Threatened Birds of Asia:

The BirdLife International Red Data Book

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PALE-BACKED PIGEON

Columba eversmanni

Critical □ — Endangered □ — **Vulnerable ■ A1a,c,d**



This species has declined rapidly in the past, probably as a result of changing agricultural practice and hunting in its wintering grounds, and possibly habitat loss in its breeding grounds. These factors qualify it as Vulnerable.

DISTRIBUTION The main breeding range and much of the wintering range of the Palebacked Pigeon (see Remarks 1) lies outside the Asian region as here defined.

Outside the Asian region The species breeds in the deserts and settled regions of Uzbekistan, Turkmenistan, Tajikistan, Kyrgyzstan, southern Kazakhstan, north-east Iran and Afghanistan and winters in south-east Iran (and the northern Indian subcontinent). In Central Asia, it has suffered drastic declines, especially in Kazakhstan (see Population), and its breeding distribution has presumably contracted too, but there are insufficient data to confirm this.

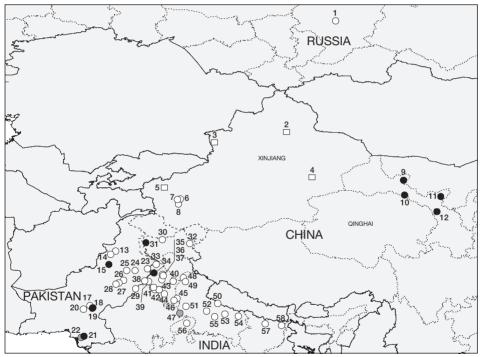
Asian region Birds from Central Asia winter in western Pakistan and northern India, east (at least formerly) to Bihar and south to Punjab and Uttar Pradesh (Baker 1922–1930, Collar et al. 1994, del Hoyo et al. 1997). Moreover, the species both breeds and winters in China, the birds in question presumably (but not provenly) coming from the same population; there is a single record from Eastern Russia and an unconfirmed one from Mongolia (for which see Remarks 2), but given that the Altay mountains, where the species breeds in China, form the frontier with both western Mongolia and southern Russia and Kazakhstan, it seems fairly probable that at least small numbers formerly visited and perhaps still occur in summer in the Altay and Tyva republics in Russia and the westernmost sector of Mongolia, and the record below from Krasnoyarsk, directly north of these areas, supports this notion.

- **RUSSIA** There is a single record from Eastern Russia:
- Krasnoyarsk near Krasnoyarsk, one collected, August (unspecified year) (Tugarinov and Buturlin 1911 in Rogacheva 1992).
- CHINA The species breeds in the extreme north-west of China, visiting the Altay and Tien Shan mountains (Baker 1922–1930, Cheng Tso-hsin 1976, Zhang Fuchun 1989, egg collected in latter area in April 1909 in IRSNB; see Remarks 3), and in winter it migrates to southern Xinjiang and western Gansu. Records are from:
- Xinjiang Junggar basin, summer visitor, unspecified years (Liu Naifa in litt. 1997); Ili He valley, summer visitor, unspecified years (Liu Naifa in litt. 1997); Lop Nur, occasionally seen on passage, unspecified years (Cheng Tso-hsin 1991); Kashi city, undated (Cheng Tso-hsin 1976), but not found during surveys of this area in 1958–1960 (Liu Naifa in litt. 1997); Taskhama, two immature females collected in June 1875 (Scully 1876); east of Shache county (Yarkand), Kashgar, two collected in "a bit of forest", undated (Stoliczka 1875); Yak Shamba Bazar, one male and one female collected and many more seen, August 1875 (Scully 1876); near Vermyi (untraced), April 1889 (female in AMNH); Saiyu (untraced), 40, September, 1929 or 1930 (Ludlow undated);
- Gansu Dingxin, Jinta county, June 1985 (male in LAUCN), with one bird collected in Jinta county, April 1985 (Xu Mingsu 1987, 1989); Sunan county, at the Xiying river, October 1982 (male in LAUCN), and one collected, July 1983 (Xu Mingsu 1987); Sanjiaocheng, Minqin county, September 1983 (female in LAUCN); Tianzhu county, one collected, November 1983 (Liu Naifa in litt. 1997), at Xiama, September 1985 (female in LAUCN).

