

## AVIAN DIVERSITY OF MANGAR BANI FOREST, ARAVALLI LANDSCAPE, HARYANA, INDIA

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**ABSTRACT**

Mangar Bani is a 2.66 sq. km non-protected sacred grove surrounded by hills on the western edge of the Mangar village located in district Faridabad, Haryana, India. It is part of a large contiguous stretch of the Aravalli Forests stretching approximately 30 km south-north from Sohna in Haryana, northwards to Tughlaqabad in Delhi. Monthly periodic visits were made from December 2022 to December 2023 to study the avian diversity in the study area. Various techniques such as scan sampling and point-cum-line transect count were used to achieve the objectives of the study. A total of 128 bird species were recorded from 91 genera, 49 families, and 15 orders from the Mangar Bani Forest. Results of the study revealed that the order Passeriformes was a highly diverse order of avian species in the study area followed by other orders. As per the IUCN Red List criteria, 125 bird species were classified as least concern (LC), whereas 2 bird species were classified as Near Threatened (NT) i.e., Darter *Anhinga melanogaster*; Alexandrine Parakeet *Psittacula eupatria* and single avian species was classified as Endangered (EN) i.e., Egyptian Vulture *Neophron percnopterus*. Feeding guild has shown that insectivores are the dominant ones in the study area. Insectivorous summer visitors such as Indian pitta and Indian paradise flycatcher, which are uncommon elsewhere in the region, use Mangar Bani as a significant nesting habitat. As the study play significant role in documenting the bird's diversity of the area, so it needs to be conserved effectively.

**KEYWORDS**

Aravalli, Endangered, Forest, Mangar Bani, Passeriformes.

## INTRODUCTION

The term “Forest” typically refers to a large area covered chiefly with trees and undergrowth. Forests are essential components of our planet’s ecosystems and they offer a multitude of benefits across environmental, social and economic dimensions. The rich biodiversity found in forests contributes to ecosystem stability and resilience. Paraphrase. The rich biodiversity found in forests contributes to ecosystem stability and resilience. Forests function as carbon sinks by taking in carbon dioxide during photosynthesis and storing it in their biomass and soil. This process helps combat climate change by lowering the levels of greenhouse gases in the atmosphere. (Barnes *et al.*, 1997). Forests host a wide variety of plant and animal species that’s why forests are often considered as biodiversity hotspots. The diverse structure of forest canopies provides a variety of niches and microhabitats that support a wide range of bird species with different feeding habits, nesting preferences, and behaviors. The decline in the abundance and distribution of birds globally is a significant research focus in the present era. This decrease is ascribed to multiple factors, including habitat destruction, global warming, landscape modification and various human-induced interventions (Guillaumet and Russell, 2022).

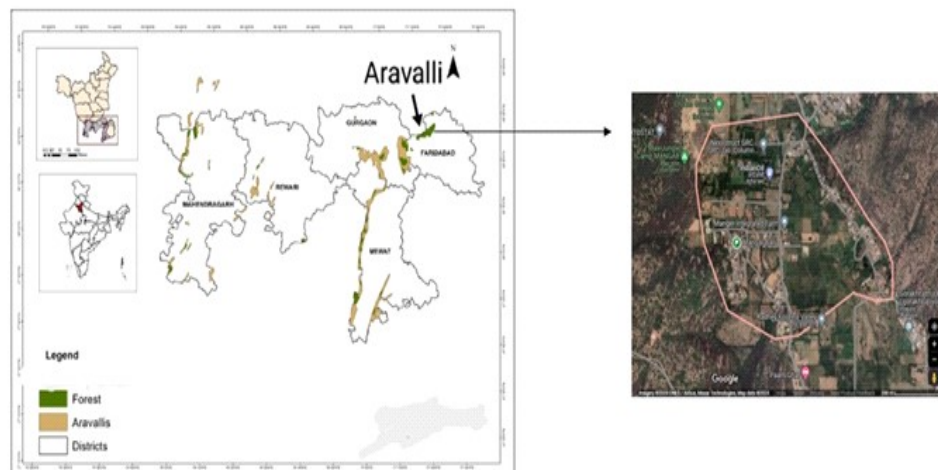
According to Birdlife International India is home to approximately 1263 species of birds from 23 orders, 107 families and 498 genera, out of 61 species that are considered endemic to the boundaries of the country (Praveen *et al.* 2016). These numbers highlight the rich avian diversity in India and underscore the importance of conservation efforts to protect both globally threatened species and those that are endemic to India. India’s commitment of preserving biodiversity contributes to the global understanding of avian ecology and conservation (Rai *et al.*, 2017a; Kumar and Sharma, 2018; Ahmed *et al.*, 2019; Rai *et al.*, 2019; Rai and Vanita, 2021, 2022).

