



Research Article

POPULATION AND DISTRIBUTION STATUS OF JUNGLE BABBLER (*TURDOIDES STRIATA*) AT CHAUDHARY CHARAN SINGH UNIVERSITY CAMPUS, MEERUT (U.P)

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ABSTRACT

In the past, the jungle babbler (*Turdoides striata*), a species of endemic avian species in India, was referred to as the 'seven sisters' since it forms groups of 2-20 individuals. To begin the fieldwork, about 222 acres covering the area of the university campus were divided into three major habitat types: open scrub, dry deciduous, and urbanized. During the survey of jungle babblers, we monitored their nests. We recorded more than 118 nests and found additional evidence of nesting in the park. The trees like neem and Ashok possessed nests at a height of approximately 1.53 meters to 5.27 meters. Most of the birds were native of our sites as Departmental area, Freedom Fighter Matadeen Valmiki Tapowan, Sir Chhotu Ram Institute of Engineering & Technology and Agriculture Field. The maximum group size was 7 of jungle babbler in particular sites and the minimum group size was 5 of jungle babbler on line transect. Data of habitat variables were also collected at the particular sites of jungle babbler sighted on point count and line transect method and population of jungle babbler were estimated by total count.

Keywords: Jungle babbler, Population distribution, Habitat, Point Count Method, Line Transect Method.

INTRODUCTION

This earth is huge, likewise, it has a big heart. It takes care of all the living and non-living things on it, like a mother takes care of her child. Similarly, the earth, this sky has also provided its huge heart like a father to all living beings to fly. Bird is a wonderful creation of god which can move on both sky and earth. That is why humans have always been doing research on birds and have always been curious to know about them. Research was being done on these, It is happening and will continue to happen. Birds are common inhabitants of ecosystems and are regarded as environmental bio-indicators of their habitat (Ali *et al.*, 1995, and Beauchamp G., 2008). We have approximately 9,990 bird species recorded on planet earth, and the Indian subcontinent has 1,313 species of birds. This accounts for more than 15% of the world's bird species (Bharucha *et al.*, 2010). The Indian subcontinent contains a wide array of habitats, including agricultural fields, deserts, grasslands, and forests, as well as high mountains. As a result of the seasonal environmental conditions and the variance in

rainfall in different regions, different ecosystems develop, which supports a wide variety of wildlife. Thick evergreen vegetation contributes to a large number of bird species. The grasslands and agriculture fields in the Plains provide indigenous species of birds that inhibit their reproduction. There are more than 450 species of fauna in Tamil Nadu, including a number of endemic species and conservation priority species (Bharucha *et al.*, 2010, Dattner *et al.*, 2015, and Gupta, 2014).

Generally, organisms developed according to their ecological niches. Birds are organisms that are highly mobile and remarkably adapted to migration, and this phenomenon is seen in large numbers within this group (Gupta, 2014 and Ha *et al.*, 2001). Birds are a successful group of vertebrates and biodiversity indicator. The biodiversity of birds can be defined as the variety of life in all its forms, levels, and combinations, including plants, animals, microbes, and ecosystems. They may have structural, behavioural, or physiological modifications in order to ensure their better survival and, ultimately, their

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successful rehabilitation. It is right to call bird's bio-indicators because they serve a crucial role within the ecosystem as potential pollinators and scavengers. The most useful aspects of birds to humans are their ability to consume seeds of unwanted plants and to destroy harmful insects (Robinette *et al.*, 2001; Rosenzweig, 1995 and Srivastava, 2013). All animals must strive eternally to avoid pain, to avoid enemies, to keep warm, well-fed and internally moist and to keep supplied with oxygen, minerals, vitamins, and other substances, often within precise limits. The spectacular fact that birds can fly across oceans, deserts, forest and mountains tends to obscure the more significant fact that this ability to flight gives them exceptional opportunities for preserving their internal stability or homeostasis. In the wild, birds can build their homes (nests) anywhere among the virtually infinite variety of sites, frequently outside of the path of predators. Birds are the most successful terrestrial vertebrates because of their mobility, making them numerically the greatest. There is no better-studied animal group than birds in the animal kingdom at present. It is still unclear exactly how many bird species, and the number and distribution of geographic populations, have been determined (Sandstrom *et al.*, 2006). Birds provide many ecosystem services to mankind. About 33% of bird species helps in seed dispersal through fruit consumption as well as scattering through nuts. Bird's also act as scavengers by removing carcasses and nutrient recycling (Singh *et al.*, 2015). These controls agricultural pests, like rodents and insects.

