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## **Avifauna of Prashar Lake and its Surrounding Area in Mandi District (Himachal Pradesh), India**

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### **ABSTRACT**

The explorations of the avifauna of Prashar lake and its surrounding area in Mandi district revealed the presence of 95 species of birds belonging to 74 genera spread over 30 families and 11 orders. Of these, 16 species of birds were purely resident and rest 79 showed seasonal local or long range migrations. Of the 79 seasonal local or long range migrants, 39 species were local migrants, 15 were summer visitors, 8 were winter visitors, and 14 species showed summer and 3 species showed winter influx. Analyses of data on relative abundance showed that of the 95 species, 29 (31%) were very common, 45 (47%) common, 19 (20%) uncommon and 2 (2%) rare in Prashar area of Mandi district. Moreover, a majority of the birds (43 species) were insectivorous in nature followed by Graminivorous (14 species), Omnivorous (13 species), Frugivorous (10 species), Scavengers (seen species), aquatic animal eaters (4 species) and vegetable matter eaters and Carnivorous (2 species each). The study further showed that there are two endangered species of birds viz., Egyptian Vulture and Cheer Pheasant in Prashar area.

**Key words:** Avifauna, residential status, relative abundance, Prashar lake, Himachal Pradesh

### **INTRODUCTION**

Natural environment provides numerous services like carbon sequestration, crop pollination, managing water flows, maintenance of biodiversity etc. (Millennium Ecosystem Assessment, 2005). Himachal Pradesh constituting just 1.76% of the entire geographical area of the country supports more than 600 species of birds representing around 50% of the total species recorded from India (Rahmani, 2004) mainly due to the overlapping of three avifaunal realms i.e., the Indo-Malayan, the Palaearctic and the Afrotropical regions (Besten, 2004). Topographical variations from sub-tropical hot plains to lofty mountains, each harbouring unique sets of biotic community is another major contributing factor to this diversity. In addition, many large natural and manmade wetlands in the State also support a wide variety of wetland associated birds besides serving as wintering grounds for a large number of migratory birds.

Present study area of Prashar situated at 31°45'15"N latitude and 77°6'5"E longitude, lies 49 km north of Mandi (Himachal Pradesh, India). A three storeyed pagoda-like temple dedicated to the sage Prashar is alongside the lake. The lake is located at a height of 2730 m above sea level, approximately in the centre of a large high altitude alpine meadow (Fig. 1). With deep blue waters, the lake is held sacred to the sage Prashar. The lake has a floating island in it. The lake is holomictic, has uniform temperature and density from top to bottom at some time of the year,

