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Recent observations of birds in Xizang and Qinghai provinces, China

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Between 3 March 1986 and 19 April 1986 216 species of birds were recorded from 23 localities in Xizang and Qinghai provinces, China; 7-11 species were new for Xizang, three for Qinghai, and 17-20 for 'South-east Tibet'. Notable species seen include Black-necked Crane *Grus nigricollis*, Kozlov's Babax *Babax koslowi* and Kozlov's Bunting *Emberiza koslowi*.

Vaurie (1972) treated Tibet (Qinghai-Xizang Plateau) as a geographical region rather than a country with political boundaries, splitting it up into three plateau regions - Northern, Outer and South-eastern (cited as South-east Tibet in this paper) - according to vegetation, topography and climate, etc. Chinese scientists recognise different divisions for the region (Zhang 1978) and these together with Vaurie's can be found on Figure 2. Unfortunately the names of the Chinese divisions could not be translated and I have used those of Vaurie for convenience.

The history of ornithology in South-east Tibet is rather brief, and the region's avifauna is still poorly known. In southern South-east Tibet the most important work was done by F. Ludlow and Major G. Sherriff during their collecting expeditions of 1936, 1938 and 1946-1947. Previously only very small collections had been made by F. M. Bailey in 1911 and again accompanied by Captain Morshead, in 1913. G. Bonvalot and Prince H. d'Orléans were the first to make collections in northern South-east Tibet, in 1890, followed by P. K. Kozlov in 1900-1901 and the Brooke Dolan Expedition of 1934-1935, with E. Schäfer. There was also a small collection made by Captain Bower and Dr Thorold in 1891-1892. In recent times collecting has been carried out in South-east Tibet by Chinese ornithologists, and reported on by Cai Qikai *et al.* (1977), Li Dehao *et al.* (1978), Li Dehao and Wang Zuxiang (1979), Jiang Zhihua *et al.* (1979), Zheng Zuoxin *et al.* (1980) and Zheng Zuoxin (1983). Some of the birds they collected were outside Vaurie's (1972) division for the South-eastern Plateau Region, but all were within present-day Chinese limits, and Xizang province. In this paper I include the whole of this part of Xizang up to the border, and call it South-east Tibet, rather than the South-eastern Plateau.

North-eastern Tibet has been much more widely explored, and is probably the best known part of Tibet (Qinghai-Xizang Plateau). A great number of expeditions have criss-crossed the area, starting with the great Russian expeditions of the 1870s, led by N. M. Przhevalsky, V. I. Roborovsky and, later, P. K. Kozlov, who completed his last explorations there in 1907-1909, and ending with the work done by F. R. Wulsin, J. F. Rock and W. Beick between 1922 and 1930, and by Sien Yaohua and his co-workers in 1959-1962.

During March and April 1986 D. S. Farrow and I spent seven weeks travelling from Lhasa to Qinghai Hu (Koko Nor) via Pome District, Qamdo and Yushu in South-east Tibet. During the course of our trip we observed over 200 species of birds, among which were 7–11 new species for Xizang province, three new for Qinghai province and 17–20 new for South-east Tibet (South-eastern Plateau region as described by Vaurie 1972). In addition we made a number of observations representing minor range extensions, or providing recent information on little-known or threatened species. During the second half of March, we observed a small migration of raptors through southern South-east Tibet. The largest single movement occurred at Güncang on 13 March. On that day cloud cover dropped to c.3,200m in the late morning and then lifted again to c.4,800m in the early afternoon. After the cloud lifted raptors began passing through between c.3,600 and 4,200m.

We arrived in Lhasa by aeroplane from Chengdu, Sichuan, on 3 March 1986. After a few days birdwatching in the Lhasa area we travelled east by truck, along the Lhasa–Chengdu road to Güncang in westernmost South-east Tibet, where we spent the next six days, 10–16 March, exploring various habitats up to 4,300m. We were surprised by the extensive pine and mixed coniferous forest with prickly oak and rhododendron remaining in this area, and decided to move on east to Pome District (30°15'N 95°00'E), where we expected to lose altitude and perhaps find some evergreen forest.

We travelled by truck again, arriving at Tangmai, Pome District, on 20 March, after spending a day at Dongjug. Between Dongjug and Tangmai we dropped down in altitude and evergreen elements became increasingly dominant. At Tangmai itself, we found ourselves surrounded by pristine evergreen forest (see Plates 1–2). It rained heavily at Tangmai, and on 24 March we moved, again by truck, south-east along the Po Tsangpo river to Bomi. We left the evergreen forest behind, some 20 km after Tangmai, as we regained altitude. We found extensive forest once more at Bomi, and spent two days, 25–26 March, exploring an area across the river to the south. On 27 March we continued south-east to Rawu, then north via Baxoi and Bamda to Qamdo on the upper Mekong, arriving on 31 March. On the way to Qamdo we passed through high and often rugged terrain, including the breathtaking gorges of the Salween and Mekong. The general terrain remained rather rugged, but more open around Qamdo, with some patches of forest on a north-facing aspect. We found a good area of forest about 7 km north of Qamdo, on the east side of the Mekong, and spent two days, 1–2 April, looking for birds there.

In Qamdo we decided to try and head north for Yushu along a road which was marked on our maps. We took a lift in a truck from Qamdo to Sagoo, some 65 km to the north-west along a major tributary of the Mekong. There was no transport north of Sagoo, and the road itself, very obvious on our maps, disappeared. We walked on to Hsün-ta and then Gamda, through a well-wooded area, on 4–5 April. From Gamda we had a very long day's walk over high country to Goixab. The next two days were spent walking on

through open steppe country to Ka-ma and eventually Nangqên on the Mekong again, arriving there on 8 April. We picked up the road again at Nangqên and travelled by truck via Doramarkog to Yushu. Yushu (just inside the northern border of South-east Tibet) was very disappointing, the surrounding hills bare and overgrazed. We travelled by bus for the two-day 800 km journey to Xining over the high, windswept Qinghai Plateau, on 12–13 April. From Xining we took a bus west to Qinghai Hu, and spent our last few days in Tibet proper on the Bird Island peninsula at the western end of the lake, 15–19 April. All these localities are mapped in Figures 1 and 2.

RECORDS OF PARTICULAR INTEREST

GREAT CORMORANT *Phalacrocorax carbo* Maximum of five at Tangmai from 21–23 March, one between Tangmai and Bomi on 24 March, two at Rawu on 28 March and two at Nangqên on 8 April. Although previously recorded from the Northern and Outer Plateau regions (Vaurie 1972), these appear to be the first records for South-east Tibet.

