

## Status, Guild and Diversity of Avian Fauna in Shergarh Wildlife Sanctuary, Atru District, Baran, Rajasthan, India

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**ABSTRACT:** To assess the bird diversity and guild status in the wildlife sanctuary, a study on bird diversity was carried out in the Shergarh Wildlife Sanctuary, Atru, Baran district of Rajasthan from February 2022 to January 2023. The survey resulted in the identification and listing of 125 species from 18 orders, 50 families, and 86 genera. The entire Shergarh Wildlife Sanctuary was covered by a species checklist of birds. Numerous bird species were recorded in the region's green spaces, marshes, and terrestrial habitats. 62 species were discovered to be residents, 39 to be seasonal, and the rest rare species on habitat status. In the Shergarh Wildlife Sanctuary, there are 28 (17.64%) omnivores, 29 (23.21%) carnivores, 50 (40%) insectivores, 12 (9.6%) granivores, 3 (2.4%) frugivores, and 3 (2.4%) nectarivores birds. There are many different plant species in the area, which in various ways add to the diversity of bird species. The region has common species, seasonal species, and species listed in the Red Data Book and IUCN. The review here highlights the various aspects of bird diversity that were cataloged over the months and will form the basis for further research. It is intended that the study will be helpful in drawing the attention of the public and state government towards the conservation of the Shergarh Wildlife Sanctuary and the protection of its avian fauna. The present study highlights many aspects of the diversity of birds and their status that have been compiled over the past few months and will serve as the foundation for more study. It is intended that this study will be useful in bringing Shergarh Wildlife Sanctuary protection, as well as the security and welfare of its avian fauna, to the public's and the state government's notice.

**Key words:** Shergarh, Wildlife Sanctuary, bird diversity, Red Data Book species.

### INTRODUCTION

India is a diverse nation. There are over 92,037 species of animals and 40,000 species of plants in India due to its diverse climatic and physical conditions (Garden *et al.*, 2007; Grimmett *et al.*, 2016; Hansell, 2000). There are numerous wildlife sanctuaries, national parks, tiger reserves, etc., for the preservation of animals. It has 27 wildlife sanctuaries in Rajasthan and 544 in India; one of these, Shergarh Wildlife Sanctuary, is well-known for being a haven for snakes (Jatav *et al.*, 2023). The Shergarh Wildlife Sanctuary is the only undiscovered sanctuary in Rajasthan that retains historical events and natural beauty. It is in the final forest block of the Vindhya Mountain range.

The Shergarh Wildlife Sanctuary, which has a size of 98.8 sq km, is situated on the outskirts of "Varah Nagari," or Shergarh town, in Atru tehsil of Baran district (Bailey and King 2019; Koli, 2014). This sanctuary's geographic position, the evergreen Parvan River, the rain gutters, and the wildlife naturally draw visitors. On July 30, 1983, this region was designated a refuge because of its biodiversity. In this regard, the state administration issued a revised notification on

May 25, 1992, in which its forest area was increased and given the name Shergarh Wildlife in recognition of the historical significance of the Shergarh hamlet (Koshelev *et al.*, 2019; Kumar and Gupta 2013).

The amazing valley of the Vindhya Mountain, with its physical layout like a horseshoe, is where the Shergarh Wildlife Sanctuary is located. The sanctuary's center marks the southernmost point of its boundaries, which extends to the slope of Parvan in the north. Two sections make up the valley. The Ancholi Dam covers the first half, while the Surpa Village residents' fields cover the other half. The unique feature is that not a single village's dwelling can be found within this sanctuary's perimeter (Rahman and Ismail 2018; Rahmani *et al.*, 2016). Because of this, wild creatures are free to travel across the forest. This sanctuary contains a fort known as Shergarh Fort that is situated on the Parvan River's banks.

