Threatened Birds of Asia: The BirdLife International Red Data Book

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GREATER SPOTTED EAGLE
*Aquila clanga*

Critical □ —
Endangered □ —
Vulnerable ■ C1

There is anecdotal evidence that this species’s small population is declining, at a rate likely to exceed 10% in three generations, which qualifies it as Vulnerable. It has suffered from extensive habitat loss and persistent persecution.

**DISTRIBUTION** The range of the Greater Spotted Eagle (see Remarks 1) is huge. It breeds from Finland to China and winters from Kenya to Japan. Throughout the twentieth century, numbers have dwindled and many subpopulations have become extinct, with the result that, although it remains extremely widespread, its range is now highly fragmented. In this account attention is focused on the status of the species in the Asian portion of its range.

**Outside the Asian region** Outside “Asia” as defined here, this raptor occupies a fragmented range, breeding in Finland, Latvia, Lithuania, Estonia, Poland, Belarus, Moldova, Romania, Russia, Ukraine and Kazakhstan, and passage or wintering birds occur in small numbers over a vast area, including central and eastern Europe, northern and eastern Africa, the Middle East and the Arabian peninsula (Meiyburg et al. 1997; also Lõhmus 1998 and Database of the Lithuanian Ornithological Society 1999). In northern Afghanistan, a female was shot at Danaghori in May 1937 (Meinertzhagen 1938), and in south-eastern Afghanistan, close to the Baluchistan (Pakistan) border, it has been found at Kandahar (St. John 1889). Two specimens were procured from Mishun (Persia) at the end of February 1927 (Capito 1931). In general the species is uncommon in the arid regions to the west of Pakistan.

**Asian region** It breeds in eastern Russia and northern mainland China (and apparently regularly in tiny numbers in Pakistan and north-west India) and it is a passage and/or winter visitor to Japan, South Korea, mainland China, Hong Kong, Taiwan, Pakistan, India, Nepal, Bhutan, Bangladesh, Myanmar, Thailand, Laos, Cambodia, Vietnam, Peninsular Malaysia, Singapore and Sumatra in Indonesia.

■ **RUSSIA** In eastern Russia this is a locally distributed breeding species in the Irkutsk region, Buryatia, Khabarovsk Territory, Amur region, Jewish Autonomous Region and Primorye Territory, and is also recorded from Chita region and Yakutia, with a few wintering in Primorye. Records are as follows:

■ **Krasnoyarsk** Ket’ river, western Krasnoyarsk, seen twice within six unspecified years (Moskvitin et al. 1977 in Rogacheva 1992); southern tributaries of the Angara river, found in subtaiga, undated (Rogacheva 1992); Chuna river basin, rare but regularly seen, undated (Ravkin 1984 in Rogacheva 1992); Kan river, found in subtaiga, undated (Rogacheva 1992); near the Nizhne-Kitatskiy rapids (Nizhne-Kitat rapids), middle section of the Kazyr river, eastern Sayan mountains, one, 1950s (Kim 1961 in Rogacheva 1992); Minusinsk basin (Minusinsk depression), occasional, but not currently known to breed (Kustov 1981 in Rogacheva 1992); near Usinskiy (Usinsk), Us depression, immature, June 1982 (Syroechkovski and Bezbodorov 1987 in Rogacheva 1992);

■ **Irkutsk** (where it nests only on the Irkutsk-Cheremkhovo plain, between the Sayan mountains and the Trans-Siberian railway—but probably also along the Oka, Belaya and Kitoy rivers: V. V. Ryabytsev in litt. 1997) upper Lena river, nested in the 1930s (Skalon 1934, Gagina 1961), possibly still nesting, as it occurs on autumn migration along the south-west shore of Lake Baikal (V. V. Ryabytsev in litt. 1997); Oka river valley, Kuytunskiy district,
immature female collected, August 1959 (Reymers 1966); near Bystraya (Bestraja), Baikal mountains, September 1913 (female in NHMW); Iya river valley, near Gadaley settlement, Tulunskiy district, nest with eggs, May 1964 (Sonin and Ryabytsev 1993); lower Unga river (the Bratsk reservoir), June 1981, August 1982, August 1983, in an unforested landscape (V. V. Ryabtsev in litt. 1997); Kuda river, near Irkutsk, June 1981 (Bogorodskiy 1989); near Irkutsk, September 1927 (specimen in ZMISU), regularly present in Irkut river floodplain in Irkutsk city limits, summer 1989–1992 (V. V. Ryabtsev in litt. 1997), between Irkutsk and Listvyanka, one seen, June 1988 (J. O’Sullivan in litt. 1999); Iya river valley, near Gadaley settlement, Tulunskiy district, nest with eggs, May 1964 (Sonin and Ryabytsev 1993); lower Korolok river, Irkutskoye reservoir (Irkut reservoir), Angara river, Irkutsk district, 25 km south-east of Irkutsk, pair frequently seen, May–June 1987–1988, probably nesting until 1991 (V. V. Ryabtsev in litt. 1997), nesting on the Angara river in the 1930s (Skalon 1934, Gagina 1961); lower Kuda river, near Irkutsk, September 1927 (specimen in ZMISU), regularly present in Irkut river floodplain in Irkutsk city limits, summer 1989–1992 (V. V. Ryabtsev in litt. 1997), between Irkutsk and Listvyanka, one seen, June 1988 (J. O’Sullivan in litt. 1999); Irkut river valley, 10 km south-west of Vvedenskoye (Vvedenshchina) village, Shelekhovskiy district, 45 km south-west of Irkutsk, nest with one chick, July 1990 and single chicks fledged annually, 1990–1992 (V. V. Ryabtsev in litt. 1997), with nesting on the Irkut river in the 1930s (Skalon 1934, Gagina 1961); Kuda river, Severo-Baykal’skiy district, Verkhnyaya Angara river (Uoyan–Kumora extension of the riverine floodplain), 1–2 seen several times, July 1991, probably breeding (V. V. Ryabtsev in litt. 1997); Barguzinskiy Nature Reserve, Barguzinskiy district, recently fledged juvenile collected, September 1974, probably breeding (Belyaev 1979), the species being very rare, but probably nesting, in the Barguzinskaya valley, Barguzinskiy district (Lyamkin 1977, Elaev et al. 1995); Zabaykal’skiy National Park, Barguzinskiy district, swamps around Arangatuy lake, up to three seen, July 1992, up to two seen, August 1993, probably breeding (V. V. Ryabtsev in litt. 1997); Selenga delta, Kabanskii district, 2–3 adults seen annually, 1986–1994, probably breeding (Fefelov 1994), six, June 1991 (G. Ouweeneel in litt. 1999); near Tory settlement, pair seen, August 1991, probably nesting (V. V. Ryabtsev in litt. 1997); Engarginskoye lake, here presumed to be near to Yengarga, present in the 1930s (Skalon 1936), but not found in August 1991 (V. V. Ryabtsev in litt. 1997); Tunka, June 1901 (male in MNHN); 15 km west of Kyren settlement, pair seen, August 1991, probably nesting (V. V. Ryabtsev in litt. 1997); Tokhoy lake, between Ulan-Ude and the Mongolian border, one seen, June 1991 (G. Ouweeneel in litt. 1999);

Buryatia (where it is known to nest in the Tunkinskaya valley in Tunkinskii district) near Kumora settlement, Severo-Baykal’skiy district, Verkhnyaya Angara river (Uoyan–Kumora extension of the riverine floodplain), 1–2 seen several times, July 1991, probably breeding (V. V. Ryabtsev in litt. 1997); Barguzinskiy Nature Reserve, Barguzinskiy district, recently fledged juvenile collected, September 1974, probably breeding (Belyaev 1979), the species being very rare, but probably nesting, in the Barguzinskaya valley, Barguzinskiy district (Lyamkin 1977, Elaev et al. 1995); Zabaykal’skiy National Park, Barguzinskiy district, swamps around Arangatuy lake, up to three seen, July 1992, up to two seen, August 1993, probably breeding (V. V. Ryabtsev in litt. 1997); Selenga delta, Kabanskiy district, 2–3 adults seen annually, 1986–1994, probably breeding (Fefelov 1994), six, June 1991 (G. Ouweeneel in litt. 1999); near Tory settlement, pair seen, August 1991, probably nesting (V. V. Ryabtsev in litt. 1997); Engarginskoye lake, here presumed to be near to Yengarga, present in the 1930s (Skalon 1936), but not found in August 1991 (V. V. Ryabtsev in litt. 1997); Tunka, June 1901 (male in MNHN); 15 km west of Kyren settlement, pair seen, August 1991, probably nesting (V. V. Ryabtsev in litt. 1997); Tokhoy lake, between Ulan-Ude and the Mongolian border, one seen, June 1991 (G. Ouweeneel in litt. 1999);

Chita Shilka river, near Sretensk, collected, undated (Stegmann 1930); Chikoy river (“Tchikoy river”), collected, April 1896 (Kozlova 1932–1933);

Yakutia middle reaches of the Tocoko river, 20–25 km upstream of its tributary, the Tyanya river, central Olekmo-Charskoye (Olekma-Chara) highlands, adult female collected, September 1963 (Yu. V. Labutin in litt. 1997);

Khabarovsk near Dudi village, lower Amur, Ul’chskiy district, pair nesting, July 1961 (Kistyakovskiy and Smogorzhevskiy 1973); Simmi river, Bolon’ lake basin, Amurskiy district, c.250 km north-east of Khabarovsk, male collected, June 1959, breeding (Yakhontov 1963); Katar lake, Amur river, two, May 1991 (G. Ouweeneel in litt. 1999); Bol’shekehkhtsirskiy Nature Reserve, Khabarovskiy district, 30–50 km south-west of Khabarovsk, several records during the breeding season, undated, probably breeding (Ivanov 1993);

Amur middle reaches of Khaimkan river, Zeyskiy Nature Reserve, recorded during the breeding season, undated (Il’yashenko 1986); Khaimkan river valley, breeding season records, undated (Il’yashenko 1986); Gulik river valley, breeding season records, undated (Il’yashenko 1986); near Kumara, one seen, June, unspecified year (Stegmann 1930); Aleun river mouth, up to two seen, August, unspecified year (Kostin and Pan’kin 1977); Antonovskoye forest area, Khinganskiy Nature Reserve, 30 km south of Arkhar settlement, Arkharinsky district, at least one pair nesting, 1994 and 1995 (V. V. Ryabtsev in litt. 1997);
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in litt. 1998); **lower Pompeyevka river** (Pompeyevka river), Oktyabr’skiy district, c.100 km upstream of Amurzet, breeding, undated (B. A. Voronov in litt. 1998); Gol’dinskiy island, Leninskiy district, 20 km upstream of mouth of the **Bidzhan river**, breeding (B. A. Voronov in litt. 1998);

**Primorye** (where it nests along the valleys of the Ussuri river and the lower reaches of its tributaries, but present only outside the breeding season on the eastern slopes of the Sikhote-Alin’ mountains: Shibnev 1989b) lower **Bikin river**, “very rare” (Shibnev 1989b);

**lower and middle Iman river**, breeding, eggs and young recorded (Spangenberg 1965);

**Russovka** settlement, mountains west of Lake Khanka, pair nesting, 1926 (Shul’pin 1936);

**Ussuri river**, “common” (Maak 1861);

**Kedrovaya Pad’ Nature Reserve**, wintering in small numbers in and around the reserve (Yu. N. Nazarov in litt. 1998), apparently based on the statement in Shibnev (1989b) that the species winters in the south of Primorye.

**MONGOLIA** The species is apparently a scarce summer visitor and passage migrant, presumably breeding in the taiga and/or forest-steppe of northern Mongolia. Records are as follows: **Dzavkhan** near **Ikh Uul**, Tarvagatay mountains, Khangay region, bordered by the Terkh-gol in the south and the Ideriyn Gol river in the north, seen, July 1994 (Kováts et al. undated);

**Arkhangai Ögiy Nuur** lake, two juveniles seen, May 1998 (K. Steiof per A. Bräunlich in litt. 1999);

**Khangay region** (not mapped), the Bajan-Ovoo–Jargalant–Khorgo–Bulgan–Erdenet route, August 1993 (Kováts et al. undated);

**Bulgan** between **Hutag-Öndör** (Hutak Undur) and Airkhan Nuur, one adult seen, July 1996 (M. Köpman per A. Bräunlich in litt. 1999);

**Khentii mountains** (Khentai mountains), one collected, June c.1926, with very worn feathers and therefore unlikely to have bred that year in the vicinity (Kozlova 1932–1933); Bajan Gol valley, near **Mandal** (western part of Khentey mountains), one collected, September 1924 (Kozlova 1932–1933); near **Terelja** (Tereldsh), one seen, May 1986 (Stephan 1988); 45 km north of **Atar** (untraced), one, July 1996 (M. Köpman per A. Bräunlich in litt. 1999);

A record from an unknown province was at “Tumutscheji, northern Mongolia”, of a female collected in July 1908, originally listed as *A. pomarina hastata* (Lönnberg 1909), but apparently referring to this species (P. Sushkin in Kozlova 1932–1933).

**JAPAN** This species is a rare visitor, with records mainly in winter, as follows (by island and prefecture):

**Hokkaido** **Shiretoko peninsula**, 1979 (Morioka et al. 1995);

**Honshu** **Aomori Rokkasho** village, June 1975 (Morioka et al. 1995); **Miyagi Kahoku-cho**, Monou county, immature female, January 1973 (Morioka et al. 1995); **Tokyo** unspecified localities, undated (OSJ 2000);


**Okinawa island**, November 1968 (Morioka et al. 1995);

**Irabu-jima** island, September 1984 (Morioka et al. 1995);


**KOREA** **NORTH KOREA** There are no confirmed records, but the species possibly (indeed probably) occurs (Tomek 1999).

**SOUTH KOREA** It is a rare winter visitor, with records as follows: **Kyonggi and Seoul Pochon** (Pochun), female collected, December 1968 (Gore and Won 1971); **Imjin River**,
Paju city, one found dead (poisoned), February 1997 (Lee Woo-shin in litt. 1997); unspecified localities, six collected between 1909 and 1934, in January, February, March and December (Austin 1948, Won 1963, Gore and Won 1971), with one obtained in Seoul market presumably being from this province, December 1924 (immature in YIO); ■ South Kyongsang Maek-to (Maek-do), Kimhae, male collected, December 1963 (Gore and Won 1971); Nakdong estuary, winter visitor, undated (Woo et al. 1997); ■ South Cholla Haenam, one, February 2000 (N. Moores in litt. 2000).

