Threatened Birds of Asia:

The BirdLife International Red Data Book

Editors

N. J. COLLAR (Editor-in-chief),
A. V. ANDREEV, S. CHAN, M. J. CROSBY, S. SUBRAMANYA and J. A. TOBIAS

Maps by

RUDYANTO and M. J. CROSBY

Principal compilers and data contributors

■ ***BANGLADESH*** P. Thompson ■ ***BHUTAN*** R. Pradhan; C. Inskipp, T. Inskipp ■ ***CAMBODIA*** Sun Hean; C. M. Poole ■ ***CHINA*** ■ *MAINLAND CHINA* Zheng Guangmei; Ding Changqing, Gao Wei, Gao Yuren, Li Fulai, Liu Naifa, Ma Zhijun, the late Tan Yaokuang, Wang Qishan, Xu Weishu, Yang Lan, Yu Zhiwei, Zhang Zhengwang. ■ *HONG KONG* Hong Kong Bird Watching Society (BirdLife Affiliate); H. F. Cheung; F. N. Y. Lock, C. K. W. Ma, Y. T. Yu. ■ *TAIWAN* Wild Bird Federation of Taiwan (BirdLife Partner); L. Liu Severinghaus; Chang Chin-lung, Chiang Ming-liang, Fang Woei-horng, Ho Yi-hsian, Hwang Kwang-yin, Lin Wei-yuan, Lin Wen-horn, Lo Hung-ren, Sha Chian-chung, Yau Cheng-teh. ■ ***INDIA*** Bombay Natural History Society (BirdLife Partner Designate) and Sálim Ali Centre for Ornithology and Natural History; L. Vijayan and V. S. Vijayan; S. Balachandran, R. Bhargava, P. C. Bhattacharjee, S. Bhupathy, A. Chaudhury, P. Gole, S. A. Hussain, R. Kaul, U. Lachungpa, R. Naroji, S. Pandey, A. Pittie, V. Prakash, A. Rahmani, P. Saikia, R. Sankaran, P. Singh, R. Sugathan, Zafar-ul Islam ■ ***INDONESIA*** BirdLife International Indonesia Country Programme; Ria Saryanthi; D. Agista, S. van Balen, Y. Cahyadin, R. F. A. Grimmett, F. R. Lambert, M. Poulsen, Rudyanto, I. Setiawan, C. Trainor ■ ***JAPAN*** Wild Bird Society of Japan (BirdLife Partner); Y. Fujimaki; Y. Kanai, H. Morioka, K. Ono, H. Uchida, M. Ueta, N. Yanagisawa ■ ***KOREA*** ■ *NORTH KOREA* Pak U-il; Chong Jong-ryol, Rim Chu-yon. ■ *SOUTH KOREA* Lee Woo-shin; Han Sang-hoon, Kim Jin-han, Lee Ki-sup, Park Jin-young ■ ***LAOS*** K. Khounboline; W. J. Duckworth ■ ***MALAYSIA*** Malaysian Nature Society (BirdLife Partner); K. Kumar; G. Noramly, M. J. Kohler ■ ***MONGOLIA*** D. Batdelger; A. Bräunlich, N. Tseveenmyadag ■ ***MYANMAR*** Khin Ma Ma Thwin ■ ***NEPAL*** Bird Conservation Nepal (BirdLife Affiliate); H. S. Baral; C. Inskipp, T. P. Inskipp ■ ***PAKISTAN*** Ornithological Society of Pakistan (BirdLife Affiliate) ■ ***PHILIPPINES*** Haribon Foundation for Conservation of Natural Resources (BirdLife Partner); N. A. D. Mallari, B. R. Tabaranza, Jr. ■ ***RUSSIA*** Russian Bird Conservation Union (BirdLife Partner Designate); A. V. Andreev; A. G. Degtyarev, V. G. Degtyarev, V. A. Dugintsov, N. N. Gerasimov, Yu. N. Gerasimov, N. I. Germogenov, O. A. Goroshko, A. V. Kondrat'ev, Yu. V. Labutin, N. M. Litvinenko, Yu. N. Nazarov, V. A. Nechaev, V. I. Perfil'ev, R. V. Ryabtsev, Yu. V. Shibaev, S. G. Surmach, E. E. Tkachenko, O. P. Val'chuk, B. A. Voronov. ■ ***SINGAPORE*** The Nature Society (Singapore) (BirdLife Partner); Lim Kim Seng ■ ***SRI LANKA*** Field Ornithology Group of Sri Lanka (BirdLife Affiliate); S. Kotagama; S. Aryaprema, S. Corea, J. P. G. Jones, U. Fernando, R. Perera, M. Siriwardhane, K. Weerakoon ■ ***THAILAND*** Bird Conservation Society of Thailand (BirdLife Partner); U. Treesucon; R. Jugmongkol, V. Kongthong, P. Poonswad, P. D. Round, S. Supparatvikorn ■ ***VIETNAM*** BirdLife International Vietnam Country Programme; Nguyen Cu; J. C. Eames, A. W. Tordoff, Le Trong Trai, Nguyen Duc Tu.

With contributions from: S. H. M. Butchart, D. S. Butler (maps), P. Davidson, J. C. Lowen, G. C. L. Dutson, N. B. Peet, T. Vetta (maps), J. M. Villasper (maps), M. G. Wilson

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Wellbrook Court, Girton Road, Cambridge, CB3 0NA, United Kingdom
Tel: +44 1223 277318 Fax: +44 1223 277200 Email: birdlife@birdlife.org.uk
Internet: www.birdlife.net

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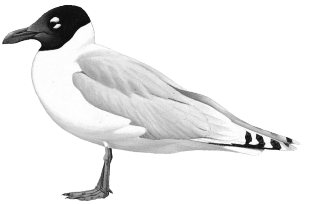
RELICT GULL
Larus relictus



Critical □ —
Endangered □ —
Vulnerable ■ C1

This species has a small, declining population as a result of predation, disturbance, variable climatic factors at breeding colonies and the development of coastal wetlands in its presumed wintering range. It therefore qualifies as Vulnerable.

