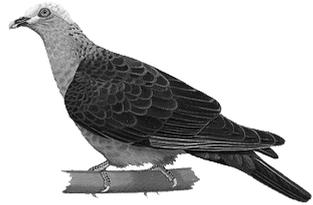


PALE-CAPPED PIGEON

Columba punicea

Critical —
Endangered —
Vulnerable C1; C2a



This pigeon has a small, declining, severely fragmented population owing to destruction of its evergreen forest habitat and hunting. It therefore qualifies as Vulnerable.

DISTRIBUTION The Pale-capped Pigeon is broadly distributed from eastern India and southernmost China through Myanmar and Thailand to the Malay Peninsula, with further populations in Laos, Vietnam and Cambodia. It has apparently occurred in both Sri Lanka and Malaysia at least once.

■ **CHINA** The species is only known from south-east Tibet and Hainan island, with records from:

■ **Tibet Chumbi river** (Chunpi, Qunbi) valley, Yadong county, undated (Cheng Tso-hsin *et al.* 1983; see Remarks 1); Zhuomu river valley (untraced), undated (Wang Zuxiang 1982);

■ **Hainan Namfung** (Nangfung), interior of Hainan, May 1891 (Styan 1893b; also Hartlaub 1898, Ogilvie-Grant 1900a,b, three specimens in UMB and BMNH), male collected, probably this species, undated (Hartlaub 1899b); **Diaoluo Shan**, Lingshui county, April (unspecified years), at the edge of secondary forest (three specimens in SCICN); **Dali**, April 1954 (two specimens in WUCN); Namro (Namroe) (untraced), March 1903 (Hartert 1910, male in AMNH); Utoshi (untraced), March 1903 (Hartert 1910, male in AMNH).

Records from unspecified locations are from “Hainan”, April 1963 (specimen in ASCN), and “South Hainan”, where it was evidently once common judging by the seven specimens collected, March 1903 (Hartert 1910, specimens in AMNH).

■ **INDIA** The species is recorded mainly in the north-eastern states although it ranges thinly as far as Andhra Pradesh and Maharashtra. Records are from:

■ **Madhya Pradesh Mahan river**, and tributaries in Surguja (Sirguja), undated (Ball 1874); **Bailadila**, Bastar district, January 1949 (Jayakar 1967, male in BNHS);

■ **Maharashtra** Itiadh lake, **Bhandara district**, three, around 1977 (Chitampalli 1977);

■ **Andhra Pradesh Jyothimamidi**, February 1985 (Ripley *et al.* 1988);

■ **Bihar** (“confined to Singhbaum”: Ara 1956) Saranda forest division, presumably near **Sarangda**, 30–40, May 1934 (Mooney 1934); **Chaibasa** (Chyebassa), parties of 4–5 regular in Singhbhum district (Dhalbhum district), undated (Blyth 1842a, Ball 1874); Kolahan (not mapped), undated (Ara 1956);

■ **Orissa Simlipal hills**, Mayurbhanj, 600–900 m, undated (Jayakar 1967), and one, February 1994 (S. Howe *in litt.* 1999); **Chandaka Dampara Sanctuary** (Chandka Game Sanctuary), near Bhubaneswar, c.50 m, nine encounters, October–February, 1963–1967 (Jayakar 1967);

■ **West Bengal** Puruliya district, breeding, February 1865 (two eggs in BMNH), specifically on the banks of the Cossye river (Kasai river), near **Ambikanagar** (Ambekanuggur), 1864 (Beavan 1864, 1865–1868, Ball 1874), December 1864, January 1865, December 1874 (four specimens in BMNH), one, 1933–1936 (Lowther 1940); **Midnapur** (Midnapore; Medinipur), one male, c.1874 (Roonwal 1941);

■ **Arunachal Pradesh** Kornu, Dibang Valley district, 25 km from **Roing**, 200 m, one, December 1997 (Singh 1999); **Dening** (Fort Dening), Mishmi hills, December 1946 (Ali and Ripley 1948, female in YPM); **Tezu**, Lohit valley, December 1946 (Ali and Ripley 1948, female in BNHS);

■ **Assam** west **Sadiya**, April 1877 (two specimens in BMNH); **Kobo**, December 1911 (Roonwal 1941; see Remarks 2); **Dollah**, April 1877 (male in BMNH); **Saikhowa** (“Sackwah”, Saikoa), April 1877 (male in BMNH); **Dibru-Saikhowa National Park**, two near Kolomi, May 1993, and 1–2 east of Salbeel, May 1994 (Choudhury 1995), one at Tongkrong, March 1997 (Kazmierczak and Allen 1997), two, March 1998 (Hornbuckle 1998a); **Rungagora**, Tinsukia district, near the boundary of Dibru-Saikhowa National Park, a nest, June 1903 (BMNH egg data, Stevens 1914–1915); **Khowang**, April and July 1879 (five specimens in BMNH); **Kaziranga National Park**, at Ahotguri, one, April 1999 (Barua 1999, Barua and Sharma 1999), three over the Central range, April 2000 (*Oriental Bird Club Bull.* 32 [2000]: 66–76); “Namba” forest, Gonghast, February 1921 (male in YPM), this being in the Nambar forest that covers parts of present-day **Golaghat** and Karbi Anglong districts (A. Choudhury *in litt.* 2000); **Gunjong**, North Cachar Hills district, two, and two eggs, June 1889 (BMNH egg data, Baker 1894–1901); **Hungrum** (Hanguem), North Cachar Hills district, May 1893 (two eggs in NMS); **Cachar**, April 1880 (male in BMNH), September 1897 (female in YPM), undated (Baker 1894–1901), and again, undated (Roonwal 1941); **Dilkhushah**, May 1878 (Hume 1880b, male in BMNH); **Hailakandi** district, Cachar, undated (Inglis 1896–1902); Sipua (possibly “Sipsira”; label illegible) (untraced), December 1873 (female in BMNH);

■ **Meghalaya Cherrapunji**, Khasia hills, clutches taken (by E. C. S. Baker) in July 1907, May 1908, June 1913 and June 1914 (BMNH egg data), also at an unspecified locality in the Khasia hills, one egg, June 1908 (BMNH egg data; but see Remarks 2 under Grey-crowned Prinia *Prinia cinereocapilla*);

■ **Nagaland** hot spring at Namba on Dhunsiri river, presumably near **Dimapur** (as Godwin-Austen collected there: see Distribution: India under White-winged Duck *Cairina scutulata*), April, c.1872 (male in BMNH, Godwin-Austen 1874b);

■ **Manipur Irang valley** (“Eerung valley”), pre-1881, and other almost certain sightings from Aimole and the Limatol range (Hume 1888).

There is one unconfirmed record from Jaypur (“Jeypore”), Orissa, where possibly recorded by Ball (1877).