■ CHINA ■ MAINLAND CHINA The Greater Spotted Eagle breeds in Heilongjiang, Jilin, Inner Mongolia and Xinjiang, and is reported to nest in Jiangsu, while outside the breeding season it is known by scattered records from most of the southern and eastern provinces, as follows:

■ Heilongjiang Wudalianchi city, male collected, June 1937, two males and two females collected, June–July of an unspecified year (Xu Xueliang in Gao Wei in litt. 1997); Honghe Nature Reserve, c.20 km north-east of Hong He, four seen, June 1988 (Alstrøm et al. 1988), one seen, September 1990 (King and Jin Longrong 1992–1993); near Yichun (Ichun), Xiao Hinggan Ling (Little Chingan) mountains, two collected, July 1956 (Piechocki 1956, Cheng Tso-hsin 1987); Dailing, one collected, undated (Deppe 1985); Zhalong National Nature Reserve, Qiqihar city, collected at Qiqihar (Tsitsihar), October 1939 (female in FMNH), described as a “passage migrant” in a bird list published by the reserve in 1985 (Kennerley 1985); near Harbin (Charbin), one collected, October 1924 (Jakowlew 1928, 1929), adult male and juvenile female collected, September and October in the period 1927–1929 (Meise 1934), October 1936 (female in FMNH), April 1938 (female in CMNH), September 1940 (male in FMNH); Chengchin (untraced), September 1938 (female in FMNH); near Yimianpo (Imjanpo), 140 km south-east of Harbin (Charbin), one seen, undated (Meise 1934);


■ Liaoning Wangbaoxiang, Jinzhou city, one collected, November 1985 (Liu Mingyu et al. 1988); Dalian city, female collected, October 1973, male collected, November 1975 (Sun Shide in Gao Wei in litt. 1997), male and female collected, autumn 1988 (Li Qingwei in Gao Wei in litt. 1997); Lushun (Port Arthur), Dalian city, one collected at Laotieshan, October 1914 (N. Kuroda 1918), juvenile female, October 1924, juvenile male, October 1925, female, undated (three specimens in YIO), one collected, September 1973 (Liu Mingyu et al. 1988);

■ Inner Mongolia (where it is generally recorded in Hulun Buir, Hinggan and Bayannur leagues, and Chifeng city: Yang Guisheng and Xing Lianlian 1998) Genhe, Greater Hinggan mountains, two seen, June 1992 (Lewthwaite 1992); Yilekede (Irekte), 7 km west of Chingan, adult female collected, September in the period 1927–1929 (Meise 1934); Bugt (Buchedu), 100 km north-west of Dshalantun, eastern slope of Chingan mountains, adult female and juvenile male collected, August and October in the period 1927–1929 (Meise 1934); Dalai Hu National Nature Reserve (Hulun Nur Nature Reserve), male collected, spring 1871 (Przheval’skiy 1877–1878), summer visitor, 1–2 annually in June–September (Wuliji and Liu Songtao in litt. 1998), June and September 1987 (Xing Lianlian in litt. 1997), singles seen at Hulun Nur and 20 km to the east, August 1990 (King and Jin Longrong 1992–1993); near marsh at Tumeeji Sum, Jalaid Qi, one seen, April of an unspecified year (Liu Bowen in litt. 1998); Butha Qi (Zalantun, Djalantun), June and September 1939 (two males in FMNH); Horqin Nature Reserve, 5–6, December 1987–October 1988 (Arongqiqige in litt. 1998), 1–2 seen daily, May 1993 (Gao Wei in litt. 1997);
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- **Xinjiang** (where it is resident in the steppes near the Altay Shan and Tien Shan: Yuan Guoying 1991) *Sayram Hu*, two adults seen, June 1995 (Hornskov 1995b);
- **Tibet Lhasa**, two adults seen, March 1987 (Jirle and Kjellen 1987); northern Changdong (Chang Tang), “recorded as a migrant” (Kozlov 1899 in Vaurie 1972);
- **Qinghai Xining**, two adults seen, March 1987 (Jirle and Kjellen 1987), one seen above Xining, 2,700 m, April 1988 (Nickel 1988);
- **Sichuan** Wa Qie, near Songpan, one seen, May 1989 (Alström et al. 1988), subadult seen, May 1991 (Jihmanner and Johansson 1991); Tsao Po, c.25 km south-west of Wenchuan (Wenchwan), 1,520 m, undated (male in AMNH); Jintang county, recorded on migration (Li Guiyuan 1995); Tiao, Kangding county (Tatsienlou), c.1896 (specimen in MNHN); Y’an county, recorded on migration (Li Guiyuan 1995); “Golden summit”, Emei Shan, two adults, March 1987 (Jirle and Kjellen 1987); Longquan mountains (not mapped), 1984–1986 (M. Rank in litt. 2000);
- **Yunnan** Gongshan county “and north”, Gaoligongshan region, seen, 1992–1994 (Ma Shilai et al. 1994); south of Datang, Gaoligongshan region, seen, 1992–1994 (Ma Shilai et al. 1994); Kunming, October 1943 (male in MNHN); Mengzi (“Mengtsu”), January 1911 (specimen in YIO);
- **Shanxi** Heshun, October 1922 (specimen in UMMZ);
- **Hebei** Jiao Shan, near Beidaihe, adult seen, September 1994 (Dierschke and Heintzenberg 1994); Qinhuangdao (Chinwangtao), one captured, October 1912, one seen, October 1913, one probably this species, September 1915 (La Touche 1920–1921); Beidaihe (Pei-tai-ho beach), March 1924 (female in UMMZ), one young male bought from a hawk-catcher, October 1943, eagles possibly of this species seen, November 1943 and October 1944 (twice) (Hemmingsen and Guildal 1968), single migrants seen on four days, April–May 1985 (Williams 1986), one seen, October 1992 (Bradshaw and Rowlands 1992), first-winter seen, November 1993 (J. Bryant *per* C. Ma *in litt.* 1998); Shijiutuo (“Happy island”), April 2000 (J. Hornskov *in litt.* 2000);
- **Beijing** Xi Shan (Western hills, Western tombs), March 1936, April 1938 (two) (three specimens in ASCN); Tong Xian county, collected, October 1956, October 1979 (Cai Qikan in Gao Wei *in lett.* 1997); Martyrs’ Cemetery, Beijing, “numerous” on passage, late March–early April c.1934, with three collected from a resting flock (which all appeared to be of this species) estimated to total c.200 (Wilder 1934);
- **Shandong** Hulutou, east bank of Weishan Hu lake (or Nanxihu lake), November 1954 (specimen in ASCN);
- **Henan** unspecified locality, undated (Cheng Tso-hsin 1987);
- **Anhui** Tung-lu, common, nineteenth century (Père Heude in La Touche 1925–1934); unspecified locality, 1922 (specimen in ASCN);
- **Jiangsu** Yancheng Nature Reserve, Xiangshu, Binghai, Sheyang, Da Feng and Dongtai counties, breeding resident in the reserve (Wang Hui 1991), two seen, December 1997–January 1998 (Su Hualong *et al.* 1998); Dafeng Nature Reserve, Dafeng county, one seen, May 1987 (Thouless 1989); near Zhenjiang (Chinkiang), nesting in the hills, nineteenth century (Père Heude in La Touche 1925–1934), female collected, May 1902, eggs collected, May 1901 and 1902, “in the highest hills in the neighbourhood” (La Touche 1906–1907, specimen in BMNH);
- **Shanghai** Shanghai, one collected, December 1924, one seen in the Western District of the city, March 1943 (Sowerby 1943), formerly a winter visitor to the suburbs but not seen in recent years (Huang Zhengyi *et al.* 1991);
- **Zhejiang** Mogan Shan (Mokanshan), undated (Moffett and Gee 1913), not found during a survey in December 1993 (Zhu Xi and Fan Houde 1995); Jiande county (Kiente Hsien), common, nineteenth century (Père Heude in La Touche 1925–1934); Yunhe county, immature male collected, undated (Zhuge Yang 1990); Wenzhou city, one collected, undated (Zhuge Yang 1990);
Fujian Wuyi Shan Nature Reserve, undated (Wu Haohan and Cai Guangxian 1994); Nankan, Mazu Dao (Matsu) islands (under the administration of Taipei), one recorded, 1995 (CWBF database); Fuzhou (Foochow), female collected, December 1895, male bought in the market, December 1911 (two specimens in MCZ), February 1896 (in hills near Fuzhou), November 1897, November 1900 (three specimens in BMNH), December 1934 (specimen in WUCN);

Jiangxi Yifeng (not mapped), one Aquila eagle thought to be this species seen, November 1992 (Stevens et al. 1993);

Guangxi unspecified localities, western Guangxi, undated (Cheng Tso-hsin 1987);

Guangdong Shantou (Swatow), one collected, March 1887, one seen, spring 1888, two seen, February 1889 (La Touche 1892), “rare” winter visitor, December–February (Streich 1903).

HONG KONG The species is a regular winter visitor to: Mai Po and Mong Tseng peninsula, Inner Deep Bay Area, and the northern New Territories, with 3–6 present each winter between September and April, from 1958 to the present (Hong Kong Bird Reports 1958–1997).

TAIWAN The species is a scarce non-breeding visitor, recorded about 10 times each year (Hong Kuang-ying in litt. 1997). Records (for the Mazu Dao islands, refer to Fujian province above) are from: Laomei, Taipei, one, 1998 (CWBF database); Yangningshan, Taipei, two, 1995 (CWBF database); Kuanyin Shan, Taipei county, four seen migrating through, April–May 1993 (Lin 1998), three seen, 1995 (CWBF database); Kuantu, Taipei city, one, 1996 (CWBF database); Kueitzukeng (Kueitzukang), Taipei, one, 1997 (CWBF database); Chungcheng bridge, Taipei city, three, 1995, four, 1996 (CWBF database); Tienliaoyang, Taipei, one, 1997, one 1998 (CWBF database); Shihoting (Shiting), Taipei, one, seen 1995 (CWBF database); Kengfang, Toucheng town, Ilan county, one seen, 1995 (CWBF database); Wulai, Taipei, one, 1996, three, 1997 (CWBF database); Chupei, Hsinchu county, one seen, 1994 (CWBF database); Tahu, Ilan county, one seen, 1994 (CWFB database); Chianshih township, Hsinchu county, one seen, 1994 (CWBF database); Huayuan village, Hsinchu county, two, 1998 (CWBF database); Chilan, Tatung township, Ilan county, one, 1996 (CWBF database); Nanchuang, Miaoli county, one, 1997 (CWBF database); Anma Shan, Taichung county, two, 1998 (CWBF database); Hsipao primary school, Hualien county, one, 1997 (CWBF database); Mei Feng (Meifung), Nantou county, one seen, 1986, one seen, 1987 (CWBF database); Funglin, Hualien county, one, 1994 (CWBF database); Hsioutou, Nantou county, one, 1988 (CWBF database); Aoku, Chiayi county, one, 1995, four, 1996 (CWBF database); Fungshan reservoir, Kaohsiung county, one, 1996 (CWBF database); Chuyun Shan, Kaohsiung, one, 1997 (CWBF database); Tengchihlai (Tengchi), Kaohsiung, one seen, 1988 (CWBF database); Kangshan district, Kaohsiung (Takau), subadult female collected, December 1929 (Lin Wen-horn 1997), subadult female, November 1930, juvenile female, December 1933, one, December 1938 (four specimens in YIO).

PAKISTAN The species occurs at widespread localities in small numbers, primarily during winter, but at least occasionally breeding (Hume 1872–1873, Roberts 1991–1992). While Ali and Ripley (1968–1998) asserted that breeding occurs in Punjab and Baluchistan, there is no known record of breeding activity from the former province, while the latter lacks suitable wetlands and is “practically devoid of trees”, and is therefore an unlikely breeding ground (Roberts 1991–1992). Ticehurst (1922–1924) was reluctant to accept the breeding status of this species in Sind, but conceded that “if Rattray found it nesting in Shikarpore in Sind, I suppose there is no doubt about it”, and breeding of a few pairs was later confirmed (Eates 1937, Roberts 1991–1992). Records are from: North-West Frontier Province Mardan (Mardan lake), Peshawar district, March 1871 (male in BMNH); Kohat, a pair, 1904–1907 (Whitehead 1909, 1910–1911); Lachi reedbed, a pair possibly breeding, April and May,
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between 1904 and 1907 (Whitehead 1909, 1910–1911); **Chashma barrage**, Dera Ismail Khan, winter visitor, 1990s (Kylänpää 1997); **Chashma barrage**, Dera Ismail Khan district, 1–4 sightings annually along the Indus, December–March, 1988–1998 (Kylänpää 2000); **Baluchistan** (see Remarks 2); **Nushki**, May, unspecified year (Murray 1887, Christison 1941); **Ormara**, January 1902 (specimen in BNHS), also apparently in October, unspecified year ([J. W. N. or W. D.] Cumming in Ticehurst 1926–1927); **Siriab** (untraced), March, unspecified year (Ticehurst 1926–1927); **Sind** unspecified localities in every district (Hume 1872–1873, Eates 1937); **Ghauspur** (Ghauspur jheel), eight, February 1972 (Koning and Walmsley 1972); near **Shikarpur** (Sikharpur, Shikarpore), December 1871 (Hume 1872–1873, female in BMNH), apparently breeding, March, year unspecified (Baker 1922–1930); **Rohri**, undated (Brooks 1879); near Mir Kosh, about 10 km from the Indus river in **Sukkur** district, on the Mahie canal, pair breeding, March 1931 (Eates 1937), and in the same district near Bogar (Bhagar) lake (dhand), 8 km west of Sukkur, pair, December 1933 (Eates 1937); **Qambar**, January 1872 (Hume 1872–1873); **Drigh Lake Wildlife Sanctuary**, undated (Scott 1989); **Larkana**, January 1871 (male in BMNH); **Meher** (Mado Mehur), January 1872 (two specimens in BMNH), this probably being the Mahar valley where breeding was recorded, apparently in April 1892 (BMNH egg data); near **Sehwan**, breeding, February 1872 (BMNH egg data); **Manchar lake**, “common”, undated (Ali 1928); **Sadori lake**, undated (Scott 1989); **Sanghar district**, 1938 and 1939 (Roberts 1991–1992); **Kotri**, 1–2, November 1967 (Mountfort and Poore 1968); **Khinjar lake**, Thatta district, February 1934 (specimens in UMMZ); **Haleji lake**, up to 25 in February 1988, falling to 10 in March 1988 (Hirschfeld et al. 1988); **Karachi harbour**, one, February 1988 (Hirschfeld et al. 1988); **Phoosani lake**, Badin district, February 1972 (Koning and Walmsley 1972); unspecified localities in **Sujawal district**, breeding, 1930s (Eates 1937, Roberts 1991–1992); c.15 km south of **Mirpur Sakro**, Thatta district, breeding, December–January 1984 (Roberts 1991–1992); **Indus delta**, several birds overwintering in mangroves of the region, 1980s (Roberts 1991–1992); **Mahboub Shah lake**, pair displaying, November, unspecified year (Roberts 1991–1992); **Jati**, end of November 1963 (Holmes and Wright 1968–1969); **Jhelani** (untraced), undated (BMNH egg data); **Kasim Wala** (untraced), one, October 1966 (Mountfort and Poore 1968); **Punjab Islamabad**, undated, but presumably in the 1990s (Jackson and Pyhälä 1997); **Rawalpindi**, April 1926 (male in BMNH); **Wazirabad**, Gujranwala district, undated (Donald 1918–1921); Keshapur, here presumed to be **Keshopur**, February–March 1931 (four specimens in AMNH, FMNH, MCZ); **Gujranwala**, undated (Abdulali 1968–1996); Edullwalla, Montgomery district (now **Sahiwal district**), December 1869 (specimen in BMNH); **Lal Suhanra National Park**, at Patisar lake (Lal Suhanra), unspecified year (Scott 1989); **Jajjah-Abbasian**, Bahawalpur, several, March 1939 (Ali 1941).