COMMON SHELDUCK *Tadorna tadorna* A pair on the Mekong, about 30 km south of Qamdo, on 31 March. Although previously recorded from the Northern and Outer Plateau regions (Vaurie 1972), this appears to be the

Plate 1. Evergreen forest along the Yigrong Chu near Tangmai, habitat for Bay Woodpecker and Black-eared Shrike-Babbler (C. R. Robson)

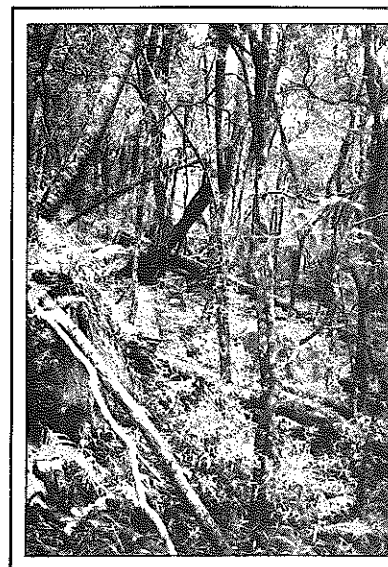
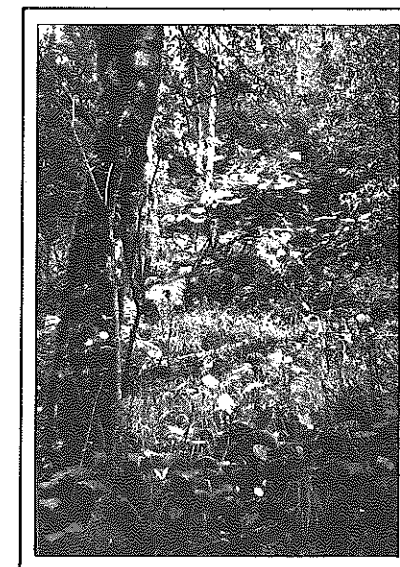


Plate 2. Undergrowth in evergreen forest c. 7 km south-west of Tangmai, habitat for Yellow-throated Fulvetta and Grey-cheeked Warbler (C. R. Robson)



first record for South-east Tibet.

EURASIAN WIGEON *Anas penelope* A flock of ten at Tangmai on 22 March, one at Rawu on 28 March, and one a few kilometres north-east of Hsün-ta on 5 April. Zheng (1976) maps this species right across South-east Tibet as a winter visitor, without specific location, and Meyer de Schauensee (1984) mentions it as a winter visitor to the region, but no definite records for the region, prior to ours, have been traced. It has previously been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

GADWALL *Anas strepera* At least five, about 7 km south-west of Tangmai, on 20 March, another two at Tangmai on 21 March, and two or three at Rawu on 28 March. Zheng (1976) maps this species right across South-east Tibet as a winter visitor, without specific location, but no definite records, prior to ours, have been traced. It has previously been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

SPOT-BILLED DUCK *Anas poecilorhyncha* One at Güncang on 13 and 15 March, and about eight at Rawu on 28 March. The sighting at Rawu appears to represent an extension eastwards of its known range in South-east Tibet. Zheng (1976) maps it for South-east Tibet, south of the Tsangpo valley, as a winter visitor, without specific location, but only one previous record for the region has been traced: one or two flocks seen on the Tsangpo at Dzeng, near Tsela Dzong (29°25'N 94°22'E) in March 1947 (Ludlow 1951). It has previously been recorded from the Outer Plateau region (Vaurie 1972).

NORTHERN SHOVELER *Anas clypeata* One at Güncang on 15 March. This appears to be only the second record for South-east Tibet, and an extension westwards of its known range in the region. Zheng (1976) maps it as a winter visitor to South-east Tibet, south of the Tsangpo valley, without specific location, but only one previous record for the region has been traced: two specimens taken at Bomi (Zheng 1983). It has previously been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

SMEW *Mergus albellus* At least 25, in a large mixed flock of ducks, at the western end of Qinghai Hu, on 16 April. This may be the first record for Qinghai Hu, and the Northern Plateau region. Zheng (1976) maps it to the north of the upper Hwang Ho area as a winter visitor, without specific location, and Sien *et al.* (1964) give a record from Xining by E. Stresemann and W. Meise, 1937–1938. It has also been recorded from Dobo (36°41'N 101°30'E), north-east Qinghai province, in the Outer Plateau region (Vaurie 1972).

BLACK KITE *Milvus migrans* At least 145 moving east at Güncang on 13 March, followed by six east on 15 March and 18 east on 16 March. A rather disorientated flock of 40 at Nyingchi on 17 March, some eventually going east. Another disorientated flock of 32 over Dongjug on 19 March. A flock of 17 moving north or north-east over Tangmai, on 21 March, followed by seven going in the same direction on 23 March. At least 40 birds, which had

roosted in the fields at Bomi on 24–25 March, had all left by the evening of the 25th, presumably in an easterly or south-easterly direction.

WHITE-TAILED EAGLE *Haliaeetus albicilla* At least three (one adult and two immatures) c. 8 km west of Lhasa on 4 March, and single adult and immature birds at Güncang, on 11 and 12 March respectively, both moving in an easterly direction. These appear to be the first records for Xizang province and South-east Tibet. It has previously been recorded from north-east Qinghai province in the Northern and Outer Plateau regions (Sien *et al.* 1964, Vaurie 1972).

HIMALAYAN GRIFFON VULTURE *Gyps himalayensis* Several seen at the following localities: Güncang, 10–16 March; Rawu, 28 March; between Baxoi and Bamda, 30 March; between Bamda and Qamdo, 31 March; c. 7 km north of Qamdo, 2 April; between Qamdo and Sagoo, 3 April; between Sagoo and Hsün-ta, 4 April; between Hsün-ta and Gamda, 5 April; between Gamda and Goinxab, 6 April; between Goinxab and Nangqên, 7–8 April; between Nangqên and Doramarkog, 9 April; between Doramarkog and Yushu, 10 April; and at Yushu, 11 April. Surprisingly, these appear to be the first records for South-east Tibet. It has previously been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

CINEREOUS VULTURE *Aegypius monachus* Two birds c. 8 km west of Lhasa on 4 March, and another just north of Lhasa on 5 March. These may be the first records for Xizang province, and the Outer Plateau region. Zheng (1983) lists it for southern and western Xizang, but appears to give no specific localities. It has been recorded from the Northern Plateau region and South-east Tibet, as far south as Tongchi Gompa (33°25'N 97°03'E) in south-east Qinghai province (Vaurie 1972).

NORTHERN HARRIER *Circus cyaneus* One moving east at Güncang on 12 March, followed by another two on 13 March, three at Tangmai on 22 March, one at Sumzom on 27 March, one c. 7 km north of Qamdo on 1 April, one between Qamdo and Sagoo on 3 April, and one between Gamda and Goinxab on 6 April. Zheng (1976) maps it across southern South-east Tibet as a winter visitor, without specific location, and Meyer de Schauensee (1984) also mentions it as a winter visitor to the region, but no definite records for the region, prior to ours, have been traced. It has previously been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

MARSH HARRIER *Circus aeruginosus* One between Yushu and Madoi, at c. 4,085 m, on 12 April. This may be only the second record for Qinghai province. It has previously been recorded from the Zaidam (April, August) and northern Chang Tang (September) in the Northern Plateau region, and southern Xizang in the Outer Plateau region (Vaurie 1972).

NORTHERN GOSHAWK *Accipiter gentilis* One moving east at Güncang on 13 March.

NORTHERN SPARROWHAWK *Accipiter nisus* Two moving east at Güncang on 13 March.

COMMON BUZZARD *Buteo buteo* Single birds at Güncang on 11 and 13 March, the latter moving in an easterly direction. It appears that this species has previously only been recorded from the northern part of South-east Tibet. It has also been recorded from eastern Qinghai province, in the Outer Plateau region (Vaurie 1972).

