

## CHAPTER 16

# Avian Diversity of Kalwati Reservoir Near Ambajogai, Maharashtra

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### Abstract

Birds play a vital role and peculiar position in animal kingdom with special reference to the human being. Aves astound everyone due to its process of migration for breeding, ripening of gonads, instinct, scarcity of food, shorting of day light and fall in temperature. The present investigation carried out on Kalwati reservoir near Ambajogai, Maharashtra for two years (i.e. October 2013 to September 2014 & October 2014 to September 2015).

Avifaunal investigation depends upon the habitats and in the present study, the various habitats specially the water bodies, hilly areas around the water bodies were observed for sighting of birds. The species of the birds from 39 families and 9 bird species observed. The bird species in and around Kalwati

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reservoir were listed on the basis of their common name, scientific name, total count and migratory behavior.

**Keywords:** Ripening of gonads, Migration, Breeding

## Introduction

Birds, a well-known animal in surrounding also known as Aves. They are the members of warm-blooded vertebrates, have the specialized structure i.e. feathers, toothless beaked jaw, egg laying and with four chambered heart, light weight but strongly built up bones i.e. pneumatic. The size of the birds varies from smallest to biggest ones. The birds are the commonest species on the ecosystems and considered as the bio-indicator of environment (Blair, 1996). On our globe 9990 bird species recorded out of that 1313 bird species are found in India (Grimmett *et al.* 2011).

Birds occupy a precious role and position in the animal kingdom, especially in relation to man. Economically birds are useful as well as harmful to man's interest i.e. food. Birds are used in industry, are, scavengers, in medicine, as messengers, as signals, for amusement, aesthetic values. The injurious bird- menace to agriculture, destroyer of game birds and other animals, pests of fruits and stored grains, spread of diseases, pests of honey bee.

Birds astound the everyone due to their process of migration, The migration of birds are a periodic travelling from one place to another and back to it for breeding, ripening of gonads, instinct, scarcity of food, shorting of day light and fall in temperature. The purpose of migration are feeding, breeding and getting suitable environment conditions. The average speed of migration is 30-50 miles per hour. Starlings of Berlins travel about 2000 kilometers. Manx shear water; a sea bird travels about 4940 kilometers across Atlantic Ocean from Boasten to the west coast of England. Birds are, by according to their needs like crow, gulls migrates from their nests in morning return to the same nest at evening. Seasonal migrations carry out at every year e.g. swifts, swallow, cuckoos migrates from the south to north during summer season. The birds are of great economic importance to man and helping in controlling population of different pests, scavengers of the nature and also the pollination of agents.

Birds are controller of insects. A pair of sparrow can eat 220 to 260 insects and worms in a single day. Birds are also called as destroyer or killer because many of birds feed on rats. Some carnivores birds like owls, kestrel, shikra and eagle mostly feed on rats. Birds are the scavengers of environment. They can consume dead bodies of animals and clean the environment. The process of cross pollination is carried out through birds during eating or hunting. So the new species of plants are evolved by the birds. Most of the plants seeds are germinate after excreted from bird fecal matter. Otherwise the seeds cannot germinate. Some plants seeds like banyan tree, ficus religiosa, ficus racemosa etc. after eating by bulbul, cuckoo, hornbill, myana only germinate the seeds of plants.

Birds are the seed transforming agents for natural plantation in the environment. The various products are obtained from birds wings for making of hats. Birds are mysterious creatures and may seem

different as they can fly around. The capability of flying makes them one of the most important animal on the planet. We require birds for pollination. We get the useful things from birds like eggs, flesh and poop. The poop of birds is highly concentrated in Nitrogen and Phosphorus and makes good fertilizer for soil.

In the process of evolution, animals are supposed to modify themselves to fit in to particular environment i.e. adaptation. With the improved civilization, we humans started cutting down forests and convert it in to meadows, grasslands and water bodies in to the farmlands, cities, metros, malls and housing societies. Due to this, the places of birds and other animals plucked and encroached by the human beings. Bird species are decreased due to civilization, studied by some workers (Blair and Launer, 1997; Hunter, 2007 and Sengupta *et al.*, 2013).

The civilization results into cutting of trees and destroys forest; due to this the birds are killed randomly as well as the destruction of their habitats. The birds have no more to go. One of such example is in front of us house sparrow. The scientific name of sparrow is *passer domesticus* and common name is house sparrow. The *passer domesticus* is a Latin word which means house. Sparrow prefers to live in human habitation and builds nests inside our homes. And that's why the house sparrow is so common but today it becomes most uncommon bird around us, the reason is the construction of concrete jungles and hence pigeons replaced sparrow. Pigeons like our concrete houses but the droppings may cause respiratory illness and pathogens in their poop may cause up to 60 different types of diseases.