Ornithological surveys involve the systematic observation and study of bird populations in a particular area to establish baseline data, serving as a reference point for future research and conservation efforts. This baseline allows scientists to track changes in bird populations and behavior over time. (Gardner *et al.*, 2011; Rai and Vanita, 2022). Studying birds helps researchers to understand the intricate ecological relationships between different species and their habitats. This knowledge is crucial for effective conservation and ecosystem management. The data collected from ornithological surveys play a vital role in developing and implementing conservation strategies (Gardner *et al.*, 2011; Rai and Vanita, 2023).

## MATERIALS AND METHODS

### Study Area

The study was executed in Mangar Bani Forest Aravalli Landscape of District Faridabad, Haryana, India. The Aravalli Range, including Mangar Bani Forest, is known for its rich biodiversity. Its Range stretches from the southwestern regions of Gujarat and Rajasthan to the northeastern areas of Haryana and Delhi. The majestic Aravalli Range gracefully extends its presence across the scenic landscapes of Gurgaon, Faridabad, Mewat, Mahendargarh, and Rewari districts of Haryana (Paridhi Jain *et al.*, 2018). Mangar Bani is a sacred groove noted for being one of the oldest mountain ranges globally. This expansive geographical coverage contributes to the diverse ecosystems and landscapes found within the Aravalli region (Vyas, 2019). The Mangar Bani Forest is located between the latitudes of 28.41°N and longitudes of 77.32°E (Fig. 1). The District Faridabad experiences an average annual rainfall of 444 mm, while the average minimum temperature tends to drop to 7°C during the coldest part of the day, typically in the early morning or late night and on average, the temperature reaches a maximum of 40.5°C during the warmest part of the day, usually in the afternoon (Kumar and Dhankar, 2015). The region is likely to have deciduous vegetation Species like Teak (*Tectona grandis*), Sal (*Shorea robusta*), Banyan (*Ficus benghalensis*), Peepal (*Ficus religiosa*), Neem (*Azadirachta indica*). These plants play a role in the vertical structure of the forest. The diverse plant life in Mangar Bani likely attracts a variety of butterflies and insects, contributing to the overall ecosystem.



Source: Google Imagery

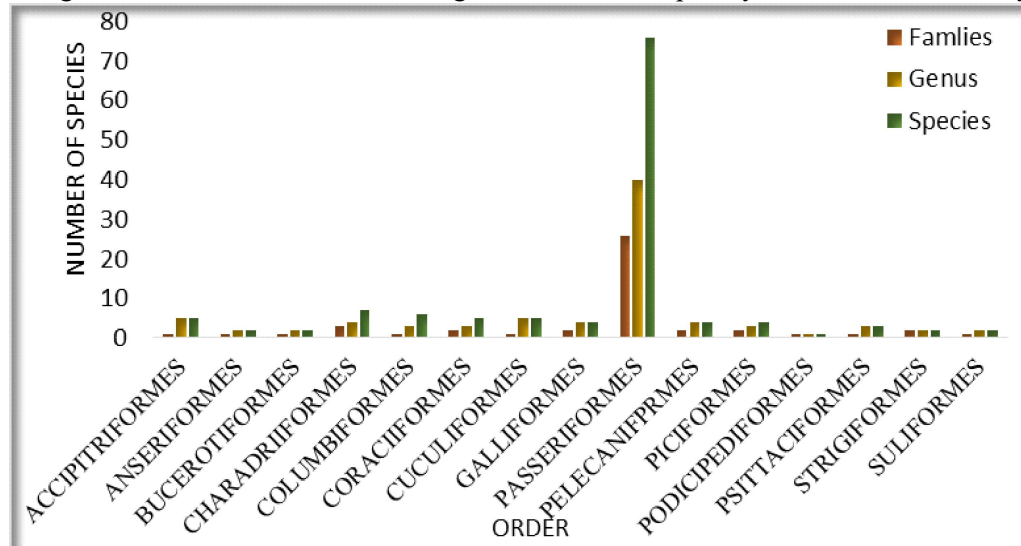
**Fig. 1. Location and area of Mangar Bani, Aravalli Landscape, Faridabad Haryana.**

