An annotated checklist of birds and conservation issues in Salkhala Game Reserve, an isolated Important Bird Area in Azad Kashmir, Pakistan

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Salkhala Game Reserve (SGR) in Azad Kashmir, Pakistan, lies within an Important Bird Area (IBA) of the Western Himalayas Endemic Bird Area. The conservation status of the reserve and its birds is poorly known due to political instability in the disputed territory of Kashmir and the relative remoteness of the site. The findings of a bird survey undertaken from May 2007 to April 2008 are documented here. In total, 101 species were recorded including 45 resident species, 48 breeding migrants and six winter migrants. There were significant records of the globally threatened Western Tragopan *Tragopan melanocephalus*, the Near Threatened Pallid Harrier *Circus macrourus* and European Roller *Coracias garrulus*, and the restricted-range Kashmir Nuthatch *Sitta cashmirensis* and Spectacled Finch *Callacanthis burtoni*. Kashmir Flycatcher *Ficedula subrubra* and Cheer Pheasant *Catreus wallichi* were not recorded in the IBA, with the latter species now possibly locally extirpated. An annotated checklist of the species recorded is presented along with measures of relative abundance. Habitat fragmentation, degradation and clearance through the collection of fuel and timber, forest fire, livestock grazing, collection of non-timber forest products and unsustainable use of pastures are the major threats to the wildlife of SGR. These conservation issues are discussed briefly along with recommendations for the future management of the reserve.

INTRODUCTION

Located in the Neelum valley within the Western Himalayas Endemic Bird Area (EBA; Stattersfield *et al.* 1998), Salkhala Game Reserve (SGR) forms part of the Salkhala Wildlife Sanctuary Important Bird Area (IBA; Chan *et al.* 2004). It is classified as such owing to the presence of three globally threatened IBA trigger species: Western Tragopan *Tragopan melanocephalus*, Cheer Pheasant *Catreus wallichi* and Kashmir Flycatcher *Ficedula subrubra* (BirdLife International 2011a). All three species are listed as Vulnerable (IUCN 2011).

Western Tragopan is distributed in five separate populations in the Western Himalayas of Pakistan and India (BirdLife International 2001). Previous work in the Neelum Valley established its presence in SGR (Mirza *et al.* 1978, Islam 1982) and recorded it as 'common' and at densities of 0.8–1.6 birds/km^2 (Mirza *et al.* 1978). More recently, it has been recorded as 'locally rare' in the region (Hassan 2004). It is found in mixed coniferous forest, often with a dense understorey, from as low as 1,350 m and up to 2,800 m in winter, and from 2,400 m to 3,600 m in summer (Gaston *et al.* 1983, Islam & Crawford 1987, Ramesh 2003).

Cheer Pheasant is patchily distributed, owing to its association with early successional habitats, between 1,200 and 3,000 m throughout the southern foothills of the Himalayas (Gaston *et al.* 1981, Garson 1983, Kaul 1993). In Pakistan, it is found in the mountains of eastern North-West Frontier Province and Azad Kashmir (Roberts 1991). A previous survey in SGR flushed 20 individuals (Mirza 1978) but, despite a recent record of 126 birds in Jhelum Valley, Azad Kashmir (Awan *et al.* 2004), there have been no reports of the species in SGR since.

Kashmir Flycatcher has a very restricted distribution in northern India and parts of Pakistan, and occurs as a scarce and apparently irregular summer breeding migrant in the side valleys of Kashmir and the Pir Panjal range of northern Pakistan, with one record from Sind, southern Pakistan (BirdLife International 2001). It breeds between 1,800 and 2,300 m where there is predominantly deciduous vegetation (Roberts 1992). In 1983, one breeding pair with newly fledged young was recorded at 2,100 m in SGR (Roberts 1992).

In addition to the three IBA trigger species, the site is important for a number of mammal species, including Kashmir Musk-deer *Moschus chrysogaster* and Kashmir Gray Langur *Semnopithecus ajax* (both Endangered), Himalayan Black Bear *Ursus thibetanus* (Vulnerable), and Leopard *Panthera pardus* and Himalayan Goral *Naemorhedus goral* (both Near Threatened) (Dar 2006, IUCN 2011).

There are six villages with a total population of about 6,000 people adjacent to SGR (Awan 2008). These communities depend on the natural resources of the area, entering the reserve to graze their cattle, cut trees for timber and collect firewood. Trunks of older trees are sometimes partially burnt to make them easier to cut. In addition to the loss of tree cover, these activities cause much damage to the forest understorey of the reserve (Awan 2008).

