

Research Paper

An annotated checklist of aquatic avifauna of agro-ecosystem of Buldhana district of Maharashtra.

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Abstract

Observations were made on the occurrence, abundance and richness of aquatic avifauna in agro-ecosystem of Buldhana district of Indian state Maharashtra during Jan.2008-Dec.2009. Diversified agro-ecosystem of Buldhana district revealed abundance of twenty-eight species of water birds of thirteen families. The members of Ardeidae were dominant in all habitats. Several resident, migrant and migrant birds were also recorded. The study showed that, the varied composition of aquatic birds associated with agro-ecosystem sharing common habitat for different purposes. The native flora such as scattered horticulture gardens, bushy scrubs and trees in agro-fields might have extended comfortable shelters and foraging ground for aquatic avifauna. It is hoped that this study would provide a preliminary database for the aquatic avifauna of this area for the further research.

Key words: Avifauna, Abundance, Occurrence, Water birds, Wetland.

Introduction

Aquatic avifauna depends on agro-ecosystem that has been threatened by urban, industrial and agricultural expansion, which has to endanger the integrity of this unique ecosystem. As a result, avifauna that exploits the wetland has been severely affected. Birds have fascinated human being in various ways by their valuable services. They play a vital role in various ecosystems. Population of birds is a sensitive indicator of pollution in both terrestrial and aquatic ecosystem (Gaston, 1975; Hardy et al. 1987). Wetlands are the most productive and biologically diverse in the world but very fragile ecosystems (Gibbs, 1993). Wetlands and waterbirds are inseparable elements and support a rich array of waterbird communities (Grimmett and Inskipp, 2007). Waterbirds are an important component of most of the wetland ecosystem as they occupy several trophic levels in the food web of wetland nutrient cycles. Activities of waterbirds are considered as indicator of quality of the wetland ecosystem and form the terminal links in many aquatic food chains, and as a result they reflect changes originating in several different ecosystem components (Custer and Osborne, 1977). Urbanization is a universal phenomenon and its negative effects on biodiversity, especially in terms of irrecoverable habitat fragmentation and loss, extermination of native and migratory species are slowly being understood (Mckinney, 2002). Owing to fast urbanization native species tend to become rare and are restricted to sites that have escaped high intensity development (Godefroid, 2001). Buldhana district is a district in the [Amravati division](#) of [Maharashtra](#) state in western [India](#). It is situated at the westernmost border of [Vidarbha](#) region of Maharashtra and is 500 km from the state capital, [Mumbai](#). It is bounded by [Madhya Pradesh](#) on the north, [Akola](#), [Washim](#), and [Amravati](#) districts on the east, [Jalna](#) district on the south, and [Jalgaon](#) and [Aurangabad](#) districts on the west.. District covers nearly 9,640 sq.km. area. Buldhana district with rich environment forest a agro-ecosystem and biodiversity. The aquatic birds of the Buldhana district of Maharashtra are the important bioindicators of agro-ecosystems which should be protected to conserve the biodiversity and environment.

As no work has been done on the aquatic avifauna of agro-ecosystem of Buldhana district, hence I evaluate the aquatic

avifauna of agro-ecosystem on their occurrence, abundance and richness.

Material and Method

Buldhana district of Maharashtra is with rich environment and biodiversity lies between latitude parallel 19°31'N and longitude parallel 75°34'E. Survey of selected zones Jalgaon (Jamod), Sangrampur, Nandura, Khamgaon, Shegaon etc. Each zone was randomly explored during Jan.2008-Dec.2009. An efficient protocol has been adopted (Turner, 2003). Birds were counted using direct count method in selected zones following Gaston (1975) and Bibby et.al. (2000). Birds were recorded at their point of first detection with help of binocular (Olympus 10x50). I observed and maintain the record of the birds of agro-ecosystem were segregated into Common(C), Uncommon (UC), Rare(R) and Not Found (NF).

The check list of species was prepared by following Ali, S. (2002), Manakadan and Pittie (2001) and Grimmett and Inskipp (2007).



Results and Discussion

The studies on aquatic avifauna of Buldhana district revealed

abundance of twenty-eight species of water birds of thirteen families (Table-1). Of all the families, Podicipitidae (1 Species), Phalacrocorax (1 species), Ardeidae (5 species), Ciconiidae (3 species), Threskornithidae (1 species), Anatidae (1 species), Rallidae (3 species), Recurvirostridae (1 species), Charidriidae (2 species) Scolopacidae (3 species), Laridae (1 species), Acledinidae (2 species) and Motacillidae (3 species) were recorded during Jan.2008- Dec.2009.

