

Avifaunal diversity of Patnitop Development Authority (PDA) area, Jammu and Kashmir State

Rajan Singh, Rahul Kait, Fareed Ahmed, Kapil Sharma and D.N. Sahi

Abstract: Patnitop Development Authority (PDA) Area is located in Lesser Himalayas of Northwest Himalaya administrated by Patnitop Development Authority and has co-ordinate between $33^{\circ} 2' 47''$ N & $75^{\circ} 16' 46''$ E to $33^{\circ} 7' 45''$ N & $75^{\circ} 18' 42''$ E and elevation ranges from 600 m to 3000 m from sea level. The avian survey was carried out in Patnitop from April 2010 to April 2011. The present commutation deals with the diversity, Resident/Migratory status, abundance and habitat used by the birds within the study area. The avifauna survey was conducted using line transect and point transect methods. During the present study 55 species of birds belonging to 12 orders and 25 families were recorded.

Key words: Himalayas, Patnitop, diversity, avifauna, checklist, Patnitop Development Authority Area.

1. Introduction

Diversity means the variability among living organism from all resources including aerial, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. This includes diversity within species, between species and ecosystem at large (Convention on Biological Diversity-Article 2 as cited by Aggarwal, 1998).

India's biodiversity is one of the most significant and richest in the world and is recognised as one of the world's top twelve mega diversity countries (Hosetti, 2002). In India, there are about 372 species of mammals, 1228 species of birds, 446 species of reptiles, 204 species of amphibians, 2546 species of fishes, besides a large number of invertebrates (Aggarwal, 2000).

Although the studies on birds have been conducted from time to time in India but no such detailed study has been undertaken in Udhampur District especially Patnitop which is a famous tourist spot and a site for bird watching. So there is an imperative need for uncovering the avian diversity. To make a beginning in this direction, Patnitop was chosen to carry out the status survey.

2. Materials and Methodology

2.1 Study area

The study was carried out in Patnitop from April 2010 to April 2011. The present study area is a part of two districts, Udhampur and Ramban of Jammu and Kashmir, which is a part of the Northwest Himalayas. The Patnitop Development Authority (PDA) came into existence on 26th of March, 1992 vide notification SRO- 69 dated 26.03.1992 under section 4 of the J&K Development Act 1970. Patnitop is under the jurisdiction of Patnitop Development Authority (PDA) which has jurisdiction over an area of 285 Sq. Km. spreading over two districts, Udhampur and Doda. This area extends from the Tehsil headquarters of Chenani from the south to the administrative town of Batote to its North. And from Sanasar in east to Basantgarh in west. The area has number of places having very high potential for the tourism like Sanasar, Batote, Patnitop, Kud, Sudh Mahadev, Gourikund, Mantalai, Latti, Dudu and Basantgarh.

The geographical location of the PDA area is between co-ordinates $33^{\circ} 2' 47''$ N & $75^{\circ} 16' 46''$ E to $33^{\circ} 7' 45''$ N & $75^{\circ} 18' 42''$ E and elevation ranges from 600 m to 3000 m from sea level. The mean maximum and minimum temperature ranges between 15°C and -2°C during December to February whereas from June to September the temperature ranges between 40°C to and 5°C respectively. The average rainfall of the study area is 95cm per annum (PDA official website Kud Udhampur).

Origin of the name Patnitop is a distortion of the original name Patan Da Talab meaning Pond of the Princess, in olden times, a pond existed in the meadow where king used to take bath. This famous hill resort is perched on a beautiful plateau.

Flora: The forest is of temperate type. The pre-dominant tree species comprises of *Pinus roxburghii*,

Rajan Singh(✉), Rahul Kait, Fareed Ahmed, Kapil Sharma and D.N. Sahi

P.G. Department of Zoology,
University of Jammu,
Jammu-180006 (J&K)
email ID: rsthakuribra@gmail.com

Cedrus deodara and *Quercus* spp. Mixed deciduous forests and scrubby areas are also found.

