

A STUDY ON THE DIFFERENT SPECIES OF BIRDS FOUND IN JIM CORBETT

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ABSTRACT

There are two distinct kinds of woods in the Serpdelli and Dhikala section of the Corbett National Park in Uttarakhand, India, and point counts are employed to assess the populations of avian animals in each of these types of forests. A total of 38 plots have been laid randomly, encompassing both mixed and Sal woodland, by four teams of two each during a range of ten days. DISTANCE 6.0 is used to determine the density of individual bird guilds as well as individual bird species. SPECIDIVERS was also responsible for calculating diversity and revenue. There have been sightings of a total of 47 mixed species as well as 27 species native to the Sal Forest. In Sal forest, the maximum concentrations of plum-headed parakeets (11.63 2.30/km²) and blue whistling thrushes (0.06 0.01/km²) were, respectively, the lowest densities (SE). The mixed wild bee eater chestnut had the highest density (13.843.25/km²), while the Hoopoe had the lowest density (0.090.01/km²) of all of the tree species. The mixed forests had the largest density, variety and wealth of insectivores (42,91±6,27/km², 0,89±0,08 and 3,57±0,53, respectively) and omnivores had the highest density of birds (76,73±4,23/km²), while those with the most diversity (±SE) and wealth (±SE) had the highest density of insectivores (0,88±0,14 and 3,15±0,49, respectively). Carnivorous birds were found in lower densities in both the Sal (0.190.08/km²) and the mixed forêt (0.320.12/km²) environments.

keywords: *species, birds, Jim Corbett*

INTRODUCTION

Ornithologists have been employing population scales as an indication of the overall health of plants for a number of years at this point (Lack 1954, 1966; Hutchinson 1978). On the other hand, this study was conducted at Corbett National Park in order to evaluate the state of health of two different types of forests. In terms of the natural state of its flora and wildlife, Corbett National Park (CNP) is considered to be among the best in the Himalayan area. This protected area is the pioneering and most significant centre for the conservation of biodiversity in India (Dhakate, Patil & Bhartari 2008). Tourists are frequently taken aback by the extensive variety of woodland creatures, which includes some species that are not common. It comes as a pleasant surprise and a source of gratitude to discover that certain creatures can coexist with people in habitats that are heavily exploited. A birdwatcher's heaven is the Corbett National Park in Uttarakhand. Forty percent of the nearly 1,300 different bird species that may be found on the Indian subcontinent are said to call the CNP home (Dhakate et al., 2008). This study's objectives are to (1) compare the densities of diverse terrestrial birds that utilise two different types of forests; (2) examine the degree to which a given

forest guild prefers a certain forest type; and (3) evaluate the overall fitness of forest types. The vegetation of the region resembles a mosaic, consisting of a mix of dry and damp cedar woods, scrub savannah, and alluvial grasslands. According to Champion and Seth (1986), the region is home to five distinct types of broad-based vegetation communities, which are as follows: (1) a forest that is mostly composed of Sal trees (*Shorea robusta*), (2) a mixed forest, and (3) an open forest (3). The grassland and open buckwheat plant communities are two further types of plant communities. The *S. S. Robusta* species is the principal and most frequent species, followed by the *Philippines Mal-lotus* and the *Cumini Syzygium* species. A significant portion of the scenery is composed of vegetation, with *Tectona magnificent* and *Dalbergia sissou* in particular standing out. There are fifty species of mammals, five hundred seventy-five species of birds, thirty-three species of reptiles, and seven species of amphibians that may be found in this park. The park is home to a sizable number of Asian elephants (*Elephas maximus*) as well as a huge population of tigers (*Panthera tigris*) (Badola et al. 2010).

OBJECTIVES

1. To Study On The Different Species Of Birds Found In Jim Corbett
2. To Study on omnivorous birds had highest density and insectivorous birds had highest diversity
Transects, points and territory mapping are the primary methods developed and used in the census of birds (Verner 1985, Bibby, Burgess, & Hill1992).