STEPPE EAGLE *Aquila rapax nipalensis* At least 25 in the Lhasa area on 4–5 March, at least 46 moving east at Güncang on 13 March, followed by singles on 15 and 16 March, and two birds moving in a north or north-easterly direction at Dongjug on 19 March. These may be the first records for Xizang province. Zheng (1983) lists it for western Xizang, but appears to give no specific localities. It has been recorded from north-east Qinghai province, in the Outer Plateau region, and northern South-east Tibet, as far south as Ge Chu (32°08'N 96°48'E) in south-east Qinghai (Vaurie 1972).

GOLDEN EAGLE *Aquila chrysaetos* One between Ganden and Güncang on 9 March, at least six at Güncang, 10–16 March, one at Tangmai on 22 March, and two more on 23 March, one or two at Bomi on 25 March, two or three at Rawu on 28 March, three or four c. 7 km north of Qamdo on 1–2 April, two or three between Qamdo and Sagoo on 3 April, and several, including a pair displaying, between Sagoo and Hsün-ta on 4 April. Surprisingly, there only appears to be one previous record for Xizang province, from Nom Chu (32°02'N 98°13'E) (Vaurie 1972). Zheng (1983) lists it for southern Xizang, but appears to give no specific localities. It has been recorded from north and north-east Qinghai province, in the Northern and Outer Plateau regions (Vaurie 1972).

SAKER FALCON *Falco cherrug* Two pairs, believed to be breeding, in hills at the western end of Qinghai Hu on 18 April. One bird was observed for over 20 minutes, sitting very tight on a nest, and presumably incubating, with its mate keeping watch nearby. Another pair were seen chasing one another, possibly as part of some sort of display, in the vicinity of another nest.

COMMON COOT *Fulica atra* One, a few kilometres north-west of Qamdo, on 3 April. This appears to be the first record for South-east Tibet. Zheng (1976) maps it across South-east Tibet as a winter visitor, without specific location, but no definite records for the region, prior to ours, have been traced. It has been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

COMMON CRANE *Grus grus* A single bird came down very low under heavy cloud before heading off north, at Tangmai, on 21 March. The following day, at the same locality, a flock of 16 cranes, probably this species, went through in the same direction. This appears to be the first record for Xizang province and South-east Tibet. Zheng (1983) lists it for eastern

Xizang, but appears to give no specific localities. It has been recorded from the Northern Plateau region (Vaurie 1972).

BLACK-NECKED CRANE *Grus nigricollis* Two or three groups, totalling at least 57 birds, c.8 km west of Lhasa, on 4 March, another two flocks of c.41 and c.15, between Lhasa and Ganden (three hours by bus east of Lhasa), on 8 March, and a flock of 23+ to the east of Ganden, on 9 March. This species was listed by Vaurie (1972) as one of the six endemic Tibetan birds (but see, e.g. Clements and Bradbear, *Forktail*, this issue).

NORTHERN LAPWING *Vanellus vanellus* One at Rawu on 28 March, and another a few kilometres north-west of Qamdo on 3 April. These may be the first documented records for South-east Tibet. Zheng (1976) maps it across southern South-east Tibet as a winter visitor, without specific location, and Ludlow (1951) says it passes through South-east Tibet during spring and autumn migration, but gives no details. No other records for the region have been traced. It has been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

EURASIAN WOODCOCK *Scolopax rusticola* One at Güncang on 14 March. This appears to be only the fifth record for Xizang province. From South-east Tibet there were two previous records quoted by Vaurie (1972), and another by Li *et al.* (1978), and from Lhasa, in the Outer Plateau region, a single bird (Ludlow 1950).

GREAT BLACK-HEADED GULL *Larus ichthyaetus* One on the Mekong at Nangqên on 8 April, a second winter bird. This appears to be the first definite record for South-east Tibet. It has been observed to the north-east of Yushu, in south-east Qinghai province, according to Meyer de Schauensee (1984), but no details are given. It has been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

COMMON BLACK-HEADED GULL *Larus ridibundus* One adult at the western end of Qinghai Hu on 16 April. This may be the first record for the area. Vaurie (1972) lists it as a migrant for the Northern Plateau region, but gives no details other than a record from the Zaidam on 5 March by P. K. Kozlov.

MEW GULL *Larus canus* Two birds, a first winter and a second winter, at the western end of Qinghai Hu on 16 April. These appear to be the first records for Qinghai province and the Northern Plateau region. The nearest previous records are from Sichuan and Shaanxi provinces (Zheng 1976).

HERRING GULL *Larus argentatus* One second winter or second summer bird, at the western end of Qinghai Hu, on 17 April. I could not determine the subspecies of this bird, but it most resembled *L. a. heuglini* or *L. a. barabensis*. The former is sometimes considered conspecific with Lesser Black-Backed Gull *L. fuscus*, and is said to hybridise with *L. a. vegae* in northern central Siberia, producing a hybrid population which has been named *L. f. taimyrensis* (Cramp and Simmons 1983). This appears to be the

first record for Qinghai province and the Northern Plateau region, the nearest previous record being in Kansu province (Zheng 1976).

PALLAS'S SANDGROUSE *Syrrhaptes paradoxus* At least 20–30 birds on the Bird Island peninsula, at the western end of Qinghai Hu, on 17 April. Several birds were seen at the same locality in 1984 (M. A. S. Beaman verbally). These appear to be the first records for the Qinghai Hu region. It was recorded previously in the Northern Plateau region from the Zaidam (Vaurie 1972), and mapped to the north-east of Qinghai Hu, probably in Kansu province, by Zheng (1976).

HIMALAYAN SWIFTLET *Collocalia brevirostris* A flock of at least 50, c. 7 km south-west of Tangmai, on 23 March, and another flock of at least 40 a few kilometres south-east of Tangmai, along the Po Tsangpo, on 24 March. There only appear to have been two previous records for Xizang province. Zheng (1976) has mapped it in southern Xizang, in the Outer Plateau region (c. 28°50'N 91°00'E), and Meyer de Schauensee (1984), presumably based on Zheng (1976), says it occurs in south Tibet (Xizang). The other record is of four birds collected in April, May and August to the south of the 'Big Bend' in the Tsangpo (29°50'N 95°05'E), South-east Tibet, reported on by Zheng (1983).

GREAT BARBET *Megalaima virens* Several birds calling daily in the Tangmai area, 20–23 March, with a maximum of five on 22 March. These appear to be the first records for south-east Tibet, and the second for Xizang province, the only previous record there being of four birds collected in May 1974 in the Outer Plateau region, near the border with central Nepal (Cai *et al.* 1977).

BAY WOODPECKER *Blythipicus pyrrhotis* One or two heard calling from evergreen forest c. 7 km south-west of Tangmai on 20 March, and one seen in evergreen forest a little way along the Yigrong Chu, near Tangmai, on 22 March. These appear to be the first records for Xizang province and South-east Tibet. It is already known to occur across the border in Arunachal Pradesh, India (Ali 1977).

BARN SWALLOW *Hirundo rustica* At least four or five between Qamdo and Sagoo on 3 April. This appears to be only the third record for South-east Tibet and the fifth for Xizang province. One of the previous records for South-east Tibet was from a locality close to ours (Zheng 1983).

NEPAL HOUSE MARTIN *Delichon nipalensis* At least 500 between Dongjug and Tangmai on 20 March. This appears to be the first record for South-east Tibet and only the second for Xizang province. The only previous record was of seven birds collected in southern Xizang, in the Outer Plateau region, just north of the border with central Nepal, in June 1976 (Zheng 1980).