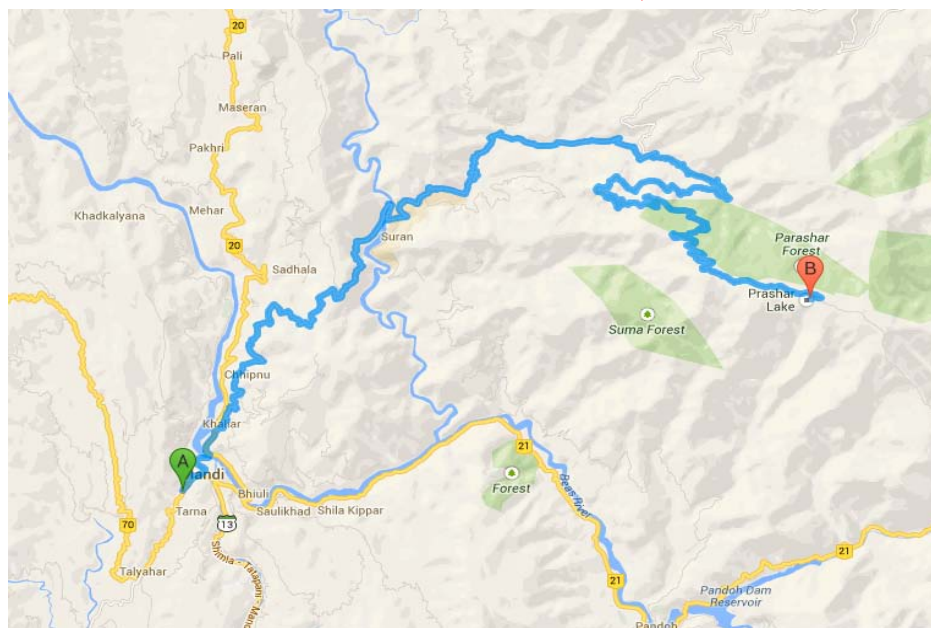
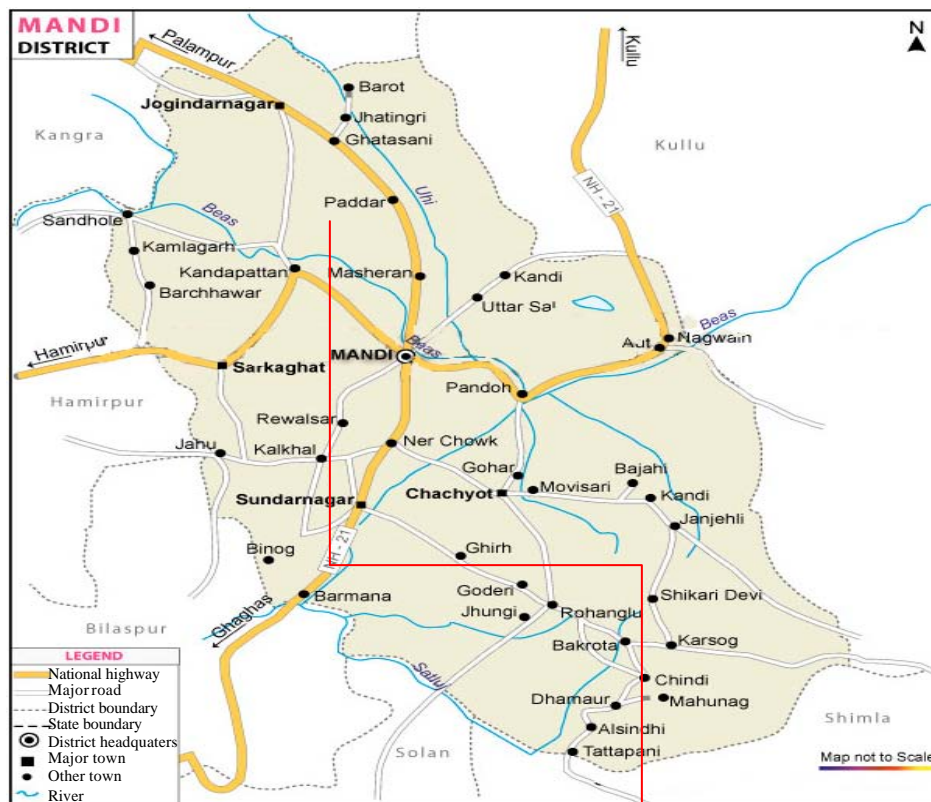


Fig. 1: Prashar area in Mandi district, Himachal Pradesh

allowing the lake water to completely mix. Surrounded by snow-capped peaks and looking down on the fast flowing river Beas, the lake can be approached after crossing thick forests of oaks, rhododendrons, pines and deodar. Weather in Prashar area is unpredictable experiencing untimely rains and snow mostly due to the dense belt of forest all around the area. Temperature ranges from -9-23°C in a year. In winter, there is a heavy snowfall at Prashar area. The area is one the most favoured alpine meadow for animal graziers and receives flood of animals during summer and monsoon months.

Although, many investigators have reported diversity of birds in different parts of Himachal Pradesh (Singh and Banyal, 2013) and a few studies have been undertaken in some parts of Mandi district (Mahabal and Mukherjee, 1991; Thakur *et al.*, 2010). However, present study area of Prashar has not attracted the attention of field ornithologists. In addition, avifauna of Prashar area, a part of the fragile Himalayan ecosystem under severe pressure, due to heavy tourist influx and animal grazing need urgent attention.

## **MATERIALS AND METHODS**

Stratified random sampling technique (Snedecore and Cochran, 1993) was followed for studying the birds of the Parashar and surrounding area. These strategies were mainly based upon the principle of exploration of a portion of the individuals in the whole population. Most of the bird sampling was done either in early morning or late evening hours keeping in view the peak activity of the birds which in most birds lasts for 1 or 2 h after sunrise or before sunset.

Birds were observed with the aid of 10×40 Nikon field binoculars and photographed with Nikon D-90 and Sony α-200 with 300 m tele-lens. Field identifications were carried out with the help of various field guides (Ali and Ripley, 1983a; Kazmierczak and Van Perlo, 2000). The nomenclature followed here is after Manakadan and Pittie (2001).

Birds show different types of movements in response to changing weather of the areas. Different types of movements seen in birds of Himalayas include long range, local seasonal, altitudinal and latitudinal. Therefore, different residential categories like resident, winter visitor, summer visitor and local migrant have been assigned strictly with reference to the study area on the basis of presence or absence method (Singh and Banyal, 2013).