Birds in Jim Corbett National Park

In addition to having a robust population of big creatures such as the Indian Tiger and the Asiatic Elephant, the region of Corbett is also notable for its birds, with over 500 different species having been documented there. Some of the species that are frequently seen in and around the park include the Lesser Fish Eagle, Cinereous Vulture, Pallas's Fish Eagle, Tawny Fish and Spot-bellied Eagle Owl, Great Slaty Woodpecker, Ibisbill, Wallcreeper, Hodgson's Bushchat, Bright-headed Cisticola, Rosy Minivet, and White-tailed Rubythroat. Other species include Rosy Minivet and White-tailed The diversity of the park's avifauna is particularly impressive at Jim Corbett National Park. There are around 600 kinds of birds in the Jim Corbett National Park, according to a survey that was carried out by the team from the Zoological Survey of India. These birds include native birds as well as migratory birds, and they also include a range of water-birds and waterside-birds. It is impossible for visitors to the Jim Corbett National Park not to be impressed by the sheer quantity and variety of birds that are found there.

For your convenience, BIRDS of Jim Corbett National Park can be divided into following 6 categories.

Water-birds and Waterside-birds:

The Jim Corbett National Park is home to a variety of bird species, some of which are permanent residents while others are just passing through on their way elsewhere. Cormorants, Darters, Grey Herons, Egrets, Cattle Egrets, White-Necked and Black-Necked Storks, Spotbills, Large Pied Wagtails, and White-Capped Redstarts are some of the resident species that are frequently seen. Other species include the Spotbill, Spotted, and Large Pied Wagtails. The Great Crested Grebe, Graylag Geese, White Storks, Black Storks, Sandpipers, Snipe, the Great Black-headed Gull, around 15 different kinds of ducks, and many types of Wagtails are among the migratory species of water birds that may be seen in Corbett Park. Pelicans, either white or rosy, are another type of water bird that may be seen in the park on occasion.

Birds of Prey:

The Crested Serpent Eagle, the Black-winged Kite, the Indian Shikra, the Himalayan Grey-headed Fishing Eagle, Himalayan Vultures, and the Lesser and Greater Spotted Eagles are the resident birds of prey that may be seen in the Corbett National Park. Other resident birds include Hawk-Eagles, Crested Honey Buzzards, and Black Eagles, but they are not as frequently seen as the others. The Osprey, the Peregrine Falcon, the Booted Hawk-Eagle, and the Steppe Eagle are some of the migratory species that may be observed at Corbett.

Night Birds found in Corbett Park:

The owls, the nightjars, and the thick-knees are all examples of animals that fall within this group. The Jim Corbett National Park is home to approximately 18 distinct species of owls, some of which are the Spotted Owllet, Fish Owls, and Scops Owls. There are four species of nightjars that may be found in the park: the Great Stone Plover, the Great Stone Curlew, the Jungle Nightjar, and Franklin's Nightjar.

Woodland Birds in Corbett:

The Green Pigeon, the Parakeet, the Cuckoo, the Hornbill, the Barbet, the Woodpecker, the Oriole, the Drongo, the Pie, the Babbler, and the Thrush are all examples of birds that fall within this group. The Peafowl, the Red Junglefowl, and the White-crested Kalij Pheasant are all examples of ground-birds that live in wooded environments.

Grassland and Open Ground Birds:

Black Partridges, Doves, Beak-eaters, Rollers, Hoopoes, Shrikes, Larks, Mynas, Bulbuls, Warblers, Tailor Birds, Robins, Chats, Redstarts, Bayas, and Finches are all examples of birds that live in grassland and open ground in Corbett. Also included in this group are Rollers, the Hoopoe, and the Tailor Bird.

Air-Birds:

Swifts, including the well-known Indian Alpine Swift, Crested Swifts, the Dusky Crag Martin, Striated (or Red-rumped) Swallows, the Indian Cliff Swallow, and the Wire-tailed Swallow are among the air birds that may be seen in Corbett.