2.2 Methodology

Line Transect Method and Visual Count Method were applied for the record of avian diversity. Census was carried out twice in a month starting from April 2011 to April 2012. During the census a distance of 4 km was covered with a fixed duration of 120 minutes, thus covering 2 km/hour and this census was maintained throughout census. In order to maintain uniformity, all surveys were conducted from 6:30 am to 10:30 am in the morning and 4:30pm to 6:30 pm in the evening during summer and 7:30 am to 11:30 am in the morning and 3:30 pm to 5:30 pm in the evening during winter. Binoculars (Bushnell 7*50 USA made) were used to record the observation from a distance to avoid any disturbance to the birds. Making use of Cannon T-70 camera with 210 mm and 300mm lens did photography.

For identification and diagnosis of the birds colourful plates of Ali and Ripley (1983) and Grimmet *et al.* (1998) proved quite helpful for recording the abundance of the avifauna during the survey, the terminology of Khan (2002) was followed: C = common: means it can be invariably be seen in that habitat where it occurs with the proviso of course that

the reason is also appropriate. F = Frequent: means that visiting appropriate habitat it will not be seen or heard invariably, perhaps only in one visit out of three. O = Occasional: means seen or heard only in one visit out of six. R = rare: means even less likelihood of occurrence.

The five habitats surveyed are:

1. Aquatic habitat (AH)
2. Scrubby Habitat (SH)
3. Mixed deciduous forest habitat (MDF)
4. Coniferous Forest Habitat (CF)
5. Cultivated Areas (CA)

3. Observation and discussion

A total of 56 species have been recorded in the area. The systematic list of 56 species belonging to 12 orders and 25 families along with their Resident/migratory and abundance status is presented in Table (1). The study area despite small in size appears to support an extremely rich and diverse bird community. Out of the total birds i.e. 1300 species recorded by Grimmet *et al.* (1998) from Indian sub-continent, avifauna of Patnitop presents 4.2%. The observed bird diversity in relatively small area (285 Km²) underlines the importance of this area for biodiversity conservation.

Table 1. Checklist of birds of Patnitop Development Area with habitat, status, and abundance.

Scientific Name	Common Name	Habitat	Status	Abundance
Order 1: Passeriformes				
Family 1: Passeridae				
<i>Motacilla alba</i>	White Wagtail	CA/CF/MDF	SM	F
<i>Motacilla maderaspatens</i>	Large Pied Wagtail	CA/CF/MDF	Rst	O
<i>Montacilla flava</i>	Yellow Waigtail	CA/CF/MDF	SM	R
Family 2 : Nectrainidae				
<i>Nectarinia asiatica asiatica</i>	Purple Sunbird	CA/SH	Rst	O
Family 3: Musciapiidae				
<i>Turdoides striatus somervillei</i>	Jungle Babbler	CA/SH	Rst	C
<i>Turdoides caudatus caudatus</i>	Common Babbler	CA/SH	Rst	C
<i>Terpsiphone paradise paradisi</i>	Paradise Flycatcher	CA/CF/MDF	SM	O
<i>Orthotomus sutorius guzuratus</i>	Indian Tailor Bird	CA/SH	Rst	C
<i>Copsychus saularis saularis</i>	Indian Magpie Robin	CA/SH/MDF	WM	O
<i>Saxicola caprata bicolour</i>	Pied Bush Chat	CA/SH/MDF	Rst	O
<i>Saxicoloides fulvicata cambaiensis</i>	Indian Robin	CA/SH/MDF	Rst	F
Family 4: Lanidae				
<i>Lanius scahach erythronotus</i>	Rufous-backed Shrike	CA/SH/MDF	Rst	F
Family 5: Oriolidae				
<i>Oriolus oriolus kundoo</i>	Indian Golden Oriole	CA/CF/MDF	SM	O
Family 6: Dicruridae				
<i>Dicrurus adsimilis</i>	Black Drongo	CA/SH/MDF	Rst	C
Family 7: Sturnidae				
<i>Acridotheres tristis tristis</i>	Indian Myna	CA/SH/MDF	Rst	C
<i>Sturnus pagodarum</i>	Brahminy Myna	CA/SH/MDF	Rst	O
Family 8: Corvidae				
<i>Corvus splendens splendens</i>	House Crow	CA/SH/CF	Rst	C
<i>C. macrorhynchos culminates</i>	Jungle Crow	SH/CF/MDF	Rst	F
<i>Dendrocitta vagabunda</i>	North Eastern Treepie	SH/CF/MDF	Rst	O
<i>Cissa flavirostris</i>	Yellow Billed Blue Magpie	CF/MDF	Rst	F
<i>Myiophonus caeruleus</i>	Himalayan Whistling Thrush	SH/CF/MDF	Rst	F
<i>Pericrocotus ethologus</i>	Long Tailed Minivet	CF/MDF	Rst	R

