Threatened Birds of Asia:
The BirdLife International Red Data Book

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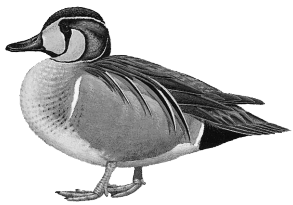
BAIKAL TEAL
Anas formosa



Critical □ —
Endangered □ —
Vulnerable ■ A1c,d; A2c,d

This duck has a rapidly declining population as a result of hunting and destruction of its wintering wetland habitats for agriculture and economic development. These factors qualify it as Vulnerable.

DISTRIBUTION The Baikal Teal is only known to breed in eastern Russia, and it occurs on migration in the Russian Far East, Mongolia, Japan, North Korea, South Korea and northern China. Large wintering concentrations were recorded in the past in Japan, South Korea and mainland China, with smaller numbers (or vagrants) recorded in Hong Kong, Taiwan, Pakistan, India, Nepal, Bangladesh, Myanmar and Thailand. However, in recent decades the only large wintering flocks have been found in South Korea, with some smaller concentrations at a few sites in Japan and mainland China. It has occurred as a vagrant in several European countries and is casual down to Pacific coast of North America, but it is possible that many of the birds involved had escaped from captivity (Cramp 1977, AOU 1998; also del Hoyo *et al.* 1992).

■ ***RUSSIA*** The breeding range of Baikal Teal lies entirely within eastern Siberia, extending from the Yenisey Valley eastwards to Cape Shmidt on the Chukotka peninsula, the western Anadyr' basin, northern Kamchatka and the Sea of Okhotsk coast (AVA). It formerly extended north to the Arctic Ocean, excluding the northern Taymyr peninsula, but including the Arctic Ocean islands of Bol'shoy Lyakhovskiy and Stolbovoy, and the southern limits of its breeding range were the lower reaches of the Angara river, northern Baikal, Chita region and the Amur basin (AVA). The main breeding grounds were in the northern taiga and southern tundra in Yakutia, Chukotka, Magadan and Khabarovsk regions, and it occurs on migration in Khabarovsk, Amur, Primorye and Sakhalin regions, but Primorye (the only rice-growing area in the east of Russia) is the most important area in the Russian Far East during spring migration, with large concentrations recorded at Lake Khanka and in the Arsen'evka valley (Shul'pin 1936, Polivanova 1971), and on the lower Iman (Bol'shaya Ussurka) river (Spangenberg 1965). However, it is scarce or rare in all these localities in autumn (AVA).

The recent rapid decline in the numbers of this species has led to a change in its breeding range: in the taiga-covered plains, wooded tundra and subarctic tundra of Yakutia its numbers were stable and at a high level until the early 1970s, but since then its once continuous range has contracted to a number of small, isolated breeding localities in remote and inaccessible areas little influenced by man, mainly on the upper and middle reaches of small rivers; there has also been a range contraction in Chukotka, particularly as it has ceased breeding in the Anadyr' basin where it was formerly common (Portenko 1939, Kuzyakin 1965, Krechmar *et al.* 1991). In the Khabarovsk region, its breeding range has become fragmented into four small areas (Roslyakov 1984). It is now a rare, sporadic breeder and migrant in eastern Russia, with a wide distribution but a very low population density (AVA). Records are given (by province) below:

■ ***Yamalo-Nenetskiy*** upper **Taz river**, often encountered during summer in the 1960s, and perhaps breeds (Rogacheva 1992);

■ ***Taymyr*** **Omulevaya river**, undated (specimens in ZMMGU); **Pelyatka river** (Peliatka river), undated (specimens in ZMMGU); source of the **Rybnaya river**, probably breeds occasionally (Rogacheva 1992); **Maloye Khantayskoye lake**, probably breeds occasionally (Rogacheva 1992);

■ *Krasnoyarsk* **Igarka** district, common on spring passage in the 1960s (Rogacheva 1988, 1992); Turukhan river basin, may occasionally have bred near **Turukhansk**, but not confirmed (Tugarinov and Buturlin 1911 in Rogacheva 1992), often encountered during summer in the 1960s, and perhaps bred (Rogacheva 1988, 1992); **Yeloguy river** basin, often encountered during summer in the 1960s, and perhaps breeds (Rogacheva 1992); **Dynda lake**, near the source of the Taz river, mid-August 1965 (Rogacheva 1992); near **Mirnoye**, intensive migration observed annually from 1956–1974, but only encountered once (a single flock of four birds in late May) in the 1980s (Rogacheva 1992); **Komsa** (Kosma) village, undated (specimens in ZMMGU); middle reaches of the **Podkamennaya Tunguska river**, common breeding species, 1910s (Tugarinov and Buturlin 1911 in Rogacheva 1992); **Chamba river**, undated (specimens in ZMMGU); **Kem' river**, near Yeniseysk, found "rather often", undated (Kim 1959 in Rogacheva 1988, 1992); **Yeniseysk** (Yeniseisk), May 1897 (male in BMNH), collected on the Yenisey river (Enissey, Yenisei), June 1900, May 1909 (three specimens in BMNH and MCZ); lower Angara river, near **Motygino**, reported to nest occasionally in the 1950s and early 1960s (Syroechkovski *et al.* 1978 in Rogacheva 1992), the westernmost known breeding location (Rogacheva 1988), but by the 1970s unfindable in summer on the lower Angara river to the west of Motygino (Vladyshevsky in Rogacheva 1992); middle reaches of the **Angara river**, common breeding species, 1910s (Tugarinov and Buturlin 1911 in Rogacheva 1992); Yenisey river basin, near **Krasnoyarsk**, extremely rare at the beginning of the twentieth century (Sushkin 1914 in Rogacheva 1992); Yenisey river basin, near **Minusinsk**, extremely rare, beginning of the twentieth century (Sushkin 1914 in Rogacheva 1992);

■ *Buryatia* **Tompa river**, September 1958 (specimen in ZMMGU); near **Davsha** (Davsha village), September 1953 (specimen in ZMMGU); **Baikal lake**, August 1855 (two specimens in MCML); **Selenga delta**, "common" on spring passage (with small numbers of non-breeder birds remaining in summer) in the 1950 and 1960s, e.g. flocks of 100–150 birds in September 1960 (Skryabin 1968);

■ *Chita* unspecified localities, "massive" numbers on spring passage in the 1960s (Leont'ev 1965 in Skryabin 1968);

■ *Yakutia* **Stolbovoy island**, Novosibirsk islands, breeding, 1960s (Vorob'ev 1963); **Bol'shoy Lyakhovskiy island**, Novosibirsk islands, breeding, 1960s (Vorob'ev 1963); lower **Anabar river**, breeding, undated (Sdobnikov 1959); **Lena delta**, August 1927 (female in MCZ), a vagrant (Dement'ev and Gladkov 1951–1954); **Khroma–Indigirka tundra**, one of the most numerous duck species in June 1962 (Uspenskiy *et al*. 1962); **Indigirka delta**, found on the Elon' river in the southern part of the Indigirka delta, undated (Mikhel' 1935, Uspenskiy *et al.* 1962), this species comprising 2.2% of the duck population, undated (Böme *et al.* 1965); **Yana–Indigirka tundra**, important for this species, undated (Miyabayashi and Mundkur 1999); **Kyusyur** settlement, lower Lena river, undated (Kapitonov 1962); **Berelekh river**, undated (specimen in ZMMGU); **Kolyma**, north-east Siberia, August 1905 (female in MCZ); **Chukoch'ye** (Chukoche), Kolyma, 2–3 males, June 1992, 1–3 daily, June 1994 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000); **Mikhalkino** village, Kolyma delta, collected, June 1959 (several specimens in ZMMGU); **Malaya Kon'kovaya river**, Kolyma lowlands, nest found, June 1990 (AVA); **Nerpich'ye lake** (Nerpich'e lake), south-west Kolyma delta, breeding pairs, June 1984 to 1985 (AVA); middle **Alazeya valley**, undated (Buturlin 1906); **lower Omolon river**, Kolyma, three, July 1993 (G. Ouweneel *in litt.* 1999); **Nizhnekolymsk** (Nischnij Kolymsk), Siberia, May 1911 and June 1912 (seven specimens in MCZ); Kolyma river channels adjacent to **Suruktakh** fishing camp, 100–120 km north of Srednekolymsk, numerous flocks prior to autumn migration, September 1977 (Krechmar *et al.* 1991); upper **Dulgalakh river**, tributary of the Adycha river, upper Yana basin, breeding pairs seen in 1987 and 1989 (N. A. Nakhodkin *per* AVA); Indigirka river between **Krest-Mayor** and Shamanovo settlement, undated (Mikhel' 1935, Uspenskiy *et al.* 1962); **Borulakh river**, Yana river basin, undated (Tkachenko 1932, Vorob'ev 1963); **Nel'gese river**, Yana river basin, undated (Tkachenko 1932, Vorob'ev 1963); upper **Ozhogina river**,

Kolyma basin, nest found in 1989 (Labutin and Perfil'ev 1991b); the entire Kolyma valley, from **Zyryanka** to Srednekolymsk, undated (Krivosheev 1963, Krechmar *et al.* 1978); **Uol'chan river** (Ol'chan river), upper Indigirka river, small numbers nesting, undated (Vorob'ev 1963); **Vilyuy river** basin, "common", undated (Maak 1886, Andreev 1987); **Lungkha river** (Lunkha river), tributary of the Lena river, broods recorded in 1974–1978 (Degtyarev and Larionov 1982); **Aldan river mouth**, undated (Ivanov 1929), thousands of birds, 1958–1962 (Vorob'ev 1963), small numbers, 1972–1973 (Larionov *et al.* 1991); **Namana river**, tributary of the Lena river, broods recorded in 1974–1978 (Degtyarev and Larionov 1982); **Markha river**, tributary of the Lena river, broods recorded in 1974–1978 (Degtyarev and Larionov 1982); Haptsige lake (untraced), undated (specimen in ZMMGU);

■ *Chukotka* **Rauchua river**, Chaun district, three broods (of three, four and six young), July 1983 (Krechmar *et al.* 1991); **Chaun-Palyavaam delta**, Chaun lowlands, several records of pairs, single adults and fledged young, 1973–1988 (Krechmar *et al.* 1991, A. V. Kondrat'ev *in litt.* 1997); middle reaches of the **Omolon river**, early 1970s (Krechmar *et al.* 1978); **Anadyr' bay**, dead bird found, June 1994 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000, one male's wing in BMNH), undated (specimen in AMNH); **Khatyrka lagoon**, pairs seen, June 1976, probably breeding (Kishchinskiy 1980);

■ *Koryakia* **Slautnoye river mouth** (Slautnaya river mouth), June and October 1941, probably breeding (several females in ZMMGU); **Kultushnaya river mouth**, Korf bay, nested in 1957, but not in 1976 or 1977 (Kishchinskiy 1980, Lobkov 1986); lower **Apuka river**, pairs seen, June 1960, probably breeding (Kishchinskiy 1980);

■ *Kamchatka* near **Klyuchi**, July–August 1908, but no subsequent evidence of breeding in Kamtchatka (Bianki 1909, Lobkov 1986); **Beringa island** (Bering island), Commander islands, May and September 1911 (five specimens in AMNH);

■ *Magadan* **Gizhiga** (Gichiga), north-east Siberia, May 1901 (three specimens in AMNH); middle reaches of the **Detrin river**, c.300 km north-west of Magadan, seen on spring migration, May 1963 (Kishchinskiy 1968); middle reaches of the **Kava river**, 150 km west of Magadan, breeding pairs, May 1991 and May 1993, brood of five, August–September 1993, brood of six, June 1994 (Krechmar and Krechmar 1997); **Sredniy lagoon** (Sredniaya lagoon), Sea of Okhotsk coast, 150 km east of Magadan, July 1963 (Kishchinskiy 1968);

■ *Khabarovsk* **Orel' lake** watershed, lower Amur, 70 km north-west of Nikolaevsk-on-Amur, rare breeding species, undated (Roslyakov 1984); **Orlik lake**, regular breeding species in the 1970 and 1980s, several tens of birds, July 1983 (Poyarkov and Babenko 1986); **Amur estuary** (Amur bay), 1893, March–April 1894 (six specimens in BMNH); **Evoron lake**, Solnechnyi district, 150 km north of Komsomol'sk-on-Amur, rare breeding species, the population not exceeding 50 pairs in 1968–1973, several tens of adult and juvenile birds, August 1980 (Roslyakov 1975, 1984, Poyarkov and Babenko 1991), with several pairs nesting near the Evur river mouth in the north-east part of Evoron lake, summer 1988–1989 (B. A. Voronov *in litt.* 1997); between the **Malaya Khurba river** and the Bol'shaya river, lower Amur, Komsomol'skiy district, c.30 km south of Komsomol'sk-na-Amur, rare breeding species, common migrant until 1959 (Roslyakov 1984); **Bolon' lake**, Amurskiy district, 300 km north-east of Khabarovsk, rare breeding species and common migrant, with c.5,000 birds counted at the Simmi river mouth on spring passage in 1972–1973 (Roslyakov 1984; also Miyabayashi and Mundkur 1999); **Malyshevo** village, 70 km north-east of Khabarovsk, 5,000–10,000 birds on autumn passage in 1976–1979 (Roslyakov 1984);

■ *Amur* (almost completely absent during the breeding season, but reported to breed in small numbers on mountain streams in the northernmost parts: Stegmann 1930) near **Bomnak** settlement, Tok river, occasionally shot by hunters, undated (Voronov 1983); **lower Tok river**, northern Amur region, family party of seven on a small lake, August 1975, (Voronov 1983); **Pikan**, middle reaches of Seja river, nine collected, May 1914 (Stegmann 1930); southern **Zeya-Bureya plain**, large numbers occurring on spring and autumn passage (Barancheev 1954);

■ ***Primorye*** **Iman river** (Bol'shaya Ussurka), numerous in spring, but few seen on autumn migration, undated (Spangenberg 1965); **Ussuri river valley**, the most numerous duck on spring passage on the lower reaches of rivers flowing into the Ussuri, between the late 1930s and the 1960s (Spangenberg 1965, Shibaev *et al.* 1996); near the south-east shores of **Khanka lake**, including the Ilistaya (Lefu) estuary and Lake Gnilye, the main spring staging site for this species in Russia (Przheval'skiy 1877–1878, Shul'pin 1936, Polivanova 1971, Shibaev *et al.* 1996); **Arsen'evka river** (Daubikhe), numerous on spring passage and the main species bagged by local hunters, 1949 and 1950 (Shibaev *et al.* 1992, 1996); **Suyfun river mouth** (Suifun river mouth), extreme south-west Primorye, rare passage migrant, only one found among birds bagged by hunters, April 1987 (Gorchakov 1996); **Vladivostok** (Wladiwostok), March 1902, May 1908, December 1911 (nine specimens in FMNH and RMNH); **Askol'd island** (Ascold island), undated (three specimens in AMNH); near **Tumen river mouth** (Tumangan river), extreme south-west Primorye, reported always to have been a scarce passage migrant in this area and not comprising more than 2% of hunting bags in 1962 and 1964 (Shibaev 1971);

■ ***Sakhalin*** passage migrant in April–May and September–October (Nechaev 1991), including at: **Terpeniya bay** (Terupenia bay) (Taraika), near Poronaysk, collected, before 1937 (Takahashi 1937); **Solov'yevka** (Sorouiyouka, Soroviyofuka, Kahizuka), near Korsakov, collected, undated (Takahashi 1937);

■ ***Kuril islands*** **Paramushir island**, September 1928 (Yamashina 1929, six females in YIO).

■ ***MONGOLIA*** It is a rare migrant to central and eastern Mongolia, with no confirmed breeding records (D. Batdelger *in litt.* 1998), with records (by province) as follows: ■ ***Gov'-Altai*** lake on the northern edge of **Altay** (at c.46°20′N 96°20′E), three seen in October 1992 (Tourenq *et al.* 1996); ■ ***Khövsgöl*** **Horedal Saradag mountain range**, west of Lake Khövsgöl (Hovsgol), groups of six and four individuals (possibly the same birds) seen at two localities 15–20 km apart, July 1995, neither group appearing to be breeding (Harper 1996); ■ ***Selenge*** **Orkhon river**, recorded on migration (unspecified years) (Fomin and Bold 1991, Bold 1997); **Selenge river**, recorded on migration (unspecified years) (Fomin and Bold 1991, Bold 1997); ■ ***Töv*** steppe lake west of **Lun** (in Töv or Övörkhangai province), male, June 2000 (A. Bräunlich *in litt.* 2000, *Oriental Bird Club Bull.* 32 [2000]: 66–76); ■ ***Khentii*** near **Buyantu** (Bujangu), flocks seen in August (unspecified year) (Dement'ev and Naumov 1966); ■ ***Dornod*** **Mongol Daguur Strictly Protected Area**, rare passage migrant and summer visitor (unspecified years) (Tseveenmyadag 1998); **Uldz river** (Ulz river), recorded on migration (unspecified years) (Bold 1997); **Onon river**, recorded on migration (unspecified years) (Bold 1997); **Khalkhgol** (Khalkh river), recorded on migration (unspecified years) (Bold 1997); **Nomrog river**, recorded on migration (unspecified years) (Bold 1997); **Numrug Strictly Protected Area**, rare passage migrant and summer visitor (unspecified years) (Tseveenmyadag 1998); Eren valley (untraced), flocks seen in August (unspecified year) (Dement'ev and Naumov 1966); Khukh Nuden Nuur (untraced), single male, May 2000 (A. Bräunlich *in litt.* 2000); Khukh Nuden Nuur (not mapped), male, May 2000 (*Oriental Bird Club Bull.* 32 [2000]: 66–76).