During foraging, many species prefer living a solitary existence, though belonging to a social group comes with its own benefits. Additionally, the combined efforts of individuals within a social group help in locating new feeding areas or exploring new habitats. As an example, there are opportunities to be less vigilant toward predators and focus instead on higher food intakes. A social group can play an important role in indicating the surrounding sociological possibilities for any given issue. However, belonging to a group has its disadvantages as well since it can present competition in fighting and aggression in marriage. In India, the jungle babbler can be found in dry deciduous forests to moist semi-evergreen forests. It is an endemic, insectivorous bird (Beauchamp, 2008). It is hard to differentiate between sexes in these birds, as the body coloring is brown with yellow bills in both sexes. These species live in social groups that can vary in size from 2-20 individuals. A breeding female, a dominant male breeder, and a no breeding helper usually form these groups. These birds are often called 'seven sisters' in the past. These birds have a number of hyphenations for these siblings' names. Literature suggests that a jungle babbler's social group consists of approximately seven individuals on average, i.e., about six to ten persons in a group (Ali *et al.*, 1995; Radford, 2008; Bharucha & Padate, 2010). In recent years, some naturalists have recreated the bird's unforgiving, continuous babble to an arguing group of seven humans, coining the term (Mangrio *et al.*, 2017).

Gregarious and social, these birds live in groups. They are sometimes combined to form a mixed-security foraging

group. Mostly they eat insects, but they also eat grains, nectar, and berries. Normally groups protect their territories and will defend them against neighbors, although they will sometimes tolerate other groups. During forage, some birds take up a high perch and serve as sentinels. They can migrate and gather with ease, including snakes and other predators. In young birds, the iris is dark. An older bird has a bluish-white colour and it has been found that the iris contains a dark membrane that becomes invisible when the muscle fibers develop in the iris, making the dark base colors and hues (Sahito *et al.*, 2016, and Mangrio *et al.*, 2017). Breeding may occur throughout the year. Peak breeding in northern India has been noted between March and autumn, as well as July and September. Once a bird reaches its third year, it can breed. Located in a dense canopy of foliage, nests are built halfway in trees. Three or four deep greenish-blue eggs are normally laid (but can be seven) in a clutch. Birds breeding during June to September in northern India tend to be parasitized by the pied crested cuckoo and sometimes by the common hawk-cuckoo. Parents are assisted in feeding the young by helpers. The survival rate of most fledglings is very high. Birds leave their native group about two years after they leave the nest. As a group, birds often engage in fighting, playing and lounging together. Apparently when threatened by predators, they will sometimes pretend to be dead. The objective of the study was to record the number of individual birds, their nests in Chaudhary Charan Singh University Campus, and to provide a baseline for every investigator.

MATERIALS AND METHODS

Study area

The present study was conducted for "Study on population and distribution status of Jungle Babbler (*Turdoides striata*) at Chaudhary Charan Singh University" from March 2021 to September 2021. An investigation was carried out in the following steps. The selected sites of Chaudhary Charan Singh University Campus, [District - Meerut (29° 01' N; 77° 45' E), U.P.] were surveyed for identification of Avifauna. Field surveys were conducted from March to October and covering the following seasons; late winter, spring, and early summer.

Site specification

Four sites were selected for study in Chaudhary Charan Singh University Campus, Meerut. Sites were selected based on the bird's habitat. These sites include forest, grassland, agriculture field, residential area, shrubby areas, and ponds. These sites are marked as Site-1, Site-2, Site-3, and Site-4, shown in Figure 1 (University map).

