A checklist of birds of Pauri district, Uttarakhand, India

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Abstract

This paper deals with observations of the avifauna of some parts of Pauri district (western Himalayas), Uttarakhand. Surveys were carried out during January 2005–December 2008 along an elevational gradient following line transect method. 133 bird species, belonging to 37 families, were recorded. The number of species was higher at high elevation zone than at mid- and low- elevations. The almost stagnant population of two species, Kaleej *Lophura leucomelanos* and Koklass *Pucrasia macrolopha*, in the study area, listed under the category 'Least Concern' in the IUCN Red List (IUCN 2004), is a matter of concern.

Introduction

The Himalayan range, well known for its biological diversity, has been identified as a biodiversity hotspot. From the avian diversity point of view, the entire Himalayan ecosystem has been an adobe since more than 970 avian species have so far been recorded from this area, including 15 specific endemics, and one generic, *Ophrysia* (Himalayan Quail *Ophrysia superciliosa*, CR) (Stattersfield *et al*. 1998). Biogeographically, this enormous mountain range has been divided into North-western-, Western-, Central-, Eastern-, and Trans- Himalayan regions (Rodgers *et al*. 2000).

The Western Himalayas, by themselves, contain 11 restricted-range species, including the aforementioned Himalayan Quail, Cheer Pheasant *Catreus wallichii* (VU), and Western Tragopan *Tragopan melanocephalus* (VU), which last is also endemic.

Western Himalayan avifauna has attracted a number of ornithologists and naturalists over the years, and scientists have explored most parts of this area, for the baseline information that is synthesised in Ali & Ripley (1987). Some of the regions surveyed by ornithologists are, Great Himalayan National Park in Himachal Pradesh (Gaston *et al.* 1981, 1983; Gaston & Garson 1992; Gaston *et al*. 1994; Ramesh *et al*. 2003); Majhatal Wildlife Sanctuary (Mishra 1997); Nanda Devi National Park (Lamba 1987; Tak & Kumar 1987; Sankaran 1995; Satyakumar 2003); Kerdarnath Wildlife Sanctuary (Satayakumar *et al*. 1992; Kumar 1997; Raza 2006); Ascot Wildlife Sanctuary (Raza 2006); Chenab Valley, Chamoli Garhwal, Uttarakhand (Bhattacharaya & Sathyakumar 2007). However, information on the status and diversity of the avifauna of Pauri district is lacking. We have attempted to fill this gap through extensive field surveys on the avifauna of parts of Pauri district along elevational gradients, from January 2005 to December 2008.

Study area

The present study was conducted in some parts of urbanised, and forest habitats of Pauri District **(Fig.1)**, namely, Pauri town (30°08'N 78°46'E); Nagdev reserve forest; Srikot-Khanda urban and forest habitats (30°11'N 78°47'E) and Srinagar urban and forest habitats (30°13'N; 78°47'E). Pauri town is located at an altitude of 1,640–2,180 m asl, and has a population of 20,397 (Census 2001). It is spread over *c.* 5 km^2, which includes residential and commercial buildings, roads and other paved surfaces, and ornamental plants. 'Banj' *Querecus leucotricophora,* 'burans' *Rhododendron arboretum*, and 'chir' *Pinus roxburghii* are the major tree species along with numerous bushes of 'kingod' *Berberis chitria*. The climate is temperate and the average annual temperature of the area is 17°C, and average rainfall is 207 mm.

Srikot-khanda lies between 890–1,100 m a.s.l., and encompasses about 2.4 km^2. It has mixed vegetation including some agricultural terraces used to grow maize, wheat, rice, vegetables, *etc*. Its population is about 450 (Census, 2001). An open scrub area with scattered pine *Pinus roxburghii* and a patch of 'khair' *Acacia catechu* trees lies just adjacent to the urban habitat. The average annual temperature of the area is 21°C and the average rainfall is 189 mm.

Srinagar, situated along the bank of Alaknanda River, lies between 540–840 m a.s.l. The area of town is about 9.6 km^2, and the population is about 19,861 (Census, 2001). Pine is the predominant tree of the area along with a few wild date *Phoenix humilis*, 'bel' *Aegle marmelos*, and some species of ornamental plants. The average annual temperature of the area is 22°C and the annual maximum rainfall is 202 mm.