## **DATA COLLECTION**

A bird survey was conducted in the study area over the course of a year, specifically from December 2022 to December 2023, focusing on the morning phase. By using two methods Point-count i.e. effective for assessing local bird populations in specific habitats, and line-transect i.e. useful for assessing bird populations in diverse landscapes and ecosystems were employed during the surveys. These are established techniques for bird monitoring (Gaston, 1975, and Sutherland *et al.*, 2005). Field binoculars (Nikon 10x50) and a camera Nikon Coolpix (P900) were used for direct observations of birds. Binoculars were used for detailed observations of bird behaviors, plumage, physical characteristics and non-intrusive observation and a camera was employed to capture visual documentation of bird species along with their behaviors. Surveys were conducted in the morning, aided with opportunistic observations were also made at other times of the day. By utilizing a combination of technology (Merlin bird ID app) and traditional identification methods (Books and Field guides), the researchers aimed to compile a comprehensive list of bird species in the study area. The inclusion of common and scientific names, alternative names, order, family and genus provides a detailed and standardized record of the identified bird species. Adhering to established guidelines contributes to the reliability and comparability of the study's findings (Arlott, 2015; Grimmett *et al.*, 2015; Grimmett and Inskipp, 2019; and Kalsi *et al.*, 2019). A checklist of reported bird species was prepared. The checklist preparation followed the guidelines of Praveen and Jayapal (2022) and the International Union for Conservation of Nature (IUCN) guidelines from 2023. This suggests that the study adhered to specific protocols and standards for documenting bird species, ensuring consistency and accuracy in the data collected. The IUCN of Red List (2023) was consulted to assess the extinction risk of various species around the world. It also provides information on the global population trends of species, indicating whether populations are decreasing ('!'), stable ('!'), increasing ('!'), and unknown ('?'). Categorizing recorded bird species into 7 major feeding guilds (omnivores, herbivores, frugivores, grainivores, nectarivores, carnivores and insectivores) based on direct field observations is a common and robust methodology in ornithological research. This approach involves observing the feeding behaviors of birds in their natural habitats to assign them to specific feeding guilds. The methodology for categorization follows the guidelines outlined by Praveen and Jayapal (2023). This indicates that the researchers followed a specific set of criteria to assign birds to their respective feeding guilds. Existing literature references were consulted for additional guidance and validation (Ali and Ripley, 1987; Grimmett *et al.*, 1999; Singh *et al.*, 2020). These sources likely provide established criteria for different feeding guilds and were used to ensure consistency with previous research.

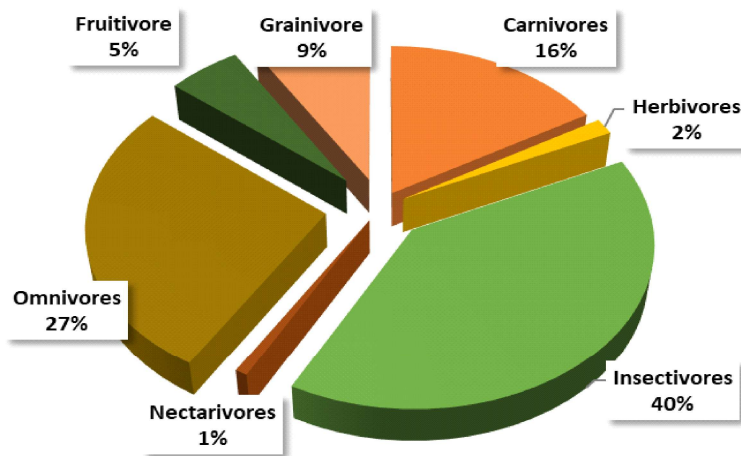
## RESULTS AND DISCUSSION

The full spectrum of diversity of 128 different bird species were documented in the duration of the investigation. There were 91 genera, 49 families and 15 orders encompassing these species (Table 1). The diversity observed across genera, families and orders suggest a rich and varied avian community. Within the Order Passeriformes 76 species were recorded. This signifies a diverse range of passerine species in the avian community under study and these 76 species within the order Passeriformes belong to 27 families, order Charadriiformes followed with 7 species and 3 families and so on (Fig. 2). (Chopra *et al.*, 2012; Rai *et al.*, 2017 a,b,c; Desta *et al.*, 2020; Ullah *et al.*, 2021; Rai and Vanita, 2021, 2022) consistently show that Passeriformes is the dominant avian group in Haryana. The dominance of Passeriformes could be attributed to the adaptability of these birds to various environments, from urban areas to forests and grasslands, and can exploit a wide range of food sources (Beresford *et al.*, 2005; Rai and Vanita, 2021 & 2022). Passerines are often considered ecological indicators due to their sensitivity to environmental changes. The diversity observed within this order can provide insights into the health and dynamics of the local ecosystem. Different families within Passeriformes may have distinct ecological roles, feeding habits and behaviors, contributing to the overall complexity of the avian community.