Present status of bird diversity has been decreasing due to the habitat destruction and anthropogenic agents (Grewal, 2000). According to Dnyananda (2009), maximum birds are entering to urban areas due to destruction of forests for food, residential and industrial purpose.

The area which highly covered with green plants has the great ecological as well as environmental precious because such areas develop the climate (Peter and Daniel, 2011). Such green environment support, land development in cities and improve the population of wild bird (Fontana *et al.*, 2011).

Very few studies have been carried out on the birds of India. (Ripley, 1961; Ali and Ripley, 1983; Grimmett *et al.*, 1998; Dasgupta *et al.*, 2000; Jain *et al.*, 2005; Lila *et al.*, 2009; Verma, 2011, Manjunath, 2012; Dapke *et al.*, 2015; and Joshi, 2015).

In Maharashtra, there are very few reports on avifaunal diversity studies carried out (Patavrdhan *et al.*, 2000; Wadatkar, 2001; Kulkarni *et al.*, 2006a, 2006b, 2006c; Kulkarni and Kanwate, 2010; Balkhande *et al.*, 2012, 2013, 2014; Chilke, 2012; Wanjari, 2012; Kumbhar *et al.*, 2013; Sengupta *et al.*, 2013; Deyet *et al.*, 2013; Bhalkhande *et al.*, 2013; Abdar, 2014; Bhalkhande *et al.*, 2014; Joshi, 2015; Korhade, 2015; Chavanet *et al.*, 2015; Upadhyay and Sharma, 2015; Kumbhar., 2017; Kulkarni, 2017 and Khaire, 2018).

## Materials and Methods

In present study avian diversity around Kalwati reservoir identified at the spots as per guidelines given by Ali and Ripley (1996), Ali (2002), Chitempelli (2002) by using binoculars 7x and 8x Magnification. The present study is based on observation made from October 2013 to September

2015. Regular visits for the survey and identification of birds monthly visits were done in morning (7 am-10 am) and evening (4 pm-5:30 pm).

## Results

A list of 99 bird species (Table 5.1) reported from different habitat around Kalwati reservoir near Ambajogai. The results of this study showed that bird species diversity is commonly distributed in all sites i.e. KI, KII and KIII and most of the avifauna is resident or locally migrant to the study area.

Avifaunal investigation depends upon the habitats and in the present study the various habitats specially the water bodies, hilly areas around the water bodies were observed for sighting of birds. The species of the birds from 39 different families and maximum 9 bird species observed from family Accipitridae and Ardeidae. Scolopacidae 8 species and Passeridae family found 6 species were found in each family respectively. The family Anatidae was represented by 5 species. Columbidae, Strigidae, Charadriidae and Alaudidae carried 4 species in the family while Ciconiidae, Cuculidae, Rallidae, Cerylidae, Hirundinidae and Lanidae were showed 3 species in the family respectively.

Family Phalacrocoracidae, Psittacidae, Corvidae, Glareolidae and Threskiornithidae were found 2 species each. Podysidaede, Anhingidae, Phoenicopteridae, Phasianidae, Pittidae, Sturnidae, Muscicapidae, Gruidae, Jacanidae, Rostratulidae, Laridae, Centropodidae, Caprimulgidae, Dacelonidae, Upupidae, Bucerotidae, Megalaimidae, Picidae and Pycenonotidae were with only single species in each family respectively.

The observed bird species in and around Kalwati Reservoir are listed on the basis of their common name, scientific name, total count and migratory behavior. In the Kalwati Reservoir total 99 species of birds were identified out of them 38 are Residential Common (RC), 16 Residential Terrestrial (RT), 11 Winter Migrant (WM), 8 Residential Local Terrestrial Migrant (RLTM), 5 Residential Local Common (RLC). Residential Winter Migrant (RWM) and Winter Terrestrial Migrant have 3 bird species whereas Residential Aquatic (RA), Residential Migrant (RM) and Residential Local Terrestrial (RLT) have 2 bird species. Residential rare (Rr), Residential Migrant rare (RMr), Residential Winter Terrestrial Migrant (RWTM), Residential Winter Migrant Aquatic (RWMA), Residential Terrestrial Migrant Aquatic (RTMA), Residential Terrestrial Migrant (RTM), Winter Migrant uncommon (WMu), Terrestrial Migrant (TM) and Winter Terrestrial Migrant Aquatic (WTMA) are having only one bird species in each status (Table 1.2).

## Discussion

The check list of bird species of the local area with their status was worked by reliable methods. During present investigation 99 species belonging to 39 families were identified.

