



Study on Researcher view on Birds of Jammu and Kashmir Region

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Abstract: Bird species will be able to survive in the urban landscape or not, depends on their ability to adapt or the available resources. Birds and their melodious song increase the quality of life, especially for people living in urban areas. Nowadays city planners are making these habitats attractive, so that this may increase the faunal diversity. The current review aims to provide an analysis of avian fauna recorded. Wetland birds and terrestrial species are included from various water bodies and greenspaces of this area. This review highlights various aspects of avian diversity which were enlisted over these years and it will also form a base for further research.

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Introduction:

Birds are regarded as the important indicators of environmental health (Collar and Andrew, 1988) and their diversity is directly related with the environmental conditions of the area. Although the study of urban birds has a fairly long history, urban ecosystems have largely been ignored throughout many decades of ecological research (Miller and Hobbs, 2002; Collins et al., 2000). The major factors determining the existence of birds with human settlements include the presence of remnant vegetation, competition among the species and structural and floral attributes of existing vegetation (Chace and Walsh, 2006). At spatial scales their distribution however is regulated by the quantity and quality of food available, perching, roosting and nesting sites. The urbanization has a pronounced effect on the avian biodiversity and such surveys are critical in determining its effects on bird communities, both positive and negative. Baseline information is pre-requisite for the conservation endeavors for any ecosystem and to understand the consequences of habitat destruction and deterioration as well as the effects of climate change (Llanos et al., 2011). Bird surveys provide useful information for basic and applied ecology, and are useful for identifying priority areas for conservation (Daniels et al., 1991; Peterson et al., 2000). Though a number of avian studies have been conducted in the urban landscapes across India including many on the campuses and allied establishments, the information on the avian diversity for different institutes from the state of Jammu and Kashmir is scanty. The University campuses

established over the years in the state are now the widely recognized green islands and preferred micro-habitats for unique and diverse biodiversity elements within the hustling city limits. New University Campus Jammu was identified as one of study sites under our intensive avian survey programme in the mosaic landscapes of Jammu and its surroundings. Then campus provides a rich array of habitats conducive to avian biodiversity. Despite its recognition as a rich vegetational hotspot in Jammu, the campus has remained poorly explored in terms of bird richness and diversity. Earlier during the year 2013, Anthal et al. (2014) however have recorded 57 species of birds from new University campus. The present investigations attempt to provide a comprehensive checklist of the birds, their abundance, habitat and feeding preferences and migratory status based on the seasonal surveys carried out during the period of three years.

Status and Abundance

On the basis of frequency of sightings in different study sites, abundance of birds was categorized following (MacKinnon and Phillipps, 1993). Besides this, the relative abundance of the birds was also calculated using formula as number of individuals of one species / total number of individuals of all species * 100. The migratory status assigned to the birds was partly based on the visual observations which were then confirmed with the available literature (Grimmet et al., 2011). The birds were grouped into four classes viz., Resident birds (R),

Summer Visitors (SV), Winter Visitors (WV) and Passage Migrant (PM).

Feeding and Habitat Guilds

Based on the type of food, the birds used to feed on, the feeding guilds were defined for the present study. Six major classes of feeding guilds were identified viz. Carnivorous, Insectivorous, Frugivorous, Grainivorous, Nectarivorous and Omnivorous. Habitat-use guilds were defined from the field observations following Diaz et al. (2005). A bird species was included in a given habitat-use guild based on its primary use of forest (plantation in this context) structure for nesting, resting and /or feeding. Based on the information of habitat use, four principal habitat-use guilds were categorized as Understorey-birds, Large-tree users, Vertical-profile generalists and Shrub-users (Diaz et al., 2005), while another guild 'Open ground generalists' was identified as special category in the present context (Sharma and Kichloo, 2015).

