

AVIFAUNA BIODIVERSITY IN DAUSA DISTRICT, RAJASTHAN

* BRIJ MOHAN MEENA¹, GEETIKA²

¹Research Scholar, Shyam University, Dausa, Rajasthan (India)

²Research Scholar, Shyam University, Dausa, Rajasthan (India)

Abstract:

A total of 47 taxa of birds belonging to 13 orders and 19 families were discovered in the Dausa district of Rajasthan, India, during the months of January and December 2022. Forty-three of the species found there were local migratory, while thirteen of them were permanent residents. The data collected from birds in the study revealed approximately 19 different species of insectivores. Other predominant bird species included omnivores, predators, granivores, and frugivores for the most part. Ground, pendant, hollow, and cup nesters, as well as platform and hole nesters, are the six distinct types of nesting systems that are available. Twigs, fibres, sticks, leaves, mud, and grasses were the most common material that the birds used to construct their nests, despite the fact that they used a variety of materials. There is a significant amount of interest on a global scale in urban areas as emergent ecosystems. The social-ecological systems that make up urban environments are complex and incredibly important. There are geographical areas inside these artificial ecosystems that have a substantial amount of biological diversity.

Keywords: Daus, Rajasthan, Birds, Avian Diversity

INTRODUCTION:

The process of urbanization, which refers to the rise in the proportion of the total population that lives in urban areas, is unavoidable, but it also has the potential to be beneficial. In spite of the significant destruction and degradation of habitats, urban areas have the potential to support a wide variety of vertebrate and invertebrate fauna species. This may be for a number of reasons, including the wide variety of natural and artificial habitat niches and conditions that are present in urban areas (Niemela 1999, Collins et al. 2000). The heterogeneity of natural environments is one of the most important factors that contribute to an increase in biodiversity (Karr 1976). Green spaces in urban areas may take the form of parks, reserves, private gardens, wetland, lakes, and other similar features. These green spaces contribute to the formation of diversified ecosystems (Schaefer 1994, Argel-de-Oliveira 1996). These characteristics of urbanized areas facilitated the participation of conservation science professionals in research projects concerning urban biodiversity (McDonnell and Pickett 1990, Alvey 2006, Garden et al. 2006) and the dynamics of urban avifauna, which had been neglected prior to the 1990s (Botkin and Beveridge 1997, McDonnell et al. 1997, Savard et al. 2000). All of these studies were conducted in urban areas.

Approximately 1300 different species of birds can be found on the Indian subcontinent, according to Grimmett et al. (1999). Recently, there has been a growing awareness of the necessity of preparing checklists of birds on a wider scale. However, the majority of the time, such effort is limited to sanctuaries and forest ranges (Kannan 1998; Mahabal 2000). Collective checklists of birds for specific regions like lakes (Sahu & Rout 2005; Reginald et al. 2007), wetlands (Ravindran 1995; Sivaperuman & Jayson 2000), mangroves (Pandav 1997; Oswin 1999), wildlife sanctuaries (Relton 1998; Mahabal 2000; Aravind et al. 2001; Chhangani 2002) and university campuses and institutes (Jayapal 1995; Sundar 1998; Nameer et al. 2000; Ramitha & Vijayalaxmi 2001; Dookia 2002; Praveen & Joseph 2006) have also been published. In order to react to the need for integrative research, the purpose of this work is to investigate the linkages that exist between the anthropogenic activities and the urban biodiversity of the three cities that make up Rajasthan. According to the first findings of our research conducted in the urban areas in the southern regions of Rajasthan, the local population exhibited an interest in the local biodiversity, particularly with regard to phenological events. They profited from this interest by gaining aesthetic pleasure and information on seasonal changes. A large number of flora and faunal species are afforded refuge and protection by the artificially produced diverse habitats that are located within the urban limits of cities such as the Dausa district. There is a high diversity of species in urban settings, notably vascular plants, as well as many different types of animals, particularly birds. Artificially managed parks, such as Gandhi sagar, Shivaji garden, and Nehru garden, are home to a wide variety of flora, whereas manmade lakes are home to a large number of wetland avifauna. The diversity of avifauna is taken into consideration when determining the significance of biodiversity for the Dausa district.