Ghazala Shahabuddin *et al.* (2004) studies on bird's forests and conservation related to the critical issues in Sariska Tiger Reservoir (Rajasthan). Islam and Rahmani (2004) studied the importance of birds in the areas of India. Subramanya and Naveein (2004) studied Puttanahalli Tank, Bangalore (Karnatak). He found 126 bird species belonging to 50 bird families. Ahmed (1997) studied live bird trade in Northern

India, studied some green avadavat in Indian birds trade. Butler (1975-77) studied on avifauna of Mount Aboo and Northern Gujarat.

Nirmala (2002) reported 187 species of avifauna from Anaikatty Hills of Western Ghats of Maharashtra. Ali *et al.* (2013) reported 145 species of birds belonging to 106 genera and 48 families in and around the SACON Campus from Coimbtore. Korhade (2015) listed 17 Anatidae species from Jaikwadi Sanctuary. The Anatidae members include 13 Dabbling ducks and 4 diving ducks. Among reported Anatidae 2 species were Residential Winter Migrant (RWM) status, 4 were with the Residential Local Migratory (RLM) status and 11 Winter Migrant (WM) statuses. Upadhyay and Sharma (2015) identified 81 avian species occurring in Rajouri District of Jammu region from Jammu and Kashmir Province. The study was mainly confined to terrestrial species and not includes the water birds of wetlands. Khaire (2018) studied aquatic avifauna from Mehakari Water Reservoir of Beed District (Maharashtra) and reported 38 aquatic birds belonging to 5 orders and 14 families. Among these 7 migratory and 15 species were resident. Sengupta *et al.* (2013) reported 48 bird species in three different sites and the observation states that there was no significant difference in the birds count in the urban and rural areas. Dapkeet *et al.* (2015) identified 62 species of birds belonging to 11 orders and 38 families out of these 59 species were resident and migrant species were Pied cuckoo was breeding migrant, Indian Pitta and Rosy starling were passage breeding migrant, Red breasted fly catcher and Verditer fly catcher were winter migrant. Joshi (2015) found 120 bird species from various habitats of Amolikchand Mahavidyalaya Campus. Anon (2000) reported the diversity of each bird was depended upon the vegetation status. Kulkarni (2017) listed 66 bird species from Asana River, Nanded (Maharashtra). Some bird species from this were found very common in most of the Taluka. These were cattle egret, Blue rock pigeon, Rosy ringed parakeet, Green bee eater, Babbler, House sparrow. The similar results were found in the present investigation. Harney (2010) represented 39 bird species including aquatic and non-aquatic birds from Gondpeth Reservoir. The maximum bird species recorded during spring, early monsoon and late winter season. While comparatively less number of species were observed during the late summer.

Jadhav and Kanwate (2011) Reported 56 species of birds, belonging to 16 orders and 29 families out of these 17 species were resident common, 6 migrant rare, 3 residential migrant; 2 residential uncommon migrant. Local environmental conditions and season have impact on composition, diversity and occurrence of birds.

Kanwate and Jadhav (2010) listed 10 species of piscivorous birds, out of them 05 are resident, 1 migratory and 4 residential migratory.

Kumbharet *et al.* (2013) listed 65 species of birds which are of mostly aquatic belonging to 29 families having been recorded from Girzani minor tank of Solapur district.

Prasad *et al.* (2014) studied the avifauna of Manjerra Wildlife sanctuary, Andhra Pradesh and reported 164 species of birds belonging to 53 different families. Abdar (2014) reported the water bird species in Ramling ice land and listed 47 species of birds.

Chavanet *al.* (2015) reported 168 bird species from 53 different families and 15 orders. The maximum 73 species of birds were recorded from order Passeriformes followed by 18 species in Ciconiformes, 14 in Ansariformes and 12 in Charadiformes.

Kulkarni (2018) observed 66 species of birds on their common name, total count and migratory behavior. Out of 66 some *viz.* house sparrow, shikra, common woodshrik, white eyed buzzerd, purple mooehbn, pheasant tailed jacana, red wattled lapwing, common sand piper, asiankoel, Indian peafowl, spot billed duck, rose winged parakeet, blue rock peageon, Asian koel little are similar found in Kalwati reservoir. The avifauna of present investigation is very much identical to Harney *et al.*, (2010); Jadhav and Kanwate, (2011); Kumbharet *al.*, (2013); Kulkarni, (2017); Kulkarni, (2018).