- PAKISTAN This species is a winter visitor and passage migrant to the country, occurring mostly in central Puniab and Sind, along the Indus river or in plains to the west (Roberts 1991–1992). In Puniab it has never been encountered despite many years of observations in the Salt Range or Rawalpindi district, and no sightings were made during many years spent in Multan district despite earlier records, suggesting a decline (Roberts 1991–1992). Having been recorded in Kandahar, Afghanistan (Swinhoe 1882), and from "Charbar", September 1912 (Ticehurst 1926–1927), evidently Chabahar, on the Indian Ocean close to the Pakistan border in Iran, the absence of records from Baluchistan is perhaps surprising (Ticehurst 1926–1927). Records are from: ■ North-West Frontier Province Kohat district, April, 1904– 1907 (Whitehead 1910–1911): Kurram valley, 2,000 m, April and May 1904–1907 (Whitehead 1910–1911): **Dera Ismail Khan district**, three flocks in April and three flocks in October. 1988–1998 (Kylänpää 2000); ■ Sind Shikarpur, undated (Murray 1889); Bhegari protection embankment, north of Sukkur (west bank of the Indus), Jacobabad district, c.300 regular between November and April, over several years in late 1970s and early 1980s (Roberts 1991–1992); Sukkur, February 1879 (male in BMNH), and Sukkur-Nama Dingno, c.400, February 1988 (Hirschfeld et al. 1988); Qambar (Cumba), "several small flocks", January 1872 (four in BMNH, Hume 1872–1873); near Khinjar lake, Thatta district, 12, February 1986 (Roberts 1991–1992): Haleii lake (Haleii dhand), 33, December 1979 (Roberts 1991– 1992): ■ Puniab Lahore, winter visitor, c.1910–1915 (Currie 1916a), also a flock of c.50. February 1933 (male in UMMZ, Koelz 1940); Faisalabad (Lyallpur), near the "canal escapes," February-April, around 1914 (Smith 1914a); Jhang district, December 1917 (specimen in BMNH), and erratically from December to March over several subsequent winters, including at Chund bridge, "large numbers"—probably birds on passage—drinking on one evening only, April 1919 (Whistler 1922a); Atari, large flocks during cold weather, c.1910–1915 (Currie 1916a); Multan, by the Chenab river, February-April, around 1914 (Smith 1914a), but not recorded during 28 years' residence, 1950s-1980s (Roberts 1991-1992); Muzaffargarh, on the Chenab river, March 1940 (male in BMNH); Harunabad (Shahabad), Bahawalpur, 100– 200 at roost, March 1939 (Ali 1941, specimens in BMNH, FMNH and BNHS).
- *INDIA* This species has been recorded in winter mainly in north-western India from Jammu and Kashmir, Punjab, through Uttar Pradesh east as far as Bihar. Records are from:
- Jammu and Kashmir undated records from unspecified localities (Ward 1906–1908, Ali and Ripley 1968–1998); Dras, Ladakh, September 1875 (specimen in BNHS; Roonwal 1941); Limber Wildlife Sanctuary, 2,300–2,400 m, March 1988–1989 (Javed 1992c); Chagra above Pangong lake, one collected, 4,900 m, October 1870 (specimen in BNHS; Roonwal 1941);
- Punjab Kalanaur, Rohtak/Gurdaspur district, January 1936 (two specimens in BMNH); Harike Lake Wildlife Sanctuary, maximum of c.800, January–March 1995 (P. Undeland in litt. 1995, Oriental Bird Club Bull. 21 [1995]: 68–73), 21, April 1995 (P. Undeland in litt. 1995), one, May 1995 (P. Undeland in litt. 1995), maximum of c.1,500, November 1995–February 1996 (P. Undeland in litt. 1996), maximum of c.2,000, October 1996–February 1997 (Oriental Bird Club Bull. 25 [1997]: 61–69, P. Undeland in litt. 1997); Phillaur, large flock, end of April, around 1912 (Whistler 1914); Ludhiana, one, September 1917 (Whistler 1919), and large numbers in Ludhiana district, 1952 (M. M. Singh 1980); Fatehgarh, March 1873 (male in NMS), also nearby at Ruttunpur, December 1876 (juvenile male in BMNH); Fazilka, large flock, middle of October, around 1912 (Whistler 1914); Firozpur district, October 1911 (specimen in BMNH) and at Saddu, Shahwala, December 1935 (male in BMNH);
- Haryana Ambala (Umballa), February 1866 (specimen in BMNH), annual during winter (Beavan 1865–1868), one flock, November 1915 (Whistler 1918); Odhan (Odha), Sirsa, November 1867 (seven specimens in BMNH and MM); Sirsa, April 1896 (specimen in MCML), and nearby at Durbers, December 1867 (male in BMNH), January–February 1933 (two specimens in UMMZ) and Parwali, c.12 km from Sirsa, "several hundred", February–