**Fig. 2. Number of families per order, Number of Genera per order and Number of avian species per order recorded from Mangar Bani, Aravalli Landscape, Faridabad, Haryana (India).**

Throughout the course of this exploration, it was noted that Insectivores emerged as the dominant feeding guild with 51 different species. The prevalence of insectivores suggests the importance of insect-based diets in the ecosystem. Insectivores play a crucial role in controlling insect populations contributing to ecological balance. Forests offer diverse nesting opportunities for insectivores bird, from tree cavities and branches to the forest floor and providing stopover points (Kumar and Gupta, 2013; Jamwal *et al.*, 2017; Kumar and Sharma, 2018; Sohil and Sharma, 2020; Rai and Vanita, 2021). Other guilds included omnivores (35 species), carnivores (21 species), grainivores (11 species), frugivores (7 species), herbivores (2 species) and nectarivores with one species (Fig. 3). The presence of these multiple feeding guilds indicates a diverse array of dietary preferences and ecological roles within the avian community.



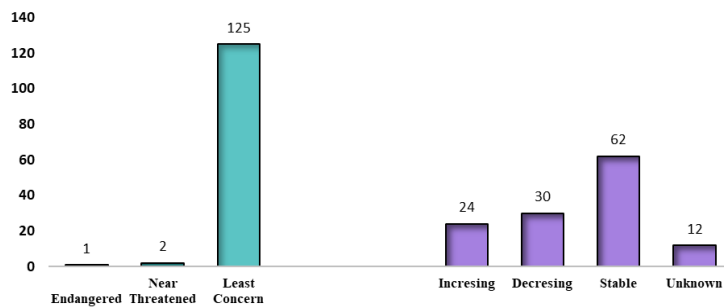
**Fig. 3. Percentage of avian species from different Feeding Guilds recorded from Mangar Bani, Aravalli Landscape, Faridabad Haryana (India).**

In the cataloged 128 bird species, 2 species were categorized as Near Threatened Alexandrine Parakeet *Palaeornis eupatria*) and (Oriental Darter *Anhinga melanogaster*) and 1 species was classified as Endangered (Egyptian Vulture *Neophron percnopterus*), while the remaining 125 species were considered Least according to the Red List of IUCN (2023). In terms of global population trends, the study area supports 62 species with a stable trend, 30 species with a decreasing trend, 12 species with an unknown population trend, and 24 bird species with an increasing population (Fig. 4). Conservation Status and Population Trend are integral components of conservation assessments and inform strategies for species management and protection. In many cases, species classified as “Endangered” (Egyptian Vulture) and “Near Threatened” (Oriental Darter and Alexandrine Parakeet) on

the Red List exhibit declining population trends. There is a direct correlation between a conservation status and its population trend. Conversely, species classified as “Least Concern” may have stable or increasing populations.

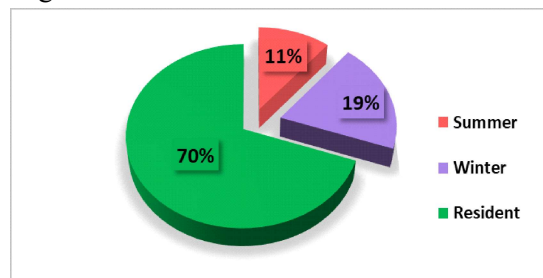
With 76 species order Passeriformes attains a significant portion in avian biodiversity.

It constitutes a substantial portion of the avifauna, accounting for 59.3% of the total bird species. This further emphasizes their dominance in terms of high Relative Diversity index (RD<sub>i</sub>) value 6.25 of total avifauna in Muscicapidae.



**Fig. 4. IUCN Status and Population Trends of recorded avian species from Mangar Bani, Aravalli Landscape, Faridabad Haryana (India).**

The assessment of the residential/Migratory status of 128 documented bird species, the residential status was assessed revealing that 89 species were residents, i.e. permanent inhabitants, 25 species were winter migrants i.e. temporary inhabitants during the winter season and 14 species were summer migrants i.e. temporary inhabitants during the summer season in the study area (Fig. 5). Forests play a critical role in the migratory routes of many bird species. They provide essential stopover points where birds can rest, refuel, and find shelter during their long journeys. Among the 89 species residing permanently, 86 were classified as Least Concern, one was categorized as Endangered and 2 were labelled as near Threatened.



**Fig. 5. Residential and Migratory status of recorded species from Mangar Bani, Aravalli Landscape, Faridabad Haryana.**

The occurrence of bird species of global conservation priority and a significant number of migratory species indicated that the Forest is ecologically important in Haryana. It serves as a habitat for birds with conservation significance and plays a role in supporting migratory species during specific phases of their life cycle. Various challenges faced by the Forest ecosystem, including Deforestation, Forest Fragmentation, Invasive Species, Climate Change, Forest Fires, Illegal Logging and Timber Trade, overharvesting and Unsustainable Resource Use, Human-wildlife Conflicts and Illegal mining. (Chopra *et al.*, 2017; Rai *et al.*, 2017b c; Rai *et al.*, 2019). This study serves as a foundation for future research on long-term population monitoring of the current bird species and effective management of their habitats. Long-term monitoring is essential to understand population trends, assess the impact of ongoing changes and inform conservation strategies and practices that are crucial for the conservation of avian species and the overall health of the forest ecosystem.