DISTRIBUTION The Relict Gull (see Remarks 1) breeds very locally on steppe lakes in Mongolia and adjacent parts of Kazakhstan, Russia and China. Its non-breeding range is poorly understood: there are non-breeding records in northern and eastern China, South Korea, Japan and Vietnam, which suggest that it winters mainly on the coast of eastern China and the Korean Peninsula, although there is some evidence that some may winter inland. There are also unconfirmed records from Bulgaria and Turkey, c.4,000 km to the west of the known range, raising the possibility of the species wintering in the Black and (eastern) Mediterranean Sea areas (Gavrilov and Gavrilov 2000; see Remarks 2).

■ ***KAZAKHSTAN*** The species breeds at Alakol' lake, and has bred once at Balkhash lake, with records on passage elsewhere, as follows: **Abayevsk region**, one, August 1971, having been ringed at the colony at Alakol' lake in June 1971 (Auèzov 1974, Duff *et al.* 1991); islands in **Alakol' lake** (including Sredniy and Chubar-Tyubek islands), the first colony of the species to be identified as such (Auèzov 1971, Bannikov 1978, Duff *et al.* 1991), in which between 1969 and 1984 the number of pairs was reported to vary from zero to 1,200 (Auèzov 1975, Auèzov *et al.* 1981, Knystautas 1987 in Duff *et al.* 1991, Il'ichyev and Zubakin 1988) and from 11 to 305 pairs in 1985–1989, with an apparent decline in the 1990s, when it did not breed in 1998 (and only a single bird was seen in May) and just two clutches were found amongst a colony of Gull-billed Terns *Gelochelidon nilotica* and Common Terns *Sterna hirundo* in 1999 (A. Kovshar *per* A. Bräunlich *in litt.* 2000), while two eggs which were collected (and labelled as "*Larus melanocephalus* [Mediterranean Gull]"), May 1931, and four pulli which were ringed in 1931 (as Mew Gull *L. canus*, which has never nested at Alakol') were also presumably Relict Gulls (Gavrilov and Gavrilov 2000); **Balkhash lake**, where a pair nested in a Caspian Tern *S. caspia* colony, 1984 (Knystautas 1987, Il'ichyev and Zubakin 1988, Duff *et al.* 1991).

■ ***RUSSIA*** The species has been recorded in Chita, where it has bred on the Torey lakes, and it has been recorded on passage at several other localities in Chita and in Primorye, as follows:

■ ***Chita*** Torey lakes (Torejskie, Barun-Torei, etc.): **Barun-Torey lake**, breeding proven on Kukan (Khukhan) Island, with numbers varying from zero to 1,025 between 1967 and 1985 (Potapov 1971, Golovushkin 1977, Il'ichyev and Zubakin 1988, Duff *et al.* 1991), none breeding in 1982 and 1995 (E. E. Tkachenko *in litt.* 1997); unnamed island in **Khotogor bay**, 58 nests in 1989, but the island later vanished (E. E. Tkachenko *in litt.* 1997); unnamed island in **Teli bay**, two colonies in 1989, but the island later vanished (E. E. Tkachenko *in litt.* 1997); **Zun-Torey lake**, flocks of up to 30 on passage, undated (Neufeldt and Wunderlich 1980 in Duff *et al.* 1991); island between the channels of the Utych river (untraced), four nesting pairs in 1996 (E. E. Tkachenko *in litt.* 1997);

■ ***Primorye*** lagoon near **Fal'shivyi island**, extreme south-west Primorye, one, September 1996 (Litvinenko and Shibaev 1999b).

■ ***MONGOLIA*** The Relict Gull has been recorded from many localities in western, central and eastern Mongolia, with breeding records from two sites and evidence for breeding at several more (A. Bräunlich *in litt.* 2000). This species is dependent on transient and unpredictable water conditions and a large proportion of the adults probably fail to find suitable areas for breeding (Duff *et al.* 1991), and many records presumably involve non-breeding adults wandering from site to site during the early summer. Records (by province) are as follows: ■ *Uvs* **Khyargas Nuur** (Hyargas Nuur, Hirgis Nuur), 60 adults, July 1969, breeding suspected but not confirmed (Golovushkin 1988 in Duff *et al.* 1991); **Ayrag Nuur**, 47 adults, June 1995 (Bräunlich 1995), two records of single adults, June 1996 (M. Köpman *per* A. Bräunlich *in litt*. 1999); ■ *Khovd* **Khar Us Nuur National Park**, undated (Ramsar Bureau internet information sheet 1999); **Mönhö Hayrhan Uula** (Monh Hayrhan Uul), two migrants seen on the northern slopes of the mountain massif, undated (Il'ichyev and Zubakin 1988 in Duff *et al.* 1991); **Bulgan Gol**, adult, May 1975 (Piechocki *et al.* 1981, Piechocki 1983, Duff *et al.* 1991); ■ *Gov'-Altai* **Ihes Nuur** (Iches-nuur, Ikhes lake), adult collected, June 1957 (Piechocki *et al.* 1981, Duff *et al.* 1991; also Bold 1997); ■ *Arkhangai* **Ögiy Nuur** (Ogii lake), undated (Batdelger 1996); southern foothills of the **Hangayn Nuruu** (Khangai mountains), September 1982 (Il'ichyev and Zubakin 1988 in Duff *et al.* 1991); ■ *Bayankhongor* **Boon Tsagaan Nur**, up to 12 adults, June 1989 (Beaman 1989 in Duff *et al.* 1991), three adults, July 1998 (Dubois and Moutou 1998), nine on the south-east side of the lake, June 2000 (A. Bräunlich *in litt.* 2000, *Oriental Bird Club Bull.* 32 [2000]: 66–76); **Adgiin Tsagaan Nuur** ("Valley of the Lakes"), where "it has been suggested that this species might be breeding" (unspecified years) (Ramsar Bureau internet information sheet 1999); **Orog Nuur** (Orok or Ogrog Nor), 20 pairs, April–May 1977, "too early in the season to prove breeding" (Kitson 1980, Duff *et al.* 1991), two, 1987 (Scott 1989), two adults and a juvenile, September 1999 (H.-J. Fünfstück *per* A. Bräunlich *in litt*. 1999); ■ *Övörkhangai* near **Khujirt** (Chudshirt), adult on a steppe lake, May 1986 (Stephan 1988, Duff *et al.* 1991); **Tatsain Tsagaan Nuur**, three, May 1977, a minimum of eight pairs nested in 1981, 14 nests counted in 1982, seen in 1983, but the lake was reported dry in 1985 (Kitson 1980, Fisher 1985, Scott 1989, Duff *et al.* 1991), and an adult was seen and a dead immature found, September 1999 (H.-J. Fünfstück *per* A. Bräunlich *in litt*. 1999); ■ *Töv* **Hur Nuur**, more than one recorded, August 1970 (Il'ichyev and Zubakin 1988 in Duff *et al.* 1991); ■ *Dornod* **Büse Nuur** (Bus Nuur), five adults, June 1998 (A. Bräunlich *in litt*. 2000); **Galuutayn Nuur** (Galut Nuur), adult, June 1998 (A. Bräunlich *in litt*. 2000); **Höh Nuur** (Khokh lake), three adults collected, July 1977 (Kitson 1980, Duff *et al.* 1991, Bold 1997); **Khaichiin Tsagaan Nuur** (Khaikhen Tsaagan Nuur), seven adults, June 1998 (A. Bräunlich *in litt*. 2000); **Shorbog Nuur** (Schorbog Nuur), adult, May 1999 (A. Bräunlich *in litt.* 2000); small unnamed lake near **Choibalsan**, two adults, May 1999 (A. Bräunlich *in litt.* 2000); **Bayan Nuur**, a small lake just south of Buyr (Buir) Nuur, adult collected, May 1966 (Stubbe and Bold 1971, Piechocki 1983, Scott 1989, Duff *et al.* 1991), while nesting at Buyr Nuur itself seems likely (Kitson 1980; also Scott 1989, Bold 1997); **Lag Nuur**, 14 adults, including three adults with chicks, June 1999 (A. Bräunlich *in litt.* 2000); Tsaidamiin Nuur (untraced), four adults, May 1999 (A. Bräunlich *in litt.* 2000); Khoriin Tsaagan Nuur (untraced), 54 adults, June 1998 (A. Bräunlich *in litt*. 2000); *province unknown* Chöchnuur, undated (Piechocki 1983).

