proceeds from mid-October (Guo Yumin 1999). They are present at the staging grounds in the Yellow River Delta Nature Reserve in Shandong from mid-October to early November in autumn, and from late March to early April in spring (Zhao Yanmao and Song Chaoshu 1995). They arrive on the wintering grounds from mid-October to early December, and depart for the breeding grounds in mid-March to early April (Zhou Haizhong 1991b, Hu Hongxing *et al.* 1994, Song Xiangjin *et al.* 1995). In Manipur in India, Higgins (1933–1934) reported that the earliest sighting "by far" was on 29 September 1930, while the latest in spring was before the end of February, indicating that this species only visited north-east India for a short period in midwinter.

THREATS ***Habitat loss*** *Russia* Generally speaking, the breeding grounds of this species are still relatively safe from intensive human economic activities, although there is some pressure from drainage of wetlands and intensified logging activities in Russia's taiga forests (Meine and Archibald 1996). In Yakutia, the main threat to the largest breeding concentration, in the basin of the upper Vilyuy river, is industrial development (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997). In Amur and Khabarovsk, habitat degradation and forest fires are potential threats to this species, but habitat loss is not serious (V. A. Dugintsov *in litt.* 1997, B. A. Voronov *in litt.* 1997). Most of the breeding areas in Primorye are difficult of access, and thus are relatively secure, but they remain officially unprotected (Yu. V. Shibaev *in litt.* 1997). *Mongolia* In Mongolia, all crane species are under threat from habitat degradation caused by steppe fires and overgrazing (N. Tseveenmyadag *in litt.* 2000). *Japan* At Yashiro, the reduction of foraging areas and degradation of roosts were possible causes of the decline in the wintering population (Eguchi *et al.* 1993). *Korea* The wintering flock at Taegu, South Korea, has virtually abandoned this site since 1996, apparently mainly because the expansion in the area covered by greenhouses had reduced their feeding grounds (SC). At Suncheon bay, river-dredging and reed-harvesting projects have been shelved, but there is continuing pressure for development along the coast of South Korea (SC) *Mainland China* The migratory and wintering habitats of Hooded Cranes are under threat throughout China because of the reclamation and degradation of wetlands linked to rapid economic development; for example, areas of shallow marshland are being lost at many lakes in the lower Yangtze basin owing to reclamation, the construction of dams and snail control (Wang Qishan *in litt.* 1998; see equivalent section under Siberian Crane for details of threats to wetlands in the Yangtze basin). At some lakes, few shallow areas of water now remain because of reclamation, and the wintering cranes are now confined to the few remaining small pockets of shallow wetland and farmland (Wang Qishan *in litt.* 1998). At the major wintering ground in Longgan Hu Nature Reserve in Hubei, 1.33 km^2 of paddies inside the nature reserve have been converted into cotton fields since 1994, and another 1.86 km^2 of paddies were converted into lotus ponds in 1997, and the number of wintering Hooded Cranes there in 1997 was 135, a significant decrease from previous years (Hu Hongxing 1997). Conversion of rice paddies to cotton fields has also reduced suitable habitat for Hooded Cranes inside the Dong Dongting Hu Nature Reserve in Hunan, and in recent years the number of Hooded Cranes has declined there (Lei Gang *et al.* 1997). On Xinglong Dongsha and Chongming islands in Jiangsu and

Shanghai, large-scale reclamation since 1991 has converted reedbeds and tidal flats into farmland and aquaculture ponds (Wang Qishan *in litt.* 1998). The wintering populations in the Yangtze valley are threatened by the construction of the Three Gorges Dam, which will change the seasonal flow of water in the Yangtze river and could significantly affect the wetlands downstream of the dam (Iwabuchi *et al.* 1998).