March 1933 (10 specimens in FMNH, UMMZ); **Fatehabad** (Fukhabad), Hissar district, October 1914 (female in BMNH); **Hansi**, Hissar district, March, year unspecified (specimen in BNHS; Blyth 1858, Roonwal 1941); **Sultanpur**, Gurgaon district, December 1877 (four specimens in BMNH and UMZC);

- *Delhi* Delhi, April 1876 (specimens in BMNH and RMNH);
- Rajasthan Keoladeo National Park, Bharatpur, pairs and small parties of 15–20 birds, October 1951 (Abdulali 1970);
- Uttar Pradesh Ringali, north of Chakrata, November 1912 (male in BMNH); Dehra Dun, 1870 (specimen in BMNH); Dharmarpur (Durmapore), Fatehgarh (Futtehgurh), March 1875 (specimens in BMNH); Aligarh (Allyghur), November 1877 (specimen in BMNH); Hardoi ("Hank"), January 1913 (specimen in BNHS, Abdulali 1968–1996); Gonda, Avadh (=Oudh), pre-1880 (two in MNHN); Gorakhpur district, one bird shot from a large flock, January 1910 (Osmaston 1913); Lucknow, undated (Jesse 1902–1903);
- Madhya Pradesh Gwalior, large flock, March 1903 (female in BNHS, Abdulali 1968–1996):



The distribution of Pale-backed Pigeon Columba eversmanni: (1) Krasnoyarsk; (2) Junggar Basin; (3) Ili He; (4) Lop Nur; (5) Kashi city; (6) Taskhama; (7) Shache county; (8) Yak Shamba Bazar; (9) Dingxin; (10) Sunan county; (11) Minqin county; (12) Tianzhu county; (13) Kohat district; (14) Kurram valley; (15) Dera Ismail Khan district; (16) unallocated; (17) Shikarpur; (18) Bhegari; (19) Sukkur; (20) Qambar; (21) Khinjar Iake; (22) Haleji Iake; (23) Lahore; (24) Faisalabad; (25) Jhang district; (26) Atari; (27) Multan; (28) Muzaffargarh; (29) Harunabad; (30) Dras; (31) Limber Wildlife Sanctuary; (32) Chagra; (33) Kalanaur; (34) Harike Lake Wildlife Sanctuary; (35) Phillaur; (36) Ludhiana; (37) Fatehgarh; (38) Fazilka; (39) Firozpur district; (40) Ambala; (41) Odhan; (42) Sirsa; (43) Fatehabad; (44) Hansi; (45) Sultanpur; (46) Delhi; (47) Keoladeo National Park; (48) Chakrata; (49) Dehra Dun; (50) Dharmarpur; (51) Aligarh; (52) Hardoi; (53) Gonda; (54) Gorakhpur district; (55) Lucknow; (56) Gwalior; (57) Darbhanga; (58) Purnea.

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

■ Bihar near Darbhanga, January 1899 (Inglis 1899), March 1900 (male in YPM), undated (Dalgleish 1902), January 1902 (male in AMNH), March 1907 (female in YPM), and at Dhununpore, December 1902 (female in BNHS); Kolassi, Purnea, January 1886 (specimen in BNHS; Roonwall 1941).

An unconfirmed report is from Chandighar, where a flock possibly of this species was seen, March 1916 (Whistler 1918).

POPULATION *Extralimital* In Central Asia the Pale-backed Pigeon has suffered drastic declines, and is now rare; it is listed in the Red Data Books for Uzbekistan and Kazakhstan, assessments supported by the fact that 20 years of constant-effort ringing in the western Tien Shan revealed a 75% population reduction over that period (Aspinall 1996). In one valley in eastern Kazakhstan, destruction of poplar woodland was thought to be a major factor, but otherwise the causes of this decline are not clear (E. Gavrilov in Aspinall 1996).

China The population in China is poorly known, but the species does seem to have been rather common in the nineteenth century (see Distribution). At Taskhama, for example, it was breeding and "present in great numbers" (Scully 1876).