WATER PIPIT *Anthus spinoletta* One at Nyingchi on 17 March, and another possible heard at Rawu on 28 March. The bird at Nyingchi was probably of

the race *A. s. blakistoni*, which is less heavily streaked on the underparts in winter plumage than *A. s. japonicus*. This appears to be the first record for Xizang province and South-east Tibet. It has previously been recorded from the Northern and Outer Plateau regions, as far south as Yushu in south-east Qinghai province, northern South-east Tibet (Vaurie 1972).

BROWN DIPPER *Cinclus pallasii* One, a few kilometres west of Dongjug, on 18 March, five or six at Dongjug on 19 March, at least two, up to a few kilometres east of Dongjug, on 20 March, and one at Tangmai on 22 March. There only appears to be one previous record for South-east Tibet, from Buho in the northern part of the region (Vaurie 1972). The species has also been recorded from southern Xizang, in the Outer Plateau region (Vaurie 1972, Zheng 1983), and the Xining area, north-east Qinghai province, also in the Outer Plateau region (Sien *et al.* 1964).

BLACK REDSTART *Phoenicurus ochruros* Two males at Rawu on 28 March. It appears that previously this species had only been recorded from the northern part of South-east Tibet. It has been recorded widely in the Northern and Outer Plateau regions (Vaurie 1972).

PLUMBEOUS REDSTART *Rhyacornis fuliginosus* One male on the Salween between Baxoi and Bamda on 30 March. This record appears to be to the north-east of those previously listed for South-east Tibet (Ludlow 1951, Vaurie 1972, Zheng 1983). It has also been recorded from southern Xizang, in the Outer Plateau region (Vaurie 1972, Zheng 1983).

DESERT WHEATEAR *Oenanthe deserti* One male, c. 8 km west of Lhasa, on 4 March. This appears to be the earliest record for Xizang and Qinghai provinces. According to Vaurie (1972:158) the earliest record is 2 April, but he also mentions a record from the upper Hwang Ho in March (1972:282).

BLUE ROCK THRUSH *Monticola solitarius* One male above the Drepung Monastery, near Lhasa, on 7 March. This appears to be the first record for the Lhasa area. The nearest previous record was from Kharta Shika (28°05'N 87°19'E), over 500 km to the south-west (Vaurie 1972). It has also been recorded in southern Xizang, near the border with central Nepal, and western Xizang, in the Outer Plateau region (Zheng 1983).

NAUMANN'S THRUSH *Turdus naumanni* One, of the nominate race, at Güncang, on 12 March, with Red-throated Thrushes *T. ruficollis*. This appears to be the first record for Xizang province. It has previously been recorded from the Zaidam (10 October) and Dobo (36°41'N 101°30'E, 27 October), Qinghai province, in the Northern and Outer Plateau regions respectively (Vaurie 1972). There are also two records from the Qinghai–Kansu border east of Xining (Sien *et al.* 1964).

RED-THROATED THRUSH *Turdus ruficollis* Two at Rawu on 28 March, one or two between Bamda and Qamdo on 31 March, one c. 7 km north of Qamdo on 2 April, three between Gamda and Goinxab on 6 April, and one between Nangqên and Doramarkog on 9 April. It appears that all previous

records from South-east Tibet were from the western part of the region. It has also been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

GREY-CHEEKED WARBLER *Seicercus poliogenys* Four or five, including one singing, in undergrowth in evergreen forest, c. 7 km south-west of Tangmai, on 23 March. This appears to be the first record for Xizang province and South-east Tibet. It is known to occur across the border in Arunachal Pradesh, India (Ali 1977).

CHESTNUT-CROWNED WARBLER *Seicercus castaniceps* Two or three, a little way along the Yigrong Chu, near Tangmai, on 22 March, two or three c. 7 km south-west of Tangmai on 23 March, and one a few kilometres south-east of Tangmai, along the Po Tsangpo, on 24 March. Not listed for Tibet by Vaurie (1972), but mapped by Zheng (1976) in southernmost South-east Tibet and mentioned by Meyer de Schauensee (1984). The locality given by Zheng is outside the Chinese international border according to the *Times atlas of the world*. This species was reported from two localities in South-east Tibet by Li *et al.* (1978).

BLACK-FACED WARBLER *Abroscopus schisticeps* One between Dongjug and Tangmai on 20 March, common in flocks along the Yigrong Chu near Tangmai, and up to c. 7 km south-west of Tangmai, on 21–23 March. Previously only recorded in South-east Tibet from one locality, in the same area as ours (Ludlow 1951). It has recently been recorded in southern Xizang, in the Outer Plateau region (Zheng 1983).

KOZLOV'S BABAX *Babax koslowi* At least five at Sagoo on 4 April, four at Hsün-ta on 5 April, and one in a narrow gorge east of the Mekong, near Nangqên, on 9 April. These appear to be the first sightings of *B. k. koslowi* for about 70 years. The southern race, *B. k. yuguensis*, has been recorded recently from three localities in South-east Tibet (Li *et al.* 1978, Li and Wang 1979, Zheng 1983). This species is listed by Vaurie (1972) as one of the six endemic Tibetan birds.

STRIATED LAUGHINGTHRUSH *Garrulax striatus* Two, in evergreen forest c. 7 km south-west of Tangmai, on 23 March. There only appear to be records from two other localities in South-east Tibet. It was recorded from a locality near ours (Ludlow 1951), and one to the south of ours, along the Tsangpo (Zheng 1983). It has also recently been recorded from southern Xizang, in the Outer Plateau region (Zheng 1983).

BLACK-EARED SHRIKE-BABBLER *Pteruthius melanotis* One male in a mixed-species flock, in evergreen forest a little way along the Yigrong Chu, near Tangmai, on 22 March, and another two males in a mixed-species flock, in evergreen forest c. 7 km south-west of Tangmai, on 23 March. These appear to be the first records for Xizang province and South-east Tibet. The species is known to occur across the border in Arunachal Pradesh, India (Ali 1977).

YELLOW-THROATED FULVETTA *Alcippe cinerea* Two flocks, of five and ten respectively, in undergrowth in evergreen forest c. 7 km south-west of Tangmai, on 23 March. This appears to be only the second record of this little known babbler for Xizang province and South-east Tibet. It was previously recorded from Trulung (30°03'N 95°03'E) in January 1947 (Ludlow 1951).

BLACK-THROATED TIT *Aegithalos concinnus* Common along the Yigrong Chu near Tangmai, up to c. 7 km south-west of Tangmai, and a little way south-east of Tangmai, along the Po Tsangpo, over 21–23 March. This appears to be only the second known locality for this species in south-east Tibet. It was previously recorded in flocks in winter at a locality near ours (Ludlow 1951). Recently it has also been recorded from southern Xizang, in the Outer Plateau region (Zheng 1983).

WILLOW TIT *Parus montanus* One at Rawu on 28–29 March. It appears that previously this species has only been recorded from the northern part of South-east Tibet. It has been recorded widely from east and north-east Qinghai province, in the Outer Plateau region (Vaurie 1972).

BROWN-THROATED TREECREEPER *Certhia discolor* Several seen daily in the Tangmai area, 21–23 March. This appears to be the first record for South-east Tibet and only the second for Xizang province. The only other record is of a bird collected on 11 June 1977 in southern Xizang, in the Outer Plateau region, near the border with Sikkim and Bhutan (Li *et al.* 1979).

