

Species composition and status of avifauna of Patnitop- A sub-temperate forest habitat of Jammu (J&K)

Anupama Pandotra and D.N. Sahi

Abstract: An avifaunal survey was carried out in the sub temperate forest habitat of Patnitop area of Jammu (J&K) from Jan 2011 to Jan 2013. The study area was surveyed for recording the avifaunal diversity by applying the line-transect method. Biodiversity studies revealed that a total of 31 species of birds belonging to 7 orders and 17 families along with their resident /migratory and conservation status was studied. Reported findings show 8 species of birds as altitudinal migrants, 3 as summer migrants, 2 as winter migrants, and rest as resident species.

Key words: Avifauna; line transects method; status; migrants.

1. Introduction

The species composition embodies all the ways in which the individual members of the communities relate to and interact with one and another to produce the patterns of resources allocation and spatial and temporal abundance among constituent species in birds (Giller, 1984). Avian community studies are effective tools for monitoring forest ecosystem. A rich bird diversity is present in the Himalayan regions because these regions are surrounded with broad leaf mixed, dry deciduous, moist deciduous and coniferous forest ecosystem. Forest provides shelter and rich food resources. In the last few decades, the bird community of different temperate and tropical forest all over the world have been studied most intensively and extensively by MacArthur (1969), Kikkawa (1986), Robinson and Terborgh (1990). So far as J&K state is concerned, avifaunal diversity has been reported by several workers but no work has been done to inventorize the avifauna of Patnitop-a forest habitat. The study area selected though small, yet it exhibits varying topographic, floral diversity, different type of forest vegetation thus supporting a rich bird diversity that includes species of conservation concern.

2. Material and methods

2.1 Study area

Patnitop is a famous tourist spot of Jammu (J&K), situated on a plateau in Shivalik belt of Himalayas. It lies on both east and west of Jammu-Srinagar National Highway 1A. The study area lies between latitude 33° 01' 23" N to 33° 08' 37" N and Longitude 75° 15' 0" E to 75° 23' 07" E and situated at an altitude of 2024 m.a.s.l. The area is highly mountainous terrain marked with rugged topography comprising of high ranges steep hills, deep valleys cliffs and sloping meadows. Climatically the study area shows sub tropical to temperate type of climate and consequently the vegetation of area also varies from deciduous broad leaved trees to thick coniferous vegetation. A thick vegetation of *Cedrus deodar* and *Pinus wallichiana* is found. The deodar excels best from 1846m to 2615m. Though *Pinus wallichiana* is found up to the elevation of 2800m. This forest area has little scrubby vegetation though at some patches dense growth of grass is found.

2.2 Methodology

For analysis of avian fauna, line transect (Sale and Berkmuller, 1988) and point transect methods were used. Field studies were carried out for two years during Jan 2011 to Jan 2013. Depending upon the accessibility, four transects in the habitat were laid. During the two years, the same transects were repeated. Each transect was 1Km in length and 30m in width. Photography was done with help of Camera ((Nikon with 36x Zoom). Binocular (Buschnell 7 x 50 USA made) was used to record the different avian species at a distance. Identification of recorded bird species was done with the help of field guides and reference books by Ali and Ripley (1983), Ali (1996), Bates and lowther (1952), Grewal (1995). The final confirmation of the species was done with the help of "Birds of Indian Subcontinent" by Grimmet *et al.* (1998).