**INDIA** The species winters widely in India, especially in northern states but straggling down to the Palk straits adjacent to Sri Lanka. The species’s breeding status in the country remains somewhat unclear (see Remarks 3). Historical reports of breeding mentioned below come from a few broadly scattered sites with no obvious pattern; their authenticity is difficult to judge (see Remarks 3) but some are doubtless correct. There is only one reliable recent report of breeding, in Rajasthan (Prakash 1988), the general impression being that it is a “rare and very local breeder” (Grimmett et al. 1998) or that “a few pairs may breed” (Khacher 1995). Records are from:

- **Jammu and Kashmir** unspecified locality, undated (specimen in AMNH); **Bhadarwah** (Badarwa), around 1907 (Ward 1906–1908);
- **Himachal Pradesh** near **Katrain** (Katraian), Kulu, undated (Whistler 1926b);
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(Ballard et al. 1999); Baggewala, here presumed to be Baghwali, Firozpur district, December 1934 (specimen in BMNH);

- **Haryana**: Ambala, undated (five specimens in MCZ); Parwali lake, Sirsa district, 1933 (Koelz 1940, three specimens in UMMZ); Bhindawas Wildlife Sanctuary, more than 10 seen, February 1996 (P. Alström, U. Olsson and D. Zetterström in litt. 2000); Sultanpur National Park, two, December 1983 (G. Oweneel in litt. 1999), one, December 1986 (P. Bradbeer in litt. 1999), one, December 1988 (H. Hendriks in litt. 1999), one, December 1990 (Adriaensen et al. 1991), “a few”, December 1997 (A. Holcombe in litt. 1999);

- **Delhi**: one, February 1983 (A. Dean in litt. 1999); Okhla, February 1990 (Hough 1990), and at this site or nearby on the Yamuna (Jumna) river, 10 seen, January 1992 (P. Alström, U. Olsson and D. Zetterström in litt. 2000);


- **Gujarat** (see Remarks 3) Hathidhara, Palanpur, male and female, January 1946 (Ali 1954–1955), and at other localities between Deesa (Disa) and Ahmedabad, “not uncommon”, undated (Brooks 1875b); Pariej, Kaira district, December 1945 (specimen in BNHS, Ali 1954–1955); Nalsarovar (Nalsarovar Sanctuary), one, January 1987 (G. Oweneel in litt. 1999); Jannagar, one, January 1987 (G. Oweneel in litt. 1999);

- **Uttar Pradesh**: Asan barrage, one, January 1994 (Singh 2000), although given as October 1994 by Gandhi and Singh (1995a,b); Dehra Dun, 850 m, October 1936 (male in MCZ); Rajaji National Park, 1986–1994 (Pandey et al. 1994); Saharanpur, breeding along the Eastern Jumna canal, June 1867 (BMNH egg data; also Brooks 1879, Hume and Oates 1889–1890); Corbett National Park, four, January 1983 (G. Oweneel in litt. 1999), at least two, March 1988 (J.-C. Kovacs in litt. 1998), one seen, January 1992 (P. Alström, U. Olsson and D. Zetterström in litt. 2000) and Dhikala to Ramnagar, one, December 1990 (Adriaensen et al. 1991); Bijnor, early 1990s (Pasha 1995); Naini Tal, one, February 1983 (A. Dean in litt. 1999), one, February or March 1987 (Turin et al. 1987); Dudwa National Park, recorded (Scott 1989, Samant et al. 1995, Javed and Rahmani 1998), at Bankey taal, undated (Singh and Singh 1985); Rohilkhand (Rohilkund), pre-1885 (specimen in BMNH); Narora reservoir, Bulandshahr district, frequent, 1980s (Rahmani 1989f); Aligarh, pre-1885 (female in BMNH), “Poniguan”, Mathura (Muttra), November 1892 (female in BMNH); Fateghar (see Remarks 4), February 1871 (male in BMNH), March 1873 (female in BMNH), January 1876 (two females in BMNH), and at “Gangsee”, February 1877 (female in OUMNH); at Kitham lake near Agra, one, February 1980 (G. M. B. Sparks in litt. 2000); 10 km north of Fatehpur (Fategarh), Bara Banki district, one, December 1978 (Bowden 1979); Gonda, pre-1881 (specimen in MNHN), pre-1900 (immature in BMNH); Rahimabad, Lucknow division, pre-1881 (Reid 1887); Lucknow (and unspecified localities in Avadh [=Oudh]), “occasionally found”, 1857–1860 (Irby 1861), pre-1880 (specimen in MNHN), December 1873 and January 1874 (two males in BMNH); Nawabganj Priyadarshani Sanctuary,
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undated (Scott 1989, S. Javed in litt. 1999); Etawah, evidently once very common, with records from November 1865 (specimen in BMNH), February 1867 (four specimens in BMNH), February and November 1868 (two females in MCML), February 1869 (three specimens in BMNH), March 1868 (male in BMNH), November 1868 (male and female in MCML), February 1870 (male in BMNH); Jheenjuck jheel, Etawah/Mainpur districts, February 1869 (female in BMNH), January 1870 (female in BMNH), January and February 1872 (two specimens in BMNH), a male with enlarged testes, June 1872 (female in BMNH), January 1876 (male in BMNH), breeding, April 1867 (BMNH egg data), and at Mainpur canal, January 1872 (male in BMNH); Allahabad, December 1874 (specimen in BMNH); Sukuldeak, Varanasi district, November 1874 (female in BMNH), December 1874 (male in BMNH); Mughal Sarai (“Mogul Serai”), Bourej jheel, December 1874, pre-1885 (three females in BMNH); Patna Sanctuary, undated, recently recorded (Javed et al. 2000);

Maharashtra (see Remarks 3) Beale lake, Nashik (Nasik) district, December 1949 (Abdulali 1968–1996); Ghoti, Nashik district, December 1957 (female in BMNH, Abdulali 1968–1996); Borivli National Park, Salsette island, one, March 1997 (G. Ouweneel in litt. 1999); Bombay (= Mumbai), January 1939 (male in FMNH); Ekruk (Ekroot) tank, recorded (and believed, presumably erroneously, to breed), undated (Davidson and Wenden 1878), with a “spotted eagle” (presumably this species) visiting Pashan lake near Pune, in winter 1986–1987 (Bradbeer 1987);

Goa larger wetlands in the coastal region (Lainer 1999), including Chorao island, one, December 1996 (Holt 1997); Ciba Geigy, one, March 1997 (Djerf 1997) and the nearby Cumbarjua canal, three, February 1997 (Oriental Bird Club Bull. 26 [1997]: 60–66); Carambolin lake, one, December 1996 (Holt 1997), pre-1885 (male in BMNH), pre-1885 (female in BMNH);

Andhra Pradesh unspecified localities, with fewer than 20 records for the state before 1989 (Taher and Pittie 1989) (very few traced here); Patancheru, Medak district, two, 1998 (Pittie 1998); Secunderabad, 1887 (specimen in BMNH); Pulicat lake, one, January 1998 (Anon. 1998); Mahavir Harin Vanasthali (untraced), undated (Anon. 1988c); Kerala Periyar Sanctuary, uncommon, undated (Srivastava et al. 1995);

Tamil Nadu Madras (= Chennai), two pre-1880 specimens (in BMNH), one possibly taken in September 1824 (specimen in BMNH); Guindy (Juindy) National Park, January
1982, November 1982 and March 1990 (Santharam 1999b); **Vedanthangal Sanctuary**, one in March 1985 (Santharam 1999b), one in November 1995 (Chandrasekhar 1996), two in February 1996 (Santharam 1999b); **Kaliveli tank**, three, winter 1986–1987 (Perennou 1989a), January and October 1988 (Santharam 1999b); **Manali**, North Chennai, one, January 1983 (Santharam 1999b); **Madura district**, lowlands, November–April (one record in July), 1930s (Nichols 1943–1945); **Rameswaram island**, three sightings, February, July and August, 1929–1931 (Biddulph 1938), although the summer records seem unlikely;

- **Bihar Darbhanga district**, December 1907 (male in AMNH); “Rajputtee”, **Chupra** (Chhapra), Saran district, February 1897 (Abdulali 1968–1996); beside the Ganges between **Bhagalpur** and Sultanganj, two seen in February 1999 (A. Mishra *in litt.* 2000); **Topchanchi lake**, one, March 1968 (Gauntlett 1986);

- **Orissa Sambalpur**, undated (Ball 1878), and elsewhere in Sambalpur district at Rampur, February 1870 (male in BMNH), and “Bharu” (illegible), January 1872 (female in BMNH); Sohilian, here presumed to be **Sohela**, December 1871 (male in BMNH); **Sonapur district**, January 1886 (specimen in MNHN), and generally fairly common in this district in winter, undated (Munn 1894); **Salt lakes**, undated (Anon 1969b);


- **Meghalaya** near Shillong, one, February 1998 (Hornbuckle 1998a);

- **Manipur** **Logtak lake**, undated (Hume 1888), this record presumably resulting in the eight specimens (in BMNH) labelled “Manipur”, March 1881.

**NEPAL** The species winters in small numbers in lower-lying areas and fairly large numbers pass through on migration. Breeding is suggested by Ali and Ripley (1968–1998), although there is no evidence to support this (Inskipp and Inskipp 1991). Records are from: **Pangsang pass**, 3,850 m, one, October 1980 (Madge and Appleby 1980); **Kalogani**, upper Kali Gandaki valley, one, January 1993 (Fourage 1993); **Tukche**, upper Kali Gandaki valley, one, September
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BHUTAN This raptor is a rare passage migrant through the country (Inskipp et al. 1999a), with records as follows: Punakha valley, at least four, March 1995 (Bishop 1999a); Pele La, one, November 1994 (R. P. Martins in litt. 1994); Tongsa, nine adults and one immature flying north, February 1994, adult, March 1996 (Bishop 1999a); Chendibji Chorten, one, March 1995 (Bishop 1999a); Paro valley, one, March 1998 (Bishop 1998), although not in Bishop (1999a); Phuntsholing, in the Torsa valley, at least four adults soaring north, March 1994 (Bishop 1994, 1999a), adult, February 1995 (Holt 1995).

BANGLADESH The species has been listed as a (potential) winter visitor throughout the country (Rashid 1967; but see Remarks 2 under Manipur Bush-quail Perdicula manipurensis). Confirmed records are very few: Sunamganj district, in particular at Tangua haor and Pashua haor, regular winter visitor in small numbers in the 1990s (P. M. Thompson in litt. 2000); Mymensingh, one, October 1994 (S. J. M. Blaber in litt. 1999); Hail haor, winter visitor, small numbers, 1990s (Thompson and Johnson 1996); from Dhaka (Dacca) to Sylhet, large numbers of eagles including this species, undated (Simson 1882); Noakhali coast, on islands offshore, one or two recorded on January waterfowl counts in most years during the 1990s (P. M. Thompson in litt. 2000); Natianala, Sundarbans, one, March 1981 (Sarker 1986b, Sarker and Sarker 1985a).
**MYANMAR** The evidence available indicates that the species is a winter visitor and passage migrant to northern and central regions (see Remarks 6), with records as follows: Shwebo district, eight records, October–March, 1930–1934 (Roseveare 1949); Mongnai, Shan state (“Southern Shan States”), at least one collected, no details given (Bingham and Thompson 1900); Inle lake, several records, including February 1973 (King 1983, Smythies 1986); Paunglin lake, Minbu district, several, January 1930 (Smith 1942), one, December 1935 (Roseveare 1952); Wan Hat, “cis-Salween, Mawkmai”, Southern Shan States, January 1901 (Bingham 1903, specimen in BMNH); Thayetmyo, pre-1887 (specimen in BMNH), several, undated (Smythies 1886), and listed for “Upper Pegu” (northern Pegu state [=Bago]) by Hume (1875a), a region which at that time included Thayetmyo; Arakan, several, 1943–1945 (Christison et al. 1946); head of the Pegu–Sittang canal, where it meets the Sittang river (i.e. at Myitkyo), three shot, undated (Oates 1883), these presumably including two E. W. Oates specimens (in BMNH) labelled “Pegu” (taken in March 1875 and pre-1882); Mohingyi Wetland Sanctuary, one immature, December 1994 (Oriental Bird Club Bull. 21 [1995]: 68–73), December 1996, January 1998, January 1999, adult and juvenile seen, February 2000, one, February 2001 (SC); Kyagan Kwinbauk Reserve Forest, one, November–December 1982 (Salter 1982) near Bagan (not mapped), by the Ayeyarwady (Irrawaddy) river, one, February 2001 (SC); Taung Kan lake (not mapped), Madaya township, three, February 2001 (SC).