Methods

Line transects were used to estimate bird diversity (Verner 1985). Four transects were laid in each habitat type at each elevational zone. Each transect was one kilometer long, and 20 m wide, on either side. Altogether 1,152 transect visits [48 months x 4 transects x 2 habitat types (forest, and urbanised) x 3 elevational zones] were made during the study period, covering all seasons (summer, monsoon, winter and spring). Census methodology was identical in both types of habitat, along altitudinal gradients. All birds seen while walking along transects, including those flying *c.* 10 m above the transect were recorded. Sampling was done between 0600–1100 hrs and 1530–1930 hrs during April–September, and between 0700–1130 hrs and 1500–1600 hrs during October–March. The identification of birds in the field

was based on Grimmett *et al*. (2001), and classification and nomenclature follows Manakadan & Pittie (2001).

Results & discussion

133 species, belonging to 37 families, were recorded during the present study **(Table 1)**. Muscicapidae comprised the maximum number of species (35), followed by Accipitridae (9), and Picidae (9). In other regions of Western Himalayas too, Muscicapidae dominate (Bhattacharya & Sathyakumar 2007).

We observed two species, listed by the IUCN Red List under the category 'Least concern' (IUCN 2004), Kalij- *Lophura leucomelanos*, and Koklass-*Pucracia macrolopha* Pheasant during our surveys. Kalij was sighted at all elevations (n=192; 40, 42, 43 sightings at high, mid, and low elevational zones respectively). The abundance of the Kalij was highest (encounter rate = 6.5/km) at high elevation followed by mid- (encounter rate = 5.56/km), and low- elevations (encounter rate = 4.75/km). Koklass was sighted only at high elevation (n=192; 44 sightings) and the over all encounter rate was 5.62/km. There was no significant difference between mean abundance values of these species across the years during the study period indicating some level of disturbance in the area causing hindrance in the increase in the population size of these least count species. Threatened species needs special attention toward their status and, distribution as these species are more sensitive to disturbance (BirdLife International, 2001; Wijesinghe & Brooke, 2005; Lei *et al*., 2003, 2007; Pandit *et al*., 2007). Thus, the presence of the two least concern species in the area invites immediate conservation concern from the ecologist and conservationist.

Of the133 spp., recorded, the maximum, 112, were present at high elevation (1640-2180 m asl), followed by mid- (85 species) and low- elevations (84 species). Kessler *et al*. (2001), and Kattan & Franco (2004) have also obtained peak species richness around 2,200 m asl.

It has generally been accepted that the configuration and composition of vegetation of a habitat acts as one of the determining factors for the distribution and abundance of bird species (Cody 1985; Morrison 1992; Block & Brennan 1993). Thus, in the present study the high number of bird species at high elevation could be attributed to the mixed, complex, and varied vegetation profile in this region when compared to mid- or low- elevations. For example, the number of plant species was highest (98) at high elevation in comparison to mid- (85) or low- (78) elevations. Similarly, tree density was also highest at high elevation (MS under preparation).

During the study, a total of 37 spp., were observed as uncommon (less than 10 individuals)—being 16, 14 and 12 on high-, mid- and low- elevations respectively. The presence of a high number of uncommon species in any specific habitat indicates the availability of minimum resources required for breeding and feeding for those species. However, further studies on this aspect would be required to generate some additional information on the distribution pattern of avifauna in the present and other habitat(s).

Seven species of waterbirds were also observed on the banks of River Alaknanda near Srinagar town. Out of these three, namely Brahminy Shelduck *Tadorna ferruginea*, Gadwall *Anas strepera*, and Mallard *A. platyrhynchos* were winter visitor staging in the study area during January to March. However, Plumbeous water redstart *Rhyacornis fuliginosus*, Red-wattled Lapwing *Vanellus indicus*, White-capped water redstart *Chaimarrornis leucocephalus*, and River lapwing *V. duvaucelii* were observed throughout the year in the study area.