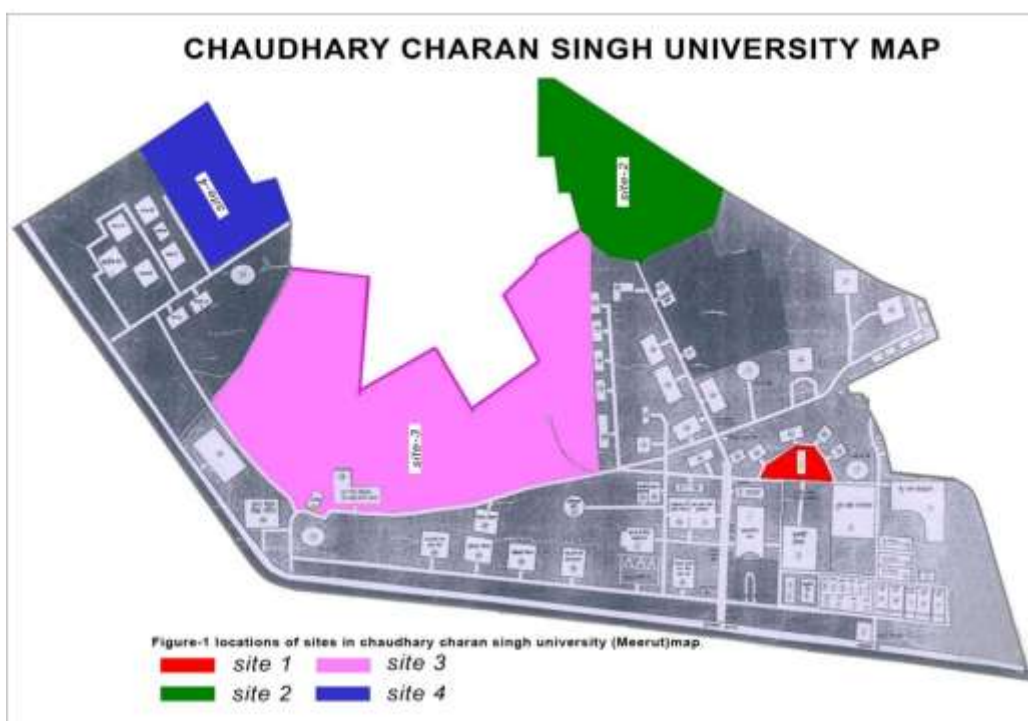
Site description

Among the factors which were described the habitat type, the land cover is one of the most well-known types. The land cover types can be classified into the major categories: residential, forest, agriculture field, pond, and shrubby

areas. Types of sites were: Site-1 (Departmental area): Shrubby and grassland areas (N - 28. 058' 16.8", E - 077. 44' 18.9"). Site -2 (Freedom Fighter Matadeen Valmiki Tapovan), Forest area (N - 28 .58' 20.4", E - 077. 44' 36.2") Site-3 (Sir Chhotu Ram Institute of Engineering & Technology): Mixed habitat; forest, grassland (E - 28. 058' 16.8" N – 077, 44' 18.9"). Site-4 Agriculture field (N - 28.58' 21.0", E – 077. 44 '19.1").

Study period

The work was performed in different sessions for counting and behavior of Jungle babbler. A field survey was conducted for eight months were covering the seasons. *First period - March to April 2021; Second period - May to July 2021; Third period - August to September 2021;* Selected areas were visited three times a day between 3 hours intervals (Morning) 6:00 AM to 9:00 AM, (Noon) 12:00 PM to 2:00 PM, and (Dusk) 5:00 PM to 7:00 PM).



Field Equipment

Following devices (equipment) and techniques were used in bird counting, watching, and identification.

Binoculars

Olympus binocular was used for bird watching (Olympus:8 – 16X40 Zoom DPS 1, UV protective). Binoculars are outstanding for activities like bird watching and sporting events, also the binoculars (8-16X40 DPS I) provides us the flexibility to zoom in and out on the subject.

Camera

The camera was used for bird photography. Photographs of birds have played an important role in the identification of their species. Sony Cyber-Shot (DSC –HX 100V; 16.2 megapixels with 30x optical zoom; full HD movie) camera was used for their photography.