The Shergarh Wildlife Sanctuary has a diverse range of flora and fauna. Lichen trees, algae, fungi, bryophytes, pteridophytes, and numerous kinds of angiosperm plants, bulbous plants, and vines may all be found in the local woodlands. Here you can also find rare Chironji (*Buchanania lanzan*) trees. Special attractions in this

area are the yellow-flowered forms of palash (*Butea monosperma* var. *lutea*), ghamhad (*Gmelina arborea*), and donkey palash (*Erythrina suberosa*) (Singh *et al.*, 2017; Young *et al.*, 2019). The fauna in Shergarh Sanctuary has long been renowned. The hunting malls that can be seen here are proof that the Maharaoas of the princely state of Kota loved to hunt tigers in the former Shergarh. Tigers were present in Shergarh until the end of the 1970s, but hunting led to their extinction in this area in the early 1980s (Kumar and Sahu 2019; 2020; Pattimahu *et al.*, 2017). Panthers can live in this jungle with ease. Therefore, this location is ideal for panther rehabilitation. The wolf, which was previously thought to be extinct in this region, was recently discovered to be present. The Shergarh Sanctuary is home to more than 200 different bird species. Some of which are listed in the Indian Red Data Book under distinct categories by the IUCN (Banerjee and Pal 2016). For example, Spoonbill, Osprey, and Indian Peafowl are included in the Threatened category, whereas White-Bellied Minivet, White-Winged Black Tit, Asian Open-Billed Stork, White-Vulture, King Vulture, and Red-Necked Falcon are listed in the Near Threatened category (Pragasan and Madesh 2018). Some. In addition to this, the slopes of Shergarh Fort, which face

the river, are home to a colony of long-billed vultures, which are endangered. During the monsoon season, Shergarh is perhaps the greatest site in Hadoti to watch the Navrang bird (Indian Pitta) and Shah Bulbul (*Paradise Flycatcher*) (Garden *et al.*, 2007; Grimmett *et al.*, 2016; Hansell, 2000).

The Shergarh Wildlife Sanctuary has well-known low-lying marshy land with fresh water. However, this sanctuary is degrading because of farming operations, pollution, tourism, habitat fragmentation, and disturbance from residents of the fort in the region. To create long-term government conservation policies, the current study aims to characterize the composition, condition, distribution, and habitat usage of the avifauna in Shergarh Wildlife Sanctuary, Baran.

## MATERIALS AND METHODS

### A. Study area

The research was done at the Shergarh Wildlife Sanctuary, which is in Shergarh and Atru tehsil of Baran district. The study was done in an area of 98.8 square kms where there are about 30000 trees which are the habitat for the birds (Boyce *et al.*, 2016). Birds had seen with the help of binoculars from Shergarh Fort.



### B. Equipment used and Area search

For bird viewing, Nikon Monarch 510 × 42 binoculars were employed. Comprehensive data on avian diversity were gathered using the field research approach. This approach comprises conducting a time-limited survey of a predetermined area during which the observer records all birds heard or observed, identifying those heard within, outside, and flying over the search zone. While seated and standing from a hiding position, birds were seen and named. The birds were seen between 7am to 11 am and 16 pm to 19 pm, and their species were recorded and recognized using conventional reference materials such as books, websites, mobile applications, etc.

### C. Bird observation technique

Being an active and spirited animal, birds can be difficult to recognize. To spot birds quickly, one must have a fast eye. Birds were recognized by keeping a watch on them while movement, eating habits, shape, identifying stripes, color patches, size, and songs were

all documented. The length and form of the bird feathers, the color of the feet and claws, and the stage of flight were all documented. The birds' residence status was recorded and classified as "passage visitor," "winter visitor," "summer visitor," and "resident." Birds that were regularly observed in the study area were classified as "residential," while those observed only during the winter and summer seasons were classified as seasonal birds.

The formula below was used to compute relative diversity (RD):

$$RD = \frac{\text{Number of species in a family}}{\text{Total number of species}} \times 100$$

## RESULT AND DISCUSSION

After 12 months of continuous observation, from February 2022 to January 2023, we identified 125 bird species, which are mentioned in Table below

