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SPECIES DIVERSITY, RELATIVE ABUNDANCE AND HABITAT USE OF THE BIRD COMMUNITIES OF TEHSIL CHENANI, DISTRICT UDHAMPUR, JAMMU AND KASHMIR, INDIA

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ABSTRACT

The present study dealt with the diversity, Resident/Migratory status, abundance, diversity indices and habitat used by the bird communities within four different habitats Cultivated Area (CA), Coniferous Forests (CF), Mixed Deciduous Forests (MDF) and scrubby areas (SA) of Tehsil Chenani which is located in Lesser Himalayas, J&K. A total of 3537 birds were counted belonging to 69 species, 11 orders and 29 families with annual abundance 946, 365, 1242 and 984 at CA, CF, DF and SH respectively. Deciduous forests were found to support maximum number of birds because of food and nesting sites availability. Order Passeriformes dominated the four bird communities with 39 species. Shannon weaver index, Marglef richness Index, Reciprocal Simpson Index and Pielos Evenness index were found maximum at Mixed Deciduous Forest. Simpson diversity index was found maximum at Cultivated areas. Deciduous forest and scrubby area were found more similar with highest value of Sorenson's Quotient of similarity (Q/S) (79.12%). The dominant species of mixed deciduous Forests and cultivated Area found were Jungle Crow and House Sparrow respective coniferous forests and scrubby area both was found to have White-cheeked Bulbul as dominant species.78.28 % of species were resident, 4.38%were winter migrant and were summer migrant. Of the total 69 species reported, 49.27% were insectivorous, 11.59% carnivorous, 23.18% grainivorous, 8.69% omnivorous and 7.24% frugivorous.

KEYWORDS : Himalayas, Chenani, Diversity, Avifauna, Cultivated Area, Coniferous Forests, Mixed Deciduous Forests, Scrubby Area

Bird community evaluation has become an important tool in biodiversity conservation and for identifying conservation actions in areas of high human pressure. Indian subcontinent is known for diverse and rich bird species whose taxonomy, distribution and their general habitat characteristics are well documented in India. Bird communities have been studied fairly well both in temperate and tropical forests. However, only a very little is known about bird community structure and their dynamics in India. Understanding the diversity and structure of bird communities is essential to delineate the importance of regional or local landscapes for avian conservation. Determinations of bird population in different habitats are central to understanding the community structure and niche relationships, as well as for intelligent management of populations. Moreover seasonal monitoring is equally important to trace the dynamic movement of birds in such habitats.

MATERIALS AND METHODS

Study Area

The study was carried out from April 2010 to April 2011. The present study was conducted at Tehsil Chenani, District Udhampur of Jammu and Kashmir, which is a part of the Northwest Lower Himalayas. Chenani is 24 km far from its District Main City Udhampur (Figure, 1).

The geographical location of of the Tehsil Chenani is between co-ordinates 32^0 55' 38" N to 32^0 59' 48" N and 75^0 15' 59" E to 75^0 26' 45" E and elevation ranges from 772 m to 2758m from mean sea level. The climate is sub tropical. Summer temperatures do not cross 40 degrees while in winters mercury generally dips to 2 degrees or even sometimes to zero. Heavy downpour is also experienced. The annual rainfall is 130 cm mainly in monsoons and winters due to Western disturbances. Tehsil Chenani rarely experiences snow while there may be snow in upper reaches .However due to changing climate patterns snowfall has been experienced in some years. In the year 2011 it snowed and there was about 15 cm snow. Heavy hailstorms with piles of hail can be experienced in February and March. The forest is of temperate type. The pre-dominant tree species comprises of *Pinus rouxbergii*, *Cedrus deodara* and *Quercus* sps. Mixed deciduous forests and scrubby areas are also found.

