

A Checklist of Bird Communities in Gulmarg Wildlife Sanctuary, Jammu and Kashmir, India

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Abstract

Eighty-five species of birds belonging to 66 genera spread over 37 families of 13 orders with one vulnerable species Kashmir Flycatcher (*Ficedula subrubra*) and one near threatened species Himalayan Griffon (*Gyps himalayensis*) were recorded in the Gulmarg Wildlife Sanctuary, J & K, India. The study was conducted for a period of one year from July 2016 to July 2017 and surveys were made at nine sites in the study area. We assume that focusing the conservation practices upon these species will promote the preservation of a wide range of birds inhabiting Gulmarg Wildlife Sanctuary.

Introduction

The discipline of ornithology has an extensive history and avian studies have helped to build up numerous essential concepts in evolution, behavior and ecology like the species definition, speciation, instinct, learning, island biogeography and conservation of ecological niches and guilds. Class Aves consists of numerous species distributed over nearly the entire earth than other class of vertebrates. Studies on population have traditionally been used to monitor long term changes in bird population and to assess both the quality of habitat and the birds' response to environmental alterations, both natural and man-made (Wiens, 1989). For delineating the importance of regional landscapes for conservation of birds, it is necessary to study the structure of avian communities (Kattan and Franco, 2004). About 10,612 extant species and 153 extinct species with 20,757 subspecies of birds are found worldwide. Of these, 141 species are endemic to the Indian subcontinent (Grimmett *et al.*, 1998), and 50 species are endemic to India (Dasgupta *et al.*, 2002). India has about 13% (1300 species) of the world's avifaunal richness (Javed and Kaul, 2000). This abundance is due to varied habitats and climatic conditions. Kashmir valley harbors high avifaunal diversity with about 187 species of breeding birds belonging to 46 families and 16 orders (Shah and Qadri, 1988; Shah *et al.*, 2013).

Birds are regarded as the best indicators of the quality of an ecosystem (Bibby, 1999; Morelli *et al.* 2014) since composition of avian community shows variation across flora types and is dependent on stratification, covering density, elevation, time of year and disturbance (Das 2009; Jayson and Mathew 2003). Comparison of the sequential information on avian communities aids in keeping path of any alteration in species composition habitats at local level. The current study gives information on structure of avian community of Gulmarg Wildlife Sanctuary. Avifauna of Gulmarg sanctuary has not been worked out properly. Of late there is an augmented consciousness to arrange checklists of birds on a greater scale, even though such efforts are habitually restricted to sanctuaries and forest ranges (Kannan, 1998 and Mahabal, 2000). Both the primary and secondary data was collected to frame an updated checklist of the birds found in Gulmarg Wildlife Sanctuary.

Study area

Gulmarg wildlife sanctuary falls 26Kms to the south-west of district Baramulla of Jammu and Kashmir. The area ranges between 2400-4300 mean sea level with longitude 74°17' to 74°79' N, Latitude 34°.55' to 34°.60' E, spreading over an area of 180 Km². The area is surrounded in North by Jhelum Valley Forest Division-Baramulla and South by Forest

division of Poonch and Pir-Panchal. East is flanked by villages of Drung and Badrakoot and forests of special forest division Tangmarg and on the west by special forest division Tangmarg and Baba Reshi Village. The topography is mountainous with slopes to steep gradient and broken cliffs. The sanctuary abodes rich floral and faunal diversity with diverse species like Musk deer, Common leopard, Indian wolf, Snow cock, Chakor etc. Certain species who usually migrate from the lower planes like the Barking deer are also seen in the sanctuary. Large number of Musk deer is seen in the gushing nalla of Ferozpora, in areas of Affarwat, Botapathri, and Babareshi etc. To ensure survival of highly endangered Musk deer (*Moschus crysogaster*), the sanctuary was upgraded from Man and Biosphere reserve in the year 1987. The area is one of the best renowned tourist destinations for its famous meadows, rocky cliffs, dense birch forests and a home for bird watchers. Flora includes Fir (*Abies pindrow*), Kail (*Pinus griffithii*), Spruce (*Picea smithiana*), Yew (*Taxus wallichiana*), Birch (*Betula utilis*) etc. and alpine pastures support herbaceous ground layer of Showy inula (*Inula grandiflora*), Elliptic-leaf primrose (*Primula elliptica*) and Cinquefoil (*Potentilla gelida*).