Nine species of altitudinal migrants, namely Scarlet minivet *Pericrocotus flammeus*, Eurasian tree creeper *Certhia familiaris*, Oriental turtle-dove *Streptopelia orientalis*, Grey tree pie *Dendrocitta formosae*, Red billed blue magpie *Urocissa erythrorhyncha*, Eurasian jay *Garrulus glandarius*, Black headed jay *Garrulus lanceolatus*, White throated fantail flycatcher *Rhipidura albicollis*, and White browed fantail flycatcher *Rhipidura aureola* were also observed during the present survey. The basis of calling all these species as altitudinal migrants was clear cut as during winter these all were observed at mid and low elevations but not at high elevation. Similarly, during summer these species were observed at only high elevation. Seasonal migration across the Himalaya has widely been reported by naturalists over the past 30 years (Grimmett *et al*., 1998; Kery *et al*. 2000). Additionally, impact of environmental factors might also cause seasonal movements of birds within and between habitats (Perrins & Birkhead 1983; Loiselle & Blake 1991; Norirs & Marra 2007). In our study area, snowfall was a common feature at only high elevation during winter causing a sharp decline in temperature, which, in turn, resulted in altitudinal migration by some avian species. Karr (1976), Terborgh (1977), and Vazquez & Givnish (1998) have also reported fluctuations in bird abundance, due to variation in the temperature and/or intensity of the rain at higher elevations.

Conclusions

1. Avian diversity, in parts of Pauri district, is greatest at high elevations, followed by mid- and low- elevations. This could be attributed to the change in vegetation of the area along elevational gradient.
2. The presence of two least count bird species and some uncommon species (sightings less than 10 individuals per year) makes it an important area for biodiversity conservation.

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Niranjan Sant

Rufous-tailed Shrike *Lanius isabellinus*.

Table 1: Systematic list of birds observed at high, mid and low elevational zones of District Pauri Garhwal, Uttarakhand