Family 9: Pycnonotidae				
<i>Pycnonotus cafer cafer</i>	Red-vented Bulbul	CA/SH/MDF	Rst	C
<i>Pycnonotus leucogenys leucogenys</i>	White-cheeked Bulbul	CA/SH/MDF	Rst	C
<i>Hypsipetes madagascariensis</i>	Black Bulbul	SH/CF/MDF	SM	O
Family 10: Hirundinidae				
<i>Hirundo daurica</i>	Red-rumped Swallow	CA/MDF	SM	C
Family 11: Monarchinae				
<i>Muscicapa thalassaina thalassaina</i>	Verdicator Flycatcher	CA/SH/MDF	SM	O
Family 12: Turnidae				
<i>Chaimarrornis leucocephalus</i>	White Capped Redstart	SH/MDF/CF	Rst	O
Family 13: Ploceidae				
<i>Passer domesticus indicus</i>	Indian House Sparrow	CA/SH	Rst	C
<i>Lunchura punctulata</i>	Spotted munia	CA/SH/MDF	SM	C
<i>Ploceus philippinus philippinus</i>	Baya Weaver	SH/CF/MDF	Rst	F
Family 14: Paridae				
<i>Parus major</i>	Grey tit	CA/SH/MDF	Rst	F
Order 2: Falconiformes				
Family 15: Accipitridae				
<i>Gypus indicus</i>	Long-Billed Vulture	CF/MDF	Rst	C
<i>Buteo rufinus</i>	Long Legged Buzzard	SH/CF/MDF	Rst	O
Order 3: Galliformes				
Family 16: Phasianidae				
<i>Lophura leucomelanus</i>	Khalij Pheasant	CF/MDF	Rst	R
<i>Lophophorus impejanus</i>	Monal Pheasant	SH/CF/MDF	Rst	R
<i>Alectoris chukar chukar</i>	Chukur	SH/CF/MDF	Rst	R
<i>Gallus gallus murghi</i>	Indian Red Jungle Fowl	SH/CF/MDF	Rst	R
<i>Francolinus pondicirianus</i>	Grey Partridge	SH/CF/MDF	Rst	R
<i>Francolinus francolinus</i>	Black Partridge	SH/CF/MDF	Rst	O
Order 4: Columbiformes				
Family 17: Columbidae				
<i>Columbia livia</i>	Indian Blue Rock Pigeon	SH/CF/MDF	Rst	F
<i>Streptopelia decaocta decaocta</i>	Indian Spotted Dove	CA/SH	Rst	F
<i>S. orientalis orientalis</i>	Rufous Turtle Dove	CA/SH/MDF	SM	O
<i>Streptopelia chinensis suratensis</i>	Indian Ring Dove	SH/CF/MDF	Rst	C
Order 5 : Psittaciformes				
Family 18: Psittacidae				
<i>Psittacula krameri manillensis</i>	Rose Ringed Parakeet	CA/SH	SM	C
<i>Psittacula cynocephali</i>	Blossom Headed Parakeet	CA/SH	SM	C
<i>Loriculus vernalis</i>	Lorikeet	CA/SH	SM	R
Order 6: Stringiiformes				
Family 19: Strigidae				
<i>Athene brama indica</i>	Northern Spotted Owllet	SH/CF/MDF	Rst	O
<i>Glaucidium radiatum radiatum</i>	Barred Jungle Owler	SH/CF/MDF	Rst	R
Order 7: Coraciiformes				
Family 20: Alcedinidae				
<i>Halcyon smyrnensis smyrnensis</i>	White Breasted Kingfisher	MDF/EH	Rst	C
Order 8: Upupiformes				
Family 21: Upupidae				
<i>Upupa epops epops</i>	European Hoopoe	SH/MDF	Rst	C
Order 9: Piciformes				
Family 22: Megalaimidae				
<i>Megalaima virins</i>	Himalayan Great Barbet	CF/MDF	Rst	F
Order 10: Piciformes				
Family 23: Picidae				
<i>Picoides maharathensis maharathensis</i>	Maharatta Woodpecker	CF/MDF	Rst	O
<i>Dinopium benghalense benghalense</i>	Lesser Golden Backed Woodpecker	CF/MDF	Rst	R
Order 11: Cuculiformes				
Family 24: Cuculidae				
<i>Eudynamys scolopacea scolopacea</i>	Indian Koel	SH/MDF	Rst	C
Order 12: Cicconiformes				
Family 25: Ardeidae				
	Cattle Egret	CA/EH	Rst	C