■ **BANGLADESH** The species has long been known to occur in Bangladesh (e.g. Blanford 1895–1898) and various publications suggest that its range was once fairly widespread in the country. Baker (1913a), for example, listed the Sundarbans, Dhaka, Mymensing, Sylhet, Comilla and Chittagong in its range. More recently it was listed as resident only in the north-eastern highlands (i.e. principally Sylhet), the Chittagong Hill Tracts and surrounding lowlands (Rashid 1967, followed by Ripley 1982). Neither author gives much indication of the basis of their information, however, and with the exception of Sylhet (where E. C. S. Baker appears to have had first-hand experience of the species) these records are best treated as unconfirmed (see Remarks 2 under Grey-crowned Prinia and Remarks 2 under Manipur Bush-quail *Perdica manipurensis*). Several clutches of eggs in BMNH are from “Cherra Rd., Khasia Hills, Sylhet”, or “foot of Cherrapunji, Sylhet”. These must be from sites very close to Bangladesh, although probably still over the border in Meghalaya, at the foot of the Khasia hills (P. M. Thompson *in litt.* 2000). Harvey (1990) apparently saw the species in forests of north-east Bangladesh in 1988, but omitted more accurate locational details. Records are from: **Sylhet**, undated (Baker 1913a); **West Bhanugach Reserved Forest**, 2–3 on three dates, May 1988, October 1988, February 1989 (Thompson *et al.* 1993); **Tarap Hill (Kalinga) Reserved Forest**, December 1967 (Mountfort and Poore 1968).

■ **SRI LANKA** The existence of an old specimen (untraced) from Sri Lanka is “rather mysterious” (Roonwal 1941), because no records have been made in adjacent southern India. It was shot, probably near **Colombo**, by Layard (1853–1854), who stated that it is “but rarely a visitant of our island”. Legge (1880) added that “had not Layard actually obtained specimens, and satisfactorily identified the bird, I should be inclined to doubt its occurrence in Ceylon”,

and then suggested that he might himself have seen a flock of the species near Borella. Although the early conclusion that it was a “rare straggler” to the island (Legge 1880, Baker 1913a) might have been correct, it is perhaps equally likely (or unlikely) that a relict resident population died out at the incipience of ornithological investigation in the region. In either case the record is principally of historical interest as the species is extremely unlikely to return.

■ **MYANMAR** It once occurred almost throughout the country (Peacock 1933), being “well distributed over Burma, but very local” (Harington 1909a), although there are very few records from the north (Smythies 1986). It is distributed mainly in the coastal lowlands, with a few records from the valleys of the Chindwin, Irrawaddy (Ayeyarwaddy) and Sittang, and a few from the interior hills. In Tenasserim (Taninthayi), Davison apparently only found it “nearly down to Mergui” (Oates 1883). Smythies (1986) mentioned records from Karenni (Kayah state) and Pegu yoma, but no primary records have been traced; in addition, a record from the Salween (Thalwin) valley, July 1891 (specimen in AMNH) is too general to map. Records are from: **Upper Chindwin**, undated (Harington 1909a); **Ngwedaung**, Mandalay district, 90 m, December 1936 (Smith 1942, two males in BMNH); **Byibon**, Maymyo Forest Division, Mandalay district, 150 m, at least 12 birds, January 1936 (Smith 1942, female in BMNH); **Shan hills**, one shot at 900 m, undated (Wickham 1929–1930), and at other unspecified localities in the Southern Shan States, 1898–1901 (Rippon 1901), undated (Harington 1909a); near **Yeni**, on the left bank of the Sittang at the southern end of Yamethin district, “many” in moist forests of the “Paunglaung Elephant Fodder Reserve”, January 1941 (Smith 1942); **Ramree (Ramri) island**, undated (Blyth 1858, 1875, Oates 1883), this possibly being the undated record in “Arakan” (Blyth in Oates 1883 and Hume 1888); mainland **Arakan**, along the coast or in the yoma foothills, one in November, one in December, 1943–1945 (Christison *et al.* 1946); **Toungoo (Tonghoo)**, October 1874 and August 1875 (eight specimens in BMNH and NMS, Wardlaw Ramsay 1877); **Cheduba island**, pre-1881 (Hume 1888); **Papun (Pahpoon)**, January 1874 (Hume and Davison 1878, female and juvenile in BMNH); **Myitmaka river** (drainage), Tharrawaddy district, in an unspecified year (Harington 1909a, Smythies 1986); **Paunggyi**, August 1918 (one clutch of two eggs in NMS); **Kyeikpadein**, a nest found, July, late 1870s (Oates 1879, 1883), this probably being the source of “Lower Pegu” specimens, December 1878 (male in AMNH), January 1879 (male in BMNH); **Hlawga** (at Hlawga Park), Htauk Kyan, 35 km north of Yangon, five, December 1994, two birds in December 1994, but not seen in April 1995 during two days’ fieldwork (P. C. Rasmussen *in litt.* 1997), then up to 14 in December 1996 (*Oriental Bird Club Bull.* 25 [1997]: 61–69), and two birds in January 1998 (B. F. King *per* P. D. Round *in litt.* 1998); **Thaton** (Thatone creek), Mon state, December 1876 (male in BMNH); **Yangon** (Rangoon), February 1907 (female in AMNH, Harington 1909a,b), February 1878 (specimen in BMNH), February 1907 (specimen in AMNH), October 1937 (female in BMNH), also nearby at “Tankchan”, breeding, May 1906 (one egg in BMNH) and “Thyetyngar” (label illegible), April 1889 (male in BMNH), and “to be found” along the Yangon–Pye (Prome) road (along the valley of the Myitmaka river), undated (Harington 1909b); **Myawadi** (Thoungyin valley), Kayin state (previously part of Tenasserim), undated (Oates 1883), and apparently in this area at the “Sinzaway Reserve”, March–May 1877 (Bingham 1879a), these possibly referring to the same record; near **China Bakeer**, one, December 1875 (female in BMNH, Armstrong 1876); **Kyaikkami** (Amherst), Mon state (previously part of Tenasserim), March 1877 (female in BMNH, Hume and Davison 1878); **Kadan Kyun** (King Island), on Nga islet in King island bay, Mergui archipelago, male, February 1882 (J. Anderson 1889, Roonwal 1941); near **Mergui** (Myeik), Tenasserim (Taninthayi), undated (Oates 1883); **Usheetherrpone** (untraced), November 1874 (male in BMNH, Hume and Davison 1878).

Records or reports that are unconfirmed or derive from unspecified localities are from: Mount Popa in an unspecified year (Macdonald 1906); “Lower Burma”, undated (Harington

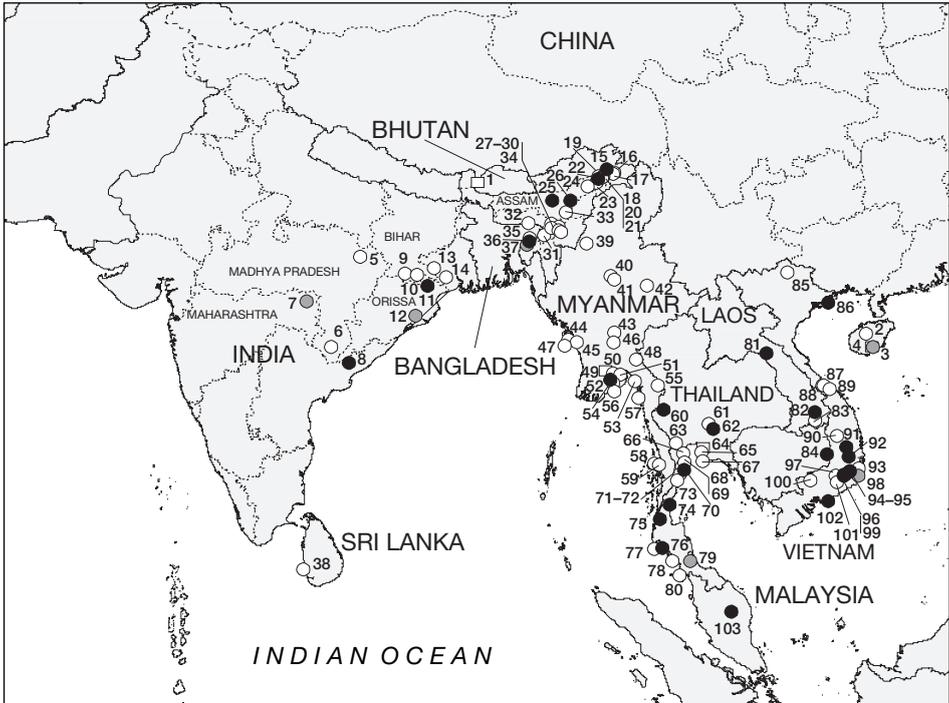
1909a); Tenasserim, undated (specimen in BMNH, Harington 1909a); Pegu, undated (specimen in AMNH).