Sr. No.	Order	Family	Scientific name	Common name	Status in sanctuary	Guild		
1.	Accipitriformes	Accipitridae	<i>Accipiter badius</i>	Shikra	Resident	Carnivorous		
			<i>Circus macrourus</i>	Pied harrier	Seasonal	Omnivorous		
			<i>Buteo buteo</i>	Common buzzard	Seasonal	Omnivorous		
			<i>Elanus caeruleus</i>	Black shouldered kite	Resident	Omnivorous		
			<i>Milvus migrans</i>	Black kite	Resident	Carnivorous		
			<i>Circaetus gallicus</i>	Short-toed snake eagle	Seasonal	Omnivorous		
			<i>Aquila nipalensis</i>	Steppe eagle	Seasonal	Omnivorous		
			<i>Circus aeruginosus</i>	Western marsh harrier	Seasonal	Omnivorous		
			<i>Neophron percnopterus</i>	Egyptian vulture	Resident	Carnivorous		
			<i>Gyps idicus</i>	Indian vulture	Resident	Carnivorous		
			<i>Accipiter virgatus</i>	Besra	Resident	Insectivorous		
				Pandionidae	<i>Pandion haliaetus</i>	Osprey	Rare	Carnivorous
2.	Anseriformes	Anatidae	<i>Anas strepera</i>	Gadwall	Seasonal	Omnivorous		
			<i>Anas clypeata</i>	Northern shoveler	Seasonal	Omnivorous		
			<i>Dendrocygna javanica</i>	Lesser whistling duck	Resident	Omnivorous		
			<i>Anas crecca</i>	Common teal	Seasonal	Omnivorous		
3.	Apodiformes	Apodidae	<i>Apus affinis</i>	House swift	Resident	Insectivorous		
4.	Pelecaniformes	Ardeidae	<i>Ardeola grayii</i>	Indian pond heron	Resident	Carnivorous		
			<i>Ardea cinerea</i>	Gray heron	Resident	Carnivorous		
			<i>Ardea purpurea</i>	Purple heron	Resident	Carnivorous		
			<i>Egretta sacra</i>	Pacific reef heron	Resident	Carnivorous		
			<i>Casmerodius albus</i>	Great egret	Resident	Carnivorous		
			<i>Egretta garzetta</i>	Little egret	Resident	Carnivorous		
			<i>Bubulcus ibis</i>	Cattle egret	Rare	Carnivorous		
				Threskiornithidae	<i>Platalea leucorodia</i>	Spoon bill	Rare	Carnivorous
			<i>Pseudibis papillosa</i>	Indian black ibis	Rare	Carnivorous		
5.	Bucerotiformes	Bucerotidae	<i>Ocyrceros birostris</i>	Indian gray hornbill	Resident	Omnivorous		
		Upupidae	<i>Upupa epops</i>	Common hoopoe	Resident	Insectivorous		
6.	Charadriiformes	Charadriidae	<i>Tringa tetanus</i>	Red shank	Seasonal	Insectivorous		
			<i>Tringa stagnatillis</i>	Marsh sandpiper	Seasonal	Insectivorous		
			<i>Tringa glareola</i>	Wood sandpiper	Seasonal	Insectivorous		
			<i>Tringa hypoleucos</i>	Common sandpiper	Seasonal	Insectivorous		
			<i>Vanellus indicus</i>	Red wattled lapwing	Resident	Insectivorous		
				Recurvirostridae	<i>Himantopus himantopus</i>	Black winged stilt	Resident	Carnivorous
					<i>Recurvirostra avosetta</i>	Pied avocet	Seasonal	Insectivorous
				Jacaniidae	<i>Metopidius indicus</i>	Bronze winged jacana	Seasonal	Carnivorous
		Scolopacidae	<i>Tringa nebularia</i>	Common green shank	Seasonal	Insectivorous		
7.	Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Eurasian collard-dove	Resident	Granivorous		
			<i>Streptopelia tranquebarica</i>	Red collard dove	Resident	Granivorous		
			<i>Streptopelia senegalensis</i>	Laughing dove	Resident	Granivorous		
			<i>Streptopelia chinensis</i>	Spotted dove	Resident	Granivorous		
			<i>Columba livia</i>	Rock pigeon	Resident	Granivorous		
			<i>Treron phoenicoptera</i>	Yellow footed green pigeon	Resident	Frugivorous		
8.	Coraciiformes	Coraciidae	<i>Coracias benghalensis</i>	Indian roller	Resident	Carnivorous		
			<i>Coracias garrulous</i>	Eurasian roller	Resident	Carnivorous		
		Meropidae	<i>Merops orientalis</i>	Green bee-eater	Resident	Insectivorous		
			<i>Merops philippinus</i>	Blue tailed bee-eater	Seasonal	Insectivorous		
		Alcedinidae	<i>Halcyon smyrnensis</i>	White throated	Resident	Carnivorous		