The data generated in each survey and each habitat type was recorded and analysed for relative abundance of each bird species on a relative frequency scale of occurrence depending upon the number of sightings as developed by McKinnon and Phillipps (1993). Relative abundance of birds of Prashar area has been worked out into categories like very common (recorded more than 45% times), common (between 25-45% times), uncommon (between 10-24% times) and rare (recorded once or twice). The relative frequency scale was fixed in such a way so as to include the migrant species sighted seasonally in good numbers (which visit the area for a brief period of time) to their respective category. Moreover, the feeding habits of the birds like insectivorous, graminivorous, frugivorous, etc., as shown in Ali and Ripley (1983b) have been assigned to each species.

## **RESULTS**

Present explorations of the avifauna of Prashar area of Mandi district revealed the presence of 95 species of birds belonging to 74 genera spread over 30 families and 11 orders. Passerine birds dominated the diversity with 61 species as compared to non-passerines (34 species) (Table 1).

Table 1: Systematic list of birds of Prashar lake and surrounding area, Mandi

Taxon	R.A	R.S	F.H
<b>Order: Falconiformes</b>			
<b>Family: Accipitridae</b>			
Black Kite <i>Milvus migrans</i> Boddaert (1783)	R	C	OM
Bearded Vulture <i>Gypaetus barbatus</i> Linnaeus (1758)	R/LM	UC	SC
Egyptian Vulture <i>Neophron percnopterus</i> Linnaeus (1758) EN	R/LM	UC	SC
Himalayan Griffon <i>Gyps himalayensis</i> Hume (1869)	R	C	SC
Shikra <i>Accipiter badius</i> Gmelin (1788)	R/LM	C	SC
Eurasian Sparrowhawk <i>Accipiter nisus</i> Linnaeus (1758)	R/LM	UC	SC
Lesser Spotted Eagle <i>Aquila pomarina</i> Brehm (1831)	R/LM	C	SC
<b>Family: Falconidae</b>			
Common Kestrel <i>Falco tinnunculus</i> Linnaeus (1758)	R/LM	VC	SC
<b>Order: Galliformes</b>			
<b>Family: Phasianidae</b>			
Chukor <i>Alectoris chukar</i> J.E. Gray (1830)	R/LM	UC	OM
Black Francolin <i>Francolinus francolinus</i> Linnaeus (1766)	R/SV	VC	VgM
Koklass Pheasant <i>Pucrasia macrolopha</i> Lesson (1829)	R	C	OM
Impeyan Monal <i>Lophophorus impejanus</i> Latham (1790)	R	C	VgM
Kaleej Pheasant <i>Lophura leucomelanos</i> Latham (1790)	R	C	GR
Cheer Pheasant <i>Catreus wallichii</i> Hardwicke (1827) EN	R	UC	GR
<b>Order: Columbiformes</b>			
<b>Family: Columbidae</b>			
Blue Rock Pigeon <i>Columba livia</i> Gmelin (1789)	R/SV	VC	GR
Snow Pigeon <i>Columba leuconota</i> Vigors (1831)	WV	UC	GR
Oriental Turtle-Dove <i>Streptopelia orientalis</i> Latham (1790)	R/LM	VC	GR
Spotted Dove <i>Streptopelia chinensis</i> Scopoli (1786)	SV	C	GR
Wedge Tailed Green-Pigeon <i>Treron sphenura</i> Vigors (1832)	SV	UC	FR
<b>Order: Psittaciformes</b>			
<b>Family: Psittacidae</b>			
Alexandrine Parakeet <i>Psittacula eupatria</i> Linnaeus (1766)	R/SV	C	FR
Slaty Headed Parakeet <i>Psittacula himalayana</i> Lesson (1832)	R/SV	VC	FR
Plum Headed Parakeet <i>Psittacula cyanocephala</i> Linnaeus (1766)	R/SV	C	FR
<b>Order: Cuculiformes</b>			
<b>Family: Cuculidae</b>			
Brainfever Bird <i>Hierococcyx varius</i> Vahl (1797)	SV	C	I
Indian Cuckoo <i>Cuculus micropterus</i> Gould (1838)	SV	C	I
Common Cuckoo <i>Cuculus canorus</i> Linnaeus (1758)	R/SV	VC	I
Asian Koel <i>Eudynamis scolopacea</i> Linnaeus, (1758)	SV	C	FR
<b>Order: Strigiformes</b>			
<b>Family: Strigidae</b>			
Asian Barred Owllet <i>Glaucidium cuculoides</i> Vigors (1831)	R/LM	Ra	I,CR
<b>Order: Caprimulgiformes</b>			
<b>Family: Caprimulgidae</b>			
Large-Tailed Nightjar <i>Caprimulgus macrurus</i> Horsfield (1821)	SV	UC	I
<b>Order: Apodiformes</b>			
<b>Family: Apodidae</b>			
House swift <i>Apus affinis</i> J.E. Gray (1830)	R	C	I
<b>Order: Coraciiformes</b>			
<b>Family: Alcedinidae</b>			
White-Breasted Kingfisher <i>Halcyon smyrnensis</i> Linnaeus (1758)	R	C	A q A
Greater Pied Kingfisher <i>Megaceryle lugubris</i> Temminck (1834)	R	VC	AqA
<b>Family: Upupidae</b>			
Common Hoopoe <i>Upupa epops</i> Linnaeus (1758)	WV	VC	I

