

Qualitative and Quantitative Analysis on Birds of Gajner Lake, Rajasthan

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Abstract

If we talk about area, Thar desert has a total area of 2,00,000 square kilometers covering about 4.56% of the Indian subcontinent and 60% of this desert lies in Rajasthan. This region has very scarce amount of rainfall every year. Freshwater bodies here are the major source of water in the particular area, Gajner Lake is an artificial freshwater lake on which most of the people, fauna and birds are dependent. Beside the residential birds, Migratory birds like Demoiselle Crane also travel to this area in large number. These birds mostly visit in the winter season in the month of September and stay till March. Observed birds are analysed in an area of 100 square meter to identify total number and species diversity of Avian fauna in Gajner Lake, Rajasthan.

Key words:- Gajner Lake, Bird Diversity

Introduction:

This paper presents an in depth investigation on qualitative and quantitative analysis on birds of Gajner Lake. Mainly focusing on Gajner Lake and nearby region to explore the actual bird diversity and number of birds spotted in the region. The month wise data of bird will be provided from July 2023 to June 2024.

Content:

Bikaner region has some fresh water bodies present near it like- Kodamdesar Lake, Shoubhasar Lake, Darbari Lake, Gajner Lake etc. Focusing on the Gajner Lake this particular region is present in the heart of Thar Desert the rainfall here is very less compared to other regions of Rajasthan. So fresh water reservoirs present here are the only source of water for the rural as well as urban people here, Beside the humans all the fauna populations present here are completely dependent on these fresh water bodies for their survival. Bird population here is highly diverse due to the immediate availability of fresh water in the region.

Gajner Lake is an artificial lake present at a distance of approximately 30 km from Bikaner City. This lake was previously a Hunting Spot for Maharaja Ganga Singh Ji of Bikaner and Lake is situated behind the Gajner Palace, Palace is now converted in a heritage hotel.

This Lake is known for its humongous number of bird diversity which is none other less than any other part of the world and that is the actual reason why bird watchers travel here from all over the world. Beside the residential birds this place is also a winter home for many migratory birds like Demoiselle crane, Northern Shovelers, Coots etc. Bird diversity in this region fluctuates according to month, Like in summer season less species are reported as compared to winter.

The Research work is conducted throughout the year every month from July 2023 to June 2024 and a total of 68 species reported in this region but their number varied according to months.

This study is based mainly on two aspects:-

1. To identify the actual diversity of birds of this particular region

2. To analyse the actual count of Birds every month in this region

These reported species are mentioned as under:-

Representation of birds with their common name and Scientific Name

- DemoiselleCrane (*Grus Virgo*)
- Indian Peafowl (*Pavocristatus*)
- LaughingDove (*Stigmapeliasengalensis*)
- Rock Pegin (*Columbalivia*)
- Sand Grouse (*Petroclesexustus*)
- Moorhen (*Gallinulachloropus*)
- Black Winged Stilt (*Himantopushimantopus*)
- Little Cormorant (*Phalacrocoraxniger*)
- Grey Heron (*Ardeacinerea*)
- Indian Pond Heron (*Ardeolagrayji*)
- Eurasian Spoonbill (*Platalealeucorodia*)
- Egyptian Vulture (*Neophronpercopterus*)
- Tawny Eagle (*Aquila rapax*)
- Rose Ringed Parakeet (*Psittaculakrameri*)
- Shikra (*Accipiter badius*)
- Great White Pelican (*Pelecanusoncrotalus*)
- House Crow (*Corvussplendens*)
- Jungle Babbler (*Turdoidesstriata*)
- Black Drongo (*Dicrurusmacrocersus*)
- Plain Martin (*Ripariapaludicola*)
- Brown Rockchat (*Cercomelafusca*)
- Indian Robin (*Saxicoloidesfulicatus*)
- White Eared Bulbul (*Pycnonotusleucotis*)
- Common Myna (*Acridotherestrictis*)
- Bank Myna (*Acridotheresginginianus*)
- Yellow Legged Green Pigeon (*Treronphoenicopterus*)
- Darter (*Anhinga melanogaster*)
- Black Headed Ibis (*ThreskiornisMelenocephalus*)
- Red Naped Ibis (*Pseudibispapillosa*)
- Glossy Ibis (*Plegadisfalcinellus*)
- Painted Stork (*Mycterialeucocephala*)
- Eurasian Teal (*Anascrecca*)
- Little Grebe (*Tachybaptusruficollis*)
- Gadwall (*Anasstrepera*)
- Common Coot (*Fulicaatra*)
- Red Wattled Lapwing (*Vanellusindicus*)
- Cattle Egret (*Bubulcus ibis*)
- House Sparrow (*Passer domesticus*)
- Common Pochard (*Aythya farina*)