Kulkarni (2017) reported 66 species of birds on their common name, total count and migratory behavior. Out of 66 some *viz.* House sparrow, Shikra, Common woodshrik, White eyed buzzard, Purple moorhen, Pheasant tailed jacana, Red wattled lapwing, Common sand piper, Asian koel, Indian peafowl, Spot billed duck, Rose winged parakeet, Blue rock pigeon, Asian koel little are similarly found in and around Kalwati reservoir. The avifauna of present investigation is very much identical to Kulkarni (2017); Harney *et al.* (2010) and Jadhav and Kanwate (2011).

**Table 1.1: Check-list of Avifauna of Kalwati Reservoir**

Sr.	Name of the Family	No. of Spe.	Common Name	Scientific Name	Occurrence
1	Podysidaede	1	Little grabe	<i>Tachybaptusruficollis</i>	RC
2	Phalacrocorasidae	2	Greater cormorant	<i>Phalacrocoraxcarbo</i>	RM
		3	Little cormorant	<i>Phalacrocoraxniger</i>	RC
3	Anhingidae	4	Darter or Snake-bird	<i>Anhingamelanogaster</i>	RC
4	Ardeidae	5	Grey heron	<i>Ardeacinere</i>	WM
		6	Purple heron	<i>Ardeapurplea</i>	RLC
		7	Large egret	<i>Casmerodiusalbus</i>	RC
		8	Median egret	<i>Mesophoyxintermedia</i>	RC
		9	Littleegret	<i>Egrettaazarzetta</i>	RC
		10	Black crowned night heron	<i>Nycticoraxnycticorax</i>	RC
		11	Cattle egret	<i>Bubulcusibis</i>	RC
5	Ciconiidae	12	Indian pond heron	<i>Ardeolagrayii</i>	RC
		13	Little green heron	<i>Butoridesstriatus</i>	RC
		14	Painted stork	<i>Mycteriaeleucocephala</i>	RLC
6	Threskiornithidae	15	Asian openbill stork	<i>Anastomusoscitans</i>	RLC
		16	Black necked stork	<i>Ephippiorhynchuasiatricus</i>	RC
		17	Eurasian spoonbill	<i>Platalealeucorodia</i>	RC
7	Phoenicopteridae	18	Greater flamingo	<i>Phoenicopterusruber</i>	WM

8	Anatidae	19	Spot billed duck	<i>Anaspoecilorhyncha</i>	RC
		20	Comb duck	<i>Sarkidiornismelanotos</i>	RC
		21	Brahminyshelduck	<i>Tadornaferruginea</i>	RM
		22	Northern pintail duck	<i>Anasacuta</i>	RC
		23	Common teal	<i>Anascrecca</i>	WM
9	Phasianidae	24	Indian peafowl	<i>Ravocristatus</i>	RC
10	Psittacidae	25	Rose-ringed parakeet	<i>Psittaculakrameri</i>	RC
		26	Plum headed parakeet	<i>Psittaculacyanocephala</i>	RLTM
11	Columbidae	27	Blue rock pigeon	<i>Columbalivia</i>	RC
		28	Spotted dove	<i>Streptopeliachinesis</i>	RT
		29	Eurasian collared dove	<i>Streptopeliadecaocto</i>	RLT
		30	Red collared dove	<i>Streptopeliatranquebarica</i>	RLTM
12	Pittidae	31	Indian pitta	<i>Pitta brachyara</i>	RC
13	Corvidae	32	House crow	<i>Corvussplendens</i>	RC
		33	Small minivet	<i>Pericrocotuscinnamoeus</i>	RT
14	Cuculidae	34	Asian koel	<i>Eudynamysscolopacea</i>	RC
		35	Pied crested cuckoo	<i>Calmatorjjacobinus</i>	RLTM
		36	Indian plaintive cuckoo	<i>Cacomantispasserinus</i>	RT
15	Sturnidae	37	Common myna	<i>Acridotherestrictis</i>	RC
16	Muscicapidae	38	Indian robin	<i>Saxicoloidesfulcata</i>	RC
17	Strigidae	39	Barn owl	<i>Tytoalba</i>	RC
		40	Eurasian eagle-owl	<i>Bubobubo</i>	RC
		41	Spotted owlet	<i>Athenebrama</i>	RT
		42	Mottled wood owl	<i>Strixocellata</i>	RT
		43	Demoiselle crane	<i>Grusvigor</i>	Rr
19	Rallidae	44	Common coot	<i>Fulicaatra</i>	RC
		45	White breasted water hen	<i>Amouromisphoenicurus</i>	RC
		46	Purple moorhen	<i>Porphyrioporphyrrio</i>	RC
20	Jacaniidae	47	Pheasant tailed jacana	<i>Hydrophasianuschirur-gus</i>	RMr
21	Charadriidae	48	Little ringed plover	<i>Charadriusdubius</i>	RC
		49	Red-wattled lapwing	<i>Vanellusindicus</i>	RC
		50	Yellow-wattled lapwing	<i>Vanellusmalabaricus</i>	RC
		51	Black winged stilt	<i>Himantopushimantopus</i>	WM
		52	Wood sandpiper	<i>Tringglareola</i>	WM
22	Scolopacidae	53	Common sandpiper	<i>Actitishypoleucos</i>	WMu
		54	Common snipe	<i>Gallinagogallinago</i>	RC