Salkhala Game Reserve is situated at the ceasefire line between Pakistan and India and, consequently, cross-border conflict between 1989 and 2003 prevented the completion of any field studies in the area during that time. This, coupled with its relative remoteness, means there have been few recent ornithological surveys in the reserve (Islam 1982). This survey is the first to consider all bird species in SGR and was conducted to provide a checklist for the site, measures of relative abundance for key species, and a current understanding of the conservation issues in the reserve after a comparatively long period of isolation.

METHODS

Salkhala Game Reserve (34°33′N 73°50′E), Neelum Valley, is located 80 km north-west of Muzaffarabad in the Himalayan foothills of Azad Kashmir, Pakistan (Figure 1). Covering 810 hectares at 1,320–3,150 m elevation, it was notified as a Game Reserve in 1982 and is classified as an IUCN Category IV protected area (Dudley 2008). The reserve lies within the Himalayan moist temperate ecozone (Roberts 1991) and consists of a range of forest habitats, including coniferous, broadleaf and mixed coniferous–broadleaf forests. These are characterised by the trees *Cedrus deodara*, *Pinus wallichiana*, *Abies pindrow*, *Picea smithiana*, *Taxus wallichiana*, *Acer caecium*, *Betula utilis*, *Berberis* spp., *Quercus* spp., *Juniperus communis*, *Viburnum* spp., *Indigofera gerardiana*, *Juglans regia* and *Aesculus indica*. It has a mean annual rainfall of 125.7 cm, with March and April being the wettest months, and is exposed to heavy snowfall during the winter (Qureshi 1990).

We conducted a bird survey in SGR between May 2007 and April 2008 using two methods: dawn and dusk call counts (Gaston

1980) for surveying Galliformes; and unlimited radius point counts (Bibby *et al.* 2000) for surveying all other bird species. Twelve survey points were positioned randomly and approximately 0.5 km apart between 1,377 and 2,970 m elevation (Figure 1), which was representative of the altitudinal range and habitats covered by the reserve. Ten points were located in coniferous forest (points 1–10 in Figure 1), and one each in mixed broadleaf–conifer forest and scrub grassland. One point was surveyed during each dawn and dusk survey, and each of the twelve points was surveyed twice per month, once at dawn and once at dusk (total effort = 288 points).

Call counts of 60 minutes' duration were conducted at 04h45–05h45 (April–September) and 05h30–06h30 (October–March), and 18h00–19h00 (April–September) and 16h00–17h00 (October–March), with start time varying according to seasonal differences in sunrise/sunset times. All calling Galliformes heard were recorded and mapped. Point counts of 10 minutes' duration were carried out at the end of each dawn call count and start of each dusk call count. All birds detected were identified and the number of individuals recorded. If a bird group was only detected by call, then a mean group size from visual contacts of that species was used (Lee & Marsden 2008). A checklist for SGR was produced from both sets of survey data. However, the survey methods employed were not appropriate for effectively detecting birds of prey (Marsden 1998) and, consequently, these species are likely to be under-recorded in this study.

Species encounter rates were calculated based on the number of individuals detected from all points surveyed, and presented as the number of individuals per 100 point counts (± standard error). Encounter rates were converted into ordinal categories of abundance: ≤5 individuals per 100 point counts = 'Rare'; 5.1–10 = 'Uncommon'; 10.1–20 = 'Frequent'; 20.1–40 = 'Common'; and >40 = 'Abundant' (adapted from Lowen *et al.* 1996). These simple categories can be used for future monitoring of the abundance of species within the reserve (Robertson & Liley 1998). Mean encounter rates for each species were calculated for each month (24 points/month), and then a standard error was derived from these sample means.