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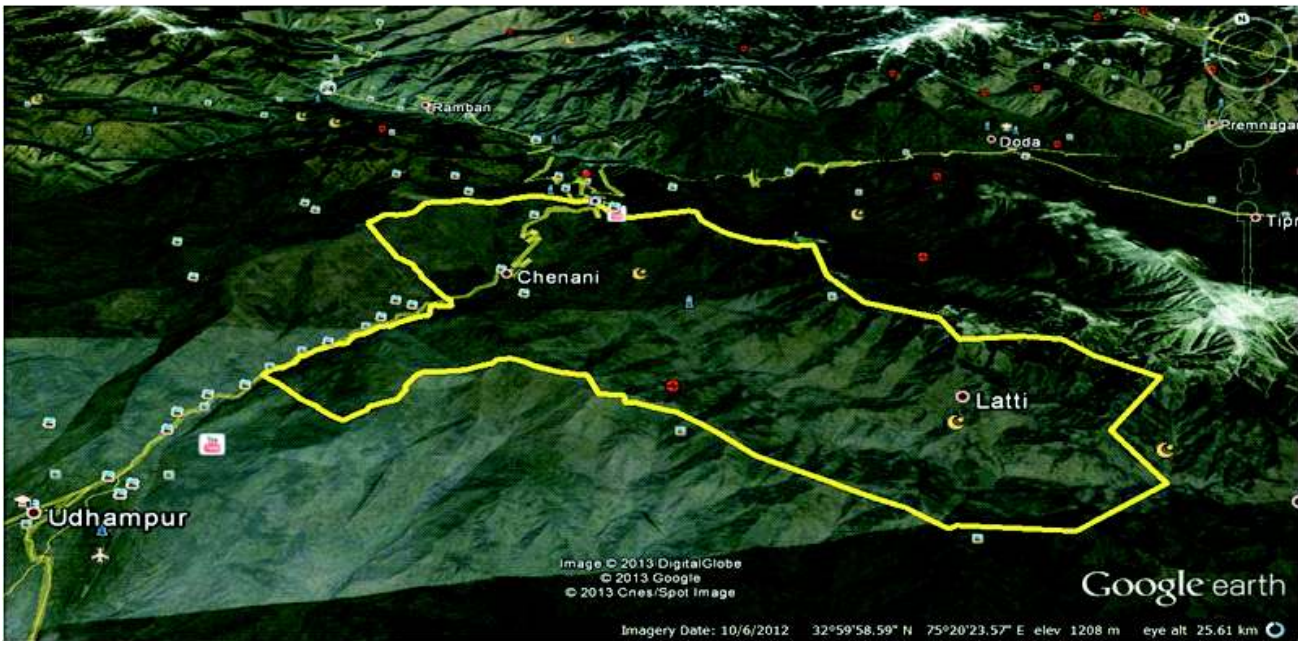

Figure 1 : Google earth map showing study area

METHODOLOGY

Variable width line transect method adopted by Baurniham et al., (1980) was used in which observer walks through a fixed path counting the birds seen or heard on both sides of the path. 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. The transect were selected the representative habitats of the area namely Scrubby Area, Mixed Deciduous Forest, Coniferous Forest and Cultivated Areas. 24 samples of line transects were collected from the study area during 12 month period.

In order to maintain uniformity, all surveys were conducted from 6:30 am to 10:30 am in the morning and 4:30 pm 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 300 mm lend did photography. Whenever a bird was spotted, it was identified upto species and details like number of birds and habitat were noted. For identification and field diagnosis of birds, coloured plates of Ali and Ripley (1968-74) and Grimmett et al., (1998). For recording the abundance of the avifauna during the survey, the terminology used by Ahmed and Sahi, (2005) was used.

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 four habitat surveyed were

1. Scrub forest Habitat (SF)
2. Deciduous forest habitat (DF)
3. Coniferous Forest Habitat (CF)
4. Cultivated Areas habitat (CA)

STATISTICAL ANALYSIS

To compare bird community, we calculated various indices at each station. Species diversity was determined by applying Shannon-Weaver Diversity Index (Shannon and Weaver, 1949), $H' = -\sum_{i=1}^{s} pi.\ln(pi)$ in

