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Research Article

STATUS AND RELATIVE ABUNDANCE OF BIRD FAUNA IN PATHIYALDHAR VALLEY, GARHWAL HIMALAYA, INDIA

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ABSTRACT

Frequent surveys from October 2009 to March 2010 in temperate forest of Pathiyal Dhar of district Chamoli resulted in identification of 54 bird species belonging to 25 families and 5 orders. The maximum individuals was noted in the month of December (1222), followed by January (1120), March (999), February (998), November (945) and October with minimum number of (619). The average relative abundance showed great variations. The maximum relative abundance was recorded of House sparrow (0.0094), Black headed Jay (0.0063), Large billed crow (0.0051), Common Myna (0.0046), Red billed blue magpie (0.0036), Himalayan Bulbul (0.0029), Blue whistling thrush (0.0024), Great tit (0.0023), Blue rock pigeon (0.0022), House swift (0.0022), Red rumped swallow and Ashy throated warbler (0.0021), Jungle prinia (0.0019), Streaked laughningthrush (0.0017) and Tawny owl with (0.001) minimum relative abundance.

Keywords: Bird fauna, temperate forest, Status, Relative Abundance.

INTRODUCTION

Birds are a group of feathered, biped, warm blooded animals whose body temperature remains more or less constant and independent of surrounding temperature. The bird-life in India is truly amazing that contributes an important part to biodiversity. These are found in all the continents, seas and inlands penetrating the Arctic beyond 30º N and over 6400 m altitude on Mount Everest (Singh and Basker 2003). Their wide occurrences are due to their power of flight, which enable them to reach in-accessible area to other animals. The total number of birds species in the known so far about 9000 of which India accounts for about 1250 species 13% of the world's total avian diversity. India is prominently among the ten countries in the world having largest number of threatened species of birds. Garhwal Himalaya as a part of the Western Himalaya is rich for its habitat diversity and bird species richness. Due to its unique position between the Indo-Chinese and Palaerctic line and great altitudinal variation from 400 m to 7817m (Nanda Devi Peak-II) (Fleming *et al*. 1979; Ali 1981). The area represents a variety of habitats especially in temperate zone. Along altitudinal gradient, the area has rich diversity of forests viz. Pine mixed oak forest, Oak mixed *Rododendron* forests, coniferous Deodar forest and sub-alpine forest. But very little is known about the bird fauna of these habitats. Information's concerning community structure of birds is derived from studies conducted at high latitude and almost

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nothing is known about birds of the temperate forests of sub-tropics. Study of birds at community level in the Indian sub-continent is essential as large scale changes have been taking place in natural habitats.

MATERIALS AND METHODS

The Himalaya which lies in the Garhwal region is known as Garhwal Himalaya lying between 29° 26' to 31° 28' N to 77° 49' to 80° 6' E and comprises Chamoli, Rudraprayag, Pauri, Uttakashi, Dehradun and Haridwar districts. Garhwal Himalaya enjoying a wide range of altitude expending from about 325 m in the Bhabar tract to the height of about 7,817 m (NandaDevi Peak-II). Its diverse land form, climatic variation, vegetation, snow fall and geographical contiguity with biologically rich surrounding provide luxuriant faunastic and floristic diversity. According to Champion and Seth (1968) India has 200 types of forest and out of which more than 50 types are found in Garhwal Himalaya, so in a short distance various types of forest are found.

The survey was carried out on Pathiyaldhar near Gopeshwar town, Garhwal Himalaya, from October 2009 to March 2010 and ranging from 1450 m to 1600 m altitude. At the morning from 6:30 to 10:00 am, survey was conducted for 7 to 10 days every month for the information on bird occurrences and relative abundance. The transect walk, point count methods were followed to record the bird species Mean percent and relative abundance (Javed and Kaul 2002; Gaston 1973) in relation to climate, seasons, vegetation, anthropogenic activities, etc. Mostly, transects of 0.5 to 1.0 km length was silently walked and all birds were counted. The bird flying 20 to 30 meter above the ground level were also recorded. With the aid of the field binocular (10 to 50X) and pictorial field guides (Grimmet *et al*. 2000, Kazmeirzak, 2000) each bird was identified. The collected data was analyzed by following formulae:

Relative abundance = No. of individuals of a species/ Total no. of individuals of all species.