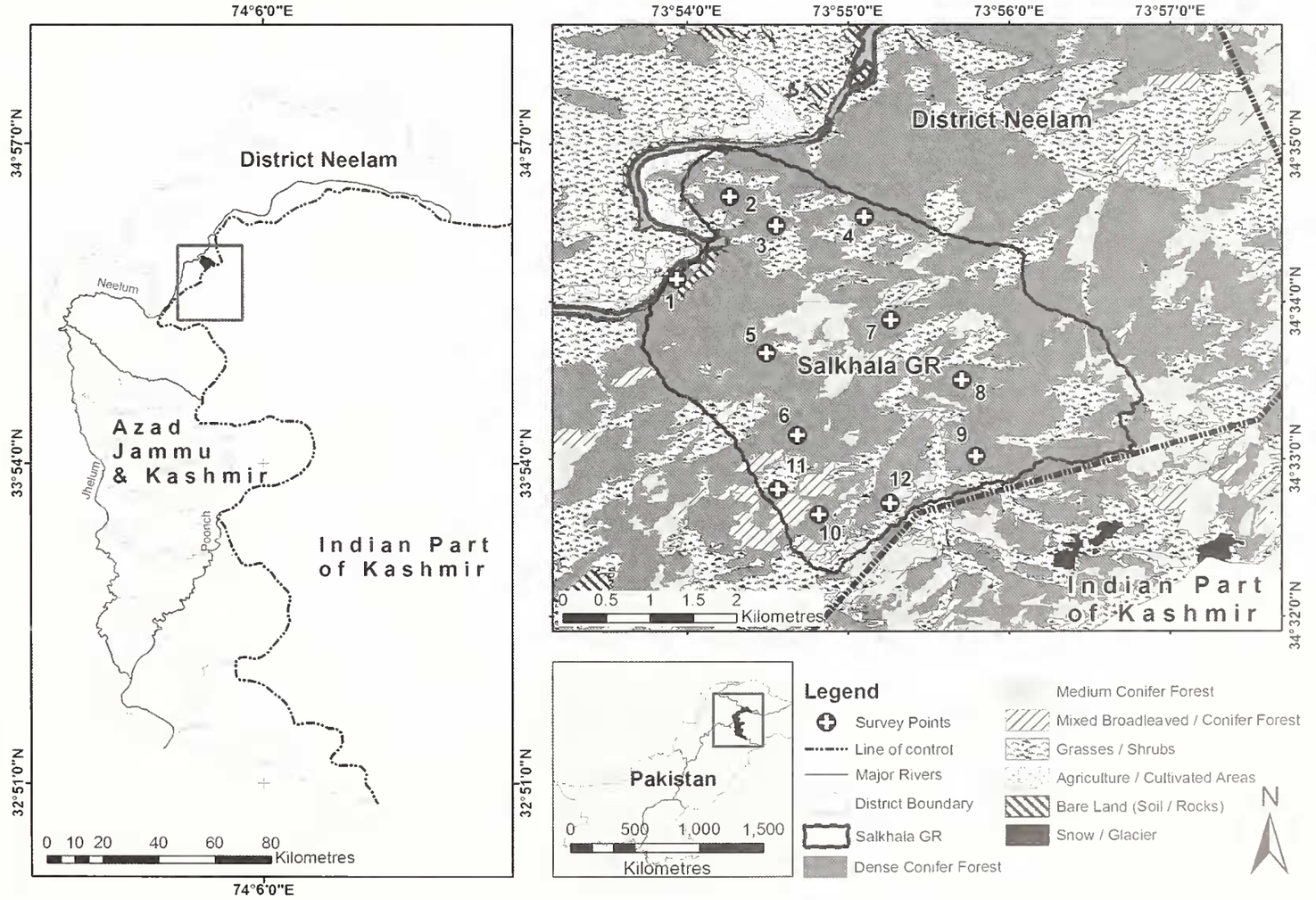
Bird survey data were supplemented by information gathered from interviews with local staff of the AJ&K (Azad Jammu and Kashmir) Wildlife Department (n = 15) and local community members (n = 35); five community members were selected randomly from each of the seven villages around SGR. Specifically, this information was used to help confirm the presence/absence of Galliformes, and particularly Cheer Pheasant.

RESULTS

In total 1,959 bird records, comprising 101 species belonging to 38 families, were recorded in the survey. Of these, 45 were resident species, 48 were summer migrants, six were winter migrants and two were passage migrants. Two species were classified as 'Abundant', 16 as 'Common', 35 as 'Frequent', 44 as 'Uncommon' and four as 'Rare' (Appendix).

The survey recorded one of the three IBA trigger species, Western Tragopan (29.1 ± 8.8 individuals/100 points; 'Frequent'), and two Near Threatened species, Pallid Harrier *Circus macrourus* (6.3 ± 4.2 individuals; 'Uncommon') and European Roller (6.9 ± 4.9 individuals; 'Uncommon') (IUCN 2011), winter and summer migrants, respectively. Cheer Pheasant and Kashmir Flycatcher, the two other IBA trigger species, were not recorded during the survey. Interviews with local communities did not provide any supporting evidence to suggest that Cheer Pheasant is present within the reserve. In addition to the tragopan, two additional restricted-range species (Stattersfield *et al.* 1998), Kashmir Nuthatch *Sitta cashmirensis* (21.8 ± 5.7

Figure 1. Map showing the location and land cover types of Salkhala Game Reserve.



individuals; 'Frequent') and Spectacled Finch *Callacanthis burtoni* (12.5 ± 4.0 individuals; 'Uncommon'), were also recorded. A complete annotated checklist is given in the Appendix.