- Grey Frankolin (*Frankolinuspondicerianus*)
- Rufous Treepie (*Dendrocittavagabunda*)
- Asian Openbill (*Anastomusoscitans*)
- Great Egret (*Casmerodiusalbus*)
- Copper Smith Barbet (*Megalaimahaemacepahala*)
- Common Sandpiper (*Actitishypoleucos*)
- Purple Heron (*Ardeapurpurea*)
- Intermediate Egret (*Mesophoyxintermedia*)
- Common Babbler (*Turdoidescaudata*)
- Northern Shoveler (*Anasclypeata*)
- Common Swift (*Apusapus*)
- Green Bee Eater (*Meropsorientalis*)
- Eurasian Collared Dove (*Streptopeliadecaocto*)
- Red Vented Bulbul (*Synconotuscafer*)
- Purple Sunbird (*Cinnyrisasiaticus*)
- White Throated Kingfisher (*Halcyon smyrnensis*)
- Yellow Crowned Woodpecker (*Dendrocopusmahrattensis*)
- Common Hoopoe (*Upupaepops*)
- Eurasian Wigeon (*Anas Penelope*)
- Indian Spot Billed Duck (*Anaspoecilorhyncha*)
- White Browed Wagtail (*Motacillamaderaspatensis*)
- Indian Roller (*Coraciusbengalensis*)
- White Browed Fantail (*Rhipiduraaureola*)
- Black Winged Kite (*Elanuscaeruleus*)
- Eurasian Marsh Harrier (*Circus aeruginosus*)
- Yellow Wagtail (*Motacillaflava*)
- Northern Pintail (*Anasacuta*)
- Terek Sandpiper (*Xenuscinerus*)
- Lesser Goldenback (*Dinopiumbenghalense*)

This is the data of diversity of birds including all the residential and migratory birds reported throughout the year.

This particular data is observed in the radar of 100 square meter per month, Every particular bird number is varied according to month, The residential or the non-migratory birds count do not reaches to zero because these birds are spotted every month but the number may vary, The Birds like demoiselle crane which are the migratory birds there number reaches zero from March to August (summer) but the count reaches very high from the month September to February, So this is the qualitative variation of birds.

Identification of these birds are done with the help of field guide:-

1. Pictorial guide to the Birds of the Indian Subcontinent by Salim Ali & Dillon Ripley with 106 plates depicting all the birds by John Henry.
2. A Pictorial field guide to Birds Of India by Bikram Grewal, Sumit Sen, Sarwandeep Singh, Nikhil Devasar and Garima Bhatia. Other equipments like Binocular, Spotting Scope, DSLR Camera and Notebook were also used.

Table: Number of Birds reported every month is mentioned as under:

S.No	Common Name (Scientific Name)	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
1.	Demoiselle Crane (<i>Grus Virgo</i>)	-	-	24	32	30	33	34	28	13	-	-	-
2.	Indian Peafowl (<i>Pavocristatus</i>)	2	3	3	3	2	2	4	3	2	2	3	2
3.	Laughing Dove (<i>Stigmatelia sengalensis</i>)	5	4	5	5	6	8	3	5	4	6	4	6
4.	Rock Pigeon (<i>Columba livia</i>)	3	2	3	4	3	4	2	3	4	4	6	3
5.	Sand Grouse (<i>Petroclesexustus</i>)	2	3	3	4	3	4	6	4	4	3	2	2
6.	Moorhen (<i>Gallinulachloropus</i>)	2	3	3	3	2	4	3	3	2	3	2	2
7.	Black Winged Stilt (<i>Himantopus himantopus</i>)	2	2	2	3	2	4	3	2	2	2	1	2
8.	Little Cormorant (<i>Phalacrocorax nigripennis</i>)	1	2	1	1	2	2	2	1	1	1	1	2
9.	Grey Heron (<i>Ardeacinerea</i>)	1	1	1	1	2	2	3	2	2	1	1	1
10.	Indian Pond Heron (<i>Ardeolagrayji</i>)	1	1	2	3	2	3	3	1	2	1	1	1