■ **THAILAND** The species has apparently always been confined to south-western regions and the peninsula (Gyldenstolpe 1920). Gairdner (1914) did not find any north of 13°N, suggesting that the Thai range of the species lies south of that latitude. This essentially remains the case although a few more recent records have come from up to c.15°30'N. Records are from: **Thung Yai Naresuan Wildlife Sanctuary**, a “pair” at Pong Bon, 5 km west of sanctuary headquarters, July 1986 (N. Phumpakapun *per* P. D. Round *in litt.* 1998); **Ban Muak Lek** (Muek Lek), Saraburi, one male, April 1933 (Riley 1938), now probably extinct in the vicinity as no forest is left standing (P. D. Round *in litt.* 1998); **Khao Yai National Park**, single individuals, March 1982 (G. Walbridge *per* P. D. Round *in litt.* 1998), February 1984 (C. Linfoot *per* P. D. Round *in litt.* 1998), two together, May 1987 (D. Pearse and G. Speight *per* P. D. Round *in litt.* 1998), and lastly November 1990 (O. F. Jacobsen *per* P. D. Round *in litt.* 1998); **Ratburi province**, 1910–1914 (Gairdner 1915); **Chon Buri province**, undated (Deignan 1963); Nong Khor, near **Sriracha** (Si Racha), south-east Thailand, April 1919 (two males, one female in BMNH); **Petchaburi province**, 1910–1914 (Gairdner 1915); **Koh Phra**, March 1918 (Williamson 1918, two males in BMNH); **Hua Hin**, September 1923 (female in BMNH); **Muang Pran** (Muong Pran), August 1868 (specimen in BMNH); **Khao Sam Roi Yot National Park**, Prachuap Khirikhan, two, February 1987 (I. S. Robertson *per* P. D. Round *in litt.* 1998); **Prachuap Khirikhan** (“Koh Lak”), one female in lowlands near the coast, September 1916 (Kloss 1919); **Hue Sai**, February 1915 (Gyldenstolpe 1920, male in NRM); **Khao Luang**, Prachuap Khirikhan province, male and two females, 1,000 m, September 1937 (Meyer de Schauensee 1946); **Thung Kha**, Chumphon province, where eight were seen in September 2000 (*Bird Conserv. Soc. Thailand Bull.* 18[11]: 12–13), and 101 counted leaving roost, November 2000 (*Bird Cons. Soc. Thailand in litt.* 2000); **Kapoe district**, Ranong, February 1984 (J. Dunn *per* P. D. Round *in litt.* 1998); **Ao Nang**, Krabi, January 1993 (A. Gancz *in litt.* 1993); **Phuket** (Salang, Junk Seylon), February and March 1879 (Hume 1879–1880, three males in BMNH), and one male at Telok Palas, February 1918 (Robinson and Kloss 1918b), undated (Gyldenstolpe 1920); **Ko Muk** (Pulau Muntia), Trang, two males and a female collected, January 1917, at which time the species was “very common” at a nocturnal roost, apparently feeding on the adjacent mainland (Robinson 1917) and January 1919 (male in BMNH); Thadindaeng, **Pakphayun district**, Phatthalung, June 1963 (specimen in BMH; although this specimen should perhaps be checked in view of the unusual date: P. D. Round *in litt.* 1998); **Ko Tarutao** (Terutau), Tarutao National Park, at Sungei Udang, March 1909, female obtained on the hills, apparently as it stood on the ground by a stream (Robinson and Kloss 1910–1911, Robinson and Chasen 1936, female in ZRCNUS).

■ **LAOS** The species is sparsely distributed in the north and south (but is not yet recorded from central Laos), with records between 300 and 850 m (Thewlis *et al.* 1998, Duckworth *et al.* 1999). Records are from: **Nam Kading NBCA**, Bolikhamxai, two individuals near Keng Maiha on slopes north of the Nam Kading, 500 m, January 1995 (Thewlis *et al.* 1998); **Nam Hiang**, Xe Namnoy, Bolaven plateau, 850 m, 4–5, April 1995 (Thewlis *et al.* 1998); “Inde, Region d’Attopeu,” here assumed to be **Attapu**, Attapu province, labelled “1877” (specimen in MNHN), this being in the region 60 km south-east of Salavan, by the Xe Kong, where the species was described as “common” (Engelbach 1927a), then subsequently thought to be “rare and localised” (Engelbach 1932).

■ **CAMBODIA** Aside from a recent unconfirmed report from Bokor National Park (*Cambodia Bird News* 4 [2000]: 34–38), the species has been added to this country’s avifauna by a single record: **Dak Dam stream**, Mondulkiri, a pair flew from Vietnam into adjacent Cambodia, May 1998 (Brickle *et al.* 1998).

■ **VIETNAM** It is known from scattered localities throughout Vietnam with records as follows: **Ban Tram**, on the Quang Tri river, Quang Tri, undated (Delacour and Jabouille 1925); **Ba Mun** island, Quang Ninh, one pair, August 1995 (J. C. Eames *in litt.* 1997), and 4–8 large pigeons in flight nearby on Vinh Ang Gioi islet, October 1998, were thought to be this species (J. W. Duckworth *in litt.* 1999); **Hai Lang**, Quang Tri, January 1924 (female and juvenile in BMNH); **Truong Sanh**, near Hai Lang, Quang Tri, March 1924 (specimens in MNHN, Delacour and Jabouille 1925); **Hue**, Thua Thien Hue, June and July 1926, March 1927 (12 specimens in MNHN, BMNH, FMNH, MCZ and AMNH, Delacour *et al.* 1928);



