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Short Communication

Study of Avian Biodiversity on Suruchi Beach, Palghar District, Maharashtra, India

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Abstract

The study deals with the survey of avifauna observed at Suruchi beach in Palghar district, Maharashtra was carried from January 2017 to March 2019. It has a rich biodiversity due to different habitat and complex food chain. In the study carried out 108 birds species belonging to 41 families and 18 orders were observed during the study period. Migratory bird such as the Greater Flamingo (Phoenicopterus roseus) was spotted in this study area. The birds were observed every month as per their occurance along the coastal, mangrove and agricultural area. The result of this survey indicates healthy ecosystem and rich biodiversity in birds even with increasing agricultural activity .The findings gathered can be used for further research as a baseline data.

Keywords: Biodiversity, Wetland, Suruchi beach, Vasai.

Introduction

The biological diversity of a particular expanse can be contemplated by the occurrence of variety of organisms[1]. The Bassein beach or commonly called as Suruchi beach which is located on west coast of Vasai, Maharashtra, India shows a variety of habitats. The east side of the beach is having dense mangrove and marshy area, while agricultural land is towards the north side. While the south of this region shows moderate forest and grassland. The most reoccurring vegetation is pine trees, locally called as suru. Hence, the name Suruchibaugh.

Mangrove is a complex ecosystem consisting of example of plants of unrelated species converged in a similar habitat[2].The wetlands are used by the birds as shelter for hatching the young ones making it an important habitat. Migratory birds also use wetlands for resting and for breeding. Luiz et al. and Pawar reported that in conserving of resident species and migratory as well as the endangered birds mangrove ecosystems play a crucial role[3,4].

As water-birds occupy multiple trophic levels in the food web of wetland habitat they are considered as an important link to most of the wetland ecosystem[5]. Wetland may also help in building community by giving space to the birds for social interaction. Birds help in maintaining balance in food web as scavengers, they also act as agents for pollination. Apart from all the natural habitats like forests, grasslands, mangroves etc., even manmade environments like agricultural and plantation areas serve as an ideal habitat for birds[6]. According to Chawan et al., birds occupy a variety of habitats globally and being an important component of the ecosystem, they provide clues about the status of the environment[7]. A lot anthropogenic activities are observed in recent years due to urbanization which may result into loss of habitat. Most ecosystems require intense and informed management for their conservation as the natural space have been ruined and extirpated extensively[8]. Negative effects is being observed on biodiversity due to development, and has caused irrecoverable habitat loss, eradication of native and migratory species[9]. There is a critical and urgent need to understand the biodiversity of the mangrove due to its prolonged demolition of the habitat[10]. After the introduction of Ramsar conservation Act in 1975, the biodiversity study in the wetland was boosted up[11]. Public and government agencies are aware for wetland conservation due to the Ramsar designation. The Ramsar designation gives encourages the government agencies for sustainable management of the resources[12].

Objectives of study and area: The primary cause of this research was to study biodiversity of bird and their status in the mangrove, marshy, coastal and agricultural habitat of Suruchi beach. To make government aware of rich heritage in biodiversity of this selected region and suggest measures for conserving the ecological status and to maintain the biodiversity status. The proposed work may help authorities and local residents to take precautionary action to protect the rich biodiversity. The data collected can be used as a baseline data for future reference for research.

The study area, Suruchi Beach is located in Vasai region in Palghar district of Maharashtra lies between Lat- 19°20'20"N and Lon- 72°47'26"E comprising mangrove habitat and Australian pine tree abundant in number. No research study have been carried out till date in this region.

Materials and methods

Survey were conducted from January 2017 to March 2019. Birds in this study area were observed using 10X50 dpsi Binoculars (olymmpus) and photographed (Fujifilm HS28 EXR) for identification. The species of birds were identified using standard field guides[13-16]. Measures were taken to avoid disturbances in the habitat during the survey. Audio playbacks were not used to attract birds during this study. The birds observed during the study were categorized as Common (C), Resident (R), Rare (r), Migrant (M), Resident Migrant (RM) based on their sighting frequency.