Table 1: Continue

Taxon	R.A	R.S	F.H
<b>Order: Piciformes</b>			
<b>Family: Capitonidae</b>			
Great Barbet <i>Megalaima virens</i> Boddaert (1783)	R	VC	FR,I
<b>Family: Picidae</b>			
Himalayan Pied Woodpecker <i>Dendrocopos himalayensis</i> Jardine and Selby (1831)	R/LM	UC	I
<b>Order: Passeriformes</b>			
<b>Family: Hirundinidae</b>			
Red-rumped Swallow <i>Hirundo daurica</i> Linnaeus (1771)	R/SV	C	I
Asian House-Martin <i>Delichon dasypus</i> Bonaparte (1850)	R/WV	C	I
<b>Family: Motacillidae</b>			
White Wagtail <i>Motacilla alba</i> Linnaeus (1758)	R/LM	VC	I
Large Pied Wagtail <i>Motacilla maderaspatensis</i> Gmelin (1789)	R/LM	UC	I
Citrine Wagtail <i>Motacilla citreola</i> Pallas (1776)	R/LM	C	I
Rosy Pipit <i>Anthus roseatus</i> Blyth (1847)	R/LM	Ra	I
<b>Family: Campephagidae</b>			
Long-tailed Minivet <i>Pericrocotus ethologus</i> Bangs and Phillips (1914)	SV	VC	I
<b>Family: Pycnonotidae</b>			
Himalayan Bulbul <i>Pycnonotus leucogenys</i> Gray (1835)	R/LM	VC	FR
Red-vented Bulbul <i>Pycnonotus cafer</i> Linnaeus (1766)	SV	C	FR
Black Bulbul <i>Hypsipetes leucocephalus</i> P.L.S. Muller (1776)	R/LM	VC	FR
<b>Family: Laniidae</b>			
Bay-backed Shrike <i>Lanius vittatus</i> Valenciennes (1826)	SV	C	CR
Rufous-backed Shrike <i>Lanius schach</i> Linnaeus (1758)	SV	VC	CR
<b>Family: Muscicapidae</b>			
<b>Subfamily: Turdinae</b>			
Chestnut-bellied Rock-Thrush <i>Monticola rufiventris</i> Jardine and Selby (1833)	R/LM	UC	I
Blue Whistling-Thrush <i>Myiophonus caeruleus</i> Scopoli (1786)	R	VC	AqA
Grey-winged Blackbird <i>Turdus boulboul</i> Latham (1790)	R/WV	VC	I
Dark-throated Thrush <i>Turdus ruficollis</i> Pallas (1776)	WV	C	I
Oriental Magpie-Robin <i>Copsychus saularis</i> Linnaeus (1758)	SV	C	I
Blue-fronted Redstart <i>Phoenicurus frontalis</i> Vigors (1832)	WV	UC	I
White-capped Redstart <i>Chaimarrornis leucocephalus</i> Vigors (1831)	R/LM	C	I
Plumbeous Redstart <i>Rhyacornis fuliginosus</i> Vigors (1831)	R/LM	C	I
Spotted Forktail <i>Enicurus maculatus</i> Vigors (1831)	R/LM	C	AqA
Common Stonechat <i>Saxicola torquata</i> Linnaeus (1766)	R/SV	VC	I
Grey Bushchat <i>Saxicola ferrea</i> Gray (1846)	R/LM	VC	I
<b>Subfamily: Timaliinae</b>			
Streaked Laughingthrush <i>Garrulax lineatus</i> Vigors (1831)	R/LM	VC	I
Variiegated Laughingthrush <i>Garrulax variegatus</i> Vigors (1831)	R/LM	UC	I,FR
Black-chinned Babbler <i>Stachyris pyrrhops</i> Blyth (1844)	R/LM	C	I
Bar-throated Minla <i>Minla strigula</i> Hodgson (1838)	WV	C	I
Rufous Sibia <i>Heterophasia capistrata</i> Vigors (1831)	R/LM	C	I
Yellow-naped Yuhina <i>Yuhina flavicollis</i> Hodgson (1836)	WV	C	I
<b>Subfamily: Sylviinae</b>			
Common Chiffchaff <i>Phylloscopus collybita</i> Vieillot (1817)	WV	UC	I
Lemon-rumped Warbler <i>Phylloscopus chloronotus</i> G.R. Gray and J.E. Gray (1846)	R/LM	C	I
Grey-headed Flycatcher-Warbler <i>Seicercus xanthoschistos</i> G.R. Gray and J.E. Gray (1846)	R/LM	VC	I
<b>Subfamily: Muscicapinae</b>			
Little Pied Flycatcher <i>Ficedula westermanni</i> Sharpe (1888)	SV	UC	I
Ultramarine Flycatcher <i>Ficedula superciliaris</i> Jerdon (1840)	SV	VC	I