The distribution of Pale-capped Pigeon *Columba punicea*: (1) Chumbi river; (2) Namfung; (3) Diaoluo Shan; (4) Dali; (5) Mahan river; (6) Bailadila; (7) Bhandara district; (8) Jyothimamidi; (9) Sarangda; (10) Chaibasa; (11) Simlipal hills; (12) Chandaka Dampara Sanctuary; (13) Ambikanagar; (14) Midnapur; (15) Roing; (16) Dening; (17) Tezu; (18) Sadiya; (19) Kobo; (20) Dollah; (21) Saikhowa; (22) Dibru-Saikhowa National Park; (23) Rungagora; (24) Khowang; (25) Kaziranga National Park; (26) Golaghat; (27) Gunjong; (28) Hungrum; (29) Cachar; (30) Dilkushah; (31) Hailakandi district; (32) Cherrapunji; (33) Dimapur; (34) Irang valley; (35) Sylhet; (36) West Bhanugach Reserved Forest; (37) Tarap Hill Reserved Forest; (38) Colombo; (39) Upper Chindwin; (40) Ngwedaung; (41) Byibon; (42) Shan hills; (43) Yeni; (44) Ramree island; (45) Arakan; (46) Thungoo; (47) Cheduba island; (48) Papun; (49) Myitmaka river; (50) Paunggyi; (51) Kyeikpadein; (52) Hlawga; (53) Thaton; (54) Yangon; (55) Myawadi; (56) China Bakeer; (57) Kyaikkami; (58) Kadan Kyun; (59) Mergui; (60) Thung Yai Naresuan Wildlife Sanctuary; (61) Ban Muak Lek; (62) Khao Yai National Park; (63) Ratburi province; (64) Chon Buri province; (65) Sriracha; (66) Petchaburi district; (67) Koh Phra; (68) Hua Hin; (69) Muang Pran; (70) Khao Sam Roi Yot National Park; (71) Prachuap Khirikhan; (72) Hue Sai; (73) Khao Luang; (74) Thung Kha; (75) Kapoe district; (76) Ao Nang; (77) Phuket; (78) Ko Muk; (79) Pakphayun district; (80) Ko Tarutao; (81) Nam Kading NBCA; (82) Nam Hiang; (83) Attapu; (84) Dak Dam stream; (85) Ban Tram; (86) Ba Mun; (87) Hai Lang; (88) Truong Sanh; (89) Hue; (90) Pleiku; (91) A Yun Pa; (92) Ea So; (93) Nha Trang; (94) Hill 1,978; (95) Mt Bi Doup; (96) Da Lat; (97) B'sré; (98) Cam Ranh bay; (99) Tuyen Lam; (100) Hon Quan; (101) Di Linh; (102) Binh Chau Phuoc Buu Nature Reserve; (103) Taman Negara National Park.

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

Pleiku, Gia Lai, between 1933 and 1936 (David-Beaulieu 1936); **A Yun Pa**, Gia Lai, one, April 2000 (A. W. Tordoff verbally 2000); Dak Dam stream (mapped for Cambodia), Dak Mil district, Dac Lac, a pair, May 1998 (Brickle *et al.* 1998); **Ea So**, Dac Lac, one on two occasions, April/May 1997 (J. W. Duckworth *in litt.* 1999), up to three, February 1998 (Brickle *et al.* 1998); **Nha Trang**, Khanh Hoa, before 1907 (specimen in BMNH); **Hill 1,978**, Ninh Thuan, one, November 1993 (Eames 1995a); **Mt Bi Doup**, Bi Doup-Nui Ba Nature Reserve, Lam Dong, one, December 1993 (Eames 1995a); north-west of **Da Lat**, Lam Dong, on the Da Dung river, 1,300 m, at least 14, June 1991 (Eames *et al.* 1992, Robson *et al.* 1993b); **B'sré**, June 1938 (Eames and Ericson 1996, male in NRM); **Cam Ranh bay**, Khanh Hoa, one, between May and November 1966 (Sheppard 1967); **Tuyen Lam lake** (Ho Tuyen Lam), regularly recorded, including 41 in January 1992 (*Oriental Bird Club Bull.* 15 [1992]: 43–47), and at least 92 in December 1996 (*Oriental Bird Club Bull.* 25 [1997]: 61–69, Eames and Tordoff *in prep.*); **Hon Quan**, Binh Phuoc, six specimens obtained between 1933 and 1936 (David-Beaulieu 1936); near **Di Linh** (Djiring), March 1927 (male in MNHN, Delacour *et al.* 1928); **Binh Chau Phuoc Buu Nature Reserve**, Ba Ria-Vung Tau, one, June 1997 (Eames and Tordoff *in prep.*); unspecified localities in “Cochinchina”, 1961 (two specimens in MNHN).

■ **MALAYSIA** There is one recent (accurately described, multi-observer) record from the mainland, presumably relating to a vagrant individual: **Taman Negara National Park**, one, April 1997 (M. Hunter *in litt.* 1999). In addition, there is one unconfirmed record of around six large brown pigeons seen feeding together in a fruiting *Memecylon* on Langgun island (Pulau Langgon), north-west Langkawi group, in February 1975 (van Balgooy *et al.* 1977), these being either this species or Mountain Imperial-pigeon *Ducula badia* (Wells 1999).

POPULATION Early records reveal that the Pale-capped Pigeon was seasonally abundant at scattered localities until the beginning of the twentieth century. Baker (1913a), however, in reference to British India, stated that “over the greater part of its range it appears to be a decidedly rare bird”. Current indications are that it occurs rarely and erratically throughout its range, from which it can be concluded that its total population has declined markedly, and there is certainly no evidence to suggest that it exceeds 10,000 individuals.

China The species was evidently common, at least in southern Hainan, judging by the seven specimens collected there in March 1903 (Hartert 1910, specimens in AMNH). There appears to be no recent information from this island and its population there is now undoubtedly very small or non-existent. Records from south-east Tibet indicate that a small population may persist there (see Remarks 1).

India The species is resident but “very local” in occurrence (Ali and Ripley 1968–1998). Until the early twentieth century it was present in some numbers in the north-eastern states. Stevens (1914–1915), for example, declared the species “fairly plentiful in the plains” of upper Assam, in which area it was a common resident in the well-wooded district of Dibrugarh (Hume 1888). J. Inglis (in Hume 1880b), considered it “not very rare” in north-eastern Cachar, having in some seasons “killed many”, and V. Woods (in Baker 1901) reported that he shot the species “more than once in the plains” of Cachar, where he thought it “not very rare” (Baker’s italics). Baker (1901) himself was brought “several specimens” from the Cachar plains and on the basis of these records he (Baker 1913a) reported that it was “commonly met with” and that hunters shot it “frequently” at certain seasons. Moreover, it was apparently “even more numerous” in the Khasia foothills (Baker 1913a), an area from whence no recent reports derive. In Hylakandy district of Cachar, however, it was apparently “exceedingly rare” (Inglis 1896–1902). Recent records from north-east India come from two national parks: Dibru-Saikhowa, where it is a “rare resident” (Choudhury 1995), and Kaziranga. The Korum bird is the only recent record from Arunachal Pradesh, the first since those reported by Ali and Ripley (1948), and it appears to be uncommon in the state (Singh 1999). The population

of the species in the region appears to have plummeted, although this impression can at least partly be blamed on a paucity of recent fieldwork in the Cachar and North Cachar Hills districts.

During three years (1933–1936) in Manbhum district (Puruliya), West Bengal, Lowther (1940) only encountered a singleton, although many years previously (around 1864) Beavan (1865–1868) had encountered the species regularly in flocks of 4–5. There are no subsequent records from West Bengal and thus a considerable decline appears to have taken place. In Singhbhum (Dhalbhum), Bihar, and the adjacent state of Orissa, the species was searched for over many years by Mooney (1934) who, on eventually rediscovering it, concluded that it was “not alone very rare but is extremely local”. In the 1960s, flocks of up to 15 birds were seen on nine occasions over a three-year period in the Chandka Dampara Sanctuary, Orissa, suggesting that the species was a fairly common visitor to the area between October and February (Jayakar 1967). In general, however, the infrequency of sightings in all these regions, and the extremely few scattered reports from Maharashtra and Andhra Pradesh, clearly show that the species is “very rare” in India although much of its range is little visited by modern ornithologists (Grimmett *et al.* 1998).