Anupama Pandotra(✉)

Department of Zoology,
G.G.M. Science College,
Jammu- 180001, J&K, India.
Email: anupamapandotra@gmail.com

D.N. Sahi

P. G. Department of Zoology,
University of Jammu,
Jammu-180006, J&K, India.

3. Results and discussion

Biodiversity studies revealed that a total of 31 species of birds belonging to 7 orders and 17 families along with their status (resident/migratory/conservation) was observed (Table 1). The systematic list shows that out of the total species recorded 3 species fall under the Schedule I and rest 23 species come under Schedule IV of Indian Wildlife Protection act of 1972. The study reveals that out of the total species reported, 8 species show local and seasonal altitudinal movement which include Himalayan Great Barbet, Jungle Crow, Grey Tit, Scarlet Minivet, Plumbeous Red Start, Himalayan Rock Bunting etc. (Fig., 1) These species during winters move down to lower altitudes. Species such as Jungle Myna, White Cheeked Bulbul, Black Drongo, Slaty Headed Parakeet etc. are commonly observed and are resident in the sub temperate forest ecosystem of Patnitop. Two species are winter migrants namely steppe eagle and starling which are observed in the study area during winter months only. Golden Oriole, Himalayan

Green Finch and Paradise Flycatcher are the three summer migrant species observed during the summer months only. Rest of the species show the resident status to the Himalayan ecosystem.

The stratified coniferous vegetation harbours important, rare and fewer bird species compared with less stratified and less diverse deciduous vegetation of drier tracts. The explanation for lower level of bird species richness in the structurally complex and diverse vegetation could lie in the smaller size of potential pool of colonizers of such vegetation. The globally threatened species i.e. Indian White Backed Vulture classified as critical and placed under near threatened category by Bird Life International (2001) was observed in the study area. The study area seeks the attention of biodiversity conservationists as the forests of Patnitop are under the anthropogenic factors such as encroachment and developmental activities for hotel industry, felling of trees which would ultimately lead to the destruction of feeding and nesting sites and natural habitat of forest birds.

Table 1. Systematic list of avifaunal inventory of Patnitop (forest habitat) along with their resident/migratory status and conservation status according to the different schedules of Wildlife Protection Act 1972.

Common Name	Zoological Name	Resident	Schedule
Order: Falconiformes; Family: Accipitridae			
Indian Shikra	<i>Accipiter badius dussumieri</i> Temminck	Rst	I
Steppe Eagle	<i>Aquila nipalensis</i>	WM	IV
Indian white backed Vulture	<i>Gyps bengalensis</i>	Rst	IV
Indian long billed Vulture	<i>Gyps indicus</i> G. R. Gray	Rst	IV
Order: Galliformes; Family: Phasianidae			
Grey Partridge	<i>Francolinus pondicirianus</i>	Rst	IV
Indian red jungle Fowl	<i>Gallus gallus</i>	Rst	IV
Kaleej Pheasant	<i>Lophura leucomelanos hamiltonii</i> (Gray)	Rst	I
Monal Pheasant	<i>Lophophorus impejanus</i>		
Order: Columbiformes; Family: Columbidae			
Indian blue rock Pigeon	<i>Columba livia intermedia</i> Strickland	Rst	IV
Order: Psittaciformes; Family: Psittacidae			
Blossom headed Parakeet	<i>Psittacula cyanocephala</i>	Rst	IV
Slaty headed Parakeet	<i>Psittacula himalayana</i>	Rst	IV
Order: Upupiformes; Family: Upupidae			
European Hoopoe	<i>Upupa epops epops</i> Linnaeus	Rst	IV
Order: Piciformes; Family: Capitonidae (Megalaimidae)			
Himalayan Great Barbet	<i>Megalaima virens</i> (Boddaert)	AM	IV
Family: Picidae			
Yellow fronted pied Woodpecker	<i>Picoides maharattensis</i>	Rst	IV
Order: Passeriformes; Family: Oriolidae			
Golden Oriole	<i>Oriolus oriolus</i>	SM	IV
Family: Dicruridae			
Black Drongo	<i>Dicrurus adsimilis albirictus</i> (Hodgson)	Rst	IV
Family: Sturnidae			
Indian Myna	<i>Acridotheres tristis tristis</i> (Linnaeus)	Rst	IV
Jungle Myna	<i>Acridotheres fuscus fuscus</i>	Rst	IV
Starling	<i>Sturnus vulgaris indicus</i> Blyth.	WM	IV
Family: Corvidae			
Jungle Crow	<i>Corvus macrorhynchos culminates</i>	AM	IV
Family: Campephagidae			
North Indian scarlet Minivet	<i>Pericrocotus flammeus speciosus</i> (Latham)	AM	IV

