



Short Communication

Bird diversity of Silvassa, Dadra Nagar Haveli (U.T.) of India

M.I. Dahya¹, K.R. Rajput^{2*} and K.H. Tandel³

¹B.K.M Science College, Valsad, Gujarat 396001, India

²KBS Commerce and Nataraj Professional Sciences College, Vapi, Gujarat 396191, India

³5, Sagar Sarvodaya Society, Chhapra Road Navsari, Gujarat 396450, India
krishrajput2223@gmail.com

Available online at: www.isca.in, www.isca.me

Received 30th July 2021, revised 17th September 2022, accepted 4th March 2023

Abstract

The primary goal of this research is to identify the various bird species in Silvassa, Dadra Nagar Haveli (UT), and to compile a bird checklist for the study region. In total 111 species belonging to 14 orders and 39 families were recorded in a preliminary assessment of avifaunal diversity in Silvassa, Dadra Nagar Haveli (UT) between the period from June 2019 to April 2020. Order Passeriformes (Crow, Drongo, Munia, Robin, Sunbird, Sparrow, Weaver, Myna), Order Pelecaniformes (Egret, Heron) were dominating. In the family Ardeidae (Egret, Heron) was dominating. During the present study survey, birds with diverse food habitats were also observed.

Keywords: Birds Diversity, Silvassa, Scaly-breasted Munia, Indian Grey Hornbill, Indian Pitta.

Introduction

Birds are one of the most salient groups of animals in the modern world. Birds play an important function in the ecology's food cycle and food chain. Birds are among the most well-known species of the Earth's biodiversity, and because they are sensitive to environmental changes, they serve as important indicators for assessing ecosystem health¹. They act as predators, pollinators, scavengers, seed dispersals, seed predators in our ecosystem. Birds are a popular attraction due to their vibrant colors, musical sounds, and highly distinguishable personalities. Furthermore, we have a strong desire to be surrounded by all kinds of birds because of their intrinsic qualities, beauty, and ethical implications^{2,3}.

There are 12 Mega diversity countries of the World, which are rich in biodiversity and are called "Mega diversity areas". India is ranked as the sixth mega diversity country in the world. India, being a megadiversity hotspot, is home to over 1200 bird species, accounting for 13% of all bird species on the planet⁴. Its vast biological diversity accounts for roughly 7% of the world's flora and 60% of the world's fauna. In India, there are approximately 1225 different bird species. A total of 78 bird species are deemed endangered^{5,6}. Avifauna is having maximum diversity amongst the all-land vertebrate faunal diversity. Indian subcontinent contains about 1300 bird species².

The total number of bird species known to science that currently inhabit the world is estimated to be around 8600. There are a total of 2061 species and subspecies in India. Of these, 1710 are resident while 300 are migrant and the status of some are unclear⁴. 176 endemic species are found only in the Indian subcontinent^{2,7}.

Birds have uniquely adapted respiratory and digestive systems, especially for swimming sea birds and some water birds that live in an aquatic environment, and they have evolved to fit their environment. Some birds are known as the most intelligent animals, such as parrots, and some can use tools. Social species pass down knowledge and consider it culture. Migratory birds are social, communicating with visual signals, calls, and bird songs².

Birds that live in the city area are considered urban area birds, Growth processes of the city area that affects the growth of the human population are called urbanization⁸⁻¹⁰. One of the major threats for birds is urbanization due to which they lost their habitat or fragmentation of habitat or modification of their native vegetation¹¹. As the development in the urban area increases, the richness in bird diversity is decreased widely.

Material and methods

Site selection: The Dadra and Nagar Haveli is situated on the western edge of the Western Ghats' foothills, with an undulating landscape. Forests cover 41.63 percent of the total geographical area, giving it a woodland appearance. The Dadra Nagar Haveli is crisscrossed by the Daman Ganga and its tributaries, which drain into the Arabian Sea near Daman. According to the 2011 census, the District has a population of 343709. Varlies, Kokana, Dhodia, and Dublas are the prominent tribes. The tribal has its own culture, which includes strange rites and fascinating folklore. Without a folk dance, no occasion in tribal life is complete, be it a wedding or a harvest. Tarpa, Dhol, Bhavada, and Gherria are the most popular dances.

These foot-tapping dancers are similarly skilled in other arts and art forms, and they are nearly self-sufficient in most of their everyday needs.

All save the lightly populated easternmost sections of the District have a typical north Indian Ocean maritime climate due to their proximity to the shore. Summers are hot and humid, with temperatures reaching as high as 42 degrees Celsius in the later months.