Interviews with local villagers revealed that a number of birds, mainly Galliformes, are hunted to varying degrees within the reserve. Hunting of Galliformes is probably higher in the reserve during the winter months when birds move down to lower altitudes. Western Tragopan is hunted for meat and feathers, and some skins for taxidermy were for sale in local houses. A number of stuffed Himalayan Monal *Lophophorus impejanus* were also seen in many homes. Kalij Pheasant *Lophura leucomelanos* is hunted locally for food, especially in the winter when pheasants migrate to lower elevations. Koklass Pheasant *Pucrasia macrolopha* and Chukar Partridge *Alectoris chukar* are also trapped and hunted for food by local communities. Local villagers occasionally shoot Pallid Harriers because they prey on their domestic chickens. All four species of columbids recorded in the reserve are hunted, primarily by teenagers and younger men, for food.

DISCUSSION

Salkhala Game Reserve is designated as an IBA due to the presence of Western Tragopan, Cheer Pheasant and Kashmir Flycatcher. This survey recorded 101 species, but included records for only one of the IBA trigger species, Western Tragopan, for which SGR is an important site, along with Pallid Harrier, European Roller, and Kashmir Nuthatch and Spectacled Finch, two restricted-ranges species of the Western Himalayas EBA (Stattersfield *et al.* 1998).

Kashmir Flycatcher is an irregular and sparse summer migrant to the area, so it is as feasible that it was present but undetected as that it was absent in the reserve during the survey. Of greater conservation concern is the failure to detect Cheer Pheasant, with its apparent absence from the reserve corroborated in local interviews. For a species with a small and fragmented population (BirdLife International 2011b), this loss from a protected site is a worrying development.

The possible local extirpation of Cheer Pheasant from SGR is indicative of a growing human population and an increasing demand on natural resources affecting the conservation status of species and habitats in what is a comparatively small protected area (Awan 2010). Rising human activities are increasing the conservation importance of the reserve in a landscape already heavily impacted, raising concerns about site isolation and the viability of populations of key species. The recent construction of a road within the reserve, and its use for extracting trees that have fallen due to heavy snow or landslides, has now made access to wildlife relatively easy. Conservation threats within SGR include habitat degradation and loss, through the collection of timber, firewood and wild vegetables, hunting and overgrazing.

Hunting pressure is particularly high for Galliformes in the reserve, with hunting for food, skins or recreation conducted by local and non-local professional (trophy-hunting) and non-professional hunters alike. There is a seasonal shift in the type of hunting pressure within the reserve. During the warmer months of May–September, people from adjacent villages travel with their cattle to higher grazing areas (above 2,400 m) and stay in their summer homes in and around the reserve. At this time, people take the opportunity to collect medicinal plants, vegetables and eggs from pheasant nests, and to hunt wildlife (Qureshi 1990). Owing to difficult terrain in the reserve, dogs are often used to flush birds, especially pheasants, while traps may also be laid (Awan 2010). During the winter months, people and their livestock move back to lower elevations, and any hunting at this time tends to be recreational rather than functional. In addition to the Galliformes, Pallid Harrier, which is a rare winter visitor to SGR, experiences some degree of hunting pressure as local villagers shoot it to protect their chickens from predation.

Although commercial tree cutting is prohibited in all protected areas in Pakistan, there is unlawful felling in SGR, especially in the gullies in the north and south of the reserve (MNA pers. obs. 2008). These areas tend to be at lower elevations, but logging activities affect not only the species that occupy those elevations throughout the year but also those that undergo seasonal migration during the winter months. Of these, pheasants are most likely to be affected since they are also hunted for food and trophies. To reduce the impacts of harvesting forest resources, including hunting, Awan (2010) recommended that the reserve be extended south-west to the Gail Nullah area and east to the line of control and, consequently, be better conserved under the protected area system. Adding some form of mixed-use or buffer zone to try to shift pressure away from core areas within what is a small reserve, especially during the summer months when more people are accessing and utilising the reserve, would seem likely to benefit the reserve generally and the Western Tragopan in particular.