■ ***JAPAN*** The species is probably only a vagrant, the two records (by island and prefecture) being:

Honshu ■ *Kanagawa* **Hiratsuka**, first-winter bird photographed, January 1985 (Ishie *et al.* 1986 in Duff *et al.* 1991, Kirihara *et al.* 2000); ■ *Osaka* **Kishiwada**, first-winter bird photographed, September–October 1984 (Duff *et al.* 1991, Kirihara *et al.* 2000, OSJ 2000).

■ ***KOREA*** ■ ***SOUTH KOREA*** The species winters in small numbers on the Nakdong estuary (where its numbers have recently declined), with a few records from several other localities. Records (by province) are as follows: ■ *Kangwon* **Ch'ongch'o lake**, one photographed,

February 1988 (Yoon 1989 in Duff *et al.* 1991); ■ ***Kyonggi and Seoul*** **Namyang bay**, one, May 1996 (Lee Ki-sup *in litt.* 2000); ■ ***South Chungchong*** **Asan bay**, near Asan city, up to four, March–April 2000 (Lee Hansoo in press, Lee Ki-sup *in litt.* 2000); ■ ***North Kyongsang*** Songdo beach, **P'ohang**, first-winter bird, February 2000 (P. Camberlein *per* N. Moores *in litt.* 2000; also *Dutch Birding* 22(2) [2000]: 112–121); ■ ***South Kyongsang*** **Nakdong estuary**, three adults and five first-winters photographed, January 1990, c.40, March 1990 (T. Kimura *in litt.* 1990, Duff *et al.* 1991), five collected at Daemadung (a sand-dune in the estuary), March 1990 and February 1992, one, January 1992 (Lee Woo-shin *in litt*. 1998), numbers falling from a maximum of 65 in January 1991 to only nine in February 1996 (Lee Jongnam 1998), maximum of eight, winter 1996/1997 (Woo *et al*. 1997, Hur *et al.* 1999), at least three, December 1999 (Kim *et al. per* Lee Ki-sup *in litt.* 2000), and 26 first-winter birds at Tadaep'o beach, on the eastern side of the estuary near Pusan, February 2000 (P. Camberlein *per* N. Moores *in litt.* 2000; also *Dutch Birding* 22(2) [2000]: 112–121); ■ ***North Cholla*** **Kum estuary**, two adults, December 1995 (Lee Ki-sup *in litt.* 2000), six, December 1996 (Kim and Chong 1997); **Tongjin estuary**, Saemankeum area, one, 1990s (N. Moores *in litt.* 2000); ■ ***South Cholla*** **Suncheon bay**, at least nine, February 2000 (N. Moores *in litt.* 2000); **Haenam** seacoast, 10 birds, March 2000 (Lee Jeong Sik *per* Lee Ki-sup *in litt.* 2000).

■ ***CHINA*** ■ ***MAINLAND CHINA*** The Relict Gull is known to breed at two large colonies on the Ordos Plateau in Inner Mongolia, and there are many other records from the steppes in the north and along the east coast, as follows (by province):

■ ***Jilin*** **Xianghai National Nature Reserve**, first summer, May 1994 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000);