## CONCLUSION

A total of 128 bird species were documented from 91 genera, 48 families and 15 orders out of which 89 species were resident, 25 species were winter migrants and 14 species were summer migrants from December 2022 to December 2023 in Mangar Bani Forest. Order Passeriformes was highly diverse in the study area followed by other avian orders. According to IUCN red list criteria, 2 species were classified as Near Threatened (NT), 1 species as Endangered (EN) with declining population trends. This information can be used as an important tool for evaluating suitable management strategies for the preservation of Biodiversity. So, long-term monitoring is required to assess the consequence of anthropogenic pressures and other stress factors and to execute conservation plans for the area's rich avifaunal diversity.

**Table 1. Checklist of Avifaunal species recorded at Mangar Bani, Faridabad, Haryana.**

Sr. No.	Common name	Scientific name	IUCN Status	Pop. Trends	Feeding
<b>1. ORDER ACCIPITRIFORMES (No. of Species5) (No. of Family1) PO- 3.9</b>					
<b>1.1 Family Accipitridae (No. of Species5) RDi- 3.9</b>					
1.	Black Kite	<i>Milvus migrans</i>	LC	→	C
2.	Black-winged Kite	<i>Elanus caeruleus</i>	LC	→	C
3.	Shikra	<i>Accipiter badius</i>	LC	→	C
4.	Egyptian Vulture	<i>Neophron percnopterus</i>	EN	↓	C
5.	White-eyed Buzzard	<i>Butastur teesa</i>	LC	→	C
<b>2. ORDER ANSERIFORMES (No. of Species2) (No. of Family) PO-1.56</b>					
<b>2.1 Family Anatidae (No. of Species2) RDi- 1.56</b>					
6.	Indian Spot-billed duck	<i>Anas poecilorhyncha</i>	LC	↓	H
7.	Bar-headed goose	<i>Anser indicus</i>	LC	↓	H
<b>3. ORDER BUCEROTIFORMES (No. of Species2) (No. of Family2) PO-1.56</b>					



<b>3.1 Family Upupidae (No. of Species-1) RDi-0.78</b>					
8.	Eurasian Hoopoe	<i>Upupa epops</i>	LC	↓	In
<b>3.2 Family Bucerotidae (No. of Species-1) RDi-0.78</b>					
9.	Indian Grey Hornbill	<i>Ocyrceros birostris</i>	LC	→	F
<b>4. ORDER CHARADRIIFORMES (No. of Species-7) (No. of Family-3) PO-5.46</b>					
<b>4.1 Family Charadriidae (No. of Species-2) RDi- 1.56</b>					
10.	Red-wattled Lapwing	<i>Vanellus indicus</i>	LC	U	In
11.	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	LC	→	In
<b>4.2 Family Recurvirostridae (No. of Species-1) RDi-0.78</b>					
12.	Black-winged stilt	<i>Himantopus himantopus</i>	LC	↑	C
<b>4.3 Family Scolopacidae (No. of Species-4) RDi- 3.12</b>					
13.	Marsh sandpiper	<i>Tringa stagnatilis</i>	LC	↓	In
14.	Green Sandpiper	<i>Tringa ochropus</i>	LC	↑	In
15.	Common Sandpiper	<i>Actitis hypoleucos</i>	LC	↓	In
16.	Wood Sandpiper	<i>Tringa glareola</i>	LC	→	In
<b>5. ORDER COLUMBIFORMES (No. of Species-) (No. of Family-1) PO- 4.68</b>					
<b>5.1 Family Columbidae (No. of Species-6) RDi- 4.68</b>					
17.	Rock dove	<i>Columba livia</i>	LC	↓	G
18.	Yellow-legged green pigeon	<i>Treron phoenicopterus</i>	LC	↑	F
19.	Eurasian collared dove	<i>Streptopelia decaocto</i>	LC	↑	G
20.	Laughing dove	<i>Spilopelia senegalensis</i>	LC	→	G
21.	Red Collared Dove	<i>Streptopelia tranquebarica</i>	LC	↓	G
22.	Spotted Dove	<i>Streptopelia chinensis</i>	LC	↑	G
<b>6. ORDER CORACIIFORMES (No. of Species-5) (No. of Family-2) PO- 3.9</b>					
<b>6.1 Family Alcedinidae (No. of Species-1) RDi-0.78</b>					
23.	White-breasted Kingfisher	<i>Halcyon smyrnensis</i>	LC	↑	C
<b>6.2 Family Meropidae (No. of Species-4) RDi-3.12</b>					
24.	Green Bee-eater	<i>Merops orientalis</i>	LC	↑	In
25.	Blue-tailed Bee-eater	<i>Merops philippinus</i>	LC	→	In
26.	Indian Roller	<i>Coracias benghalensis</i>	LC	↑	C
27.	European Roller	<i>Coracias garrulus</i>	LC	↓	C
<b>7. ORDER CUCULIFORMES (No. of Species-5) (No. of Family-1) PO- 3.9</b>					
<b>7.1 Family Cuculidae (No. of Species-5) RDi- 3.9</b>					
28.	Greater coucal	<i>Centropus sinensis</i>	LC	→	O
29.	Asian Koel	<i>Eudynamis scolopaceus</i>	LC	→	O
30.	Jacobin Cuckoo	<i>Clamator jacobinus</i>	LC	→	O
31.	Common Hawk Cuckoo	<i>Hierococcyx varius</i>	LC	→	O
32.	Indian Cuckoo	<i>Cuculus micropterus</i>	LC	↓	O
<b>8. ORDER GALLIFORMES (No. of Species-4) (No. of Family-2) PO- 3.12</b>					
<b>8.1 Family Phasianidae (No. of Species-2) RDi-1.56</b>					
33.	Indian Peafowl	<i>Pavo cristatus</i>	LC	→	O
34.	Grey Francolin	<i>Ortygornis pondicerianus</i>	LC	→	O