Bangladesh Baker (1913a) described the species as “commonly met with” in the plains of Sylhet, adding that it was “even more numerous” in the foothills. Given this assertion and the plethora of early records from neighbouring states in India, it seems reasonable to assume that the Pale-capped Pigeon was probably once a fairly common visitor to north-eastern Bangladesh. However, Baker’s (1913a) reports from the Sundarbans, Dhaka and Chittagong, have not been repeated and he was either mistaken, over-optimistic in his sweeping description of the species’s range or it has declined markedly in range and numbers. It is now very much a “rare” visitor to forests in the country (Khan 1982). A small population recently discovered in Srimangal is thought likely to consist of seasonal wanderers from the adjacent hills of Assam and Manipur (Thompson *et al.* 1993).

Myanmar Records imply that the species was erratic in occurrence, both spatially and temporally, but present in fairly large numbers at least until the early nineteenth century. Blyth (1858) mentioned that it was “especially common” on the island of Ramree, off Arakan. Around Toungoo it must also have been fairly common, as Wardlaw Ramsay (1877) stated that it was “easily obtained”, and that “any number” could be shot once the foraging areas were located. This is largely a comment about their “stupidity” (or rather naivety), but the fact that he compiled such a “large series” of specimens (Blyth 1875) suggests that good numbers were to be found in the vicinity. Oates (1883) found it “sparingly distributed” over much of Pegu, commoner at Kyeikpadein than elsewhere. It was also encountered “pretty frequently” in the Sinzaway Reserve (apparently in the Thoungyin valley: Oates 1883) (Bingham 1879a). However, Hume and Davison (1878) found it “very rare” in Tenasserim, encountering it only “now and then”. Moreover, it was not found in various parts of Tenasserim and Mon states surveyed by Bingham (1879a). Armstrong (1876) described it as “very rare” in the Yangon district of the Irrawaddy (Ayeyarwady) delta, although Harington (1909a,b) thought it “very fairly plentiful” around Yangon. The species must have dropped rapidly in numbers in the Irrawaddy delta region, as Das (2000) noted that “the deltaic forests of the country had been completely cleared” by the mid-nineteenth century. In general, the impression was that, “though widely distributed, it is only to be found in very small numbers” (Baker 1913a). Some impressive groupings have, however, been reported; “large numbers of what must have been this pigeon” gathered in the Myitmaka drainage after a bamboo seeding event in 1920, and a flock of 12 observed in Mandalay district were attracted to a fruiting “zi” tree (Smith 1942). Recently, apart from one record of 14 birds near Yangon, there have been no records of any concentrations of the species. Indeed, there have been very few recent records at all, and it appears that a considerable decline must have taken place (Khin Ma Ma Thwin *in litt.* 1997).

Thailand Although Gyldenstolpe (1920) described it as “apparently rather rare” and confined to south-western and peninsular Thailand, the species was clearly at least locally common in this part of the country early in the twentieth century. It was initially described as “nowhere a common bird on the Malay Peninsula” (Kloss 1919), then later “fairly common in the winter months on the islands off the west coast” but “apparently much rarer” on the east coast (Robinson and Kloss 1921–1924). Robinson (1917) described the bird as “very common on Koh Muk”, seeing parties of 30–40 during a three-day stay. Until recently, these numbers were without parallel and the species is generally very difficult to find anywhere in the country (P. D. Round *in litt.* 1998). Recent records in mangrove scrub at Ranong and Krabi might be accounted for by either wintering birds or the last remnants of a resident population (P. D. Round *in litt.* 1999). Wells (1999) considered the species “local and, perhaps, no longer more than occasional” in the Thai-Malay peninsula. Events in November 2000 somewhat altered perceptions of its status in the country, however, as 101 were counted leaving a roost site in the mangroves of Thung Kha, Chumphon province (Bird Cons. Soc. Thailand *in litt.* 2000). This encouraging news from a site at which the hinterland forest has largely been removed gives hope that the species can survive in mangrove areas, or perhaps travel long distances to feeding sites (Bird Cons. Soc. Thailand *in litt.* 2000).

Laos Records suggest that the species may have once been common at least around the Bolaven plateau, although it is now undoubtedly scarce and local (Duckworth *et al.* 1999).

Vietnam Delacour and Jabouille (1925) described the species as “common” at Truong Sanh and Ben Tram, Quang Tri province, whereas David-Beaulieu (1939) found it “never very abundant” at Pleiku, Gia Lai province. The sizeable collection of old specimens from Hue indicates that it was probably common at this site. In Cochinchina (southern region of Vietnam), it was described as “rare” at Hon Quan (David-Beaulieu 1936). While these facts suggest that the species was once locally common, it is now quite infrequently recorded, implying a severe population decline. However, recent records come from a wide distribution of sites, suggesting that an important population survives in the country; moreover, remarkable concentrations of 41 and at least 92 individuals were observed at Tuyen Lam lake in January 1992 (*Oriental Bird Club Bull.* 15 [1992]: 43–47) and December 1996 (*Oriental Bird Club Bull.* 25 [1997]: 61–69), implying that a considerable proportion of this population is present at least seasonally on the Da Lat plateau.

ECOLOGY Habitat The Pale-capped Pigeon has been seen at the coast, in foothills and quite high on mountains (Robinson 1917, Smythies 1986), suggesting that its altitudinal preferences are broad. In the Indian subcontinent, for example, it inhabits “the hills up to c.1,600 m” (Ripley 1982) or lowlands below 700 m (“a bird more of the plains than mountains”) (Baker 1913a). Not only does it occupy a wide variety of altitudes but it has also been recorded in a confusing array of habitat types.

It occurs in primary and secondary evergreen forests and thickly wooded cultivated areas (Baker 1922–1930, Ripley 1982, Singh 1999). While Baker (1913a) recognised its general reliance on forest, he mentioned that “it will traverse considerable extents of open country in order to get from one feeding place to another”. In West Bengal it was found along the banks of rivers shaded by large forest trees (Beavan 1865–1868, Ball 1874), while in Bihar it was found in “*sal* forest characterised by a dense evergreen undergrowth consisting mainly of *Litsea nitida* and *Symplocos spicata*, and watered by fresh perennial streams”, apparently being restricted to only three or four valleys containing this habitat type (Mooney 1934).

It inhabits dense evergreen forests in Myanmar, sometimes being attracted to synchronised bamboo flowering events or fruiting trees and at least historically venturing onto islands in the Bay of Bengal and the Andaman Sea (Blyth 1875, Armstrong 1876, Oates 1883, Peacock 1933, Smith 1942, Christison *et al.* 1946, Smythies 1986). In Thailand birds are occasionally found in humid forest but much more frequently in mangroves and on islands; “on Koh

Muk, in January 1917, they were roosting in mangroves behind a sandy beach, apparently feeding on the mainland, distant about 5 km, during the day” (Robinson and Kloss 1921–1924). The mangrove habitat at Thung Kha in Thailand where a large roost was recently discovered consisted of fairly tall *Rhizophora* (two species), *Sonneratia* (two species) and *Avicennia* mangroves; there were also some *Xylocarpus granatum*, a back-mangrove species (Bird Cons. Soc. Thailand *in litt.* 2000). In Kapoe district an individual was seen perched in degraded mangrove scrub near a main road (J. Dunn *per* P. D. Round *in litt.* 1998). Elsewhere in Thailand it has been recorded in both forest and agricultural land, seeming to fit no regular pattern of occurrence (P. D. Round *in litt.* 1998).

