Preliminary Survey of Bird Fauna in Karwi Tehsil, District Chitrakoot, U.P., India

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Abstract: Present study discussed the present diversity of avian fauna in Karwi Tehsil, District Chitrakoot, U.P., and India from July 2016 to June 2017. A total of 103 bird species belonging to 18 orders were reported from study area. The highest numbers of birds were recorded from order Passeriformes, about 46 species. It was also noted that the well suited climatic conditions and vegetation availability was the main factor to restore this order abundantly. During the study period the migratory birds like Painted stork, Eurasian spoonbill, Black headed ibis were found in large number during late summer.

Keywords: equator, avian, avifauna, diversity

1. Introduction

Birds are often brightly colored, highly vocal at certain times of the year and relatively easy to see. They are also very popular, with the result that high quality field guides are available in most part of the world and there are many professionals and amateurs with a high level of identification skills. Because of the popularity, they are undoubtedly the most frequently surveyed of all taxonomic groups. Our planet has a variety of creatures including micro organism like virus, bacteria and macro organism viz., plants & animal which constitute the biodiversity. Avifaunal diversity is one of the most important biotic components for any type of ecosystem.

Birds are found from pole to equator almost everywhere in the world and exhibit great diversity by their habitat and geographical conditions. Avian fauna acts as a bio indicator. (Bilgrami, 1996; Centrbury et al., 2000; Mistry, 2008 and Slabbeekorn & Ripmeester, 2008) that assesses different habitats qualitatively as well as quantitatively. Birdlife recorded worldwide over 10,000 different species of birds. Rapoport, 1993; Chen et al., 2011 and Sekercioglu., 2012 documented that worldwide decline of avian fauna is due to anthropogenic activities and climatic changes. According to Roy et al., 2012 bird population has declined only because of change in land use pattern. Huges et al., 1997 have reported around sixteen million birds being destroyed annually. India stands at 7th position with 88 threatened bird species over the world. Our purpose for this brief study is to explore the avifaunal diversity of a particular area.

Birds are the key species in an agricultural ecosystem for maintaining the ecological balance. Their positive and negative role in agriculture production was very well illustrated (Ali, 1949 and 1971). Agriculture provides a concentrated and highly predictable source of food for birds. This food in general is of 3 kinds: (1) grains, seeds and fruits, (2) green vegetation of the crop plants and grasses, and (3) insects, other arthropods, rodents, etc., found in soil, crops and other plants.

Chitrakoot area is situated in northern most part of India. This area is known for its scenic beauty and its magnificent biodiversity. Now a day’s avifaunal diversity has been decreasing due to the destruction of natural habitats and human disturbance. Thus, many species of birds may be forced to inhabit in the urban areas and constrain them to breed there.

Birds are highly diverse and conspicuous biota of the ecosystem. They act as potential bio-indicators and ideal models for predicting environmental changes. Owing to habitat destruction for progressive urbanization and unscientific management of natural resources, much of our native birds are facing threat.

Birds are the best-known class of vertebrate animals, occur worldwide in nearly all habitats, and provide many ecosystem services. The Indian subcontinent with highly varied climatic conditions, diverse habitat and long stretch of vegetation attracts and supports diverse avifauna including a large number of endemic species round the year.

Out of more than 9,000 birds of the world, the Indian subcontinent harbors about 1,300 species, or over 13% of the world’s birds. Avian species assemblages are potent indicators of ecosystem health and functioning. Thus, exploration of the diversity of bird communities has become an important tool in biodiversity conservation and for identifying conservation actions in areas of high human pressure.

Ecologically, birds are of tremendous importance to the human society. Birds act as a good medium for dispersing seeds, pollinating plants, biological control and they are important to continue the ecological cycle. Birds occupy almost all habitat types and diversity of birds often serves as a good indicator of overall diversity of a given area. Birds are also known to be responsive to any kind of changes to their ambient conditions hence can be used as bio indicator. Different anthropogenic activities and change in climate can cause severe loss of avifaunal diversity. Moreover, progressive urbanization often leads to biotic homogenization whereby a few widespread and successful species replace a diverse avifauna. Therefore, assessment of the avifaunal diversity is essential to delineate the importance of local landscapes for avian conservation and creating a scientific database for proper management of the

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ecosystem to ensure better conservation, both of the habitat as well as the avian diversity.