SM = Summer Migration; CA=Cultivated Areas; WM = Winter Migration; Rst. = Resident; AH = Aquatic habitat; SH = Scrubby Habitat; DF= Mixed Deciduous forest habitat; and CF = Coniferous Forest Habitat.

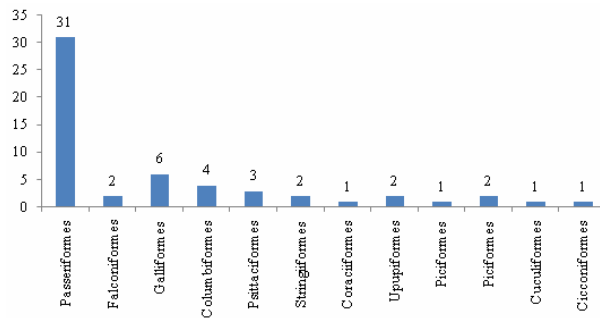


Figure 1. Showing the distribution of species in different orders

The list shows that out of total bird species, 43 species i.e. 76% species are Resident and 13 species i.e. 24% are migrant. Out of 13 migrant species, 12 are summer migrant and 1 is winter migrant. Of 12 orders, order Passeriformes constitutes largest order of the study area consisting of 14 families and 31 species.

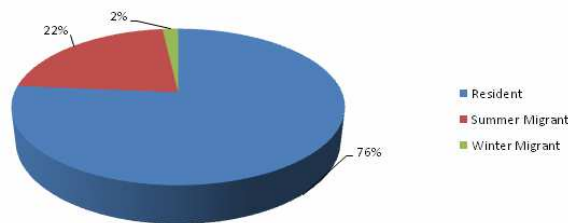


Figure 2. Showing the migratory status of avifauna of the study area.

Local abundance status of avifauna of the study area shows that about 50% of the avifauna is occasional and rare (fig. 3) thus a considerable number of the bird species is facing the danger of extinction.

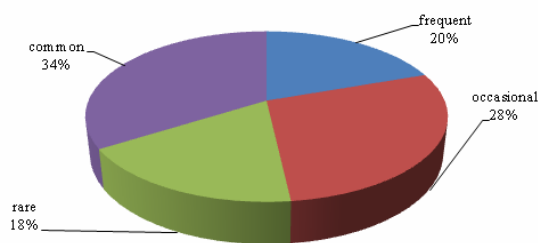


Figure 3. Pie Chart showing local abundance status of avifauna of the study area.

The number of avian species encountered in mixed deciduous forest is more than any other habitat of study area. During the study, it was found that the species from order Galliformes are entering into rare category because of hunting for meat purposes despite ban on hunting.

To conclude it can be said that the study area has a potential as a habitat for avian species. The need is to enlist the data and manage the habitat in consideration with various requirements of fauna. Our understanding of avifaunal diversity is still insufficient to guarantee proper conservation and only continued scientific research can through light on the improved methods of managing it.

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