An untraced locality from an unknown province is: Duril-dhsidi lake, flocks seen in August (unspecified year) (Dement'ev and Naumov 1966).

■ ***JAPAN*** In the early twentieth century, this species was a common winter visitor to south-western Japan, at times almost unbelievably abundant (Austin and Kuroda 1953), but it is now a very uncommon visitor from central Honshu southwards, occurring regularly at rather few localities, and decreasing in numbers (Brazil 1991). In recent years it has mainly been recorded in Niigata, Ishikawa, Saitama, Yamaguchi, Ehime, Fukuoka and Saga prefectures, with several hundred birds regularly wintering at Kahokugata and Katano duck pond in Ishikawa, and the Shino-gawa river in Niigata. Records (by island and prefecture) are as follows:

Hokkaido **Komuke-ko** lake, Monbetsu-shi, three males, April 1996 (*Birder* 96/6); **Abashiri**, undated (Wildlife Information Center, Hokkaido 1985); **Shari** port, Shari-gun, female,

February 1997 (*Birder* 97/5); **Nemuro**, undated (Wildlife Information Center, Hokkaido 1985); **Shunkunitai**, May 1984 (Takada in Brazil 1991); **Ishikari**, undated (Wildlife Information Center, Hokkaido 1985); **Iburi**, undated (Wildlife Information Center, Hokkaido 1985); **Oshima**, undated (Wildlife Information Center, Hokkaido 1985); Jada-gun (untraced), one, July 1938, having been banded in Shimane prefecture in March 1938 (Austin and Kuroda 1953);

Honshu ■ *Aomori* **Mutsu-shi**, Oominato coast, undated (Aomori Prefecture 1978); Jusanko lake, **Shiura-mura**, undated (Aomori Prefecture 1978); **Tsuruta-machi**, undated (Aomori Prefecture 1978); Hira-kawa river, downstream of Tachita bridge, Kawai, **Hirosaki-shi**, one, December 1995 (WBSJ Hirosaki Chapter database); Ezogadate reservoir, **Nishitsugaru-gun**, six males and two females, March 1994 (*Birder* 94/5); ■ *Iwate* **Tsugaruishi-gawa river mouth**, Miyako-shi, March 1904 (WBSJ Miyako Chapter database); ■ *Miyagi* **Izu-numa** and Uchinuma lakes, a rarity (Brazil 1987), two males, November 1984 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000); ■ *Yamagata* **Sakata** port, Sakata-shi, pair, December 1995 (*Birder* 96/3); Ooyama, **Tsuruoka**, 77 birds, January 1989 (Research Center, WBSJ 1989); Kajo park, **Yamagata-shi**, pair, December 1997 (*Birder* 98/3); ■ *Fukushima* **Abukuma-gawa** river, Okabe, Fukushima-shi, one, January 1997 and January 1998 (K. Uekawa *in litt.* 1998); **Kooriyama-shi** water treatment plant, rare visitor (Wild Bird Society of Fukushima 1979); ■ *Ibaraki* **Kasumiga-ura** lake, hunted for food in the past, undated (Mochizuki 1981); **Sugao-numa** lake, Iwai-shi, female, February 1996 (*Birder* 96/4); Kotoku-numa lake (untraced), a rarity (Brazil 1987); ■ *Tochigi* Shioya-machi, **Shioya-gun**, winter visitor (unspecified years) (Tochigi Prefecture 1984); **Nishinasuno-machi**, Nasu-gun, winter visitor (unspecified years) (Tochigi Prefecture 1984); **Ootawara-shi**, winter visitor (unspecified years) (Tochigi Prefecture 1984); **Nikko**, winter visitor (unspecified years) (Tochigi Prefecture 1984); **Karasuyama-machi**, Nasu-gun, winter visitor (unspecified years) (Tochigi Prefecture 1984); **Utsunomiya-shi**, winter visitor (unspecified years) (Tochigi Prefecture 1984); **Mooka-shi**, winter visitor (unspecified years) (Tochigi Prefecture 1984), at Igashira Kenmin park, 10 males and seven females, February 1994 (*Birder* 94/5), five males and three females, January 1996 (*Birder* 96/3); Watarase reservoir, **Shimotsuga-gun**, eight males, December 1995 (*Birder* 96/3), 10 birds, December 1997 (*Birder* 98/3), at least 30 males and 20 females, February 1998 (*Birder* 98/5), 13 males and at least 10 females, January 1999 (*Birder* 99/3); **Oyama-shi**, winter visitor (unspecified years) (Tochigi Prefecture 1984); **Fujioka-machi**, Shimotsuga-gun, winter visitor (unspecified years) (Tochigi Prefecture 1984); ■ *Gunma* **Myogi** (Ura-myogi), a rarity (Brazil 1987); **Tatara-numa** lake, Tatebayashi-shi, seven males, February 1998 (*Birder* 98/5); ■ *Saitama* Tone-gawa river, downstream of Bando bridge, **Honjo-shi**, four males and a female, December 1993 (*Birder* 94/3), seven males and six females, February 1994 (*Birder* 94/4); **Kitamoto** Nature Park, Kitamoto-shi, male and female, December 1995 (*Birder* 96/3); **Hirakata**, Ohmine, February 1961 (two specimens in YPM); **Koshigaya**, formerly an important wintering area and hunting ground for this species (Masahito and Yoshii 1974; see Population), December 1913 (male and female in YIO); Kakinoki-cho, **Soka-shi**, two males and a female, December 1995 (*Birder* 96/3); Saiko, **Toda-shi**, male, March 1995 (*Birder* 95/5), three males and a female, December 1995 (*Birder* 96/3), one, November 1996 (*Birder* 97/1); **Kuki** city, 100+ birds, 1986 (Brazil 1991); ■ *Chiba* **Tega-numa**, Higashikatsushiki-gun, November 1883 (male in YIO), about 3,000 birds formerly regularly visiting Sakata and Wada ponds, near Inba-numa and Tega-numa, in October–November (Austin and Kuroda 1953), tens of thousands being said to winter in the late nineteenth century (Mochizuki 1981); **Inba-numa** lake, Inba-gun, February 1884 (male and female in YIO), two males and a female, December 1994 (*Birder* 95/3); **Shimosa**, December 1895, January (unspecified year) (three specimens in AMNH and NHMW); **Gyotoku**, April 1953 (male in FMNH), uncommon winter visitor (unspecified years) (Brazil 1987); **Yatsu tidal flat**, male, Janaury 1998 (*Birder* 98/4); Tahate mima (untraced), December 1920 (two males in FMNH); ■ *Tokyo* **Adachi-ku**, October 1970 (WBSJ 1975); **Okutama-ko** lake, December 1969 (WBSJ 1975); **Tama-ko** lake, Higashiyamato-shi, eight males and eight

females, January 1996, male, December 1997 (WBSJ Okutama Chapter database); Shakujii park, **Nerima-ku**, male and female, January 1996 (WBSJ Okutama Chapter database); **Shinobazu pond**, Taito-ku, male, February–March 1996 (*Birder* 96/4); Imperial Palace, **Tokyo**, December 1961, February 1964 and November 1965 (WBSJ 1975); Inokashira Park, **Mitaka-shi**, February 1972 (WBSJ 1975), February 1996 (WBSJ Okutama Chapter database); Asakawa river, **Hino-shi**, 10 birds, January 1996 (WBSJ Okutama Chapter database); **Haneda**, 29 collected, November–February 1905–1921 (WBSJ 1975); **Tama-gawa** river, Inagi-shi, November 1967, November 1968, October 1969 and October 1970 (WBSJ 1975); ■ ***Kanagawa*** **Fujino-machi**, irregularly recorded in 1986–1991 (WBSJ Kanagawa Chapter 1992); **Kawasaki-shi**, irregularly recorded in 1986–1991 (WBSJ Kanagawa Chapter 1992); **Sagamihara reservoir**, 10 birds, January 1989 (Research Center, WBSJ 1989), regularly recorded (WBSJ Kanagawa Chapter 1992); **Tanzawa-ko** lake, rare winter visitor (unspecified years) (WBSJ Kanagawa Chapter 1995); **Yokohama**, undated (WBSJ Kanagawa Chapter 1992); **Yamakita-machi**, irregularly recorded in 1986–1991 (WBSJ Kanagawa Chapter 1992); **Fujisawa-shi**, irregularly recorded in 1986–1991 (WBSJ Kanagawa Chapter 1992); **Hiratsuka-shi**, irregularly recorded in 1986–1991 (WBSJ Kanagawa Chapter 1992); **Kamakura-shi**, irregularly recorded in 1986–1991 (WBSJ Kanagawa Chapter 1992); middle reaches of **Sagami-gawa** river, rare winter visitor (unspecified years) (WBSJ Kanagawa Chapter 1995); **Odawara-shi**, undated (WBSJ Kanagawa Chapter 1992); **Sakawa-gawa** river, rare winter visitor (unspecified years) (WBSJ Kanagawa Chapter 1995); **Hakone-machi**, irregularly recorded in 1986–1991 (WBSJ Kanagawa Chapter 1992); ■ ***Niigata*** **Shinano-gawa** river, March 1953 (male in FMNH), more than 500 regularly present in winter (Takano 1981); **Hyo-ko** lake, male, October 1984 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000), 33 birds, January 1989 (Research Center, WBSJ 1989); ■ ***Toyama*** (all records in this section from the WBSJ Toyama Chapter database); **Horioka**, Shinminato-shi, January 1993 and January 1995; **Shimminato-shi**, at Kaio-machi, December 1983, January 1986 and December 1987, at Kawaguchi, January 1988, January 1992 and February 1998, at Shichiminakano, February 1988, December 1990, November 1991 and January 1993; Amaharashi, **Takaoka-shi**, January 1992; **Jintsu-gawa river mouth**, Toyama-shi, January 1992 and January 1993; **Joganji-gawa river mouth**, Toyama-shi, November 1990; Mt Taiko-yama, **Imizu-gun**, January 1983 and January 1990; **Toyama-shi**, at Sannokuma, January 1992 and January 1993, at Toyama airport, February 1981; **Hosoiri-mura**, Nei-gun, November 1990, January 1993 and January 1998; ■ ***Ishikawa*** **Nanao-wan** (Nanaowannishi-wan), 11 birds, January 1989 (Research Center, WBSJ 1989); **Kahoku-gata**, Kahokugun and Kanazawa-shi, more than 500 regularly present in winter (Takano 1981), 24 birds, January 1989 (Research Center, WBSJ 1989), 400 birds, December 1997 (*Birder* 98/3), 40 birds, December 1998 (*Birder* 99/3); Katono-kamoike, **Kaga-shi**, c.3,000 during the 1970s (Brazil 1991), more than 500 regularly present in winter (Takano 1981), 121 birds, January 1989 (Research Center, WBSJ 1989), seven, October 1997 (*Birder* 98/1), 631 birds, January 1999 (Bulletin of Katano Kamoike 1999), c.1,000 birds, December 1999 (Ohata and Yamamoto 2000a); ■ ***Fukui*** Ootsutsumi, **Mikuni-cho**, Sakai-gun, 176 birds, January 1989 (Research Center, WBSJ 1989), 13 birds, November 1998 (*Birder* 99/2); **Asuwa-gawa** river, 20 birds, January 1989 (Research Center, WBSJ 1989); **Hino-gawa** river, Takefu-shi, two, February 1972, 10 birds, January 1978, one, January 1978 (Fukui Prefecture 1982); ■ ***Nagano*** **Kami-ikusaka** (Ikusaka dam), Higashichikuma-gun, regular winter visitor (unspecified years) (WBSJ Nagano Chapter 1985); **Karuizawa**, male, February 1990 (SC); **Shinano**, November 1919 (male in AMNH); ■ ***Gifu*** (unless stated otherwise, all records from WBSJ Gifu Chapter database): Sakai-gawa river, **Yanaizu-cho**, Hashima-gun, January 1997; Sendanbayashi, **Nakatsugawa-shi**, January 1996; **Gifu-shi**, male and female, December 1996, at Banke-ike pond, Yanagito, January 1998; Kiso-gawa river, **Unuma-cho**, Kakamigahara-shi, December 1994 and January 1996; Nagara-gawa river, downstream of Kagashima Bridge, **Gifu-shi**, two males, December 1996 (*Birder* 96/5); Kani-gawa river, **Kani-shi**, male, March–

April 1997; Goroku-gawa river, **Hozumi-cho**, Motosu-gun, male, March 1994; Shimoike, **Yoro-cho** (Yoro-gun), formerly an important wintering ground, where rafts of 10,000 or more were not uncommon (N. Kuroda 1937, Austin and Kuroda 1953); Nagara-gawa river, **Kaizu-cho**, December 1996; ■ ***Shizuoka*** **Fuji-gawa river mouth**, January 1985, January 1986 and January 1998 (WBSJ Minamifuji Chapter database); **Suruga**, undated (two specimens in AMNH and NHMW); Funaake dam (untraced), 14 birds, January 1989 (Research Center, WBSJ 1989); ■ ***Aichi*** Kiso-gawa river, **Inuyama-shi**, two males and a female, January 1996 (*Birder* 96/3), 20 males and 26 females, February 1996 (*Birder* 96/5); Aichi-ike pond, **Togo-cho**, c.2,000 birds, January 1975, 5,000 birds, February 1976 (Oyamada and Iwata 1980); **Kiso-gawa** river, near Nagoya, large concentrations, reported to be in the thousands, before the 1980s, now very uncommon and absent in some years (Brazil 1991); Unoike pond, **Mihama-cho**, Chita-gun, "low numbers", December 1973 to January 1974 (Oyamada and Iwata 1980); ■ ***Mie*** **Kiso-gawa river**, a flock wintering annually (Brazil 1987), possibly the same flock as at the Kiso-gawa river near Nagoya in Aichi prefecture (see above); ■ ***Kyoto*** **Kisen-yama dam**, 151 birds, January 1989 (Research Center, WBSJ 1989), the only regular wintering site in this prefecture (Government of Kyoto 1993); ■ ***Osaka*** **Yamada** pond, near Osaka, flocks numbering 100,000 observed, undated (Austin and Kuroda 1953); South Osaka Bird Park, **Suminodo-cho** (Suminoe-ku), one, October 1995 (*Birder* 95/12), one, November 1997 (*Birder* 98/1), female, December 1997 (*Birder* 98/3); Nintoku Tennoryo (untraced), 27 birds, January 1989 (Research Center, WBSJ 1989); ■ ***Hyogo*** **Kakogawa**, February 1953 (specimen in MCML); Tsuru-ike pond, **Ono-shi**, at least 100, January 1999, with many records in the Han-shin (Osaka-Kobe) area in winter 1998–1999 (*Birder* 99/3); Hanazono-ike pond, **Shinzaike**, Hiraoka-cho, Kakogawa-shi, one, January 1996 (K. Matsushige *in litt.* 1998); ■ ***Wakayama*** Sujin-tenno-ryo, **Tenri-shi**, 10 birds, February 1996 (*Birder* 96/4), at least 10, February 1997 (*Birder* 97/4); **Higashi-ike** pond, Wakayama-shi, male, January 1996 (WBSJ Wakayama Chapter database); ■ ***Tottori*** Ikedakichi, Kokufu-cho, **Iwami-gun**, December 1994 (Hosoya *in litt.* 1998); **Mizushiri-ike** (Mizushiri-no-ike) pond, Ketaka-cho, Ketaka-gun, January 1987 (Hosoya *in litt.* 1998); **Koyama-ike** pond, Tottori-shi, December 1997 (Hosoya *in litt.* 1998); Tanega-ike pond, **Tottori-shi**, January 1991 (Hosoya *in litt.* 1998); **Togo-ike** pond, Togo-cho, Tohaku-gun, January 1995 (WBSJ Tottori Chapter database); **Shikano-cho**, Ketaka-gun, February 1993 (Hosoya *in litt.* 1998); **Yonago Waterbird Park**, Yonago-shi, 30 birds at Hikona reclamation, January 1989 (Research Center, WBSJ 1989), at least seven males, January 1999 (*Birder* 99/3); **Daisen-ike** pond, Taikyuji, Sekigane-cho, Tohaku-gun, January 1994 (WBSJ Tottori Chapter database); ■ ***Shimane*** **Oki islands**, 1950 and 1963 (Uchida 1982); **Matsue-shi**, January 1970 (Uchida 1982); **Nakano-umi** lake, Yasugi-shi, one collected in 1939, recorded in January–February 1970 (Uchida 1982); **Hii-gawa** river, Hirata-shi, seven, November 1993 (*Birder* 94/2); **Yasugi-shi**, November 1930 (Uchida 1982); **Jinzai-ko** lake, Izumo-shi, 53 birds, January 1977 (Uchida 1982); **Iwami-cho**, Oochi-gun, 1923 (Uchida 1982); ■ ***Okayama*** **Kojima-ko** lake and Abe-ike pond, 25 birds, January 1989 (Research Center, WBSJ 1989); ■ ***Hiroshima*** **Gono-kawa** (Eno-kawa) river, Yoshida-cho, Takata-gun, two, January 1995, four males and seven females, February 1996, male, January 1998 (WBSJ Hiroshima Chapter database); Kamihara-cho, **Shobara-shi**, three males and two females, January 1993 (WBSJ Hiroshima Branch 1998); Miyoshifudokinooka, **Miyoshi-shi**, one, January 1983 (WBSJ Hiroshima Branch 1998); Higashi-yawatabara, **Geihoku-cho**, Yamagata-gun, one, November 1991 (WBSJ Hiroshima Chapter database); **Haji dam**, Yachiyo-cho, Takata-gun, 11 birds, January 1983 (WBSJ Hiroshima Branch 1998); **Fukuyama-shi**, 14 birds at Minoshima landfill, January 1991 (WBSJ Hiroshima Branch 1998), nine males and 10 females at Fujii-gawa river mouth, Takanishi, November 1991, and two males at Sawada-ike pond, Tsunogo-cho, January 1996 (WBSJ Hiroshima Chapter database); Minaga-suigenchi, **Higashihiroshima-shi**, four, January 1991 (WBSJ Hiroshima Chapter database); **Ashida-gawa** river, Fukuyama-shi, four, January 1991 (WBSJ Hiroshima Branch