which H' is the information content of sample (bits/individuals), S is the number of species and pi is the proportion of total species belonging to ith species. Simpson's Index of dominance (C) was calculated by formula $C = \sum_{i=1}^{s} pi^2$ Stone and Pence, 1978) where pi is the proportion of total number of individuals of each species. Species richness was determined applying Marglef's Index (Marglef, 1968), d′ = S 1/Log n (N), in which S is the total number of species, N is the total number of individuals in sample and Log n is the Natural log. Evenness was calculated using the Pielou Index, E = H'/ln S (Pielou, 1969), where H' is the Index of diversity of Shannon-Weaver, ln is the Natural log and S is the total number of species. Percentage similarity of the bird communities at different stations was calculated by Sorenson's Quotient of Similarity (Sorenson, 1948), Q/S = (2j/a+b) 100, where j is the number of species common to both samples, a is the total number of species in sample 1 and b is the total number of species in sample 2. The relative dominance of each bird species in different habitats was calculated by determining the Dominance Index. The formula D=ni *100/N was used for calculating the Dominance index (D) where ni is number of individuals of the species, N is total number of individuals of all the species seen during the study period.

RESULTS AND DISCUSSION

A total of 3537 birds were counted belonging to 69 species, 11 orders and 29 families. The systematic list of 69 species belonging to 11 orders and 29 families along with their migratory status, abundance and feeding guild is presented in Table,1. Ahmed and Sahi, (2005) reported 41 species belonging to 6 orders and 22 families from Tehsil Doda which is 80 km from Chenani and is located in lower Himalayas.

Relative abundance

Abundance at different habitats was found to vary a lot. Annual abundance of birds was observed to be 946, 365, 1242 and 984 at cultivated areas (CA), coniferous forest (CF), mixed deciduous forest (MDF) and scrubby areas (SA) respectively (Table,2). Approximately proportions of species fell into each of the four abundance

Table 1 : Checklist of Birds of Tehsil Chenani With Migratory Status, Abundance And Feeding Guild

S. No.	Name	Status	Abundance	Feeding Guild
Order 1: Passeriformes				
Family 1: Passeridae				
1	White Wagtail *Motacilla alba*	SM	F	Inst.
2	Large Pied Wagtail *Montacilla maderaspatens*	Rst	O	Inst.
3	Yellow Waigtail *Montacilla flava*	SM	R	Inst.
Family 2 : Nectrainidae				
4	Purple Sunbird *Nectarinia asciatica asiatica*	Rst	O	Inst.
Family 3: Musciciapidae				
5	Jungle Babbler *Turdoides striatus somervillei*	Rst	C	Inst.
6	Common Babbler *Turdoides caudatus caudatus*	Rst	C	Inst.
7	Paradise Flycatcher *Terpsiphone paradise paradisi*	SM	O	Inst.
8	Indian Tailor Bird *Orthotomus sutorius guzuratus*	Rst	C	Inst.
9	Indian Magpie Robin *Copsychus saularis saularis*	WM	O	Inst.
10	Pied Bush Chat *Saxicola caprata bicolour*	Rst	O	Inst.
11	Indian Robin *Saxicoloides fulicata cambaiensis*	Rst	F	Inst.
Family 4: Lanidae				
12	Rufous- backed Shrike *Lanius scahach erythronotus*	Rst	F	Car.
Family 5: Oriolidae				
13	Indian Golden Oriole *Oriolus oriolus kundoo*	SM	O	Inst.
Family 6: Dicruridae				
14	Black Drongo *Dicrurus adsimilus*	Rst	C	Inst.
Family 7: Sturnidae				
15	Indian Myna *Acridotheres tristis tristis*	Rst	C	Inst.
16	Brahminy Myna *Sturnus pagodarum*	Rst	O	Inst.
Family 8: Corvidae				
17	House Crow *Corvus splendens splendens*	Rst	C	Omn.
18	Jungle Crow *C.macrorhynchos culminates*	Rst	F	Omn.
19	North Eastern Treepie *Dendrocitta vagabunda*	Rst	O	Omn.
20	Yellow Billed Blue Magpie *Cissa flavirostris*	Rst	F	Omn.
21	Himalayan Whistling Thrush *Myiophonus caeruleus*	Rst	F	Inst.
22	Long Tailed Minivet *Pericrocotus ethologus*	Rst	R	Inst.
Family 9: Pycnonotidae				
23	Red- vented Bulbul *Pycnonotus cafer cafer*	Rst	C	Inst.
24	White-cheeked Bulbul *P. leucogenys leucogenys*	Rst	C	Inst.
25	Black Bulbul *Hypsipetes madagascariensis*	SM	O	Inst.
26	Black-headed Jay *Garrulus lanceolatus*	WM	F	Grn.
Family 10: Hirundinidae				
27	Red-rumped Swallow *Hirundo daurica*	SM	C	Inst.
Family 11: Monarchinae				
28	Verdicator Flycatcher *Muscicapa thalassaina thalassina*	SM	O	Inst.
Family 12: Turnidae				