**THAILAND** The species occurs primarily in the lower central plains (Pathumthani, Ayutthaya, Suphanburi, Nakhon Pathom, Chacheongsao, Samut Prakan, Samut Sakhon and Samut Songkhram provinces, and parts of Chon Buri, Nakhon Nayok, Saraburi, Prachinburi and Suphanburi provinces), north and central Thailand, south to Setul, close to the border with Malaysia. Records from most of the country involve winter visitors and passage migrants, while those from the southern peninsula are probably entirely the latter (P. D. Round in litt. 1998). Deignan (1963) listed the species for the provinces of Chiang Mai, Nakhon Sawan and Prachuap Khiri Khan as well as the Bangkok region. Records are as follows: Chiang Mai, one, December 1928 (Meyer de Schauensee 1929); Doi Inthanon National Park, one at Mae Jaem Watershed Station, October 1999 (Bird Conserv. Soc. Thailand Bull. 17, 1 [2000]: 14); Nong Han Kumphawapi, two overwintering, February 1989 (Bangkok Bird Club Bull. 6, 4 [1989]: 11–12); Yom river, between Sukkothai and Phitsanulok, an occasional visitor (Scott 1989); Umphang, three together, possibly migrating, September 1988 (D. Ogle in litt. 1988), and apparently “very common” at the site in October 1989 (D. Ogle in litt. 1989); Bung Boraphet, one, October 1981 (P. D. Round in litt. 1998), one, October 1982 (P. D. Round in litt. 1998); Nakhon Sawan (Paknampo), junction of Mae Ping and Mae Nam, January 1924 (female in BMNH); Ban Lung Jorm, Ban Thasadet, Suphan Buri province, two, November 1990 (Bangkok Bird Club Bull. 8, 1 [1991]: 11–12); Pathumthani bridge, one immature, November 1988 (Bangkok Bird Club Bull. 4, 12 [1988]: 10–11); Rangsit, one, December 1988 (Bangkok Bird Club Bull. 5, 1 [1988]: 10); Kamphaeng Saen, Nakhon Pathom, one first-winter bird at Kasetsart University campus, January 1993 (Bangkok Bird Club Bull. 10, 4 [1993]: 11); Bangkok, November and December 1917 (Williamson 1918), November 1919 (female in BMNH), and at Klong Pho Khao (Klong Pho Tao), near Bangkok, February 1916 (Williamson 1918); Phanom Sarakham, Chachoengsao, one first-year, January 1996 (Bird Conserv. Soc. Thailand Bull. 13, 4 [1996]: 14–15); Inner Gulf of Thailand, between Samut Sakhon and Samut Songkhram, small passage noted in most years, late October–early November (P. D. Round in litt. 1998); Wat Phai Lom, one, December 1982 (E. Molgaard in litt. 1982); Khaos Sam Roi Yot National Park, 1–3 (usually juveniles/first-years) wintering annually around the Thung Sam Roi Yot freshwater marsh, also up to five on migration in November 1989 (Bangkok Bird Club Bull. 6, 4 [1989]: 11–12, Bangkok Bird Club Bull. 6, 12 [1989]: 11–12, J. A. Wolstencroft per P. D. Round in litt. 1998), 1995 (Bird Conserv. Soc. Thailand Bull. 12, 1 [1996]: 12); Prachuap Khiri Khan (= Koh Lak), adult female, November
1914 (specimen in NRM, Gyldenstolpe 1916), this record probably repeated by Williamson (1918) and Chasen (1939a); Thale Noi, wintering birds said to be present during winter 1975/1976 (Storer 1977); Satul, one adult, December 1973 (Medway and Wells 1976); Nong Kok (not mapped), February 1938 (Morioka and Yang 1996).

LAOS The species appears to be a rare passage migrant (doubtless largely overlooked), possibly wintering in small numbers. Records are from: Phou Chomvoy, Bolikhhamxai, in the proposed northern extension to Nakai-Nam Theun NBCA, one flying north with other migrating raptors, April 1997 (Tobias 1997); Xe Banghiang, Savannakhet, one in riverside forest, 1944 or 1945 (David-Beaulieu 1949–1950).

Unconfirmed records are as follows: Lak Xao, near Nakai-Nam Theun NBCA, a group of four Aquila eagles probably this species flying north, April 1997 (Tobias 1997); Nakai plateau, Khammouane, probable sightings of single birds, February 1990 (Salter 1993), and...
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A fairly large wintering population was once present and, although a dramatic decline is evident, the species still occurs in small numbers north of Tonle Sap lake, in coastal regions and probably much more widely than the following records suggest: Ang Trapeang Thmor Reserve, Banteay Meanchay, one, December 1998 (F. Goes verbally 1999) and one possible, March 1998 (T. Mundkur verbally 1998), one individual regular, winter 1999/2000 (Goes 2000b); Krallagn district, Siem Reap, one, March 1999 (F. Goes verbally 1999); Tonle Sap lake, Siem Reap, common, 1920s (Delacour 1928), and more recently at Prek Spot, one, 1998.

The distribution of Greater Spotted Eagle Aquila clanga (map A below): (65) Yonaguni-jima; (126) Mazu Dao; (127) Fuzhou; (133) Yangmingshan; (135) Kuanyin Shan; (136) Kuantu; (137) Kueitzukeng; (138) Chungcheng Bridge; (139) Tienlaioyang; (140) Shihting; (141) Kengfang; (142) Wuilai; (143) Chupei; (144) Tahu; (145) Chienshih; (146) Huayuan; (147) Chilan; (148) Nanchuang; (149) Anma Shan; (150) Hsipao; (151) Mei Feng; (152) Hualien county; (153) Hsitou; (154) Aoku; (155) Kaohsiung county; (156) Chuyun Shan; (157) Tengchihlai; (158) Kangshan district.

(map B opposite): (159) Mardan; (160) Kohat; (161) Lachi; (162) Chashma barrage; (163) Dera Ismail Khan district; (164) Nushki; (165) Ormara; (166) Ghaspur; (167) Shikarpur; (168) Rohri; (169) Sukkur district; (170) Qambar; (171) Drigh Lake Wildlife Sanctuary; (172) Larkana; (173) Mehar; (174) Sehwan; (175) Manchar lake; (176) Sadori lake; (177) Sanghar district; (178) Kotri; (179) Khinjar lake; (180) Haleji lake; (181) Karachi harbour; (182) Phoosani lake; (183) Sujawal district; (184) Mirpur Sakro; (185) Indus delta; (186) Mahboub Shah lake; (187) Jati; (188) Islamabad; (189) Rawalpindi; (190) Wazirabad; (191) Keshopur; (192) Gujranwala; (193) Sindi; (194) Lal Suhanra National Park; (195) Jagir-Abbasi; (196) Bhadarwah; (197) Katrain; (198) Gurdaspur district; (199) Harke Lake Wildlife Sanctuary; (200) Baghiwal; (201) Ambala; (202) Sisar district; (203) Bhindawas Wildlife Sanctuary; (204) Sultanpur National Park; (205) Delhi; (206) Okhla; (207) Sariska Wildlife Sanctuary; (208) Keoladeo National Park; (209) Ban Baretta; (210) Jaisalmer; (211) Jodhpur; (212) Bilawa; (213) Ranthambhore National Park; (214) Umedganj; (215) Palanpur; (216) Ahmedabad; (217) Parlej; (218) Nalsarovar; (219) Jannagar; (220) Asan barrage; (221) Dehra Dun; (222) Rajaji National Park; (223) Saharanpur; (224) Corbett National Park; (225) Bijnor; (226) Naini Tal; (227) Dudwa National Park; (228) Rohilkhand; (229) Narora; (230) Aligarh; (231) Mathura; (232) Fatehpur; (233) Agra; (234) Fatehpur; (235) Gonda; (236) Rahimabad; (237) Lucknow; (238) Nawabganj Priyadarshani Sanctuary; (239) Etwah; (240) Jheenjuck jheel; (241) Kanpur; (242) Mainpur; (243) Allahabad; (244) Varanasi district; (245) Mughal Sarai; (246) Kheerganga; (247) Bandhavgarh National Park; (248) Sehore; (249) Delphi; (250) Seoni; (251) Rairpur; (252) Beale lake; (253) Ghoti; (254) Borivli National Park; (255) Bombay; (256) Ekrum; (257) Chorao island; (258) Ciba Geigy; (259) Carambolim lake; (260) Santa Cruz; (261) Londa; (262) Bangalore; (263) Ranganathittu Wildlife Sanctuary; (264) Mysore; (265) Nagarhole; (266) Patancheru; (267) Secunderabad; (268) Pulicat lake; (269) Periyar Sanctuary; (270) Madras; (271) Guindy National Park; (272) Vedanthangal Sanctuary; (273) Kaliveli tank; (274) Manali; (275) Madura district; (276) Rameswaram island; (277) Darbhanga district; (278) Chupra; (279) Bhagalpur; (280) Tochanchari lake; (281) Sambalpur; (282) Sohela; (283) Sonapur district; (284) Bauda; (285) Darjeeling; (286) Ayaj river; (287) Panagar; (288) Barrackpur; (289) Salt lakes; (302) Pangang pass; (303) Kolapani; (304) Tukche; (305) Dharghari; (306) Hille; (307) Birethante; (308) Yamdi Khola; (309) Pokhara valley; (310) Chandrakot; (311) Naudanda ridge; (312) Sheopuri; (313) Gokarna; (314) Nabhishe; (315) Butwal; (316) Kathmandu valley; (317) Godavari; (318) Royal Chitwan National Park; (319) Lumbini; (320) Hetauda; (321) Simara; (322) Ragunathnathpur; (323) Ilam; (324) Hans Pokhari; (325) Sunsari; (326) Mai valley; (327) Kosi barrage; (328) Biratnagar.


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#### VIETNAM


#### MALAYSIA

The species is a scarce winter visitor to Peninsular Malaysia, occurring in Kedah, mainland Penang, Perak, Selangor, Negri Sembilan (Wells 1984), then more recently Melaka (Wells 1990a) and Johor (Wells 1990c), with specific records as follows: Tasek Timah–Tasoh, **Perlis**, one (per M. Kohler in litt. 1999); **Ulu Dedap**, Perak, one juvenile, November 1996 (*Enggang December 1996–January 1997*; Gunung Jerai, Kedah, one subadult, December 1979 (Wells 1984); **Bedong**, Kedah, two, December 1983 (Wells 1990a); **Bukit Larut** (= Maxwell Hill), one, March, 1965–1970 (Medway and Wells 1976); **Seberang Perak**, mainland Penang (= Province Wellesley), one, March, 1965–1970 (Medway and Wells 1976), 1980s (Wells 1999); **Kota Setia** paddyfields, one, March 1997 (*Enggang April 1997*); **Sekinchan**, Selangor, around the Projek Barat Laut Selangor (PBLs) ricefields, three, November 1981 (Wells 1986),

### The distribution of Greater Spotted Eagle Aquila clanga (map C opposite):

(93) Lhasa; (99) Kangding county; (100) Ya’an county; (101) Emei Shan; (102) Gongshan county; (103) Datang; (104) Kunming; (105) Mengzi; (116) Tung-liu; (125) Wuyi Shan Nature Reserve; (128) Guangxi; (129) Shantou; (130) Mai Po; (131) Mong Tseng; (132) New Territories; (329) Punakha valley; (330) Pele La; (331) Tashig Chorten; (333) Paro valley; (334) Phuntsholing; (335) Tangua hoar; (336) Myerningshi; (337) Pashua hoar; (338) Hail haor; (339) Dhaka; (340) Noakhali coast; (341) Nalianala; (342) Shwebo district; (343) Mongnai; (344) Inle lake; (345) Paunglin lake; (346) Wan Hat; (347) Thuatmyo; (348) Arakan; (349) Myikyo; (350) Mohingyi Wetland Wildlife Sanctuary; (351) Kyagan Kwinbauk Reserve Forest; (352) Chiang Mai; (353) Doi Inthanon National Park; (354) Nong Han Kumphawapi; (355) Yom river; (356) Umphang; (357) Bung Boraphet; (358) Nakhon Sawan; (359) Suphan Buri province; (360) Pathumthani bridge; (361) Rangsit; (362) Kamphaeng Saen; (363) Bangkok; (364) Phanom Sarakham; (365) Samut Sakhon; (366) Wat Phai Lom; (367) Khao Sam Roi Yot National Park; (368) Prachuap Khirikhan; (369) Thale Noi; (370) Satul; (371) Phou Chomvoy; (372) Xe Saen; (373) Bangkok; (374) Kralagn district; (375) Tonle Sap lake; (376) Kompong Thom; (377) Khao Sam Roi Yot National Park; (378) Prachup Khirikhan; (379) Chendibri Chorten; (380) Kruos Kraoum; (381) Son Tay; (382) Hanoi; (383) Hai Duong; (384) Ba Na Nature Reserve; (385) Thu Dau Mot; (386) Ho Chi Minh City; (387) Tram Chim Nature Reserve; (388) U Minh Thuong Nature Reserve; (389) Perlis; (390) Ulu Dedap; (391) Gunung Jerai; (392) Bedong; (393) Bukit Larut; (394) Seberang Perak; (395) Kota Setia; (396) Sekinchan; (397) Bukit Tunku; (398) Jeram; (399) Serdang; (400) Melaka; (401) Cape Rachado; (402) Bukit Beruang; (403) Batang Tiga ricefields; (404) Jason bay; (405) Senoko; (406) Kranji reservoir; (407) Ponggol; (408) Seletar; (409) Serangoon; (410) Tanjung Murai; (411) Mount Faber; (412) Sentosa island; (413) Sungai Simpanggas; (414) Pulau Palanggantang; (415) Sungai Benawang; (416) Sungai Sembilang; (417) Banyuasin estuary.

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An unconfirmed record is from Bukit Gasing, Selangor, three, probably this species, May 1985 (Wells 1990b).

SINGAPORE The species is a scarce non-breeding visitor likely to be found throughout the island (Lim and Gardner 1997), with the following records: unspecified locality, one immature, autumn 1936 (Chasen 1939a; also Morioka and Yang 1996); Senoko, 1–2, November–December 1987 (Wells 1990c); Kranji reservoir, one, December 1983 (Wells 1990a), juvenile, December 1986 (Wells 1990c), 1–2, November–December 1987 (Wells 1990c); Ponggol grassland, up to eight, November–December 1989 (Oriental Bird Club Bull. 11 [1990]: 40–48, Wells 1999); Seletar (Selatar East), 1–2, November–December 1987 (Wells 1990c); Serangoon, one, November 1981 (Wells 1986), 1–2, November–December 1987 (Wells 1990c), five, 1991 (Wells 1999); Tanjug Murai, four, November–December 1978, remained to February 1979, one, November 1979 (Wells 1984), one, January 1981, and four, November 1981 (Wells 1986); Mount Faber, October 1986 (Wells 1990c); Sentosa island, 1–2, November–December 1987 (Wells 1990c).

INDONESIA The species is a scarce non-breeding visitor, recorded only on Sumatra, and apparently only in the period 1988–1989:

Sumatra ■ South Sumatra Sungai Simpangagas, immature and adult seen, April 1989 (Verheugt et al. 1993); Pulau Alanggantang, one, April 1989 (Verheugt et al. 1993); Sungai Benawang, one, April 1989 (Verheugt et al. 1993); Sungai Sembilang, two in March 1989 and one in April 1989 (Verheugt et al. 1993); near the Banyuasin estuary, four, December 1988 (Verheugt et al. 1993).

POPULATION The global population of the Greater Spotted Eagle is probably less than 10,000 mature individuals, with Russia holding 2,800–3,000 pairs, and the European population probably no more than 900 pairs (Meyburg et al. in press). Numbers have declined in the western half of its range and in some parts of Asia, but long-term trends are difficult to assess owing to identification problems (Meyburg et al. in press; see Remarks 1). Details of the species’s Asian population are given below by country.