Methodology

For the purpose of bird study, Gulmarg Wildlife Sanctuary was divided into nine sites four in Gulmarg forest, two in Gulmarg meadow, one in Khilanimarg and two in Drang forest and one riverine site in Drang forest so that majority of the study area was covered. Transects were laid in each site which varied in length from 0.5 km to 4.5 km depending on vegetation type and accessibility, width of the transects varied between 50 m to 100 m. Transects were walked in a straight manner at a fixed speed to record the birds on or near the line. Investigations were conducted for a period of one year from July 2016 to July 2017 covering all the seasons i.e. spring (March-May), summer (June-August), autumn (September-November), and winter (December-February). Birds were observed using Nikon Binoculars (10 × 50X), identified and named following Grimmett *et al.* (2004) and Kazmierczak, (2007) and in many cases photographs were taken in order to confirm the identification. Photographs were taken by Canon still camera (with a zoom lens of 70mm to 300mm). Various research advisors, locals and the field staff of Wildlife Department Tangmarg were consulted during the study period for data collection (Table 1).

Table 1: Line Transect data sheet

Site :	
Date:	
Time: Transect No:	
Weather:	
Direction:	
S. No.	Parameters
1.	Name of the bird species
2.	Time of sighting
3.	No. of birds (male, female, juvenile and total)
4.	Habitat (vegetation category, Edge +/-)
5.	Vertical location and elevation of the bird (s) in meters
6.	Bird activity
7.	Bird calls
8.	Season
9.	Any other relevant information

Results and Discussions

The present studies on the bird community structure of Gulmarg Wildlife Sanctuary, Kashmir, revealed the presence of 85 species of birds belonging to 66 genera spread over 37 families of 13 orders (Table 2). The prominent bird species include thrushes, woodpeckers, flycatchers, tits, sparrows, buntings, wagtails, kingfishers, bulbul, doves, crows, warblers and chats etc. Thakur (2010) also found Muscicapidae as the biggest family of birds with 58 species from Himachal Pradesh, so pertinently it appears that Muscicapidae is the most diverse in its overall contribution. Himalayan monal and koklas pheasant were encountered from higher areas of Gulmarg Wildlife Sanctuary. Reports of pheasants like monal and koklas have been made by Rodgers and Panwar (1988) from Kashmir (Dachigam National Park).

Table 2: Checklist of birds of Gulmarg Wildlife Sanctuary

Order	Family	Common Name	Scientific Name	IUCN	Local
Ciconiformes	Ardeidae	Indian Pond Heron	<i>Ardeola grayii</i>	L.C	R
		Little Egret	<i>Egretta garzetta</i>	L.C	R
		Cattle Egret	<i>Bubulcus ibis</i>	L.C	R
		Grey Heron	<i>Ardea cinerea</i>	L.C	R
		Night Heron	<i>Nycticorax nycticorax</i>	L.C	R
Accipitriformes	Accipitridae	Himalayan Griffon	<i>Gyps himalayensis</i>	N.T	R
		Eurasian Sparrow hawk	<i>Accipiter nisus</i>	L.C	R
		Shikra	<i>Accipiter badius</i>	L.C	R
		Common Buzzard	<i>Buteo buteo</i>	L.C	R
		Black Kite	<i>Milvus migrans</i>	L.C	R
		Marsh Harrier	<i>Circus aeruginous</i>	L.C	R
Falconiformes	Falconidae	Hobby	<i>Falco subbuteo</i>	L.C	R
		Kestrel	<i>Falco sparverius</i>	L.C	R
Galliformes	Phasianidae	Himalayan Monal	<i>Lophophorus impejanus</i>	L.C	R
		Common Quil	<i>Coturnix coturnix</i>	L.C	R
		Koklas Pheasant	<i>Pucrasia macrolopha</i>	L.C	R
		Himalayan snow cock	<i>Tetrogallus himalayensis</i>	L.C	R
		Chukar Pheasant	<i>Alectoris chukar</i>	L.C	R
Columbiformes	Columbidae	Blue Rock Pigeon	<i>Columba livia</i>	L.C	R
		Eurasian Collared Dove	<i>Streptopelia decaocto</i>	L.C	R
		Oriental Turtle Dove	<i>Streptopelia orientalis</i>	L.C	SM
Cuculiformes	Cuculidae	Indian cuckoo	<i>Cuculus canorus</i>	L.C	SM
		Lesser Cuckoo	<i>Cuculus poliocephalus</i>	L.C	SM
Coraciformes	Alcedinidae	Common Kingfisher	<i>Alcedo athnis</i>	L.C	R
	Halcyonidae	White Throated Kingfisher	<i>Halcyon gularis</i>	L.C	R
	Cerylidae	Pied Kingfisher	<i>Ceryle rudis</i>	L.C	R
	Meropidae	European Bee Eater	<i>Merops apiaster</i>	L.C	SM
	Coraciidae	European Roller	<i>Coracias garrulous</i>	L.C	SM
Strigiformes	Strigidae	Indian Eagle owl	<i>Tyto alba</i>	L.C	R
Bucerotiformes	Upupidae	Common Hoopoe	<i>Upupa epops</i>	L.C	SM
Passeriformes	Motacillidae	White Wagtail	<i>Motacilla alba</i>	L.C	R
		Yellow Wagtail	<i>Motacilla flava</i>	LC	R
		Grey Wagtail	<i>Motacilla cinerea</i>	L.C	R
		Citrene Wagtail	<i>Motacilla citreola</i>	L.C	R
		Rosy pipit	<i>Anthus roseatus</i>	L.C	R
	Hirundinidae	Barn Swallow	<i>Hirundo rustica</i>	L.C	SM
	Dicruridae	Ashy Drongo	<i>Dicrurus leucophaeus</i>	L.C	SM
	Pycnonotidae	Himalayan Bulbul	<i>Pycnonotus leucogenys</i>	L.C	R
		Black Bulbul	<i>Hypsipetes leucocephalus</i>	L.C	LAM
	Laniidae	Long tailed Shrike	<i>Lanius Schach</i>	L.C	LAM
	Turdidae	Mistle Thrush	<i>Turdus viscivorus</i>	L.C	R
		Eurasian Blackbird	<i>Turdus merula</i>	L.C	R
		Tickell's Trhush	<i>Turdus unicolor</i>	L.C	R
	Muscicapidae	Blue Whistling Thrush	<i>Myophonus caeruleus</i>	L.C	R
Common Stonechat		<i>Saxicola torquatus</i>	L.C	R	