RESULTS

Various factors like types of habitat surveyed, climate, time and seasons of survey, nature of particular bird's species and experience of the observer influence the records of bird fauna. However, six months study has resulted in the identification of 54 bird species belonging to 5 orders, 25 families. The maximum individuals was noted in the month of December (1222) followed by January (1120), March (999), February (998), November (945), and October with minimum number of (619) (Figure 1). The average relative abundance showed great variations (Table 1). The maximum relative abundance was recorded of House sparrow (0.0094), Black headed Jay (0.0063), Large billed crow (0.0051), Common Myna (0.0046), Red billed blue magpie (0.0036) (Table 1), Himalayan Bulbul (0.0029), Blue whistling thrush (0.0024), Great tit (0.0023), Blue rock pigeon (0.0022), House swift (0.0022), Red rumped swallow and Ashy throated warbler (0.0021), Jungle prinia (0.0019), Streaked laughing thrush (0.0017),) and Tawny owl with (0.001) minimum relative abundance. The monthly occurrence of bird's species was also recorded, which showed fluctuation. Some birds seemed few months and others remained present throughout year, mostly this due to the altitudinal and seasonal migration (Table 1). Some birds like Blue rock pigeon, Spotted dove, Common myna, Himalayan bulbul, Red vented bulbul, Blue whistling thrush, streaked laughing thrush and House sparrow were recorded all the months but other like Russet sparrow, Tawny owl and Emerald dove were observed only two months during the study period.

Table 1. Status and relative abundance of bird fauna in Patiyaldhar near Gopeshwer, Garhwal Himalaya during October 2009 to March 2010.

S. No.	Name of Bird/Order/Family	Zoological Name	Status	No. of individuals	Relative abundance
	Falconiformes				
	Accipitridae				
1	Himalayan griffon	*Gyps Himalayansis*	R(A)	53	0.0007
2	Black kite	*Milvus migrans*	RM	69	0.0009
3	Shikra	*Accipiter badius*	RM	22	0.0003
4	Steppe eagle	*Accipiter nipalensis*	R	18	0.0002
5	Black eagle	*Ictinaetus malayensis*	W	23	0.0003
	Galliformes				
	Phasianidae				
6	Kaleej pheasant	*Lophura leucomelanes hamiltoni*	A	103	0.0014
7	Chukar partridge	*Alectoris chukar*	R	99	0.0013
	Columbiformes				
	Columbidae				
8	Blue rock pigeon	*Columba livia*	RA	157	0.0022
9	Oriental turtle dove	*Streptopelia orientalis*	RMW	44	0.0006
10	Spotted dove	*Streptopelia chinensis*	RA	99	0.0013
11	Emerald dove	*Chalcophaps indica*	R(M)	10	0.0001
	Psittaciformes				
	Psittacidae				
12	Rose ringed parakeet	*Psittacula krameri*	R	57	0.0007
13	Slaty headed parakeet	*Psittacula himalayana*	RA	54	0.0007
	Strigiformes				
	Strigidae				
14	Tawny owl	*Strix aluco*	RAW	11	0.0001
	Apodiformes				
	Apodidae				
15	House swift	*Apus affinis*	R	157	0.0022
	Coraciiformes				
	Upupidae				
16	Common hoopoe	*Upupa epops*	RBW	51	0.0007
	Piciformes				
	Capitonidae				
17	Great barbet	*Megalaima virens*	A	77	0.0010
	Picidae				
18	Scally bellied woodpecker	*Picus squamotus*	R	28	0.0003
19	Greater yellownape woodpecker	*Picus flavinucha*	R	17	0.0002
20	Grey capped pygmy	*Dendrocopuas canicapillus*	R	14	0.0001