CHINESE GREY SHRIKE *Lanius sphenocercus* One, twice seen patrolling the edge of alpine meadows at c. 4,100 m above Güncang, on 11 and 16 March. This may be the first record for Xizang province. Zheng (1983) lists it for eastern Xizang, but appears to give no specific localities. It has been recorded from north-east, east and south-east Qinghai province as far south as Dzogchen Gompa (32°07'N 98°54'E), in northern South-east Tibet (Vaurie 1972).

YELLOW-BILLED CHOUGH *Pyrrhocorax graculus* At least six at Rawu on 28–29 March. It appears that this species has previously only been recorded as far east as Pome District (30°15'N 95°00'E) in South-east Tibet. It has also been recorded from southern and western Xizang (Zheng 1983) and north-east Qinghai province (Vaurie 1972), in the Outer Plateau region.

DAURIAN JACKDAW *Corvus dauuricus* An apparent breeding colony of c. 20 birds at Bomi on 25–26 March. This appears to represent a range extension north-west along the Po Tsangpo in South-east Tibet. It has been recorded from north-east and eastern South-east Tibet, and north-east and eastern Qinghai province, in the Outer Plateau region (Vaurie 1972).

COMMON STARLING *Sturnus vulgaris* A flock of six at Nangqên, on 8 April. This appears to be the first record for South-east Tibet. It has been recorded from the Northern and Outer Plateau regions (Vaurie 1972, Zheng 1983).

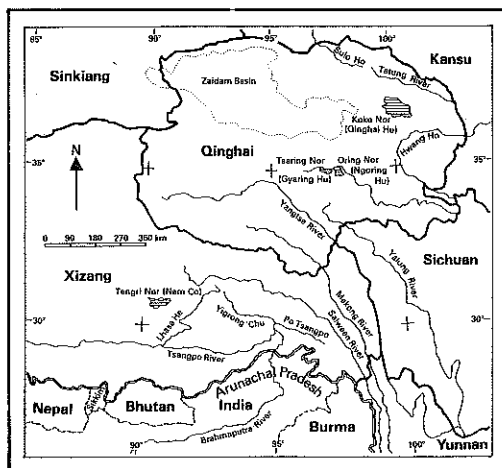
RUFIOUS-NECKED SNOWFINCH *Montifringilla ruficollis* Abundant on high, open plateau north of Bamda on 31 March. This appears to be an extension southwards of its known range in South-east Tibet, into the central part of the region. It has also been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

WHITE-RUMPED SNOWFINCH *Montifringilla taczanowskii* Common in high, open plateau country (above 4,100 m) north of Bamda on 31 March. This appears to confirm an extension south and westward of its known range in South-east Tibet, into the central part of the region. Apart from a recent record from Markam (29°80'N 98°50'E) to the south-east of our locality (Zheng 1983), all previous records have been to the north of ours (Vaurie 1972). Many of the birds we saw were paired and displaying in the vicinity of pika *Ochotona* burrows. The species is listed by Vaurie (1972) as one of the six endemic Tibetan birds. It has also been recorded from the Northern and Outer Plateau regions (Vaurie 1972).

LAPLAND LONGSPUR *Calcarius lapponicus* One seen and heard on the Bird Island peninsula, at the western end of Qinghai Hu, on 17 April. This appears to be the first record for Qinghai province, and the Northern Plateau region. It has been recorded by W. Beick in western Kansu province (c. 37°35'N 102°20'E) in April (Vaurie 1972, Zheng 1976).

KOZLOV'S BUNTING *Emberiza koslowi* A flock of 12 (11 males and one female) on the edge of a pass, at c. 4,050m, just before (east of) Goinxab, on 6 April. The flock was very confiding as it fed on open ground on a bank above the path. Nearby there were steep grassy ridges with scattered junipers and bushes, which presumably would be suitable breeding habitat for this bird. This rare and little known species was apparently last recorded in April

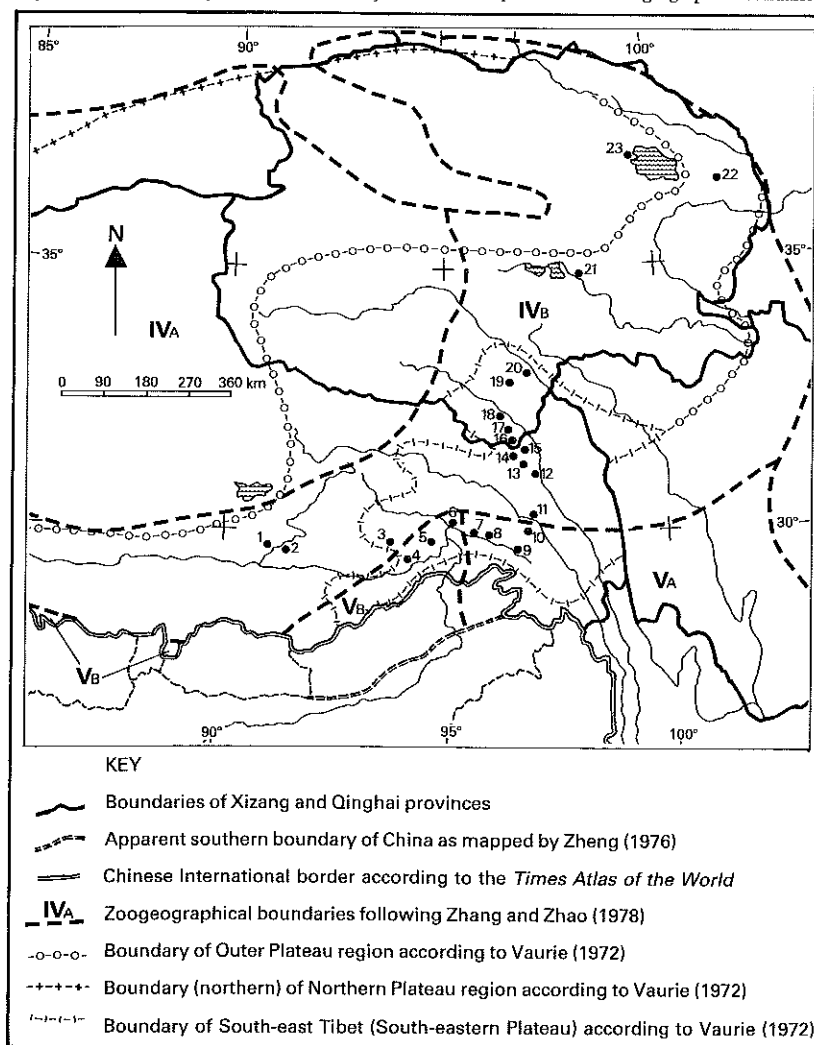
Figure 1. Provinces, rivers and lakes of western China.



and May 1935 (Schäfer 1938, Schäfer and Meyer de Schauensee 1939), and prior to that only by P. K. Kozlov in August and September 1900 and January 1901. It is listed by Vaurie (1972) as one of the six endemic Tibetan birds.

LITTLE BUNTING *Emberiza pusilla* At least ten at Tangmai on 21–23 March, a total of at least 30 up to c. 10km south-east of Tangmai along the

Figure 2. Our itinerary in Western China, with various political and zoogeographic boundaries.