The monsoon season begins in June and ends in September. The rain is carried by the monsoon winds from the southwest. The yearly rainfall ranges from 200 to 250 cm. The winter season begins in October and lasts until February. During the winter, temperatures range from 14 to 30 degrees Celsius.

More than one lakh people from various tribes call this 491-square-kilometer area home. It has had many rulers, from the

powerful Marathas to the ferocious Portuguese. However, the core of tribal life, its diversity, and richness, as well as its art, myth, song, and folklore, have remained untouched.

Instrument used: For the study of Identification and checklist of birds of Silvassa, Dadra Nagar Haveli (UT) observation was carried out from June 2019 to April 2020. The birds were spotted through binoculars 10*50. And the photos of birds were captured with the help of a DSLR Nikon D750 camera. Further, the birds were identified by using Birds of the Indian sub-continent (Helm Field Guides of Richard Grimmett, Carol Inksipp, Tim Inksip).

Results and discussion

The study was conducted from July 2019 to March 2020 i.e., Rainy season (July-September) and Winter (October- February).



Figure-1: Map of Study Area.

Table-1: Checklist of the identified bird species with its Common name, Zoological name, with Order and Family.

Sr. No	Local Name	Zoological Name
Anseriformes: Anatidae Fulvous		
1.	Whistling Duck	<i>Dendrocygna bicolor</i>
2.	Lesser Whistling Duck	<i>Dendrocygna javanica</i>
3.	Marbled Teal	<i>Marmaronetta angustirostris</i>
4.	Red-crested Pochard	<i>Netta Rufina</i>
5.	Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>
6.	Common Teal	<i>Anas crecca</i>
7.	Comb Duck	<i>Sarkidiornis melanotos</i>
Galliformes: Phasianidae		
8.	Indian Peafowl	<i>Pavo cristatus</i>
9.	Common Quail	<i>Coturnix coturnix</i>
10.	Rain Quail Coturnix	<i>Coromandelica</i>
11.	Blue-breasted Quail	<i>Synoicus Chinensis</i>
12.	Grey Francolin	<i>Francolinus pondicerianus</i>
Phoenicopteriformes: Phoenicopteridae		
13.	Greater Flamingo	<i>Phoenicopus roseus</i>
Columbiformes: Columbidae		
14.	Dove	<i>Columba livia</i>
15.	Pale-backed Pigeon	<i>Columba eversmanni</i>
16.	Eurasian Collared-Dove	<i>Streptopelia decaocto</i>
17.	Laughing Dove	<i>Streptopelia senegalensis</i>
18.	Yellow-legged Green Pigeon	<i>Treron phoenicopus</i>
19.	Emerald Dove	<i>Chalcophaps indica</i>
Caprimulgiformes: Apodidae Crested		
20.	Treeswift	<i>Hemiprocne coronata</i>
21.	Asian Palm Swift	<i>Cypsiurus balasiensis</i>
22.	Alpine Swift	<i>Tachymartitis melba</i>
23.	Fork-tailed Swift	<i>Apus pacificus</i>
24.	Little Swift	<i>Apus affinis</i>
Cuculiformes: Cuculidae		
25.	Greater Coucal	<i>Centropus sinensis</i>
26.	Jacobin Cuckoo	<i>Clamator jacobinus</i>
27.	Common Koel	<i>Eudynamis scolopaceus</i>
28.	Common Hawk Cuckoo	<i>Hierococcyx varius</i>
29.	Indian Cuckoo	<i>Cuculus Micropterus</i>
30.	Lesser Cuckoo	<i>Cuculus poliocephalus</i>
Gruiformes: Rallidae		
31.	White-breasted Waterhen	<i>Amaurornis Phoenicurus</i>
32.	Watercock	<i>Gallix cinerea</i>
33.	Purple Swampfen	<i>Porphyrio porphyrio</i>
34.	Common Moorhen	<i>Gallinula chloropus</i>