	woodpecker				
21	Yellow crowned woodpecker	*Dendrocopuas mahrattensis*	R	36	0.0005
	Hirundinidae				
22	Barn swallow	*Hirundo rustica*	RMW	115	0.0016
23	Red rumped swallow	*Hirundo daurica*	RAMW	156	0.0021
	Dicruridae				
24	Black drongo	*Dicrurus macrocercus*	RA	17	0.0002
	Stunidae				
25	Common myna	*Acredotheris tristis*	E	330	0.0046
26	Jungle myna	*Acredotheris fuscus*	R	57	0.0007
	Corvidae				
27	Black headed jay	*Garrulus lanceolatus*	RA	166	0.0063
28	Red billed blue magpie	*Urocirsa erythrorhyncha*	RA	261	0.0036
29	Rufous tree pie	*Dendrocitta vagabunda*	RA	54	0.0007
30	Grey tree pie	*Dendrocitta formosae*	RA	84	0.0011
31	Large billed crow	*Corvus macrorhynchas*	RA	369	0.0051
	Campephagidae				
32	Scarlet minivet	*Pericrocotus flammeus*	RA	36	0.0005
	Pycnonotidae				
33	Himalayan bulbul	*Pycnenotus leucogenys*	R	636	0.0029
34	Red vented bulbul	*Pycnenotus cafer*	R	375	0.0052
35	Black bulbul	*Hypsipetes leucocephalus*	RA	47	0.0006
	Muscicapidae				
	Turdidae				
36	Blue whistling thrush	*Myiophonus caeruleus*	AM	176	0.0024
37	Jungle prinia	*Prinia sylvatica*	E	136	0.0019
38	Oriental magpie robin	*Capsychus saularis*	RM	40	0.0005
39	Indian robin	*Saxicoloides fulicata*	E	40	0.0005
40	Common stone chat	*Saxicola torquata*	WAM	67	0.0009
41	White capped red start	*Chaimarrornis leucocephalus*	A	40	0.0005
	Tmaliidae				
42	Streaked laughing thrush	*Garuulax lineatus*	A	122	0.0017
	Sylviidae				
43	Ashy throated warbler	*Phyllascopus maculipennis*	A	154	0.0021
44	Grey hooded warbler	*Seicercus xanthoschitos*	A	77	0.0010
	Muscicapinae				
45	Verditer flycatcher	*Eumyios thalassina*	RAM	51	0.0007
46	Grey headed canary flycatcher	*Culicicapa ceylonensis*	RA	20	0.0002
	Sittidae				
47	Chest nut billed nut hatch	*Sitta castanea*	R	38	0.0005

	Paridae				
48	Great Tit	*Parus major*	R	167	0.0023
49	Green Backed Tit	*Parus monticolus*	RMA	43	0.0006
	Motacillidae				
50	White Wagtail	*Moticilla alba*	AMW	33	0.0004
51	Yellow Wagtail	*Moticilla flava*	RA	23	0.0003
	Zasteropidae				
52	Oriental White Eye	*Zasterops palpebrosus*	R	69	0.0009
	Ploceidae (sub-family)				
	Passerinae				
53	House Sparrow	*Passer domsticus*	M	673	0.0094
54	Russet Sparrow	*Passer rutilanis*	A	24	0.0003

The nomenclature adopted here is after Grimmett *et al*. (2000) and sub-continental status after Kazmierczak (2000).

E- endemic to the Indian sub-continent, N-near endemic, R-resident, B- breeder, A- altitudinal migrant, M- migrates within sub-continent (breeds in the Himalaya and winters in southern India and/Sri Lanka), P-passage migrant, W-winter visitor, Th- threatened.