Table-1: List of birds observed in the habitats of Suruchi beach, Palghar, Maharashtra.

Order	Family	Scientific Name	Common Name	Local status	IUCN[17] status
Galliformes	Phasianidae	*Coturnix coturnix*	Common quail	R	LC
Anseriformes	Anatidae	*Dendrocygna javanica*	Lesser Whistling – duck	M	LC
		Anas poecilorhyncha	Spot billed duck	M	LC
Apodiformes	Apodidae	*Cypsiurus balasiensis*	Asian Palm Swift	R	LC
		Apus nipalensis	House Swift	R	LC
Cuculiformes	Cuculidae	*Clamator jacobinus*	Jacobin Cuckoo	M	LC
		Centropus sinensis	Greater Coucal	C	LC
		Eudynamys scolopaceus	Asian Koel	C	LC
Columbiformes	Columbidae	*Columba livia*	Common Pigeon	C	LC
		Stigmatopelia senegalensis	Laughing Dove	C	LC
		Stigmatopelia chinensis	Spotted Dove	C	LC
Podicipediformes	Podicipedidae	*Tachybaptus ruficollis*	Little Grebe	M	LC
Phoenicopteriformes	Phoenicopteridae	*Phoenicopterus roseus*	Greater Flamingo	M	LC
Charadriiformes	Scolopacidae	*Numenius phaeopus*	Whimbrel	r	LC
		Tringa glareola	Wood Sandpiper	RM	LC
		Tringa ochropus	Green sandpiper	RM	LC
		Tringa stagnatilis	Marsh Sandpiper	R	LC
		Actitis hypoleucos	Common Sandpiper	R	LC
		Calidris temminckii	Temminck's Stint	r	LC
		Tringa tetanus	Common Redshank	RM	LC
		Tringa nebularia	Common Greenshank	M	LC
	Laridae	*Chroicocephalus brunnicephalus*	Brown headed gull	M	LC
		Sterna hirundo	Common tern	RM	LC
	Charadriidae	*Pluvialis squatarola*	Grey Plover	R	LC
		Charadrius mongolus	Lesser Sand Plover	R	LC
		Charadrius dubius	Little Ringed Plover	R	LC
		Charadrius leschenaultii	Greater Sand Plover	M	LC
		Dromas ardeola	Crab Plover	r	LC
		Vanellus indicus	Red-wattled Lapwing	R	LC
	Recurvirostridae	*Himantopus himantopus*	Black - winged Stilt	R	LC
Ciconiiformes	Ciconiidae	*Anastomus oscitans*	Asian Open bill stork	RM	LC
		Ciconia ciconia	White Stork	r	LC
		Mycteria leucocephala	Painted Stork	RM	NT
Suliformes	Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	M	LC
		Phalacrocorax niger	Little Cormorant	R	LC
	Anhingidae	*Anhinga melanogaster*	Darter	R	LC
Pelecaniformes	Ardeidae	*Ardeola grayii*	Indian Pond Heron	R	LC
		Nycticorax nycticorax	Black - crowned Night	R	LC