				kingfisher		
			<i>Halcyoninae</i>	Tree kingfisher	Resident	Carnivorous
		<b>Meropidae</b>	<i>Merops pericus</i>	Blue cheeked bee-eater	Seasonal	Insectivorous
9.	<b>Cuculiformes</b>	<b>Cuculidae</b>	<i>Eudynamys scolopacea</i>	Asian koel	Resident	Omnivorous
			<i>Clamtor jacobinus</i>	Pied cuckoo	Seasonal	Omnivorous
			<i>Hierococcyx varius</i>	Papiha	Resident	Insectivorous
10.	<b>Piciformes</b>	<b>Picidae</b>	<i>Dendrocopos mahrattensis</i>	Yellow crowned woodpecker	Rare	Insectivorous
			<i>Dinopium benghalense</i>	Black rumped flameback	Rare	Insectivorous
11.	<b>Psittaciformes</b>	<b>Psittacidae</b>	<i>Psittacula krameria</i>	Rose ringed parakeet	Rare	Granivorous
12.	<b>Gruiformes</b>	<b>Ralliadae</b>	<i>Porphyrio porphyrio</i>	Purple swamphen	Rare	Omnivorous
			<i>Gallinula chloropus</i>	Common moorhen	Resident	Omnivorous
			<i>Amaurornis phoenicurus</i>	White breasted waterhen	Resident	Omnivorous
		<b>Gruidae</b>	<i>Indian sarus crane</i>	Antigone antigone	Rare	Carnivorous
13.	<b>Strigiformes</b>	<b>Strigidae</b>	<i>Athene brama</i>	Spotted owl	Resident	Insectivorous
14.	<b>Ciconiiformes</b>	<b>Ciconiidae</b>	<i>Mycteria leucocephala</i>	Panted stork	Rare	Carnivorous
			<i>Ciconia episcopus</i>	Wooly nacked stork	Resident	Carnivorous
			<i>Anastomus oscitans</i>	Asian open billed stork	Rare	Carnivorous
			<i>Falco chicquera</i>	Red nacked falcon	Resident	Carnivorous
16.	<b>Galliformes</b>	<b>Phasianidae</b>	<i>Coturnix coturnix</i>	Common bater	Resident	Insectivorous
			<i>Pavo cristatus</i>	Indian peafowl	Resident	Omnivorous
			<i>Francolinus pondicerianus</i>	Gray francolin	Resident	Omnivorous
			<i>Francolinus francolinus</i>	Black francolin	Resident	Omnivorous
17.	<b>Suliformes</b>	<b>Phalacrocoracidae</b>	<i>Microcarbo niger</i>	Little cormorant	Resident	Carnivorous
18.	<b>Passeriformes</b>	<b>Zosteropidae</b>	<i>Zosterops meyny</i>	Lowland white eye	Resident	Carnivorous
		<b>Muscicoidae</b>	<i>Copsychus fulicatus</i>	Magpie robin	Resident	Carnivorous
		<b>Campethagidae</b>	<i>Pericrocotus erythropygus</i>	white bellied minivet	Resident	Insectivorous
		<b>Pycnonotidae</b>	<i>Pycnonotus leucotis</i>	White eared bird	Resident	Insectivorous
		<b>Muscicapidae</b>	<i>Copsychus saularis</i>	Oriental magpie robin	Resident	Insectivorous
		<b>Alaudidae</b>	<i>Calandrella brachydactyla</i>	Greater short toed lark	Resident	Omnivorous
			<i>Galerida cristata</i>	Crested lark	Rare	Omnivorous
			<i>Ammomanes deserti</i>	Desert lark	Rare	Omnivorous
			<i>Eremopterix grisea</i>	Ashy crowned sparrow lark	Rare	Omnivorous
			<i>Ammomanes phoenicurus</i>	Rufous tailed lark	Rare	Omnivorous
		<b>Corvidae</b>	<i>Corvus splendens</i>	House crow	Resident	Carnivorous
			<i>Dendrocitta vagabunda</i>	Roufous treepie	Rare	Frugivorous
		<b>Estrildidae</b>	<i>Lonchura malabarica</i>	Indian silver bill	Rare	Omnivorous
		<b>Hirundinidae</b>	<i>Hirundo rustica</i>	Barn swallow	Seasonal	Insectivorous
			<i>Cecropis daurica</i>	Red rumped swallow	Rare	Insectivorous
			<i>Petrochelidon fluvicola</i>	Streak throated swallow	Rare	Insectivorous
			<i>Hirundo smithii</i>	Wire tailed swallow	Rare	Insectivorous
		<b>Dicruridar</b>	<i>Dicrurus macrocercus</i>	Black drongo	Resident	Insectivorous
		<b>Motacillidae</b>	<i>Motocilla alba</i>	White waigtail	Seasonal	Insectivorous
			<i>Motacilla citreola</i>	Citrine waigtail	Seasonal	Insectivorous
			<i>Motacilla flava</i>	Yellow waigtail	Seasonal	Insectivorous
			<i>Anthus hodgsoni</i>	Indian tree pipit	Seasonal	Insectivorous
			<i>Anthus malcolmi</i>	Tree pipit	Seasonal	Insectivorous
<i>Tudoides comprestis</i>	Tawny pipit		Seasonal	Insectivorous		
<b>Laniidae</b>	<i>Lanius vittatus</i>	Bay backed shrike	Rare	Insectivorous		