Species	Elevations H	M	L	Distribution status
Anatidae				
Brahminy Shelduck *Tadorna ferruginea*	A	A	P	WV
Gadwall *Anas strepera*	A	A	P	WV
Mallard *A. platyrhynchos*	A	A	P	WV
Accipitridae				
Black Kite *Milvus migrans*	P	P	P	R
Crested Serpent-Eagle *Spilornis cheela*	P*	A	A	WV
Shikra *Accipiter badius*	P*	P*	P*	WV
Eurasian Sparrowhawk *A. nisus*	P	A	A	R
Common Buzzard *Buteo buteo*	P*	A	A	WV
Black Eagle *Ictinaetus malayensis*	P*	A	A	R
Greater Spotted Eagle *Aquila clanga*	P*	A	A	WV
Steppe Eagle *A. nipalensis*	P	P*	P*	WV
Booted Eagle *Hieraaetus pennatus*	P*	A	A	R
Falconidae				
Common Kestrel *Falco tinnunculus*	P	A	A	WV
Phasianidae				
Chukor *Alectoris chukar*	A	P	P	R
Rain Quail *Coturnix coromandelica*	A	P	A	R
Koklass Pheasant *Pucrasia macrolopha*	P	A	A	R
Red Junglefowl *Gallus gallus*	A	P	P	R
Kaleej Pheasant *Lophura leucomelanos*	P	P	P	R
Charadriidae				
River Lapwing *Vanellus duvaucelii*	A	A	P	R
Red-wattled Lapwing *V. indicus*	A	A	P	R
Columbidae				
Blue Rock Pigeon *Columba livia*	P	P	P	R
Speckled Wood-Pigeon *C. hodgsonii*	P*	A	A	R
Oriental Turtle-Dove *Streptopelia orientalis*	P	P	P	R/AM
Spotted Dove *S. chinensis*	P	P	P	R
Eurasian Collared-Dove *S. decaocto*	P	P	P	R
Green Imperial-Pigeon *Ducula aenea*	P*	A	A	R
Psittacidae				
Rose-ringed Parakeet *Psittacula krameri*	P	P	P	R
Slaty-headed Parakeet *P. himalayana*	P	P	P	R
Plum-headed Parakeet *P. cyanocephala*	P	A	P	R
Red-breasted Parakeet *P. alexandri*	P	A	A	WV
Cuculidae				
Indian Cuckoo *Cuculus micropterus*	P	P*	P*	R
Asian Koel *Eudynamys scolopacea*	P	P	P	R
Strigidae				
Brown Wood-Owl *Strix leptogrammica*	P	A	A	R
Asian Barred Owlet *Glaucidium cuculoides*	P*	A	A	R
Apodidae				
Alpine Swift *Tachymarptis melba*	P	A	A	M
House Swift *Apus affinis*	P	P	P	R
Alcedinidae				
White-breasted Kingfisher *Halcyon smyrnensis*	A	A	P	R
Meropidae				
Small Bee-eater *Merops orientalis*	P	P	P	R/AM
Upupidae				
Common Hoopoe *Upupa epops*	P	P	P	R
Capitonidae				
Great Barbet *Megalaima virens*	P	P	P	R
Blue-throated Barbet *M. asiatica*	A	P	P	R
Picidae				
Speckled Piculet *Picumnus innominatus*	P	P*	A	R
Grey-capped Pygmy Woodpecker *Dendrocopos canicapillus*	P	P	P*	R
Brown-fronted Pied Woodpecker *D. auriceps*	P	P	P*	R
Himalayan Pied Woodpecker *D. himalayensis*	P	P	P	R
Small Yellow-naped Woodpecker *Picus chlorolophus*	P	P	P*	R
Large Yellow-naped Woodpecker *P. flavinucha*	P	P*	P	R
Large Scaly-bellied Green Woodpecker *P. squamatus*	P	P*	P	R
Black-naped Green Woodpecker *P. canus*	P	A	P*	R
Himalayan Golden-backed Woodpecker *Dinopium shorii*	P*	A	A	WV
Alaudidae				
Eastern Skylark *Alauda gulgula*	P	A	A	SV
Hirundinidae				
Common Swallow *Hirundo rustica*	P	P*	P	SV
Red-rumped Swallow *H. daurica*	P	P	P	SV
Motacillidae				
Large Pied Wagtail *Motacilla maderaspatensis*	P	P	P	WV
Campephagidae				
Large Cuckoo-Shrike *Coracina macei*	P	A	A	R
Small Minivet *Pericrocotus cinnamomeus*	P	P	A	R
Long-tailed Minivet *P. ethologus*	P	P	A	WV
Scarlet Minivet *P. flammeus*	P	P*	A	R/AM
Pied Flycatcher-Shrike *Hemipus picatus*	P	A	A	R
Pycnonotidae				
Himalayan Bulbul *Pycnonotus leucogenys*	P	P	P	R
Red-vented Bulbul *P. cafer*	P	P	P	R
Black Bulbul *Hypsipetes leucocephalus*	P	P	A	R
Irenidae				
Common Iora *Aegithina tiphia*	P	P	P	R
Laniidae				
Rufous-tailed Shrike *Lanius isabellinus*	P	P	P	SV
Muscicapidae				
Blue Whistling-Thrush *Myophonus caeruleus*	P	P	P	R
Dark-throated Thrush *Turdus ruficollis*	P*	P	A	WV
Oriental Magpie-Robin *Copsychus saularis*	P	P	P	R
Indian Robin *Saxicoloides fulicata*	P	P	P	R
White-capped Redstart *Chaimarrornis leucocephalus*	A	A	P	R
Plumbeous Redstart *Rhyacornis fuliginosus*	A	A	P	R
Little Forktail *Enicurus scouleri*	A	P*	A	R
Black-backed Forktail *E. immaculatus*	A	A	P*	R
Spotted Forktail *E. maculatus*	P	P*	P	R
Pied Bushchat *Saxicola caprata*	P	P	P	R
Grey Bushchat *S. ferrea*	P	P	P	R
White-throated Laughingthrush *Garrulax albogularis*	P	A	A	R
White-crested Laughingthrush *G. leucolophus*	P	A	P	R
Striated Laughingthrush *G. striatus*	P	A	A	R

Table 1: Systematic list of birds observed at high, mid and low elevational zones of District Pauri Garhwal, Uttarakhand