METHODS

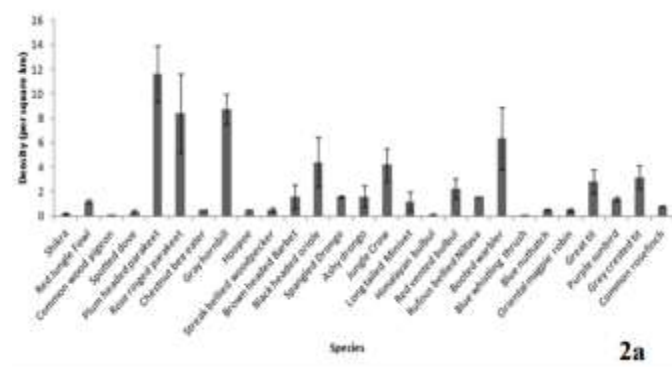
Transects, point counts, and territory mapping are three of the most important methods that have been developed and utilised for conducting bird censuses (Verner 1985, Bibby, Burgess, & Hill 1992). In order to identify the most appropriate strategy for a certain goal, a number of studies have evaluated several approaches, evaluating them in terms of their relative accuracy, bias, precision, and convenience of application in the real world (Ralph & Scott 1981, Verner & Ritter 1985, DeSante 1986). When the line transect approach does not produce accurate results, the point count method (Blondel, Ferret, and Frochet, 1981) is utilised to estimate the bird population. When the terrain of the region is not considered to be "open," counts can be done (Gregory, Gibbons & Donald 2004). A point count, also known as a circular-plot survey, counts the number of birds that are present at a sequence of predetermined locations or stations. From the 24th of March to the 4th of April in 2008, participants in the Master's training programme took out the study for a total of ten days. In the Corbett National Park, vantage sites were chosen at random in two distinct ecosystems, a Sal forest and a mixed forest (located at least 500 metres away from one another), and data was collected from each. The information was gathered by each of the four groups of students working in pairs. The number of birds was counted in a 360-degree arc beginning at the observer's position and going all the way around. Using a range finder, the distance that separates the vantage point from each individual bird is determined and recorded. The average distance is used as the radius of the circle, which is then used to calculate the area and the number of birds. It was determined how many birds lived in each habitat by

counting the total number of birds in each environment and then calculating the density of individual birds in each environment separately. Mixed forest (type locality: Ringora and Chorpani- Bijrani Range) as well as Sal forest were both visited throughout the data collection process (type locality – near Garjia temple – Serpdulli range and Dhikala – Dhikala range). Throughout the course of the research, a total of 38 plots were established using a random process. The statistical analysis was performed with the help of the application DISTANCE 6.0. (Thomas et al., 2010). In the course of the study, we took into consideration four important functions: uniform, half-normal hazard rate, and negative exponential, all of which required cosine series correction. The selection of key functions was judged according to Akaike's Information Criteria (AIC) (Akaike 1974, Burnham & Anderson 2002), and chi-squared statistics were utilised in order to evaluate the "goodness of fit" of each function (Burnham, Anderson & Laake 1980; Buckland et al., 1993). We looked at the shape criterion to see whether there was any heaping or cluster bias (Buckland et al., 1993). Formulae were used to determine the species diversity and richness of grasses in each plot. The Shannon Weiner index (H') was used to determine the species diversity, and Margelef's index (R1) was used to determine the species richness of the grasses. $(H') = -\sum p_i \times \log p_i$ and $(R1) = s-1/ \ln N$. Where "pi" stands for "the proportion of ith species in sample," "S" stands for "the number of species in sample," and "N" stands for "the number of individuals."

RESULTS

a. Density estimation of birds in Corbett National Park

The results of the computations carried out using the DISTANCE 6.0 software. It was discovered that the density of species in mixed forest was greater than the density of species in the Sal forest. (Table 1a and 1b). In comparison, the Sal forest is home to just 27 different species, but the mixed forest is home to 47 different species. After calculating the mean distances for a specific species based on several observations made at different times, these measurements were shown with the species' respective densities for each of the environments (Figure 2a & 2b).