Russia Eastern Russia The species has declined significantly in the past few decades, and become extinct as a breeding bird in many former localities. It was, for example, locally common in southern central Siberia at the start of the twentieth century, becoming rare there by the 1940s and 1950s, and it is now very rare and extinct in many formerly occupied areas (Rogacheva 1992). It was “not rare” at some sites in Transbaykalia in the early twentieth century (Stegmann 1930). In Irkutsk region, it used to nest in the Angara, Irkut and upper
Lena river valleys including in forest-steppe along the Angara in the 1930s (Skalon 1934, Gagina 1961); at the end of the nineteenth century it was believed to nest in south Baikal (Taczanowski 1891–1893). It is now very rare in the forest-steppes along the Angara, and probably nests neither there nor in south Baikal (V. V. Ryabtsev in litt. 1997). It is currently known to nest only on the Irkutsk-Cheremkhovo plain (c.4,000 km²), where the population is estimated at no more than 20 pairs, and it is considered unlikely that the entire breeding population of the Irkutsk region exceeds 40 pairs (V. V. Ryabtsev in litt. 1997). In recent years, this species has been recorded near Irkutsk during the summer months at localities unsuitable for nesting, such as the Irkut river floodplain, the lower Unga river and the Kuda river, implying that there are now insufficient nesting territories available (V. V. Ryabtsev in litt. 1997).

In Buryatia it is generally rare, including in the Tunkinskaya valley in Tunkinskiy district, where three pairs were recently recorded along a 60 km section of the valley (V. V. Ryabtsev in litt. 1997). The population may be little more than 40 pairs, but there are insufficient data to indicate whether a significant decline in numbers has occurred (V. V. Ryabtsev in litt. 1997).

In the Amur region surveys for this species in 1968–1972 in the southern half of the Zeya–Bureya plain and the south-eastern edge of the Amur–Zeya plateau found it to be widespread but nowhere numerous, and it was absent from the deforested central plains; it was commonest in the Arkhar lowlands in the south-east, but even in the optimal breeding habitats, the riverine forests on the lower Bureya river, only 6–11 breeding pairs were found at a density of 1.3–2.7 pairs per 100 km² (Pan’kin 1974, 1977a,b,c). It was also considered “common” on the Aleun river, where there were nine sightings along a 120 km stretch of the river (Kostin and Pan’kin 1977).

In Primorye it was described as “common” on the Ussuri river by Maak (1861). Fieldwork in the late 1930s and in the 1950s revealed a “very considerable” breeding population on the lower reaches of the Iman river, while the species was becoming rare along the middle reaches (Spangenberg 1965). It is “very rare” on the lower reaches of the Bikin river (Nazarov in litt. 1997). A few winter in and around “Kedrovaya Pad’” Nature Reserve (Shibnev 1989).

Mongolia The species appears to be scarce in Mongolia (see Distribution), but it presumably breeds.

Japan and South Korea It is a rare visitor, mainly in winter (see Distribution).

China It is almost certainly greatly under-recorded in mainland China (see Remarks 1), and its abundance there is poorly understood. It is considered “rare” in its breeding range in north-east China (Liu Mingyu et al. 1988). Outside the breeding season it is known by scattered records from most of the southern and eastern provinces and on Taiwan (see Distribution). At Beidaihe in Hebei it was described as “not rare” on passage by Hemmingsen (1951), and it is currently considered “scarce to uncommon” in spring, and “uncommon” in autumn (Beidaihe Bird Society 1992). There is some evidence that a decline has taken place in the number of wintering birds. Styan (1891) described it as “not uncommon” along the Yangtze, both in the hills and among the reedbeds where wintering wildfowl swarm. On the lower Yangtze La Touche (1925–1934) considered it “common enough in the marshes and reedbeds along the river and on the hills”. Wilder and Hubbard (1924) reported that “judging from the number of specimens brought in, this is the most common of our eagles” in Hebei (Chihli), while Wilder (1934) described a remarkable concentration of c.200 in a resting flock (three collected, and all apparently this species) at Martyrs’ Cemetery, Beijing, in late March–early April c.1934. This eagle is now only recorded in very small numbers in these areas. In Hong Kong, however, the number of wintering individuals increased between the 1960s and the 1990s, and is now stable, possibly because hunting was banned there in the late 1960s, but perhaps because of habitat loss in other areas (HKBWS in litt. 1997). On Taiwan, there are c.10 records each year (Houng Kuang-ying in litt. 1997).

Pakistan Hume (1872–1873) considered the Greater Spotted Eagle “by far the commonest eagle in Sind”, with “scores to be met with in the neighbourhood of every large piece of
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water”, such that “every clump of tamarisk trees standing well out into the water … was almost certain to be crowned by one of these black-looking eagles”. Hume (1872–1873) also ascertained from local people that it “regularly breeds” during April–May, a fact that, despite being doubted by Ticehurst (1922–1924), was later found to be at least occasionally true (e.g. Eates 1937, Roberts 1991–1992). Ticehurst (1922–1924) did not discuss the abundance of the species in Sind, but gave the impression that he never saw the numbers reported by Hume (1872–1873), and certainly by the 1930s the species was “no longer as abundant” in Sind (Eates 1937). Nevertheless, it was still the commonest wintering eagle in the state at this time (Eates 1937), and remained “common” into the 1960s (Holmes and Wright 1968). It is still the most likely large raptor to be encountered around large waterbodies, albeit in small numbers (Roberts 1991–1992).

Along the Indus valley in five winter visits, Koning (1976) encountered this species on 204 occasions (out of 442 large eagles sighted). Currently, it is not uncommon, mainly around the larger lakes of Sind and Punjab, where up to six individuals can be seen in the sky at one time (Roberts et al. 1986, Roberts 1991–1992), although the population is clearly very much smaller than it was in the nineteenth century. The species has been recorded infrequently from North-West Frontier Province and Baluchistan in recent years, although it appears to be a regular visitor in small numbers (1–4 annually in Dera Ismail Khan district) to the former (Kylänpää 2000).

A few pairs remain to breed in Sind, at least in the better-forested areas of the Eastern Narra canal and the Indus river (Roberts 1991–1992). Although it has also been said to breed in Baluchistan and Punjab (Ali and Ripley 1968–1998), there is no known record of breeding in the former, while the latter lacks suitable wetland habitat and is practically devoid of trees such that the species is very unlikely to nest there (Roberts 1991–1992).

India Historical The Greater Spotted Eagle was once a common winter visitor to much of northern India, but rarer in the south, although it was once “tolerably common” along India’s southern coasts (Jerdon 1862–1864). In Manipur Hume (1888) found it to be common (“twenty in a morning”) at Logtak lake. Blyth (1863) stated that it was “common” in the Sundarbans (West Bengal, and Bangladesh) and found “abundantly” in the Himalayas (although there was then considerable confusion over the identification of Aquila eagles, and thus perhaps some error was involved). It was “common” around the Gardaspur lakes in Punjab (Koelz 1940). In Uttar Pradesh it was common in all suitable habitat in the Etawah and Mainpur districts in the mid-nineteenth century (Anderson 1872a), while around Lucknow it was “as common as any species of eagle” apart from the Tawny A. rapax (Reid 1887), or “fairly common” and probably breeding (Jesse 1902–1903). It was “not uncommon” in northern Gujarat (Butler 1875–1877). In Maharashtra it was considered an uncommon migrant (Abdulali 1981), with Davidson and Wenden (1878) encountering the species “several times” in the Deccan. It occurred throughout Gujarat, Maharashtra and much of central India (then encompassed by the “Bombay Presidency”) where it was reported to breed (Barnes 1885; but see Remarks 3). Around Sehore, Madhya Pradesh, it was “not uncommon about the jheels” (Whitehead 1911). In the “Madras Presidency” (at sites now largely in Orissa and Andhra Pradesh), Koelz (1948) found it “rare”, collecting only one individual between January and March 1937.

Recent After a noticeable sharp decline in the populations of all large raptors in India (Akhtar 1976, Samant et al. 1995, A. Prasad in litt. 2000), it is now generally “uncommon” in the north and “rare” in the peninsula (Grimmett et al. 1998). Having been “apparently more abundant” in Assam, the population is now “declining alarmingly” (Choudhury 2000c). Whistler and Kinnear (1931–1937) could trace no post-Jerdon records from coastal Andhra Pradesh, while Ali and Ripley (1968–1998) concluded that there had been a considerable decline in the region, listing no recent records from the “Carnatic” coast. In fact it still occurs in the far south in winter, but in much reduced numbers (“it no longer appears to be
common”), Santharam (1999b) tracing 11 records in Tamil Nadu and Kerala in the 1980s and 1990s. In Gujarat it has become scarce in recent times (Khacher 1996). Only in Goa and at Bharatpur does it appear to be still (locally) common. In Goa up to four have been seen per day in the 1990s, and the estimated total winter population is c.50 (P. Willoughby in litt. 1999), although Lainer (1999) considered it a “scarce winter visitor in very small numbers” to the state. In Keoladeo National Park (Bharatpur), Rajasthan, it was common in 1983, when 20 were recorded (Bult 1983), again in 1985 when 30 were counted (Naoroji 1990), and it was still common there in the 1990s, with as many as 35 reported (see Distribution). It is likely, however, that the high density of individuals at this protected site is the result of a lack of alternative refuges (A. R. Rahmani in litt. 2000).

**Nepal** The wintering population has been put at only 60 birds (H. S. Baral verbally 1998). However, numbers seem to be declining and fewer birds were recorded in the 1990s than in the 1980s (H. S. Baral verbally 1998, C. Inskipp and T. P. Inskipp verbally 1998).

**Bangladesh** The species is now a “rare” winter visitor (Khan 1982), although it was probably much commoner in the nineteenth century, as Simson (1882) reported that “on a voyage… from Dacca [=Dhaka] to Sylhet one cannot fail to be struck with the large number of eagles seen near the fishing-villages”; he identified the Greater Spotted Eagle amongst these, without mentioning what proportion of overall numbers it made up. More recently, during observations along 3,290 km of waterway in the Sundarbans, only one individual was recorded (Sarker 1986b), although this area is generally too forested for the species (P. M. Thompson in litt. 2000). Harvey (1990) suggested that it was a scarce but regular winter visitor, and seen in Bangladesh by many observers during the 1980s. However, in the 1990s, probably fewer than 20 individuals regularly wintered around the haors of the north-east (Thompson and Johnson 1996, P. M. Thompson in litt. 1997), and indeed the country’s total wintering population is unlikely to be much higher than 20.

**Myanmar** The species once wintered in “small numbers” (Oates 1883; also Hume 1888, Smythies 1986), but its current status is poorly known and there are few recent records. The fact that Roseveare (1949) spent four years (1930–1934) in Shwebo district and encountered the species eight times suggests that it was fairly regular there; but he saw it only once in his two and a half years in Minbu district (Roseveare 1952). Five or six birds were encountered in the central dry zone in less than one month in February 2001 (SC).

**Thailand** An old December specimen from Chiang Mai (Meyer de Schauensee 1929) suggests that the species may have wintered, at least formerly, in the marshes of the Mae Ping valley (P. D. Round in litt. 1999). However, this was the only definite record for northern Thailand despite a considerable amount of ornithological work in the region (Deignan 1945). By the end of the twentieth century it was an annual winter visitor to the country in small numbers (10–100 birds in total), usually with only one or two birds at any site, distributed at very low density over a wide area (P. D. Round in litt. 1998). Three individuals were seen at Um Phang in October 1988 and the species was described as “very common” there in October 1989, suggesting that several birds might winter in the area (D. Ogle in litt. 1989). The absence of recent records from north-east Thailand may be an artifact of observer coverage; there are a number of wetlands and paddy basins which may support a few birds (P. D. Round in litt. 1998), although hunting is rife in the area and in adjoining Laos (J. W. Duckworth in litt. 1999). While wintering individuals should be expected in the extensive lake Songkhla basin (Wells 1999), and indeed have previously occurred (Storer 1977), there are no recent records.

**Laos** There are very few records from the country. David-Beaulieu (1949–1950) did, however, remark that *Aquila* eagles were relatively common in southern provinces, but that he was unsure of their identity (see also Population: Laos under Imperial Eagle). It seems likely that these were in large part wintering Greater Spotted Eagles, small numbers of which still occur in the country, at least on migration, presumably moving to and from wintering grounds in Cambodia, Thailand or Malaysia.
Cambodia It was apparently abundant on the plains and marshes of central and northwest Cambodia in the 1920s (Delacour 1928, 1929b). Even in the 1960s, Thomas (1964) commented that it was “remarkably common for so large a bird” in this area; he also mentioned seeing “four in one morning over the flooded fields at kilometer 42 on the Saigon road” (probably in Prey Veng province). During the twentieth century the species underwent a spectacular decline in the country, its status changing from “common” in the 1960s to “rare” in the 1990s (C. M. Poole in litt. 1999). Sightings of at least five in the open deciduous forest of Preah Vihear province, northern Cambodia, in 2001, suggest that the area may still support an important population (P. Davidson in litt. 2001).

Vietnam Although there are no confirmed early reports from southern regions, it was thought probably to occur (Delacour 1929b), and eagles seen by David-Beaulieu (1944) near Pleiku might possibly have been this species (see Population: Laos under Imperial Eagle). The species is currently a passage migrant and winter visitor to the country in very small numbers (see Distribution).

Peninsular Malaysia Until the 1960s very few Aquila eagles of any species were observed and it is thought that the arrival of the Greater Spotted Eagle as a regular winter visitor, particularly during the 1980s and early 1990s, was a response to temporarily high food availability in newly opened-up land (see Food); peak numbers involved 10–30 individuals, but in the latter half of the 1990s this declined to only a handful (Wells 1999).

Singapore In parallel with Malaysia, numbers rose to a peak of 10–20 in the 1980s, but then fell, with no confirmed reports after the early 1990s (Wells 1999).

ECOLOGY Extensive details of foraging and breeding ecology in the western portion of the range of the Greater Spotted Eagle are published elsewhere (e.g. Cramp and Simmons 1980); facts relevant to the Asian region are given below.

Habitat In Europe and Central Asia the species occurs in lowland forests near wetlands, nesting in tall trees; it hunts over swamps, wet meadows (Meyburg et al. in press) and, in Estonia, over extensively managed agricultural land (A. Lõhmus in litt. 1999). During migration and in winter, a variety of open habitats are visited, including deserts, shrubland, wetlands and mangroves (Meyburg et al. in press). Details of its ecology in the Asian part of its range are given below.