<b>8.2 Family Rallidae (No. of Species-2) RDi-1.56</b>					
35.	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	LC	?	O
36.	Common Moorhen	<i>Gallinula chloropus</i>	LC	→	O
<b>9. ORDER PASSERIFORMES (No. of Species-76) (No. of Family-26) PO- 59.3</b>					
<b>9.1 Family Alaudidae (No. of Species-2 RDi-1.56</b>					
37.	Crested Lark	<i>Galerida cristata</i>	LC	↓	O
38.	Ashy-crowned sparrow Lark	<i>Eremopterix griseus</i>	LC	→	O
<b>9.2 Family Campephagidae (No. of Species-1) RDi-0.78</b>					
39.	Small Minivet	<i>Pericrocotus cinnamomeus</i>	LC	→	In
<b>9.3 Family Cisticolidae (No. of Species-6) RDi-4.68</b>					
40.	Common Tailorbird	<i>Orthotomus sutorius</i>	LC	→	In
41.	Ashy Prinia	<i>Prinia socialis</i>	LC	→	In
42.	Plain Prinia	<i>Prinia inornate</i>	LC	→	In
43.	Rufous-fronted Prinia	<i>Prinia buchanani</i>	LC	→	In
44.	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	LC	↓	In
45.	Jungle Prinia	<i>Prinia sylvatica</i>	LC	↓	In
<b>9.4 Family Corvidae (No. of Species-3) RDi-2.34</b>					
46.	Rufous Treepie	<i>Dendrocitta vagabunda</i>	LC	↓	O
47.	House crow	<i>Corvus splendens</i>	LC	→	O
48.	Large-billed Crow	<i>Corvus macrorhynchos</i>	LC	→	O
<b>9.5 Family Dicruridae (No. of Species-4) RDi-3.12</b>					
49.	Black drongo	<i>Dicrurus macrocercus</i>	LC	?	In
50.	Ashy Drongo	<i>Dicrurus leucophaeus</i>	LC	?	In
51.	White-bellied Drongo	<i>Dicrurus caerulescens</i>	LC	?	In
52.	Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	LC	↓	In
<b>9.6 Family Emberizidae (No. of Species-2) RDi-1.56</b>					
53.	Crested Bunting	<i>Melophus lathami</i>	LC	→	O
54.	White-capped Bunting	<i>Emberiza stewarti</i>	LC	→	O
<b>9.7 Family Estrildidae (No. of Species-2) RDi-1.56</b>					
55.	Indian Silverbill	<i>Euodice malabarica</i>	LC	→	G
56.	Scaly-breasted Munia	<i>Lonchura punctulate</i>	LC	→	G
<b>9.8 Family Hirundinidae (No. of Species-6) RDi-4.68</b>					
57.	Asian Plain Martin	<i>Riparia chinensis</i>	LC	↓	In
58.	Streak-throated Swallow	<i>Petrochelidon fluvicola</i>	LC	↑	In
59.	Wire-tailed Swallow	<i>Hirundo smithii</i>	LC	↑	In
60.	Barn Swallow	<i>Hirundo rustica</i>	LC	↓	In
61.	Red-rumped Swallow	<i>Cecropis daurica</i>	LC	→	In
62.	Dusky Crag Martin	<i>Ptyonoprogne concolor</i>	LC	↑	In
<b>9.9 Family Laniidae (No. of Species-3) RDi-2.34</b>					
63.	Long-tailed Shrike	<i>Lanius schach</i>	LC	?	C
64.	Bay-backed Shrike	<i>Lanius vittatus</i>	LC	→	C
65.	Great Grey Shrike	<i>Lanius excubitor</i>	LC	↓	C
<b>9.10 Family Leiothrichidae (No. of Species-4) RDi-3.12</b>					
66.	Large Grey Babbler	<i>Argya malcolmi</i>	LC	→	O
67.	Common Babbler	<i>Argya caudata</i>	LC	→	O
68.	Jungle Babbler	<i>Argya striata</i>	LC	→	O
69.	Striated Babbler	<i>Argya earlei</i>	LC	↓	O