Po Tsangpo on 24 March, two at Bomi on 25 March, and two at Rawu on 28 March. These appear to be the first records for Xizang province and South-east Tibet. It is known to occur across the border in Arunachal Pradesh, India (Ali 1977).

LOCALITIES VISITED

Listed below are 23 localities corresponding to the numbers on Figure 2. Coordinates for localities 1–18 were taken from an American Operational Navigation Chart (DMAAC 1984), and coordinates for localities 19–23 from the new Bartholomew map (Bartholomew 1985).

a.	b.	c.		
Name on the Bartholomew map.	Name on DMAAC (1984).	English pronunciation if apparently different from a.		
1: Lhasa	La-sa	La-sa	29°39'N 91°07'E	
2: Ganden			29°40'N 91°28'E	
3: Güncang	Keng-chang		29°48'N 94°10'E	3,170m
4: Nyingchi	Lin-chih	Nin-chi	29°33'N 94°32'E	
5: Dongjug		Dongju	29°58'N 94°48'E	3,650m
6: Tangmai		Tungmi	30°06'N 95°07'E	2,130m
7: Bomi	Po-mi	Po-mi	29°52'N 95°46'E	2,775m
8: Sumzom	Sung-tsung	Sung Dung	29°45'N 96°07'E	3,200m
9: Rawu	Jan-wu		29°29'N 96°48'E	3,840m
10: Baxoi	Pa-hsui	Pa-ma	30°03'N 96°53'E	3,320m
11: Bamda	Pang-t'a		30°15'N 97°16'E	4,055m
12: Qamdo	Ch'ang-tu	Chamdo	31°09'N 97°10'E	3,260m
13:		Sagoo (Sagoom)	31°25'N 96°52'E	3,350m
14:	Hsün-ta	Samka	31°34'N 96°44'E	3,445m
15:		Gamda	31°34'N 96°45'E	3,870m
16: Goixab	Kung-ya-ssu	Pidza	31°56'N 91°36'E	3,930m
17:		Ka-ma	32°05'N 96°31'E	3,625m
18: Nangqên	Nang-ch'ien	Nangchee	32°12'N 96°29'E	3,625m
19: Doramarkog		Doramarko	32°55'N 96°36'E	4,025m
20: Yushu			33°00'N 97°00'E	3,565m
21: Madoi		Mado	35°00'N 98°10'E	4,115m
22: Xining		Shi-ning	36°38'N 101°40'E	
23: Qinghai Hu		Chinghai Hu	37°00'N 99°45'E	c. 3,140m

I would like to thank Tim Inskipp for his assistance in gathering the references and the painstaking work he put in whilst going through the first two drafts of this paper.

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APPENDIX ALL OTHER BIRD RECORDS FROM XIZANG AND QINGHAI PROVINCES

The list below provides all our bird records from Xizang and Qinghai other than those given in the main text. The numbers after each species relate to the localities where they were recorded (see Figure 2). For the English and scientific names I have adopted those put forward by King *et al.* (1975) and by B. F. King in an unpublished list of Chinese birds, with a few exceptions (for which 'King' names follow in brackets). The systematic order follows Voous (1977).

- Great Crested Grebe *Podiceps cristatus* 23.
 Whooper Swan *Cygnus cygnus* 23.
 Bar-headed Goose *Anser indicus* 1, 1–2, 9, 20–21, 23.
 Ruddy Shelduck *Tadorna ferruginea* 1, 1–2, 5–6, 6, 9, 9–10, 12, 12–13, 15–16, 17–18, 18–19, 19–20, 20–21, 23.
 Common Teal *Anas crecca* 1, 2, 9, 12–13, 23.
 Mallard *Anas platyrhynchos* 1, 1–2, 3, 5–6, 9, 9–10, 19–20, 23.
 Common Pintail *Anas acuta* 6, 9, 9–10, 23.
 Red-crested Pochard *Netta rufina* 1, 23.
 Common Pochard *Aythya ferina* 23.
 Tufted Duck *Aythya fuligula* 22, 23.
 Common Goldeneye *Bucephala clangula* 23.
 Gosander *Hergus merganser* 1, 1–2, 6, 6–7, 17–18, 18–19, 20–21, 23.
 Black Kite *Milvus migrans* 1, 2, 3, 6, 7, 9, 10–11, 11–12, 12–13, 13–14, 16–17, 17–18, 18–19, 19–20, 21–22, 23.
 Lammergeier *Cypaetus barbatus* 1, 2, 2–3, 3, 6, 7, 9, 10–11, 11–12, 12, 12–13, 13–14, 14–15, 16–17, 17–18, 18–19, 19–20, 20.
 Northern Goshawk *Accipiter gentilis* 3, 6, 6–7, 14–15.
 Northern Sparrowhawk *Accipiter nisus* 1, 2, 3, 5–6, 6–7, 7–8, 12, 15–16, 16–17, 17–18.
 Upland Buzzard *Buteo hemilasius* 1, 11–12, 14–15, 19–20, 20–21, 21–22, 23.
 Common Kestrel *Falco tinnunculus* 1, 2–3, 3, 10–11, 12, 15–16, 16–17, 17–18, 20–21.
 Saker Falcon *Falco cherrug* 1, 2, 15–16, 16–17, 19–20, 20–21, 23.
 Szechenyi's Monal Partridge (Buff-throated Partridge) *Tetraophasis szechenyi* 3, 9, 12, 14–15.
 Tibetan Snowcock *Tetraophasis tibetanus* 16–17.
 Tibetan Partridge *Pardix hodgsoniae* 2, 2–3, 12, 13–14, 16–17, 18–19.
 Common Hill Partridge *Aythya torquata* 5–6, 6.
 Blood Pheasant *Ithaginis cruentus* 5, 7, 12, 14–15.
 White Eared Pheasant *Crossoptilon crossoptilon* 3 (*harmeni*), 12, 14–15, 15, 16–17.
 Common Coot *Fulica atra* 23.
 Ibisbill *Ibidalychnis sinuata* 5–6, 7, 14–15, 18–19, 20–21.
 Little Ringed Plover *Charadrius dubius* 23.
 Kentish Plover *Charadrius alexandrinus* 23.
 Northern Lapwing *Vanellus vanellus* 1, 23.
 Black-tailed Godwit *Limosa limosa* 23.
 Common Greenshank *Tringa nebularia* 1.

Conservation priorities in the Philippine Archipelago

PAUL HAUGE, JOHN TERBORGH, BLAIR WINTER and
JOHN PARKINSON

To determine how conservation planning should most efficiently proceed so as to protect all the Philippine Archipelago's terrestrial vertebrate species, we took the island having the largest total number of species (Mindanao), identified the island containing the greatest number of species not found on Mindanao, and repeated this procedure until an asymptote began to be approached. The most critical islands from the point of view of conservation thus prove to be Mindanao, Luzon, and Palawan. Together they contain 86% of all Philippine terrestrial vertebrate species.

Single-island endemics (Philippine species that occur on only one island) constitute an important part (176 species, or 28%) of the terrestrial vertebrate fauna. Mindanao, Luzon and Palawan are again the key islands, containing 72% of all single-island endemics. The creation and management of parks and reserves on these three islands should therefore have the highest priority in the overall conservation plan for the Philippines. Smaller islands, however, also merit attention since they hold significant numbers of endemic species, these being especially vulnerable to extinction. The trends in both total species numbers and in numbers of single-island endemics are strongly convergent in the four classes of vertebrates, suggesting that a conservation plan optimal for, say, mammals, would also be optimal or nearly so for other taxa.