29	White Capped Redstart *Chaimarrornis leucocephalus*	Rst	O	Inst.
Family 13: Ploceidae				
30	Indian House Sparrow *Passer domesticus indicus*	Rst	C	Grn.
31	Russet sparrow *Passer rutilans*	Rst	F	Grn.
32	Spotted munia *Lunchura punctulata*	SM	C	Grn.
33	Baya Weaver *Ploceus phillipinus phillipinus*	Rst	F	Grn.
Family 14: Paridae				
34	Grey tit *Parus major*	Rst	F	Frg.
Family 15 : Emberizinae				
35	Rock Bunting *Emberiza cia*	Rst	F	Grn.
36	Crested Bunting *Melophus lathami*	WM	C	Grn.
Family16:Phylloscopidae				
37	Grey-hooded Warbler *Phylloscopus xanthoschistos*	Rst	C	Inst.
Family17: Tichodromadidae				
38	Wall creeper *Tichodroma muraria*	Rst	R	Inst.
Family18:Certhiidae				
39	Bar-tailed Tree-creeper *Certhia himalayana*	Rst	F	Inst.
Order 2: Falconiformes				
Family 19: Accipitridae				
40	Long–Billed Vulture *Gypus indicus*	Rst	C	Car.
41	Long-Legged Buzzard Buteo rufinus	Rst	O	Car.
42	White–rumped vulture *Gypus bengalensis*	Rst	F	Car.
Order 3: Galliformes				
Family 20: Phasianidae				
43	Khalij Pheasant *Lophura leucomelanus*	Rst	R	Grn.
44	Monal Pheasant *Lophophorus impejanus*	Rst	R	Grn.
45	Chukur *Alectoris chukar chukar*	Rst	R	Grn.
46	Indian Red Jungle Fowl *Gallus gallus murghi*	Rst	R	Inst.
47	Grey Patridge *Francolinus pondiecirianus*	Rst	R	Grn.
48	Black Patridge *Francolinus francolinus*	Rst	O	Grn.
Order 4: Columbiformes				
Family 21: Columbibidae				
49	Indian Blue Rock Pigeon *Columbia livia*	Rst	F	Grn.
50	Indian Spotted Dove *Streptopelia decaocta decaocta*	Rst	F	Grn.
51	Rufous Turtle Dove *S. orientalis orientalis*	SM	O	Grn.
52	Indian Ring Dove *Streptopelia chinensis suratensis*	Rst	C	Grn.
Order 5 : Psittaciformes				
Family 22: Psittacidae				
53	Rose Ringed Parakeet *Psittacula krameri manillensis*	SM	C	Frg.
54	Blossom Headed Parakeet *P. cynocephali*	SM	C	Frg.
55	Lorikeet *Loriculus vernalis*	SM	R	Frg.
Order 6: Stringiiformes				
Family 23: Strigidae				
56	Northern Spotted Owlet *Athene brama indica*	Rst	O	Car.
57	Barred Jungle Owler *Glaucidium radiatum radiatum*	Rst	R	Car.
Order 7:Coraciiformes				
Family24: Alcedinidae				
58	White Breasted Kingfisher *Halcyon smyrnensis smyrensis*	Rst	C	Car.
Order 8: Upupiformes				
Family 25: Upupidae				
59	European Hoopoe *Upupa epops epops*	Rst	C	Inst.
Order 9: Piciformes				
Family 26: Megalaimidae				
60	Himalayan Great Barbet *Megalaima virins*	Rst	F	Frg.
Family 27:Picidae				
61	Maharatta Woodpecker *Picoides maharathensis maharathensis*	Rst	O	Inst.
62	Lesser Golden Backed Woodpecker *Dinopium benghalense benghalense*	Rst	R	Inst.
63	Brown-fronted woodpecker *Dendrocopos auriceps*	Rst	O	Inst.
64	*Streak-throated Woodpecker Picus xanthopygaeus*	Rst	O	Inst.
65	Blue-throated Barbet *Megalaima asiatica*	Rst.	F	Omn.
66	Speckled Piculet *Picumnus innominatus*	Rst	O	Inst.
Order 10: Cuculiformes				
Family 28:Cuculidae				
67	Indian Koel *Eudynamys scolopacea scolopacea*	Rst	C	Inst.
68	Sirkeer Malkoha *Phaenicophaeus leschenaultii*	Rst	R	Omn.
Order 11: Cicconiformes				
Family 29: Ardeidae				
69	Cattle Egret *Bubulcus ibis*	Rst	C	Car.