Pakistan Although it is scarce, it does or did (into the 1980s) occur locally in fairly large flocks (100–400), often in traditional localities such as the riverine tracts north of Sukkur (Roberts 1991–1992). It seems to be commonest in southern Punjab and northern Sind, which it sometimes visits "in considerable numbers", but is rare or erratic elsewhere (Ticehurst 1922–1924, Roberts 1991–1992). In Punjab, for example, it was not encountered during earlier surveys in the Punjab Salt Range by Waite (1948) or Rawalpindi district by Whistler (1922a, 1930), indicating that it was uncommon in these areas even early in the twentieth century. Roberts (1991–1992) did not come across the species in Multan district, Punjab, even though it had previously been recorded in the area (Smith 1914a), suggesting a decline. It is rare in the south of Sind, with no records south of Larkhana district (Ticehurst 1922–1924); in ten years of subsequent observations, Roberts (1991–1992) only found one flock in southern Sind (at Haleji lake) and it is clearly uncommon in the region.

India In the nineteenth century, the species visited the plains of upper India, rarely more than 200 km from the base of the hills, in large flocks in cold weather (Henderson and Hume 1873). Small numbers wintered annually in the Darbhanga region, Bihar: Inglis (1901–1904) stated that it "put in an appearance every cold weather," while Dalgleish (1902) asserted that it was "occasionally seen." Elsewhere, for example at Lucknow (Jesse 1902–1903), Punjab (Koelz 1940, Oriental Bird Club Bull. 21 [1995]: 68–73, P. Undeland in litt. 1995, 1997, Undeland 1997) and Maharashtra (Abdulali 1968–1996), it is sometimes encountered in very large flocks, several hundred strong, although its overall numbers appear to have been greatly reduced during the twentieth century. According to an old shikari in the Punjab, the birds used to arrive in the region "in thousands" in the early 1900s, when "clouds of them literally darkened the sky" (M. M. Singh 1980). By the 1950s flocks tended to contain a few hundred birds rather than thousands and they seemed virtually to have ceased to visit the Punjab by 1980 (M. M. Singh 1980, 1984; see Remarks 4). However, recent sightings of 800–2,000 birds in the region (Oriental Bird Club Bull. 21 [1995]: 68–73, Undeland 1997, P. Undeland in litt. 1995, 1997) indicate that it still occurs in suitable localities, sometimes in large numbers.

ECOLOGY *Habitat* The Pale-backed Pigeon is "often and perhaps usually" found "in open agricultural or rather barren country with or without trees" (Goodwin 1967). Flocks usually roost in trees, however, and retreat to trees when disturbed (Ali and Ripley 1968–1998, Roberts 1991–1992), suggesting some dependence on at least sparsely wooded habitat. In Chinese Xinjiang (eastern Turkestan), Scully (1876) repeatedly encountered the species in large clumps of poplars, and in the same region a flock of 40 was also seen in poplars by Ludlow (ms). This suggests that poplar groves are of some importance to the species in the region.

Wintering birds in Pakistan frequent fallow fields in sparsely populated regions, riverine areas and open country with scattered groves of trees, such as *Acacia nilotica* (T. J. Roberts verbally 1998). In Punjab, according to old hunters, they once frequented "wild areas" bordering the banks of rivers, with their favourite haunts apparently being extensive mustard *Brassica nigra* cultivations (M. M. Singh 1980). In this area, the trees/shrubs on which the birds most frequently settled were ber *Ziziphus jujuba* and kikar *Acacia* (M. M. Singh 1980). On migration, Whitehead (1910–1911) collected specimens feeding on fruiting trees and in *Ilex*-scrub on hillsides at 2,000 m.