Species	Elevations H	M	L	Distribution status
Streaked Laughingthrush *G. lineatus*	P	P	P	R
Rusty-cheeked Scimitar-Babbler *Pomatorhinus erythrogenys*	P	P	P	R
Jungle Babbler *Turdoides striata*	P	P	P	R
Rufous Sibia *Heterophasia capistrata*	P*	A	A	R
Brown Prinia *Prinia crinigera*	A	A	P	R/AM
Franklin's Prinia *P. hodgsonii*	P	P	P	R
Ashy Prinia *P. socialis*	P	P	P	R
Common Tailorbird *Orthotomus sutorius*	P	P	P	R
Grey-faced Leaf-Warbler *Phylloscopus maculipennis*	P	A	A	R
Lemon-rumped Warbler *P. chloronotus*	P	A	A	WV
Blyth's Leaf-Warbler *P. reguloides*	P	P*	A	SV
Gold-spectacled Flycatcher-Warbler *Seicercus burkii*	P	P	P	R/AM
Grey-headed Flycatcher-Warbler *S. xanthoschistos*	P	P	P	R
Asian Brown Flycatcher *Muscicapa dauurica*	P	A	A	R/WV
Little Pied Flycatcher *Ficedula westermanni*	P	P	A	R
Verditer Flycatcher *Eumyias thalassina*	P	P*	A	SV
Small Niltava *Niltava macgrigoriae*	P*	A	A	R
Grey-headed Flycatcher *Culicicapa ceylonensis*	A	A	P*	R/AM
Asian Paradise-Flycatcher *Terpsiphone paradisi*	P	A	A	SV
White-throated Fantail-Flycatcher *Rhipidura albicollis*	P	P	P	R/AM
White-browed Fantail-Flycatcher *R. aureola*	P	A	P	R/AM
Aegithalidae				
Red-headed Tit *Aegithalos concinnus*	P	P	P	AM
Paridae				
Simla Crested Tit *Parus rufonuchalis*	P	A	A	R
Great Tit *P. major*	P	P	P	R
Green-backed Tit *P. monticolus*	P	P	P	R
Black-lored Yellow Tit *P. xanthogenys*	P	P	P	R
Yellow-browed Tit *Sylviparus modestus*	P	P	P	R
Sittidae				
Chestnut-bellied Nuthatch *Sitta castanea*	P	A	A	R
Wallcreeper *Tichodroma muraria*	A	P*	A	R
Certhiidae				
Eurasian Tree-Creeper *Certhia familiaris*	P	P	P*	R/AM
Bar-tailed Tree-Creeper *C. himalayana*	P	P*	P*	R
Dicaeidae				
Thick-billed Flowerpecker *Dicaeum agile*	P*	A	A	AM
Yellow-bellied Flowerpecker *D. melanoxanthum*	P	P	P	R
Nectariniidae				
Purple Sunbird *Nectarinia asiatica*	P	P	P	R
Crimson Sunbird *Aethopyga siparaja*	P	P	A	R
Zosteropidae				
Oriental White-eye *Zosterops palpebrosus*	P	P	P	R
Emberizidae				
Crested Bunting *Melophus lathami*	P	P	P	R
Fringillidae				
Yellow-breasted Greenfinch *Carduelis spinoides*	P	A	A	WV
Common Rosefinch *C. erythrinus*	A	P	P	WV
Estrildidae				
White-rumped Munia *Lonchura striata*	A	P	A	R
Spotted Munia *L. punctulata*	A	P	P	R
Passeridae				
House Sparrow *Passer domesticus*	P	P	P	R
Cinnamon Tree Sparrow *P. rutilans*	P	P	A	R
Sturnidae				
Common Myna *Acridotheres tristis*	P	P	P	R
Jungle Myna *A. fuscus*	P*	P	P	R
Dicruridae				
Black Drongo *Dicrurus macrocercus*	P	P	P	R
Bronzed Drongo *D. aeneus*	P*	A	A	R
Corvidae				
Eurasian Jay *Garrulus glandarius*	P	P	A	R/AM
Black-headed Jay *G. lanceolatus*	P	P	A	R/AM
Red-billed Blue Magpie *Urocissa erythrorhyncha*	P	P	P	R/AM
Indian Treepie *Dendrocitta vagabunda*	P	P	P	R
Grey Treepie *D. formosae*	P	P	P	R/AM
House Crow *Corvus splendens*	P	P	P	R
Jungle Crow *C. macrorhynchos*	P	P	P	R

Key to abbreviations

*=uncommon species (= > 10 sightings per year); A=Absent; AM= Altitudinal migrant; H=High elevation; L=Low elevation; M=Mid elevation; P=Present; R/AM=Resident/altitudinal migrant; R=Resident; SV=Summer visitor; WV=Winter visitor.

Asian Paradise-Flycatcher *Terpsiphone paradisi*.

Arpit Deomurari