Man-made forest fires remain a threat to the conservation of wildlife in the reserve, with large areas of forest affected by fires every year (Qureshi 1990). These fires are especially prevalent during the drier summer months, when people spend more time in the forest and make fires for warmth at night and to help bring down standing timber. From 1989 to 2003, cross-border firing between India and Pakistan destroyed areas of natural forest growth in and adjacent to the reserve.

A recent community-based awareness campaign was undertaken to support the conservation of key bird and mammal species in the reserve (Awan 2010). This included working with communities, in schools, directly with hunters, and training local wildlife staff. However, there remains a general lack of understanding of the biodiversity importance of the reserve in those communities in and around SGR. Consequently, it is vital that the efforts of this initial programme are built on in a collaborative and constructive manner to help improve the conservation status of SGR and the species within it, while maintaining and supporting local livelihoods.

Now that the reserve is more accessible, it would benefit from regular species monitoring to track general trends in species abundance and habitat alteration, which, in turn, will help support effective management of the site. In part, this could be included within the planned surveys for Galliformes in the Western Himalayas of Pakistan, coordinated by the World Pheasant Association-Pakistan and WWF-Pakistan. At a basic level, using the same survey points as this study may be a first step to establishing a bird monitoring scheme in SGR. Although subjective and taking no account of detectability differences between species, the ordinal categories of relative abundance that we have used here may also provide a simple baseline to monitor and detect any large-scale changes in the abundance of individual species within SGR in the future.

ACKNOWLEDGEMENTS

We are very thankful to Prof. Z. B. Mirza for reviewing an earlier draft of the manuscript. We are also grateful to Mir Saleem, Supervisor Wildlife, Muzaffrabad, and the wildlife staff of Salkhala Game Reserve for their support during the field study. Thanks are also due to Baseer Qureshi who helped with collecting data in SGR.

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Appendix

Annotated checklist of birds recorded in Salkhala Game Reserve

IUCN Red List status (IUCN 2011) follows the species name: VU = Vulnerable; NT = Near Threatened. RR after the species name indicates a restricted-range species (Stattersfield *et al.* 1998). Species encounter rates are per 100 point counts ± standard error (SE). Abundance (ordinal scale), with numbers of individuals encountered in parentheses: A = Abundant; C = Common; F = Frequent; U = Uncommon; R = Rare. Status, with months observed in parentheses: R = Resident; S = Summer migrant; W = Winter migrant; P = Passage migrant; L = Local movement.

Species		Encounter rate (± SE)	Abundance	Status (months observed)	Altitude (m)
Himalayan Snowcock	*Tetraagallus himalayensis*	11.1 ± 4.9	U (32)	R, L (Feb–Mar, Sep–Oct)	2,880
Chukar	*Alectaris chukar*	39.5 ± 12.0	F (114)	R, L (Feb–Mar, May–Jun, Sep–Dec)	1,320–2,350
Western Tragopan	*Tragapan melanacephalus* (VU, RR)	33.3 ± 10.3	F (96)	R, L (Feb–Mar, May–Jun, Sep–Oct)	1,960–2,890
Himalayan Monal	*Laphapharus impejanus*	29.1 ± 8.8	F (84)	R, L (Feb–Mar, May–Jun, Sep–Oct)	2,130–2,860
Koklass Pheasant	*Pucrasia macralapha*	58.3 ± 17.6	C (168)	R, L (Feb–Mar, May–Jul, Sep–Oct, Dec)	2,180–2,840
Kalij Pheasant	*Laphura leucamelanas*	52.0 ± 15.8	C (150)	R, L (Feb–Mar, May–Jun, Sep–Nov)	1,610–2,270
Himalayan Woodpecker	*Dendracapas himalayensis*	31.2 ± 11.6	F (90)	R (Feb–Jun, Sep–Oct, Dec)	2,590
Scaly-bellied Woodpecker	*Picus squamatus*	29.1 ± 7.5	F (84)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,970–2,800
Great Barbet	*Megalaima virens*	29.1 ± 7.6	F (84)	R (Feb–Mar, May–Jul, Sep–Oct, Dec)	2,420–2,770