The species is highly gregarious both while roosting and feeding (Roberts 1991–1992). Birds often feed on the ground in "fairly tight" flocks together with Rock Pigeon Columba livia (Ali and Ripley 1968–1998, Roberts 1991–1992); single individuals sometimes join foraging flocks of the commoner species (Whistler 1919), and "large numbers" have also been recorded coming to drink in the evening mixed with C. livia in Punjab, Pakistan (Whistler 1922a). In China, birds are reportedly always found with other pigeon species (Liu Naifa in litt. 1997). When alarmed, feeding flocks often merge and wheel around in tight groups, swerving and twisting in unison (Ali 1941, Ali and Ripley 1968-1998, Roberts 1991-1992), but some reports suggest that they tend to be "rather tame and confiding" (Baker 1922-1930). Large numbers congregate to roost at night and through the middle of the day in trees (Baker 1922–1930), such as popular *Populus*, mango *Mangifera indica* (Inglis 1899), babul Acacia arabica (Ali 1941, Ali and Ripley 1968–1998) or peepul Ficus religiosa (Jesse 1902– 1903), to which flocks descended in a manner described as "sudden, swift and vertical" (M. M. Singh 1980). In the nineteenth century, roosts were often in the close vicinity of villages (Henderson and Hume 1873), but with increased hunting this is now rarely the case. Birds travel to feed in surrounding fields during mornings and afternoons (Ali and Ripley 1968–1998), the large roosting flock often breaking up into small parties of between three and seven birds (Henderson and Hume 1873). Flocks sometimes drink each evening at the same time and place (BMNH label data). In Afghanistan, Paludan (1959) encountered this pigeon during the breeding season, commenting that he never saw it "in the vicinity of any trees". Conversely, Meinertzhagen (1938) stated that in northern Afghanistan the species often fed in cultivation and marshland with Rock Pigeon, but was segregated in breeding areas: Pale-backed bred in "groves of mulberry and old willow-stubs". It seems that the species can tolerate an absence of trees but will use them and breed in them if they are available (see Breeding); more research is necessary to clarify the situation.

Food On migration the species has been watched feeding on berries from plants such as *Ziziphus* and on mulberries *Morus alba*, which they pluck from trees (Whitehead 1910–1911). In its winter quarters, however, it feeds predominantly on the ground, picking or digging up grass seeds and seeds of cereals, nuts, maize or weeds amongst stubble after harvest, and in fields that are either fallow or freshly sown (Baker 1922–1930, Ali and Ripley 1968–1998, Roberts 1991–1992). Osmaston (1913) observed a large flock feeding on an open rice plain. Birds sometimes inflict considerable damage on crops (Baker 1922–1930).

Breeding In the Central Asian republics the main period when eggs can be found extends from late April to June (see Dement'ev and Gladkov 1951–1954), although there are still large roosts in the winter quarters during April (Roberts 1991–1992). Breeding appears to be most usual in May and June (Baker 1922–1930, Whistler 1944–1945). Although Meinertzhagen (1938) never actually found a nest in Afghanistan, he reported that birds were flushed from tree-holes, with organs "ripe for breeding", in the second week of May. The species is also colonial: Paludan (1959) found a "rather large" colony in the Herat area, Afghanistan, on 10 July, and another colony of 10–20 pairs at Obeh. Goodwin (1967) reported that the breeding season in Afghanistan is "in full swing" a little later than the above reports suggest: from June to August, with young about four and six weeks old having been taken in August, September and early October.

Although Baker (1922–1930) reported the nest to be a platform of sticks, like most other pigeons, placed high in a tangle of branches or on a sturdy branch, often in poplars *Populus*, other information suggests that, like the closely related Stock Dove *C. oenas*, it typically nests in tree-holes and other cavities (Paludan 1959, Yuan Guoying 1991). It has, for example, been recorded breeding in holes in poplars in Turkmenistan (Dement'ev and Gladkov 1951–1954), and in hollow willows *Salix* and in mulberry groves in Afghanistan (Meinertzhagen 1938; also Whistler 1944–1945). In northern Afghanistan, it is also said to have been found nesting in old buildings (Meinertzhagen 1938; also Whistler 1944–1945) and colonially in holes in clay cliffs bordering rivers (Paludan 1959). One found by Paludan (1959) occupied holes "dug" in narrow layers of gravel and pebbles in clay banks 10–15 m high at the edge of a riverbed, the implication being that the pigeons excavated the holes themselves, although Goodwin (1967) considered this unlikely. Paludan (1959) never actually saw eggs as the holes were too high for him to reach, but felt there was "no doubt" that the birds were nesting there because of their prolonged proximity to holes and the enlarged size of their testes. Whether the species ever does build a platform nest as asserted by Baker (1922–1930) and Ali and Ripley (1968–1998) is unclear.