Table 1: Continue

Taxon	R.A	R.S	F.H
Verditer Flycatcher <i>Eumyias thalassina</i> Swainson (1838)	R/SV	VC	I
Rufous-bellied Niltava <i>Niltava sundara</i> Hodgson (1837)	R/SV	C	I
<b>Family: Aegithalidae</b>			
Red-headed Tit <i>Aegithalos concinnus</i> Gould (1855)	R	C	I
<b>Family: Paridae</b>			
Spot-winged Crested Tit <i>Parus melanolophus</i> Vigors (1831)	R/LM	C	I
Great Tit <i>Parus major</i> Linnaeus (1758)	R/LM	VC	I
Green-backed Tit <i>Parus monticolus</i> Vigors (1831)	R/WV	C	I
<b>Family: Sittidae</b>			
White-cheeked Nuthatch <i>Sitta leucopsis</i> Gould (1850)	R/LM	C	I
<b>Family: Certhiidae</b>			
Bar-tailed Tree-Creeper <i>Certhia himalayana</i> Vigors (1832)	R/SV	VC	I
<b>Family: Zosteropidae</b>			
Oriental White-eye <i>Zosterops palpebrosus</i> Temminck (1824)	R/SV	UC	OM
<b>Family: Emberizidae</b>			
Rock Bunting <i>Emberiza cia</i> Linnaeus (1766)	R/SV	VC	GR
<b>Family: Fringillidae</b>			
Fire-fronted Serin <i>Serinus pusillus</i> Pallas (1811)	R/LM	C	GR
Eurasian Goldfinch <i>Carduelis carduelis</i> Linnaeus (1758)	WV	C	GR
Common Rosefinch <i>Carpodacus erythrinus</i> Pallas (1770)	R/LM	C	GR
Yellow-breasted Greenfinch <i>Carduelis spinoides</i> Vigors (1831)	R/LM	C	GR
Spectacled Finch <i>Callacanthus burtoni</i> Gould (1838)	R/LM	UC	GR
<b>Family: Passeridae</b>			
House Sparrow <i>Passer domesticus</i> Linnaeus (1758)	R/LM	C	GR
Cinnamon Tree Sparrow <i>Passer rutilans</i> Temminck (1835)	SV	VC	GR
<b>Family: Sturnidae</b>			
Common Myna <i>Acridotheres tristis</i> Linnaeus (1766)	R	C	OM
Jungle Myna <i>Acridotheres fuscus</i> Wagler (1827)	SV	C	FR
<b>Family: Dicruridae</b>			
Black Drongo <i>Dicrurus macrocercus</i> Vieillot (1817)	R	C	OM
Ashy Drongo <i>Dicrurus leucophaeus</i> Vieillot (1817)	R/LM	UC	OM
<b>Family: Corvidae</b>			
Eurasian Jay <i>Garrulus glandarius</i> Linnaeus (1758)	R/LM	VC	OM
Black-headed Jay <i>Garrulus lanceolatus</i> Vigors (1831)	R/LM	C	OM
Yellow-billed Blue Magpie <i>Urocissa flavirostris</i> Blyth (1846)	R/LM	UC	OM
Red-billed Blue Magpie <i>Urocissa erythrorhyncha</i> Boddaert (1783)	R/SV	VC	OM
Grey Treepie <i>Dendrocitta formosae</i> Swinhoe (1863)	R	C	OM
Jungle Crow <i>Corvus macrorhynchos</i> Wagler (1827)	R	VC	OM

R.S: Residential status, R: Resident, R/LM: Resident with local movements, R/WV: Resident with winter influx, R/SV: Resident with summer influx, WV: Winter visitor, SV: Summer visitor, R.A: Relative abundance, VC: Very common, C: Common, UC: Uncommon, Ra: Rare, F.H: Feeding habits, AqA: Aquatic animal, CR: Carnivorous, FR: Frugivorous, GR: Graminivorous, I: Insectivorous, OM: Omnivorous, SC: Scavenger, VgM: Vegetable matter

Muscicapidae, the largest family of birds in India with 370 spp. dominated the avifauna of Prashar area with 24 species, followed by Accipitridae (7 species), Phasianidae and Corvidae (6 each), Columbidae and Fringillidae (5 each), Cuculidae and Motacillidae (4 each). However, families like Falconidae, Strigidae, Caprimulgidae, Apodidae, Upupidae, Capitonidae, Picidae, Campephagidae Aegithalidae, Sittidae, Certhiidae, Zosteropidae and Emberizidae were least represented in the area with a single species each (Table 1).