		Spotted Forktail	<i>Enicurus maculates</i>	L.C	LAM
		White Capped Redstart	<i>Chaimarrornis</i>	L.C	R
		Plumbous Water Redstart	<i>Rhyacornis caryocatactes</i>	L.C	R
		Great Reed Warbler	<i>Acrocephalus arundinaceus</i>	L.C	R
		Kashmir Flycatcher	<i>Ficedula subrubra</i>	V	SM
		Little Forktail	<i>Enicurus scouleri</i>	L.C	LAM
	Leiotherichidae	Variegated Laughing Thrush	<i>Garrulax variegates</i>	L.C	LAM
		Streaked Laughing Thrush	<i>Garrulax lineatus</i>	L.C	LAM
	Paridae	Great Tit	<i>Parus major</i>	L.C	R
	Campephagide	Long Tailed minivet	<i>Pericocotus ethologus</i>	L.C	SM
		Asian Koel	<i>Eudynamys scolopacea</i>	L.C	SV
	Zosteropodae	Oriental White Eye	<i>Zosterops palpebrosus</i>	L.C	R
	Emberizidae	Rock Bunting	<i>Emberiza cia</i>	L.C	R
	Certhidae	Eurasian Tree creeper	<i>Certhia himalayana</i>	L.C	LAM
	Fringillidae	Common Rosefinch	<i>Carpodacus erythrinus</i>	L.C	SM
		Plain Mountainfinch	<i>Leucosticte nemoricola</i>	L.C	R
		Gold Finch	<i>Carduelis carduelis</i>	L.C	R
	Passeridae	Russet Sparrow	<i>Passer rutilans</i>	L.C	R
		Common Sparrow	<i>Passer domesticus</i>	L.C	R
	Sturnidae	Common Myna	<i>Acridotheres tristris</i>	L.C	R
		Jungle Myna	<i>Acridotheres fuscus</i>	L.C	R
		Common Starling	<i>Sturnus vulgaris</i>	L.C	SV
	Prunellidae	Black Throated accentor	<i>Prunella atrogularis</i>	L.C	WV
	Oriolidae	Golden Oriole	<i>Oriolus orioluss</i>	L.C	SV
	Corvidae	Indian Paradise Flycatcher	<i>Tersiphone paradise</i>	L.C	SM
		Large Billed Crow	<i>Corvus macrorhynchos</i>	L. C	R
		Eurasian Jackdaw	<i>Corvus monedula</i>	L.C	R
		House Crow	<i>Corvus Splendense</i>	L.C	R
		Yellow billed Blue Magpie	<i>Urocissa flavirostris</i>	L.C	R
		Yellow billed Chough	<i>Pyrrhocorax graculus</i>	L.C	R
		Spotted Nutcracker	<i>Nucifraga caryocatactes</i>	L.C	R
		Red billed Chough	<i>Pyrrhocorax pyrrhocorax</i>	L.C	R
	Cincilidae	Brown Dipper	<i>Cinulus pallasii</i>	L.C	R
		White throated Dipper	<i>Cinulus cinculus</i>	L.C	R
	Aegithinidae	Common iora	<i>Aegithina tiphia</i>	L.C	LAM
Charadriiformes	Jacnidae	Pheasant Tailed Jacana	<i>Hydrophasianus chirurgus</i>	L.C	SM
Piciformes	Picidae	Himalayan Woodpecker	<i>Dendrocopos himalayensis</i>	L.C	R
		Scaly Bellied Woodpecker	<i>Picus squamatus</i>	L.C	R
Psittaciformes	Psittaculidae	Rose ringed Parakeet	<i>Psittacula krameri</i>	L.C	LAM
		Slaty headed Parakeet	<i>Psittacula himalayana</i>	L.C	LAM

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