1998); Nagakusata-ike pond, **Hongo-cho**, Fukuyama-shi, four, January 1991 (WBSJ Hiroshima Branch 1998), female, November 1996 (WBSJ Hiroshima Chapter database); Osawada-ike pond, Jike, **Saijo-cho**, Higashihiroshima-shi, two, January 1995 (*Birder* 95/4), two males and a female, February 1996 (*Birder* 96/4); **Hiroshima-shi**, eight at Takase-zeki, Asakita-ku, January 1984 (WBSJ Hiroshima Branch 1998), male at Yawatagawa-kako, November 1988 (WBSJ Hiroshima Branch 1998); Uokiri dam, **Itsukaichi-cho**, Saeki-ku, Hiroshima-shi, male, November 1992 (WBSJ Hiroshima Branch 1998); **Nuta-gawa** river, Nutahigashi-cho, Mihara-shi, seven, December 1993 (WBSJ Hiroshima Branch 1998), male and female, January 1996 (WBSJ Hiroshima Chapter database); Mitarai-gawa river mouth, **Hatsukaichi-cho** (Hatsukaichi-shi), 15 birds, December 1991 (WBSJ Hiroshima Chapter database); **Ota-gawa** river, Asaminami-ku, Hiroshima-shi, four, February 1982 (WBSJ Hiroshima Branch 1998); ■ ***Yamaguchi*** **Ajisu reclamation**, Ajisu-cho, Yoshiki-gun, 24 birds, December 1997 (*Birder* 98/3); Ono-ko lake (untraced), four, January 1999 (*Birder* 99/3); Oohara-ko lake (untraced), 10 birds, January 1989 (Research Center, WBSJ 1989);

Hachijo-jima island, Izu islands, 1922 (WBSJ 1975);

Ogasawara islands unspecified island, undated (Kuroda 1939); **Chichi-jima**, undated (Brazil 1991);

Shikoku ■ ***Tokushima*** **Takahara** (Nakasu), Ishii-cho, Myozai-gun, December 1989 (WBSJ Tokushima Chapter database); ■ ***Ehime*** **Seki-gawa river mouth** (Seki-kawa river mouth), Doi-cho, Uma-gun, one, November 1996 (WBSJ Ehime Chapter database); **Kamo-gawa river mouth**, Saijo-shi, three, November 1994, nine, December 1995, 21 birds, January 1997, six, December 1997 (WBSJ Ehime Chapter database); Kurose dam, Ofuki, **Saijo-shi**, 30 birds, January 1989 (Research Center, WBSJ 1989), 17 birds, January 1996 (*Birder* 96/3); **Matsuyama-shi**, at Ooike pond, Takanoko-machi, one in November 1995 and three in January 1997, up to two at Nishi-ooike pond, Nishino-machi, January 1996 (WBSJ Ehime Chapter database); **Ishite-gawa dam**, Shukuno-machi, Matsuyama-shi, four males and a female, January 1996 (*Birder* 96/3); **Shigenobu-gawa river mouth**, Masaki-cho, Iyo-gun, and Matsuyama-shi, one, December 1996, four, December 1997, five, January 1998 (WBSJ Ehime Chapter database); Otani-ike pond, Kamimitani, **Iyo-shi**, 10 birds, January 1989 (Research Center, WBSJ 1989), 22 birds, January 1995 (*Birder* 95/3); Kanogawa dam, **Hijikawa-cho**, Kitagun and Nomura-cho, Higashiuwa-gun, annual winter visitor, with maxima of 16 in February 1994, eight in January 1995, 30 in February 1996, two in April 1997, 21 in January 1998 (WBSJ Ehime Chapter database), 21 birds, January 1999 (*Birder* 99/3); Chikaie (untraced), Tsushima-cho, Kitauwa-gun, five, October 1996 (WBSJ Ehime Chapter database); Nihama (untraced), flocks of 20–80, undated (Ishihara 1982); ■ ***Kochi*** **Komatsu pond**, rare winter visitor, usually in December and January (unspecified years) (Kuroiwa 1999); **Kagami dam**, 13 birds, January 1989 (Research Center, WBSJ 1989); **Monobe-gawa** river, very rare winter visitor, only recorded in January (unspecified years) (Kuroiwa 1999);

Kyushu ■ ***Fukuoka*** Tonda reservoir, **Wakamatsu-ku**, Kitakyushu-shi, seven, January 1989, four, January 1990, 11 birds, January 1995, up to 24 birds, December 1995, two, January 1996, two, December 1996, 62 birds, December 1997 (WBSJ Kitakyushu Chapter database); Rikimaru-machi, Yawatanishi-ku, **Kitakyushu-shi**, one, January 1998 (WBSJ Kitakyushu Chapter database); **Okagaki-machi**, Onga-gun, January 1997, one, January 1997 (WBSJ Kitakyushu Chapter database); **Imazu tidal flat** (Zuibaiji-gawa river), western Hakata bay, Fukuoka-shi, a rarity (Brazil 1987), four, December 1998 (*Birder* 99/2) and regular in small numbers in the 1990s, with a peak of 21 in 1997 (N. Moores *in litt*. 2001); **Magaribuchi dam** (Magabuchi dam), 11 birds, January 1989 (Research Center, WBSJ 1989); Terauchi dam (untraced), 14 birds, January 1989 (Research Center, WBSJ 1989); ■ ***Saga*** **Matsuura-gawa river mouth**, Karatsu-shi, two males, December 1994 (*Birder* 95/3); **Ariake tidal flat**, Shiroishi-cho, Kishima-gun, November 1995 (Wild Bird Society of Saga 1997), three males and two females, November 1997 (*Birder* 98/1); Kitayama dam (untraced), January 1996 (Wild

Bird Society of Saga 1997); ■ *Nagasaki* **Tsushima** island, March 1891 (specimen in YIO); ■ *Kumamoto* Tenkun dam (untraced; mapped as Kumamoto prefecture), 166 birds, January 1989 (Research Center, WBSJ 1989); ■ *Oita* **Yakkan-gawa** river, Usa-shi, three males, December 1995 (*Birder* 96/2), 29 birds, December 1996 (K. Hatano in WBSJ 1998); Matsuoka, **Oita-shi**, one at the first dyke at Sasao, November 1998 (*Birder* 99/1), 22 birds at Gumigaya dyke, January 1999 (*Birder* 99/3); **Katada-gawa** river, Saeki-shi, two males, December 1993 (*Birder* 94/3), male, December 1994 (*Birder* 95/3); ■ *Miyazaki* **Omaru-gawa** river, Takanabe-cho, Koyu-gun, five males and six females, January 1996 (*Birder* 96/3); **Hitotsuse-gawa** river, Tonda, Shintomi-cho, Koyu-gun, male, November 1994 (*Birder* 95/1); Kotano-ooike pond, **Sadowara-cho**, Miyazaki-gun, male, December 1994 (*Birder* 95/3), two, January 1996 (*Birder* 96/4); ■ *Kagoshima* **Izumi** (Arasaki), Izumi, at least six, January 1998 (*Birder* 98/4), at least seven, January 1999 (*Birder* 99/3); Garappa Park (untraced), Hishikari-cho, Isa-gun, female, January 1996 (*Birder* 96/3);

Tanega-shima island, undated (OSJ 2000);

Okinawa island, at Kin, male in November 1981 and two females in September–October 1983, and at Manko, female in October 1983 (McWhirter *et al.* 1996);

Miyako-jima island, October–November (unspecified years) (Ishihara 1983, Brazil 1991).

■ ***KOREA*** ■ *NORTH KOREA* The Baikal Teal has been recorded mainly as a spring and autumn passage migrant, with few winter records and no large concentrations (Tomek 1999). Records (by province) are as follows: ■ *North Hamgyong* unspecified locality, November 1929 (Austin 1948, Won 1963); ■ *Ryanggang* **Samjiyon**, undated (Tomek 1999); ■ *North Pyongan* **Yongampo** (Ryongampho, Ringunpo), three collected, April 1929 (three specimens in YIO); ■ *South Pyongan* **Anju**, specimens collected, March 1932, March 1939 (Won 1963); **Chungsan** (Chungsan-gun), one collected, March 1955 (Won 1963); ■ *Pyongyang* **Pyongyang** (Ping-yang), c.1891 and March 1904 (three specimens in BMNH); ■ *Kangwon* **Wonsan**, pair seen, December 1988 (Fiebig 1993); unspecified locality, September 1914 (Austin 1948, Won 1963); ■ *Hwanghae* unspecified locality, March (unspecified year) (Austin 1948, Won 1963); ■ *Kaesong* **Kaesong**, March 1957, March 1958 (Won 1963, Tomek 1999); **Kaep'ung**, March 1929 (Won 1963, Tomek 1999).

■ *SOUTH KOREA* In the early twentieth century, the Baikal Teal was considered a common passage migrant in Korea, sometimes occurring in immense flocks (Austin 1948). In recent years the largest known wintering populations of this species have been found in South Korea, particularly in the western and southern provinces. Records (by province) are as follows: ■ *Kyonggi and Seoul* **Imjin river** and the **Han estuary**, seen annually in March–April and September–October, peak of migration in mid-March, including one flock more than 4 km long (Kuroda and Miyakoda 1919), six seen, February 1996 (Pae *et al.* 1995); Songdo, **Inchon**, April 1932 and March 1934 (two specimens in FMNH); **Suwon**, large numbers seen on migration, February–March 1946 (Austin 1948, female in MCZ); **Shihwa reclamation lake**, 150, February 1999 (MOE Korea 1999); unspecified localities, several collected in March, September and October between 1912 and 1927 (Austin 1948, Won 1963); ■ *South Chungchong* **Asan bay** (Asan and Sapkyo lakes), 30,000–35,000 birds, December 1992 to February 1993, roosting on the lake and flying out to feed in the ricefields around Asan bay (Won 1993a; also Moores 1999), maximum winter count of 35,000, 1993–1996 (Miyabayashi and Mundkur 1999), 17,400, February 1999 (MOE Korea 1999); **Daeho reservoir**, 9,000 wintering, 1995–1996 (Miyabayashi and Mundkur 1999), maximum count of c.25,000, February–March 1997, not recorded between October 1996 and January 1997 or in April 1997 (Park and Yoo 1997), 480, February 1999 (MOE Korea 1999); **Cheonsu bay** (Cheonsu lake, Seosan reclaimed area or Kanwol lake), more than 35,000, December 1993 (Cho 1994), 30,000 wintering, 1995–1996 (Miyabayashi and Mundkur 1999), more than 50,000 present regularly in the mid-1990s with a peak of over 100,000 (N. Moores *in litt*. 2001), but only five, February 1999 (MOE Korea

1999); **Nonsan reservoir**, 35,000–60,000, January "every year" (Lee Woo-shin *in litt.* 1998), 60,000 wintering, 1995–1996 (Miyabayashi and Mundkur 1999); ■ ***North Kyongsang*** coast between **Pohang** and Uljin, 28, February 1999 (MOE Korea 1999); ■ ***South Kyongsang*** **Upo reservoir**, c.5 seen annually (Lee Woo-shin *in litt.* 1998); **Chunam reservoir** (Junam), high numbers in all years in 1988–1992, maximum of 42,000 in December 1990 (Yu and Hahm 1994), up to 21,500, December 1991 to February 1992 (Forestry Research Institute, Korea 1992), although 25,000 wintering at Chunam, Tongpan and Sannam, 1995–1996 (Miyabayashi and Mundkur 1999), 1,200 at Chunam, January 1999 (Moores and Kim Kyoung-won 2000), 505, February 1999 (MOE Korea 1999); **Tongpan reservoir**, 4,000+, January 1999 (Sutherland and Son a Kim 1999); **Nakdong estuary**, October–November 1953 (two specimens in FMNH), recorded at west Nakdong river, near the Nakdong estuary, in three winters between February 1988 and December 1996, totals of 771 in 1991, 194 in 1992 and 133 in 1995 (Hahm and Kang 1997), four seen at Taema-dung, 1992–1993 (Kim and Won 1997), 1,000, January 2001 (N. Moores *in litt*. 2001); unspecified localities, collected in January 1886, December 1922, January 1928 (Austin 1948, Won 1963); ■ ***North Cholla*** **Kum river**, 45,000 wintering in 1995–1996, 35,000 wintering on the upper Kum river estuary (unspecified years) (Miyabayashi and Mundkur 1999), 50,000, 1996–1997 (Lee Woo-shin *in litt.* 1998), 14,000+ on the Kum river near Napo, January 1999 (Sutherland and Son a Kim 1999), 11,940 on the lower Kum river, February 1999 (MOE Korea 1999); **Tongjin estuary** and Mangyong estuary, Saemankeum area, 3,500 wintering, 1994–1996 (Miyabayashi and Mundkur 1999), only recorded once during twice-weekly surveys in winter 1996–1997, when 35 in December (Kim and Yoo 1997); ■ ***South Cholla*** **Yongsan river**, 3,000, March 1997 (Lee Woo-shin *in litt.* 1998); **Yongam lake**, Dangdu-ri, c.100,000, November 1999 (N. Moores *in litt.* 1999); **Kumho-ri** lakes (Kumho lakes), Haenam, 98,000 feeding at this locality at night, 1990s (Moores 1999); Kocheonam lake, **Haenam**, 168,000, January 1999, similar numbers having wintered for at least three years (Moores 1999), 200,000, February 1999 (MOE Korea 1999) and at least 185,000, January 2001 (N. Moores *in litt*. 2001); ■ ***Cheju*** **Yongsu-ri reservoir**, one seen, December 1996 (Park and Kim 1997).

■ ***CHINA*** ■ *MAINLAND CHINA* It is a passage migrant in northern China and a winter visitor to the south, and has been recorded in most provinces in eastern China. In the early twentieth century, it was locally abundant in the Yangtze basin (see, e.g., Guan Guanxun *et al*. 1963) and Fujian (see Cheng Tso-hsin 1941) and presumably elsewhere, but in the past two decades there have been no reports of very large concentrations. However, it was not rare in some of the markets in southern China in the early 1990s, indicating that there may still be some large populations unlocated by conservationists (SC). Records (by province) are as follows:

■ ***Heilongjiang*** middle to lower reaches of the **Wuyur He** river, undated (Wildlife Institute of Heilongjiang Province 1992); **Dailing**, undated (Wildlife Institute of Heilongjiang Province 1992); **Zhalong National Nature Reserve**, Qiqihar city, collected at Qiqihar (Tsitsihar) Station, June 1938 (male in FMNH), passage migrant in April–May and September–October (unspecified years) (Gao Zhongxin 1990), common passage migrant and winter visitor (unspecified years) (Scott 1989); **Lianhuan Hu** Game Park, Dorbod Mongol autonomous county, "rare" but still being hunted as a game bird in this area, undated (Gao Jihong *et al*. 1995); **Harbin**, including on the Sungari river, several collected, April 1922 and April 1924 (Mizuno 1934), 13 collected, January, April and October 1927–1929 (Meise 1934), April–May 1936, April 1938, September 1939 (five specimens in FMNH), April 1963 (specimen in NEFUCN); **Mao'ershan**, undated (Wildlife Institute of Heilongjiang Province 1992); Sanjiang Plain, "rare" in **Mudanjiang** district, undated (Ma Yiqing *et al.* 1991);

■ ***Jilin*** **Baicheng prefecture**, undated (Jilin Wildlife Conservation Society 1987); **Xianghai National Nature Reserve**, Tongyu county, "uncommon" passage migrant, 1988–1989 (Gao Jihong *et al*. 1992a); **Changchun prefecture**, undated (Jilin Wildlife Conservation Society 1987);

Jilin prefecture, undated (Jilin Wildlife Conservation Society 1987); **Siping prefecture**, undated (Jilin Wildlife Conservation Society 1987); **Liaoyuan prefecture**, undated (Jilin Wildlife Conservation Society 1987); Changbai Shan mountains, "rare" passage migrant, found mainly at **Hunchun** and **Erdao** in Yanbian prefecture, undated (Fu Tongsheng *et al*. 1984);