Species		Encounter rate (± SE)	Abundance	Status (months observed)	Altitude (m)
Blue-throated Barbet	*Megolaima osiotico*	6.9 ± 4.8	U (20)	S (May–Aug)	1,620
Common Hoopoe	*Upupa epaps*	24.3 ± 16.3	F (70)	S (Apr–Aug)	1,560–2,800
European Roller	*Caracias garrulus* (NT)	6.9 ± 4.9	U (20)	S (May–Aug)	1,500–1,700
Indian Roller	*Caracias bengholensis*	10.4 ± 7.2	U (30)	S (May–Aug)	1,987–2,700
Common Kingfisher	*Alceda otthis*	13.1 ± 9.0	U (38)	S (May–Sep)	1,410–1,570
White-throated Kingfisher	*Halcyan smyrnensis*	37.5 ± 11.5	F (108)	R, L (Feb–Mar, May–Jul, Sep, Nov)	1,360–1,760
Pied Kingfisher	*Ceryle rudis*	43.7 ± 11.2	C (126)	R (Feb–Mar, May–Jun, Sep, Nov–Dec)	1,420
Asian Koel	*Eudynamys scalapoceo*	8.3 ± 5.7	U (24)	S (Apr–Aug)	1,800–2,570
Rose-ringed Parakeet	*Psittacula kromeri*	29.8 ± 20.5	F (86)	S (May–Aug)	1,780
Common Swift	*Apus apus*	24.3 ± 16.8	F (70)	S (Apr–Aug)	1,150–1,600
Fork-tailed Swift	*Apus pacificus*	17.3 ± 11.8	U (50)	S (May–Aug)	1,570–1,600
House Swift	*Apus offinis*	16.6 ± 11.4	U (48)	S (Apr–Jul)	1,550–2,475
Brown Wood Owl	*Strix leptagrommico*	5.6 ± 3.8	U (16)	S (May–Aug)	1,760
Spotted Owlet	*Athene bromo*	24.3 ± 6.4	F (70)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,450
Rock Pigeon	*Calumba livio*	29.1 ± 7.6	F (84)	R, L (Feb–Mar, May–Jun, Sep, Nov–Dec)	1,570–2,340
Spotted Dove	*Stigmotopelia chinensis*	17.3 ± 11.8	U (50)	S (May–Aug)	1,500–2,680
Red Collared dove	*Streptapelio tronqueborica*	24.3 ± 16.5	F (70)	S (May–Aug)	1,400–2,300
Eurasian Collared Dove	*Streptapelio decoocto*	8.3 ± 6.0	U (24)	S (May–Aug)	1,440–1,650
Himalayan Vulture	*Gyps himalayensis*	29.1 ± 7.8	F (84)	R, L (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,600–2,850
Pallid Harrier	*Circus mocrourus* (NT)	6.3 ± 4.2	U (18)	W (Oct–Jan)	2,170–2,380
Common Kestrel	*Falca tinnunculus*	50.0 ± 15.2	C (144)	R (Feb–Mar, May–Jun, Sep, Dec)	1,320–2,460
Bay-backed Shrike	*Lonius vittotus*	6.9 ± 5.6	U (20)	S (May–Aug)	1,380
Long-tailed Shrike	*Lanius schach*	5.6 ± 4.3	U (16)	S (May–Aug)	1,500–2,130
Great Grey Shrike	*Lanius excubitar*	9.0 ± 6.4	U (26)	S (May–Aug)	2,130
Yellow-billed Blue Magpie	*Uracissa flavirostris*	31.5 ± 8.4	F (91)	R, L (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,400–2,615