2. Materials and Methods

Study Area
Chitrakoot is a holy place of Hindus in India. Its situated on the bank of holy river Mandakini and surrounded by lush green hills of Vindhyachal range. Study site situated in the southern part of Chitrakoot district [U.P.]. Study area covered by Forest region, terrestrial region, aquatic region, wetland region. Naturally occurring birds species and populations were studied at locations (fig.1) (1) Sankar bajar (2) Pahari road (3) Ganesh baag (4) Khoh (5) Dhus maida (6) Bedipulia (7) Shivrampur (8) Ranipur bhatt (9) Khutha (10) Baglai (11) Bharatkoop (12) Chitra road (13) Ramghat (14) Hanuman dhara.

Table 1: G.P.S. location of different sites of Karwi Tehsil area

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<tr>
<th>S.N.</th>
<th>PLACES</th>
<th>G.P.S. LOCATION</th>
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<td>Khutha</td>
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<td>Lon E 08°05'36.002&quot;</td>
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</table>

Figure 1: Map showing the study area (Karwi Tehsil area)

Table 2: Periods

| Periods | The duration of this study period was from July 2016 to June 2017. |

Study Design
Sampling site was allocated in Tehsil Karwi, District Chitrakoot, and U.P. India. Bird census was made from 4:30 to 9:30 am in 17 consecutive days per month. Bird species were viewed by naked eyes or binocular and documented immediately after viewing.

Equipments
There are some equipment we used in this survey.
(1) Nikon digital camera, (2) Binocular, (3) GPS application, (4) Map, (5) Notebook, pen

Species Identification
Species identification was made according to “The Book of Indian Birds by Salim Ali” and according to birds list of DFO of Chitrakoot district.

Data Analysis
Documented bird species and their population from sampling sites for each month were assembled and made a list representing the species found in particular habitats.

Listing method
Listing methods are applicable to a wide range of species and habitat, but most widely used in tropical habitats. They...
are suitable for rapid assessments of poorly known areas. They can be used in population monitoring.

Lists of birds recorded from particular geographical area. Common species would occur on many lists, rare species on only a few. Thus the frequency of occurrence of species on lists, termed the ‘reporting rate’ by Harrison et al. (1997), was a crude measure of relative abundance.

Bart & Klosiewski (1989) compared the frequency of occurrence of birds at 50 counting stations (equivalent to 50 lists) with estimates of abundance from point counts at the same stations. Trends in species’ populations were similar from the 2 methods, though those obtained from lists were about 40% lower when several individuals of a species were counted at stations. Hewish & Loyan (1989) found that producing species lists for 2-ha plots during 20 min periods appealed to observers because they felt that they were able to record all species present within the time period. The more lists that are produced, the more precise the reporting rates will be, so a reasonable number of lists, perhaps 15 or more, is required.

McKinnon lists (McKinnon & Phillips 1993) were a specific form of listing that records species on fixed-length lists rather than within fixed periods. To produce a McKinnon list, walk slowly around the study area listing the first n species encountered, where n could be, for example, 10, 15 or 20. List the names of all new species encountered and when n had been listed, start a new list and continue surveying until, again, n species had been encountered. Repeat this process until a reasonable number (>15) of list had been produced.

Counting Roosts
Pithon and Dytham (1999) used teams of volunteers to census ring-necked parakeets Psittacula krameri using simultaneous counts at all known roosts. Roosts could be counted only once located. However, since many roost sites were traditional they were often well known. Unknown roost sites could be located by following the flight paths of flocks of birds as dusk, or high tide, approaches. Some coastal species, however, could roost on agricultural land up to 1 km inland.