<b>9.11 Family Monarchidae (No. of Species 1) RDi-0.78</b>					
70.	Indian-Paradise Flycatcher	<i>Terpsiphon paradisi</i>	LC	→	In
<b>9.12 Family Motacillidae (No. of Species 7) RDi-5.46</b>					
71.	White wagtail	<i>Motacilla alba</i> Linnaeus, 1758	LC	→	In
72.	Grey wagtail	<i>Motacilla cinerea</i> Tunstall, 1771	LC	→	In
73.	Citrine Wagtail	<i>Motacilla citreola</i>	LC	↑	In
74.	Western Yellow Wagtail	<i>Motacilla flava</i>	LC	↓	In
75.	White-browed Wagtail	<i>Motacilla maderaspatensis</i>	LC	→	In
76.	Tree Pipit	<i>Anthus trivialis</i>	LC	↑	In
77.	Olive Backed Pipit	<i>Anthus hodgsoni</i>	LC	→	In
<b>9.13 Family Muscicapidae (No. of Species 8) RDi-6.25</b>					
78.	Pied bushchat	<i>Saxicola caprata</i>	LC	→	In
79.	Bluethroat	<i>Luscinia svecica</i>	LC	→	In
80.	Indian Robin	<i>Saxicoloides fulicatus</i>	LC	→	In
81.	Brown Rock Chat	<i>Oenanthe fusca</i>	LC	→	In
82.	Red-breasted Flycatcher	<i>Ficedula parva</i>	LC	↑	In
83.	Black Redstart	<i>Phoenicurus ochruros</i>	LC	↑	In
84.	Oriental Magpie Robin	<i>Copsychus saularis</i>	LC	→	In
85.	Siberian Stonechat	<i>Saxicola maurus</i>	LC	↓	In
<b>9.14 Family Nectariniidae (No. of Species 1) RDi-0.78</b>					
86.	Purple Sunbird	<i>Cinnyris asiaticus</i>	LC	→	N
<b>9.15 Family Oriolidae (No. of Species 1) RDi-0.78</b>					
87.	Indian Golden Oriole	<i>Oriolus kundoo</i>	LC	?	O
<b>9.16 Family Paridae (No. of Species 1) RDi-0.78</b>					
88.	Cinereous Tit	<i>Parus cinereus</i>	LC	?	O
<b>9.17 Family Passeridae (No. of Species 3) RDi- 2.34</b>					
89.	House Sparrow	<i>Passer domesticus</i>	LC	↓	O
90.	Sind Sparrow	<i>Passer pyrrhonotus</i>	LC	→	O
91.	Chestnut-shouldered Petronia	<i>Gymnoris xanthocollis</i>	LC	→	O
<b>9.18 Family Phylloscopidae (No. of Species 1) RDi-0.78</b>					
92.	Common Chiffchaff	<i>Phylloscopus collybita</i>	LC	↑	In
<b>9.19 Family Ploceidae (No. of Species 3) RDi- 2.34</b>					
93.	Baya Weaver	<i>Ploceus philippinus</i>	LC	→	G
94.	Streaked Weaver	<i>Ploceus manyar</i>	LC	→	G
95.	Black-breasted weaver	<i>Ploceus benghalensis</i>	LC	→	G
<b>9.20 Family Pycnonotidae (No. of Species 3) RDi- 2.34</b>					
96.	Red-vented bulbul	<i>Pycnonotus cafer</i>	LC	↑	O
97.	White-eared Bulbul	<i>Pycnonotus leucotis</i>	LC	↓	O
98.	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	LC	↓	O
<b>9.21 Family Rhipiduridae (No. of Species 1) RDi-0.78</b>					
99.	White-browed Fantail	<i>Rhipidura aureola</i>	LC	→	In
<b>9.22 Family Stenostiridae (No. of Species 1) RDi-0.78</b>					
100	Grey-headed Canary-Flycatcher	<i>Culicicapa ceylonensis</i>	LC	→	In