S.No	Common Name (Scientific Name)	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
11.	Eurasian Spoonbill (<i>Platalealeucorodia</i>)	1	1	1	1	1	2	2	1	1	1	1	1
12.	Egyptian Vulture (<i>Neophronpercopterus</i>)	1	-	-	-	1	1	1	-	-	-	1	1
13.	Tawny Eagle (<i>Aquila rapax</i>)	1	1	-	1	-	1	1	-	1	1	1	-
14.	Rose Ringed Parakeet (<i>Psittaculakrameri</i>)	5	7	8	7	6	5	8	5	5	4	6	5
15.	Shikra (<i>Accipiter badius</i>)	1	1	2	1	2	2	2	1	1	1	3	1
16.	Great White Pelican (<i>Pelecanus oncrotalus</i>)	-	-	-	-	1	2	2	-	-	-	-	-
17.	House Crow (<i>Corvussplendens</i>)	8	5	6	4	4	7	6	9	8	7	5	4
18.	Jungle Babbler (<i>Turdoidesstriata</i>)	3	3	4	3	5	5	5	4	4	3	3	4
19.	Black Drongo (<i>Dicrurusmacroceurus</i>)	3	2	2	2	3	4	4	2	2	3	1	3
20.	Plain Martin (<i>Ripariapaludicola</i>)	-	-	-	1	3	2	4	2	-	-	-	-

S.No	Common Name (Scientific Name)	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
21.	Brown Rockchat (<i>Cercomelafusca</i>)	-	1	-	2	1	1	2	-	1	-	1	1
22.	Indian Robin (<i>Saxicoloidesfulicatus</i>)	-	2	1	-	1	1	1	-	1	1	1	-
23.	White Eared Bulbul (<i>Pycnonotusleucotis</i>)	2	2	2	1	2	3	3	1	1	2	1	1
24.	Common Myna (<i>Acridotherestrists</i>)	1	-	-	2	2	3	2	2	-	1	-	1
25.	Bank Myna (<i>Acridotheresginginianus</i>)	1	1	2	-	2	3	3	2	2	1	-	1
26.	Yellow Legged Green Pigeon (<i>Treronphoenicopterus</i>)	4	4	5	5	4	6	7	4	3	4	5	6
27.	Darter (<i>Anhinga melanogaster</i>)	1	1	1	2	1	1	2	1	1	1	1	1
28.	Black Headed Ibis (<i>Threskiornis Melenocephalus</i>)	-	-	-	2	2	1	2	1	-	-	-	-
29.	Red Naped Ibis (<i>Pseudibispapillosa</i>)	1	-	1	1	1	1	1	1	-	-	1	1
30.	Glossy Ibis (<i>Plegadisfalcinellus</i>)	-	-	-	1	1	1	1	1	-	-	-	-

S.No	Common Name (Scientific Name)	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
31.	Painted Stork (<i>Mycteria leucocephala</i>)	-	-	-	-	-	1	1	1	-	-	-	-
32.	Eurasian Teal (<i>Anas crecca</i>)	-	-	9	11	12	10	8	9	8	-	-	-
33.	Little Grebe (<i>Tachybaptus ruficollis</i>)	4	5	2	2	3	2	3	2	2	6	5	6
34.	Gadwall (<i>Anas strepera</i>)	-	-	-	2	3	2	4	2	1	-	-	-
35.	Common Coot (<i>Fulica atra</i>)	-	-	-	8	9	10	8	7	9	-	-	-
36.	Red Wattled Lapwing (<i>Vanellus indicus</i>)	2	3	2	4	3	4	3	1	2	3	4	2
37.	Cattle Egret (<i>Bubulcus ibis</i>)	5	6	8	4	6	6	7	5	7	8	6	5
38.	House Sparrow (<i>Passer domesticus</i>)	2	3	2	4	2	3	2	2	2	2	3	4
39.	Common Pochard (<i>Aythya farina</i>)	-	-	-	2	6	3	4	3	2	-	-	-
40.	Grey Frankolin (<i>Frankolinus pondicerianus</i>)	2	3	2	2	2	4	3	2	2	4	4	3