From all the recorded birds, was residential birds of which 9 birds namely Tachybaptus ruficollis, Phalacrocorax niger, Bubulcus ibis, Mesophoyx intermedia, Ciconia episcopus, Himantopus himantopus, Halcyon smyrnensis, Anthus rufulus, Motacilla maderaspatensis shows common status. 3 birds namely Ardeola grayii, Egretta garzetta, Acledo atthis was uncommon while 6 birds namely Anas poecilorhyncha, Amauorornis phoenicurus, Gallinula chloropus, Porphyrio Porphyrio, Vanellus malabaricus, Vanellus indicus were rare. The resident migrant birds breed in one part of the area in one season and move to other parts within the state or country in a different season. 3 birds, Ardea cinerea, Mycteria leucocephala, Anastomus oscitans were uncommon while 2 birds namely Sterna aurantia, Threskornis melanocephalusii showed their rare status. Of all the recorded species, were migratory birds of which Motacilla Cinerea was common, Tringa stagnatilis, Actitis hypoleucos with uncommon status while Anas clypeata, Tringa glareola shows their rare status. It is presumed that, the native flora such as scattered horticulture gardens, bushy scrubs and trees in agro-fields might have extended comfortable shelters and foraging ground for aquatic avifauna. As these birds species are heterogeneous in their feeding habit (Ali and Ripley, 1983). By feeding on insects, pest, their larvae and pupa, water birds control large amount of pest population in agro-fields. Further they provide manure. Hence, aquatic birds play an important ecological role in agro-ecosystem of Buldhana district of Indian state Maharashtra.

Table 1: An annotated check list of aquatic avifauna of agro-ecosystem of Buldhana district (M.S.)

No.	Scientific Name	Common Name	Status *	Occurrence	Food Habit*
Family: Podicipitidae					
1.	<i>Tachybaptus ruficollis</i> (Pallas)	Little Grebe	R	C	O
Family: Phalacrocoracidae					
2.	<i>Phalacrocorax niger</i> (Vieillot)	Little Cormorant	R	C	P
Family: Ardeidae					
3.	<i>Ardea cinerea</i> (Linnaeus)	Grey Heron	RM	UC	P
4.	<i>Ardeola grayii</i> (Sykes)	Indian Pond Heron	R	UC	P
5.	<i>Bubulcus ibis</i> (Linnaeus)	Cattle Egret	R	C	P
6.	<i>Mesophoyx intermedia</i> (Wagler)	Median Egret	R	C	P
7.	<i>Egretta garzetta</i> (Linnaeus)	Little Egret	R	UC	P
Family: Ciconiidae					
8.	<i>Mycteria leucocephala</i> (Pennat)	Painted Stork	RM	UC	C
9.	<i>Anastomus oscitans</i> (Boddaert)	Asian Open-billed Stork	RM	UC	C
10.	<i>Ciconia episcopus</i> (Boddaert)	White Necked Stork	R	C	C
Family: Threskornithidae					
11.	<i>Threskornis melanocephalus</i> (Latham)	Oriental White Ibis	RM	R	O
Family: Anatidae					
12.	<i>Anas poecilorhyncha</i> (J.R. Forester)	Spot Billed Duck	R	R	H
13.	<i>Anas clypeata</i> (Linnaeus)	Northern Shoveller	M	R	C
Family: Rallidae					
14.	<i>Amauorornis phoenicurus</i> (Pennat)	White Breasted Waterhen	R	R	O
15.	<i>Gallinula chloropus</i> (Linnaeus)	Common Moorhen	M	R	O
16.	<i>Porphyrio Porphyrio</i> (Linnaeus)	Purple Moorhen	R	R	O
Family: Recurvirostridae					
17.	<i>Himantopus himantopus</i> (Linnaeus)	Black-winged Stilt	R	C	P
Family: Charidriidae					
18.	<i>Vanellus malabaricus</i> (Boddaert)	Yellow-wattled lapwing	R	R	C
19.	<i>Vanellus indicus</i> (Boddaert)	Red-wattled lapwing	R	R	C
Family: Scolopacidae					
20.	<i>Tringa stagnatilis</i> (Linnaeus)	Marsh Sandpiper	M	UC	C
21.	<i>Tringa glareola</i> (Linnaeus)	Wood Sandpiper	M	R	C
22.	<i>Actitis hypoleucos</i> (Linnaeus)	Common Sandpiper	M	UC	C
Family: Laridae					
23.	<i>Sterna aurantia</i> (J.E.Gray)	River Tern	RM	R	P
Family: Acledinidae					
24.	<i>Acledo atthis</i> (Linnaeus)	Small Blue Kingfisher	R	UC	P
25.	<i>Halcyon smyrnensis</i> (Linnaeus)	White-breasted Kingfisher	R	C	P
Family: Motacillidae					
26.	<i>Anthus rufulus</i> (Vieillot)	Paddy field Pipit	R	C	I
27.	<i>Motacilla Cinerea</i> (Tunstall)	Grey Wagtail	M	C	I
28.	<i>Motacilla maderaspatensis</i> (Gmelin)	Large Pied Wagtail	R	C	I

*= Ali, S.,(2002)

Status- R- Resident; M- Migrant; RM- Resident Migrant;

Occurrence- C- Common; UC- Uncommon; R-Rare; NF- Not Found

Food Habit- C- Carnivorous; G- Granivorous; H- Herbivorous; I- Insectivorous; O- Omnivorous; P- Piscivorous

In conclusion, the present study emphasizes the need to conduct a detailed study on the status of agro-ecosystem and biology of aquatic avifauna to have accurate information on the ecological role of birds associated with agro-ecosystem. The agro-ecosystem of Buldhana district is diversified with various aquatic birds. The anthropogenic activities are affecting the occurrence, abundance and richness of aquatic avifauna. The aquatic birds of the Buldhana district of Maharashtra are the important bioindicators of agro-ecosystems which should be protected to conserve the biodiversity and environment.

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