<b>9.23 Family Sturnidae (No. of Species4) RDi- 3.12</b>					
101.	Common Myna	<i>Acridotheres tristis</i>	LC	↑	O
102.	Bank Myna	<i>Acridotheres ginginianus</i>	LC	↑	In
103.	Asian Pied Starling	<i>Gracupica contra</i>	LC	↑	O
104.	Brahminy Starling	<i>Sturnia pagodarum</i>	LC	?	O
<b>9.24 Family Sylviidae (No. of Species6) RDi- 4.68</b>					
105.	Yellow-eyed Babbler	<i>Chrysomma sinense</i>	LC	→	In
106.	Lesser Whitethroat	<i>Curruca curruca</i>	LC	→	In
107.	Asian Desert Warbler	<i>Curruca nana</i>	LC	→	In
108.	Sulphur Bellied Warbler	<i>Phylloscopus griseolus</i>	LC	→	In
109.	Green Warbler	<i>Phylloscopus nitidus</i>	LC	→	In
110.	Booted Warbler	<i>Iduna caligata</i>	LC	↑	In
<b>9.25 Family Vangidae (No. of Species1) RDi-0.78</b>					
111.	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	LC	→	O
<b>9.26 Family Zosteropidae (No. of Species1) RDi-0.78</b>					
112.	Indian White-eye	<i>Zosterops palpebrosus</i>	LC	↓	O
<b>10. ORDER PELECANIFORMES (No. of Species4) (No. of Family2) PO- 3.12</b>					
<b>10.1 Family Ardeidae (No. of Species3) RDi- 2.34</b>					
113.	Indian Pond Heron	<i>Ardeola grayii</i>	LC	?	C
114.	Cattle Egret	<i>Bubulcus ibis</i>	LC	↑	C
115.	Little Egret	<i>Egretta garzetta</i>	LC	↑	C
<b>10.2 Family Threskiornithidae (No. of Species1) RDi-0.78</b>					
116.	Red-naped Ibis	<i>Pseudibis papillosa</i>	LC	↓	C
<b>11. ORDER PICIFORMES (No. of Species4) (No. of Family-2) PO- 3.12</b>					
<b>11.1 Family Megalaimidae (No. of Species2) RDi- 1.56</b>					
117.	Coppersmith Barbet	<i>Psilopogon haemacephalus</i>	LC	↑	C
118.	Brown-headed Barbet	<i>Psilopogon zeylanicus</i>	LC	→	F
<b>11.2 Family Picidae (No. of Species2) RDi- 1.56</b>					
119.	Yellow-crowned Woodpecker	<i>Leiopicus mahrattensis</i>	LC	→	O
120.	Black-rumped Flameback	<i>Dinopium benghalense</i>	LC	→	O
<b>12. PODICIPEDIFORMES (No. of Species1) (No. of Family1) PO-0.78</b>					
<b>12.1 Family Podicipedidae (No. of Species1) RDi- 0.78</b>					
121.	Little Grebe	<i>Tachybaptus ruficollis</i>	LC	↓	C
<b>13. ORDER PSITTACIFORMES (No. of Species3) (No. of Family1) PO- 2.34</b>					
<b>13.1 Family Psittaculidae (No. of Species3) RDi- 2.34</b>					
122.	Rose-ringed Parakeet	<i>Alexandrinus krameri</i>	LC	↑	F
123.	Alexandrine Parakeet	<i>Palaeornis eupatria</i>	NT	↓	F
124.	Plum-headed Parakeet	<i>Himalayapsitta cyanocephala</i>	LC	↓	F
<b>14. ORDER SULIFORMES (No. of Species2) (No. of Family2) PO- 1.56</b>					
<b>14.1 Family Anhingidae (No. of Species1) RDi- 0.78</b>					
125.	Oriental Darter	<i>Anhinga melanogaster</i>	NT	↓	C
<b>14.2 Family Phalacrocoracidae (No. of Species1) RDi- 0.78</b>					
126.	Little Cormorant	<i>Microcarbo niger</i>	LC	?	C
<b>15. ORDER STRIGIFORMES (No. of Species2) (No. of Family1) PO- 1.56</b>					
<b>15.1 Family Strigidae (No. of Species2) RDi- 1.56</b>					
127.	Indian Scops Owl	<i>Otus bakkamoena</i>	LC	→	C
128.	Spotted Owllet	<i>Athene brama</i>	LC	→	C

“Diversity index: PO-Percent Occurrence RDi-Relative Diversity index: Feeding Guild: In-Insectivore, O-Omnivore, C-Carnivore, H-Herbivore, G-Granivore, N-Nectarivore, F-Frugivore; Conservation Status: IUCN- International Union for Conservation of Nature and Natural Resources, NT-Near- threatened, LC-Least Concern, EN-Endangered: Population trends: ‘!- Increasing, “!- Decreasing, ’! Stable, ?- Unknown.”

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