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	55	Black tailed godwit	<i>Limosalimos</i>	WM	
	56	Little stint	<i>Calidrisminuta</i>	WM	
	57	Common redshank	<i>Tringatotanus</i>	WM	
	58	Spotted redshank	<i>Tringerythropus</i>	WM	
	59	Common greenshank	<i>Tringanebularia</i>	WM	
23	Rostratulidae	60	Pintail snipe	<i>Gallinagostenura</i>	WM
24	Glareolidae	61	Indian courser	<i>Cursoriuscoromandelicus</i>	RC
		62	Small pratincole	<i>Glareolalactea</i>	RLC
25	Laridae	63	River tern	<i>Sternaaurantia</i>	RC
26	Accipitridae	64	Black shouldered kite	<i>Elanuscaeruleus</i>	RC
		65	Brahminy kite	<i>Haliasturindus</i>	RLC
		66	Black kite	<i>Milvusmigrans</i>	RWM
		67	Shikra	<i>Accipiterbadius</i>	RC
		68	White-eyed buzzard	<i>Butasturtessa</i>	RLT
		69	Crested serpent eagle	<i>Spilornischeela</i>	RTM
		70	Common kestrel	<i>Falcotinnunculus</i>	RWTM
		71	Ospray	<i>Pandionhaliaetus</i>	RWM
		72	Peregrine falcon	<i>Falco pergrinus</i>	RWM
27	Centropodidae	73	Greater coucal	<i>Centropussinesis</i>	RT
28	Caprimulgidae	74	Common Indian nightjar	<i>Caprimulgusasiaticus</i>	RLTM
29	Dacelonidae	75	White breasted kingfisher	<i>Halcyon smyrnensis</i>	RT
30	Cerylidae	76	Lesser pied kingfisher	<i>Cerylerudis</i>	Rw
		77	Indian roller	<i>Coraciasbenghalensis</i>	RLTM
		78	European roller	<i>Coraciasgarrulus</i>	TM
31	Upupidae	79	Common hoopoe	<i>Upupaepops</i>	RLTM
32	Bucerotidae	80	Indian grey hornbill	<i>Ocyerosbirostris</i>	RA
33	Megalaimidae	81	Coppersmith Barbet	<i>Megalaimahaemacephala</i>	RT
34	Picidae	82	Lesser golden-backed	<i>Dinopiumbenghalense</i>	RT
35	Alaudidae	83	Ashy crowned sparrow	<i>Eremoplerixgrisea</i>	RLTM
		84	Rufous tailed finch- lark	<i>Ammomanesphoenicurus</i>	WTM
		85	Greater short-toed lark	<i>Calandrellabrachydactyla</i>	WTM
		86	Common crested lark	<i>Galeridacristata</i>	RT
36	Hirundinidae	87	Wire-tailed swallow	<i>Hirundosmithii</i>	RLTM
		88	Streak-throated swallow	<i>Hirundoaluivicola</i>	RT
		89	Red-rumped swallow	<i>Hirundodaurica</i>	RT
37	Lanidae	90	Bay-backed shrike	<i>Laniusvittatus</i>	RT



	91	Rufous-backed shrike	<i>Laniusschach</i>	RT	
	92	Common woodshrike	<i>Tephrodornispondicerianus</i>	RT	
38	Pycnonotidae	93	Red-vented bulbul	<i>Pycnonotuscafer</i>	RT
39	Passeridae	94	Yellow wagtail	<i>Motacillaflava</i>	RWMA
		95	Grey wagtail	<i>Motacillacinerea</i>	WTMA
		96	White wagtail	<i>Motacillaalba</i>	RTMA
		97	Paddyfield pipit	<i>Anthusrufulus</i>	WTM
		98	House sparrow	<i>Passordomesticusindicus</i>	RC
		99	Bayaweaver bird	<i>Ploecusphilipinus</i>	RC

**Avifauna recorded around Kalwati Reservoir**



*Tadornaferruginea*



*Ardeacinere*



*Pandionhaliaetus*



*Anaspoecilorhyncha*



*Bubulcus ibis*



*Psittaculakrameri*

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