Rufous Treepie	*Dendracitta vagabunda*	41.3 ± 10.8	C (119)	R, L (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,350–1,830
Red-billed Chough	*Pyrrhocorax pyrrhacarax*	22.9 ± 7.1	F (66)	R (Feb–Mar, May–Jul, Sep–Oct)	2,370–2,660
Yellow-billed Chough	*Pyrrhacarax graculus*	14.5 ± 4.6	U (42)	R (Feb–Mar, May–Jul, Sep–Oct)	2,360–2,530
House Crow	*Corvus splendens*	52.0 ± 18.6	C (150)	R (Feb–Mar, May–Oct, Dec)	1,340–2,380
Large-billed Crow	*Carvus macrarhynchas*	252 ± 65.0	A (728)	R (Feb–Mar, May–Jul, Sep–Oct, Dec)	1,340–3,040
Eurasian Golden Oriole	*Oriolus oriolus*	17.3 ± 12.9	U (50)	S (May–Sep)	1,420–2,500
Scarlet Minivet	*Pericrocatus flammeus*	10.4 ± 7.7	U (30)	S (May–Sep)	1,578–2,520
White-throated Fantail	*Rhipiduro olbicallis*	24.3 ± 6.5	F (70)	R, L (Feb–Mar, May–Jul, Sep–Oct, Dec)	1,600–1,800
Black Drongo	*Dicrurus macrocercus*	38.1 ± 25.7	F (110)	S (May– Sep)	1,350–2,090
Asian Paradise-flycatcher	*Terpsiphone porodisi*	15.9 ± 10.9	U (46)	S (Apr–Aug)	1,410–2,110
Brown Dipper	*Cinclus pallasii*	55.9 ± 14.5	C (161)	R, L (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,970–2,360
Blue-capped Rock-thrush	*Manticola cinclarhynchus*	8.3 ± 6.4	U (24)	S (May–Aug)	1,460–2,420
Blue Whistling-thrush	*Myaphanus caeruleus*	39.5 ± 12.0	F (114)	R (Feb–Mar, May–Jun, Sep–Dec)	1,800–3,000
Dark-throated Thrush	*Turdus ruficallis*	9.0 ± 6.8	U (26)	W (Oct–Jan)	2,000–2,130
Slaty-blue Flycatcher	*Ficedula tricalar*	10.4 ± 8.1	U (30)	S (May–Aug)	1,340–2,230
Grey-headed Canary-flycatcher	*Culicicapa ceylanensis*	9.2 ± 7.0	U (28)	S (May–Aug)	2,640–2,710
Common Redstart	*Phaenicurus phaenicurus*	37.5 ± 11.4	F (108)	R (Feb–Mar, May–Jun, Sep–Dec)	1,860
Plumbeous Water Redstart	*Rhyacornis fuliginasus*	64.2 ± 23.0	C (185)	R (Feb–Jul, Sep–Oct, Dec)	2,040–3,050
White-capped Water Redstart	*Choimarrarnis leucacephalus*	22.9 ± 16.4	F (66)	S (Apr–Aug)	1,880–3,050
Little Forktail	*Enicurus scauleri*	48.6 ± 12.5	C (140)	R, L (Jan–Mar, May–Jun, Sep–Oct, Dec)	1,770–1,980
Spotted Forktail	*Enicurus maculotus*	43.7 ± 11.3	C (126)	R, L (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,650–1,830