■ ***Inner Mongolia*** **Dalai Hu National Nature Reserve** (Hulun Nur), bred on an island in the southernmost small lake, 1987–1991 (MacKinnon *et al.* 1996), July 1992 (Carey and Melville 1992), near Xinbaeroqui, a small lake just south of Hulun Nur, three, June 1994, two, May 1996 (B. F. King verbally 1998); **Gaxun Nur** and Sogo Nur (Tsondol), one collected (the type) at the Ejin river (Edsin Gol), April 1929 (Lönnberg 1931a,b; also Vaurie 1962, Duff *et al.* 1991), 14, August 1985, "hundreds", spring 1990, probably breeding (Duff *et al.* 1991); **Shangdu**, two near-adults (probably second-summer) collected, July–August 1953 (Duff *et al.* 1991, Zhang Yinsun *et al*. 1991); Zhaohe (Wulantuge), **Wuchuan county**, up to 14 on a lake, May–June 1987 (Goodwin 1987, Duff *et al.* 1991), one at "Jiaohe" (assumed to be this locality), July 1993 (Otani 1993); **Ulansuhai Nur** (Wuliangsuhai, Wulianxuhai Nur), adult collected and flocks of 16 and 19, April 1987 (Duff *et al.* 1991, Zhang Yinsun *et al.* 1991), one, August 1994 (Yang Guisheng *et al*. 1998, Xing Lianlian *in litt.* 1997); "Gegentala", a grassland north of **Hohhot city**, adult, May 1988 (Duff *et al.* 1991, P. Alström, U. Olsson and D. Zetterström *in litt.* 2000); Nanhai Park, **Baotou**, 12, May 1995 (Holt 1995); **Balahai**, Ordos plateau, c.20, May 1990 (Zhang Yinsun *et al.* 1992); **Moren He** reservoir, Ordos plateau, 12, April 1990 (Zhang Yinsun *et al.* 1992); **Boerjiang Nur**, Ordos plateau, two collected, April 1987 (Melville 1990, Duff *et al.* 1991), up to 48, May 1991 (He Fenqi *et al.* 1992); **Hojia Nur**, Ordos plateau, 36, May 1991, 15, June 1991 (He Fenqi *et al.* 1992); **Dongsheng county**, two collected, April 1987 (Zhang Yinsun *et al*. 1991); **Taolimiao-Alashan Nur**, Ordos plateau, 1,158 birds and 581 nests counted, summer 1990 (Melville 1990, Duff *et al.* 1991), 491 nests counted, 1,370–1,390 m, May–June 1991 (He Fenqi *et al.* 1992, Zhang Yinsun *et al.* 1992, Zhang Yinsun and He Fenqi 1993), 1,500 nests, June 1993, 98% of the eggs hatching (*Oriental Bird Club Bull.* 18 [1993]: 14–18), c.500, June 1993 (Holt 1995); **North Hadato Nur**, Ordos plateau, 48, June 1991 (He Fenqi *et al.* 1992); **Chigai Nur**, Ordos plateau, 12, May 1990 (He Fenqi *et al.* 1992, Zhang Yinsun *et al.* 1992); **Ulan Nur**, Ordos plateau, 22, May 1990 (Zhang Yinsun *et al.* 1992), two, June 1991 (He Fenqi *et al.* 1992); **Hadato Nur**, Ordos plateau, four, May 1990 (Zhang Yinsun *et al.* 1992), 426, June 1991 (He Fenqi *et al.* 1992); **Quitz Nur**, Ordos plateau, five, June 1991 (He Fenqi *et al.* 1992); **Haotongchagan Nur**, Ordos plateau,

two, May 1990 (Zhang Yinsun *et al.* 1992), one, June 1991 (He Fenqi *et al.* 1992); **Aubai Nur**, Ordos plateau, 624 nests counted, with 1,000–1,100 newly hatched young, 1,320 m, May–June 1991 (He Fenqi *et al.* 1992, Zhang Yinsun and He Fenqi 1993);

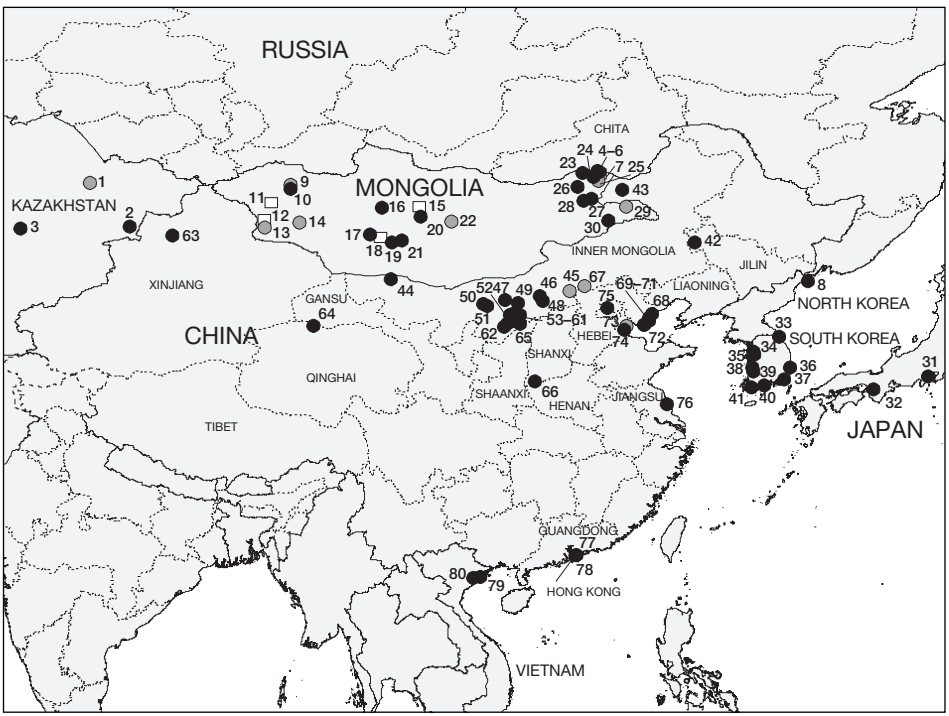
■ ***Xinjiang*** Kekyami lake, **Karamay city**, "reported here", spring 1990 (Duff *et al.* 1991);

■ ***Qinghai*** **Dasugan Hu** and Xiaosugan Hu, "reported to be wintering here", 1989/1990 (Duff *et al.* 1991);

■ ***Shaanxi*** **Hongjian Nur**, over 100, November 1989 (Duff *et al.* 1991, Zhang Yinsun *et al.* 1991);

■ ***Shanxi*** **Yuncheng county**, one, January 1997 (Liu Huanjin *et al.* 1997);

■ ***Hebei*** (see Remarks 3): **Kangbao**, adult and immature (probably second summer) collected, June–July 1953 (Duff *et al.* 1991, Zhang Yinsun *et al.* 1991); **Beidaihe**, a total of