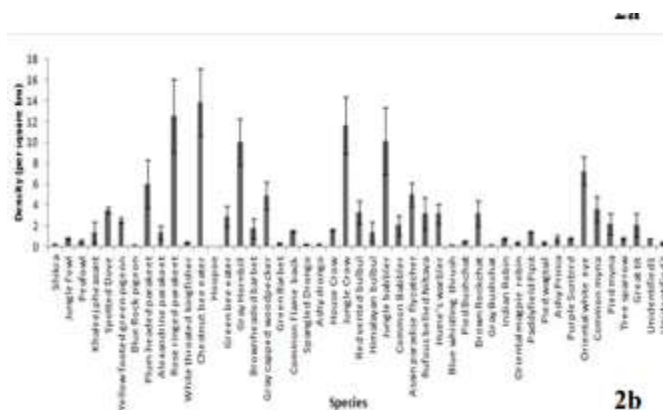


Figure 2 (a & b). Comparison of densities and mean distances of various species of birds in Sal and mixed forest of CTR.

The plum-headed parakeet has the highest population density (SE) in the Sal woodland (11.632.30/ km²), while the blue whistling thrush has the lowest population density (i.e. 0.060.01/ km²). Whereas, in mixed woodland, the maximum density was of chestnut headed bee eater (i.e. 13.84±3.25/ km²) and lowest density is of Hoopoe (i.e. 0.09±0.01/ km²).

b. Density, diversity and richness estimates of avian guilds in Corbett national Park

DISTANCE 6.0 was also used to compute the density of birds according to their respective guilds. This was done in order to assess the relative difference in abundance of each guild type compared to the others. SPEC Divers was utilised to conduct the study for richness and diversity estimates; a DOS-based modified module of statistical ecology (Ludwing and Reynolds, 1988) was applied in order to generate these values (Table 2a and 2b).

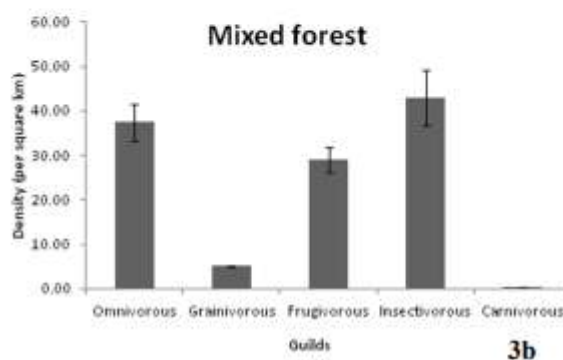
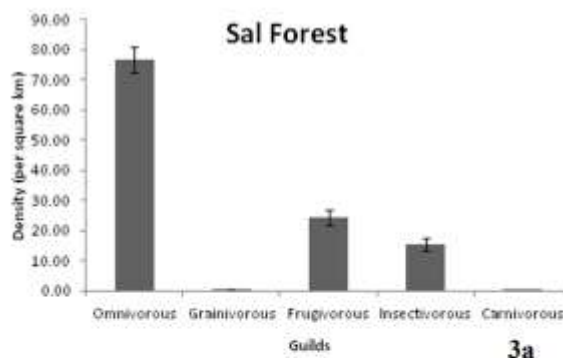
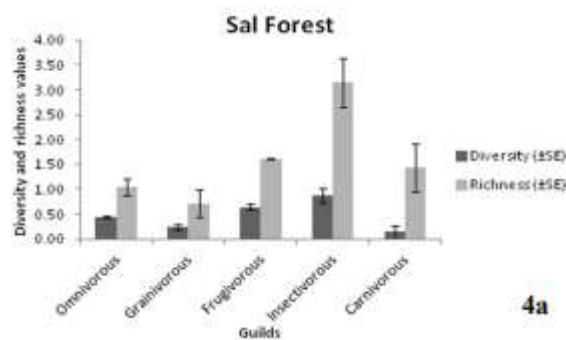
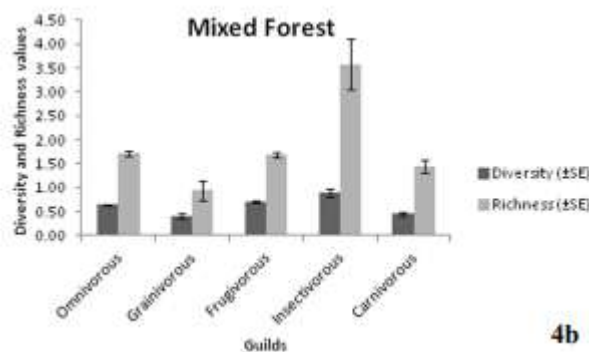