3. Results
Overall 103 species (Table 2) of birds were identified and their population was calculated during the present study. In present study rich diversity of birds was observed in this area. Within 1 year survey a total of 103 birds species were recorded from different study sites. The highest numbers of the order Passeriformes were recorded. Furthermore, over results has documented that order Galliformes, Coraciiformes, Pelecaniformes, Gruiformes, Charadriiformes, Ciconiiformes, Suliformes, Podicipediformes, Anseriformes, Columbiformes, Psittaciformes, Bucerotiformes, Piciformes, Cuculiformes, Accipitriformes, Apodiformes and Strigiformes (Table 2). Most dominant birds were House sparrow, Red vented bulbul, little swift, Indian robin, Jungle babbler, Indian grey hornbill, Common myna, Rock pigeon and House crow. During the study period the migratory birds like Painted stork, Eurasian spoonbill, Black headed ibis were found enlage number during late summer. Order Passeriformes is the dominating group with 46 bird species. GPS location of study site of Karwi Tehsil area described in table no.1.

Table 2: Classification of birds species found in Karwi Tehsil area

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Order</th>
<th>Family</th>
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<td>1</td>
<td>Oriental white-eye</td>
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<td>Zosteropidae</td>
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<td>House sparrow</td>
<td>Passer domesticus</td>
<td>Passeriformes</td>
<td>Passeridae</td>
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<td>Western Yellow wagtail</td>
<td>Motacilla flavida</td>
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<td>Grey wagtail</td>
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<tr>
<td>5</td>
<td>Common myna</td>
<td>Acridotheres tristis</td>
<td>Passeriformes</td>
<td>Sturniidae</td>
</tr>
<tr>
<td>6</td>
<td>Bank myna</td>
<td>Acridotheres ginginias</td>
<td>Passeriformes</td>
<td>Sturniidae</td>
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<td>7</td>
<td>Large grey babbler</td>
<td>Turdoides malcolmi</td>
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<td>Leiothrichidae</td>
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<td>8</td>
<td>Jungle babbler</td>
<td>Turdoides striata</td>
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<td>Leiothrichidae</td>
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<td>Common babbler</td>
<td>Turdoides caudata</td>
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<td>Leiothrichidae</td>
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<td>Common iora</td>
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<td>Rufous treepie</td>
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<td>Brahminy starling</td>
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<td>Corvidae</td>
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<td>Jungle crow</td>
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<td><strong>80</strong> Yellow-footed green pigeon</td>
<td>Treron phoenicoptera</td>
</tr>
<tr>
<td><strong>81</strong> Laughing dove</td>
<td>Spilopelia senegalensis</td>
</tr>
<tr>
<td><strong>82</strong> Eurasian collared dove</td>
<td>Streptopelia decaocto</td>
</tr>
<tr>
<td><strong>83</strong> Spotted dove</td>
<td>Spilopelia chinensis</td>
</tr>
<tr>
<td><strong>84</strong> Rose-ringed parakeet</td>
<td>Psittacula krameri</td>
</tr>
<tr>
<td><strong>85</strong> Plum-headed parakeet</td>
<td>Psittacula cyanocephala</td>
</tr>
<tr>
<td><strong>86</strong> Hoopoe</td>
<td>Upupa epops</td>
</tr>
<tr>
<td><strong>87</strong> Indian grey hornbill</td>
<td>Oxycephalus bicornis</td>
</tr>
<tr>
<td><strong>88</strong> Black-rumped flameback</td>
<td>Dinopium benghalense</td>
</tr>
<tr>
<td><strong>89</strong> Coppersmith barbet</td>
<td>Psilopogon haemacephala</td>
</tr>
<tr>
<td><strong>90</strong> Asian koel</td>
<td>Eudynamys scolopaceus</td>
</tr>
<tr>
<td><strong>91</strong> Greater coucal</td>
<td>Centropus sinensis</td>
</tr>
<tr>
<td><strong>92</strong> Shikra</td>
<td>Accipiter badius</td>
</tr>
<tr>
<td><strong>93</strong> Egyptian vulture</td>
<td>Neophron percnopterus</td>
</tr>
<tr>
<td><strong>94</strong> Black kite</td>
<td>Milvus migrans</td>
</tr>
<tr>
<td><strong>95</strong> Common hawk-cuckoo</td>
<td>Hierococcyx varius</td>
</tr>
</tbody>
</table>
96. Little swift, *Apus affinis*  
97. Spotted owl, *Athene brama*  
98. Black Shumen hen, *Gallus gallus domesticus*  
99. Solid white (chicken plumage), *Gallus gallus domesticus*  
100. Red jungle fowl, *Gallus gallus*  
101. Pied kingfisher, *Ceryle rudis*  
102. Buff orpington, *Gallus gallus domesticus*  
103. Indian chat, *Oenanthe fusca*