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As regards their feeding preferences, insectivores dominated the area (n= 27) followed by omnivorous (n= 26), carnivorous (n= 18), frugivorous (n= 10) and grainivorous (n= 7), respectively. Only 2 birds were observed as nectarivorous. The remaining 3 species viz. Ashy Prinia, Common Tailorbird and Hair-crested Drongo revealed more than one feeding guild. Hippargi et al. (2012), Manjunath and Joshi (2012) and Dey et al. (2013) in their studies in different parts of India reported the predominance of Insectivores amongst the other feeding guilds. Several studies conducted in Jammu and Kashmir also revealed similar results (Ahmed and Sahi 2005, Wani et al., 2008, Aggarwal et al., 2008, Kait 2011, Singh et al., 2013, Motup 2013 and Sharma and Kichloo 2015). Birds are forest-dwelling species of global biodiversity found in every habitat (Olechnowski, 2009) and key indicators of ecosystem health and stress (Taper et al., 1995). Habitat heterogeneity is paramount for avian diversity and distribution (Karr, 1976; Manhães and Loures-Ribeiro, 2005). Knowledge of the composition of bird communities is crucial to determine the ecology and health of the local ecosystem or regional landscapes (Nagya et al., 2017). Understanding of bird community structure and diversity is therefore essential to recognize the importance of landscapes for avian conservation (Kattan and Franco, 2004). India, one of the 17 mega diverse nations (Mittermeier and Mittermeier, 1997), ranks 9th in terms of bird species richness (BirdLife International, 2019). This spectacular avian diversity is attributed to unique and heterogeneous bio-geographical and ecological features and a high degree of eco-climatic variations

(Praveen et al., 2016). The avian rich state of Jammu and Kashmir (Rahmani et al., 2013) with 28 important bird areas (Islam and Rahmani, 2012) is home to 12 globally threatened bird species and six near-threatened species (Rahmani et al., 2013). All the three regions viz., Jammu, Kashmir and Ladakh have been well surveyed for birds. Besides the opportunistic sightings, many researchers, amateur birders and hobbyists have contributed to the avian database for the state which includes the work of Pfister (2001), Gupta (2002), Ahmed and Sahi (2005), Namgail (2005), Kumar and Sahi (2006), Wani and Sahi (2007), Aggarwal et al., (2008), Kotwal et al., (2009), Namgail and Yom-Tov (2009), Choudhary (2010), Kait (2011). Bhat and Bhat (2012), Khah et al., (2012), Hussain and Kait (2013), Singh et al., (2014), Kait et al., (2014), Ahmed et al., (2015), Sharma and Saini (2012), Noor et al., (2014), Pandotra and Sahi (2014), Syed (2014), Bharadwaj (2017), Raina (2017), Sharma and Kichloo (2015), Sharma and Sohil (2017), Sharma and Sharma (2017), Fazili et al., (2017), Sharma (2017), Kichloo et al., (2018) and Sharma et al., (2018). The present study aimed at exploring the avian diversity, their trophic and habitat guilds, migratory and conservation status in the mosaic landscapes around Jammu. Besides defining the bird assemblages among the contrasting landscapes, the results will prove handy in devising the effective bird conservation and management strategies for the region.

Monthly field surveys were conducted for a period of one year during January 2017 to December 2017 mainly during the morning and evening hours ranging from 30 minutes to few hours depending on terrain and topography of the area. Twenty linear transects were walked for a variable distance of 50 m to 2 km separated by a 50 m strip on either side to avoid double counting of birds (Bibby et al., 1992). Water birds were counted using visual census (Shah, 1984) and block method (Ahangar, 2008). We noted the information on bird species richness, behaviour, trophic and habitat guilds besides their conservation status. The observations were made using the naked eyes, binoculars, spotting scopes, and the images were captured using the digital camera. Due precautions were taken to avoid any harm to the birds and damage to their habitat. Most of the birds were identified in the field by consulting field Guides (Ali, 2002, Grimmet et al., 2011).

CONCLUSION AND SUGGESTIONS

From the results, it can be concluded that the study area possesses a diverse group of bird species which may be due to abundant forest cover, apple orchards, agricultural fields and various water bodies flowing in the area providing suitable favorable

conditions for better survival of these bird species. Moreover the fluctuation in bird diversity at different sites may be due to different factors such as variation in topography, habitat fragmentation and anthropogenic disturbances. Further the area provides future opportunities for more research to be performed in area in order to explore more avian diversity.

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