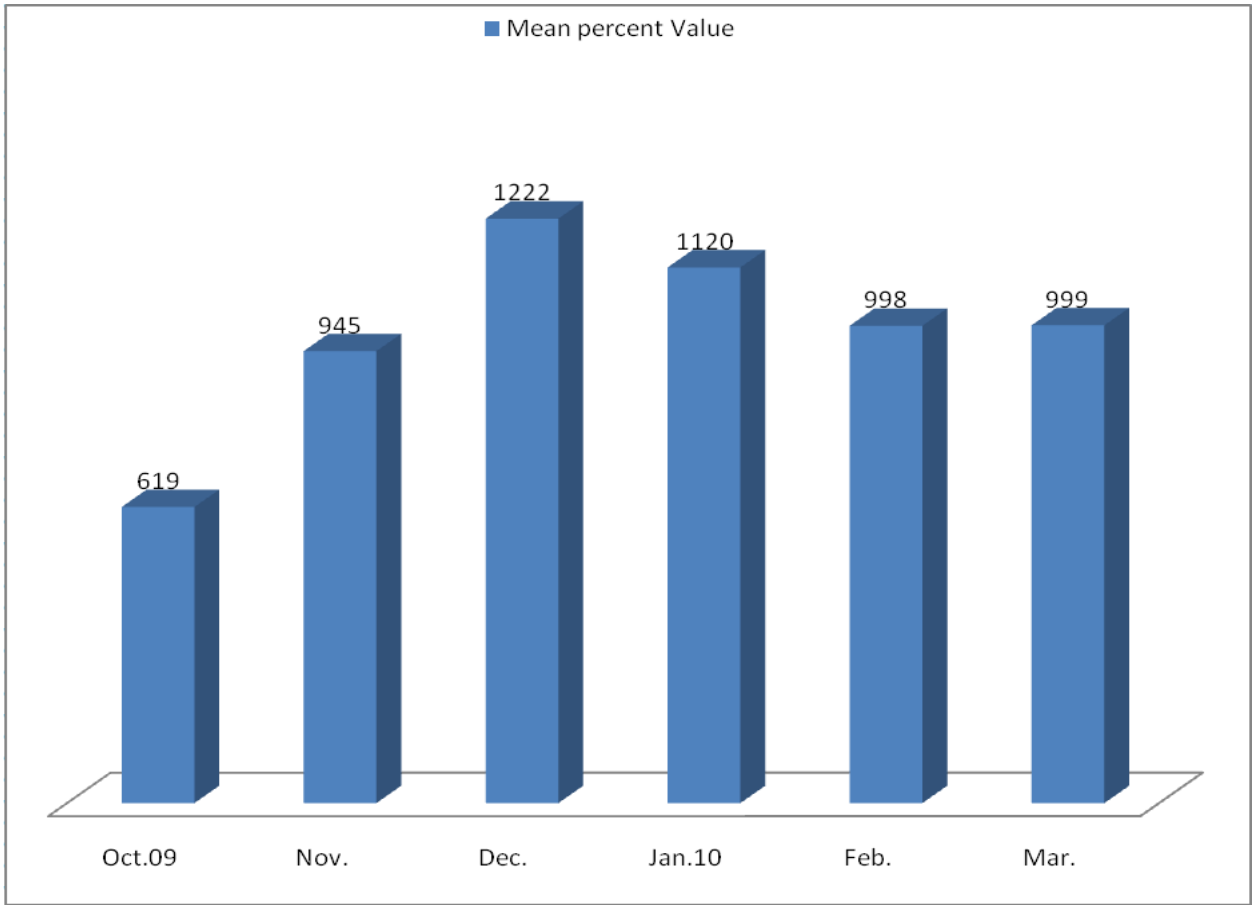

Figure 1. Monthly mean percent value of bird's fauna during Oct. 2009 to Mar. 2010 in Patiyaldhar near Gopeshwer town, Garhwal Himalaya.