S.No	Common Name (Scientific Name)	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
41.	Rufous Treepie (<i>Dendrocitta vaggabunda</i>)	1	-	-	1	1	1	-	1	1	-		1
42.	Asian Openbill (<i>Anastomus oscitans</i>)	-	-	-	-	-	1	1	-	-	-	-	-
43.	Great Egret (<i>Casmerodius albus</i>)	-	-	-	1	1	1	1	-	-	-	-	-
44.	Copper Smith Barbet (<i>Megalaima haemacephala</i>)	-	2	-	-	-	1	1	-	-	-	-	1
45.	Common Sandpiper (<i>Actitis hypoleucos</i>)	-	-	-	2	2	2	3	2	-	-	-	-
46.	Purple Heron (<i>Ardeapurpurea</i>)	-	-	-	-	-	-	1	1	-	-	-	-
47.	Intermediate Egret (<i>Mesophoyx intermedia</i>)	-	-	-	-	1	1	-	-	-	-	1	-
48.	Common Babbler (<i>Turdoides caudata</i>)	-	1	-	-	1	-	1	1	-	-	1	-
49.	Northern Shoveler (<i>Anas clypeata</i>)	-	-	3	2	3	4	3	3	4	-	-	-
50.	Common Swift (<i>Apus apus</i>)	6	3	5	3	4	8	5	5	6	3	4	4

S.No	Common Name (Scientific Name)	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
51.	Green Bee Eater (<i>Meropsorientalis</i>)	-	1	-	-	2	-	-	1	-	-	-	-
52.	Eurasian Collared Dove (<i>Streptopeliadecaoccto</i>)	2	3	2	2	4	2	4	2	3	2	2	2
53.	Red Vented Bulbul (<i>Synconotuscafer</i>)	-	2	1	-	3	1	1	2	2	1	-	1
54.	Purple Sunbird (<i>Cinnyrisasiaticus</i>)	1	-	2	-	1	-	1	1	-	-	1	-
55.	White Throated Kingfisher (<i>Halcyon smyrnensis</i>)	1	1	-	-	-	1	1	-	-	-	1	-
56.	Yellow Crowned Woodpecker (<i>Dendrocopusmah rattensis</i>)	1	-	-	1	-	-	1	-	2	1	-	-
57.	Common Hoopoe (<i>Upupaepops</i>)	1	1	-	1	-	-	1	1	-	-	1	1
58.	Eurasian Wigeon (<i>Anas Penelope</i>)	-	-	-	-	-	1	1	1	-	-	-	-
59.	India Spot Billed Duck (<i>Anaspoecilorhyn c-ha</i>)	2	2	4	6	4	5	7	5	3	2	2	4
60.	White Brownd Wagtail (<i>Motacillamaderas patens-is</i>)	-	-	-	-	-	-	1	1	-	-	-	-

S.No	Common Name (Scientific Name)	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
61.	Indian Roller (<i>Coraciusbengalensis</i>)	-	-	1	1	2	-	-	-	1	1	-	1
62.	White Browed Fantail (<i>Rhipiduraaureola</i>)	-	-	1	-	-	-	1	-	-	-	-	-
63.	Black Winged Kite (<i>Elanuscaeruleus</i>)	2	-	1	-	2	2	-	1	1	-	1	-
64.	Eurasian Marsh Harrier (<i>Circus aeruginosus</i>)	-	-	-	3	1	2	3	2	-	-	-	-
65.	Yellow Wagtail (<i>Motacilla flava</i>)	1	-	2	-	3	1	1	1	2	-	-	-
66.	Northern Pintail (<i>Anasacuta</i>)	-	-	-	5	6	7	7	8	-	-	-	-
67.	Terek Sandpiper (<i>Xenuscinerus</i>)	-	-	8	10	9	6	5	8	9	-	-	-
68.	Lesser Goldenback (<i>Dinopiumbenghalense</i>)	1	-	-	2	1	1	-	-	-	-	1	-

A great work on bird diversity of India and first conclusive checklist of the birds of India (Praveen et al.2016), After that of the Indian mainland, (Praveen et al. 2020a), and the region South Asia (Praveen et al. 2020b), Birds of the Darbari region Bikaner, Prithvi Raj Singh Rathore and Abhimanyue Singh 2024.As the weather changes these changes led to the variation in Bird diversity. Favourable temperature urges birds for local migration and adding of migratory birds in the area (Joshi and Shrivastava, 2012). Some more researcher who has done their work on Gajner wildlife sanctuary are Singh (1991), Swami (1991) and Chouhan (1994),Khatri A.K (2023).

Conclusion:

According to the Data a total of 68 species of birds were reported throughout the year and their total number were also mentioned month wise. Beside the bird diversity this particular paper has also enlighten us about the scarce rainfall in the region and freshwater reservoir (Gajner Lake). All the birds with their common name and scientific name (in italics) were mentioned to get a clear idea of which particular bird is reported in that particular month.

This paper also mention how a small fresh water reservoir in the middle of the Thar Desert can be a home to so many Birds Species.

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