■ *Liaoning* **Chaoyang**, female collected at Song Chou Tchoei Ze, southern Chaoyang county, April 1924 (Seys and Licent 1933), March, April and September (unspecified years) (Huang Mupeng *et al*. 1989); Liu'erbao, **Liaozhong county**, April (unspecified year) (Huang Mupeng *et al*. 1989); **Lianshanguan**, Benxi, collected, November 1930 (Mizuno 1934; also Huang Mupeng *et al*. 1989); near **Niuzhuang** (Niutschwang), two collected, February and March (unspecified years) (Bianchi 1902 in Meise 1934); **Yingkou**, several collected, March 1927 and April 1928 (Mizuno 1934; also Huang Mupeng *et al*. 1989); **Dandong** (Andong), several collected, March 1929 (Mizuno 1934; also Huang Mupeng *et al*. 1989); **Yalu Jiang** river, collected, March 1931 (Mizuno 1934);

■ *Inner Mongolia* lakes near **Yakeshi** (Yakchih), May (unspecified year) (Piechocki 1958); **Hulun Buir League**, July–September 1963 (seven specimens in ASCN); **Da Hinggan Ling** mountains, undated (Wildlife Institute of Heilongjiang Province 1992); **Bugt** (Buchedu), male collected, September 1927–1929 (Meise 1934); **Dalai Hu National Nature Reserve** (Hulun Nur Nature Reserve), 100–200 birds occur annually in April–June (Wuliji and Liu Songtao *in litt*. 1998); **Dalai Nur Nature Reserve**, Chifeng city, a passage migrant, several dozen, May 1995 (Arongqiqige *in litt.* 1998);

■ *Sichuan* **Bazhong** (Bazhou, Pa-chow), December 1887 (three specimens in BMNH); suburb of **Chengdu city**, undated (Li Guiyuan 1995);

■ *Yunnan* very rare on lakes on the Yunnan plateau (at 1,800–2,000 m) (Yang Lan *et al*. 1995); **Dian Chi** lake, undated (Wang Zijiang *et al*. 1984); **Mengzi** (Mengtsz), winter c.1920 (La Touche 1923–1924; also Rothschild 1926);

■ *Guizhou* **Weining county**, winter (unspecified years) (Zhu Jingyi *et al*. 1998);

■ *Hebei* **Xuanhua county** (Suen-hoa-fu), March 1866 (female in MNHN); **Qinhuangdao** (Chinwangtao), "extremely abundant" in April and September–October, 1910–1917 (La Touche 1920–1921); **Beidaihe**, large flocks seen, March 1940 (Wilder 1940b), one collected, September 1942, seen on six dates in dense flocks of several hundreds, once probably 1,000–2,000, March–April 1944, one, May 1945 (Hemmingsen and Guildal 1968), five seen, March 1985 (Williams 1986), small numbers seen, August–September 1986–1990 (Williams *et al.* 1992; also Tao Yu *et al*. 1991), male, March 1994 (J. Thalund *in litt.* 1999), female, September 1994 (Dierschke and Heintzenberg 1994), three, October 1999 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000); near **Yi Xian county** (Yi Chou), November 1908 (three specimens in YIO); **Xin'an**, February, April, November and December 1933, December 1934, March and October 1935, September 1936 and September 1938 (26 specimens in ASCN); **Baoding** (Paotingfu), 18 collected, several thousand seen, March 1920 (Gee *et al.* 1924, Wilder and Hubbard 1924); **Xian Xian county**, Caozhou city (Sien Hien), Hebei plain (Chihli, Tcheu Ly), two males collected, February 1915 and April 1929, reported on migration in February–May and September in "huge numbers" (Seys and Licent 1933); Longping (untraced), February 1936 (specimen in ASCN); "Yan Ts'ounn" (untraced), "passage to Tianjin and Beijing", male collected, March 1916 (Seys and Licent 1933);

■ *Tianjin* **Dongqilihai** (Doqilihai) reservoir, 30 birds, January 1991 (Waterbird Specialist Group 1994); near **Tianjin**, collected in 1891 (Hartlaub 1893), October 1900 (two specimens in BNHS), February 1902 (male in BMNH), November 1933, April 1935 and November 1963 (three specimens in ASCN), February c.1942 (Hemmingsen and Guildal 1968); **Tuanpo** (Tuanbowa), 30 birds, January 1990 (Waterbird Specialist Group 1994), 1998 (Zhang Shuping *et al.* 1999); **Beidagang** reservoir, 165 birds, January 1991 (Waterbird Specialist Group 1994), 1998 (Zhang Shuping *et al.* 1999); Erwangzhuang reservoir (not mapped), 1998 (Zhang Shuping *et al.* 1999); Dongli lake (not mapped), 1998 (Zhang Shuping *et al.* 1999);

■ ***Beijing*** near the **Summer Palace**, March 1932, March–April 1941 (five specimens in BMNH); **Tong Xian county** (Tunghsien), March–April 1932 (two specimens in FMNH); **Beijing**, March 1901 (two specimens in BNHS and YPM), March 1919 (three specimens in AMNH), March, April and August 1932, November 1964 (16 specimens in ASCN), Zhonghai lake (Chung-hai lake, inside the Forbidden City), April 1942 (Hemmingsen and Guildal 1968), occurring on passage "in clouds", undated (see Population) (Gee *et al.* 1924);

■ ***Shandong*** **Yellow River Delta Nature Reserve**, passage migrant, undated (Zhao Yanmao and Song Chaoshu 1995); **Weihai** (Wei-hai-wei), several collected, November 1929 (Ascherson 1932; also Herklots 1935); **Weifang** (Weihsien), September 1925 (male in FMNH); **Qingdao** coastal wetlands, uncommon, October–February (unspecified years) (Liu Daiji *et al*. 1994), 20 birds, January 1990, 500 birds, January 1991 (Waterbird Specialist Group 1994); **Rizhao** coast, 27 birds, December 1991 (Waterbird Specialist Group 1994); **Weishan Hu** lake, October 1954 (specimen in ASCN), reported to be one of the seven commonest waterfowl species in this area, 1988–1991 (Feng Zhilu *et al*. 1996), but this is untrue and probably a printing mistake (Wang Qishan *in litt.* 1999);

■ ***Hubei*** **Yichang** (Ichang), November 1907 (Thayer and Bangs 1912, female in MCZ); **Hankou** (Hankow, Hangkow), 1881 (Slater 1882, male in AMNH), where it was reported that "great flights come in to the marsh", January 1912 (two specimens in BMNH); **Hong Hu** lake, a winter visitor, large numbers shot at Sidong Hekou and Donggangzi (which are only part of Hong Hu, so the total shot there could be higher) from 1981 to 1987, including 1,952 in 1981, 5,139 in 1982, 178 in 1983, 1,343 in 1984, 1,456 in 1985, 126 in 1986 and 481 in 1987 (Li Chengling and Jiang Yongsheng 1990);

■ ***Anhui*** **Chao Hu** (Cao Hu) lake, 20 km east of Hefei, winter visitor (unspecified years) (Scott 1989); **Shijiu Hu** lake, 25 birds, January 1990, seven, January 1991, 24 birds, February 1992 (Waterbird Specialist Group 1994); **Yangzi'e National Nature Reserve** (Chinese Alligator Nature Reserve), Xuancheng prefecture, "common", undated (Chen Bihui 1984); **Shengjin Hu Nature Reserve**, largely in Dongzhi county, 10 km south of Anqing, winter visitor (unspecified years) (Scott 1989); **Guniujiang National Nature Reserve**, Qimen and Shitai counties, winter visitor, collected, undated (Li Binghua and Chen Bihui 1990);

■ ***Jiangsu*** **Sheyang Salt Works**, Yancheng Nature Reserve, 70 birds, January 1990 (Waterbird Specialist Group 1994), 100 birds, September 1989 to February 1990 (Wang Hui and Du Jinjin 1993); Yancheng coast, in and near to **Yancheng Nature Reserve**, 550 birds, January 1990 (Waterbird Specialist Group 1994), with 256 birds on the Jiangsu coast, January 1991 (Waterbird Specialist Group 1994); **Haifeng farm** coast, in Yancheng Nature Reserve, 16 birds, January 1990 (Waterbird Specialist Group 1994); Dongtai Dunmenkou, **Dongtai city**, in or near to Yancheng Nature Reserve, 119 birds, November 1991 (Waterbird Specialist Group 1994); **Gaoyou Hu** and Gaobao Hu lakes, 3,500 birds, January 1990 (Waterbird Specialist Group 1994), with 1,000 birds on Gaoyou Hu, January 1991 (Waterbird Specialist Group 1994); Dongtai **Liulishe**, in or near to Yancheng Nature Reserve, 21 birds, November 1991 (Waterbird Specialist Group 1994); **Shaobo Hu** lake, 600 birds, January 1991 (Waterbird Specialist Group 1994); **Zhenjiang** (Chinkiang), "very common" in flooded fields, winter 1901–1902 (La Touche 1906–1907, male in MCZ); **Pukou** (Pookow), on the Yangtze river opposite to Nanjing, several flocks of c.100 birds and a flock of c.60 in flooded fields, March c.1921 (Kolthoff 1932); **Nanjing** (Nanking), including at Hon Hu, November 1901, January 1902, February 1908, February 1926 (five specimens in BMNH, FMNH and MCZ), flock of c.60 in flooded fields, March 1922 (Kolthoff 1932); **Jiangyin** (Kiangyin), lower Yangtze river, winter (unspecified years) (Moffett and Gee 1913);

■ ***Shanghai*** east coast of **Chongming Dao** island, 200 birds, January 1991 (Waterbird Specialist Group 1994); **Shanghai**, in Wusong (Wu-sung) district, winter 1860, March 1873, March 1895, February 1886 (Sowerby 1943, seven specimens in AMNH and BMNH); **Wusi** farm, 40 birds, January 1990 (Waterbird Specialist Group 1994);

■ ***Zhejiang*** **Jiaxing**, collected, undated (Zhuge Yang 1990); **Hangzhou**, collected, undated (Zhuge Yang 1990); **Xiaoshan county**, collected, undated (Zhuge Yang 1990); **Lanxi** (Lanchi), December 1927, January 1928, June 1932 (eight specimens in FMNH); **Ouhai county**, collected, undated (Zhuge Yang 1990); **Wenzhou city**, collected, undated (Zhuge Yang 1990); **Pingyang county**, collected, undated (Zhuge Yang 1990); **Ao Jiang estuary** (Aopeng Jiang estuary), 25 birds, January 1991 (Waterbird Specialist Group 1994);

■ ***Fujian*** (note that Jinmen Dao island is under the administration of Taipei) **Wuyi Shan Nature Reserve**, undated (Wu Haohan and Cai Guangxian 1994); **Shaowu**, large flock seen (see Population), January 1941 (Cheng Tso-hsin 1941), flocks of several thousand, January–February (unspecified years) (Cheng Tso-hsin 1948); **Fuzhou** (Foochow), December 1890, December 1892, December 1895, January 1896 (six specimens in BMNH and MCZ), February 1957 and December 1982 (two specimens in NEFUCN), "abundant", winter c.1890 (La Touche 1892); **Jinmen Dao** (Chin-men Tao, Kinmen, Quemoy) island, single birds at Cihu (Tzu Hu) in 1995 and 1997, and one at Xihu (Hsi Hu), Xiaojinmen (Hsiao Kinmen) in 1997 (CWBF database); **Xiamen** (Amoy), four collected "up the river", December (unspecified year) (Swinhoe 1867), January 1867 and February 1893 (three specimens in BMNH and MCZ);

■ ***Jiangxi*** **Poyang Hu** lake, including Poyang Hu Nature Reserve, January 1930 (four specimens in ASCN), "very numerous", comprising c.25% of the wintering duck population, 1950s to early 1960s (Guan Guanxun *et al.* 1963), male at Bang Hu, December 1985, three at Chang Hu Chi and a pair on a small pond near Zhushi Hu, January 1986 (Kennerley 1987), but none seen during a five-day visit in December 1997 (Yu Yat-tung *in litt.* 1998); **Guan Shan Nature Reserve**, specimen in the reserve headquarters at Yifeng (presumably taken in the reserve), undated (Stevens *et al.* 1993);

■ ***Hunan*** **Dong Dongting Hu Nature Reserve**, collected at Dongting Hu lake, January 1960 (three specimens in ASCN), "very numerous" at Dongting Hu lake from the 1950s to the early 1960s, comprising c.25% of the wintering duck population (Guan Guanxun *et al.* 1963), recorded at wetlands near Yuanjiang, Changde and Yueyang cities, winter 1991–1992 (Liu Qide *et al.* 1995), 24 birds, January 1990 (Waterbird Specialist Group 1994), 6,734 birds reported in winter 1990–1991 (Miyabayashi and Mundkur 1999), but this figure questioned by experienced ornithologists from the nature reserve since this species has rarely been reported since 1988 with none recorded in 1992–1996 (Lei Gang and Qian Weirong 1998); **Wanzi Hu** lake, one, January 1991 (Waterbird Specialist Group 1994); Niaozhou, three islands in the **Lei Shui** (Laishui) river, Hengnan county, only one seen (in November–March) during waterfowl surveys in 1983–1988 (Zhong Fusheng and Chen Dongping 1989);

■ ***Guangxi*** northern **Beibu bay** (Gulf of Tonkin), winter visitor (6–20 records, unspecified years) (Zhou Fang *et al.* 1999);

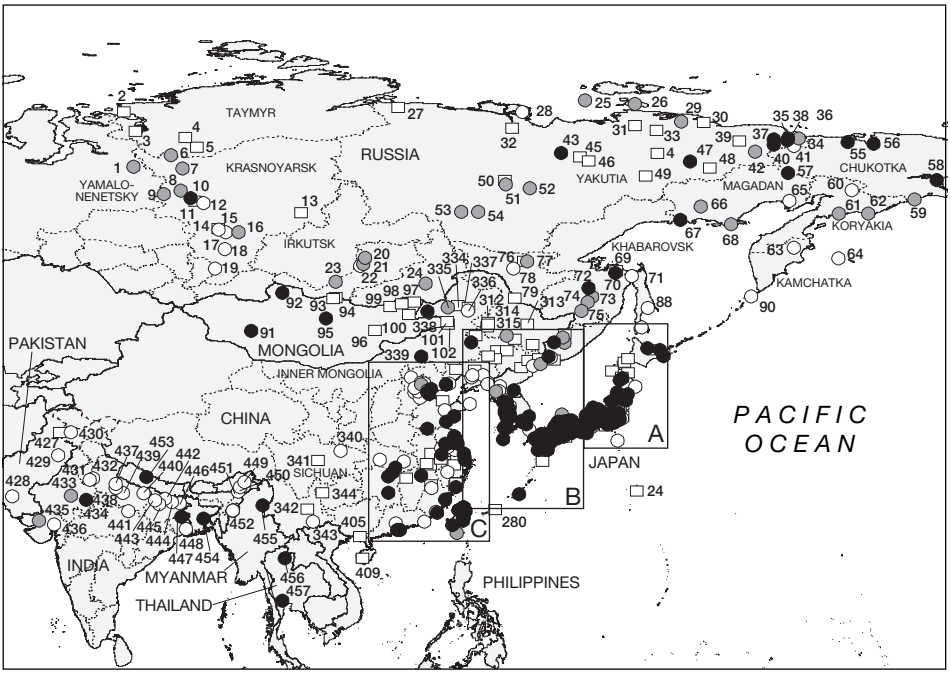
■ ***Guangdong*** **Shantou** (Swatow), winter c.1890 (La Touche 1892); near **Guangzhou** (Kanton), female, May 1915 or 1921 (Mell 1922); **Futian Nature Reserve**, two, December 1992 (Waterbird Specialist Group 1994); Yuanhe Guoyuan (untraced), January 1961 (male in SCICN);

■ ***Hainan*** unspecified localities, undated (Cheng Tso-hsin 1963, GIEBDSYU 1983), but no records since the 1930s (Zou Fasheng *et al.* 2000).

■ ***HONG KONG*** It is a very rare winter visitor, and is almost confined to the Inner Deep Bay marshes. Records are as follows: Inner **Deep Bay** marshes, including Mai Po, San Tin and Tsim Bei Tsui, recorded almost annually in recent years, usually single birds in December–April, but up to five in early 1986 (HKBWS database); **Kam Tin**, female, November 1995 (HKBWS database); Kowloon Park (not mapped), up to three, December 1992 to March 1993, but probably escapes from the bird market (HKBWS database).