The distribution of Relict Gull *Larus relictus*: (1) Abayevsk region; (2) Alakol' lake; (3) Balkhash lake; (4) Barun-Torey lake; (5) Khotogor bay; (6) Teli bay; (7) Zun-Torey lake; (8) Fal'shivyi island; (9) Khyargas Nuur; (10) Ayrag Nuur; (11) Khar Us Nuur National Park; (12) Mönhö Hayrhan Uula; (13) Bulgan Gol; (14) Ihes Nuur; (15) Ögiy Nuur; (16) Hangayn Nuruu; (17) Boon Tsagaan Nur; (18) Adgiin Tsagaan Nuur; (19) Orog Nuur; (20) Khujirt; (21) Tatsain Tsagaan Nuur; (22) Hur Nuur; (23) Büse Nuur; (24) Galuutayn Nuur; (25) Höh Nuur; (26) Khaichiin Tsagaan Nuur; (27) Shorbog Nuur; (28) Choibalsan; (29) Bayan Nuur; (30) Lag Nuur; (31) Hiratsuka; (32) Kishiwada; (33) Ch'ongch'o lake; (34) Namyang bay; (35) Asan bay; (36) P'ohang; (37) Nakdong estuary; (38) Kum estuary; (39) Tongjin estuary; (40) Suncheon bay; (41) Haenam; (42) Xianghai National Nature Reserve; (43) Dalai Hu National Nature Reserve; (44) Gaxun Nur; (45) Shangdu; (46) Wuchuan county; (47) Ulansuhai Nur; (48) Hohhot city; (49) Baotou; (50) Balahai; (51) Moren He; (52) Boerjiang Nur; (53) Hojia Nur; (54) Dongsheng county; (55) Taolimiao-Alashan Nur; (56) North Hadato Nur; (57) Chigai Nur; (58) Ulan Nur; (59) Hadato Nur; (60) Quitz Nur; (61) Haotongchagan Nur; (62) Aubai Nur; (63) Karamay city; (64) Dasugan Hu; (65) Hongjian Nur; (66) Yuncheng county; (67) Kangbao; (68) Beidaihe; (69) Qilihai; (70) Luan He; (71) Daqinghe; (72) Shijiutuo; (73) Dagu; (74) Beidagang; (75) Beijing Shisanling reservoir; (76) Yancheng Nature Reserve; (77) Mai Po; (78) Lau Fau Shan; (79) Ha Long bay; (80) Hai Phong.

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

112 bird-days (but with a daily maximum of seven, and possibly involving as few as 17 individuals), almost all first-winter birds, August–November 1986, 92 bird-days, September–November 1987, 10 bird-days (four individuals), September–October 1988, one, October 1989, 13+, August–November 1990 (Bakewell *et al.* 1989, Duff *et al.* 1991, Williams *et al.* 1992), regularly recorded in small numbers (up to 15) in April–May and September–November during the 1990s (many observers *in litt.*); **Qilihai**, south of Beidaihe, one, May 1993 (D. Jardine *in litt.* 1999); **Luan He** river mouth, first-winter, October 1990 (Duff *et al.* 1991), two, May 1992 (T. Uggla *in litt.* 1999), four, May 1994 (J. Thalund *in litt.* 1999); **Daqinghe**, 12 adults, November 1990 (Duff *et al.* 1991), up to five, May 1993 (D. Jardine *in litt.* 1999); **Shijiutuo** ("Happy island"), south of Beidaihe, four, May 1992 (T. Uggla *in litt.* 1999), up to seven, May 1993 (Earlybird 1993), large numbers (maximum count 865 on 12 September), August–September 1994, mainly adults moulting into winter plumage, with very few first years and "some more" second years (Dierschke and Heintzenberg 1994), up to 41, May 1994 (Regulus Travel 1994), five, May 1995 (Petersson 1995), up to 430, September 1996 (Gerntholtz and Knoll 1996), up to five, May 1997 (Aryren 1997), up to 13, May 1998 (B. Petersson 1998), 315, September 1998 (*Oriental Bird Club Bull.* 29 [1999]: 50–58), 24, May 1999 (A. Holcombe *in litt.* 1999), 200+, September 1999 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000);

■ ***Tianjin*** **Dagu** (Taku, Takou, etc.), south of Tanggu (Tangzing), first-year collected, October 1934, four collected, April 1935 (B. F. King in Cheng Tso-hsin 1987, Duff *et al.* 1991, Zhang Yinsun *et al.* 1991); Bohai bay near **Beidagang**, c.30 daily, April 1999 (Zhang Shuping *et al.* 1999);

■ ***Beijing*** **Beijing Shisanling reservoir** ("Ming Tombs" reservoir), four adults, April 1983 (erroneously given as "Miyun Reservoir" in Duff *et al.* 1991: D. Duff *in litt.* 2000);

■ ***Jiangsu*** **Yancheng Nature Reserve**, 183 first-year birds, December 1997 to January 1998 (Su Hualong *et al.* 1998).

■ ***HONG KONG*** The species is a rare winter visitor: **Mai Po** (Inner Deep Bay), one, December 1987 to January 1988, one, November 1992 to March 1993 (Kennerley 1990a, Picken 1990 in Duff *et al.* 1991, HKBWS *in litt.* 1997); **Lau Fau Shan** (Outer Deep Bay), one, November–December 1992 (HKBWS *in litt.* 1997).

■ ***VIETNAM*** There are two records: **Ha Long bay** (Baie d'Along), Quang Ninh, bird (ringed as a chick in Kazakstan, June 1971), recovered, September 1971 (Auèzov 1974, Kitson 1980, Duff *et al.* 1991); near **Hai Phong** city, Hai Phong, two adults, January 1997 (*Oriental Bird Club Bull.* 25 [1997]: 61–69).

POPULATION Rose and Scott (1997) estimated the total population of Relict Gull at 12,000 individuals (but it should be noted that this species first breeds in its third year so that the total number of mature individuals will be substantially below this figure). There appear to have been declines in its breeding populations in Kazakhstan and Russia during the 1990s (see below), although these changes may be localised natural fluctuations in the numbers of the species related to periodic changes in conditions at the nesting colonies. However, real declines in its population could be taking place as a result of ongoing loss of coastal habitats on its presumed wintering sites in eastern China (see Threats).

Kazakhstan At the main breeding colony at Alakol' lake, the number of pairs varied from zero to 1,200 between 1969 and 1984 (Auèzov 1975, Auèzov *et al.* 1981, Knystautas 1987 in Duff *et al.* 1991, Il'ichyev and Zubakin 1988) and from 11 to 305 in 1985–1989; the colony appeared to have declined to near-extinction in the 1990s (although regular monitoring was not possible because of financial and other problems), and there were no nesting pairs in 1998 and only two clutches found in 1999 (A. Kovshar *per* A. Bräunlich *in litt.* 2000; see Distribution).