35.	Common Coot	<i>Fulica atra</i>
Pelecaniformes: Ciconiidae		
36.	Painted Stork	<i>Mycteria leucocephala</i>
37.	Asian Openbill	<i>Anastomus oscitans</i>
Pelecaniformes: Ardeidae		
38.	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>
39.	Indian Pond Heron	<i>Ardeola grayii</i>
40.	Cattle Egret	<i>Bubulcus ibis</i>
41.	Grey Heron	<i>Ardea cinerea</i>
42.	Purple Heron	<i>Ardea purpurea</i>
43.	Great Egret	<i>Ardea alba</i>
44.	Little Egret	<i>Egretta garzetta</i>
Pelecaniformes: Threskiornithidae		
45.	Black-headed Ibis	<i>Threskiornis melanocephalus</i>
46.	Indian Black Ibis	<i>Pseudibis papillosa</i>
47.	Glossy Ibis	<i>Plegadis falcinellus</i>
Pelecaniformes: Phalacrocoracidae		
48.	Little Cormorant	<i>Microcarbo niger</i>
49.	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>
Charadriiformes: Recurvirostridae		
50.	Black-winged Stilt	<i>Himantopus himantopus</i>
Charadriiformes: Charadriidae		
51.	Little Ringed Plover	<i>Charadrius dubius</i>
52.	Red-wattled Lapwing	<i>Vanellus indicus</i>
53.	White-tailed Lapwing	<i>Vanellus leucurus</i>
Charadriiformes: Scolopacidae		
54.	Little Stint	<i>Calidris minuta</i>
55.	Eurasian Woodcock	<i>Scolopax rusticola</i>
56.	Wood Sandpiper	<i>Tringa Glareola</i>
Charadriiformes: Glareolidae		
57.	Indian Courser	<i>Cursorius coromandelicus</i>
Charadriiformes: Laridae		
58.	Indian Skimmer	<i>Rynchops albicollis</i>
59.	Black-headed Gull	<i>Chroicocephalus ridibundus</i>
60.	River Tern	<i>Sterna aurantia</i>
Accipitriformes: Accipitridae		
61.	Crested Serpent Eagle	<i>Spilornis cheela</i>
62.	Shikra	<i>Accipiter badius</i>
63.	Black Kite	<i>Milvus migrans</i>
Strigiformes: Tytonidae		
64.	Common Barn Owl	<i>Tyto alba</i>
Strigiformes: Strigidae		
65.	Spotted Owlet	<i>Athene brama</i>

Bucerotiformes: Bucerotidae		
66.	Indian Grey Hornbill	<i>Ocyrceros birostris</i>
Bucerotiformes: Upupidae		
67.	Common Hoopoe	<i>Upupa epops</i>
Piciformes: Picidae		
68.	Rufous Woodpecker	<i>Micropternus brachyurus</i>
69.	White-bellied Woodpecker	<i>Dryocopus javensis</i>
70.	Greater Flame-backed Woodpecker	<i>Chrysocolaptes lucidus</i>
Piciformes: Ramphastidae		
71.	Coppersmith Barbet	<i>Psilopogon haemacephalus</i>
Coraciiformes: Meropidae		
72.	Green Bee-eater	<i>Merops Orientalis</i>
73.	Chestnut-headed Bee-eater	<i>Merops leschenaulti</i>
Coraciiformes: Alcedinidae		
74.	Common Kingfisher	<i>Alcedo atthis</i>
75.	White-throated Kingfisher	<i>Halcyon smyrnensis</i>
Psittaciformes: Psittaculidae		
76.	Plum-headed Parakeet	<i>Psittacula cyanocephala</i>
77.	Alexandrine Parakeet	<i>Psittacula eupatria</i>
78.	Rose-ringed Parakeet	<i>Psittacula krameri</i>
Passeriformes: Pittidae		
79.	Indian Pitta	<i>Pitta Brachyura</i>
Passeriformes: Campephagidae		
80.	White-bellied Minivet	<i>Pericrocotus erythropygus</i>
81.	Small Minivet	<i>Pericrocotus cinnamomeus</i>
82.	Scarlet Minivet	<i>Pericrocotus flammeus</i>
83.	Large Cuckooshrike	<i>Coracina javensis</i>
Passeriformes: Oriolidae		
84.	Black-hooded Oriole	<i>Oriolus xanthornus</i>
85.	Indian Golden Oriole	<i>Oriolus kundoo</i>
Passeriformes: Dicuridae		
86.	Black Drongo	<i>Dicrurus macrocercus</i>
87.	Ashy Drongo	<i>Dicrurus leucophaeus</i>
Passeriformes: Corvidae		
88.	Rufous Treepie	<i>Dendrocitta vagabunda</i>
89.	House Crow	<i>Corvus splendens</i>
Passeriformes: Monarchidae		
90.	Black-naped Monarch	<i>Hypothymis azurea</i>
91.	Indian Paradise-flycatcher	<i>Terpsiphone paradisi</i>
Passeriformes: Nectariniidae		
92.	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>
93.	Purple Sunbird	<i>Cinnyris asiaticus</i>
94.	Vigors's Sunbird	<i>Aethopyga vigorsii</i>