		<i>Lanius meridionalis</i>	Southern gray shrike	Rare	Insectivorous
	<b>Leiothrichidae</b>	<i>Turdoides malcolmi</i>	Large gray babbler	Resident	Insectivorous
		<i>Turdoides striata</i>	Jungle babbler	Resident	Insectivorous
		<i>Phoenicurus ochruros</i>	Black redstart	Seasonal	Insectivorous
		<i>Montricola solitaries</i>	Blue rock thrush	Seasonal	Omnivorous
		<i>Luscinia svecica</i>	Bluethroat	Seasonal	Insectivorous
		<i>Phylloscopus humei</i>	Hume's leaf warbler	Seasonal	Insectivorous
		<i>Phylloscopus collybita</i>	Chiffchaff warbler	Seasonal	Insectivorous
	<b>Nectariniidae</b>	<i>Nectarinia asiatica</i>	Purple sunbird	Resident	Nectarivorous
		<i>Cinnyris lotenius</i>	Long billed sunbird	Resident	Nectarivorous
		<i>Arachnothera longirostra</i>	Little spider hunter	Resident	Nectarivorous
	<b>Oriolidae</b>	<i>Oriolus oriolus</i>	Eurasian golden oriole	Seasonal	Omnivorous
	<b>Sturnidae</b>	<i>Acridotheres ginginianus</i>	Bank myna	Resident	Granivorous
		<i>Acridotheres tristis</i>	Common myna	Resident	Granivorous
		<i>Sturnus pagodrum</i>	Brahminy starling	Resident	Granivorous
		<i>Sturnus contra</i>	Asian pied starling	Resident	Granivorous
		<i>Sturnus roseus</i>	Rosy starling	Resident	Granivorous
	<b>Pycnonotidae</b>	<i>Psycnotus cafer</i>	Red vented bulbul	Resident	Frugivorous
	<b>Ploceidae</b>	<i>Ploceus philippinus</i>	Baya weaver	Rare	Omnivorous
	<b>Sylviidae</b>	<i>Sylvia curruca</i>	Lesser white throat	Seasonal	Insectivorous
	<b>Passeridae</b>	<i>Passer domesticus</i>	House sparrow	Resident	Granivorous
	<b>Muscicapidae</b>	<i>Oenanthe deserti</i>	Desert wheatear	Seasonal	Insectivorous
		<i>Saxicola insignis</i>	Common stonechat	Seasonal	Insectivorous
		<i>Saxicola caprata</i>	Pied bushchat	Seasonal	Insectivorous
		<i>Saxicola torquate</i>	African stone chat	Seasonal	Insectivorous
		<i>Oenanthe picata</i>	Variable wheatear	Seasonal	Insectivorous
	<b>Laniidae</b>	<i>Lenius Schach</i>	Long tailed shrike	Rare	Insectivorous
	<b>Pittidae</b>	<i>Pitta brachyura</i>	Indian pitta	Seasonal	Insectivorous
	<b>Monarchidae</b>	<i>Paradise Flycatcher</i>	Shah bulbul	Seasonal	Insectivorous