GPS devise

During the investigation, I have used Garmin GPS (625); which was very helpful for measuring, observing, and mapping studied areas. Following methods were used during the study:

Point Count method

Birds can be studied by using the point count as a form of block counting, which is the simplest method. Area searches, which utilize a similar approach, involve searching the area for a set period of time and recording how many birds are found in that area. Most monitoring studies recommend a fixed radius point count, which is the most commonly used method. The relative abundance of birds can be estimated using these methods at a low cost. A bird watcher records the species of birds in a radius surrounding the area where observations are being made. It is possible to choose observation points both systematically and randomly. For the study of bird populations, the Point Transects Method is commonly used. To record the

maximum number of bird species and their activities, the sites were visited in the morning and evening. Observations were made occasionally during the afternoon to observe bird activities; especially during the winter season, when migratory birds were present in the study area.

Line transect method

With this method, the observer moves along predetermined paths while recording the species observed on both sides of the track. It can cover a larger area than point counts, but with fewer independent data points.

RESULT AND DISCUSSION

The university campus is comprised of approximately 222 acres and is divided into three major habitat types: open

scrub, dry deciduous, and urbanized. We recorded more than 118 nests and found additional evidence of nesting in the Chaudhary Charan Singh Park (Table 1).

Babblers build their nests on jungle jalebi, mango, neem, citrus plants, Jamun, and Ashok species at heights between 1.53 meters and 5.27 meters. Nests can be found at different heights on trees like neem and Ashok. Most of the birds were native of our sites as; Departmental area, Freedom Fighter Matadeen Valmiki Tapowan, Sir Chhotu Ram Institute of Engineering & Technology and Agriculture field. The maximum group size was 7 of Jungle babbler in particular sites and the minimum group size was 5 of Jungle babbler on Line Transect. In the present study, baseline information about the ecology and biology of Jungle babbler was collected in an agro-ecosystem.

Table 1. Total number of Jungle Babbler and its nests as per each site.

Name of Sites	Number of birds (Jungle Babbler) each site	Number of nests each site
Site 1	160	24
Site 2	220	28
Site 3	140	29
Site 4	300	37
Total	826	118



Figure 2. Jungle babbler and its eggs.

These aspects of population dynamics, habitat utilization patterns, vocalization and courtship behavior, food and feeding habits, as well as breeding biology, were collected. Data of, habitat variables were also collected at the particular sites of Jungle babbler sighted on Point count and Line transect Method and Population of Jungle babbler was estimated by total count. For analyzing the population

density of the Jungle babbler line transect method was used. This is because the method has been in use since the 1930s and is more practical, efficient, expensive, and is applicable for round-the-year observations.

Birds of this species are social and gregarious. Sometimes they form a flock of mixed-species foraging birds. Most of the time, they eat insects, but they will also

eat grains, nectar, and berries. Territories are maintained by the groups, who defend them against neighboring groups but may also tolerate them sometimes. It has been noted that they can live upwards of 16.5 years in captivity, considering their size. Monsoon is the peak breeding season for this species, although nests are seen throughout the year. Nests are built in trees that are hidden beneath dense foliage. The vast majority of nests are located below four meters in height. Nests are small cups placed in the forks of branches. The normal clutch size is two to four turquoise blue eggs (Figure 2), although up to five may be laid by birds in the hills of Sri Lanka. It takes 14 to 16 days for the eggs to hatch (Figure 1). When foraging, parents often stand on the rim of their nests rather than sit on the chicks. Some birds set up a high vantage point and act as sentinels. Often, they gather to mob potential predators like snakes. It is common for young birds to have dark irises. It has been discovered that older birds have a pale cream color and an iris with a dark epithelium that becomes invisible when the muscles are developed in the iris, thereby making the dark basal colors invisible and making the iris appear cream colored.

CONCLUSION

Externally, jungle babblers can't be distinguished from one another due to their same coloration. It is a common bird around campus and in cities and towns as well. It is an omnivorous species that builds a round nest with a height range that ranges from 241.4 to 424.28 cm and a clutch size that is about four eggs on average. It is a social bird, as several birds (around 13-15) will attend each nest they eat insects in cultivated areas and are also considered pest monitoring agents.

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