SM= Summer Migration, WM= Winter Migration, Rst.=Resident, Inst.= Insectivores, Omn.=Omnivorous, Car.= Carnivorous, Frg.= Frugivorous, Grn.= Granivores

Table 2 : Site Wise Population of Birds At Four Different Habitats

S.No.	Name	Cultivated area	Coniferous forests	Mixed Deciduous forests	Scrubby areas	Total
1.	White Wagtail	12	21	22	0	55
2.	Large Pied Wagtail	9	6	12	0	27
3.	Yellow Waigtail	8	8	9	0	25
4.	Purple Sunbird	12	0	0	13	25
5.	Jungle Babbler	0	28	58	64	153
6.	Common Babbler	12	0	31	67	110
7.	Paradise Flycatcher	0	6	7	1	14
8.	Indian Tailor Bird	12	0	0	11	23
9.	Indian Magpie Robin	13	14	8	35	70
10.	Pied Bush Chat	15	0	9	7	31
11.	Indian Robin	8	0	6	10	24
12.	Rufous-backed Shrike	13	0	21	11	45
13.	Indian Golden Oriole	12	0	21	9	42
14.	Black Drongo	32	0	23	18	73
15.	Indian Myna	35	0	65	54	154
16.	Brahminy Myna	12	0	23	9	44
17.	House Crow	21	0	0	5	26
18.	Jungle Crow	21	43	23	12	99
19.	North Eastern Treepie	0	7	13	11	31
20.	Yellow Billed Blue Magpie	0	12	13	0	25
21.	Himalyan Whistling Thrush	0	12	15	11	38
22.	Long Tailed Minivet	0	4	8	0	12
23.	Red-vented Bulbul	56	0	61	35	152
24.	White-cheeked Bulbul	54	0	87	70	208
25.	Black Bulbul	0	9	12	8	29
26.	Black-headed Jay	12	0	15	23	50
27.	Red-rumped Swallow	123	0	32	0	155
28.	Verdicato Flycatcher	12	0	13	9	34
29.	White Capped Redstart	0	6	8	9	23
30.	Indian House Sparrow	165	0	0	45	210
31.	Russet sparrow	13	8	21	17	59
32.	Spotted Munia	12	0	23	21	56
33.	Baya Weaver	14	0	32	0	46
34.	Grey Tit	12	0	31	21	64
35.	Rock Bunting	8	0	19	25	52
36.	Crested Bunting	27	0	14	21	62
37.	Grey-hooded Warbler	45	0	31	21	97