Figure 3. Comparison of guild-wise bird densities in CTR between a) Sal and b) Mixed Forest.

In mixed forests, the density of insectivorous birds was greatest (SE) (42.916.27/ km²), whereas in Sal forests, the density of omnivorous birds was greater than that of the other types (76.734.22/ km²). Carnivorous birds had the lowest population density in Sal (0.190.08/ km²) and mixed forests (0.320.12/ km²), respectively. Both the diversity (SE) and richness (SE) of insectivorous birds were found to be higher in both the mixed forest (0.890.08 and 3.570.53 respectively) and the Sal forest (0.880.14 and 3.150.49 respectively) than any other guild of birds. However, it was found that the Sal forest had the lowest diversity (SE) and richness (SE) of carnivorous and grainivorous birds (0.140.13 and 0.720.28 respectively), whereas the mixed forest had the lowest diversity (SE) and richness (SE) of grainivorous birds (0.400.06 and 0.94 0.2 respectively).



4a



4b

Figure 4. A comparison of the diversity and richness of bird guilds in the CTR between a) the Sal Forest and b) the Mixed Forest.

DISCUSSION

It's possible that the structural qualities that are produced from the various plant compositions in discontinuities might create significant alterations in the animal community assemblages there (Odum, 1958). Enrichment of linked bird groups is frequently correlated with increases in the structure and

complexity of accompanying vegetation as well as the floristic composition of that vegetation (Wiens, 1989; Monkkonen, 1994; Hobson & Bayne, 2000a,b; Shochat, Abramsky & Pinshow, 2001; Laiolo, 2002; Machtans & Latour, 2003). A pure woodland forest does not give the same level of diversity in its habitat for the many kinds of birds that make their home in the trees as does a mixed forest, which features a greater number of distinct nesting locations (Diaz, 2006). The current study revealed that because the Sal forest only offered a restricted food supply for the birds, only a small number of species that were considered to be specialists frequented these forests. In contrast, a mixed forest contains a greater variety of bird species than a Sal forest does because it contains a wider range of tree and shrub species, which together serve as a kind of edge habitat for a number of different bird guilds (Diaz, 2006). Additionally, a mixed forest contains a greater number of individuals within each species. Both types of forests contain the same species, but the populations of those species are significantly different from one another due to differences in the presence of their preferred habitats or the quantity of resources. For example, the rose-ringed parakeet has a density of around 8 individuals per square kilometre in sal forests but 12.55 individuals per square kilometre in mixed forests, demonstrating that it is a species that is able to adapt to a wide range of environments. In a similar vein, the Spangled Drongo has a density of approximately 0.2 individuals per square kilometre in mixed forest, whereas in Sal forest it has a density of approximately 1.5 individuals per square kilometre. This disparity can be attributed to the fact that the Spangled Drongo is more of a specialist species than a generalist species. The structure of a Sal forest was found to be more of a stable fixed pattern entertaining more specialist species, whereas the structure of a mixed forest was found to be of more of a varying composition, indicating the importance of both the habitat types for a series of different kinds of birds. Sal forests are found in the southwestern United States. Due to the fact that very few species were discovered to be unique to the Sal woods, it is acceptable to say that the protection of such areas is, without a shadow of a doubt, an essential step. In a similar vein, the fact that the mixed forest is home to several bird species belonging to a variety of different guilds is an indication of its significance. Therefore, the loss of any of these habitats might have a significant negative impact on the variety of birds that can be found in Corbett. As a result, it is important to continue practising responsible conservation practises in order to prevent deforestation in.