			Heron		
		Ardea cinerea	Grey Heron	R	LC
		Ardea purpurea	Purple Heron	R	LC
		Ixobrychus sinensis	Yellow bittern	R	LC
		Casmerodius alba	Great Egret	R	LC
		Bubulcus ibis	Cattle Egret	R	LC
		Egretta garzetta	Little Egret	R	LC
		Mesophoyx intermedia	Intermediate Egret	R	LC
	Threskiornithidae	*Platalea leucorodia*	Eurasian Spoonbill	M	LC
		Plegadis falcinellus	Glossy Ibis	R	LC
		Threskiornis melanocephalus	Black -headed Ibis	RM	NT
Accipitriformes	Accipitridae	*Milvus migrans*	Black Kite	R	LC
		Elanus caeruleus	Black - winged Kite	R	LC
		Haliastur indus	Brahminy Kite	R	LC
		Accipiter badius	Shikra	R	LC
		Accipiter Nisus	Eurasian Sparrow Hawk	R	LC
		Pernis ptilorhynchus	Oriental Honey-Buzzard	R	LC
		Butastur teesa	White- eyed Buzzard	M	LC
		Spilornis cheela	Crested Serpent Eagle	C	LC
		Haliaeetus leucogaster	White-bellied Sea Eagle	R	LC
		Aquila heliacal	Eastern Imperial Eagle	r	LC
		Circus aeruginosus	Western Marsh Harrier	M	LC
Strigiformes	Strigidae	*Athene brama*	Spotted Owlet	R	LC
		Tyto alba	Barn Owl	R	LC
Bucerotiformes	Upupidae	*Upupa epops*	Hoopoe	RM	LC
Coraciiformes	Meropidae	*Merops orientalis*	Green Bee –Eater	C	LC
	Alcedinidae	*Alcedo atthis*	Common Kingfisher	C	LC
		Halcyon smyrnensis	White - throated Kingfisher	C	LC
		Ceryle rudis	Pied Kingfisher	R	LC
	Coraciidae	*Coracias benghalensis*	Indian Roller	RM	LC
Piciformes	Megalaimidae	*Megalaima haemacephala*	Coppersmith Barbet	R	LC
Psittaciformes	Psittaculidae	*Psittacula krameri*	Rose - ringed Parakeet	R	LC
		Psittacula eupatria	Alexandrine Parakeet	RM	NT
Passeriformes	Nectariniidae	*Cinnyris asiaticus*	Purple Sunbird	C	LC
		Leptocoma zeylonica	Purple - rumped Sunbird	C	LC
	Muscicapidae	*Copsychus saularis*	Oriental Magpie Robin	C	LC
		Luscinia svecica	Bluethorat	M	LC
		Saxicola torquatus	Common Stonechat	M	LC
	Oriolidae	*Oriolus kundoo*	Indian Golden Oriole	RM	LC
	Passeridae	*Passer domesticus*	House Sparrow	C	LC
		Petronia petronia	Rock Sparrow	R	LC
		Gymnoris xanthocollis	Yellow throated Sparrow	M	LC
	Ploceidae	*Ploceus philippinus*	Baya Weaver	R	LC
	Pycnonotidae	*Pycnonotu sleucotis*	White - eared Bulbul	R	LC
		Pycnonotus cafer	Red - vented Bulbul	R	LC
		Pycnonotus jacosus	Red - whiskered Bulbul	R	LC
	Sittidae	*Sitta castanea*	Indian Nuthatch	r	LC
	Sturnidae	*Acridotheres ginginianus*	Bank Myna	M	LC
		Acridotheres tristis	Common Myna	R	LC
		Gracupica contra	Asian Pied Starling	R	LC
		Pastor roseus	Rosy Starling	M	LC

		Sturnia pagodarum	Brahminy Starling	R	LC
		Sturnia malabarica	Chestnut - tailed Starling	M	LC
	Sylviidae	*Chrysomma sinense*	Yellow-eyed Babbler	r	LC
		Cisticola juncidis	ZittingCisticola	RM	LC
	Aegithinidae	*Aegithina tiphia*	Common Iora	C	LC
	Zosteropidae	*Zosterops palpebrosus*	Oriental White – eye	R	LC
	Motacillidae	*Motacilla citreola*	Citrine Wagtail	R	LC
		Motacilla flava	Yellow Wagtail	C	LC
		Motacilla cinerea	Grey Wagtail	C	LC
		Motacilla alba	White Wagtail	RM	LC
		Motacilla maderaspatensis	White -browed Wagtail	RM	LC
	Cisticolidae	*Orthotomus sutorius*	Common Tailorbird	R	LC
		Prinia socialis	Ashy Prinia	C	LC
		Prinia inornata	Plain Prinia	R	LC
		Prinia buchanani	Rufous - fronted Prinia	R	LC
	Monarchidae	*Terpsiphone paradise*	Asian paradise flycatcher	C	LC
	Estrildidae	*Euodice malabarica*	Indian sliver billed	C	LC
		Lonchura atricapilla	Black headed munia	M	LC
	Chloropseidae	*Chloropsis jerdoni*	Jerdon'sLeafbird	C	LC
	Acrocephalidae	*Iduna caligata*	Booted warbler	r	LC