Hunting *Russia* In Yakutia, the small population in the Aldan basin is threatened by shooting (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997), and poaching is also a threat elsewhere, for example in Amur (V. A. Dugintsov *in litt.* 1997). *Korea* Eleven Hooded Cranes were killed by poisoned baits set for ducks in the rice paddies at Kimpo, South Korea, near the Han river estuary in April 1998 (Chan 1998); two groups of poachers were observed at Suncheon bay (in less than 90 minutes on a Sunday afternoon) in February 1999, and although they were not apparently targeting the cranes, their presence was a potential threat and cause of disturbance (SC). *Mainland China* The illegal poisoning of wild ducks and fish is still practised at Shengjin Hu and Poyang Hu lakes (Wang Qishan *in litt.* 1998). In total, 12 Hooded Cranes were found killed at Poyang Hu (probably in the early 1990s), including seven that had been poisoned, the highest percentage among the crane species (possibly because this species feeds more on dry land: SC) (Song Xiangjin *et al.* 1995). Three birds found dead at Dongting Hu lake in February 1986 had eaten poisoned baits set for wild ducks (Zhou Haizhong 1991b). Out of 20 birds seen on migration at the edge of Panjin wetland in April 1997, five took poisoned baits on farmland, and three birds died (Yang Fulin *et al.* 1998).

Disturbance *Russia* In Yakutia, the small population in the Aldan basin (the part of its range there that is most affected by human activity) is threatened by human disturbance (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997). *Japan* At Yashiro, disturbance by people and cars was one of the possible causes of the decline in the wintering population (Eguchi *et al.* 1993). *Mainland China* On their wintering grounds, Hooded Cranes face disturbance from domestic animals, grass-cutting and fishing; for example, fishing for eel fry on Chongming Dao island causes a lot of disturbance in winter (Wang Qishan *in litt.* 1998). At Longgan Hu lake, human activity increased when areas of rice paddy were converted into cotton fields and lotus ponds, and helped cause the decline in the number of wintering cranes from 218 birds in 1992 to 120 birds in 1998 (Hu Hongxing 1998b).

Pollution and pesticides Water pollution is severe in many of the coastal provinces of China (see Threats under Spotted Greenshank *Tringa guttifer*). On some of the wintering grounds of this species, for example Longgan Hu and East Dongting Hu lakes, farmers are converting rice paddies into cotton fields, and the pesticides that are used in the cotton fields are another potential threat to Hooded Crane (Hu Hongxing 1997). At Longgan Hu, three birds were killed by pesticides in 1994–1996 (Hu Hongxing 1998b).

Over-concentration The wintering grounds at Izumi, Japan, support an unnaturally large concentration of wintering cranes because of artificial feeding, including more than 80% of the global population of this species, and they are therefore at risk from the outbreak of disease (Meine and Archibald 1996) or some other catastrophe.

MEASURES TAKEN ***International cooperation*** Since the 1980s, there has been international collaboration on projects for the conservation of this species within the Asia region, mostly inspired by the International Crane Foundation and the Wild Bird Society of Japan, and the satellite-tracking project has helped to initiate a network for the conservation of cranes in North-East Asia (Ichida 1994). This network was launched in 1997, with financial support from the Environment Agency of Japan: several of the important sites for Hooded Cranes (Khanka lake, Khingansky, Daursky, Mongol Daguur, Xingkai Hu, Yellow River Delta, Poyang Hu, Mundok, Yashiro and Izumi-Takaono) are listed as key sites in the North-East Asian Crane Site Network; there are regular meetings and communications involving scientists and conservationists working for the protection of cranes throughout North-East Asia; this

has led, for example, to a government request for help in dealing with a poisoning incident in South Korea in April 1998, and the organisation of a symposium and forum at Suncheon city in February 2000 for the conservation of the wintering grounds there (SC).

Legislation This species is included in the Russian Red Data Book (Kolosov 1983), and in the RDB of Yakutia (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997). It is listed as a "Very Rare Animal" in the Mongolian Law on Hunting (1995), which means that it may be hunted or trapped only for research and with permission from the government, and it is prohibited to hunt, trap, or sell any parts for any other purposes. In the Mongolian Red Data Books, it is listed as Endangered (Bold 1987) and "Very Rare" (Bold 1997). It is 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 the species was designated as natural monument no. 228 on 30 October 1970 (Lee Woo-shin *in litt.* 1998). In China it is a Nationally Protected Species (First Class) (Zheng Guangmei and Wang Qishan 1998). It is listed on Appendix I of CITES.