In Vietnam, it has been described as a forest-dependent species that regularly forages in orchards and old cultivation in some areas (David-Beaulieu 1936, Eames *et al.* 1992). In Laos, recent records derive from two areas “showing no obvious similarity” (Duckworth *et al.* 1999). The Nam Hiang birds were in an area of open dry dipterocarp forest around a complex of streams and swamps (Thewlis *et al.* 1998), this habitat termed “open bushy savannah” by Duckworth *et al.* (1999). There were many fruiting bushes in this area in which the birds were probably feeding, but this was never observed directly (Thewlis *et al.* 1998). The birds in Nam Kading NBCA were found in a “large area of seeding bamboo” (J. W. Duckworth *in litt.* 1999). They were observed along a small, steep stream in evergreen forest, moving slowly up the valley, making brief visits to each pool, perhaps looking for washed-up food items such as seeds (Thewlis *et al.* 1998), or searching for grit (J. W. Duckworth *in litt.* 1999).

While it is thus liable to be found in a variety of vegetation types, it is by no means restricted to forested or scrubby areas, having been found in a clearing between paddyfields and teak forest (Jayakar 1967), and in fields of corn, millet and rice (Baker 1913a). After the rice is cut it “may be met with in the very early mornings or late afternoons walking about in the stubble picking up the rice which has been left behind” (Baker 1913a). Harington (1909a) also mentioned it frequenting “paddy-fields after the crops have been cleared” in Myanmar.

While Harington (1909a) found it most often singly or in pairs (“not in flocks”), it sometimes gathers in small parties (e.g. Beavan 1865–1868, Ball 1874), while large gatherings can occur at communal roosts or where food supplies are abundant (e.g. in patches of seeding bamboo) (Robinson 1917, Smith 1942, Ali and Ripley 1968–1998). Some remarkable congregations have been recorded lately in the non-breeding season: 101 were counted in Thailand and 92 were seen together in Vietnam (see Distribution). Given Harington’s (1909a) testimony from Myanmar, and the fact that Baker (1913a) and his many correspondents in north-eastern India and Bangladesh only ever saw the species singly or in pairs even where it was common, it appears that in many areas aggregations are exceptional.

Food Despite originally being thought to “live exclusively on jungle fruit” (J. R. Cripps, in Hume 1888) the species also eats “grain of almost any kind” (Baker 1913a). The diet includes wild figs, other cultivated or forest fruits, berries, rice, millet seeds, vetch seeds, corn and other grains in addition to bamboo seeds, taken on or above the ground (Baker 1922–1930, David-Beaulieu 1936, Smith 1942, Goodwin 1967, Ali and Ripley 1968–1998, Eames *et al.* 1992). In India birds have been found feeding on the fruits of *Strychnos nux-vomica* and the “jambon” “*Eugenia jambolana*” (Beavan 1865–1868; the latter presumably now *Syzygium*: Mabberley 1987) and on the unripe berries of *Litsaea nitida* (Mooney 1934). In Maharashtra, Chitampalli (1977) observed birds “gorging on berries of *Litsaea monopetala*” (*Litsea*). A number of “large plum-coloured drupes” were found in the stomach of one female in Myanmar (Armstrong 1876). The fruits of the “zi” tree (given as *Phyllanthus*) sometimes attracted the species in flocks in Myanmar, as apparently did flowering “*kyakat*” bamboo *Bambusa arundinacea* (Smith 1942, Smythies 1986). Harington (1909a) observed the species “feeding in the evening in paddy-fields after the crops have been cleared”, a behavioural trait that has apparently not been recorded recently. In Sylhet and Cachar, it was likewise recorded

feeding on discarded rice grains in the early morning, and on the seeds of Indian corn and “Bajra” (a species of millet), taking the latter two food items either from the ripening crop itself or after the crop had been cleared (Baker 1913a).

Godwin-Austen (1874b) obtained a bird at a hot saline spring and, by the “quantity” of salty liquid that poured out of its mouth upon retrieval, it was evident that it had been drinking at the spring. Chitampalli (1977) observed three birds visiting salt-licks in Maharashtra, and S. Howe (*in litt.* 1999) observed an individual in Orissa apparently consuming grit on a rubbish scrape for around an hour.

Breeding Season In north-east India, a large series of eggs was found between late May and early July (Baker 1913a, Stevens 1914–1915). In March 1997 in Assam one bird was apparently carrying nesting material (Kazmierczak and Allen 1997). Based on available information, the species breeds between May and August in Myanmar (NMS egg data); Oates (1879, 1883) found a nest there in July. In Laos, one of the Xe Namnoy birds retained some juvenile plumage in April, although it had largely acquired the pale head-patch, while both birds in Nam Kading NBCA were only starting to grow some pale feathers on the crown in January (Thewlis *et al.* 1998). Mating has been observed at Ba Mun island, Vietnam, on 14 August (J. C. Eames *in litt.* 1997). A juvenile male (possibly accompanying a female collected the same day) was taken near Hai Lang, Vietnam on 25 March 1924 (see Distribution). The available evidence suggests that egg-laying occurs at roughly the same time in India and Myanmar, but at least a few months earlier in Laos and Vietnam.

Nest site and structure Nests are usually placed within 2 m of the ground, but sometimes higher up in a tall tree (occasionally in bamboo), often close to a stream or pool and always in dense forest (Baker 1895–1896, 1913a, 1932–1935). In Myanmar, a nest found in Pegu district was made of a few carelessly woven twigs and placed on a horizontal branch of bamboo, c.3 m from the ground (Oates 1879), later being described as “a small structure composed of fine twigs, and placed on a branch of a bamboo bush at no great height from the ground” (Oates 1883). Nests in Assam were “platforms of sticks and creeper stalks on high trees in semi-evergreen forest” (NMS egg data) that were flimsy enough for the eggs to be seen from beneath (Baker 1894–1901). The materials with which they were constructed were apparently picked from the ground rather than torn from living vegetation, and these were then “put together in the roughest way imaginable” (Baker 1913a). Measured nests were 20–23 cm in diameter and 5–10 cm deep (Baker 1913a).

Clutch and incubation Clutches comprise 1–2 eggs (Oates 1883, Baker 1932–1935). Baker (1913a), who found “about a dozen” nests between 1889 and 1913, speculated that “the bird probably lays two eggs in about once every five instances”, because “more than once” he found clutches of two eggs. Both sexes contribute to incubation, although more males than females have been shot on the nest, possibly because, like many other pigeons, males tend to incubate in the day and females at night (Baker 1913a).

Migration In India, the species is largely resident (Ali and Ripley 1968–1998, Grimmett *et al.* 1998), although apparently subject to some local movements (Ripley 1982); in some areas (e.g. Orissa) records are seasonal (Jayakar 1967), and it occurs sporadically in the Brahmaputra valley of Assam, with records suggesting that it is a scarce summer (breeding) visitor to the area (Barua and Sharma 1999). Meanwhile in Bangladesh the few recent records indicate that it might be a seasonal (non-breeding) visitor to the country (P. M. Thompson *in litt.* 1997). In Myanmar it has been recorded regularly in winter at Hlawga Park, but was not found during summer fieldwork, again suggesting that the species might only be a seasonal visitor to the site (P. C. Rasmussen *in litt.* 1997). It was suspected of being seasonally nomadic in Thailand (Round 1988a), although its status remains unclear, most records coming from the dry season, January–May (P. D. Round *in litt.* 1999). While it was recorded frequently at this time of year on the islands to the west of Thailand, it is unclear whether it was absent at other times of year “as collecting is inconvenient or impossible in these localities during the

summer” because of high rainfall (Robinson and Kloss 1921–1924). However, its apparent seasonal occurrence on these islands is interpreted by Wells (1999) as indicating that it is a “non-breeding visitor or long-distance dispersant” to the Thai-Malay peninsula, suggesting that the breeding grounds of this population lie in Myanmar or central Thailand. The birds roosting at Thung Kha were said by locals to be present throughout the year, although this requires further investigation (Bird Cons. Soc. Thailand *in litt.* 2000). In Laos it is notable that the recent Xe Namnoy record lies close to the site of Engelbach’s (1927a) encounter with the species many years previously, although there is no evidence to suggest that it is anything but a wandering visitor to the country. It was once described as sedentary at Pleiku (David-Beaulieu 1939) although it usually occurs erratically in Vietnam (Eames *et al.* 1992).