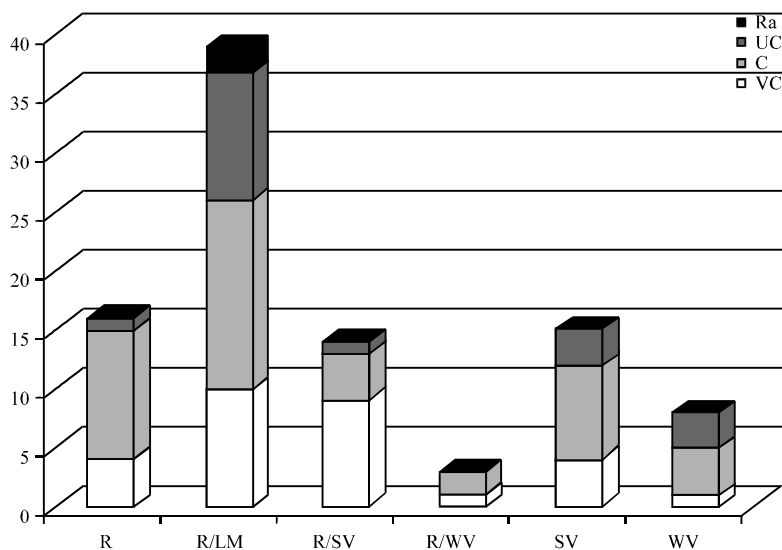


Fig. 2: Residential status and relative abundance of avifauna of Prashar area. UC: Uncommon, Ra: Rare, VC: Very common, C: Common

Analyses of data on residential status of avifauna of the present study area revealed that 16 species of birds were purely resident and the remaining 79 showed seasonal local or long range migrations. Species like Black Kite, Himalayan Griffon, Koklass Pheasant, Impeyan Monal, Kaleej Pheasant, Great Barbet, Common Myna, Black Drongo, Grey Treepie, Jungle Crow etc., were resident in the Prashar area. In addition, Endangered Cheer Pheasant was also reported as a resident species in the present study area. Of the 79 seasonal local or long range migrants, 39 species were local migrants, 15 were summer visitors, 8 were winter visitors and 14 species showed summer and 3 species showed winter influx (Table 1 and Fig. 2). Local migrant category included species like Bearded Vulture, Egyptian Vulture (Endangered), Shikra, Eurasian Sparrowhawk, Lesser Spotted Eagle, Common Kestrel, Chukor, Oriental Turtle-Dove, Asian Barred Owllet, Himalayan Pied Woodpecker, White Wagtail, Large Pied Wagtail, Rosy Pipit, Himalayan Bulbul, Eurasian Jay, Yellow-billed Blue Magpie etc.

About 16% of birds were summer visitors to Prashar area and this category included species like Spotted Dove, Wedge-tailed Green-Pigeon, Brainfever Bird, Indian Cuckoo, Asian Koel, Large-tailed Nightjar, Long-tailed Minivet, Red-vented Bulbul, Bay-backed Shrike, Rufous-backed Shrike, Oriental Magpie-Robin, Cinnamon Tree Sparrow etc. Moreover, 8% of the species were winter visitors species like Snow Pigeon, Common Hoopoe, Dark-throated Thrush, Blue-fronted Redstart, Bar-throated Minla, Yellow-naped Yuhina, Common Chiffchaff and Eurasian Goldfinch. It was further reported that population of around 15% of the birds got augmented during summer months due to influx of more individuals, therefore, categorized as summer influx category. The species categorized as summer influx included birds like Black Francolin, Blue Rock Pigeon, Alexandrine Parakeet, Slaty-headed Parakeet, Plum-headed Parakeet, Common Cuckoo, Red-rumped Swallow, Common Stonechat, Verditer Flycatcher, Rufous-bellied Niltava, Rock Bunting, Red-billed Blue Magpie etc. Species like Asian House-Martin, Grey-winged Blackbird and Green-backed Tit showed winter influx.