<table>
<thead>
<tr>
<th>No.</th>
<th>Bird Species</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>96</td>
<td>Little swift</td>
<td>Apodiformes</td>
<td>Apodidae</td>
</tr>
<tr>
<td>97</td>
<td>Spotted owl</td>
<td>Strigiformes</td>
<td>Strigidae</td>
</tr>
<tr>
<td>98</td>
<td>Black Shumen hen</td>
<td>Galliformes</td>
<td>Phasianidae</td>
</tr>
<tr>
<td>99</td>
<td>Solid white</td>
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<tr>
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<td>Red jungle fowl</td>
<td>Galliformes</td>
<td>Phasianidae</td>
</tr>
<tr>
<td>101</td>
<td>Pied kingfisher</td>
<td>Coraciiformes</td>
<td>Alcedinidae</td>
</tr>
<tr>
<td>102</td>
<td>Buff orpington</td>
<td>Galliformes</td>
<td>Phasianidae</td>
</tr>
<tr>
<td>103</td>
<td>Indian chat</td>
<td>Passeriformes</td>
<td>Muscicapidae</td>
</tr>
</tbody>
</table>

**Figure 2:** Percentage composition of birds in different orders of avifauna

### 4. Discussion

The Karwi Tehsil area recorded the large number of bird species among the different habitats, since it has the varying ground cover. The bird species belong to (18) different Orders and Order- Passeriformes recorded the large number of species (46), because of the well suited climatic conditions and vegetation availability for them. The birds are in urge to move to other areas, as summer proceeds. The present study indicates that there was more richness and diversity in the undisturbed habitat rather than the human altered habitats. In order to conserve the bird diversity and to keep the ecology in good condition in Karwi Tehsil, the problems should be brought to the eyes of management to take immediate action. More understanding and documentation of the area is needed.

Rare birds like Indian grey hornbill (*Ocyceros birostris*), yellow footed green pigeon (*Treron phoenicopterus*), and black headed ibis (*Threskiornis melanocephalus*), that visited the study site in particular season shows the richness of the habitats in the study area. The considerable numbers of trees in fallow study area accommodate the large number of bird’s population. Thus shows planting trees in dry lands area can increase the bird diversity. This study strongly supported limited use of pesticides and chemical fertilizers as they do not pose danger to various types of bird species that visited the site in large numbers.

At present our natural ecosystem are destroyed by anthropogenic activities like cutting forests, destruction of natural water bodies and also industrialization of area that produce pollution. All these activities are a threat for the local environment conditions that finally affects the avifaunal diversity qualitatively as well as quantitatively (Bilgrami, 1995).

In conservation of biodiversity, green-spaces of urban area have an important role to play. (Zerbe *et al.*, 2003, Alvey, 2006, Mason, 2006, Khera *et al.*, 2009). According to Loss *et al.* (2009) it is estimated that by the year 2050, the majority of the global population will live in urban areas. Such rapid urbanization will come with a great threat for avian fauna. In maintaining ecosystem, birds play an important role that support biodiversity. In this concern, researchers are trying to work on their protection and conservation. For further investigation, a plan with objectives like population abundance, reproductive behavior, nesting mechanism, nesting site selection, feeding behavior, etc, to gain additional knowledge on avifaunal diversity of present study area.

### References