S.No.	Name	Cultivated area	Coniferous forests	Mixed Deciduous forests	Scrubby areas	Total
38.	Wall creeper	0	9	7	8	24
39.	Bar-tailed Tree-creeper	0	5	7	4	16
40.	Long-Billed Vulture	0	12	23	0	35
41.	Long Legged Buzzard	0	5	8	7	20
42.	White-rumped vulture	0	23	8	0	31
43.	Khalij Pheasant	0	8	5	0	13
44.	Monal Pheasant	0	4	5	2	11
45.	Chukur	0	7	6	8	21
46.	Indian Red Jungle Fowl	0	32	23	35	90
47.	Grey Patridge	0	5	4	8	17
48.	Black Patridge	0	23	21	32	76
49.	Indian Blue Rock Pigeon	25	0	43	54	122
50.	Indian Spotted Dove	12	0	0	23	35
51.	Rufous Turtle Dove	12	0	8	9	29
52.	Indian Ring Dove	23	0	31	11	65
53.	Rose Ringed Parakeet	25	0	54	17	96
54.	Blossom Headed Parakeet	33	0	45	21	99
55.	Lorikeet	8	0	9	0	17
56.	Northern Spotted Owlet	2	4	7	2	15
57.	Barred Jungle Owler	0	2	4	0	6
58.	White Breasted Kingfisher	0	0	8	0	8
59.	European Hoopoe	0	5	13	8	26
60.	Himalayan Great Barbet	0	0	21	18	39
61.	Maharatta Woodpecker	0	0	13	9	22
62.	Lesser Golden Backed Woodpecker	0	0	8	11	19
63.	Brown-fronted woodpecker	0	11	21	0	32
64.	*Streak throated woodpecker*	0	7	13	9	29
65.	Blue-throated Barbet	0	5	15	6	26
66.	Speckled Piculet	0	9	10	0	19
67.	Indian Koel	0	0	7	4	11
68.	Sirkeer Malkoha	0	5	7	0	12
69.	Cattle Egret	6	0	2	5	13
	Total	946	365	1242	984	3537

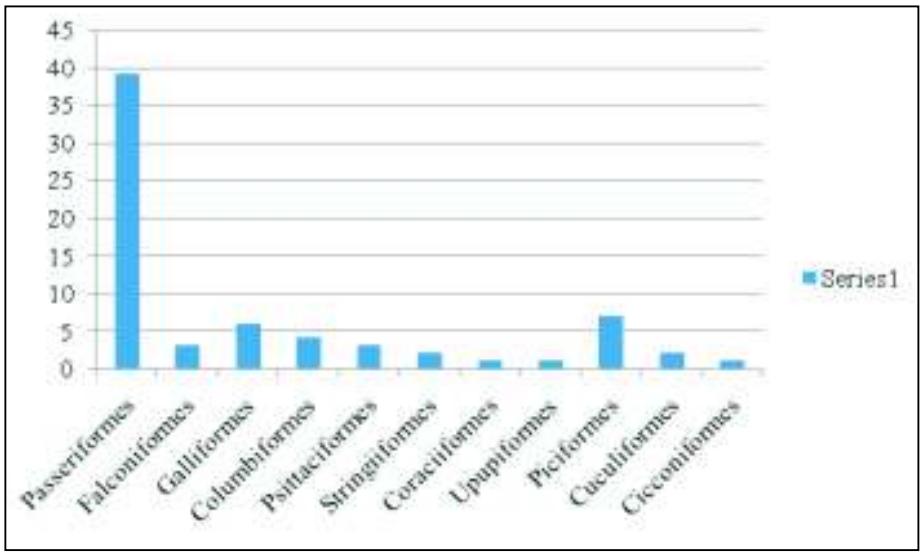

Figure 2: Bar diagram showing the distribution of species in different orders

categories common (30.43%), occasional (27.53%), frequent (24.63%) and rare (17.39%). Out of 11 orders, order Passeriformes dominated the bird community (56.52%) whereas remaining families exhibited the lower percentages viz. Piciformes (10.14%), Galliformes (8.69%), Columbiformes (5.79%), Psittaciformes (4.34%), Falconiformes (4.14%), Stringiiformes (2.89%), Cuculiformes (2.89%), Upupiformes (1.44%), Cicconiformes (1.44%), and Coraciiformes (1.44%) (Figure, 2). Order Passeriformes has also been reported as dominant order in Tehsil Doda (Ahmed et al., 2005). 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.

Habitat Utilization

The order of utilization of different habitat of was recorded as MDF> SH> CA > CF. The MDF supported maximum number of avifauna. The deciduous forests have variety of broadleaved, grasses and herbs and thus support a large population of birds. The deciduous forests also provide lot of nesting sites for birds.

Migration Status

Out of total 69 species, 54 species were Resident and 15 species were migrant. Out of 15 migrant species, 12 species were summer migrant and 3 species were winter migrant (Figure, 3).