In Rajasthan, there is a wide variety of ecosystems. A wide range of flora and wildlife, particularly avifauna, can be found in these settings. The habitats in the eastern and southern regions of the state provide shelter for more than eighty percent of the bird species that have been reported from the state (Sharma 2002). Islam and Rahmani (2004) claimed that the state is home to five hundred different species of birds. The overall surface water resources in the state of Rajasthan are just approximately one percent of the total surface water resources in the country, making it one of the driest states in the country. Rajasthan is also one of the oldest states in the country. Despite this, the region is home to hundreds of saltwater and freshwater bodies of water that are only transitory, and their sizes range from extremely small to quite large. It has been determined that the state contains 52 wetland areas, three of which are natural, and that these wetland areas cover approximately 34 percent of the state's total landscape (Anon. 1990). The surface water plays a significant role in providing aquatic birds with a breeding and resting ground, and this role is contingent upon the qualities of the surface water in terms of the availability of food and the protection it offers. A significant portion of Rajasthan's surface water resources are located in the southern and southeastern regions of the state. There has been no research conducted on the avifauna of the Dausa district. The waterbodies of the "Textile city"

play an essential role in a number of different areas of human interest, including culturally, socially, scientifically, and commercially. Following fish as the most important species of wildlife that draws humans to wetland areas, birds are perhaps the next most important group. Ornithologists, experts on hunting management, and hunters have been interested in birds, particularly water birds, for a very long time in the princely state of Rajasthan (Adam 1873, Barnes 1891, Oates 1899, Messurier 1904, Impey 1909, Whistler 1938, Prakash 1960, Kushlan 1986). This is similar to the situation in other parts of the world. Many species of water birds are migratory, meaning that they travel between their breeding sites and non-breeding areas on an annual basis via a variety of flyways that span the length and breadth of the world (Ali 1959, Alerstam 1990). According to Butler (1875-1876) and Hume (1878), the majority of the ornithological research conducted in Southern Rajasthan was limited to the Abu Hills in the Sirohi district and certain areas of the Udaipur district. This was done before the state gained its independence. It is possible that monitoring waterbirds can provide vital information on the status of wetlands (Custer et al. 1991, Kushlan 1993). Additionally, monitoring waterbirds can be an important tool for promoting awareness of the importance of wetlands and the values associated with conservation. A growing number of people are becoming aware of the need of preserving water birds and wetland ecosystems, as well as the fact that birds can be used as indicators of the state of the environment around us (Anon 2001). According to Bolund and Hunhammar (1999), cities are not only dependent on the ecosystems that exist beyond the city limits, but they also benefit from the ecosystems that exist within the city itself. The objective of this contribution is to provide a preliminary investigation of the avifaunal composition in the terrestrial and aquatic habitats of the urban regions of the Dausa district in Rajasthan, India, as well as the usefulness of this composition for the community in terms of socio-ecological factors. The purpose of this study is to evaluate the avifaunal diversity that may be found in urban areas of the Dausa district and to propose methods that can be taken to protect and increase the biodiversity of the area. By doing so, the study aims to improve the quality of life of people by allowing them to interact with nature, develop an appreciation for it, and get involved in the protection of it.

Material and Method:

I. Study Area

DAUS DISTRICT

Dausa district was constituted in the year 1991 by including Dausa, Baswa, Lalsot, Sikrai tehsils of district Jaipur and Mahuwa tehsil of district Sawai Madhopur (lying between latitude 26° 23' and 27° 15' and longitude 76° 0' and 77° 02'). It is bounded on the north by Bharatpur and Alwar, on the west by Jaipur, on the south and east by Sawai Madhopur districts respectively. The district head quarter is 55 km from Jaipur. Dausa is situated on Delhi - Jaipur broad gauge

line of western railway. Bandikui is the prominent railway junction of this district which connects Delhi and Agra. At present, district has seven tehsils viz: Dausa, Sikrai, Mahua, Lalsot, Baswa, Lavan& Nangal.