Passeriformes: Ploceidae		
95.	Black-breasted Weaver	<i>Ploceus benghalensis</i>
96.	Baya Weaver	<i>Ploceus philippinus</i>
Passeriformes: Estrildidae		
97.	Indian Silverbill	<i>Euodice malabarica</i>
98.	Scaly-breasted Munia	<i>Lonchura punctulata</i>
Passeriformes: Passeridae		
99.	House Sparrow	<i>Passer domesticus</i>
100.	Chestnut-shouldered Bush Sparrow	<i>Gymnoris xanthocollis</i>
Passeriformes: Pycnonotidae		
101.	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>
102.	Red-vented Bulbul	<i>Pycnonotus cafer</i>
Passeriformes: Sturnidae		
103.	Brahminy Starling	<i>Sturnia pagodarum</i>
104.	Common Myna	<i>Acridotheres tristis</i>
105.	Bank Myna	<i>Acridotheres ginginianus</i>
Passeriformes: Muscicapidae		
106.	Indian Robin	<i>Saxicoloides fulicatus</i>
107.	Oriental Magpie Robin	<i>Copsychus saularis</i>
108.	Asian Brown Flycatcher	<i>Muscicapa dauurica</i>
109.	Red-breasted Flycatcher	<i>Ficedula Parva</i>
110.	Black Redstart	<i>Phoenicurus ochruros</i>
111.	Pied Bush Chat	<i>Saxicola caprata</i>

Conclusion

During the study period, a total of 111 species from 13 orders and 24 families were discovered. During the study, we found 111 species but we can't conclude this is the final checklist of birds. If we extend our study duration this list is Improved with various bird species.

The dietary pattern of birds that were recorded in the fields is insectivore, omnivore, frugivore, granivore, carnivore, nectivore, and piscivore.

Acknowledgement

Dr. Alkesh Shah, Head of Zoology Department, B.P BARIA Science Institute, Navsari, provided invaluable assistance to the authors during the research. Thanks to all members of the faculty of the college for their moral support, kind co-operation and help in all ways. We are highly thankful to Dr. Aadil Kazi, Mr. Mohmmad Jat, and Mr. Priyank Kapdi for their help.

References

- Pradhan, R. N., Das, U. P., Mohapatra, R. K. & Mishra, A. K. (2013). Checklist of birds in and around Ansupa Lake, Odisha, India. *International Research Journal of Environmental Sciences*, 2, 9-12.
- Pinal Thakor (2019). Avifaunal Diversity of Maharaja Krishna kumar sinhji Bhavnagar University Campus, Bhavnagar, Gujarat.
- Saikia P. K. & Devi O. S. (2011). A checklist of avian fauna at Jeypore Reserve Forest, eastern Assam, India with special reference to globally threatened and endemic species in the Eastern Himalayan biodiversity hotspot. *Journal of threatened Taxa*, 1711-1718.
- Ali, S. & Ripley, S. D. (1983). Handbook of the birds of India and Pakistan.
- Manjunath K. & Joshi B. (2012). Avifaunal diversity in Gulbarga region, north Karnatak. *Recent Research in Science and Technology*, 4(7).
- Kalaiyarasi G., Jayabalan D.S., Ramesh kumar C. & Subramanian C. (2017). Avian Diversity and its Abundance in the Kethi Valley areas, the Nilgiris, Western Ghats, Tamil Nadu. *International Journal of Approximate Reasoning*, 5, 781-788.
- Kumar Biju (2006). A checklist of the avifauna of the Bharathapuzha river basin, Kerala. *Zoos' Print Journal*. 21. 10.11609/JoTT.ZPJ.1473.2350-5.

8. Singh D. (2015). Avifaunal Diversity of Solan District, Himachal Pradesh, India. *International Journal of Science and Research*, 4(10), 550-556.
9. Jain N. K., Patel, S. N. & Patel M. V. (2005). Birds of Gujarat University Campus, Ahmedabad. *Zoos' Print Journal*, 20(12), 2111-2113.
10. Ringim A. S. & Muhammad S. I. (2017). A checklist for birds of Hadejia-Nguru Wetlands, Nigeria. *Dutse Journal of Pure and Applied Science*, 3(1), 15-21.
11. Joshi P. R. A. G. A. T. I. & Shrivastava V. K. (2012). Ecological study and bird diversity of Tawa Reservoir and its surrounding areas of Hoshangabad district (Madhya Pradesh). *The Bioscan*, 7(1), 129-133.