This country-by-country analysis of all the data produced in the best part of the last two centuries leaves a rather perplexing and inconclusive picture of the seasonal movements of the species. It appears to occur sporadically in all parts of its range, a circumstance which makes this enigmatic pigeon a particularly challenging conservation priority.

THREATS Having once been patchily common in its wide distribution, the Pale-capped Pigeon is now scarce and highly localised as a result of habitat loss and hunting, threats that are exacerbated by its apparently unpredictable nomadism. Given the difficulty in identifying patterns of distribution and habitat preference for this species, there is a concomitant problem in assessing the importance of threats. It undoubtedly suffers the twin effects of deforestation and persecution in varying proportions throughout its range.

Habitat loss Huge areas of forest have disappeared in all range countries during the twentieth century and this has undoubtedly reduced and fragmented its population significantly. Nomadic pigeons are highly susceptible to habitat loss, which makes whatever resource they follow all the patchier in both space and time—a cardinal element in the demise of the Passenger Pigeon *Ectopistes migratorius* (see Bucher 1992) and the endangerment of the Purple-winged Ground-dove *Claravis godefrida* (see Collar *et al.* 1994). **China** Forest loss and fragmentation is the main threat to this species on Hainan (see under Hainan Hill-partridge *Arborophila ardens* for details). **India** In north-east India, forests are threatened by shifting cultivation, commercial logging, “monoculture forestry” and increased clearance for tea cultivation (S. A. Hussain 1993, Singh 1999): a full account of these threats is in the equatorial section under Rufous-necked Hornbill *Aceros nipalensis*. Even though commercial timber collection has ceased in Dibru-Saikhowa National Park, Assam, the inhabitants of peripheral villages and two enclave villages, Laika and Dadhia, are engaged in illegal forest encroachment, timber smuggling (sometimes under the employment of timber merchants from, e.g., Dibrugarh), and fuelwood collection, activities which pose a “real danger” to the remaining habitat (Choudhury 1995, Kazmierczak and Allen 1997). **Bangladesh** Forests have suffered heavily at the hands of commercial and illegal logging operations, and suitable habitat for the species is now seriously fragmented or threatened by felling for plantations (P. M. Thompson *in litt.* 1997). In the 1960s, it was “a shock to find that only eight or ten square miles [c.16 km²] of untouched primary forest” apparently remained in Sylhet, the rest having been converted to tea gardens, paddyfields and teak plantations (the latter “particularly unattractive to most mammals and birds”) (Mountfort and Poore 1968). It is also vulnerable to natural or man-made disasters, such as the fire that resulted from an explosion at a gas exploration well, damaging one forest fragment in 1996 (P. M. Thompson *in litt.* 1999). **Myanmar** Massive areas of lowland forest in the country were cleared in the nineteenth and twentieth centuries to make way for rice cultivation; in the 1980s the rate of forest clearance was estimatewd at 6,000 km² per annum, “one of the highest deforestation rates in the world” (Collins *et al.* 1991). In upland areas, shifting cultivation is a major agent of forest destruction, the impact of which is steadily increasing as the population of itinerant farmers increases and the area of forest remaining decreases (Collins *et al.* 1991). The prospects for the long

term survival of forests in the country seem grim. *Thailand* Disastrous encroachment or gradual erosion of reserves, along with the destruction of forests by cultivation and the burning of understorey vegetation (which reduces tree species diversity, canopy height and density, and consequently bird species diversity) are all threats to be dealt with (Round and Treesucon 1986b, Round 1988a). Forest cover in the country had apparently fallen from an estimated 70–80% in the 1940s to under 30% in the 1980s; moreover, the latter figure, for various reasons, was thought to be considerably over-optimistic (Round 1988a). The major factors involved were “unregulated incursions by settlers and illegal loggers”, along with the “very great scale of annual forest burning” throughout the country (Round 1988a). For example, Khao Yai National Park has become an isolated forest patch, subjected to increasing pressures (including encroachment, illegal logging, poaching and shifting cultivation) by the huge concentrations of people around its boundaries, coupled with inadequate management (Enderlein and Maxwell 1976). *Vietnam* Forest loss throughout much of the country has been extensive, resulting in very few suitable remnants outside the few protected areas: an account of the reasons for and rates of forest loss in the country is in the equivalent section under Crested Argus *Rheinardia ocellata*, while specific details of developments and threats to forest on the Da Lat plateau are treated under Grey-crowned Crocias *Crocias langbianis*. *Laos* Forest habitat within the range of this species in Laos is threatened by expanding cultivation (Thewlis *et al.* 1998). Furthermore, the proposed Nam Theun 1 Hydropower project would inundate large areas of Nam Kading NBCA, the only protected area in which the species has been found in the country (Thewlis *et al.* 1998). However, this project is not likely to be developed in the near future, if at all (J. W. Duckworth *in litt.* 1999).

Hunting Direct persecution forms the other major pressure imposed on populations, as pigeons are a favoured quarry of hunters in all areas. According to Wardlaw Ramsay (1877) it was “stupid” and easily shot, at least in Myanmar. Although many observers found it very shy (e.g. Ball 1874, Hopwood 1908, Christison *et al.* 1946), or “excessively wary” (Beavan 1865–1868), Wardlaw Ramsay (1877) reported that individuals in Pegu state would return to a feeding tree even after being shot at repeatedly, often perching “within a few yards” of the armed observer. Individuals in Laos were also apparently not very wary, being observed to within 10 m at Nam Kading (Thewlis *et al.* 1998), these birds again often flying in a “great arc” when disturbed, only to settle again close to their original perch (J. W. Duckworth *in litt.* 1999). Their behaviour is presumably somewhat dependent on regional hunting practices (although one might thus conclude, quite inaccurately, that hunting is a minor threat in Laos). In Myanmar, for example, few people carried guns even until the 1920s and most birds were apparently “tame as tame” (Stanford 1954). *India* In West Bengal, intensive hunting was blamed for the low populations of all game species, including the Pale-capped Pigeon (Lowther 1940), and this has probably brought about its local extinction. Hunting birds is currently a “popular sport” in Meghalaya (K. Kazmierczak *in litt.* 1999), a pressure that perhaps explains the lack of recent records of this species in the state. *Myanmar* In the nineteenth century it was being trapped by Karens (Bingham 1879a), and half a century ago levels of persecution and poaching were high (U Tun Yin 1954), a situation that probably still applies, especially in many mountainous areas due to the hunting lifestyles of hill-tribesmen (B. F. King verbally 1998). *Thailand* Hunting, both in and around protected areas, is a major problem in Thailand: “patrolling of forests in parks or sanctuaries is, at present, the exception rather than the rule, so that the poaching problem in Thailand’s protected areas is almost entirely out of control” (Round 1989). As birds (probably wintering) on the islands off Thailand’s west coast roosted in large numbers at fixed sites, the risk of hunting was greatly increased (Wells 1999). *Laos* Hunting is frequent for a variety of economic and cultural reasons (Thewlis *et al.* 1998), and pigeons are a frequent target (Baird 1993, Duckworth *et al.* 1999). This is likely to have a major impact on numbers of this species, especially since its large size means it is presumably shot at every opportunity (J. W. Duckworth

in litt. 1999). Despite the fairly large areas of forest left in Laos there are very few pigeons in all but the largest blocks, probably as a result of intense levels of hunting (J. W. Duckworth *in litt.* 1999). *Vietnam* Similarly, hunting is a common practice in Vietnam (Nguyen Cu *in litt.* 1998). The Ministry of Forestry (1991) noted that “levels of hunting in Vietnam are horrible... Most forests, even in nature reserves, are almost hunted out...”