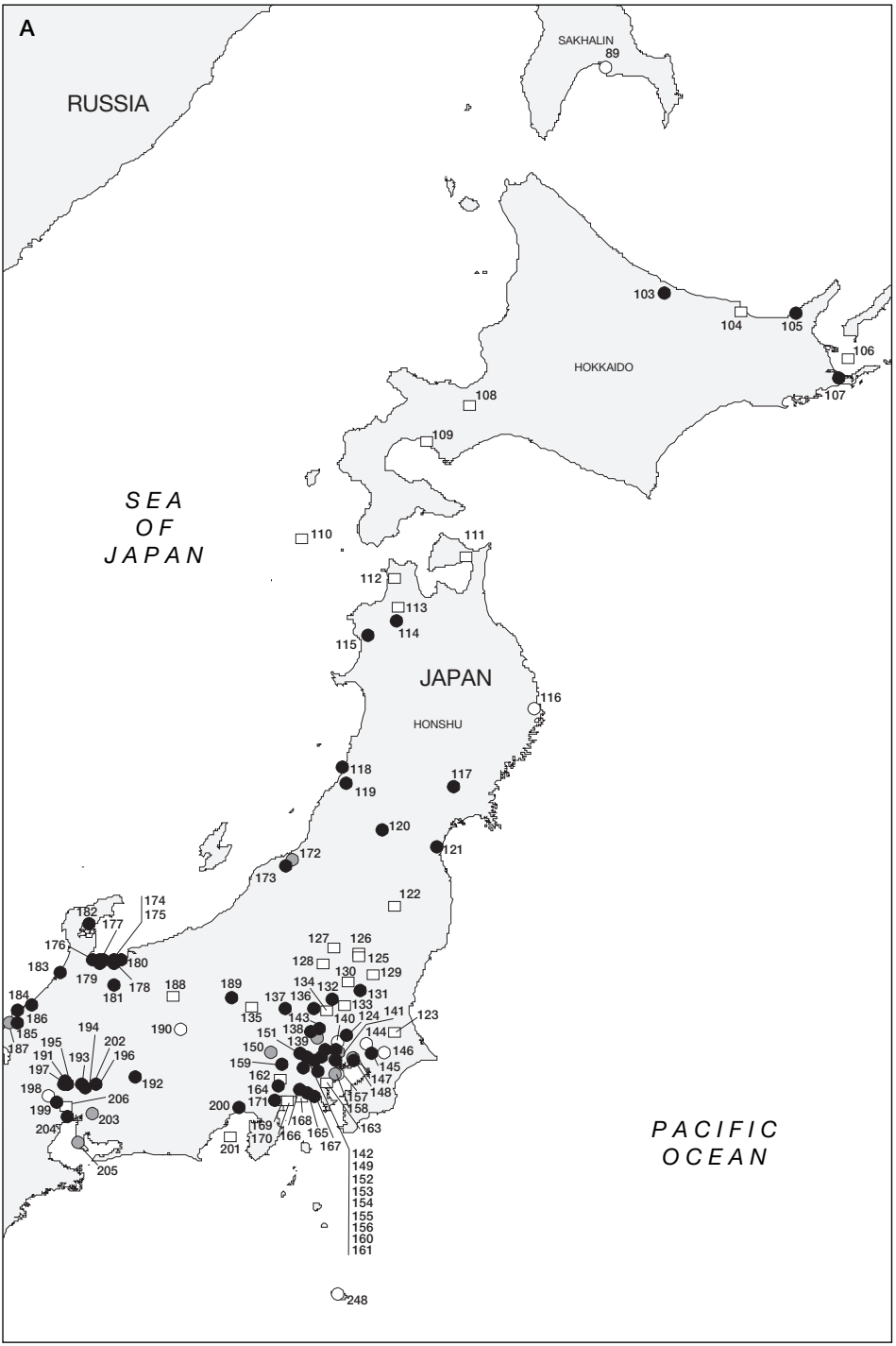
■ ***TAIWAN*** It is a rare winter visitor to most coastal areas of Taiwan, with records (unless otherwise stated, from CWBF database) as follows (for records on Jinmen Dao island see under Fujian province above): **Kelung river** (Keelung river), Taipei, one, March 1996; **Kuantu**, Taipei, single birds recorded 1995–1998, including one in January 1996 (Fang Woei-horng

The distribution of Baikal Teal *Anas formosa*: (1) Taz river; (2) Omulevaya river; (3) Pelyatka river; (4) Rybnaya river; (5) Maloye Khantayskoye lake; (6) Igarka; (7) Turukhansk; (8) Yeloguy river; (9) Dynda lake; (10) Mirnoye; (11) Komsa; (12) Podkamennaya Tunguska river; (13) Chamba river; (14) Kem' river; (15) Yeniseysk; (16) Motygino; (17) Angara river; (18) Krasnoyarsk; (19) Minusinsk; (20) Tompa river; (21) Davsha; (22) Baikal lake; (23) Selenga delta; (24) Chita; (25) Stolbovoy island; (26) Bol'shoy Lyakhovskiy island; (27) Anabar river; (28) Lena delta; (29) Khroma-Indigirka tundra; (30) Indigirka delta; (31) Yana-Indigirka tundra; (32) Kyusyur; (33) Berelekh river; (34) Kolyma; (35) Chukoch'ye; (36) Mikhalkino; (37) Malaya Kon'kovaya river; (38) Nerpich'ye lake; (39) Alazeya valley; (40) lower Omolon river; (41) Nizhnekolymsk; (42) Suruktakh; (43) Dulgalakh river; (44) Krest-Mayor; (45) Borulakh river; (46) Nel'gese river; (47) Ozhogina river; (48) Zyryanka; (49) Uol'chan river; (50) Vilyuy river; (51) Lungkha river; (52) Aldan river mouth; (53) Namana river; (54) Markha river; (55) Rauchua river; (56) Chaun-Palyavaam delta; (57) Omolon river; (58) Anadyr bay; (59) Khatyrka lagoon; (60) Slautnoye river mouth; (61) Kultushnaya river mouth; (62) Apuka river; (63) Klyuchi; (64) Beringa island; (65) Gizhiga; (66) Detrin river; (67) Kava river; (68) Sredniy lagoon; (69) Orel' lake; (70) Orlik lake; (71) Amur estuary; (72) Evoron lake; (73) Malaya Khurba river; (74) Bolon' lake; (75) Malyshevo; (76) Bomnak; (77) lower Tok river; (78) Pikan; (79) Zeya-Bureya plain; (80) Iman river; (81) Ussuri river valley; (82) Khanka lake; (83) Arsen'evka river; (84) Suyfun river mouth; (85) Vladivostok; (86) Askol'd island; (87) Tumen river mouth; (88) Terpeniya bay; (89) Solov'yevka (Sorouiyouka); (90) Paramushir island; (91) Altay; (92) Horedal Saradag mountain range; (93) Orkhon river; (94) Selenge river; (95) Lun; (96) Buyantu; (97) Mongol Daguur Strictly Protected Area; (98) Uldz river; (99) Onon river; (100) Khalkhgol; (101) Nomrog river; (102) Numrug Strictly Protected Area; (103) Komuke-ko; (104) Abashiri; (105) Shari; (106) Nemuro; (107) Shunkunitai; (108) Ishikari; (109) Iburi; (110) Oshima; (111) Mutsu-shi; (112) Shiuramura; (113) Tsuruta-machi; (114) Hirosaki-shi; (115) Nishitsugaru-gun; (116) Tsugaruishi-gawa river mouth; (117) Izu-numa; (118) Sakata; (119) Tsuruoka; (120) Yamagata-shi; (121) Abukuma-gawa; (122) Kooriyama-shi; (123) Kasumiga-ura; (124) Sugao-numa; (125) Shioya-gun; (126) Nishinasuno-machi; (127) Ootawara-shi; (128) Nikko; (129) Karasuyama-machi; (130) Utsunomiya-shi; (131) Mooka-shi; (132) Shimotsuga-gun; (133) Oyama-shi; (134) Fujioka-machi; (135) Myogi; (136) Tatara-numa; (137) Honjo-shi; (138) Kitamoto; (139) Hirakata; (140) Koshigaya; (141) Soka-shi; (142) Toda-shi; (143) Kuki; (144) Tega-numa; (145) Inba-numa; (146) Shimosa; (147) Gyotoku; (148) Yatsu tidal flat; (149) Adachi-ku; (150) Okutama-ko; (151) Tama-ko; (152) Nerima-ku; (153) Shinobazu pond; (154) Tokyo; (155) Mitaka-shi; (156) Hino-shi; (157) Haneda; (158) Tama-gawa; (159) Fujino-machi; (160) Kawasaki-shi; (161) Sagamihara reservoir; (162) Tanzawa-ko; (163) Yokohama; (164) Yamakita-machi; (165) Fujisawa-shi; (166) Hiratsuka-shi; (167) Kamakura-shi; (168) Sagami-gawa; (169) Odawara-shi; (170) Sakawa-gawa; (171) Hakone-machi; (172) Shinano-gawa; (173) Hyo-ko; (174) Horioka; (175) Shimminato-shi; (176) Takaoka-shi; (177) Jintsu-gawa river mouth; (178) Joganji-gawa river mouth; (179) Imizu-gun; (180) Toyama-shi; (181) Hosoiri-mura; (182) Nanao-wan; (183) Kahoku-gata; (184) Kaga-shi; (185) Mikuni-cho; (186) Asuwa-gawa; (187) Hino-gawa; (188) Kamiikusaka; (189) Karuizawa; (190) Shinano; (191) Yanaizu-cho; (192) Nakatsugawa-shi; (193) Gifu-shi; (194) Unuma-cho; (195) Gifu-shi; (196) Kani-shi; (197) Hozumi-cho; (198) Yoro-cho; (199) Kaizu-cho; (200) Fuji-gawa river mouth; (201) Suruga; (202) Inuyama-shi; (203) Togo-cho; (204) Kiso-gawa; (205) Mihama-cho; (206) Kiso-gawa river; (207) Kisen-yama dam; (208) Yamada; (209) Suminodo-cho; (210) Kakogawa; (211) Ono-shi; (212) Shinzaike; (213) Tenri-shi; (214) Higashi-ike; (215) Iwami-gun; (216) Mizushiri-ike; (217) Koyama-ike; (218) Tottori-shi; (219) Togo-ike; (220) Shikano-cho; (221) Yonago Waterbird Park; (222) Daisen-ike; (223) Oki islands; (224) Matsue-shi; (225) Nakano-umi; (226) Hii-gawa; (227) Yasugi-shi; (228) Jinzai-ko; (229) Iwami-cho; (230) Kojima-ko; (231) unallocated; (232) Gono-kawa; (233) Shobara-shi; (234) Miyoshi-shi; (235) Geihoku-cho; (236) Haji dam; (237) Fukuyama-shi; (238) Higashihiroshima-shi; (239) Ashida-gawa; (240) Hongo-cho; (241) Saijo-cho; (242) Hiroshima-shi; (243) Itsukaichi-cho; (244) Nuta-gawa; (245) Hatsukaichi-cho; (246) Ota-gawa; (247) Ajisu reclamation; (248) Hachijo-jima; (249) Chichi-jima; (250) Takahara; (251) Seki-gawa river mouth; (252) Kamo-gawa river mouth; (253) Saijo-shi; (254) Matsuyama-shi; (255) Ishite-gawa dam; (256) Shigenobu-gawa river mouth; (257) Iyo-shi; (258) Hijikawa-cho; (259) Komatsu pond; (260) Kagami dam; (261) Monobe-gawa; (262) Wakamatsu-ku; (263) Kitakyushu-shi; (264) Okagaki-machi; (265) Imazu tidal flat; (266) Magaribuchi dam; (267) Matsuura-gawa river mouth; (268) Ariake tidal flat; (269) Tsushima; (270) Tenkun dam; (271) Yakkan-gawa; (272) Oita-shi; (273) Katada-gawa; (274) Omaru-gawa; (275) Hitotsuse-gawa; (276) Sadowara-cho; (277) Izumi; (278) Tanega-shima; (279) Okinawa island; (280) Miyako-jima; (281) North Hamgyong; (282) Samjiyon; (283) Yongampo; (284) Anju; (285) Chungsan; (286) Pyongyang; (287) Wonsan; (288) Hwanghae; (289) Kaesong; (290) Kaep'ung; (291) Imjin river; (292) Han estuary; (293) Inchon; (294) Suwon; (295) Shihwa reclamation lake; (296) Asan bay; (297) Daeho reservoir; (298) Cheonsu bay; (299) Nonsan reservoir; (300) Pohang; (301) Upo reservoir; (302) Chunam reservoir; (303) Tongpan reservoir; (304) Nakdong estuary; (305) Kum river; (306) Tongjin



estuary; (307) Yongsan river; (308) Yongam lake; (309) Kumho-ri; (310) Haenam; (311) Yongsu-ri reservoir; (312) Wuyur He; (313) Dailing; (314) Zhalong National Nature Reserve; (315) Lianhuan Hu; (316) Harbin; (317) Mao'ershan; (318) Mudanjiang; (319) Baicheng prefecture; (320) Xianghai National Nature Reserve; (321) Changchun prefecture; (322) Jilin prefecture; (323) Siping prefecture; (324) Liaoyuan prefecture; (325) Hunchun; (326) Erdao; (327) Chaoyang; (328) Liaozhong county; (329) Lianshanguan; (330) Niuzhuang; (331) Yingkou; (332) Dandong; (333) Yalu Jiang; (334) Yakeshi; (335) Hulun Buir League; (336) Da Hinggan Ling; (337) Bugt; (338) Dalai Hu National Nature Reserve; (339) Dalai Nur Nature Reserve; (340) Bazhong; (341) Chengdu city; (342) Dian Chi; (343) Mengzi; (344) Weining county; (345) Xuanhua county; (346) Qinhuangdao; (347) Beidaihe; (348) Yi Xian county; (349) Xin'an; (350) Baoding; (351) Xian Xian county; (352) Dongqilihai; (353) Tianjin; (354) Tuanpo; (355) Beidagang; (356) Summer Palace; (357) Tong Xian county; (358) Beijing; (359) Yellow River Delta Nature Reserve; (360) Weihai; (361) Weifang; (362) Qingdao; (363) Rizhao; (364) Weishan Hu; (365) Yichang; (366) Hankou; (367) Hong Hu; (368) Chao Hu; (369) Shijiu Hu; (370) Yangzi'e National Nature Reserve; (371) Shengjin Hu Nature Reserve; (372) Guniujiang National Nature Reserve; (373) Sheyang Salt Works; (374) Yancheng Nature Reserve; (375) Haifeng farm; (376) Dongtai city; (377) Gaoyou Hu; (378) Liulishe; (379) Shaobo Hu; (380) Zhenjiang; (381) Pukou; (382) Nanjing; (383) Jiangyin; (384) Chongming Dao; (385) Shanghai; (386) Wusi; (387) Jiaxing; (388) Hangzhou; (389) Xiaoshan county; (390) Lanxi; (391) Ouhai county; (392) Wenzhou city; (393) Pingyang county; (394) Ao Jiang estuary; (395) Wuyi Shan Nature Reserve; (396) Shaowu; (397) Fuzhou; (398) Jinmen Dao; (399) Xiamen; (400) Poyang Hu; (401) Guan Shan Nature Reserve; (402) Dong Dongting Hu Nature Reserve; (403) Wanzi Hu; (404) Lei Shui; (405) Beibu bay; (406) Shantou; (407) Guangzhou; (408) Futian Nature Reserve; (409) Hainan; (410) Deep Bay; (411) Kam Tin; (412) Kelung river; (413) Kuantu; (414) Shetzu; (415) Neihu; (416) Huachiangta bridge; (417) Taan; (418) Tachi; (419) Kangnan; (420) Koya estuary; (421) Litse; (422) Hualien estuary; (423) Hsikoutsun; (424) Hsiukuluan river; (425) Tainan city; (426) Lungluan Tan; (427) Dunga Gali; (428) Manchar lake; (429) Faisalabad; (430) Mirgund lake; (431) Sultanpur; (432) Delhi; (433) Ajmer; (434) Ranthambhore; (435) Bhimasar; (436) Ahmedabad; (437) Shahjahanpur; (438) Sandi jheel; (439) Lucknow; (440) Gorakhpur; (441) Rewa; (442) Darbhanga district; (443) Saran district; (444) Simri Bakhtiarpur; (445) Bankipore; (446) Katihar; (447) Tilpara barrage; (448) Calcutta; (449) Pasighat; (450) Dibrugarh; (451) Sibsagar; (452) Imphal; (453) Kalopani; (454) Dhaka; (455) Myitkyina; (456) Chiang Rai; (457) Kamphaeng Saen.

○ Historical (pre-1950) ◍ Fairly recent (1950–1979) ● Recent (1980–present) □ Undated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1996); **Shetzu**, Taipei, one, 1996; **Neihu**, Taipei, one, December 1978 to January 1979; **Huachiangta bridge** (Hua-chiang-chiao), Taipei, single birds recorded irregularly in winter 1994–1997, maximum of two in January 1992 and January 1993; **Taan** Park, Taipei, one, 1998; **Tachi**, Taipei, one, 1996; **Kangnan**, Hsinchu city, single birds in November 1987, November 1990, 1995 and 1996; **Koya estuary** (Keya estuary), Hsinchu county, one, 1996; **Litse** (Wu-shi-er-chia), Ilan county, one, 1997; **Hualien estuary**, Hualien county, one, 1995; **Hsikoutsun** (Hsikou), Hualien county, one, April 1995; **Hsiukuluan river**, Hualien county, one, January 1996; Szutsau, **Tainan city**, two, 1992; **Lungluan Tan**, Pingtung county, one, early 1975 (Chang Wanfu 1988).