Results and discussion

In 2016, 43 species as a part of 10 orders and 27 families in birds were observed in wetland area of Vasai[18]. Table-1 substantiates 108 bird species were recorded on Suruchi beach of Palghar district during the study period 2017-2019. Many relatable research has been done where total of 77 species were found in Wagobha forest of Palghar[19]; and 97 species were found in Virar wetland area[20]. The study carried out represents the richness of Suruchi beach and nearby vicinities in respect of avian biodiversity which can be useful indicators of ecological health. Highest diversity was observed in birds belonging to the order Passeriformes (38 species) followed by Charadriiformes (17 species), Pelecaniformes (12 species), Accipitriformes (11 species) and Coraciiformes (5 species). Diversity was also observed in orders Cuculiformes, Columbiformes, Ciconiniiformes, Suliformes with 3 species in each. While 2 species were found in Anseriformes, Apodiformes and Psittaciformes; Order like Galliformes, Podicipediformes, Phoenicopteriformes, Bucerotiformes and Piciformes showed diversity of 1 species in each. Seasonal variation in the bird diversity was also observed in the study area. During the pre-monsoon (January to May) species belonging to the family Accipitridae, Apodidae, Dicaeidae, Estrildidae, Muscicapidae, Nectariniidae, Oriolidae, Passeridae, Sylviidae, and Columbidae were dominant. During monsoon (June to September) birds belonging to the family Charadriidae, Recurvirostridae, Scolopacidae, Ardeidae, Ciconiidae, Phalacrocoracidae, Threskiornithidae, Rallidae and Cisticolidae were abundant. While during the post-monsoon(October to December), birds belonging to the family Accipitridae, Coraciidae, Meropidae, Hirundinidae, Oriolidae, Laniidae, Pycnonotidae and Sittidae were recorded. As categorized, out of 108 species, 20 species were common, 47 were resident, 07 species were rear, 19 were migratory, 15 were resident-migratory species were recorded. As per IUCN Red List of Threatened species White stork which was recorded as a rare sighting in this region is considered as "least concerned". While, birds like Painted-Stork, Black-headed Ibis, Alexandrine Parakeet which fall in the category "nearly threatened", were also observed. Couple of studies has revealed that, as many cities are developing the loss of different bird species in the world today especially in urban areas are of special concern[21-22]. Owing to high intensity development many native species incline to become rare and are restricted to particular sites[23].

Conclusion

The result of this survey indicates healthy ecosystem and availability of abundant food resources for birds. This can be denoted by the nesting sighted in the mangroves and agricultural area. This data will work as a baseline for future references. It will be beneficial to bring awareness of richness in biodiversity of avian fauna in this region. The recorded data can be useful in making conservation and developmental strategies of this area. It can also work as an aid to maintain and enhance floral diversity of Suruchi beach. The suru trees in this area is under great threat as the local use the wood as fire fuel. Ill-legal fishing are carried out by the local's stagnate the eccentricity of the mangroves. Hunting of birds and its eggs for its meat is a common practice of the tribes residing in this region. Converting forest land into agricultural land and increase of

agricultural activity is observed. The pesticides and DDT used while farming may trigger bioaccumulation of chemicals in insects and birds. A lot of anthropogenic activities are observed in this area. The scenic attract a lot of crowd which indirectly deteriorate the richness of the habitat. Recyclable waste like plastic and glass as well as biomedical waste product are observed throughout the shoreline of this region. Awareness programs should be carried to acknowledge the diversity of the habitat. Strict rules should be made and followed in agricultural areas. Farmers and locals should be educated to understand the importance of diversity and measures which can be taken to protect the environment.

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