The administrative set up of the district is given below.

S.No	Sub-division	Tehsil	Block	Area(sq.km.)
1	Lalsot	Lalsot	Lalsot	871.24
2	Dausa	Dausa	Dausa	943.76
3	Bandikui	Baswa	Bandikui	632.64
4	Sikrai	Sikrai	Sikrai	502.23
5	Mahuwa	Mahuwa	Mahuwa	470.00

The population of district is 16,37,226 based on Census, 2011 including 8,59,821 (52.51%) males and 7,77,405 (47.48%) females. The density of population is 476 persons/sq.km.

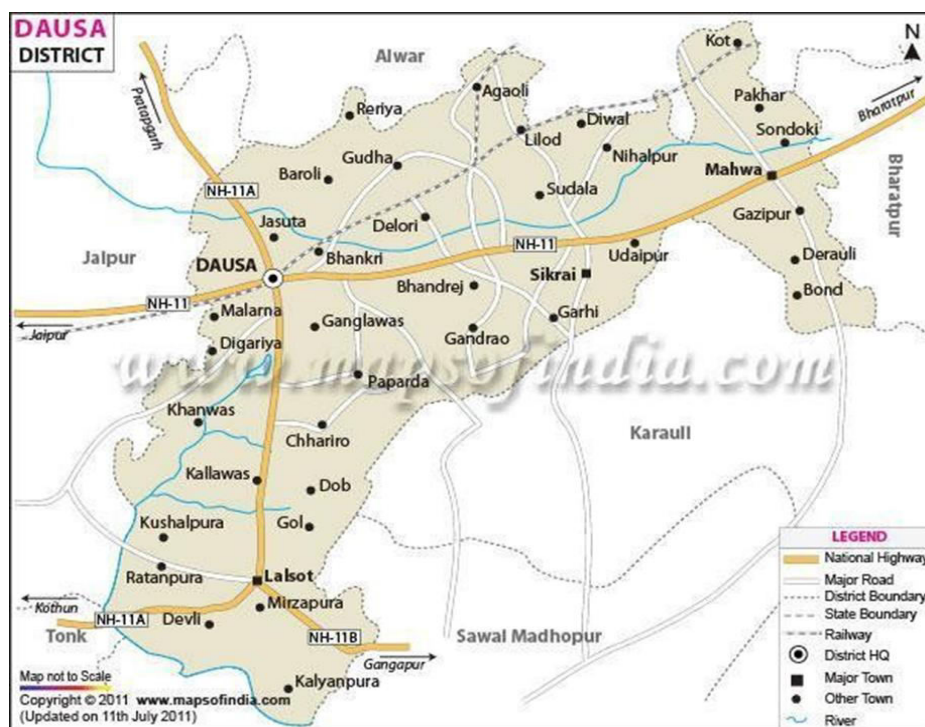


Fig: 3 Map Showing various major areas of Dausa District

DEMOGRAPHIC PROFILE

According to the 2011 census Dausa district has a population of 1,637,226, roughly equal to the nation of Guinea-Bissaur the US state of Idaho. This gives it a ranking of 305th in India (out of a total of 640). The district has a population density of 476 inhabitants per square kilometre (1,230/sq mi) . Its population growth rate over the decade 2001-2011 was 24.31%. Dausa has a sex ratio of 904 females for every 1000 males,[2] and a literacy rate of 69.17%.

II. Avifaunal Surveys and Field Methods

For the purpose of data collecting, seasonal field surveys were carried out over the course of one year, beginning in July 2021 and winding down in June 2022. There were three seasons that were taken into consideration for the purpose of monitoring and collecting data: winter, monsoon, and summer. Within the realm of urban habitats, there were two primary categories: urban terrestrial habitats and urban aquatic habitats.