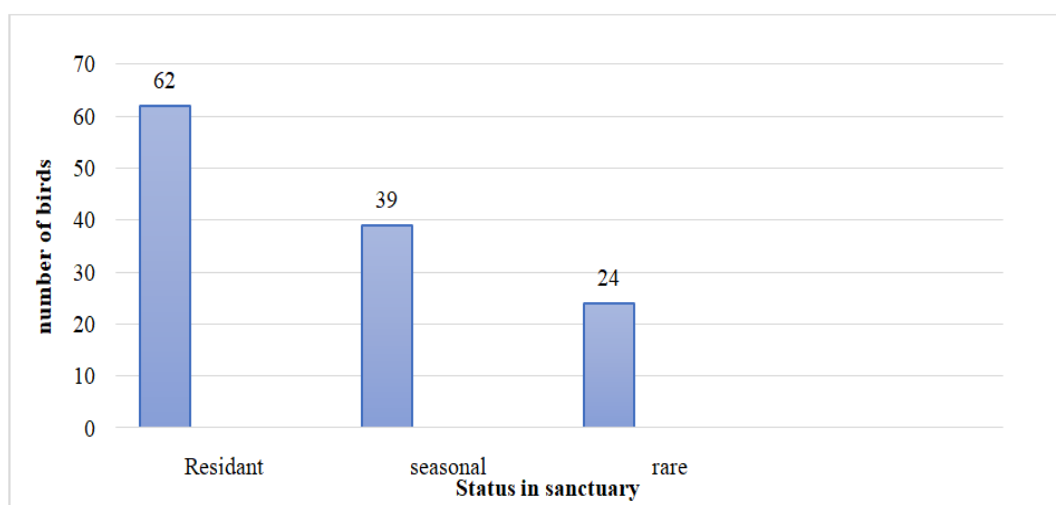
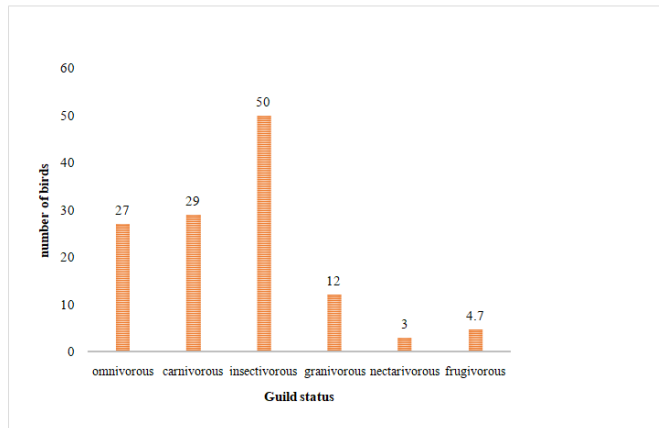
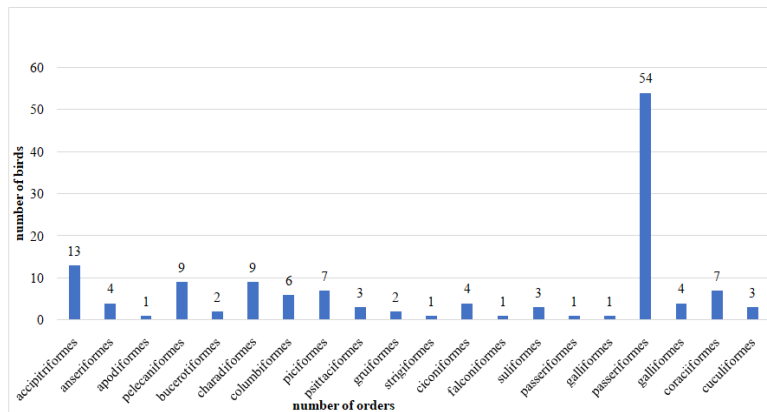


Fig. 1. Status of Avian fauna in the wild life sanctuary.