Russia At the Torey lakes, its population has ranged from zero to 1,215 pairs since the nesting colonies were first discovered; its numbers vary according to weather conditions in the breeding season (the population declines with the onset of periods of cool, damp weather) and the presence of suitable areas for nesting (Krivenko 1983, E. E. Tkachenko *in litt.* 1997). The annual totals have been: c.100 pairs in 1967 (Leont'ev 1968); lakes not surveyed in 1968–1969, 81 pairs in 1970 (Potapov 1971); 322 pairs in 1975, 493 pairs in two colonies (420 and 73 nests) in 1976 (Zubakin 1981); 86 pairs in 1977, 612 pairs in 1979, 312 pairs in 1980, 280 pairs in 1981, 653 pairs in 1982, no breeding in 1983, 320 pairs in 1984, 1,025 pairs in 1985 (Golovushkin 1977, Vasil'chenko 1986, Osipova 1987), no data for 1986–1988, 1,215 pairs in 1989, 1,200 pairs in 1990, 1,100 pairs in 1991, 1,000 pairs in 1992, 825 pairs in 1993, 286 pairs in 1994, no breeding in 1995, two colonies of four and 20 nests in 1996 (E. E. Tkachenko *in litt.* 1997). In 1995, when no Relict Gulls nested, the number during migration (May to the first half of June) did not exceed 20 birds (E. E. Tkachenko *in litt.* 1997).

Mongolia The species is known or suspected to breed on several lakes in Mongolia (D. Batdelger *in litt.* 1997; see Distribution), but the data available are too incomplete to attempt a realistic population estimate (A. Bräunlich *in litt.* 2000).

China The largest known breeding population of this species is in the two colonies on the Ordos plateau in Inner Mongolia where at Taolimiao-Alashan Nur 1,158 birds and 581 nests were counted in 1990 (Melville 1990, Duff *et al.* 1991), 491 nests in 1991 (Zhang Yinsun *et al.* 1992, Zhang Yinsun and He Fenqi 1993), and 1,500 nests in 1993 (*Oriental Bird Club Bull.* 18 [1993]: 14–18); at Aubai Nur 624 nests were counted, with 1,000–1,100 newly hatched young, in 1991 (Zhang Yinsun and He Fenqi 1993). A total of 4,096 birds (presumably at both lakes) was found breeding in 1996 (Xing Lianlian *in litt* 1997). Away from the breeding grounds, up to 865 have been counted at Shijiutuo in Hebei in recent autumns (see Distribution), and c.300 were found in April 1999 on Bohai bay in Tianjin (Zhang Shuping *et al.* 1999), presumably birds on passage. In Yancheng Nature Reserve in Jiangsu, 183 first-year birds were seen in December 1997 and January 1998 (Su Hualong *et al.* 1998).

ECOLOGY The Relict Gull is a gregarious bird, usually gathering in flocks when feeding, roosting and nesting. In Kazakhstan and Russia, the nesting colonies are usually near those of other gull species (Bannikov 1978), but in China the species is more frequently found in separate flocks (Zhang Yinsun *et al.* 1991, 1992).

Habitat All known Relict Gull breeding colonies are below 1,500 m, in the arid-steppe zone on saline and slightly saline lakes with highly fluctuating water levels, where they usually nest on small islands in large lakes (Bannikov 1978, Kitson 1980, Duff *et al.* 1991). On the Ordos plateau in China they nest on lakes in deserts and semi-desert grasslands, at c.1,200–1,500 m (Zhang Yinsun *et al.* 1991, He Fenqi *et al.* 1992). Aubai Nur is an isolated lake surrounded by mobile/semi-settled sand-dunes, and is very alkaline (pH 9) (Zhang Yinsun and He Fenqi 1993), and Taolimiao-Alashan Nur is surrounded by mostly stabilised sand-dunes with a poor vegetation of eremophytes (Zhang Yinsun *et al.* 1992). In Russia, the Relict Gull has extremely strict ecological requirements, and for successful breeding it needs sufficiently wet and warm weather conditions and the presence of large areas suitable for the formation of colonies; it will not nest if the lakes dry up completely, if the islands become joined to the shore and practically disappear, or if the water level is very high and the islands are reduced in size or become overgrown with very tall vegetation (E. E. Tkachenko *in litt.* 1997).

Relict Gulls may also have specialised habitat outside the breeding season. Bakewell *et al.* (1989) found that at Beidaihe they were only seen on a very extensive, largely sandy intertidal area, where they preferred the river channel and its gently shelving banks and drier sandy areas well away from both the river and the tideline; they were rarely seen on the muddier areas and the tideline, the habitats favoured by other gull species using the area, and were

never seen scavenging inland or loafing on the reservoir, and (possibly as a result) they were rarely seen associating with other gulls.

Food At the breeding colony on the Ordos plateau in China, Relict Gulls usually feed within an area of 2.5–3.0 km in radius; in the breeding season, they feed mainly on invertebrates, more than 90% of which are midge larvae, small fish, and some plants, including the leaves of grasses and sedges (Zhang Yinsun *et al.* 1991, 1992). In the Hangayn Nuruu (Hanga mountains) in Mongolia, they have been recorded feeding on Brandt's voles *Microtus brandti* in the southern foothills in September (Il'ichyev and Zubakin 1988, Duff *et al.* 1991). Unlike most other gulls, they show very little tendency to scavenge around human establishments (Duff *et al.* 1991). At Beidaihe, they sometimes fed in an estuarine channel, upending like a dabbling duck *Anas*, but most foraging was on sandflats, where the hunting posture was very erect with the head held high; the only identified prey items were small crabs, and the erect posture would presumably help in detecting such large, scattered prey (Bakewell *et al.* 1989). An individual present in Hong Kong in winter regularly foraged in an intertidal area heavily polluted with effluent from a pig farm (HKBWS *in litt.* 1997).

Breeding The Relict Gull nests in colonies, usually on small islands in large lakes, and the sites occupied frequently change (Bannikov 1978). At the Ordos plateau breeding colony in China, the breeding season lasts from early May to early July; in 1990, the hatching rate of a sample of 50 nests was 100%, and, of the 521 nests found, 20% had one egg, 41.3% had two eggs, 38.6% had three eggs and one nest had four eggs; the death rate of young birds was relatively high, owing to injury, cold and starvation (Zhang Yinsun *et al.* 1992). At Taolimiao-Alashan Nur, an average of 2.52 eggs/nest was found in 1991, compared with 2.19 eggs/nest in 1990 (He Fenqi *et al.* 1992). In Kazakhstan and Russia, the clutch size is 1–4 eggs, usually three (Bannikov 1978). The species first breeds at three years of age (del Hoyo *et al.* 1996).