In the morning, between the hours of six and twelve, and in the late afternoon or evening, between fifteen and eighteen, seasonal surveys were carried out. Many different approaches of sampling were utilized in accordance with the requirements. It was determined which bird species were indicative of the plots using the Line Transect Method (LTM) and or modified Transect Method (RTM) (see Bibby et al. 2000, Javed and Kaul 2002, Urfi et al. 2005) and Point Count Method (PCM) for farmland, forest hills, gardens, groves, plantations and protected areas (Hutto et al.1986), and Total Count Method (TCM) for wetland habitats with less than 5 km perimeter (Burnham et al. 1980, Hoves and Bakewell 1989). They are named after Manakadan and Pittie (2001), who came up with both the common and scientific names for the bird species. Using the PCM, all birds that were observed or heard within a radius of one hundred meters for a period of five minutes inside each sample location were recorded according to species (Hutto et al. 1986). Ali and Ripley (1968–1999), Grimmett et al. (1999), and Grimmett et al. (2004) were the resource guides that were utilized for the purpose of identification and description.

Listed below is a check list that pertains to the same.

Figure 1: A Checklist of Birds

Sr.No.	Name	Order	Family	Subfamily
1. 1	Northern Shoveler <i>Anas clypeata</i>	Anseriformes	Anatidae	Anatidae
2. 2	Common Swift <i>Apus apus</i>	Apodiformes	Apodidae	Apodinae

3.	3	Indian Grey-Hornbill <i>Ocyeros birostris</i>	Bucerotiformes	Bucerotidae	Apodinae
4.	4	Black-winged Stilt <i>Himantopus himantopus</i>	Caprimulgiformes	Charadriidae	
5.	5	Red-wattled Lapwing <i>Vanellus indicus</i>	Caprimulgiformes	Charadriidae	
6.	6	River Tern <i>Sterna aurantia</i>	Laridae		
7.	7	Common Sandpiper <i>Tringahypoleucos</i>	Scolopacidae		
8.	9	Indian Pond-Heron <i>Ardeolagrayii</i>	Ciconiiformes	Ardeidae	
9.	1	Rock Pigeon <i>Columba livia</i>	Columbiformes	Columbidae	Columbinae
10.	1	Common Kingfisher <i>Alcedo atthis</i>	Coraciiformes	Alcedinidae	
11.	1	Indian Roller <i>Coracias benghalensis</i>		Coraciidae	
12.	1	Little Green Bee-eater <i>Merops orientalis</i>		Meropidae	
13.	1	Greater Coucal <i>Centropus sinensis</i>	Cuculiformes	Centropodidae	
14.	1	Asian Koel <i>Eudynamis scolopacea</i>		Cuculidae	Cuculinae
15.	2	Brahminy Kite <i>Haliastur indus</i>	Falconiformes	Accipitridae	
16.	2	Grey Francolin <i>Francolinus pondicerianus</i>	Galliformes	Phasianidae	

17. 2	Indian Peafowl <i>Pavo cristatus</i>			
18. 2	Common Coot <i>Fulicaatra</i>	Gruiformes	Rallidae	
19. 2	Plain Prinia <i>Prinia inornata</i>	Passeriformes	Cisticolidae	
20. 2	Ashy Prinia <i>Prinia socialis</i>			
21. 2	House Crow <i>Corvus splendens</i>			
22. 2	Rufous Treepie <i>Dendrocitta vagabunda</i>			
23. 3	Black Drongo <i>Dicrurus macrocerus</i>			
24. 3	Eurasian Golden-Oriole <i>Oriolus oriolus</i>			
25. 3	Red-rumped Swallow <i>Hirundo daurica</i>			
26. 3	Streak-throated Swallow <i>Hirundo fluviicola</i>			
27. 3	Barn Swallow <i>Hirundo rustica</i>			
28. 3	Wire-tailed Swallow <i>Hirundo smithii</i>			
29. 3	Long-tailed Shrike <i>Lanius schach</i>			
30. 3	Indian Robin <i>Saxicoloides fulicata</i>		Muscicapidae	