**Fig. 2.** Guild based Status of Avian fauna in the wild life sanctuary.



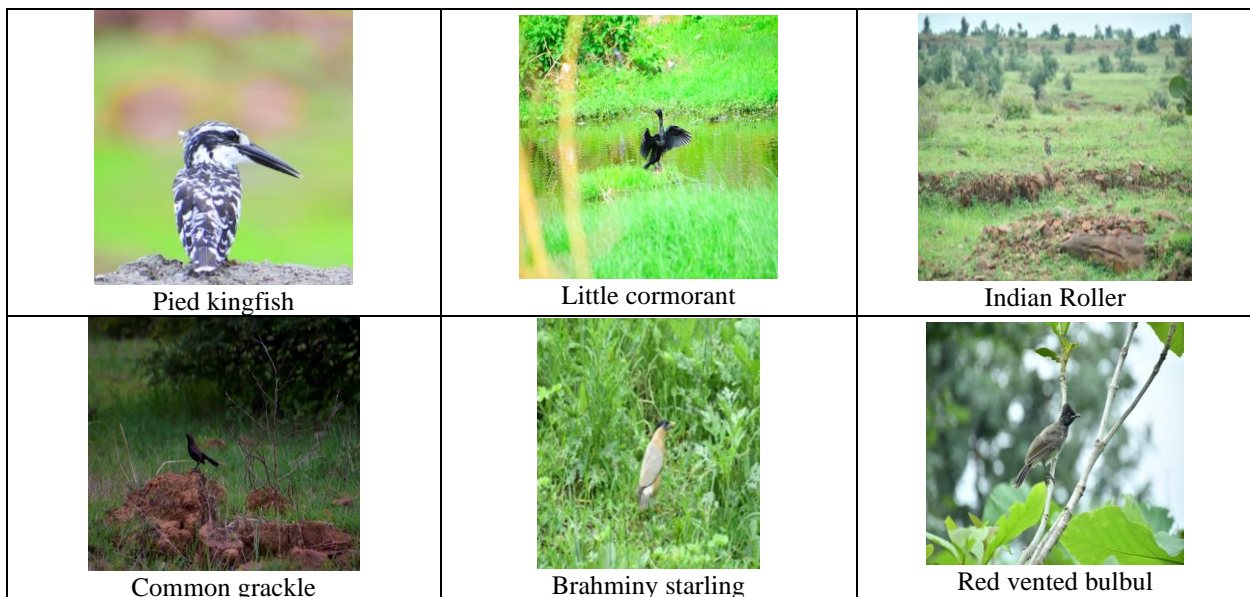
**Fig. 3.** Relative diversity among all Avian fauna orders in the wild life sanctuary.















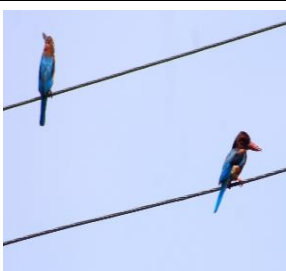



The most frequented bird species are the Jungle Babbler, Indian Myna, Blue Rock Pigeon, Black Drongo, Racket-Tailed Drongo, Indian Robinbird, White-Throated Kingfisher, and Red-Vented Bulbul. Throughout the course of the investigation, odd species such as the Indian Grey Hornbill, Woodpecker, Shikra, Papiha, Indian Golden Oriole, Indian Roller, and Besra were also observed. Additionally, there were a few monsoon-season species, including the Shah Bulbul (*Paradise Flycatcher*) and the Navrang bird (*Indian Pitta*). White-Bellied Minivet and Indian Black Ibis,






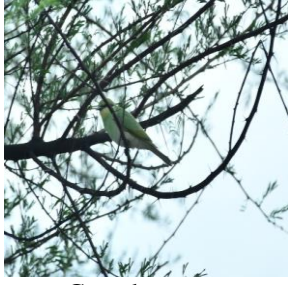



two birds on the IUCN Red List, were also spotted (Kaushik and Gupta 2016; IUCN, 2020).

Birds in the Vulnerable category, including Spoonbill, Osprey, and Indian Peafowl, as well as birds in the Threatened category, including Painted stork, white-winged black tit, Asian open-billed stork, white-vulture, and king vulture were also observed.