In its breeding range in eastern Russia, the Greater Spotted Eagle is found in lowland primary forests, almost always near water. In East Siberia and the Russian Far East, it nests near wetlands, including riverine floodplains, lakes and swamps, in the forest and forest-steppe zones (Sonin and Ryabtsev 1993, V. V. Ryabtsev in litt. 1997). The fact that rodents are apparently its favoured food in the Central Asian breeding grounds (Rogacheva 1992) suggests that it is far from exclusively linked to wetlands in this region, but that it is a relatively open-country species.

Outside the breeding season, it favours open lowlands (Baker 1922–1930, Grimmett et al. 1998), although it has been observed on passage at 3,850 m in Nepal (Baral et al. 1996). Most notably, it is strongly linked to wetlands (even more so than in the breeding season), being a “marsh-loving bird” (Anderson 1872a) usually found near “large marshes, jheels and canals” in the Indian subcontinent (Ripley 1982). In Pakistan it frequents well-watered and fairly well-wooded tracts (e.g. riverine forest) where rivers, perennial canals, swamps or lakes provide it with plentiful prey (Eates 1937, Roberts 1991–1992). A few birds spend the winter in mangroves of the Indus delta (Roberts 1991–1992). In Bangladesh it frequents reed-fringed lagoons in the north-east of the country (P. M. Thompson in litt. 1998). In Thailand it is likewise “evidently partial to moist, half swampy tracts of country” (Williamson 1918). It seldom inhabits drier areas, although in Cambodia it has been recorded wintering in the “park-like” country of the centre and north, a huge region of very open, sandy, deciduous forest with scattered pools (Delacour 1929b). Similarly, in India, it has been found...
near Jodhpur in “comparatively arid districts” (Hume and Oates 1889–1890). In Malaysia it seems to favour open, bare, dry paddyland (free of interspersed orchards and housing) between cultivation phases, again preying largely on rodents (Wells 1999), and most records in Singapore have been in November–December, when the favoured paddy-stubble habitat is not extensive on the mainland (Wells 1990c). It has also been recorded at a large municipal tip (Wells 1999), and sometimes frequents colonies of large waterbirds on which it preys, and may roost in or near such colonies (Naoroji 1990). It is, at least locally, “not a very shy bird” (Brooks 1875b), often encountered singly, but also frequently in pairs or small groups (Roseveare 1949, Wells 1999).

**Food** This species is carnivorous. In the breeding range in eastern Russia, Siberian suslik *Citellus undulatus* is an important source of food when the young animals emerge from their burrows and are easily caught, but other mammals are important components of the diet, including young musk-rats *Ondatra zibetica*, voles *Microtus fortis* and *M. maximoviczi* and other rodents, plus amphibians, including frogs *Rana*; two analyses of pellets showed that 36% and 80% of the diet respectively was composed of birds, including young ducks, Mallard *Anas platyrhynchos* and Common Teal *A. crecca*, Schrenck’s Bittern *Ixobrychus eurythmus* and Band-bellied Crake *Porzana paykullii* (Pan’kin 1972, V. V. Ryabtsev *in litt.* 1997). In China its diet includes a variety of mammals, birds, fish, amphibians and reptiles (Gao Wei *in litt.* 1997).

Outside the breeding season, birds tend to congregate around shallow wetlands, at the edge of which individuals can often be seen perched on stakes, low bushes or small trees, presumably resting and searching for prey (Hume 1872–1873, 1888, Brooks 1875b, Roberts 1991–1992). Hume (1872–1873) “generally found them subsisting almost exclusively on frogs” in Pakistan, and indeed amphibians appear to make up the bulk of the diet in many regions (Hume 1875a, Barnes 1885, Eates 1937). Eates (1937) found the remains of one common frog species *Hoplobatrachus tigerina* at a nest in Sind. Birds in Selangor, Malaysia, were observed hunting from perches and even walking in search of frogs (Wells 1990c). They will also, however, “take waterfowl and fish when the opportunity occurs” (Eates 1937), along with most other vertebrate prey of suitable size. They have been seen to “strike at, and once or twice actually carry away, snipe and other small water birds” that were wounded (Hume 1872–1873), and often carry off wounded ducks “with great audacity” (Ali and Ripley 1968–1998). Eates (1937) found the remains of Purple Swamphen *Porphyrio porphyrio* and a Collared Dove *Streptopelia decaocto* on and under a nest in Sind, as well as an unidentified “mud fish”. In addition, chameleons, *Calotes* lizards, Common Coot *Fulica atra*, Rufous Treepie *Dendrocitta vagabunda* and White-throated Kingfisher *Halcyon smyrnensis* (complete head and bill in the stomach of one individual) have been recorded in the diet (Ali 1941, 1954–1955, Ali and Ripley 1968–1998). Ali and Ripley (1968–1998) stated that the usual method for hunting birds such as coots is to swoop low and repeatedly over a flock, focusing on one individual that dives to escape, until it eventually pounces on it immediately after it reaches the surface; an individual in Rajasthan was watched catching a Common Moorhen *Gallinula chloropus* by suddenly dropping into reeds (Kumar 1993). One in the Bangkok area was seen eating a Black-crowned Night-heron *Nycticorax nycticorax* (Bangkok Bird Club *Bull.* 10, 4 [1993]: 11). In Hong Kong, it feeds mainly on birds, which it actively hunts (HKBWS *in litt.* 1997). In Sind Hume (1872–1873) “twice shot them in the act of devouring fish”, something he had not seen them do during many observations in India; these birds had probably pirated fish from other carnivores or found them moribund. Donald (1918–1921) shot an individual carrying a mole cricket, proving that it sometimes takes very small prey.

In Keoladeo National Park, India, it has frequently been observed devouring eggs and nestlings, including many Painted Stork *Mycteria leucocephala* chicks; for example, one juvenile Imperial Eagle and two juvenile Greater Spotted Eagles consumed 38 clutches of Purple Heron *Ardea purpurea* and Grey Heron *A. cinerea* in one season, such that heronry breeding success
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was nil (Naoroji 1990). In Malaysia it has been recorded taking nestling waterbirds such as rails and bitterns killed or exposed during harvest or harrowing (Wells 1999).

Finally, “it does not disdain carrion” (Barnes 1885). In Malaysia, it commonly devours poisoned rats (mainly *Rattus argentiventer*) in open paddyland, and indeed the short-lived boom in numbers of the eagle in the Peninsula in winter in the 1980s was probably prompted by availability of dead rats when poison was (temporarily) the major form of pest control in the newly developed rice-paddies (Wells 1999). In Myanmar “the stomach of a one-legged bird in very bad condition contained a bandicoot, which he had probably picked up dead” (Hume 1875a), while in Sind Eates (1937) found one queuing to feed on the carcass of a camel being eaten by vultures. These eagles are also occasionally kleptoparasitic, forcing Black Kites *Milvus migrans* to relinquish food items (Wells 1990c).

**Breeding** In eastern Russia nesting takes place between May and August: eggs (clutch size one or two) are laid in mid-May and hatch in mid- to late June; newly hatched chicks were found in a nest in mid-June, and a c.30-day-old chick was found in a nest in mid-July, the young fledging in about mid-August (V. V. Ryabtsev *in litt.* 1997). In China, nests are built from early May, eggs (one to three) are laid in mid-May, the incubation period is 41–44 days, and the chicks fledge at 45–47 days (Gao Wei *in litt.* 1997). In the Indian subcontinent (including Pakistan) breeding usually occurs in March–June (Barnes 1885, 1888–1891, Hume and Oates 1889–1890, Eates 1937, Ali and Ripley 1968–1998, Prakash 1988, Roberts 1991–1992, BMNH egg data). However, Roberts (1991–1992) found hatchlings in December near Mirpur Sakro and saw a displaying male in early November in Thatta district, indicating that nesting may occur during the cold season (also see Remarks 3). The clutch consists of 1–2 eggs (Barnes 1885–1891, Hume and Oates 1889–1890, Roberts 1991–1992) and the incubation period is apparently 42–44 days, with a fledging period of up to 65 days (Brown and Amadon 1968).

In eastern Russia, the species usually breeds in forest close to wetland habitats such as riverine floodplains, lakes and swamps, with nests in larch, pine, aspen, birch and willow trees, 4.5–12 m above the ground (Sonin and Ryabtsev 1993, V. V. Ryabtsev *in litt.* 1997; see Remarks 7). In China it nests on high mountain rock-faces or tall trees, but will do so on the ground in steppes; it usually builds its own nest, but also utilises old ones of other birds of prey or of Black-billed Magpie *Pica pica* (Gao Wei *in litt.* 1997) (the latter presumably as the base for a larger structure). A nest in Jiangsu was on a ledge on a precipitous hillside (La Touche 1906–1907). In Pakistan nests of this eagle were large platforms of sticks built on top of trees (e.g. *Acacia nilotica [=arabica], Mangifera indica*), either those growing on the banks of irrigation channels in areas subject to seasonal inundation and rich in waterfowl, fishes and amphibia, or in well-wooded areas not far from lakes; a nest placed 7.5 m up an *Acacia nilotica* (babul) in Sind was a large construction of sticks lined sparingly with dried grass and assorted stems (Eates 1937, Roberts 1991–1992). J. Davidson also found nests along watercourses in India, but stated that the species nested “in a fork, not near the top of the tree” (Barnes 1937, Roberts 1991–1992). Four nests reportedly found by C. H. T. Marshall (in Hume and Oates 1889–1890) in Uttar Pradesh were all sited in *Dalbergia sissoo* (“sheesum”) trees along a canal. The nest recently described in Keoladeo National Park was c.14 m up a *Mitragyna parvifolia* (Prakash 1988).

**Migration** The movements of the eastern populations of Greater Spotted Eagle are not well understood, but most birds appear to move from the main breeding areas in North-East Asia to winter further south in southern China and South and South-East Asia. Birds arrive in the nesting areas in eastern Russia in mid-April, the earliest record being on 15 April (V. V. Ryabtsev *in litt.* 1997), and leave in September–October, a concentration of birds on southward migration having been observed (mainly in late September) on the south-western shore of Lake Baikal, where there is a mass autumn migration of birds of prey (Ryabtsev *et al.* 1991). The species is also mainly a summer visitor to north-east China, arriving in early to mid-April and departing from early to mid-October (Gao Wei *in litt.* 1997). In Taiwan it is
mainly a passage migrant in spring and autumn, but a few winter, most of the birds observed there being in immature plumage (Houng Kuang-ying in litt. 1997). In Pakistan, northern India and Nepal east through Bangladesh to Myanmar, a small resident population is augmented in winter by migrants from the north (Ali and Ripley 1968–1998, Ripley 1982). Although Hume (1872–1873) stated that the species was a “permanent resident” in Sind where it “regularly breeds”, the majority of individuals seen in Pakistan in the late twentieth century were migratory, disappearing in summer, probably to their Russian breeding grounds (Roberts 1991–1992). In November 1963, a “small scale migration” was occurring at Jati, Sind (Holmes and Wright 1968–1969), presumably involving southbound migrants. In Dera Ismail Khan district extreme dates recorded in the 1990s were 13 December to 28 March (Kylänpää 2000). In Tamil Nadu most records were between 15 November and 15 April (Nichols 1943–1945). The species is presumably erroneously listed as resident at Asan barrage, Uttar Pradesh (Gandhi and Singh 1995a,b), Punjab, India (Singh 1993) and in the Sundarbans of Bangladesh (see Khacher 1995b). It winters in Bangladesh between November and March (Millin 1987) and in Myanmar between October and March (Roseveare 1949, 1952), while in Thailand records span from 6 October to March or April, although most are in midwinter, and the latest spring record from Khao Sam Roi Yot is 17 April 1995 (P. D. Round in litt. 1998). In Peninsular Thailand and Malaysia, most early records are believed to be of passage migrants (Medway and Wells 1976) although wintering has been regularly recorded recently with extreme dates of mid-October and 5 May (Lim Aun Tiah 1998, Wells 1999). The species seems to be highly mobile in this area, apparently following the staggered sequence of the rice harvest from north to south (Wells 1999). A northbound migrant was seen passing through Laos during April alongside small numbers of Grey-faced Buzzard, Pied Harriers *Circus melanoleucos* and accipiters (Tobias 1997), and in Vietnam the species has been recorded on migration with large numbers of raptors, including Amur Falcon *Falco amurensis* and Grey-faced Buzzard (A. W. Tordoff verbally 2000).

**THREATS** In Europe, Africa, the Middle East and Central Asia, key threats are disturbance, habitat destruction and hunting, and suitable habitat mosaics have been lost as a result of afforestation and wetland drainage (Meyburg *et al.* in press). In eastern Europe, declines have resulted from agricultural intensification and abandonment of traditional floodplain management (A. Lõhmus in litt. 1999). Birds are intolerant of permanent human presence in their breeding territories and will abandon them as a result of disturbance; forestry operations are a major source of such disturbance, and shooting is a serious threat in Belarus, Poland, Russia and the Mediterranean, together with deliberate and accidental poisoning across much of its range (Meyburg *et al.* in press). In Asia the main threats to this species are declines in the availability of habitat and prey (see Karpowicz 1985, Scott 1989), and these central issues are influenced by secondary factors such as disturbance, hunting and pollution. In all these cases, the scale of threat is magnified by the large home ranges of individuals (and, therefore, the large size of breeding territories), and the highly migratory nature of the species, factors that eliminate the possibility of conserving viable breeding populations within protected areas, and that reduce the efficacy of the protected area approach in general.

**Habitat loss Russia** The preferred habitats of the species in central Siberia are those that have been most extensively altered by human activities in the region (Rogacheva 1992). In its breeding range in eastern Russia, for example, a large area of suitable wetland habitat was lost in the Irkutsk region when the Angara barrages were constructed in the 1950s and 1960s; wetland loss is now less rapid in the area, but still continues, and in the past few years has resulted in breeding territories being abandoned along the Korolok and Irkut rivers (V. V. Ryabtsev in litt. 1997). Drainage has also considerably reduced the area of wetland habitats in the Tunkinskaya and Barguzin valleys: in the former it is estimated that the area of wetlands was reduced to 50% of its original extent or less by “soil-improvement” between 1960 and
Threatened birds of Asia

1980 (V. V. Ryabtsev in litt. 1997). The ploughing of steppes has reduced the area of habitat suitable for hunting, and the numbers of an important prey species, Siberian suslik; moreover, spring fires damage vast areas of forest almost annually (V. V. Ryabtsev in litt. 1997), thereby degrading the eagle’s nesting habitat (B. A. Voronov in litt. 1997).

China Deforestation and the drainage of wetland habitats are likely to be serious threats in the Chinese breeding range (see Table 1), and habitat loss is probably the most important threat to this species in Hong Kong (HKBWS in litt. 1997).