■ ***PAKISTAN*** It is known by only a handful of records, as follows: ■ *North West Frontier Province* **Dunga Gali**, undated (specimen in BNHS, Abdulali 1968–1996); ■ *Sind* **Manchar lake**, male, 1878 (Hume 1879a, Barnes 1885; also Roberts 1991–1992). ■ *Punjab* **Faisalabad** (Lyallpur), undated (Wright and Dewar 1925; also Roberts 1991–1992);

■ ***INDIA*** It is a rare winter visitor, with few recent records:

■ *Jammu and Kashmir* **Mirgund lake** (Mirgund reservoir), one, undated (Ward 1907), 1938 (specimen in BNHS);

■ *Haryana* **Sultanpur** (Sultanpore), November (unspecified year) (*Stray Feathers* 8: 494–500);

■ *Delhi* Ghumanhara, Zhilla, c.35 km west of **Delhi**, November 1879 (specimen in BMNH);

■ *Rajasthan* **Ajmer**, 1966 (Chatterjee 1966); **Ranthambhore**, one, February 1997 (D. Cooper and F. Cooper *in litt.* 1999);

■ *Gujarat* **Bhimasar**, Kutch, March 1966 (specimen in BNHS); Juhar, **Ahmedabad**, August 1898 (Barton 1899, Baker 1908, Abdulali 1968–1996, male in BNHS);

■ *Uttar Pradesh* Gutiya Ghat, c.40 km from **Shahjahanpur**, Gumti river, one male, February 1923 (Wright and Dewar 1925); **Sandi jheel**, Hardoi, one, January 1931 (MacDougall 1931); **Lucknow**, undated (Reid 1881); **Gorakhpur**, male, March 1911 (Osmaston 1913);

■ *Madhya Pradesh* Mukundpur jheel, **Rewa** state, one collected, December 1939 (Mahon 1940);

■ *Bihar* **Darbhanga district**, one in Somastipur subdivision, January 1930 (Dutton 1930), at Maiser jheel, December 1930 (specimen in YPM), at Chanar Harumpur, February 1943 (specimen in YPM), at Jirmorli Chanar, Hasanpur road, March 1945 (specimen in YPM); **Saran district** (Sarun district), male, pre-1908 (Inglis 1908); **Simri Bakhtiarpur**, northern

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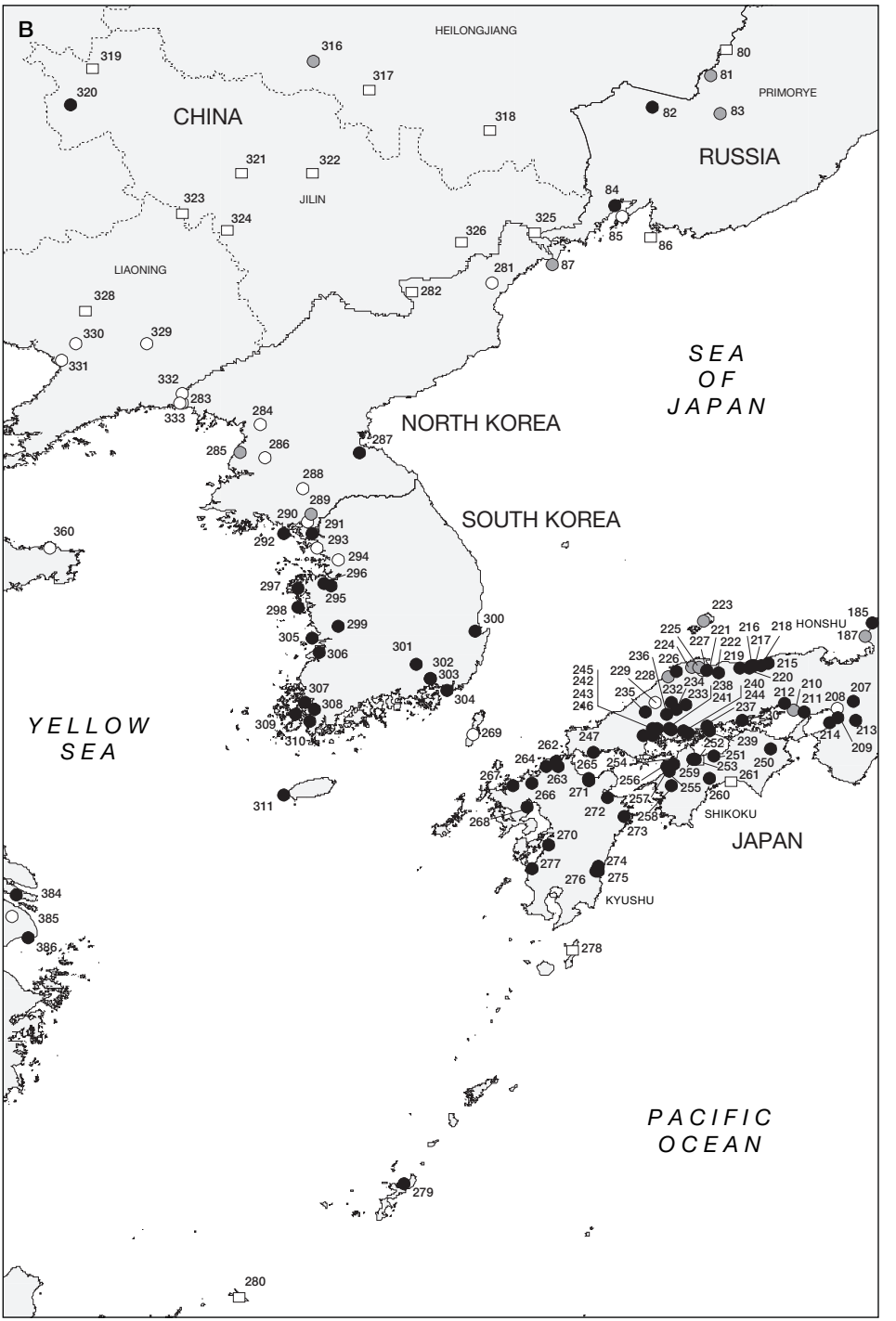
The distribution of Baikal Teal *Anas formosa* (map A opposite): (89) Solov'yevka (Sorouiyouka); (103) Komuke-ko; (104) Abashiri; (105) Shari; (106) Nemuro; (107) Shunkunitai; (108) Ishikari; (109) Iburi; (110) Oshima; (111) Mutsu-shi; (112) Shiura-mura; (113) Tsuruta-machi; (114) Hirosaki-shi; (115) Nishitsugaru-gun; (116) Tsugaruishi-gawa river mouth; (117) Izu-numa; (118) Sakata; (119) Tsuruoka; (120) Yamagata-shi; (121) Abukuma-gawa; (122) Kooriyama-shi; (123) Kasumiga-ura; (124) Sugao-numa; (125) Shioya-gun; (126) Nishinasuno-machi; (127) Ootawara-shi; (128) Nikko; (129) Karasuyama-machi; (130) Utsunomiya-shi; (131) Mooka-shi; (132) Shimotsuga-gun; (133) Oyama-shi; (134) Fujioka-machi; (135) Myogi; (136) Tatara-numa; (137) Honjo-shi; (138) Kitamoto; (139) Hirakata; (140) Koshigaya; (141) Soka-shi; (142) Toda-shi; (143) Kuki; (144) Tega-numa; (145) Inba-numa; (146) Shimosa; (147) Gyotoku; (148) Yatsu tidal flat; (149) Adachi-ku; (150) Okutama-ko; (151) Tama-ko; (152) Nerima-ku; (153) Shinobazu pond; (154) Tokyo; (155) Mitaka-shi; (156) Hino-shi; (157) Haneda; (158) Tama-gawa; (159) Fujino-machi; (160) Kawasaki-shi; (161) Sagamihara reservoir; (162) Tanzawa-ko; (163) Yokohama; (164) Yamakita-machi; (165) Fujisawa-shi; (166) Hiratsuka-shi; (167) Kamakura-shi; (168) Sagami-gawa; (169) Odawara-shi; (170) Sakawa-gawa; (171) Hakone-machi; (172) Shinano-gawa; (173) Hyo-ko; (174) Horioka; (175) Shimminato-shi; (176) Takaoka-shi; (177) Jintsu-gawa river mouth; (178) Joganji-gawa river mouth; (179) Imizu-gun; (180) Toyama-shi; (181) Hosoiri-mura; (182) Nanao-wan; (183) Kahoku-gata; (184) Kaga-shi; (185) Mikuni-cho; (186) Asuwa-gawa; (188) Kami-ikusaka; (189) Karuizawa; (190) Shinano; (191) Yanaizu-cho; (192) Nakatsugawa-shi; (193) Gifu-shi; (194) Unuma-cho; (195) Gifu-shi; (196) Kani-shi; (197) Hozumi-cho; (198) Yoro-cho; (199) Kaizu-cho; (200) Fuji-gawa river mouth; (201) Suruga; (202) Inuyama-shi; (203) Togo-cho; (204) Kiso-gawa; (205) Mihama-cho; (206) Kiso-gawa river.
○ Historical (pre-1950) ◍ Fairly recent (1950–1979) ● Recent (1980–present) □ Undated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SHIKOKU
KYUSHU
JAPAN

Monghyr district, one collected, winter 1937–1938 (Reuben 1945); **Bankipore**, Patna, January 1930 (Abdulali 1968–1996, specimen in BNHS); **Katihar**, Purneah district, male, April 1933 (Murphy 1933);

■ *West Bengal* **Tilpara barrage**, three pairs, January 1998 (Deuti *et al.* 1998); within 25 miles of **Calcutta** market, 1844 (E. Blyth in Hume 1879a), female obtained in Calcutta bazaar, winter 1898–1899 (Finn 1901b); Satragachi jheel (not mapped), two males, January 1993 (Chatterjee *et al.* 1995);

■ *Arunachal Pradesh* **Pasighat**, five, May 1935 (specimen in BNHS; also Choudhury 2000);

■ *Assam* **Dibrugarh**, undated (Baker 1921), January 1910 (Evans 1912, male in BNHS); **Sibsagar**, one, January–February 1910 (Gore 1912, specimen in BNHS); Jamping bheels (untraced), "found irregularly … usually with Wigeon *Anas penelope*" (Savage and Mackenzie, in Isakov 1970);

■ *Manipur* **Imphal**, one, 1912–1913 (Higgins 1933–1934), eight or ten at Ekop lake, c.20 km south of Imphal, March 1913 (Higgins 1913a), one, winter 1915–1916 (Higgins 1916, 1933–1934), with one from "Manipur" also presumably collected at Imphal, November 1911 (female in BNHS).

■ ***NEPAL*** It is known by three records: **Kalopani**, by the Kali Gandaki river near Larjung, c.2,560 m, pair, October 1984 (*Oriental Bird Club Bull.* 1 [1985]: 24–28, Inskipp and Inskipp 1991); Kosi barrage (not mapped), single adult males, February 1987 and February 1989 (*Oriental Bird Club Bull.* 12 [1990]: 40–44, Inskipp and Inskipp 1991).

■ ***BANGLADESH*** It was listed as a rare winter visitor to the country (Khan 1982), without further details, while Rashid (1967) provided no definite records. There is apparently only one reliable record: **Dhaka** (at the zoo), male, January 1995 (Thompson and Johnson 1996, P. M. Thompson *in litt.* 1997).

■ ***MYANMAR*** It is known by one recent record: Irrawaddy (= Ayeyarwady) river at **Myitkyina**, Kachin state, one, January–February 2000 (*Dutch Birding* 22, 2 [2000]: 112–121).

The distribution of Baikal Teal *Anas formosa* (map B opposite): (80) Iman river; (81) Ussuri river valley; (82) Khanka lake; (83) Arsen'evka river; (84) Suyfun river mouth; (85) Vladivostok; (86) Askol'd island; (87) Tumen river mouth; (185) Mikuni-cho; (187) Hino-gawa; (207) Kisen-yama Dam; (208) Yamada; (209) Suminodo-cho; (210) Kakogawa; (211) Ono-shi; (212) Shinzaike; (213) Tenri-shi; (214) Higashi-ike; (215) Iwami-gun; (216) Mizushiri-ike; (217) Koyama-ike; (218) Tottori-shi; (219) Togo-ike; (220) Shikano-cho; (221) Yonago Waterbird Park; (222) Daisen-ike; (223) Oki islands; (224) Matsue-shi; (225) Nakano-umi; (226) Hii-gawa; (227) Yasugi-shi; (228) Jinzai-ko; (229) Iwami-cho; (230) Kojima-ko; (231) unallocated; (232) Gono-kawa; (233) Shobara-shi; (234) Miyoshi-shi; (235) Geihoku-cho; (236) Haji Dam; (237) Fukuyama-shi; (238) Higashihiroshima-shi; (239) Ashida-gawa; (240) Hongo-cho; (241) Saijo-cho; (242) Hiroshima-shi; (243) Itsukaichi-cho; (244) Nuta-gawa; (245) Hatsukaichi-cho; (246) Ota-gawa; (247) Ajisu reclamation; (248) Hachijo-jima; (249) Chichi-jima; (250) Takahara; (251) Seki-gawa river mouth; (252) Kamo-gawa river mouth; (253) Saijo-shi; (254) Matsuyama-shi; (255) Ishite-gawa Dam; (256) Shigenobu-gawa river mouth; (257) Iyo-shi; (258) Hijikawa-cho; (259) Komatsu pond; (260) Kagami Dam; (261) Monobe-gawa; (262) Wakamatsu-ku; (263) Kitakyushu-shi; (264) Okagaki-machi; (265) Imazu tidal flat; (266) Magaribuchi Dam; (267) Matsuura-gawa river mouth; (268) Ariake tidal flat; (269) Tsushima; (270) Tenkun Dam; (271) Yakkan-gawa; (272) Oita-shi; (273) Katada-gawa; (274) Omaru-gawa; (275) Hitotsuse-gawa; (276) Sadowara-cho; (277) Izumi; (278) Tanega-shima; (279) Okinawa island; (280) Miyako-jima; (281) North Hamgyong; (282) Samjiyon; (283) Yongampo; (284) Anju; (285) Chungsan; (286) Pyongyang; (287) Wonsan; (288) Hwanghae; (289) Kaesong; (290) Kaep'ung; (291) Imjin river; (292) Han estuary; (293) Inchon; (294) Suwon; (295) Shihwa reclamation lake; (296) Asan bay; (297) Daeho reservoir; (298) Cheonsu bay; (299) Nonsan reservoir; (300) Pohang; (301) Upo reservoir; (302) Chunam reservoir; (303) Tongpan reservoir; (304) Nakdong estuary; (305) Kum river; (306) Tongjin estuary; (307) Yongsan river; (308) Yongam lake; (309) Kumho-ri; (310) Haenam; (311) Yongsu-ri reservoir; (316) Harbin; (317) Mao'ershan; (318) Mudanjiang; (319) Baicheng prefecture; (320) Xianghai National Nature Reserve; (321) Changchun prefecture; (322) Jilin prefecture; (323) Siping prefecture; (324) Liaoyuan prefecture; (325) Hunchun; (326) Erdao; (328) Liaozhong county; (329) Lianshanguan; (330) Niuzhuang; (331) Yingkou; (332) Dandong; (333) Yalu Jiang; (360) Weihai; (384) Chongming Dao; (385) Shanghai; (386) Wusi.

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


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HUNAN
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FUJIAN
GUANGDONG
TAIWAN
YELLOW SEA
SOUTH CHINA SEA

■ ***THAILAND*** It is known by at least three records (although a few further unsubstantiated reports have been received: Nong Bong Khai, **Chiang Rai**, male, January–February 2000 (*Oriental Bird Club Bull.* 31 [2000]: 49–57, 32 [2000]: 66–76); Bung Boraphet (not mapped), one male, February 1990 (*Oriental Bird Club Bull*. 12 [1990]: 40–44); Kasetsart University, **Kamphaeng Saen**, Nakhon Pathom, two males and two females, with over 12,000 Garganey *Anas querquedula*, January 1992 (*Bangkok Bird Club Bull.* 9, 3 [1992]: 10–11), this presumably being the source of an (undated) report from "Bangkok" (B. F. King verbally 1998).

POPULATION The Baikal Teal used to be common in many parts of its range, and extremely abundant in some places, but its numbers declined rapidly in the second half of the twentieth century, apparently with a particularly sharp drop in the 1970s (AVA). It is now much less numerous than before in many parts of its breeding range in Russia, and in its non-breeding range in Japan, mainland China and South Asia (see individual country sections below). However, some large wintering concentrations were discovered in South Korea during the 1990s. The total global population was estimated at 105,000 birds by Rose and Scott (1997), but that figure was revised upwards to 210,000 birds by Miyabayashi and Mundkur (1999) following the discovery of further important wintering sites in South Korea, and the global population could be as high as 300,000 birds (Lee Jeong-sik and N. Moores *in litt.* 1999; see Korea below). Despite this increase in the known population, the trend in recent decades has most certainly been sharply downwards; moreover, most of the important wintering sites are unprotected and are under pressure, and unsustainable hunting is also still a problem (see Threats), so it is very likely that, without intervention, numbers will continue to fall steeply.