Migration The species is a summer visitor in northern Xinjiang and a migrant in other regions of China, usually in small flocks (Liu Naifa in litt. 1997). It is a winter visitor and passage migrant to Pakistan and India (Ali and Ripley 1968–1998, Roberts 1991–1992). Birds that winter in Pakistan probably breed in the Central Asian republics, even though a small population breeds (or bred) in Afghanistan (Roberts 1991–1992). Whitehead (1910– 1911) noted a definite migration of "small flocks" in the latter half of April through the Kohat region, North-West Frontier Province. More recently, Kylänpäa (2000) noted a rare but regular passage of small flocks through Dera Ismail Khan district, North West Frontier Province, with groups moving through in spring (15–27 April) and autumn (8–19 October). Cumming (1908) recorded birds in April passing through Seistan. In Kashmir, it also probably occurred as a migrant (Ward 1906–1908), and Whistler (1914) believed that in Punjab the species was merely "a spring and autumn passage migrant rather than a winter visitor." This was immediately in part disproved when Smith (1914) observed it in small numbers in Pakistani Punjab "all through the cold weather during some years", but he noted that the species did not usually appear until February, after which it occurred in large flocks up to the beginning of April (Smith 1914). Jesse (1902–1903) recorded birds visiting the Lucknow region between November and April. Wintering flocks are mobile, tending to move about according to the availability of food (Baker 1922-1930).

THREATS The flocks of this pigeon that once crossed the Himalayas to overwinter in Pakistan and northern India have greatly diminished, probably as a result of the escalation of hunting throughout its range and the intensive cultivation of its winter quarters (factors such as tree clearance in the summer range are mentioned in Population). Concerted action is now required to mitigate these threats, but the problem may be complicated by the mobility of the species in winter.

China Threats are hunting and logging (Liu Naifa in litt. 1997).

India M. M. Singh (1980) attributed the disappearance of the birds from Punjab to the fact that the "countryside has changed radically with its intensive cultivation and emphasis on wheat and paddy compared with large-scale cultivation of pulses and mustard". In addition, the species was severely hunted in the period of former abundance (M. M. Singh 1980), particularly as birds were apparently quite tame (Baker 1922–1930). M. M. Singh (1980) himself recollected shooting at a roosting flock of the species and killing six with one shot. In China, Ludlow (ms) remarked that birds were "very tame; continuous shooting ... did not drive them away". As they were so easy to hunt it is likely that this pressure has seriously reduced their population. The species has been found in small numbers in trade in India, usually as a by-catch of generalist pigeon trappers (Ahmed 2000, Ahmed in prep.).

MEASURES TAKEN *China* There are several large protected areas in Xinjiang (see MacKinnon *et al.* 1996), but it is not clear which are of significance for the conservation of this species.

India None is known. Important numbers of the species have recently been recorded very near but apparently not inside Harike Lake Wildlife Sanctuary, Punjab.

MEASURES PROPOSED Prescription of measures is hampered by lack of knowledge of the species, particularly of its habitat requirements and other aspects of its ecology during the breeding season and of the specific factors which have caused its decline. There is a need for research on these points, and development of an action plan, together with the identification and conservation of key sites for the species. Hunting seems likely to have been, or still to be, an important threat, and the species should be listed as nationally protected in all its breeding and wintering range states, with hunting forbidden (especially at breeding colonies and roosting sites on the wintering grounds). Habitat requirements in the winter quarters should be investigated.

REMARKS (1) Although previously treated as a subspecies of the Stock Dove Columba oenas and even Somali Pigeon C. oliviae (see Sibley and Monroe 1990; and for the latter Collar and Stuart 1985), this form is now generally treated as a separate species (e.g. Inskipp et al. 1996). (2) A bird watched for some time at the river at Bulgan-gol, Mongolia, 1 May 1975, was thought more likely to be Pale-backed Pigeon than Stock Dove C. oenas (Piechocki et al. 1981), but the description noted the lack of a pale rump, which is wrong for Palebacked Pigeon (Aspinall 1996). (3) Although Baker (1922-1930) gave the breeding range as extending northward to the Altay mountains, Roonwal (1941) erroneously believed that this statement was "probably wrong" on the grounds that records came from the "Alai Mts.", these being some way to the south of the Altay range. (4) Woodpigeons Columba palumbus appear formerly to have visited the Himalayan foothills around Dehra Dun "in thousands" during the winter, but by 1971 they had apparently "completely deserted the area" (footnote to M. M. Singh 1980), and this circumstance was thought to be associated or coincidental with the disappearance of the Pale-backed Pigeon. "Are we then to believe that both these pigeons which formerly visited—one Punjab, the other Kumaon—in such prodigious numbers have ceased to come altogether? What has become of their spectacular swarms?" (footnote to M. M. Singh 1980).