Table 1a. Density estimates (birds per km²) and corresponding Standard error values (SE) were generated by the programme DISTANCE 6.0 based on the number of birds detected (n) and their detection probabilities (p) during a total of 18 point counts carried out over the course of the study period in the Sal forests that are located within Corbett National Park. Based on the lowest available AIC value, the Half Normal model was selected.

Sl No.	Species	Number of individuals detected (n)	Detection probability (p)	Density (per square km)	Std Error (\pm SE)
1	Shikra <i>Accipiter badius</i>	1	0.03	0.17	0.06
2	Red Jungle Fowl <i>Gallus gallus</i>	4	0.33	1.21	0.11
3	Common wood pigeon <i>Columba palumbus</i>	1	0.07	0.07	0.02
4	Spotted dove <i>Spilopelia chinensis</i>	3	0.50	0.38	0.10
5	Plum headed parakeet <i>Psittacula cyanocephala</i>	28	0.27	11.59	2.30
6	Rose ringed parakeet <i>Psittacula krameri</i>	24	0.30	8.39	3.22
7	Chestnut headed bee eater <i>Merops leschenaulti</i>	1	0.25	0.51	0.03
8	Gray hornbill <i>Ocyeros birostris</i>	29	0.33	8.74	1.24
9	Hoopoe <i>Upupa epops</i>	1	0.03	0.51	0.01
10	Streak throated woodpecker <i>Picus xanthopygaeus</i>	1	0.02	0.51	0.14
11	Brown headed Barbet <i>Megalaima zeylanica</i>	7	0.37	1.59	1.02
12	Black headed oriole <i>Oriolus larvatus</i>	13	0.30	4.42	1.98
13	Spangled Drongo <i>Dicurus bracteatus</i>	2	0.02	1.59	0.11
14	Ashy drongo <i>Dicurus leucophaeus</i>	4	0.03	1.59	0.86
15	Jungle Crow <i>Corvus macrorhynchos</i>	9	0.59	4.20	1.35

16	Long tailed Minivet <i>Pericrocotus ethologus</i>	4	0.32	1.19	0.77
17	Himalayan bulbul <i>Pycnonotus leucogenys</i>	1	0.05	0.13	0.09
18	Red vented bulbul <i>Pycnonotus cafer</i>	13	0.43	2.24	0.85
19	Rufous bellied Niltava <i>Niltava sundara</i>	2	0.20	1.59	0.03
20	Booted warbler <i>Iduna caligata</i>	2	0.10	6.37	2.55
21	Blue whistling thrush <i>Myophonus caeruleus</i>	1	0.07	0.06	0.01
22	Blue nuthatch <i>Sitta azurea</i>	1	0.05	0.51	0.05
23	Oriental magpie robin <i>Copsychus saularis</i>	1	0.08	0.51	0.12
24	Great tit <i>Parus major</i>	2	0.15	2.83	0.99
25	Purple sunbird <i>Cinnyris asiaticus</i>	1	0.11	1.42	0.17
26	Grey crested tit <i>Lophophanes dichrous</i>	1	0.10	3.18	0.93
27	Common rosefinch <i>Carpodacus erythrinus</i>	1	0.04	0.80	0.07

CONCLUSION

In a same vein, several bird species belonging to different Guilds are supporters of the mixed forest. The destruction of any habitat in the Corbett region might potentially have a substantial negative impact on the

variety of bird species found there. In order to stop the local extinction of species that are specific to a certain kind of forest, it is imperative that appropriate management practises be kept in place. These practises should prohibit the cutting down of forests in the affected regions. despite the fact that this study only lasted for a short period of time, researchers were able to identify 54 distinct forest types, which is evidence of a stable habitat and a substantial sanctuary for the native species.

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