Russia There are no reliable data on the overall population size of this species in Russia, but it was clearly numerous there in the past and there is good evidence for recent rapid declines in its population in several parts of its range, with a particularly sharp population decline in the 1970s (AVA). Until the mid-1960s, it was the most numerous duck species in central Yakutia, and widespread through the continental part of the region, and at an observatory in the Lena valley near the Aldan river mouth, it was counted in thousands in 1958–1962 (e.g. 2,398 individuals in 1962) (Vorob'ev 1963), yet in 1972–1973 only singles and tens were to be found (Larionov *et al.* 1991). Since the mid-1960s, there appear to have been two distinct periods of decline in its numbers in Yakutia: first there was a sharp decline in the late 1960s, involving a more than ten-fold decrease in the numbers of migrating birds, ending with a few percent of the former numbers by the early 1970s; then there has been a slow decline throughout the past 25 years, with numbers decreasing one or twofold, and this

The distribution of Baikal Teal *Anas formosa* (map C opposite): (280) Miyako-jima; (283) Yongampo; (284) Anju; (285) Chungsan; (286) Pyongyang; (324) Liaoyuan prefecture; (327) Chaoyang; (328) Liaozhong county; (329) Lianshanguan; (330) Niuzhuang; (331) Yingkou; (332) Dandong; (333) Yalu Jiang; (345) Xuanhua county; (346) Qinhuangdao; (347) Beidaihe; (348) Yi Xian county; (349) Xin'an; (350) Baoding; (351) Xian Xian county; (352) Dongqilihai; (353) Tianjin; (354) Tuanpo; (355) Beidagang; (356) Summer Palace; (357) Tong Xian county; (358) Beijing; (359) Yellow River Delta Nature Reserve; (360) Weihai; (361) Weifang; (362) Qingdao; (363) Rizhao; (364) Weishan Hu; (365) Yichang; (366) Hankou; (367) Hong Hu; (368) Chao Hu; (369) Shijiu Hu; (370) Yangzi'e National Nature Reserve; (371) Shengjin Hu Nature Reserve; (372) Guniujiang National Nature Reserve; (373) Sheyang Salt Works; (374) Yancheng Nature Reserve; (375) Haifeng farm; (376) Dongtai city; (377) Gaoyou Hu; (378) Liulishe; (379) Shaobo Hu; (380) Zhenjiang; (381) Pukou; (382) Nanjing; (383) Jiangyin; (384) Chongming Dao; (385) Shanghai; (386) Wusi; (387) Jiaxing; (388) Hangzhou; (389) Xiaoshan county; (390) Lanxi; (391) Ouhai county; (392) Wenzhou city; (393) Pingyang county; (394) Ao Jiang estuary; (395) Wuyi Shan Nature Reserve; (396) Shaowu; (397) Fuzhou; (398) Jinmen Dao; (399) Xiamen; (400) Poyang Hu; (401) Guan Shan Nature Reserve; (402) Dong Dongting Hu Nature Reserve; (403) Wanzi Hu; (404) Lei Shui; (406) Shantou; (407) Guangzhou; (408) Futian Nature Reserve; (410) Deep Bay; (411) Kam Tin; (412) Kelung river; (413) Kuantu; (414) Shetzu; (415) Neihu; (416) Huachiangta bridge; (417) Taan; (418) Tachi; (419) Kangnan; (420) Koya estuary; (421) Litse; (422) Hualien estuary; (423) Hsikoutsun; (424) Hsiukuluan river; (425) Tainan city; (426) Lungluan Tan.

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

species now constitutes less than one percent of migrating waterfowl numbers (A. G. Degtyarev and V. I. Perfil'ev *in litt*. 1997).

Within the last 20–25 years, its numbers have decreased dramatically in the Central Siberian part of its range, and it is currently rare throughout the territory and extremely rare in the southern part of the taiga zone; for example, near Mirnoye the numbers on spring migration have fallen to between one-tenth and one-twentieth of previous levels within 15 years (Rogacheva 1992). In Chukotka, it was numerous in the Chaun lowlands and elsewhere in the 1930s (Portenko 1939, Kuzyakin 1965), and "very common" on the middle Kolyma from the late 1960s to the early 1970s, but much rarer on the Omolon river (Krechmar *et al.* 1978). There is evidence that its range has contracted in Chukotka, as it has ceased breeding in the Anadyr' basin where it was formerly common (Krechmar *et al.* 1991).

In Khabarovsk, it was the most numerous duck species on spring and (especially) autumn migration in the 1940s and 1950s on the Amur floodplain near Komsomolsk-on-Amur, a typical hunting bag comprising 5–17 teals in 20–25 minutes of dusk hunting; until the mid-1960s, it remained the most important game species in the region, when shots into its dense flocks could yield 10–12 (and sometimes up to 16) birds per cartridge (N. D. Poyarkov *per* AVA). A population collapse occurred between 1964, when it was numerous on Bolon', Evoron and Chukchagyr lakes, and 1967, after which it has seldom been recorded anywhere in this area (Poyarkov 1998). In 1972–1973, 5,000 birds were counted on the Simmi river in the Bolon' lake catchment, and in 1976–1979, 5,000–10,000 were found near Malyshevo village on autumn migration, but by 1981–1982 the species had become less common (Roslyakov 1984). In spring and autumn 1965, Baikal Teal comprised c.7–10% of the dabbling ducks on autumn migration, but by 1986 and 1988 this proportion had declined to 0.6% (Pronkevich 1989).

In the Amur region, flocks of up to 1,000+ birds passed through in spring, including large gatherings on spits and bars in the Amur and Zeya rivers, but far fewer occurred on autumn passage, although their numbers were still substantial (Barancheev 1953). A sharp decline in population was noted there, and from the mid-1960s until 1985 birds were extremely rare on passage on the Zeya-Bureya plain; however, they increased slightly after the late 1980s, and small numbers (not more than 20 birds *per* year) were observed regularly on spring and autumn passage in 1993–1996 (V. A. Dugintsov *in litt*. 1997).

In Primorye, the Baikal Teal was the most numerous duck on spring passage between the 1860s and the 1960s (Przheval'skiy 1877–1878, Shul'pin 1936, Polivanova 1971). In early April 1868, flocks of 100–500 birds were observed flying north throughout the day (Przheval'skiy in Shul'pin 1936), and in spring 1928, Shul'pin (1936) observed migrant flocks of 400–500. Resting flocks of c.10,000–15,000 were constantly present on Lebekhe lake and nearby wetlands in May 1962 and 1963 (Polivanova 1971). In spring 1961, Baikal Teal was the third most numerous migrant waterfowl species at Khanka lake (Shibaev *et al.* 1996). Polivanov (1975) counted 40,000–50,000 birds there during spring migration in 1963, but only 100 in 1971 and only 200 in 1972. In recent decades, there have been no records in the Arsen'evka valley and its numbers have remained at a low level in Primorye; of 979 birds shot by a local hunter at Khanka lake in 1977–1988, Baikal Teal constituted only 4.6% (Bocharnikov and Glushchenko 1990). At the Suyfun river mouth in extreme south-west Primorye, it was a rare passage migrant in the late 1980s, with only one found among birds shot by hunters in April 1987 (Gorchakov 1996).

Japan Austin and Kuroda (1953) described this species as "a common winter visitor to south-western Japan, at times almost unbelievably abundant". In the Meiji Era (late nineteenth century to 1912), tens of thousands wintered at Tega-numa lake in Chiba, and many birds were "harvested" annually (Mochizuki 1981). Numerous flocks were seen on the Nansei Shoto (Ryukyu) islands in the 1910s and 1920s (Kuroda 1931a). At Koshigaya duck pond in Saitama, c.4,000 Baikal Teal were captured annually between 1929 and the 1940s, and c.100

were caught each winter (out of a total of c.5,000 ducks captured) between 1939/1940 and 1946/1947, and Baikal Teal continued to comprise a significant percentage of the captured birds until the early 1960s (from a few dozen to a few hundred were caught annually); however, since winter 1963/1964, no more than 10 Baikal Teal have been collected amongst the c.2,000 ducks captured each winter, other than in 1973/1974 when 29 were caught (out of 2,783 ducks) (Masahito and Yoshii 1974). Very large numbers occurred on Kyushu in February–March 1947, when three men operating six throw-nets on a pond in southern Fukuoka captured 50,000 Baikal Teal, including up 10,000 birds in a single day, "an almost incredible haul" (Austin and Kuroda 1953; also Delacour 1954–1964). In the 1940s, it was usually the most numerous duck in the Kansai area (around Osaka) (Delacour 1954–1964). Flocks numbering 100,000 birds used to occur at Yamada Pond near Osaka (Austin and Kuroda 1953).

The wintering concentrations of this species in Japan were broken up by illegal shooting early in the occupation of the country that followed the Second World War (Austin and Kuroda 1953). It is now a very uncommon winter visitor from central Honshu southwards, occurring regularly at rather few localities (Brazil 1991; see also Wada 1922, Ugi 1973). The results of national waterfowl counts during the 1980s indicated that its numbers were still declining in Japan, for example 6,311 birds were counted in 1982, but only 1,912 in January 1992 (Research Center, WBSJ 1992).

Korea This species was an abundant winter visitor to Korea in the past. Kuroda and Miyakoda (1919) reported that huge flocks of more than four kilometres in length could be seen near the Han river at the peak of spring migration. Wolfe (1950) noted that they were abundant on migration, and particularly numerous in the spring, usually in huge flocks

Winter 1995–1996							
Month	Asan bay	Cheonsu bay	Taeho reservoir	Kum river estuary	Mangyong estuary	Tongjin estuary	Nonsan reservoir
November	0	40,000	0	20,000	20,000	0	0
Early December	25,000	0	18,000	0	22,000	0	0
Late December	18,000	0	8,000	5,000	0	0	0
Early January	0	30,000	0	0	0	0	0
Late January	0	0	0	0	0	0	19,000
Early February	0	0	0	1,000	0	8,000	30,000
Late February	6,000	0	0	0	0	0	42,000
Early March	0	0	0	7,000	0	0	25,000
Late March	0	0	0	50,000	0	0	0
April	0	1,000	0	0	0	0	0
Winter 1996–1997							
Month	Asan bay	Cheonsu bay	Taeho reservoir	Kum river estuary	Mangyong estuary	Tongjin estuary	Nonsan reservoir
October	0	30,000	0	0	0	0	0
Early November	0	110,000	0	0	0	0	0
Late November	0	100,000	0	0	0	0	0
Early December	0	100,000	0	0	0	0	0
Late December	0	90,000	0	0	0	0	0
Early January	20,000	60,000	0	5,000	0	0	0
Late January	105,000	0	0	0	0	0	0
Early February	65,000	2,000	0	0	0	0	0
Late February	6,000	0	42,000	0	0	0	0
Early March	0	65,000	0	0	0	0	0
Late March	0	0	21,000	0	0	0	0
No birds were recorded during counts at the Han river and in May 1996 and April 1997.							

Table 1. Counts of Baikal Teal in South Korea during winters 1995/1996 and 1996/1997. Data from a table provided by Kim Jin-han and Park Jin-young *in litt.* (1999).

numbering thousands of birds, which would appear like fast-moving, dark clouds, and the noise of wing beats could be heard when the flock was 500 m away. Won (1963) described the species as "numerous", and large numbers can still be found in parts of South Korea. In 1997, 100,000–120,000 birds were estimated to be wintering there (Han Sang-hoon and Lee Woo-shin *in litt.* 1997), but as many as 195,000 birds were counted during a census in January 1999, indicating that the total wintering population in South Korea could be 200,000 birds or more (Kim Jin-han *in litt.* 2000). Simultaneous counts at Haenam and Cheonsu bay in November 1999 suggested that the South Korean population could even be as high as 250,000–270,000 birds (Moores and Kim Kyoung-won 2000). There appears to have been a dramatic increase in the numbers of wintering birds in South Korea (although some of this may simply reflect an increase in observer effort), for unknown reasons (Park Jin-young *in litt.* 1999), although some of these birds could have been displaced by pressures on their wintering grounds elsewhere. The flocks in Korea frequently move between different sites on the peninsula during the winter (see Table 1).

Mainland China This species used to be a very abundant winter visitor to some parts of mainland China in the first half of the twentieth century. La Touche (1892) described it as "abundant" near Fuzhou in Fujian in the 1890s, and La Touche (1906–1907) considered it "very common" at Zhengjiang city (Chinkiang) in Jiangsu in winter 1901–1902. Styan (1891) found it abundant in winter in the lower Yangtze valley, generally in vast flocks. Gee *et al.* (1924) noted that in Hebei "this teal is erratic in its spring migrations, sometimes extremely abundant, passing Peking in clouds", and they saw several thousands at Baoding (Paotingfu) in March 1920. In January 1941, Cheng Tso-hsin (1941, 1948) noted that near Shaowu in Fujian "Baikal Teal are especially abundant, flying in flocks of several thousand each, almost darkening the sky", and he estimated that 20,000–30,000 birds were present.

However, a large decline appears to have taken place in China during the latter half of the twentieth century. Thus while Ascherson (1932) saw "hundreds of thousands" of ducks at Weihai (Wei-hai-wei) in Shandong, in November 1929, of which Baikal Teal appeared to be the most numerous (judging by the proportion shot), Yan Liqin *et al.* (1998) did not record any Baikal Teal there during wetland surveys in 1995–1997. In Hebei, La Touche (1920–1921) described it as "extremely abundant" at Qinhuangdao (Chinwangtao) in 1910–1917, and at Beidaihe, Wilder (1940b) saw large flocks in 1940 and Hemmingsen and Guildal (1968) reported sightings of dense flocks of several hundreds, once probably 1,000–2,000, in the early to mid-1940s. However, only small numbers have been seen at Beidaihe during the 1980s and 1990s (Williams 1986, Tao Yu *et al.* 1991, Williams *et al.* 1992; see Distribution). Huang Mupeng *et al.* (1989) reported that this species had become rare in Liaoning by the 1980s. Only relatively small numbers have been found in China in recent years, and in 1990 4,404 birds were counted in 11 sites in China, 3,457 were counted in 11 sites in 1991, 259 at five sites in 1992 and 15 birds at two sites in 1993, and the total population in China was estimated to be as few as 1,000–10,000 birds in the early 1990s (Waterbird Specialist Group 1994).

South Asia This species always appears to have been a rare visitor to the Indian subcontinent, and it is currently considered to be rare in India and a vagrant in Pakistan, Nepal and Bangladesh (Grimmett *et al.* 1998; see Distribution).

ECOLOGY ***Habitat*** In central Yakutia (the Vilyui drainage) this species nested on open tussock meadows near rivers (Maak 1886, Degtyarev and Larionov 1982, Andreev 1987). In the northern taiga in the Indigirka basin it preferred to nest by small lakes and on mossy bogs with clumps of willows and larch (Mikhel' 1935, Labutin and Perfil'ev 1991b). In the Khroma–Indigirka and Kolyma tundra it nested in tussock meadows or in willow bushes near watercourses (A. G. Degtyarev and V. I. Perfil'ev *in litt.* 1997, AVA). After hatching, the broods move onto lakes and river channels (AVA). On passage in the Khanka lowlands

of Primorye, Baikal Teal feed in the ricefields and roost on adjacent lakes in the Ilistaya, Ussuri and Arsen'evka valleys (N. M. Litvinenko *in litt*. 1997). In Japan, the species occurs near freshwater lakes, wet ricefields and marshes, and it is only rarely found in saltwater bays and on the sea, and it often roosts on rivers (or lakes) in the daytime and feeds in rice-paddies at night (Kuroda 1939, Brazil 1991). Radio-tracking studies of the birds that roost during the daytime on Katano duck pond have revealed that they feed in rice-paddies within a 10 km radius (Ohata and Yamamoto 2000c). At the wintering sites in mainland China, the species is usually found on freshwater lakes and rivers (Cheng Tso-hsin 1979). At passage and wintering sites in South Korea it has recently been found wintering on intertidal mudflats and sandflats in addition to freshwater lakes, reservoirs and rivers, and on agricultural land (Yoo and Lee 1998). At Nonsan and the Kum-gang river in Korea, wintering birds were found to be largely inactive during the daytime, except when disturbed (e.g. by fishing) in the middle of the day; they became more active in late afternoon, and began to gather into large flocks but then gradually split into smaller flocks during the evening (Kang and Cho 1998).

Food During spring migration at the Tumen delta in Primorye, this species fed on the seeds of hydrophilic plants (*Ruppia* and *Zostera*) (Shibaev *et al*. 1996). In the Arsen'evka (Daubikhe) valley in the Khanka lowlands, migrant birds fed on rice and soya fields, and by the time of their onward migration they had gained a thick layer of fat (Vorob'ev 1954, Spangenberg 1965, Polivanova 1971). On arrival on the breeding grounds, they fed on horsetails, sprouting grass leaves and some invertebrates (Krivosheev 1963). Before and during autumn migration, they fed on sedge seeds and invertebrates (Solov'ev and Shugaev 1978, AVA), and on autumn stopovers at Lake Khanka they fed on the seeds of hydrophilic plants (*Panicum grus-gally*, *Trifolium*, *Digitaria linearis*, *Viola*, *Polygonum*, *Setaria*) (Polivanova 1971). In China, they mainly feed on seeds and grains, watersnails and some green plants such as algae (Cheng Tso-hsin 1979), and stomach analysis of a wintering bird in Zhejiang revealed grass seed, aquatic plants and some watersnails (Zhuge Yang 1990). Wintering birds roosting on Chunam (Junam) reservoir in South Korea occasionally fed on the reservoirs, but otherwise fed almost entirely on dry paddy ricefields which had been harvested by machine; analysis of faecal pellets and a dead bird revealed that they fed entirely on waste rice and were able to select full ears from empty husks (Allport *et al*. 1991). They fed nocturnally, and probably stayed on the feeding ground all night, and appeared to ignore several other potential food sources such as aquatic vegetation and newly sown barley; they were extremely active feeders, with groups of 200–1,000 birds moving rapidly through the fields, and never staying in one field for longer than 20 minutes—the birds at the rear of the flock continuously flew up and joined the front, with c.10 % of the flock being in the air at any one time (Allport *et al*. 1991).

Breeding South of the Arctic Circle, female Baikal Teal start to lay by the end of May (Labutin and Perfil'ev 1991b), but further north in the forest-tundra zone they lay from the first week of June to mid-June (Mikhel' 1935, Vorob'ev 1963). The clutch size in the Khroma–Indigirka area in Yakutia was 4–10 eggs (6.9 on average, n=29) (A. G. Degtyarev and V. I. Perfil'ev *in litt*. 1997). The eggs began to hatch in central Yakutia by 21 June, and the ducklings could fly by the first week of August (Krechmar *et al*. 1978, A. G. Degtyarev and V. I. Perfil'ev *in litt*. 1997). Moulting birds remained on the breeding grounds, on the lakes and streams where they nested, with males and non-breeding females starting to moult in late June–early July and breeding females beginning their moult slightly later (A. G. Degtyarev and V. I. Perfil'ev *in litt*. 1997).