Analyses of data on relative abundance showed that of the 95 species, 29 (31%) were very common, 45 (47%) common, 19 (20%) uncommon and 2 (2%) rare in the study area. The data



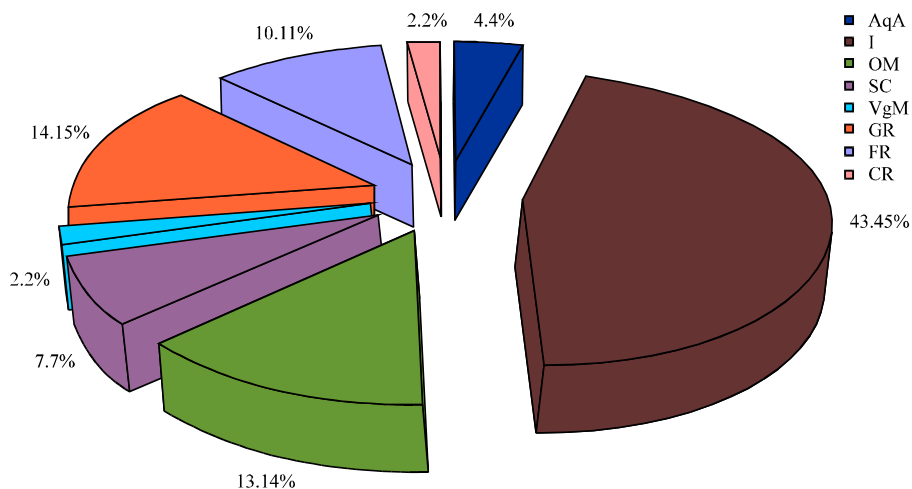


Fig. 3: Feeding habits of birds of Prashar area (No. of species, percent of total), AqA: Aquatic animal, CR: Carnivorous, FR: Frugivorous, GR: Graminivorous, I: Insectivorous, OM: Omnivorous, SC: Scavenger, VgM: Vegetable matter

revealed that species like Common Kestrel, Black Francolin, Blue Rock Pigeon, Oriental Turtle-Dove, Slaty-headed Parakeet, Common Cuckoo, Greater Pied Kingfisher, Common Hoopoe, Great Barbet, White Wagtail, Himalayan Bulbul, Black Bulbul, Blue Whistling-Thrush, Grey-winged Blackbird, Grey Bushchat, Streaked Laughingthrush, Ultramarine Flycatcher, Red-billed Blue Magpie, Jungle Crow etc., were very common. Species categorized as common included the birds like Black Kite, Himalayan Griffon, Shikra, Lesser Spotted Eagle, Koklass Pheasant, Impeyan Monal, Kaleej Pheasant, Spotted Dove, Alexandrine Parakeet, Plum-headed Parakeet, Grey Treepie etc., Uncommon species include birds like Bearded Vulture, Egyptian Vulture, Eurasian Sparrowhawk, Chukor, Cheer Pheasant, Snow Pigeon, Large Pied Wagtail, Variegated Laughingthrush, Yellow-billed Blue Magpie etc. Two rare species reported from the area included Asian Barred Owlet and Rosy Pipit.

Analyses of residential category and abundance status revealed that of the 16 resident species, 4 were very common, 11 common and one uncommon. Of the 39 local migrants, 10 species were very common, 16 common, 11 uncommon and 2 rare. Moreover, of the 15 summer visitors, 4 species were very common, 8 common and 3 uncommon. One species of the winter visitors was very common, 4 common and 3 uncommon. Further, of the bird species with summer influx, 9 were very common, 4 common and 1 uncommon. Of the species with winter influx, 1 was very common and 2 common in Prashar area.

Categorization of birds on the basis of feeding habits showed that of the total 95 species, a majority of the birds (43 species; 45%) were insectivorous in nature followed by Graminivorous (14 species; 15%), Omnivorous (13 species; 14%), Frugivorous (10 species; 11%), Scavengers (7 species; 7%), Aquatic Animal eaters (4 species; 4%) and Vegetable Matter eaters and Carnivorous (2 species each; 2% each) (Table 1 and Fig. 3).

The study further showed that there are two species viz., Egyptian Vulture and Cheer Pheasant in Prashar area, which have been placed under endangered threat category by IUCN (2013).

## DISCUSSION

India being one of the 17 identified megadiverse countries is home to 13.66% of global avian species documented so far. A large proportion of the bird species in India are rapidly declining. The number of threatened birds has reached an ever high of 154 species in India, as against 149 in 2008. Of these, 15 Indian bird species have been categorised as critically threatened (IUCN, 2013). Categorization of birds into various residential and abundance categories as done in the present communication is very important to assess the regional status of the species. Similarly, Himalayan birds have been divided earlier into different categories (Hunter, 1989; Thakur, 2013).