The Philippine Archipelago consists of a vast array of more than 7,000 islands lying between 5 and 20°N and between 117 and 127°E in the western Pacific Ocean. The biota of these islands is exceptionally rich and includes large numbers of species that occur nowhere else in the world. Within the archipelago the biogeographic situation is exceedingly complex. Species richness may vary greatly from one island to the next, and many islands possess unique endemics. Furthermore, there are marked gradients in species composition along the chain resulting from the fact that the archipelago has been colonized by species invading from the south and south-east through Mindanao, from the south-west through Palawan, and from the north through Luzon (Inger 1954), although the Luzon (from Taiwan) and Palawan routes have been rejected for certain taxa (Heaney 1986). The picture has been made still more complex by the occurrence of numerous small-scale radiations within the archipelago itself. Superimposed on these patterns are the effects of a Pleistocene history of repeated land-bridge connections between many of the islands, and possibly between the Philippines and the emergent Sunda Shelf.

All these layers of complexity have produced intricate patterns of distribution. While these very intricacies have provided a major source of fascination for biogeographers (Taylor 1922, Dickerson 1928, Inger 1954, Leviton 1959, Diamond and Gilpin 1983, Heaney 1986), they are bound to confound any studied attempt to formulate an overall conservation plan for

Common Sandpiper *Actitis hypoleucos* 7.
Great Black-headed Gull *Larus ichthyaeus* 1, 1-2, 20-21, 23.
Brown-headed Gull *Larus brunneicapillus* 9, 12, 19-20, 20-21, 23.
Hill Pigeon *Columba rupestris* 1, 2, 10-11, 12-13, 13-14, 14-15, 15-16, 16-17, 18-19, 21-22, 23.
Snow Pigeon *Columba leucosticta* 3, 5, 12, 12-13.
Oriental Turtle Dove *Streptopelia orientalis* 12, 12-13, 13-14, 14-15.
Derby's Parakeet (Derbian Parakeet) *Ptilinopus derbianus* 3, 5, 5-6, 6, 7, 7-8.
Little Owl *Athene noctua* 20-21, 23.
Tawny Owl *Sinox obsoletus* 6, 15.
Hoopoe *Upupa epops* 1, 3, 4, 9, 12, 15-16, 16-17, 18-19, 20, 20-21.
Grey-headed Woodpecker *Picus canus* 3, 5, 14-15.
Black Woodpecker *Dryocopus martius* 7, 13-14, 14-15.
Darjeeling Woodpecker *Picoides darjeelingensis* 6.
Crimson-breasted Woodpecker *Picoides cathartus* 6.
Three-toed Woodpecker *Picoides tridactylus* 7, 14-15.
Long-billed Calander Lark (Tibetan Lark) *Melanocorypha maxima* 19-20, 20-21, 21-22, 23.
Mongolian Lark *Melanocorypha mongolica* 21-22, 23.
Greater Short-toed Lark *Calandrella cinerea* 15-16, 16-17, 17-18, 18-19, 19-20, 21-22, 23.
Oriental Skylark *Alauda gutturalis* 1, 3, 4, 7, 7-8, 12-13, 13-14, 14-15, 15-16, 16-17, 18-19, 19-20, 20-21, 21-22, 23.
Horned Lark *Eremophila alpestris* 1, 9, 9-10, 11-12, 15-16, 16-17, 17-18, 18-19, 19-20, 21-22, 23.
Northern Crag Martin *Hirundo rupestris* 1, 10-11, 11-12, 12, 12-13, 13-14, 16-17, 17-18, 18-19, 23.
Olive-backed Pipit (Olive Tree Pipit) *Antus hodgsoni* 6, 6-7, 7.
Yellow-hooded Wagtail *Motacilla citreola* 18.
White Wagtail *Motacilla alba* 1, 3, 4, 5, 5-6, 6, 7, 7-8, 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 17-18, 18-19, 19-20, 21-22, 23.
Long-tailed Minnow *Phoxinotus elongatus* 6.
White-breasted Dipper (White-throated Dipper) *Cinclus cinclus* 2-3, 3, 5, 5-6, 9, 13-14, 14-15, 16-17, 18-19, 19-20.
Northern Wren *Troglodytes troglodytes* 1, 2, 3, 5, 6, 7, 13-14, 14-15, 18-19.
Maroon-backed Accentor *Prunella immaculata* 6.
Rufous-breasted Accentor *Prunella strophias* 3, 5, 5-6, 6, 6-7, 7, 7-8, 8, 12, 13-14, 14-15.
Brown Accentor *Prunella fulvescens* 1, 2, 2-3, 3, 4, 7, 9, 10-11, 12, 12-13, 13-14, 14-15, 15-16, 23.
Robin Accentor *Prunella rubeculoides* 1, 2, 3, 9, 12, 13-14, 14-15, 15-16, 16-17, 18-19, 20-21, 21-22, 23.
Alpine Accentor *Prunella collaris* 1, 3, 5, 6.
Orange-flanked Bush-Robin *Tarsiger cyanurus* 6, 7.
Black Redstart *Phoenicurus ochurus* 12-13, 13-14, 14-15, 15-16, 16-17, 17-18, 18-19, 19-20, 20-21, 21-22, 23.
Hodgson's Redstart *Phoenicurus hodgsoni* 3, 6, 6-7, 7-8, 10-11, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 18-19.
Blue-fronted Redstart *Phoenicurus frontalis* 5-6, 6, 6-7, 7, 7-8, 9, 12, 13-14, 14-15, 15-16, 18-19.
White-throated Redstart *Phoenicurus schisticeps* 2, 3, 5, 6-7, 7, 7-8, 9, 12, 13-14, 14-15, 15-16, 18-19.
Daurian Redstart *Phoenicurus auroreus* 6.
Golden-tailed Redstart *Phoenicurus ephestionus* 1, 2, 3, 4, 20-21, 21-22.
Dunbeacon Redstart *Rhyacornis fuliginosa* 5-6, 6.
Isabelline Wheatear *Oenanthe isabellina* 21-22, 23.
River Chat *Chamaeaornis leucosticta* 5, 5-6, 6, 13-14.
Chestnut-bellied Rock Thrush *Motacilla rufiventris* 6.
Blue Whistling Thrush *Myophonus caeruleus* 5-6, 6.
Plain-backed Thrush *Zosterornis mollissima* 3, 6.
White-collared Blackbird *Turdus albocinctus* 6, 6-7, 7.
Common Blackbird *Turdus merula* 2, 3.
Kessler's Thrush (White-backed Thrush) *Turdus kessleri* 14-15, 15-16, 16-17.
Red-throated Thrush *Turdus ruficollis* 1, 2, 3, 6, 6-7, 7.
Chestnut-headed Tasia *Tasia castaneocoronata* 6.
Brownish-flanked Bush Warbler *Certha forsteri* 5-6, 6.
Ashy-throated Warbler *Phylloscopus maculipennis* 6, 6-7.
Goldcrest *Regulus regulus* 3, 5, 5-6, 6, 7, 7-8, 12, 13-14, 14-15, 22.
White-browed Tit Warbler *Leptophaga saphire* 1, 2, 3, 9, 12, 23.
Crested Tit Warbler *Leptophaga elegans* 3, 12.
Yellow-bellied Fantail *Rhipidura hypoxantha* 5-6, 6, 6-7, 7.
Spot-breasted Scimitar-Babbler *Pomatorhinus erythrogastrus* 12, 12-13.
Streak-breasted Scimitar-Babbler *Pomatorhinus ruficollis* 6, 6-7, 7.
Scaly-breasted Wren-Babbler *Phoenops albiventer* 6, 6-7.
Rufous-capped Babbler *Stachyris ruficeps* 5-6, 6.
Giant Babax *Babax waddelli* 3.
Giant Laughingthrush *Garrulax maximus* 3, 4, 7, 7-8, 8-9, 11-12, 12, 13-14, 14-15.