Protected areas and habitat management *Russia* Several specially protected areas are being established or are planned in Yakutia: the "Chabda" includes all of the breeding grounds in the middle Aldan river valley, and the "Ochuma", "Vilyuykan", "Chonsky", and "Dzherono" include c.10% of the breeding grounds in the basin of the upper Vilyuy river (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997). In Khabarovsk, its breeding habitats are protected in the Komsomol'skiy, Botchinsky and Bureinsky strict nature reserves and in the Udul'sky, Al'dzhikansky, Kharpinsky and Zhuravlinyi sanctuaries (B. A. Voronov *in litt.* 1997). In Amur, the Norsky Nature Reserve (2,110 km^2) has recently been established for the protection of Hooded Cranes (V. Andronov *in litt.* 2000). *Korea* The important site at Mundok, North Korea, has been established as a protected area (Pak U-il *in litt.* 1998). *Japan* The wintering grounds at Izumi and Yashiro have been a Special Natural Monument since 3 March 1921 (Kato *et al.* 1995). Izumi-Takaono (8.42 km^2, including 0.54 km^2 of Special Protection Area) was established as a National Wildlife Protection Area for the conservation of cranes, and the designation of Yashiro as a National Wildlife Protection Area is in progress (Environment Agency of Japan *in litt.* 1999). At Yashiro, brushy vegetation has been cleared from former ricefields in order to create optimal roosting habitat, and steps have been taken to reduce human disturbance of the cranes (Eguchi *et al.* 1993). *Mainland China* Protected areas have been established at many of the sites used by Hooded Cranes in China, including: (at migration sites) Zhalong Nature Reserve in Heilongjiang, Melmeg and Xianghai Nature Reserves in Jilin, Shuangtai Hekou Nature Reserve in Liaoning, Horqin Nature Reserve in Inner Mongolia, Yellow River Delta Nature Reserve in Shandong and Yancheng Nature Reserve in Jiangsu; (at wintering sites) Chen Hu and Longgan Hu Nature Reserves in Hubei, Shengjin Hu Nature Reserve in Anhui, Chongming Dongtan Nature Reserve in Shanghai, Poyang Hu Nature Reserve in Jiangxi and Dong Dongting Hu Nature Reserve in Hunan (Wang Qishan *in litt.* 1998; see Distribution). *Taiwan* When a group of Hooded Cranes was found at Ilan in 1997–1998, the Chinese Wild Bird Federation raised a fund of c.US$2,700 to compensate farmers for not using agrochemicals in the fields where the cranes roosted and fed (Teng Tzu-ching *in litt.* 1998).

Supplementary feeding At Izumi, Japan, natural habitats and food sources no longer exist, and the cranes depend completely on intensive habitat management and artificial feeding, and fresh water is pumped over the agricultural fields where the cranes are fed to aid in cleansing the area (Meine and Archibald 1996). Supplementary food is provided at daybreak at Izumi (SC), while at Yashiro food is placed at the roosting sites of the cranes in the daytime (N. Kawamura *in litt.* 1998). This feeding stabilised the declining population in the 1950s and 1960s, and it is the reason why the numbers have increased at Izumi (N. Kawamura *in litt.* 1998).

Research The migratory movements of this species have been studied using satellite-tracking (Higuchi *et al.* 1992, 1994, Chong *et al.* 1994). The main wintering population at Izumi, Japan, has been censused annually since 1947, and some survey figures are available for earlier years (Eguchi *et al.* 1993).

Conservation education Along with other crane species, the Hooded Crane benefits from education campaigns conducted at protected areas in China and the feeding stations in Japan, where thousands of visitors come to observe the cranes (Meine and Archibald 1996).

MEASURES PROPOSED ***Legislation*** Poison baits are used widely in China, either deliberately placed by poachers to kill ducks and geese, or used by farmers to control rodents, but they also cause high mortality amongst cranes (and can harm the people who consume poisoned birds); the laws to prevent the use of these poisons should be more strictly enforced, and an education campaign launched to warn users of their adverse effects on wildlife and people (SC).