Diversity Indices Variations

The variations in diversity indices of bird community at four different habitats of study area are given in Table 3. The Shannon Index of diversity dropped from 3.86 at Mixed Deciduous Forests to 3.17 at Cultivated Area. Simpson Diversity Index was greatest at Cultivated Area (0.067) and lowest at Mixed Deciduous Forests (0.027). Pielos Evenness Index showed maximum evenness at Mixed Deciduous Forests (0.929) and minimum at Cultivated Area (0.872). The highest Marglef's richness index value (8.8) was calculated at Mixed Deciduous Forests, followed by Scrubby area (7.5) and Coniferous Forests and Scrubby Area (5.4 each). Highest Marglef's species richness index (which considers both abundance and species number) at Deciduous Forests revealed that this site harboured a good number of bird taxa. The variation in species diversity and species evenness at various habitats may be due to the availability of food to the birds, nesting sites, change of climatic conditions and consequent emigration and immigration.

Relative Dominance

The relative dominance of species in different habitats is given in Table, 4. House sparrow was found dominant in habitation and cultivated areas because of lot of nesting sites available in mud houses present in the study area and food availability. The House Sparrow is primarily associated with human habitations e.g., agricultural land,

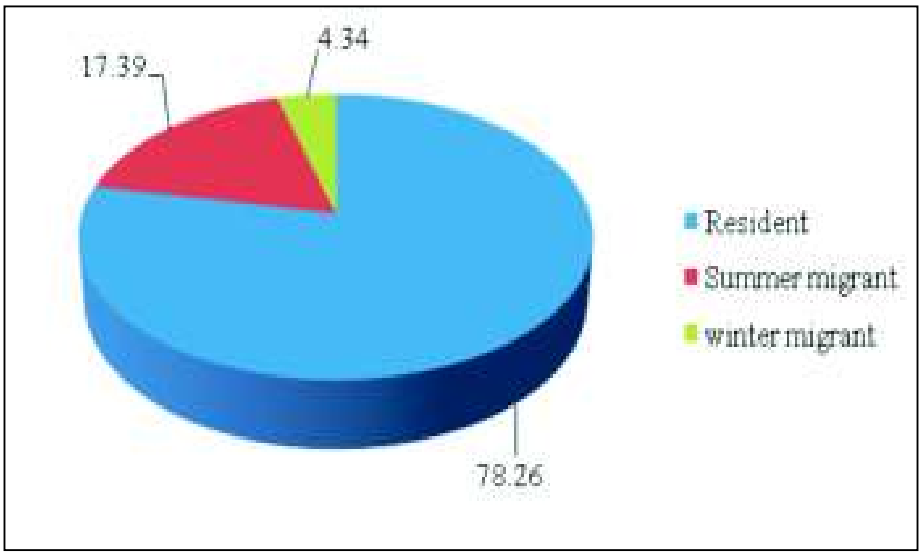

Figure 3: Pie diagram showing relative percent migratory status of avifauna of the study area

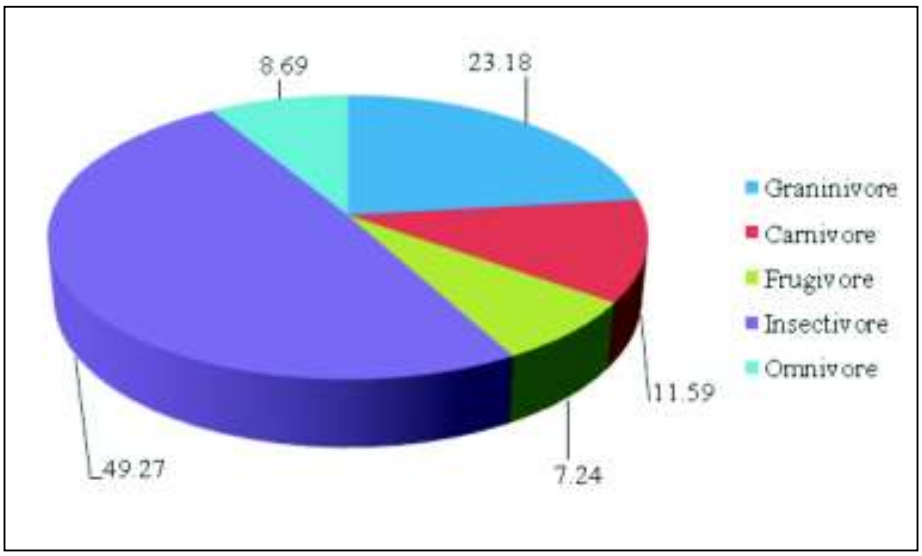

Figure 4 : Pie diagram showing relative percent of feeding guild used by bird communities