31. 4	WhiteWagtail <i>Motacilla alba</i>			
32. 4	House Sparrow <i>Passer domesticus</i>			
33. 4	Baya Weaver <i>Ploceus philippinus</i>			
34. 4	Bank Myna <i>Acridotheres ginginianus</i>		Sittidae	
35. 4	Common Myna <i>Acridotheres tristis</i>			
36. 4	Asian Pied Starling <i>Sturnus contra</i>			
37. 4	Brahminy Starling <i>Sturnus pagodarum</i>			
38. 4	Common Tailorbird <i>Orthotomus sutorius</i>			
39. 4	Jungle Babbler <i>Turdoides striatus</i>			
40. 5	Little Cormorant <i>Phalacrocorax niger</i>	Pelecaniformes	Phalacrocoracidae	
41. 5	Indian Cormorant <i>Phalacrocorax fuscicollis</i>			
42. 5	Coppersmith Barbet <i>Megalaima haemacephala</i>	Piciformes	Megalaimidae	
43. 5	Little Grebe <i>Tachybaptus ruficollis</i>	Podicipediformes	Podicipedidae	
44. 5	Rose-ringed Parakeet <i>Psittacula krameri</i>	Psittaciformes	Psittacidae	Psittacinae
45. 5	Spotted Owlet <i>Athene brama</i>	Strigiformes	Strigidae	
46. 5	Barn Owl		Tytonidae	

	<i>Tyto alba</i>			
47. 5	Eurasian Hoopoe <i>Upupa epops</i>	Upupiformes	Upupidae	

Results and Discussion

Table 1 contains a list of birds that have been recorded from the Dausa, along with their common name, scientific name, and status. As a result of the research, there are 47 different species of birds that belong to 19 different families and 18 different orders. The Passeriformes order dominated the list of the 13 orders with 16 species, followed by the Caprimulgiformes with five species, the Columbiformes, the Coraciiformes, the Cuculiformes, and the Falconiformes with three species each, and the Ciconiiformes, Galiformes, palecaniformes, and Strigiformes with two species apiece. 29 of the 47 species were birds that were frequently found in residential areas, whereas eight of the species were migrants from the surrounding area. The local migrants consist of the following species: the Little Grebe *Tachybaptus ruficollis*, the Common Coot *Fulicaatra*, the Common Sandpiper *Actitis hypoleucos*, and the Rosy Starling. The Pied Crested Cuckoo *Clamatorjacobinus*, the Common Swallow *Hirundo rustica*, the Red-rumped Swallow *Hirundodaurica*, and the Rosy Starling are all also included in this group. The *Sturnus Rose* is a rose. It is only during certain months of the year, namely from August to January, that the *Apus affinis* house swift is observed.

FINAL REMARKS AND COMMENTS

There is always a contradiction between the conservation of habitats and the involvement of humans. Conservation through community participation is one way to address this problem. Both wetland ecosystems and biodiversity have been put into a scenario in which they are fighting for their own existence as a result of uncontrolled urbanization. The idea of preserving these habitats in addition to the biodiversity of the area is something that has to be brought up. It is possible that the Dausa district could benefit from community-based environmental conservation, which is already experiencing a great deal of success in many regions across the world. When seen from an ecological point of view, this could be a source of money generation that provides employment opportunities to the local population and encourages widespread participation in the preservation of biodiversity. Despite the fact that the Dausa region is already placed on the World Tourism Map due to its historical significance and textile industry, the natural heritage of the area has not yet been fully explored. It is necessary for the site to have a coordinated and integrated approach from a variety of government ministries, in addition to academic research, in order for it to reach its potential significance in terms of providing opportunities for nature tourism.

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