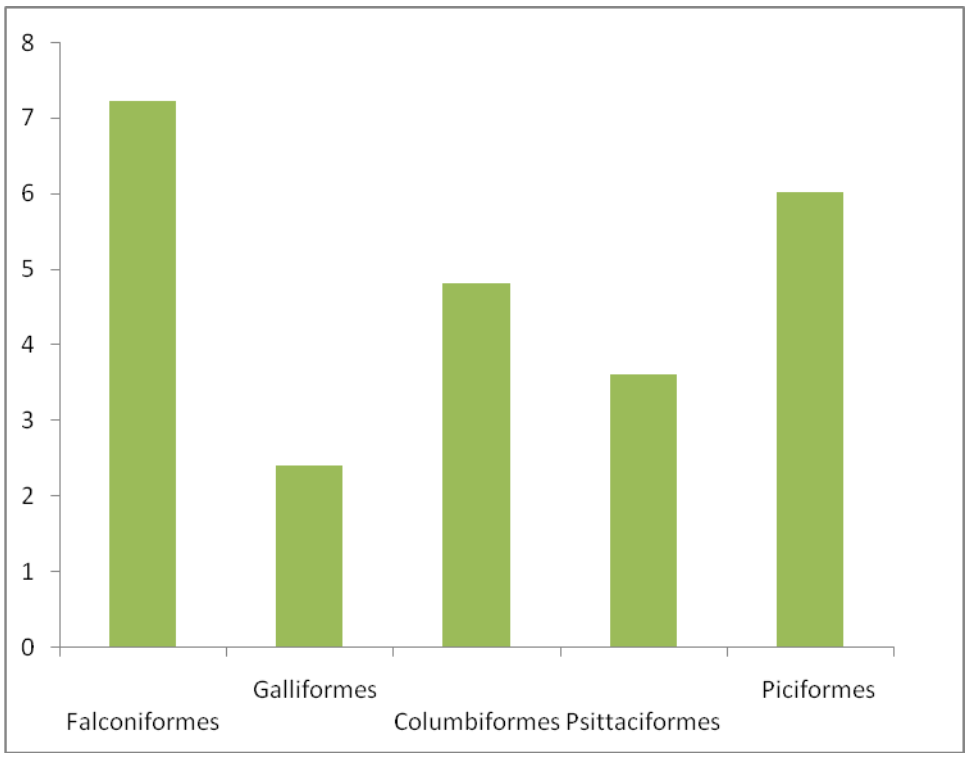

Figure 2. Monthly percent value of different orders during Oct.2009 to Mar.2010 in Patiyaldhar near Gopeshwer town, Garhwal Himalaya.

DISCUSSION

As records of the bird fauna depend on several factors like type of habitats surveyed, climate, time and season of survey, nature of particular bird species and experience of observer. Bisht *et al.* (2004) reported the 14 orders and 51 families and Passerriformes as the most crowded order. As records of the bird fauna depend on several factors like type of habitats surveyed, climate, time and season of survey, nature of particular bird species and experience of observer. The present study yielded 54 species of the bird in the Pine mixed and temperate forest of Patiyaldhar Near Gopeshwar, Garhwal Himalaya even in the presence of biotic pressure. If the Pine mixed and temperate forests of the study area harbour 54 species of birds, this mean that more than 50 types of forests have been described in Garhwal Himalaya by Champion and Seth (1968) must have a good number of species of bird fauna. Bisht *et al.* (2004) reported the 14 orders and 51 families and Passerriformes as the most crowded order. Their finding also showed Turdidae as the largest family presented by 32 species of bird fauna of different sites. Our results of study also described 5 orders, 25 families.

CONCLUSION

The present study reveals the bird community structure of the temperate forests of Garhwal Himalaya (Sub-tropic) variations in relation to time. During the winter season, tribes with their goats, sheep migrate from higher altitude to low altitudinal areas and survive their herds on vegetations (particularly shrubs and herbs cover) which also lead soil erosion and habitat destruction. Pheasants are most affected with such activities because they leave and feed on the ground.

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