Migration The breeding range of Relict Gull is now relatively well known, but the non-breeding distribution is poorly understood. At the Ordos plateau breeding colonies in China, birds were present between about 6 April and 29 August in 1990, and from about 25 March to 26 August in 1991 (Zhang Yinsun *et al.* 1992, Zhang Yinsun and He Fenqi 1993). Some birds clearly move from the breeding areas to the East Asian coast. To begin with, there is a small wintering population on the Nakdong estuary in South Korea, where there have now been nine confirmed recoveries of birds ringed at the Torey lakes in Russia (where the Moscow Bird Ringing Centre ringed 1,866 fledglings in 1988–1991) (*Bird Link Newsletter* 1(1) [1997]: 13), and a small chick ringed at Alakol' lake in Kazakhstan on 3 June 1971 was recovered on 30 September 1971 in North Vietnam (Auèzov 1974, Kitson 1980). Much more strikingly, the pattern of non-breeding records, notably the concentrations on the Gulf of Bohai (in Hebei and Tianjin) in spring and autumn, and the recent large winter count from Yancheng Nature Reserve in Jiangsu, indicates that the main wintering grounds are probably on the east coast of China, possibly on the Huang He estuary in the south of the Bohai Gulf, on the coast of Jiangsu province or in the Chiang Jiang (Yangtze) estuary (see Duff *et al.* 1991, Distribution). Nevertheless, there is some evidence that the species may also winter on the northern flank of the Qinghai–Tibet plateau, as it was reported to be "wintering" at two sites in Qinghai in 1989–1990 (Duff *et al.* 1991), and there are unconfirmed records from Bulgaria and Turkey, raising the possibility of the species wintering c.4,000 km to the west of the known range, in the Black and (eastern) Mediterranean Sea areas (Gavrilov and Gavrilov 2000; see Remarks 2). Intensive scrutiny of gull flocks in Deep Bay during the 1990s (where many observers were by then familiar with the field characters of this species) established that Relict Gull is not a regular winter visitor to Hong Kong, and it is suspected that its normal winter range lies to the north (HKBWS *in litt.* 1997).

THREATS ***Habitat loss*** *South Korea* Most feeding grounds of this species on the Nakdong estuary have now been reclaimed, and its numbers have fallen from a maximum of 65 in

January 1991 to only nine in February 1996 (*Bird Link Newsletter* 1(1) [1997]: 13). *China* Perhaps the greatest threat to the species is the loss of suitable habitat in its presumed wintering range on the east coast of China; these coastal wetlands are under pressure from many activities in this densely populated region, including the drainage of coastal marshes for agricultural purposes and disease control, the conversion of marshes to fishponds, and industrial and urban development (Scott 1989, MacKinnon *et al.* 1996; see the equivalent section under, e.g., Chinese Egret *Egretta eulophotes*, Black-faced Spoonbill *Platalea minor*, Spotted Greenshank *Tringa guttifer* and Saunders's Gull *Larus saundersi*). Shijiutuo ("Happy Island") in Hebei, which supports the largest known non-breeding concentrations of the species, is under pressure for tourism and other development (*Oriental Bird Club Bull.* 32 [2000]: 30–31). Siltation of wetlands (as a result of deforestation and other activities) and the pollution of estuaries by domestic, industrial and agricultural effluents are also major problems (Scott 1989).

Disturbance *Kazakhstan* At Alakol' lake, a colony (containing 40 clutches) was deserted after people visited the nesting island (A. Kovshar *per* A. Bräunlich *in litt.* 2000). *Russia* Increased mortality of eggs and chicks has been caused by flooding in strong winds and by human disturbance at the colonies (Bannikov 1978). Any disturbance is especially dangerous when the colony is small and the weather poor, as the nests then become vulnerable to predation by other species of gulls (E. E. Tkachenko *in litt.* 1997). *China* At the Ordos plateau breeding colony, research work (involving the construction of a metal grid on one of the nesting islets) in 1991 affected the behaviour of almost all the gulls in the area during the latter part of the breeding season, and only one egg was found to have hatched there and the chick was dead; during winter 1990–1991, local people collected small stones from the largest nesting islet, allowing grass to cover half the islet and thus affecting the gulls' nest-site selection (He Fenqi *et al.* 1992, Zhang Yinsun and He Fenqi 1993).

Natural causes *Kazakhstan* One of the colonies at Alakol' lake was deserted in 1975 for unknown reasons, possibly because of a sharp rise in the numbers of "Herring Gulls *Larus argentatus*" (presumably Yellow-legged Gulls *L. cachinnans mongolicus*) and Great Black-headed Gulls *L. ichthyaetus* on the island (Auèzov *et al.* 1981). A colony (containing 11 clutches) at Alakol' lake was "destroyed in 1986 by the influence of" Yellow-legged Gulls *L. cachinnans mongolicus* (A. Kovshar *per* A. Bräunlich *in litt.* 2000). In several years in the 1980s (1980, 1982–1984, 1989, and at one site in 1985 and 1988), the low-lying islands used for nesting at Alakol' lake were swamped by waves during stormy weather, and the clutches were destroyed (A. Kovshar *per* A. Bräunlich *in litt.* 2000). In 1998, there was a drastic lowering of the water level in Alakol' lake, which allowed red foxes *Vulpes vulpes* to cross to Sredniy island and destroy the gull and tern clutches in the nesting colony (A. Kovshar *per* A. Bräunlich *in litt.* 2000). *Mongolia* Eggs and chicks are taken by other gulls, and chicks succumb to hypothermia in heavy and prolonged rain; nests are also swamped by storms (D. Batdelger *in litt.* 1997). *China* The Ordos plateau breeding colony in Inner Mongolia is on an island in a lake, and there are no major threats to it at present (He Fenqi verbally 1996). However, more than 20 adults were killed there by a hailstorm in April 1990 (Zhang Yinsun *et al.* 1992).

MEASURES TAKEN ***Legislation*** The hunting of this species is prohibited in Russia (Bannikov 1978). It is a Nationally Protected Species (First Class) in China, and it is a protected species in South Korea. It is listed on Appendix I of CITES, and on Appendix I of the CMS (Bonn Convention, for which see Boere 1991).