Migration The Baikal Teal has different migratory patterns in spring and autumn (AVA). In the Selenga delta in Buryatia, the intensity of spring migration was found to fluctuate from year to year, and it proceeded from 30 April to 3 June (mainly 9–22 May) (Skryabin 1968). Around the Tumen river mouth in extreme south-west Primorye this species was a scarce passage migrant (representing not more than 2% of hunting bags) in 1962 and 1964,

and its numbers were reported always to have been low in that area (Shibaev 1971), but slightly further north, in the Arsen'evka valley, it was numerous on spring passage in 1949 and 1950 and it used to be the main quarry of local hunters (Shibaev *et al.* 1992, 1996). Following the establishment of industrial rice farming in Primorye (by the 1950s), with low-efficiency harvesting techniques, large numbers of Baikal Teal began to stay in the area around the Lake Khanka lowlands for almost two months on spring migration (Shibaev *et al*. 1996). Passage migration in that area started in late March and continued until late May (Przheval'skiy 1877–1878, Shul'pin 1936, Polivanova 1971, Shibaev *et al*. 1992, 1996). Large-scale migration also took place in the Amur region, for example feeding flocks of 1.5–2.0 km long were reported there by Barancheev (1953), with the largest numbers occurring from 1–10 May (V. A. Dugintsov *in litt*. 1997). Once the birds leave the major staging areas in Primorye, they arrive in the middle reaches of the Lena (62°N) by 10 May and the lower Lena (72°N) by late May or the first few days of June, with intensive waves of migration observed between 15 May and 6 June (A. G. Degtyarev and V. I. Perfil'ev *in litt*. 1997).

The Baikal Teal is less conspicuous on autumn migration, for example it was generally present on the lower Iman river on spring migration in late May, but only a few were recorded there in autumn (Spangenberg 1965). In central Yakutia, autumn migration occurred from mid-August to mid-September, peaking between 18 August and 3 September (Larionov *et al*. 1991). In the Selenga delta in Buryatia, it occurs from 19 August until late September, with the peak around 5 September (Skryabin 1968). In the Amur region, it was observed from 5–15 September (Barancheev 1953). At Lake Khanka, autumn migration was observed from mid-September to late October, and birds tended to migrate at night and seldom stopped there for very long (Polivanova 1971). Birds would reach Kyushu and western Honshu in Japan from the Korean Peninsula in late September and then spread eastwards to the Kanto Plain, with early birds reaching there by late October, and most leaving by way of the Korean Peninsula by the end of March, although a few might remain until mid-April (Brazil 1991; also Kuroda 1939).

The wintering population arrives at Cheonsu bay in South Korea in October and peaks in November, and from mid-December to January the birds leave this area when the feeding grounds are ploughed and commute between several sites on the west coast for the rest of the winter (Namyang lake, Asan bay, Daeho lake, Kum river, Mankyung estuary, Tongjin estuary, Nonsan reservoir, Yongsan river, Kochonam lake, Yongam lake and Kumho lake: see Table 1), all of which have large lakes and huge areas of paddyfields (Park Jin-young *in litt.* 1999). In mainland China, they arrive on the wintering grounds at Hong Hu lake in Hubei in mid-October and depart in March (Li Chengling and Jiang Yongsheng 1990). In Zhejiang they are present from November to March or April (Zhuge Yang 1990).

THREATS ***Habitat loss*** *Russia* Krivenko (1991) considered habitat succession to be a factor in the decline of this species, V. A. Dugintsov *in litt*. (1997) suggested that some habitat may have been lost on its nesting grounds, and Shibaev *et al*. (1992, 1996) also considered habitat destruction to be a threat. However, the evidence for this as a major adverse factor in Russia remains speculative and vague. *Korea* Many of the wetlands in South Korea are under serious threat from economic development, and c.622 km^2 of wetland had already been lost by 1992, with a further c.12,000 km^2 likely to disappear by 2001 under current national development plans (Park and Yoo 1997). Several important sites for Baikal Teal are under pressure from development, including Taeho lake (reclamation of tidal flats), the lake and intertidal zone at Cheonsu bay (management methods used on agricultural land), the Kum river estuary (reclamation of tidal flats, construction of bridges and banks and changing agricultural methods) and the Mangyong and Tongjin estuaries (Saemankeum area) (reclamation of tidal flats and changing agricultural methods) (Yoo and Lee 1998). In the Haenam area, degradation of the wetlands has forced the wintering waterbirds to concentrate into a few

hundred hectares of Yongam lake, Dangduri (*Oriental Bird Club Bull.* 31 [2000]: 21). However, despite these potential threats, the numbers of Baikal Teal have increased rapidly at several of these sites, for reasons that are not fully understood; it is possible that birds have shifted their wintering grounds from China to Korea, or that a recent rapid increase in the availability of suitable feeding areas for this species near the west coast of Korea has led to improved breeding success (Park Jin-young *in litt.* 1999). *Mainland China* Many wetlands in its mainland wintering range have been reclaimed (Wang Qishan 1999). Habitat destruction is one of the factors that is considered to have caused a sharp decline in the numbers of Anatidae as a whole in several parts of mainland China, for example at Changlindao in Heilongjiang, where wild duck densities are now very low and the number of their nests has declined by more than 90% since the 1960s (Wang Qishan 1999). Numbers of Anatidae at Poyang Hu lake in Jiangxi have declined greatly in the past 10 years because of hunting and habitat destruction: in the mid-1980s wild ducks and geese were found there in huge flocks, but now at times they are "even rarer than cranes" (Liu Zhiyong and Zhao Jinsheng 1998). Threats at Sanjiang Plain in Heilongjiang are given under Swan Goose *Anser cygnoides*. *Hong Kong* General environmental threats to Deep Bay are given under Spoon-billed Sandpiper *Eurynorhynchus pygmeus*.

Hunting The most notable characteristic of this species is its tendency to gather in huge flocks while on passage, and in large wintering concentrations at favoured sites (see Distribution and Population), which makes it particularly vulnerable to hunting. *Russia* Compared with other waterfowl species, the Baikal Teal is relatively tame, and it also tends to fly in dense flocks in both spring and autumn, making it easy to shoot (Rogacheva 1988). However, the reasons for its decline have not been studied, although it has been assumed that hunting and various human activities on its migration routes (Yakhontov 1965), on the breeding grounds (Rogacheva 1988) and in the winter quarters (Egorov 1965, Vorob'ev 1965, Shugaev 1979) have had a negative impact. The main threat in the Upper Amur region is shooting by amateur hunters (V. A. Dugintsov *in litt*. 1997), and the sharp decline in its numbers in the mid-twentieth century is believed to have resulted from ubiquitous hunting in combination with other negative factors (Shibaev *et al*. 1992, 1996). *Japan* The remarkable numbers of birds that must have been taken illegally after the Second World War are hinted at by the example of 50,000 Baikal Teal being netted at a single site in three weeks in early 1947 (see Population). *Korea* Hunting is considered to be a threat to this species at several of its important sites in South Korea, including Taeho lake, Cheonsu bay, the Kum river estuary, the Mangyong and Tongjin estuaries (Saemankeum area) and Nonsan and Yedang reservoirs (Yoo and Lee 1998), and hunting is reported to be widespread at Asan lake and other sites (Moores 1999). However, the level of hunting pressure on this species may not be very high because it is illegal (Park Jin-young *in litt.* 1999). *Mainland China* Hunting is one of the factors that is considered to have caused a sharp decline in the numbers of waterfowl as a whole in several parts of mainland China (see Habitat loss above); the use of poison baits for hunting is widespread in China, despite being prohibited (Wang Qishan 1999). A study of hunting pressure in the middle and lower basins of the Yangtze river in 1987–1992 estimated that c.50% of the total wintering waterfowl in this region were killed each year by local hunters, using netting, shooting and poison; the Baikal Teal was one of the quarry species found in hunters' bags during the study (Lu Jianjian 1993a). *Hong Kong* Some illegal netting, trapping and shooting of birds occurs during spring and autumn migrations and throughout the winter, sometimes by people from mainland China (Cheung Ho-fai *in litt.* 1998). *South Asia* Intensive hunting in northern India, Pakistan and Bangladesh may have contributed to the decline of this species. Hume (1879a) and Ali (1936) reported on large-scale hunting of wild birds, leading to "a manifest falling off in the numbers of the migratory ducks".

Disturbance Disturbance is considered to be a significant problem at several important sites for Baikal Teal in South Korea, including Taeho lake (fishing-boats and disturbance

from tourism), the Kum river estuary (tourists and fishing-boats), the Mangyong and Tongjin estuaries (Saemankeum area) (fishing-boats) and Nonsan and Yedang reservoirs (fishing, including fishing-boats) (Yoo and Lee 1998). Disturbance was affecting the wintering birds at Yongan lake in November 1999 (N. Moores *in litt.* 1999). Human disturbance is also likely to be a significant threat at wetlands in China, many of which are intensively used (Wang Qishan 1999).

Pollution and pesticides The intensive use of pesticides may have contributed to the sharp decline in the numbers of this species in Russia in the mid-twentieth century (Shibaev *et al.* 1992, 1996). The accumulation of pollutants may also be affecting it in South Korea (Park Jin-young *in litt.* 1999). Water pollution is considered to be a threat at several important sites for Baikal Teal there, including Taeho lake, Cheonsu bay, the Kum river estuary and the Mangyong and Tongjin estuaries (Saemankeum area) (Yoo and Lee 1998).

Unnatural diet The Baikal Teal that winter in South Korea are mainly dependent on rice during that season, and migratory flocks in south-eastern Russia have also changed their behaviour to stage in ricefields (see Ecology). The effects of this change from their natural diet have not been studied, but it is possible that this affects the intake of essential nutrients that are required to maintain their health and breeding success (Park Jin-young *in litt.* 1999).

Disease Shul'pin (1936) suggested that the main cause for the decline of this species was disease originating on the wintering grounds, and Park Jin-young *in litt.* (1999) considered that disease may be a potential problem for the wintering flocks in South Korea. This prediction was borne out in October 2000, when an outbreak of avian cholera (diagnosed by government scientists) affected the wintering ducks at Cheonsu bay in South Korea; over 12,000 carcasses were found there during the month, of which 90% were Baikal Teal (Hansoo Lee *in litt.* 2000). Fortunately, the epidemic ended suddenly and no more bird carcasses were found at Cheonsu, and no signs of disease were noted at other waterfowl wintering grounds in Korea (Hansoo Lee *in litt.* 2000).

MEASURES TAKEN ***Legislation*** This species is included in the Red Data Books of Yakutia (A. G. Degtyarev and V. I. Perfil'ev *in litt*. 1997) and of Russia (Kolosov 1983) and the Russian Far East (Krechmar 1989b). It is also listed under a convention on the Conservation of Migratory Birds and their Habitats between the Governments of Russia, the USA, India and the Republic of Korea (V. A. Dugintsov *in litt*. 1997). The hunting of this species is banned in Magadan and Chukotka (A. V. Kondrat'ev *in litt*. 1997). It is listed as "Rare" on the Mongolian Law on Hunting (1995), and it may therefore only be hunted or trapped for special purposes, and hunting and trapping for any other purposes are prohibited. It is also listed as "Rare" in the Mongolia Red Book (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*. 1997). It is not nationally protected in China, but it is protected under the wildlife laws of the following provinces, autonomous region and municipality: Beijing, Hebei, Shanxi, Henan and Ningxia (SC). It is protected by the Wild Animals Protection Ordinance in Hong Kong (SC). It is listed on Appendix II of CITES.

Protected areas and habitat management *Russia* Some of the habitats used by this species are inside the Khanka State Reserve, and also within the Lake Khanka Ramsar Site (N. M. Litvinenko *in litt*. 1997). A nature reserve has been established in the Bolon' lake basin in Khabarovsk region (B. A. Voronov *in litt*. 1997). *Japan* This species has occurred in or near to several protected areas, including one of the most important wintering grounds, Katano duck pond (Kamoike) in Ishikawa prefecture, and two sites where it sometimes winters, Nakanoumi in Tottori and Shimane prefectures and Izumi-Takaono in Kagoshima prefecture, which are established National Wildlife Protection Areas; and Hyo-ko in Niigata prefecture, which was being designated as National Wildlife Protection Areas during 1999 (Environment

Agency of Japan *in litt.* 1999). Many other sites important for wintering waterfowl (which may sometimes hold wintering Baikal Teal) are designated as National Wildlife Protection Areas, including: Hamatonbetsu Kutcharo-ko, Sarobetsu, Tofutsu-ko and Utonai-ko on Hokkaido, Kominato in Aomori prefecture, Izu-numa in Miyagi prefecture, Fukushima-gata in Niigata prefecture, etc. (Environment Agency of Japan *in litt.* 1999). *Korea* Chunam reservoir in South Korea has been designated as a game sanctuary by the local county government (Callaghan and Green 1993). The importance for wildlife of Dangduri, near Haenam, has been recognised by the local government and the government's Rural Development Corporation (RDC), and the RDC is developing a master plan for the area; however, there were fears that some of the "improvements" in the initial plan (such as road and drain building) would actually harm the wildlife, and a campaign was coordinated by the Korean Wetlands Alliance to request that these activities should be halted (*Oriental Bird Club Bull.* 31 [2000]: 21). *Mainland China* This species has occurred in protected areas in mainland China on passage or in winter, several of which may support significant numbers and be important for its conservation, including: Zhalong Nature Reserve in Heilongjiang, Xianghai Nature Reserve in Jilin, Dalai Nur and Dalai Hu Nature Reserves in Inner Mongolia, Yangzi'e National Nature Reserve in Anhui, Yancheng Nature Reserve in Jiangsu, Poyang Hu Nature Reserve in Jiangxi and Dong Dongting Hu Nature Reserve in Hunan (see Distribution, and MacKinnon *et al.* 1996).

MEASURES PROPOSED ***Legislation*** Given that the sharp decline in the numbers of this species appears to have been caused mainly by unsustainable levels of hunting (see Threats), the single most important measure for its conservation is probably the passing and enforcement of legislation in its range states to reduce such hunting pressure. It has been proposed that spring wildfowling should be banned throughout the Russian Far East and East Siberia (Shibaev *et al.* 1976, 1992, V. A. Dugintsov *in litt.* 1997, N. M. Litvinenko *in litt.* 1997). The Baikal Teal should be listed as a protected species in mainland China and hunting and trading should be prohibited (SC). Lu Jianjian (1993a) proposed that national and local hunting regulations should be formulated (based on scientific studies), to control the length of the hunting season, to limit the number of hunters and the bag size of each hunter, and to ban inappropriate hunting methods such as the use of punt guns and poisons.

Protected areas and habitat management *Russia* Official protection should be afforded to some of the nesting localities in Yakutia, Russia (A. G. Degtyarev and V. I. Perfil'ev *in litt.* 1997). The Khanka State Reserve should be expanded to include the surrounding marshlands (see also the account for Red-crowned Crane *Grus japonensis*) (Shibaev *et al.* 1976, 1992, N. M. Litvinenko *in litt.* 1997). *Korea* The huge wintering concentrations of this species in South Korea are mainly in areas that are not officially protected, and which face a variety of pressures (Yoo and Lee 1998; see Threats). The status of these sites needs to be improved, through either the establishment of new reserves or the development of management plans that aim to balance economic development with the needs of this species and the other wildlife that depends on these sites.

Supplementary feeding On the basis of their study of the feeding behaviour of Baikal Teal at Chunam reservoir in South Korea, Allport *et al.* (1991) suggested that 0.27–0.55 km^2 of "sacrificial" rice crop would provide sufficient food to support c.20,000 birds over the winter. Another strategy would be to use supplementary feeding to enrich key areas, which would allow the selection of feeding sites away from power-lines and sources of disturbance, and the use of a range of feeding sites would prevent predators and hunters from predicting the birds' behaviour. This type of supplementary feeding may be appropriate as part of the management strategy for this species at some of the other wintering sites in Korea and elsewhere.

Research Studies are needed to investigate the causes of the decline in the population of this species in Yakutia (A. G. Degtyarev and V. I. Perfil'ev *in litt.* 1997). Surveys should be

conducted to locate the nesting areas of this species in the upper Amur region, and to study its biology there with the aim of protecting these sites (V. A. Dugintsov *in litt*. 1997). The numbers of migratory birds should be monitored, in particular at Lake Khanka and in the Arsen'evka valley (Shibaev *et al*. 1976, 1992, N. M. Litvinenko *in litt*. 1997). In 2001, the Environment Ministry of South Korea is planning to start a satellite-tracking study of the Baikal Teal that winter in Korea, to determine their migration routes in the Korean Peninsula (and Russia and China) and help develop measures for their protection (B. Hughes *in litt*. 2001). It may be helpful to study the effects that a diet that is comprised almost exclusively of rice is having on the wintering birds in South Korea (see Threats). Populations of this species should be surveyed and monitored in the areas of China where large numbers have occurred in the past, with the aim of improving understanding of the pressures that it faces there and thus developing appropriate conservation measures. For example, there were two counts of more than 1,000 Baikal Teal in the early 1990s at Gaoyou Hu in Jiangsu, but there have been no subsequent counts there; the status of this species at this site should be studied, and appropriate measures taken if it proves to be a major wintering ground.