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Department of Higher Education  
Yangon University of Distance Education**

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## Occurrence Species of Avian Fauna in Moe Yin Gyi Wetland Wildlife Sanctuary

Soe Soe Moe<sup>1</sup>, Pa Pa Han<sup>2</sup>

### Abstract

The diversity of bird species were investigated in and around the Moe-yin-gyi Wetland Wildlife Sanctuary. Identifying and classifying on observed species have been conducted. A total of 87birds species were recorded during the study period. Of the recorded bird species 32 species were migratory birds and 55 species were resident. Eight globally threatened bird species were recorded during the study period. Among them, 39 species were water birds and 48 were terrestrial birds. (18) totally protected species, (10) protected species and (6) seasonally protected species were also recorded. Cattle egret, Purple heron, House crow, Oriental Magpie-Robin and House sparrow can be observed throughout the year. The birds such as Black Drongo, Barn Swallow, Asian Open bill and Common snipe were observed seasonally. Terrestrial bird species were more abundant in cultivation area and water birds were abundant in swampy and marshy areas. High numbers of bird species were recorded during dry season.

Key words: Species Diversity, Wetland, Conservation

### Introduction

Birds are found everywhere, in forest, wetlands, deserts, mountains, grass lands and on the oceans and have colonized all corners of the earth. Some species are resident through the year, while others come as migrants to spend the winter months. The highest number of birds is often found in wetlands which have the greatest diversity of plant species and vegetation types or where there is permanent water (Balla, 1994). Wetlands are the vital link between land and water. They provide habitat for animals and plants and many contain a wide diversity of life, supporting plants and animals that are found nowhere else. Myanmar contains many wetlands habitats and some are legally protective area for wildlife. Among them, Moeyingyi wetland wildlife sanctuary is one of the internationally important bird area in Myanmar.

The great diversity of climates and habitats is reflected in a great diversity of birds. They are good indicators and can be used to identify the most biologically rich area, environmental changes and problems as well. The change of seasons causes a change in food supply, causing birds to move to an area with a more plentiful food supply. Many species are of economic importance, mostly as sources of food acquired through hunting or farming. Some species, particularly songbirds and parrots, are popular as pets. Other uses include the harvesting of guano (droppings) for use as a fertilizer. Some bird species undertake shorter migrations, travelling only as far as is required to avoid bad weather or obtain food. Bird population like those of other animals groups vary in size from year to year.

Rapid land reclamation of Asian tidal flats is driving many water birds towards extinction. Urgent systematic detailed research is also needed to solve this problem. Continual survey and confirmation of the distributed species are always essential.

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<sup>1</sup> Lecturer, Department of Zoology, Yangon University of Distance Education

<sup>2</sup> Lecturer, Dr., Department of Zoology, Yangon University of Distance Education

## Objectives

- to investigate the occurrence of bird species in the study area
- to provide useful information for conservation and further research work

## Materials and Methods

### Study area

This study was conducted in Moeyingyi wetlands environs. Moeyingyi Wetland is located in Pyinbongyi village, the southern part of Bago Region; the western and southwestern parts belong to Bago Township, southern and eastern parts to Waw Township, north of Yangon. The northern boundary demarcates between the wetland and Daik-Oo Township. The area is 40 square miles or 256,000 acres with 10 meters above sea level. The air temperature ranges from 20°C – 33°C and the annual rainfall is 3543.05 mm.

### Recording and identification of the specimen

Direct observation on target species with binoculars was undertaken during the study period. Bird watching was conducted in the morning from 7:00 hrs. to 11:00 hrs. Roadside count and observation method was used during field survey. Photographic records of such species were taken and also noted the current condition of birds in those area by interviewing with local people. All recorded species were identified according to Smythies (2001), Strange (2001), Ben King and Dickinson (1975), BoonsonLekagul and Phillip D. round (1991) and Robson (2008). Robson (2008) described the Taxonomy and nomenclature of over 1327 species in South East Asia. Van Tyne and Berger(1976) have given the classification of world birds down to families and they have given the physical feature, range, food and breeding of each family.

## Results

A total of (87) bird species belonging to (66) genera of (40) families from (12) orders was recorded during the study period. (Table 1) Among them, (55) bird species were resident and (32) bird species were migratory birds. (39) water bird and(48) terrestrials birds were also recorded. The largest number of bird species was recorded in order Passeriformes. The highest species numbers of the terrestrial avian fauna was in order Passeriformes and the water-birds was in order Charadriiformes.

Each species prefers certain feeding grounds that are rich for food requirements. Highest population size of water birds species were observed in water body and agricultural area. Highest population size of terrestrial birds species was observed in grassland, woody plants and agricultural area. Many water birds including both resident and migrant species inhabit aquatic areas, watersides, water-logged grounds and marsh grasses.

(18) totally protected species, (10) protected species and (6) seasonally protected species were recorded. Globally threatened status of bird species, Spot-billed pelican, Oriental Darter, Painted stork, Asian open-bill, Black-headed Ibis, Stone chat; Garganey and little Terns were also recorded. Of the recorded species, Common Myna, Cattle egret, Purple heron, Green bee-eater, House crow, Oriental Magpie-robin and House sparrow were observed throughout the year. During the study period, high numbers of bird species were recorded in dry season and low numbers of species were recorded in wet season.

The birds such as, Black Drongo, Barn Swallow, Asian Open-bill and Common Snipe were observed seasonally. Much abundance of bird species and population was counted during the cool season. In the rainy season, flooded the entire study area and supports the available habitats to breed purple swamphen, water cock, grey heron, various egrets and din gyi. Kyarphetnin, Sit Sali, Little grebe, Ye ngon, Sanaik, zin yaw, spot billed pelican and painted stork can only found in the wet season.