Elliot's Laughingthrush *Garrulax ellioti* 11-12, 12, 12-13, 13-14, 14-15, 16-17, 18-19.
Henri's Laughingthrush (Brown-cheeked Laughingthrush) *Garrulax henrici* 2, 3, 4, 5, 5-6, 6, 6-7, 7, 7-8, 8-9, 9.
Black-faced Laughingthrush *Garrulax affinis* 3, 5, 5-6, 6, 6-7, 7-8.
Chestnut-crowned Laughingthrush *Garrulax cyathochelus* 6, 6-7.
Red-billed Leiothrix *Leiothrix lutea* 6.
Green Shrike-Babbler *Pterathius xanthochlorus* 5, 5-6, 6, 6-7, 7.
Streak-throated Barwing *Actinodura waltoni* 6.
Chestnut-tailed Minla *Minla strigula* 5-6, 6, 6-7.
Red-tailed Minla *Minla ignobilis* 5-6, 6, 6-7.
Rufous-winged Fulveta *Alcippe castaneiceps* 5-6, 6, 6-7.
Chinese Fulveta *Alcippe striaticeps* 3, 7, 12.
Streak-throated Fulveta *Alcippe cinereiceps* 5, 5-6, 6.
Beautiful Sibia *Heterophasia pulchella* 6.
Stripe-throated Yuhina *Yuhina yuhina* 6, 6-7.
Whiskered Yuhina *Yuhina flavicollis* 6, 6-7.
Black-browed Tit *Aegiphales iouschistis* 3, 5, 5-6, 6, 7, 7-8.
Black-browed Tit *Sytophagus melanus* 5-6, 6.
White-browed Tit *Parus superciliosus* 15-16, 23.
Grey-crested Tit *Parus dichrous* 3, 5, 7, 13-14.
Rufous-vented Tit *Parus rubiventris* 3, 5-6, 6, 7, 7-8, 13-14, 14-15.
Coal Tit *Parus ater* 3, 5, 5-6, 7, 7-8.
Great Tit *Parus major* 1, 2, 3, 6-7, 7, 7-8, 12, 12-13, 13-14, 14-15.
Green-backed Tit *Parus monticolus* 5, 5-6, 6, 6-7, 7.
Chestnut-backed Nuthatch *Sitta nagaensis* 3, 5, 5-6, 6, 6-7, 7-8.
Wallrepper *Tichodroma muraria* 1, 7-8, 10-11, 12, 16-17, 18-19.
Rusky-flanked Treecreeper *Certhia nipalensis* 6, 6-7.
Common Treecreeper *Certhia familiaris* 3, 7, 12, 13-14.
Fire-breasted Flowerpecker (Buff-bellied Flowerpecker) *Dicaeum igniceps* 6, 6-7.
Chinese Grey Shrike *Lanius sphenocercus* 16-17.
Eurasian Jay *Corvus glandinarius* 3, 6.
Gold-billed Magpie *Urocissa flaviventer* 6.
Black-billed Magpie *Picus pica* 1, 2-3, 8, 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 17-18, 18-19, 21-22, 22.
Tibetan Ground Jay *Pseudopodoces humilis* 1, 2, 11-12, 15-16, 16-17, 17-18, 18-19, 20-21, 21-22, 23.
Eurasian Nutcracker *Nucifraga caryocatactes* 6, 7.
Red-billed Woodpecker *Pyrrhuloxia pyrrhuloxia* 2-3, 4, 6, 7, 7-8, 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 17-18, 18-19, 20-21, 21-22, 23.
Daurian Jackdaw *Corvus dauricus* 2, 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 17-18, 18-19, 19-20, 21-22.
Large-billed Crow *Corvus macrorhynchos* 2-3, 3, 5-6, 6, 6-7, 7, 7-8, 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 16-17, 18-19.
Common Raven *Corvus corax* 1, 6, 9, 11-12, 12, 13-14, 17-18, 18-19, 19-20, 20-21, 21-22.
Eurasian Tree Sparrow *Passer montanus* 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 17-18, 18-19, 19-20, 20-21, 21-22, 23.
Streaked Rock Sparrow *Petrotia paronia* 16-17, 17-18, 21-22, 23.
Plain-backed Snowfinch *Montifringilla blanfordi* 23.
Rufous-necked Snowfinch *Montifringilla ruficollis* 2, 19-20, 20-21, 21-22, 23.
Daurian Snowfinch (Small Snowfinch) *Montifringilla davidiana* 23.
White-rumped Snowfinch *Montifringilla taczanowskii* 20-21, 23.
Adam's Snowfinch (Blackish-winged Snowfinch) *Montifringilla adami* 1, 2, 16-17, 19-20, 20-21, 21-22, 23.
Black-headed Greenfinch *Carduelis amigua* 4, 4, 6, 6-7, 7.
Twite *Carduelis flammiceps* 1, 2, 7, 9, 11-12, 12-13, 15-16, 17-18, 18-19, 19-20, 20, 23.
Common Crossbill (Red Crossbill) *Loxia curvirostris* 12, 13-14, 14-15.
Plain Mountain Finch *Leucosticte neriocola* 3, 4, 9, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 17-18.
Brandt's Mountain Finch *Leucosticte brandti* 15-16, 23.
Beautiful Rosefinch *Carpodacus pulcherrimus* 1, 1-2, 2-3, 3, 4, 7, 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 15-16, 16-17, 18-19.
Dark-rumped Rosefinch *Carpodacus edwardsii* 5-6, 6.
Three-banded Rosefinch *Carpodacus trifasciatus* 3, 6, 12, 13-14, 14-15.
White-browed Rosefinch *Carpodacus thura* 3, 7, 7-8, 9, 12, 13-14, 14-15.
Streaked Rosefinch *Carpodacus rubicinctus* 1, 2, 7-8, 9, 10-11, 12, 13-14.
Great Rosefinch *Carpodacus rubicilla* 1.
Gold-naped Finch *Pyrrhuloxia epauletta* 6.
Pink-tailed Rosefinch *Urocynchramus pylaeni* 23.
Grey-bellied Bullfinch *Pyrrhuloxia erythrogastrus* 3, 6, 6-7.
Collared Grosbeak *Mycerobas affinis* 6.
White-winged Grosbeak *Mycerobas carinatus* 2, 3, 5, 7-8, 9, 12, 13-14.
Rock Bunting *Emberiza cia* 1, 2, 2-3, 3, 4, 5, 5-6, 6-7, 7, 7-8, 9, 10-11, 11-12, 12, 12-13, 13-14, 14-15, 16-17, 17-18, 18-19, 21-22.