Table 1. Changes in the extent of natural habitats in the “mixed coniferous forest zone” of north-east China. The data in this table are reproduced from MacKinnon et al. (1996), and show the estimated areas (both original and remaining in km²) of presumably suitable habitats within this species’s known breeding range, and the area of each habitat estimated within existing protected areas. However, it is important to note that this only gives an indication of the extent of reduction of presumed habitats, as there is no information on the time-scale over which they have been lost, and this species does not necessarily occur throughout each habitat in this part of China.

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Original</th>
<th>Remaining</th>
<th>%</th>
<th>Protected</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>coniferous/broadleaf mixed forest</td>
<td>46,073</td>
<td>27,349</td>
<td>59</td>
<td>1,500</td>
<td>3.3</td>
</tr>
<tr>
<td>cold coniferous forest</td>
<td>188,662</td>
<td>87,457</td>
<td>46</td>
<td>3,428</td>
<td>1.8</td>
</tr>
<tr>
<td>deciduous broadleaf forest</td>
<td>289,652</td>
<td>157,696</td>
<td>54</td>
<td>4,016</td>
<td>1.4</td>
</tr>
<tr>
<td>temperate coniferous forest</td>
<td>10,855</td>
<td>4,342</td>
<td>40</td>
<td>65</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Pakistan Koning (1976) noted the dramatic decline in raptors in Pakistan and pointed to “deforestation, drainage of marshes, land use and the use of pesticides” as the fundamental causes. Until the late nineteenth century, the Indus river overflowed its banks every year, flooding enormous areas and thus providing the habitat necessary for this species, but construction of “hundreds of miles of bunds and extensive canal systems” between the 1870s and late 1930s prevented extensive flooding, reducing the wetlands, along with the eagle’s prey and consequently its population (Eates 1937). At present, construction of a huge system of irrigation canals and large storage reservoirs upstream of the barrages appears to have compensated in part for the loss of original wetland habitat (see Showler and Davidson 1999, and Threats under Jerdon’s Babbler *Chrysomma altirostre*). However, diversion of water from rivers for irrigation in winter may affect prey distribution, and this factor, exacerbated by ever-increasing population pressure on land in Pakistan (Savage 1972), threatens to reduce raptor populations further. Details of threats to wetlands in Pakistan appear under Marbled Teal *Marmaronetta angustirostris*.

India The decline of the species in India is attributed to “altering ecological conditions, natural or man-made”, and in particular to reclamation of wetlands (Ali and Ripley 1968–1998). On a small scale, local people cut canals to drain water from wetlands, substantially reducing the amount of habitat available for waterbirds (Choudhury 1991), and on a larger scale huge areas of wetland were converted to agriculture and industry or settled by people during the twentieth century (Scott 1989). For example, Logtak lake in Manipur was once a very important site for waterbirds, but at least 40 km² of peripheral habitat was reclaimed for rice cultivation, and severe deforestation of the catchment resulted in increased siltation, while Dihaila jheel in Madhya Pradesh is threatened by similar peripheral intensive land use, siltation, overfishing and heavy grazing (Scott 1989). Water hyacinth *Eichhornia crassipes* infestation is also a problem on many wetlands in northern India and some form of control, preferably mechanical rather than biological, needs to be exercised to preserve them (Scott 1989). Harike lake in Punjab, for example, became clogged with this aquatic plant (Ali et al. 1981, Singh 1992): in 1980 only 40% of the lake was covered with it, while over 70% of the lake was covered in 1989, and 75% in 1994 (Scott 1989, Ladhar et al. 1994). This site also suffers from siltation and is feared to be drying out and becoming unsuitable for wildlife (Ali et al. 1981, Scott 1989, Singh 1992). Deforestation and erosion of the catchment has accelerated...
this process dramatically and, at current rates of shrinkage, the wetland will disappear in the next century (Ladhar et al. 1994). Cattle-grazing is “rampant” in most Indian protected areas and around most wetlands, and this factor is reducing the extent of habitat suitable for this species (Scott 1989, Samant et al. 1995). These problems attend many Indian wetlands, especially those in the north (Scott 1989); further accounts of relevant threats appear in equivalent sections under Pallas’s Fish-eagle *Haliaeetus leucoryphus*, Sarus Crane *Grus antigone* (with particular reference to Keoladeo and Sultanpur National Parks) and Baer’s Pochard *Aythya baeri* (with reference to Deepor beel and other Assamese wetlands).

**Nepal** Loss of habitat is considered to be one of the main problems faced by this species in Nepal (H. S. Baral in litt. 1998); see Threats under Pallas’s Fish-eagle.

**Bangladesh** Massive human population expansion in the twenty-first century (110 million inhabitants in 1990 apparently destined to double by 2020) will undoubtedly exert huge pressure on wetlands and their resources in Bangladesh, with potentially disastrous effects on their associated fauna (Wallace 1993). An account of threats to the Sundarbans appears under Lesser Adjutant *Leptoptilos javanicus*, while threats to wetlands in the Haor basin are outlined under Pallas’s Fish-eagle and Baer’s Pochard.

**Myanmar** The drainage and development of wetlands is posing a considerable threat to the species in a country that once boasted huge areas of undisturbed suitable habitat (Scott 1989). Inle lake is silting up rapidly and most lowland areas are overrun with people, factors that, added to the recurrent security problems that have curtailed attempts to survey wetlands in the area, do not bode well for the prospects for wetland conservation in the country (Scott 1989).

**Thailand** Natural or undisturbed wetlands are now in short supply in the country, rendering it generally unsuitable for this eagle (see Threats under Spot-billed Pelican *Pelecanus philippensis*, White-shouldered Ibis *Pseudibis davisoni* and Baer’s Pochard). The central plains of Thailand were once a vast expanse of low marshy country, but this has long been turned into an urban sprawl with patches of paddyland, much of which is now converted to other forms of arable agriculture; similarly, the area of northern Thailand from which records of this species derive has changed greatly in recent years owing to drainage, urbanisation and the intensification of agriculture, involving a swing away from paddy in favour of dry arable crops, such as tobacco, soya, etc. (Round et al. 1988, P. D. Round in litt. 1998). The freshwater marsh in Khao Sam Roi Yot National Park, one of the few regular wintering sites in the country, has suffered greatly from “massive illegal encroachment” and disruption of hydrology: plantations of casuarinas, eucalyptus and coconut palms have been established around the margins of the area, while major prawn farms have been set up in its centre, pumping salt or brackish water into previously freshwater areas (Parr 1991, P. D. Round in litt. 1998). As this encroachment continues apace, wetland areas in and around the park face a bleak future: community support for the area is suppressed by the activities of wealthy landlords, and there is little political resolve to facilitate the management process (Parr et al. 1993b, Oriental Bird Club Bull. 26 [1997]: 15–21).

**Vietnam** Accounts of past and future problems facing wetlands in the country appear under Lesser Adjutant and Sarus Crane.

**Peninsular Malaysia** Most wetland habitats in the country have been converted to intensive agriculture, or are heavily disturbed (DWNPPM 1987, Wells 1999).

**Shortage of prey** While quantification of this threat is lacking, intensive exploitation of wetlands throughout the Asian wintering range of this species has undoubtedly reduced populations of prey species such as reptiles, amphibians and wildfowl (see Scott 1989). **India** In India the decline in wildfowl numbers owing to their over-exploitation has presumably reduced food resources for this raptor (see equivalent section under Pallas’s Fish-eagle) (Ali et al. 1981, Scott 1989, Singh 1992). **Nepal** Shortage of prey is considered to be one of the main problems faced by this species in Nepal (H. S. Baral in litt. 1998). **Myanmar** At Inle
lake the large human population subjects migratory wildfowl, which are apparently brought to the markets in basketfuls, to intense hunting and trapping (Scott 1989), and this is presumably reducing the availability of prey for the eagle there. Malaysia Post-harvest pest control led to large numbers of dead rats being available in Malaysia during the 1980s, and this apparently caused a rise in the number of wintering Greater Spotted Eagles in the country (Wells 1999). After a switch away from poisons to modification of rat breeding habitat and biological controls, numbers declined again (Wells 1999). Singapore Recent changes in farming techniques eliminated food sources and probably brought about a decline in the wintering population (Wells 1999).

**Disturbance** Regular human presence in breeding territories of this species is highly detrimental as pairs tend to abandon them (Meyburg *et al.* in press). Unfortunately, wetlands in much of Asia are intensively utilised by people, especially in the wintering range (see Karpowicz 1985, Scott 1989), and even at this season the effects are doubtless negative. Russia Human disturbance is a significant threat to the species in eastern Russia, and in the most disturbed areas it is thought to lead to increased predation of nests by crows (V. V. Ryabtsev *in litt.* 1997). Many nesting and hunting areas used by this species are popular places for recreational activities, fishing, haymaking, cattle-grazing and the construction of summer houses; for example, a pair stopped nesting near the Korolok river following the construction of a group of chalets close to the floodplain (V. A. Dugintsov *in litt.* 1997, V. V. Ryabtsev *in litt.* 1997).

**India** The huge rise in the human population has led to Indian wetlands becoming increasingly overrun with fishermen, hunters and general human traffic, and this in turn has led to increased disturbance and hunting and a diminution of habitat quality (Ali *et al.* 1981, Scott 1989, Singh 1992). At many Indian wetlands (e.g. Harike lake, Dihaila jheel and Deepor beel) 24-hour fishing causes (or until very recently caused) much disturbance (Scott 1989, Barman *et al.* 1995; see Threats under Pallas’s Fish-eagle). Bangladesh As the area of wetland in the country shrinks owing to drainage, and as human population levels rapidly rise (see Threats under Lesser Adjutant), suitable habitat for this species suffers increasing disturbance (Scott 1989, P. M. Thompson *in litt.* 1998).

**Persecution** This eagle, in common with most other large raptors, is threatened by heavy persecution throughout much of its Asian range. The pressure is especially intense in the South-East Asian wintering grounds, and as a result the species has become scarce in that region (P. D. Round *in litt.* 1998, Duckworth *et al.* 1999). Russia The wetlands in its breeding range in eastern Russia are subject to heavy hunting pressure, even inside Tunkinskiy National Park (V. V. Ryabtsev *in litt.* 1997); some accessible nests have been deliberately destroyed and eagles shot (Shibnev 1989, V. A. Dugintsov *in litt.* 1997). In central Siberia eggs are stolen and nests destroyed (Rogacheva 1992). China Illegal hunting is a problem in China (Gao Wei *in litt.* 1997). Pakistan The high level of hunting is a threat to wetland fauna in Pakistan, and affects large raptors (see Ali 1928, 1936, Koning 1976, Scott 1989). India The species is at least occasionally hunted in its wintering range (e.g. Choudhury 2000c); an individual was killed in Gujarat with a “boomerang” (Brooks 1875b). Harike lake is threatened by wildlife poachers (Singh 1992). Bangladesh Eagles are occasionally persecuted by leaseholders of wetlands in the north-east of the country, where they are regarded as hunters of fish and wildfowl and thus vermin (P. M. Thompson *in litt.* 2000). Myanmar Uncontrolled hunting along with the drainage and development of wetlands is posing a considerable threat to this species in Myanmar (Scott 1989; also see Threats under White-winged Duck *Cairina scutulata*). Thailand In common with most other large birds, it is at risk from a continued high level of hunting and direct persecution (P. D. Round *in litt.* 1998; see Threats under Greater Adjutant *Leptoptilos dubius*). A local farmer at Suphanburi, who on his own initiative protects a breeding colony of cormorants, night-herons and egrets, has destroyed or captured a number of Greater Spotted Eagles in the past, because they “ate his birds” (P. D. Round *in litt.* 1998). Local people frequently hunt wildlife in the area around Khao Sam Roi Yot
Aquila clanga

National Park (Scott 1989, Parr et al. 1993b). Laos Shooting of birds is ubiquitous in the country (Thewlis et al. 1998, Duckworth et al. 1999). Various species of raptor are hunted, primarily for food, and both dead and live specimens, the latter often kept as pets, are traded in urban markets (Baird 1993). In addition, the claws of raptors are used in traditional medicine (Martin 1992). Vietnam Hunting is a serious problem in the country; see Threats under Vietnamese Pheasant Lophura hatinhensis.

Pollution Although direct data showing the effects on aquatic ecosystems of high doses of toxic chemicals and pesticides are scant in Asia, the position of this raptor high in the food chain suggests that it is very likely to suffer—either through reduced prey populations or an accumulation of poisons, or both—from the widespread and liberal application of agricultural chemicals (e.g. persistent organochlorines) in the region (see equivalent sections under White-winged Duck, Pallas’s Fish-eagle and Imperial Eagle). Russia A major part of the breeding range of the Greater Spotted Eagle in eastern Russia, the Irkutsk-Cheremkhovo plain, is affected by aerial pollution from the industrial complexes around Irkutsk city, and it is very likely that the birds are affected by these industrial toxins (V. V. Ryabtsev in litt. 1997). In central Siberia rodents, apparently the principal prey of the species, often carry toxic pesticides (Rogacheva 1992). China Pollution is also likely to affect this species in China, and it is possible that it is sometimes poisoned by baits put out to control rodents (Gao Wei in litt. 1997). Pakistan Koning (1976) considered the use of pesticides to be one of the fundamental causes of the large declines in raptors reported in Pakistan. India In Dibru-Saikhowa National Park in Assam, thiordan, dieldrin and other pesticides are used in winter to kill fish, presumably with detrimental effects on wetland ecosystems (Choudhury 1995). The wetlands at Bharatpur are threatened by contamination with industrial effluents and the run-off of pesticides from nearby farmland (see Muralidharan 1992, Ramachandran and Vijayan 1994). Logtak lake in Manipur is threatened by inflow of domestic sewage, pesticides and fertilisers, which are causing rapid eutrophication (Scott 1989). Myanmar Although the problem of pollution might be widespread in Myanmar, the only detail available is that the discharge of effluent into Inle lake is becoming potentially hazardous to the aquatic system (Scott 1989). Thailand In Thailand DDT and dieldrin, two infamous persistent toxic chemicals, were found in water samples collected from protected areas (Nakhasathien and Stewart-Cox 1990, Green 1992), and the use of these pesticides, as well as fertilisers, is thought to be excessive (P. D. Round in litt. 1998). Malaysia The species’s propensity to consume poisoned rats might have led to secondary poisoning, although this was not directly proven (Wells 1999).

MEASURES TAKEN In Europe, the Greater Spotted Eagle is legally protected in Belarus, Estonia, France, Greece, Latvia, Poland, Romania and Russia (Meyburg et al. in press). Protected zones around breeding sites have been established in Poland and are proposed in Estonia (Lõhmus in litt. 1999). Many wintering localities in Greece are Ramsar sites, but effective protection remains problematic; an International Lesser and Greater Spotted Eagle Working Group has been established, and a draft international action plan was produced in 1997, while a national plan has been produced in Estonia (Meyburg et al. in press). In Asia, some protection is afforded to this species by legislation, protected areas, habitat protection measures and conservation education.