Species		Encounter rate (± SE)	Abundance	Status (months observed)	Altitude (m)
Common Stonechat	*Saxicala tarquatus*	13.8 ± 10.2	U (40)	S (May–Sep)	1,800–2,180
Pied Bushchat	*Saxicala caprata*	7.6 ± 6.3	U (22)	S (May–Aug)	2,370–2,510
Brahminy Starling	*Sturnus pagadarum*	13.8 ± 10.2	U (40)	S (Apr–Aug)	1,565
Common Starling	*Sturnus vulgaris*	13.1 ± 10.0	U (38)	W (Oct–Jan)	2,320
Common Myna	*Acridatheres tristis*	89.9 ± 23.2	A (259)	R (Feb–Mar, May–Jul, Sep–Oct, Dec)	1,500–2,430
Kashmir Nuthatch	*Sitta cashmirensis* (RR)	21.8 ± 5.7	F (63)	R, L (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,650–2,640
Chestnut-bellied Nuthatch	*Sitta castanea*	20.8 ± 6.4	F (60)	R (Feb–Mar, May–Jul, Sep–Nov)	1,350–1,630
Bar-tailed Treecreeper	*Certhia himalayana*	22.9 ± 7.3	F (66)	R, L (Jan, Mar, May, Jul, Sep–Nov)	1,690–2,770
Fire-capped Tit	*Cephalapyrus flammiceps*	3.5 ± 2.6	R (10)	S (May–Aug)	2,485–2,505
Rufous-naped Tit	*Parus rufanuchalis*	43.7 ± 11.4	C (126)	R, L (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,680–2,720
Spot-winged Tit	*Parus melanaphus*	11.8 ± 9.0	U (34)	S (May–Aug)	2,140–2,300
Great Tit	*Parus majar*	58.3 ± 17.6	C (168)	R (Mar–Jun, Sep–Oct, Dec–Jan)	1,380–2,670
Green-backed Tit	*Parus manticalus*	13.8 ± 9.5	U (40)	S (May– Jul)	2,670–2,980
Black-lored Tit	*Parus xanthagenys*	7.6 ± 6.3	U (22)	S (May– Jul)	1,320–2,940
Barn Swallow	*Hirunda rustica*	9.7 ± 6.9	U (28)	S (May– Sep)	2,330
Himalayan Bulbul	*Pycnanatus leucagenys*	58.3 ± 15.1	C (168)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,410–2,280
Red-vented Bulbul	*Pycnanatus cafer*	25.6 ± 17.6	F (74)	S (Apr–Sep).	1,380–1,710
Black Bulbul	*Hypsipetes leucacephalus*	58.3 ± 15	C (168)	R (Feb–Mar, May–Jul, Sep–Oct, Dec)	1,410–2,200
Zitting Cisticola	*Cisticala juncidis*	2.8 ± 1.9	R (8)	S (May–Aug)	1,600
Striated Prinia	*Prinia criniger*	24.3 ± 6.4	F (70)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,800–2400
Oriental White-eye	*Zasteraps palpebrasus*	31.5 ± 8.4	F (91)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,800–2,700
Common Tailorbird	*Orthatamus sutarius*	5.6 ± 4.5	U (16)	S (Apr–Aug)	1,320–2,050
Common Chiffchaff	*Phyllascapus callybita*	22.9 ± 16.2	F (66)	W (Sep–Jan)	1,390–2,550
Tickell's Leaf Warbler	*Phyllascapus affinis*	7.6 ± 6.0	U (22)	S (Apr–Aug)	2,160
Greenish Warbler	*Phyllascapus trachilaides*	7.3 ± 5.5	U (22)	S (May–Aug)	1,550–2,290
Grey-hooded Warbler	*Seicercus xanthaschistas*	4.9 ± 3.9	R (14)	S (Apr–Jul)	1,540–1,580
Streaked Laughingthrush	*Garrulax lineatus*	34.0 ± 9.8	F (98)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,370–2,740
Jungle Babbler	*Turdaides striatus*	10.4 ± 3.6	U (30)	R (Feb–Mar, May–Sep, Dec)	1,430
Thick-billed Flowerpecker	*Dicaeum agile*	7.6 ± 5.8	U (22)	S (May–Aug)	2,230–2,840
Purple Sunbird	*Nectarinia asiatica*	6.3 ± 4.7	U (18)	S (May–Sep)	1,360–1,610
House Sparrow	*Passer damesticus*	54.1 ± 28.7	C (156)	R (Mar, May–Jan)	1,410–3,000
Russet Sparrow	*Passer rutilans*	34 ± 9.4	F (98)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	2,000
Forest Wagtail	*Dendrananthus indicus*	5.6 ± 4.3	U (16)	P (Mar–Apr)	1,760–2,310
White-browed Wagtail	*Matacilla madaraspatensis*	6.9 ± 4.9	U (20)	S (May–Aug)	1,320–2,280
Yellow Wagtail	*Matacilla flava*	7.6 ± 5.3	U (22)	P (Mar–Apr)	1,470–2,240
Citrine Wagtail	*Matacilla citreala*	9.0 ± 6.6	U (26)	S (Apr–Aug)	1,530–2,830
White Wagtail	*Matacilla alba*	34.7 ± 24.3	F (100)	S (Apr–Aug)	1,340–2,110
Alpine Accentor	*Prunella callaris*	26.7 ± 7.1	F (77)	R (Feb–Mar, May–Jun, Sep–Oct, Dec)	1,970
Rufous-streaked Accentor	*Prunella himalayana*	9.7 ± 6.6	U (28)	W (Oct–Jan)	2,100–3,100
Yellow-breasted Greenfinch	*Carduelis spinaides*	41.3 ± 10.9	C (119)	R (Feb–Mar, May–Jun, Sep–Dec)	1,430–1,610
Common Rosefinch	*Carpadacus erythrinus*	4.9 ± 3.9	R (14)	S (May–Aug)	1,494
Spectacled Finch	*Callacanthis burtani* (RR)	12.5 ± 4.0	U (36)	R (Feb, May–Jun, Sep–Oct, Dec)	2,680–3,100
Rock Bunting	*Emberiza cia*	30.5 ± 23.4	F (88)	S (Apr–Sep)	2,000–3,100
Pine Bunting	*Emberiza leucacephalas*	12.5 ± 9.6	U (36)	W (Oct–Jan)	2,020–2,700
Chestnut-breasted Bunting	*Emberiza stewarti*	34.7 ± 23.6	F (100)	S (May–Sep)	1,430–2,570
Crested Bunting	*Melaphus lathami*	25.6 ± 18.9	F (74)	S (Apr–Aug)	1,430–1,530