Protected areas and habitat management *Russia* There is a need to identify and officially protect more of the important breeding areas for this species in Russia, and to develop in Russia a national policy for the protection of the bogs and other wetlands where this species breeds (Meine and Archibald 1996, Yu. V. Shibaev *in litt.* 1997). In Yakutia, the establishment of specially protected areas for this species and its habitats needs to proceed more quickly (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997). In Primorye, consideration should be given first and foremost to the creation of a strict nature reserve in the Bikin basin (various schemes were proposed in an ecological programme for Primorye region that was adopted in 1993) (Glushchenko *et al.* 1996). *Japan* The protection of this species on the main wintering grounds should be secured through the purchase or lease of farmlands (Meine and Archibald 1996). Experiments should be conducted to attract Hooded Cranes to other potential wintering sites in Japan (Ohsako 1994), and if successful these sites should be protected, possibly including compensation to farmers whose land is used by the cranes (Meine and Archibald 1996). Potentially suitable wintering grounds are available on Kyushu and in South Korea, and the experiments should be continued to try to attract birds back to Yashiro and find out how to stabilise the wintering populations on Shikoku (SC). *Korea* The newly discovered wintering site at Suncheon, South Korea, has the potential to support large numbers of Hooded Cranes and must be protected, and a management plan (based on scientific study) should be drafted and implemented; in particular, efforts should be made to get the trust and cooperation of local people for the conservation of this species and its natural habitats (SC). *Mainland China* A general measure that would greatly benefit conservation would be to give the management offices of nature reserves more authority to control land use inside the reserves (Wang Qishan *in litt.* 1998). The nature reserves at Chongming and Xinglong Dongsha should be enlarged, the reclamation of tidal mudflats controlled, and the sites used by Hooded Cranes established as restricted areas during the winter where the collection of eel fry is prohibited (Wang Qishan *in litt.* 1998). At Shengjin Hu lake, the regional government of Chizhou should coordinate the management of the lake in Dongzhi and Guichi counties, and the water level in the lake should be carefully controlled (Wang Qishan *in litt.* 1998). At Longgan Hu, water levels in the paddies should be managed to maintain the optimum level for cranes, agrochemicals prohibited, and (most importantly) measures taken to reduce human disturbance (Hu Hongxing *et al.* 1994). The construction of the Three Gorges Dam will change the seasonal flow of water in the Yangtze River and could negatively affect the wetlands downstream (Iwabuchi *et al.* 1998), so changes to the wetlands in the Yangtze valley and the threatened waterbirds that occur there should be carefully monitored once the dam is in operation, and appropriate efforts made to mitigate the problems that arise (see equivalent section under Siberian Crane *Grus leucogeranus*).

Research Satellite-tracking studies should be continued to determine more fully the species's migration routes (Meine and Archibald 1996), and identify further key sites for its conservation. In Russia, further studies are required to clarify the breeding range and migration routes of this species, so as to provide information on key sites for its protection (V. A. Dugintsov *in litt.* 1997). More surveys are necessary on the distribution and population of cranes in Mongolia, including studies of the influence of human activities on these sites, and a crane monitoring system needs to be established (N. Tseveenmyadag *in litt.* 2000). Efforts need to be expanded to assess the risk of disease outbreak and to monitor risk factors on the wintering grounds at Izumi, Japan (Meine and Archibald 1996). The possible breeding grounds of this species in Heilongjiang, China, should be surveyed and proven breeding grounds protected, including the drafting of management plans and the establishment of a management body for the reserve, involving the local government (SC; also Meine and Archibald 1996).

Conservation education Campaigns to promote public awareness of cranes and their conservation are required in Russia (V. G. Degtyarev, A. G. Degtyarev and Yu. V. Labutin *in litt.* 1997, V. A. Dugintsov *in litt.* 1997) and Mongolia (N. Tseveenmyadag *in litt.* 2000).

REMARKS (1) Baker (1922–1930) considered that cranes seen by Anderson at Ponsee, west of Bhamo, and by Couchman at Myothit, upper Burma, were probably this species. However, Smythies (1986) suggested that the flocks seen by Anderson were probably Common Cranes *Grus grus*, and that the description of the birds seen by Couchman fitted Sarus Crane *G. antigone*. Thus the species is best omitted from the national list of Myanmar.