Legislation The Greater Spotter Eagle is listed on Appendix I of the CMS (Bonn Convention, for which see Boere 1991). It is also listed on Appendix II of CITES. In Russia it is listed as threatened in the national Red Data Book (Kolosov 1983), and in the regional Red Data Books for Irkutsk and Buryatia (V. V. Ryabtsev in litt. 1997). It is a nationally protected species (second class) in China (Conservation Division, Ministry of Forestry of China 1994), India (Schedule I of the Wildlife Act 1972 [as “Accipitridae”], and a protected
species (category II–1) in both North Korea (despite the fact that there are no confirmed records: see Distribution) and South Korea. In Myanmar eagles are protected as a group (Wildlife Act 1984). In Thailand it is nominally protected under WARPA, but this law is seldom enforced (P. D. Round in litt. 1998).

Protected areas

It should be noted that the Greater Spotted Eagle is highly mobile and therefore its occurrence in many protected areas is intermittent or based on single records only. It should be borne in mind, therefore, that the following list of protected areas from which it has been recorded probably contains many sites that will contribute little to its conservation. Russia In eastern Russia, large areas of breeding and feeding habitat of this species are inside Tunkinskiy and Zabaykalskiy National Parks and Kabanskiy Republic Game Reserve (the Selenga delta, Buryatia), and pairs also probably nest in Pribyakal’kiy National Park and Barguzinskiy Nature Reserve (V. V. Ryabtsev in litt. 1997). However, this measure currently affords limited protection to the eagle, as its habitats inside all three national parks are under pressure from recreational and agricultural activities (V. V. Ryabtsev in litt. 1997). In Khabarovsk, Bolon’skiy Reserve is being established (centred on Lake Bolon’, where this species nests) (B. A. Voronov in litt. 1997). It has also occurred at Bol’shekhektirsikiy, Khinganskiy and Zeyskiy Nature Reserves. China It is recorded from several protected areas in China, including Zhalong National Nature Reserve in Heilongjiang, Xianghai Nature Reserve in Jilin, Horqin and Dalai Hu Nature Reserves in Inner Mongolia, Yancheng and Da Feng Reserves in Jiangsu, and Wuyi Shan Nature Reserve in Fujian, and it regularly winters in Mai Po Nature Reserve in Hong Kong (see Distribution).

Pakistan It has occurred at Drigh Lake Wildlife Sanctuary and Lal Suharana National Park. India Small numbers have been recorded in the following national parks: Bandhavgarh, Borivli, Corbett, Dibru-Saikhowa, Dudhwa, Guindy, Kaziranga, Keoladeo, Manas, Orang, Rajaji, Ranthambore and Sultanpur. It has occurred in Bhindawas, Bordoibam-Bilmukh, Burhachapori, Chakrashila, Harike Lake, Rangananthitoo, Sariska and Pobitora Wildlife Sanctuaries, and Deepor Beel, Nawabganj Priyadarshani, Panidihing, Patna and Vedanthangal Sanctuaries; in Goa, the Salim Ali Sanctuary (1.8 km²) situated on Chorao island is possibly of benefit to the species (Lainer 1999, P. Willoughby in litt. 1999), and a “safe haven” is also provided by the Ciba-Geigy factory reserve (Lainer 1999). Measures taken at Harike Lake Wildfowl Sanctuary include the erection of a fence around the wetland, manual clearance of water hyacinth after the failure of biological controls, and rewards offered for information leading to the prosecution of poachers (Singh 1992). Dihaila jheel lies at least partly in the Karera Bustard Sanctuary (but see Measures Taken under Great Indian Bustard Ardeotis nigriceps). The species has been listed for many other protected sites by Samant et al. (1995), but these records are treated as unconfirmed (see Remarks 1). Nepal It has occurred in Royal Chitwan National Park. Bangladesh Hail haor has been proposed as a waterbird sanctuary in the past, but still receives no official protection; Tangua haor and Hakuluki haor are apparently to be proposed as Ramsar sites by the Ministry of Environment and Forests (P. M. Thompson in litt. 2000). A management plan for Tangua haor was drafted in 1996–1997 as part of the national conservation strategy, but has not been implemented; indeed, the district administration and ministry of land have recently leased out fishing rights in Tangua haor after an earlier agreement to withhold permits pending the conservation strategy (Bangladeshi newspaper report per P. M. Thompson in litt. 2000). No measures have been taken in the coastal chars frequented by this species (P. M. Thompson in litt. 2000). Details of conservation measures in the Sundarbans appear in the equivalent section under Lesser Adjutant. Myanmar Records have come from Mohingyi Wetland Sanctuary, with one or two individuals apparently regular in winter. Thailand This eagle has been recorded on passage in Doi Inthanon National Park and it usually winters in Khao Sam Roi Yot National Park. The inclusion (since c.1983) of a major part of the Thung Sam Roi Yot freshwater marsh within the boundary of this protected area has unfortunately
been ignored by park chiefs, who are either intimidated by or in active collusion with influential local business interests (Parr et al. 1993b). A campaign to save the national park was undertaken in 1991 with funds provided by the Oriental Bird Club (Parr et al. 1993; see also Oriental Bird Club Bull. 26 [1997]: 15–21). Cambodia The species has been seen at the newly established Ang Trapeang Thmor Reserve. Vietnam Wintering birds visit Ba Na, Tram Chim and U Minh Thuong Nature Reserves, the latter two being in the Mekong delta region.

MEASURES PROPOSED In Europe, an improvement in the conservation status of this species is anticipated to follow: protecting important breeding areas; maintaining wet meadows by traditional methods; regulating forestry activities to minimise disturbance; prudent guarding of nests in May–June to prevent disturbance; stopping illegal shooting; investigating lead poisoning from ingestion of prey; raising awareness of local people on the importance of conserving the species; and surveying the range and population of both this and Lesser Spotted Eagle A. pomarina, especially where the two appear to overlap; a full account of these and other plans in the western portion of the range is given by Meyburg et al. (1997). Initiatives and proposals in the Asian range, relating to protected areas, habitat protection, research and conservation education, are detailed below.

Control of pollution and persecution While bans on keeping this species in captivity and selling its skins in Russia have been called for (V. V. Ryabtsev in litt. 1997), and enforced legal protection from hunting and poisoning is urged in Laos (Duckworth et al. 1999), such measures should be implemented throughout its range. Furthermore, efforts should be mounted to suppress illegal hunting of wildlife in Thailand (Scott 1989). Similarly, new initiatives are needed throughout its range to minimise the quantity and toxicity of agricultural chemicals and industrial effluents.

Protected areas Apart from the almost universal need to strengthen the institutions responsible for site protection (see Measures Proposed under White-winged Duck), the following measures are necessary. Russia In eastern Russia improved protection of nests of this species inside Tunkinskiy, Zabaykal’skiy and Pribaykal’skiy National Parks is needed, and should be achieved by establishing “protecting zones” around the nest sites (V. V. Ryabtsev in litt. 1997). Two new protected areas should be established for this (and other) species in Buryatia, in the Barguzinskaya valley (a nature reserve or game reserve) and the Uoyan–Kumora extension to the Verkhnyaya Angara riverine floodplain (a game reserve) (V. V. Ryabtsev in litt. 1997). The creation of new protected areas for the conservation of this species and their habitats is also necessary in Khabarovsk, Amur and Primorye (Shibnev 1989, Y. N. Nazarov in litt. 1997, B. A. Voronov in litt. 1997). India Strict protection of large wetland reserves is a priority. Some sites deserve sanctuary status, such as Namora reservoir in Uttar Pradesh (Rahmani 1989f, S. Javed in litt. 1999) and Carambolin lake in Goa (Lainer 1999). Dihaila jheel in the erstwhile Karera Bustard Sanctuary (see Measures Proposed under Great Indian Bustard) might qualify for Ramsar status, and a suite of activities, such as the control of grazing and water use, acquisition by the Forestry Department and development of tourist and research facilities, has been proposed by Rahmani (1987c) with a view to conserving this site properly. Protection of national parks and wildlife sanctuaries in Assam should be strengthened (Choudhury 2000c). Measures proposed at Keoladeo National Park (currently the most important single site for the species in its Asian wintering range) are outlined under Sarus Crane. Bangladesh The freshwater marshes in the Haor basin of Bangladesh should be protected (Rashid 1993; see equivalent section under Pallas’s Fish-eagle). Myanmar Inle lake has been proposed as a wildlife sanctuary (Scott 1989, Lwin 1995). A system of wetland reserves needs to be incorporated into the national framework of protected areas (Lwin 1995). Thailand Khao Sam Roi Yot National Park, including the entire freshwater marsh, should be nominated as a Ramsar site and increased pressure put on the government to find ways to manage it sustainably (Scott 1989, Parr et al. 1993b). The
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central plain of Thailand should be zoned for land-use purposes so as to limit urban sprawl (P. D. Round in litt. 1998). Laos The protected-area system in Laos is heavily weighted towards forested areas, and provides poor coverage for open-country taxa such as this eagle. For this reason, it is particularly urgent to declare the Dong Khantung area in the far south as an NBCA: it contains many wetlands and areas of open “park-like” forest suitable for the species (J. W. Duckworth in litt. 2000; see equivalent section under Sarus Crane). Cambodia Further wetland and grassland protected areas are required in Cambodia to support this species and other threatened birds in northern Cambodia (see equivalent section under Giant Ibis Thaumatibis gigantea and Bengal Florican Houbaropsis bengalensis). Vietnam Additional protected areas are required in the Mekong delta region (Buckton et al. 1999). Proposals for Tram Chim Nature Reserve and U Minh Thuong Nature Reserve appear under Sarus Crane and White-shouldered Ibis Pseudibis davisoni.

Research Research is required into the effects of industrial pollution on this species and its habitats in the Irkutsk region and elsewhere (V. V. Ryabtsev in litt. 1997). Surveys in many range countries should clarify the current breeding and non-breeding distributions of the species (see, e.g. Rashid 1993); key sites need regular visits or standardised counts so that trends in status can be tracked. Another major component of research activity should be the investigation of the species’s ecology and threats in the nesting and wintering grounds. Russia

The nest sites in the Irkutsk-Cheremkhovo plain in need to be located, with the aim of determining new areas suitable as nature reserves; an inventory of nest-sites would allow the regular monitoring of breeding success (V. V. Ryabtsev in litt. 1997). The distribution of the species is poorly known in the Khabarovsk, Amur and Primorye regions, and similar surveys are required there (V. A. Dugintsov in litt. 1997, B. A. Voronov in litt. 1997).

Education Publicity campaigns and the distribution of literature in important areas for this species could be used to try to control hunting, habitat loss, pollution, pesticide use and other threats, including eastern Russia (V. A. Dugintsov in litt. 1997, V. V. Ryabtsev in litt. 1997), the Indus valley of Pakistan (see Koning 1976), the Haor basin and Sundarbans of Bangladesh (P. M. Thompson in litt. 1999), and rural areas of Thailand. In Laos the poster campaign run by CPAWM/WCS, which focused on raising awareness of the role of raptors in controlling crop pests, should be continued for several years (Duckworth et al. 1999). In northern Cambodia the species and its conservation should be incorporated into ongoing education schemes, alongside similar initiatives for Bengal Florican and large waterbirds (see relevant accounts).

REMARKS (1) The identification of this and other Aquila eagles is sometimes difficult (see, e.g., Harris et al. 1989), and it is some sight records (and even some specimen records) listed in under Distribution may have involved misidentifications. Where uncertainty appeared to exist, records have been omitted; as, in general, are early records of breeding merely based on egg data (see Remarks 3). Related to this is the confusion of early taxonomy and nomenclature of Aquila eagles (particularly rapax, nipalensis, heliaca, clanga and pomarina), a factor leading to many mistaken reports and puzzling publications. For example, although A. naevia sometimes = A. pomarina (Lesser Spotted Eagle; see, e.g., Seebohm 1882, Ticehurst 1922–1924), A. naevia also often = A. clanga (see, e.g., Hume 1872–1873, Brooks 1873, 1875b) and thus the early record of these forms is strewn with pitfalls. Again, any ambiguous historical records are omitted (the aquatic habitat favoured by true clanga in the non-breeding season was a helpful guide to the likely validity of some). More recently, A. clanga was listed for many Indian protected areas by Samant et al. (1995), possibly hypothetically. While many of these records might be accurate, they are not supported by evidence and several are clearly in error; all are therefore omitted. (2) Although Roberts (1991–1992) stated that the species had not been observed in Baluchistan, there appear to be a few acceptable records. (3) Several scattered breeding reports in the Indian subcontinent were listed by Hume and Oates (1889–
1890) and Baker (1922–1930, 1932–1935), many of which, given the problems in identification of *Aquila* eagles in the nineteenth and early twentieth centuries, are here treated as unconfirmed. Breeding may have taken place in Gujarat (as with Pallas’s Fish-eagle *Haliaeetus leucoryphus*: see relevant account); this is suggested by the fact the female of a pair collected there by Ali (1954–1955) had enlarged ovaries (in January, matching some breeding dates in nearby Sind; see also Dharmakumarsinhji 1954). In Maharashtra, a breeding record from the Satpuras, “Khandesh”, April 1884 (BMNH egg data; and presumably the Tapti valley breeding record in April of an unspecified year mentioned by Barnes 1888–1891), is omitted here. Other breeding records (or possibly the same record) from near Siliguri and in the terai of “Sikkim” (both present-day West Bengal) (Brooks 1879, Hume and Oates 1889–1890) are treated as unconfirmed. (4) Many towns of this name are found in Himachal Pradesh, Uttar Pradesh, Rajasthan, Haryana and Bihar, and thus it is difficult to ascertain where all the “Futtegurh” specimens were collected. However, A. Anderson (a collector of some of the above specimens) worked for a time at Fategarh on the Ganges in the early 1870s, so it is assumed that some, if not all, the specimens listed come from that particular region. (5) Records given by Choudhury (2000c) were received too late to include in the mapping process. (6) Although two birds seen in July 1879 at Kamaulai, Tenasserim (Taninthayi), southern Myanmar, were thought to be this species (Bingham 1879a), they were probably misidentified given the season; Tenasserim is given as part of the range of the species by Smythies (1986), probably on the basis of this discounted record. (7) In one case, the nest-tree fell down before the eggs hatched, but the two eggs were unharmed and hatched on the ground, and one chick was successfully fledged; this success was probably a result of the high water level in the surrounding swamps, which helped protect the nest contents from the area’s numerous potential predators, e.g. badger *Meles meles*, racoon-dog *Nyctereutes procyonoides* and fox *Vulpes vulpes* (Sonin and Ryabtsev 1993, V. V. Ryabtsev in litt. 1997).