Family: Pycnonotidae			
Red-vented Bulbul	<i>Pycnonotus cafer cafer</i> (Linnaeus)	Rst	IV
White-cheeked Bulbul	<i>Pycnonotus leucogenys leucogenys</i> (Grey)	Rst	IV
Family: Monarchidae			
Paradise Flycatcher	<i>Terpsiphone paradisii paradisii</i> (Linnaeus)	SM	IV
Family: Turdidae			
Himalayan whistling Thrush	<i>Myophonus caeruleus</i> (Scopoli)	AM	IV
Family: Muscicapidae			
White capped Redstart	<i>Chaimarrornis leucocephalus</i> (Vigors)	AM	IV
Plumbeous water Redstart	<i>Rhyacornis fuliginosus</i> (Vigors)	AM	IV
Family: Paridae			
Great Tit	<i>Parus major</i> (Linnaeus)	AM	IV
Himalayan Cinnamon tree sparrow	<i>Passer rutilans</i>	Rst	IV
Family: Fringillidae			
Himalayan green Finch	<i>Carduelis spinoides</i>	SM	IV
Family: Emberizidae			
Himalayan rock Bunting	<i>Emberiza cia</i>	AM	IV

Rst: Resident; AM: altitudinal migrant; SM: Summer migrant; WM: winter migrant

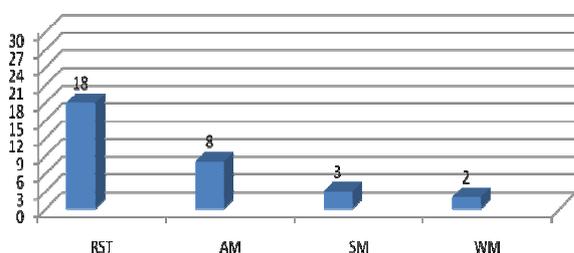


Figure 1. Number of resident (Rst), altitudinal migrants (AM), summer migrants (SM) and winter migrant (WM) bird species in the study area

Acknowledgements

The authors are thankful to the Head, Department of Zoology, University of Jammu, Jammu for providing various facilities to carry out the present study.

References

- Ali, S. 1996. *The Book of Indian Birds*. Bombay Natural History Society.
- Ali, S. and Ripley, S.D. 1983. *Compact Handbook of Birds of India & Pakistan*. Oxford University press, Bombay.
- Bates, R.S.P, and Lowther, E.H.H. 1952. *Breeding Birds of Kashmir*. Oxford Univ Press. London, pp.367.
- Bird Life International. 2001. *Threatened Birds of Asia*. Bird life International, Cambridge, U.K.
- Giller, P.S. 1984. *Community structure and Niche*. Champman and Hall publishing company.
- Grewal, B. 1995. *Birds of Indian Subcontinent*. Odyssey, Hong-Kong.
- Grimmet, R., Inskipp, C., and Inskipp, T. 1998. *Birds of Indian Subcontinent*. Oxford Univ. Press. Delhi.
- Kikkawa, J. 1986. Bird communities of rainforest. Acta XIX Congress Internationalist Ornithological, Ottawa. 1:1339-1345.
- MacArthur, R.H. 1969. Patterns of communities in tropic. *Biol. J. Linn. Soc.*, 1:19-30
- Robinson, S.K. and Terborgh, J. 1990. *Bird Communities of Cocho Cashu biological station in Amazonia Peru in the four neotropical forest*. Yak University Press, New, Haven, CT. pp 199-216.
- Sale, J.B. and Berkmuller, K. 1988. *Manual of wildlife techniques for India*. Food and Agriculture Organisation of United Nations, Dehradun.