Presence of 95 species of birds in present small study area get support from the earlier study of Thakur (2013) who correlated the presence of maximum diversity in mid-Himalayan zones with maximum values of precipitation, soil moisture, evapotranspiration and varied types of habitats at mid-elevation. Earlier, Price *et al.* (2003) have correlated the change in bird diversity with altitude in Himalayas to various climatic factors mainly precipitation. Similarly, Rahbek and Graves (2001) have elucidated some relation in bird diversity of South America with topography, precipitation and an interaction between topography and latitude.

Presence of 16% of summer visitors in the Prashar area is in compliance with the earlier work of Hunter (1989) who elucidated that most of the north Indian species of birds face up hill while breeding. Presence of 16% summer visitors during present study is above the state average of 11.6% recorded by Mahabal (2005). Insectivorous birds are important agents of bio-control of insect pests of agriculture, horticulture and forests. Mahabal (2005) has recorded the presence of about 47% insectivorous birds in Himachal Pradesh and similar presence of 45% of insectivorous birds has been recorded during the present study.

## REFERENCES

- Ali, S. and S.D. Ripley, 1983a. Handbook of the Birds of India and Pakistan Together with Those of Bangladesh, Nepal, Bhutan and Sri Lanka. Oxford University Press, New Delhi, India.
- Ali, S. and S.D. Ripley, 1983b. A Pictorial Guide to the Birds of the Indian Subcontinent. Bombay Natural History Society and Oxford University Press, New Delhi, India, Pages: 177.
- Besten, J.W., 2004. Birds of Kangra. Moonpeak Publishers, New Delhi, India, Pages: 173.
- Hunter Jr., M.L., 1989. Himalayan birds face uphill while singing. *Auk*, 106: 728-729.
- IUCN, 2013. IUCN Red List of threatened species, 2013. International Union for Conservation of Nature (IUCN), Switzerland.
- Kazmierczak, K. and B. Van Perlo, 2000. A Field Guide to the Birds of India, Sri Lanka, Pakistan, Nepal, Bhutan, Bangladesh and the Maldives. Om Book Service, New Delhi, India, ISBN-13: 9788187107040, Pages: 352.
- Mahabal, A. and R. Mukherjee, 1991. Birds of Mandi district (Himachal Pradesh). *Newslett. Birdwatchers*, 31: 8-9.
- Mahabal, A., 2005. Aves. In: Fauna of Western Himalaya, Zoological Survey of India (Ed.). Zoological Survey of India, Kolkata, India, pp: 275-339.
- Manakadan, R. and A. Pittie, 2001. Standardised common and scientific names of the birds of the Indian subcontinent. *Buceros*, 6: 1-37.
- McKinnon, J. and K. Phillipps, 1993. A Field Guide to the Birds of Borneo, Sumatra, Java and Bali. Oxford University Press, Oxford, ISBN-13: 9780198540342, Pages: 512.
- Millennium Ecosystem Assessment, 2005. Timber, Fuel and Fiber. In: Ecosystems and Human Well-Being: Current State and Trends, Hassan, R., R. Scholes and N. Ash (Eds.). Vol. 1, Chapter 9, Island Press, Washington, DC., USA., ISBN-13: 9781559632287, pp: 243-269.

- Price, T., J. Zee, K. Jamdar and N. Jamdar, 2003. Bird species diversity along the Himalaya: A comparison of Himachal Pradesh with Kashmir. *J. Bombay Nat. Hist. Soc.*, 100: 394-409.
- Rahbek, C. and G.R. Graves, 2001. Multiscale assessment of patterns of avian species richness. *Proc. Natl. Acad. Sci.*, 98: 4534-4539.
- Rahmani, A., 2004. Foreward. In: *Birds of Kangra*, Besten, J.W. (Ed.). Moonpeak Publishers, New Delhi, India.
- Singh, V. and H.S. Banyal, 2013. Avian fauna of Khajjiar lake, district Chamba, Himachal Pradesh, India. *Proc. Zool. Soc.*, 66: 130-136.
- Snedecore, G.W. and W.G. Cochran, 1993. *Statistical Methods*. Oxford and IBH Publishing Co., New Delhi, India.
- Thakur, M.L., V.K. Mattu, H. Lal, V.N. Sharma, H. Raj and V. Thakur, 2010. Avifauna of Arki hills, Solan (Himachal Pradesh), India. *Indian Birds*, 5: 162-166.
- Thakur, M.L., 2013. Bird species composition along the altitudinal gradient in Himachal Pradesh (Western Himalaya), India. *Int. J. Adv. Biol. Res.*, 3: 556-562.