Protected areas *Kazakhstan* All of the islands in Alakol' lake have been protected in a nature reserve established for this species (Auèzov *et al.* 1981). The Alakol' Nature Reserve was newly established in 1998, which raised hopes that the problems at this site can be resolved in the future (A. Kovshar *per* A. Bräunlich *in litt.* 2000). *Russia* All known breeding sites of

the Relict Gull in Russia have been under protection since 1982 in the Tsasuchey-Torey (Tsasucheysko-Toreyskiy) sanctuary (zakaznik), which in 1987 formed the basis for the establishment of the Daurskiy (Daurian) Nature Reserve (zapovednik), and in 1994 all the habitats used by Relict Gull were protected within the Torey lakes wetlands (following the recommendation of Bannikov 1978) (E. E. Tkachenko *in litt.* 1997). *Mongolia* Three sites where this species is reported to occur, Har Us Nuur National Park, Ayrag Nuur and Adgiin Tsagaan Nuur ("Valley of the Lakes"), were listed as Ramsar sites in 1998 and 1999 (Ramsar Bureau internet information sheet 1999). Mongol Daguur and Nomrog river are within protected areas (D. Batdelger *in litt.* 1997). *China* This species is recorded from several protected areas, including: Wuliangsuhai Nature Reserve and Dalai Hu National Nature Reserve in Inner Mongolia; Yancheng Nature Reserve in Jiangsu; and Mai Po Marshes Nature Reserve in Hong Kong (see Distribution).

Research *Kazakhstan* The colonies at Alakol' lake have been intensively studied, and between 1968 and 1976, 2,251 chicks were ringed (Auèzov *et al.* 1981). *Russia* Between 1988 and 1991, the Moscow Bird Ringing Centre ringed 1,866 fledglings at Barun-Torey lake, and there have now been nine confirmed recoveries at the Nakdong estuary in South Korea (*Bird Link Newsletter* 1(1) [1997]: 13). *China* The colonies on the Ordos plateau were intensively studied during the 1990s (see Zhang Yinsun *et al.* 1991, 1992, He Fenqi *et al.* 1992, Zhang Yinsun and He Fenqi 1993).

Education *China* A poster campaign was carried out in the 1990s to inform the local communities about the importance of the breeding colonies on the Ordos plateau in Inner Mongolia (He Fenqi verbally 1996).

MEASURES PROPOSED ***Legislation*** *Mongolia* Relict Gull should be listed as a nationally protected species in Mongolia (Bold 1997).

Protected areas and habitat protection Efforts need to be made to locate all important nesting, passage and wintering sites, and where appropriate new areas should be brought under protection. The results of previous studies at its breeding colonies in Kazakhstan, Russia and China (see Ecology and Threats) should be used to help develop management strategies for these sites, to help limit the effects of human disturbance, competition for nest sites from other gull species, predation, swamping of nests during storms and other threats. *Russia* Where necessary, existing reserves should be expanded to include all the sites where this species could possibly breed, for example Khotogor bay in Barun-Torei lake (E. E. Tkachenko *in litt.* 1997). *South Korea* The main wintering population in South Korea at the Nakdong estuary has declined in recent years because of habitat loss (see Threats); efforts need to be made there and at other sites for the species to prevent further reclamation of the mudflats where wintering birds feed (see the equivalent section under, e.g., Baikal Teal *Anas formosa*). *China* The two breeding colonies on the Ordos plateau are not officially protected, and the possible benefits to the conservation of this species of establishing a new reserve there should be evaluated. If the east coast of China proves to be the main wintering grounds for Relict Gull, measures need to be taken at the key sites for the species, to control reclamation of mudflats and other pressures (see the equivalent section under, e.g., Chinese Egret, Black-faced Spoonbill, Spotted Greenshank and Saunders's Gull). *Vietnam* Pedersen *et al.* (1996) made recommendations for the conservation of several key coastal wetlands in the Red River delta (the site of one of the documented records of this species in Vietnam), including their designation as Ramsar sites, the development of an environmentally sensitive coastal development plan, and the establishment of new nature reserves.

Research Surveys are needed throughout the range of this species (in particular on the presumed non-breeding grounds on the east coast of China) to improve understanding of its population size and distribution, with the objective of reviewing the effectiveness of the existing protected-area system for its conservation, and determining whether new (or modifications

to existing) reserves are required. *Mongolia* Surveys are necessary, where information on its distribution and population is currently very incomplete (Bold 1997). *China* It is necessary to investigate the non-breeding range of this species, to establish whether the east coast of China is the most important wintering area. Satellite-tracking may be an appropriate technique to help to locate the wintering areas (and possibly also undiscovered breeding colonies), to record the movements of individuals from the breeding colonies or from known non-breeding sites, e.g. Shijiutuo in Hebei, to the wintering areas.

REMARKS (1) This taxon was originally described as a subspecies of Mediterranean Gull *Larus melanocephalus* (Lönnberg 1931b), and was later considered an aberrant specimen of Brown-headed Gull *L. brunnicephalus* (Dement'ev and Gladkov 1951–1954) or of hybrid origin (Vaurie 1962). Its status as a good species was clarified by Auèzov (1971). (2) A small gull, ringed as a Relict Gull pullus at Alakol' lake in Kazakhstan in June 1975, was found at Burgas, Bulgaria, in March 1978, and another "Relict Gull" pullus ringed at Alakol' lake in June 1979 was found at Innaplikuyukuyuk, Adana, Turkey, in March 1990; neither ring was sent in, and there is a possibility of confusion between the pulli of Relict Gull and Black-headed Gull *L. ridibundus* (although the pulli of the two species differ significantly in plumage colour, and at least one of the pulli was ringed at a site where Black-headed Gull does not nest), so these ringing recoveries should be considered as unauthenticated (Gavrilov and Gavrilov 2000). (3) Drawings of "Brown-headed Gulls" *L. brunnicephalus* in Shaw (1936) appear to show Relict Gulls, and strongly suggest that many, perhaps all, literature references to Brown-headed Gulls in Hebei actually refer to Relict Gulls (Duff *et al.* 1991). Shaw stated that the "Brown-headed Gull" is a regular passage migrant to Hebei, and a summer visitor which "comes from the south in April and remains to stay here until October" (Williams *et al.* 1992).