villages and urban areas (Lowther and Cink, 1992). The dominant species of Mixed Deciduous Forests found was Jungle Crow. Coniferous Forests and Scrubby Area both was found to have White-cheeked Bulbul as dominant species.

Similarity index

When comparison between habitats was made by using qualitative presence-absence type, Deciduous Forest and Scrubby Area were found more similar with highest value of Sorenson's Quotient of similarity (Q/S) (79.12%) whereas lowest similarity (19.71%) was calculated between Cultivated Area and Coniferous Forest habitats (Table, 5).

Feeding Guild

The birds recorded from Tehsil Chenani were classified into 5 major categories viz. insectivorous, carnivorous, grainivorous, omnivorous and frugivorous. Of the total 69 species reported, 34 species were insectivores, 8 carnivorous, 16 grainivorous, 6 omnivorous and 5 frugivorous (Figure, 4). The data depicts that the overall highest proportion is of insectivores birds followed by carnivorous. Insectivore feeding guild has also been

Table 3. Diversity Indices Of Bird Community At Four Different Habitats of Study Area

Diversity indices	Cultivated Area	Coniferous Forests	Mixed Deciduous Forests	Scrubby area
Shanon - Weaver Index	3.17	3.22	3.86	3.62
Marglef Richness Index	5.4	5.4	8.8	7.5
Abundance	946	365	1242	984
Simpson Diversity Index	0.067	0.051	0.027	0.034
Reciprocal Simpson Index	14.84	19.60	36.98	29.00
Pielos Evenness index	0.872	0.921	0.929	0.912

Table 4. Dominance Index Of Selected Species At Four Different Habitats

Cultivated area	Mixed Deciduous Forests	Coniferous Forests	Scrubby Area
House Sparrow (17.44)	Jungle crow (11.78)	White-cheeked Bulbul (7.0)	White-cheeked Bulbul (7.11)
Red-rumped Swallow (13.00)	Red Jungle Fowl (8.76)	Common Myna (5.23)	Jungle Babbler (6.5)
Red- vented Bulbul (5.91)	Jungle Babbler (7.67)	Red- vented Bulbul (4.90)	Common Babbler (6.8)
White-cheeked Bulbul (5.70)	White-rumped vulture (6.30)	Jungle Babbler (4.66)	Common Myna (5.48)
Grey-hooded Wabbler (5.48)	Black Patridge (6.30)	Rose Ringed Parakeet (4.34)	Blue Rock Pigeon (5.48)

Table 5. Sorenson's similarity indices to compare the community structure of four types of habitats

Compared habitats	No. of species			Sorenson's Quotient
A vs B	A	B	Common	
CA vs CF	38	33	7	19.71 %
CA vs DF	38	64	33	64.70%
CA vs SH	38	53	32	70.32%
CF vs DF	33	64	33	68.04%
CF vs SH	33	53	21	48.83%
DF vs SH	64	53	48	82.05%

reported as major feeding guild in Tehsil Doda (Ahmed and Sahi, 2005). The presence of food resources available to and exploited by birds in defining the trophic structure of the community (Karr et al., 1990). Similarities or difference among species in diet composition are especially relevant to the tests of niche or guild concept (Wiens, 1989).The species composition of bird association and guilds changed periodically. Availability of food resource appeared to be a very influential factor controlling seasonal fluctuation of bird communities, the other being changes of climatic conditions and consequent emigration and immigration.

CONCLUSION

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 sps recorded by from Indian sub-continent avifauna of Tehsil Chenani presents 5.3 %. The observed bird diversity in relatively small area underlines the importance of this area for biodiversity conservation.

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 avifauna 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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