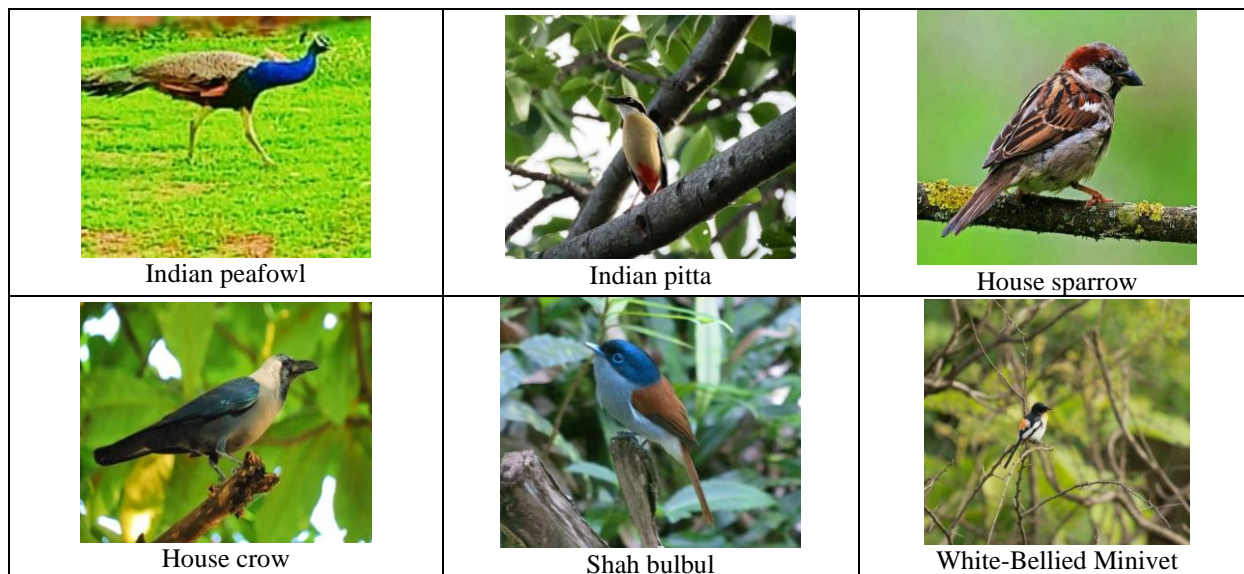
A one-year study has revealed that out of 125 species, 28 (17.64%) are omnivorous, 29 (23.21%) are carnivorous, 50 (40%) are insectivorous, 12 (9.6%) are granivorous, 3 (2.4%) are frugivorous and 3 (2.4%) are nectarivorous.



		
Indian green parrot	Oriental Magpie robin	Jungle babbler
		
Indian white eye	Common Indian kingfisher	Eurasian collared dove
		
Indian Grey Hornbill	Common tailor bird	Shikra
		
Red wattle lapwing	Black winged stilt	Woolly necked stork
		
Jacana	Pied kingfisher	Tree Kingfisher
		
Lesser whistling duck	Indian pond heron	Indian mynah

 <p>Common grackle</p>	 <p>Brahminy starling</p>	 <p>Red vented bulbul</p>
 <p>Indian green parrot</p>	 <p>Oriental Magpie robin</p>	 <p>Jungle babbler</p>
 <p>Indian white eye</p>	 <p>Common Indian kingfisher</p>	 <p>Eurasian collared dove</p>
 <p>Great egret</p>	 <p>Asian eagle</p>	 <p>Greenbee eater</p>
 <p>Asian koel</p>	 <p>Magpie robin</p>	 <p>Brown rock chat</p>
 <p>Forest warbler</p>	 <p>Black drongo</p>	 <p>Little spiderhunter</p>





## CONCLUSIONS

A total of 125 different bird species were seen in all. A significant wetland region that draws birds may be found at the Shergarh Wildlife Sanctuary along with a variety of plants and animals. This bird fauna is under risk from anthropogenic problems such as habitat fragmentation and degradation, pressure from tourism, and water scarcity in the summer. Additionally, stray dogs, wild cattle, and Nilgai (*Boselaphus tragocamelus*) herds crushed the chicks and eggs of water birds in this reserve. A greater knowledge of ecological needs and the number of visiting birds will be necessary for the conservation of avian species. The development of conservation plans for this sanctuary and wetland birds in general will benefit from more surveys and in-depth research conducted during various seasons.

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**Conflict of Interest.** None.

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