Trade While the threat of trade is presumably minor, it nevertheless exists: four birds were on sale at Ca Mong Market, Ho Chi Minh City, July 1991 (Eames *et al.* 1992), and seven birds were counted in the Bangkok Sunday Market between 1967 and 1969 (McClure and Chaiyaphun 1981).

MEASURES TAKEN **Legal protection** The species is protected by law in India (pigeons are generically included on Schedule IV of the Wildlife Act 1972) and Myanmar (again pigeons appear as a general term on the 1994 protected species list).

Protected areas *China* This species probably occurs at Yadong Nature Reserve in Tibet (Lu Xin *in litt.* 1999). *India* It has occurred repeatedly within Dibru-Saikhowa (340 km²) and Kaziranga (430 km²) national parks, Assam, and is also known from the Chandka Dampara Sanctuary (176 km²), Orissa. *Bangladesh* Small numbers occur, at least seasonally, in West Bhanugach Reserved Forest, an area that receives some form of protection (P. M. Thompson *in litt.* 1999). Whether Tarap Hill Reserved Forest still exists or also receives protection is unknown, but it is likely that habitat here is (or was) reserved for logging rather than wildlife. *Myanmar* Hlawga park receives some protection from the Nature and Wildlife Division (Khin Ma Ma Thwin *in litt.* 1998). In addition, 10,000 km² of primary forest in Tenasserim has been set aside as a Biosphere Reserve (called Myinmoletkat) between Mergui and Ye (*Oriental Bird Club Bull.* 27: 16–20) and this is likely to include habitat used by the species. *Thailand* It is (or at least was) regularly recorded in Khao Yai National Park (2,168 km²) and has occurred once in both Thung Yai Naresaun Wildlife Sanctuary (3,647 km²) and Khao Sam Roi Yot National Park (98 km²), with a historical record from Tarutao National Park (1,490 km²). *Laos* Although the species has occurred within Nam Kading NBCA (1,690 km²) (see Remarks 4 under Masked Finfoot *Heliopais personata*). *Vietnam* The only nature reserves from which this species is currently known are Bi Doup-Nui Ba (726 km²) and Binh Chau Phuoc Buu (74 km²). Hill 1,978 fell within the obsolete Thuong Da Nhim Nature Reserve, but is not now included within the protected-area system.

MEASURES PROPOSED **Protected areas** Given the seemingly erratic movements of the species, it is not perfectly suited to the establishment of protected areas and requires an extensive protected area system to ensure the availability of sufficient sites. The following proposals are often aimed at areas which this pigeon has only visited once or twice, and the real requirement is to maintain enough secure habitat to support its wandering populations. Focus should be directed to those areas in which regular seasonal or semi-permanent presence is reported. *India* It was recently proposed that the number of forest guards patrolling Dibru-Saikhowa National Park was insufficient and should be increased to minimise the illegal logging that threatens to destroy much of the reserve’s forests (Kazmierczak and Allen 1997). Choudhury (1995) made several recommendations for protection of this reserve, including the designation of a 190 km² core area where no human disturbance is allowed, translocation of enclave villagers “on a priority basis”, increased patrolling and manning of camps throughout the reserve by Forest Department staff (ideally increased in number to at least 100 guards). In addition, a wireless network should be established, ecotourism encouraged and an awareness campaign conducted in fringe villages. The Chandka Dampara Sanctuary needs renewed surveillance and improved protection if a population of the species is found to persist. Forests at Nambor (37 km²) and East Karbi Anglong (222 km²), both in Karbi Anglong district, were established as wildlife sanctuaries in 2000 (Choudhury 2000c), and

the possibility that these areas support the species should be investigated. *Myanmar* Hlawga Park should receive effective protection, and a protected area network needs to be established in the country at the earliest opportunity, ideally taking into account the distribution of this species. *Thailand* Khao Yai National Park needs strict management to avoid gradual degradation through the activities of the surrounding human population (Enderlein and Maxwell 1976). The c.10 km² of mangrove habitat around the inlet at Thung Kha deserves conservation attention in the light of the large roost of this species that has recently been discovered there. *Laos* While the Lao government aimed to eradicate shifting cultivation by the beginning of this millennium, a lack of resources and alternatives rendered this objective impossible (Thewlis *et al.* 1998, J. W. Duckworth *in litt.* 2000). There is a further requirement is to hire and train staff in Nam Kading NBCA (see Remarks 3 under Crested Argus *Rheinardia ocellata*) and to establish cooperative agreements with local communities in this area to ensure the long-term survival of habitats and species (Thewlis *et al.* 1998). *Vietnam* The suitability for protection of Tuyen Lam lake should be assessed. Wege *et al.* (1999) proposed the establishment of a 220 km² nature reserve at Ea So, Dac Lac province. Additional measures proposed in Dac Lac province are in the equivalent section under Green Peafowl *Pavo muticus*.

Control of persecution Most importantly, pigeon-hunting needs to be controlled in as many areas as possible throughout the range of this species; of secondary importance, trade should be carefully monitored and controlled. Education programmes designed to highlight the importance of pigeons in the ecosystem and to persuade hunters not to shoot them should be pursued. The popularity of pigeon-shooting in Laos (and indeed almost all other South-East Asian countries) means that a blanket ban is not possible, while, conversely, banning the hunting of only one species of pigeon is not enforceable, suggesting that prevention of all hunting in selected protected areas is the best solution (Duckworth *et al.* 1999). In conclusion, total hunting bans should be applied rigorously to as many relevant protected areas as possible. Duckworth *et al.* (1999) advised that large-scale clap-netting activities in Laos should be terminated, especially in salt-lick areas; this proposal applies throughout the range of this species wherever this trapping practice occurs.

Research Survey work should seek to identify further populations of the species and gather data on its status and ecological requirements throughout its range. In particular, seasonal movements need to be clarified so that protection can be targeted in both breeding and non-breeding ranges. In particular, the location of important breeding populations needs to be discovered. Investigation into the reasons underlying the general scarcity and apparently erratic distribution of the species is required (Duckworth *et al.* 1999).

REMARKS (1) The record of this species at Chumbi river in “Tibet” has been listed under China (see Distribution), but this locality lies very close to the border between China and India (as mapped in TAW 1999) and it is possible that it is actually in the latter. (2) As pointed out by Roonwal (1941), this specimen was rather surprisingly misidentified in the results of the Abor expedition as *Ducula insignis insignis* (=Mountain Imperial-pigeon *D. badia*) by Baker (1913b), who was familiar with both species in other parts of Assam.