**Table.1 Recorded Species of Moe Yin Gyi Wildlife Area R = resident M = migrant**

Sr. No	Order	Family	Scientific name	Common name	Local name	Observed season		Status	
						Dry	Wet	R	M
1	Podicipediformes	Podicipedidae	<i>Tachyaptusruficollis</i>	Little Grebe	Tazi-hmout		✓	✓	
2	Pelecaniformes	Pelecanidae	<i>Pelecanusphilippensis</i>	Spot-billed Pelican	Wunpo		✓		✓
		Anhingidae	<i>Anhinga melanogaster</i>	Oriental Darter	U ban	✓		✓	
		Phalacrocoracidae	<i>Phalacrocoraxcarbo</i>	Great Cormorant	Din-gyi		✓	✓	
			<i>Phalacrocoraxniger</i>	Little Cormorant	Awyaw	✓	✓	✓	
3	Ciconiiformes	Ciconiidae	<i>Anastomusoscitans</i>	Asian Openbill	Khayu toke	✓			✓
			<i>Mycterialeucocephala</i>	Painted Stork	Hnetkyar		✓		✓
		Ardeidae	<i>Bubulcus ibis</i>	Cattle Egret	Kyew-kyauung-byaing	✓	✓	✓	
			<i>Egrettazarzetta</i>	Little Egret	Waitharle-byaing		✓	✓	
			<i>Egrettaintermedia</i>	Intermediate Egret	Tharrawaddy-byaing		✓	✓	
			<i>Ardea alba</i>	Great Egret	Baying-ngan		✓	✓	
			<i>Ardeacinerea</i>	Grey Heron	Nga-hit		✓	✓	
			<i>Ardeapurpurea</i>	Purple Heron	Nga-hit-mwe	✓	✓	✓	
			<i>Ardeolagrayii</i>	Indian Pond Heron	Baying-auk	✓	✓	✓	
			<i>Exobrychuscinnamomeus</i>	Cinnamon Bittern	Ye-boke	✓		✓	
			<i>Nycticoraxnycticorax</i>	Black-crowned Night Heron	Lin-wet	✓		✓	
		Threskiornithidae	<i>Plegadisfalcinellus</i>	Glossy Ibis	Khayusoke	✓			✓
			<i>Threskiornismelanocephalus</i>	Black-headed Ibis	Khayusokeaphyu	✓			✓
4	Anseriformes	Anatidae	<i>Dendrocygnajavanica</i>	Lesser whistling-Duck	Sit-sa-li	✓	✓	✓	
			<i>Anasacuta</i>	Northern pintail	Be yit	✓			✓

Sr. No	Order	Family	Scientific name	Common name	Local name	Observed season		Status		
						Dry	Wet	R	M	
			<i>Anasqueredula</i>	Garganey	Be pyagalay/ Done	✓			✓	
			<i>Nettapuscoromandelianus</i>	Cotton pygmy-goose	kalaget		✓	✓		
5	Accipitriformes (Falconiformes)	Accipitridae	<i>Milvumigrans</i>	Black Kite	Sun	✓			✓	
			<i>Elanuscaeruleus</i>	Black - shouldered Kite	Sun taung net	✓	✓		✓	
			<i>Circus melanoleucos</i>	Pied harrier	Theinkya	✓			✓	
			<i>Circus spilonotus</i>	Eastern Marsh Harrier	Daung sun	✓			✓	
6	Gruiformes	Rallidae	<i>Gallinulachloropus</i>	Common Moorhen	Ye-gyet	✓		✓		
			<i>Fulicaatra</i>	Common coot	Ye gyet don	✓		✓		
			<i>Porzanafuca</i>	Ruddy-breasted crane	Ye ngon		✓	✓		
			<i>Porphyrio porphyria</i>	Purple Swampen	Me-nyo		✓	✓		
			<i>Gallirexcinerea</i>	Watercock	Baung-doke		✓	✓		
7	Charadriiformes	Charadriidae	<i>Vanelluscinereus</i>	Gray-headed Lapwing	Tit-ti-du	✓			✓	
			<i>Pluvialisfulva</i>	Pacific Golden-Plover	Ta-laing-gaung	✓			✓	
		Jacanidae	<i>Metopidiusindicus</i>	Bronze-winged Jacana	Be-gya	✓	✓	✓		
			<i>Hydrophasianuschirurgus</i>	Pheasant-tailed Jacana	Kyar-phet-nin		✓	✓		
		Recurvirostridae	<i>Himantopus</i>	Black-winged-Stilt	Daung-lan-chi-dauk	✓	✓	✓		
		Scolopacidae	<i>Gallinagallinago</i>	Common Snipe	Sa naik	✓	✓		✓	
			<i>Tringastagnatilis</i>	Marsh Sandpiper	Shyunt-ye-nhaunk	✓			✓	
			<i>Tringaachropus</i>	Green Sandpiper	Ye-nhaunksein	✓			✓	
			<i>Tringaglareola</i>	Wood Sandpiper	Ye nhaunk	✓			✓	
					<i>Chlidonias hybrid</i>	Whiskered Tern	Myith- twe		✓	
Laridae	<i>Larusbrunnicephalus</i>				Brown-headed gull	Zin-yaw	✓	✓	✓	
Glareolidae	<i>Glareolamaldivarum</i>				Oriental Pratincole	Thaung-din	✓			✓



Sr. No	Order	Family	Scientific name	Common name	Local name	Observed season		Status	
						Dry	Wet	R	M
8	Columbiformes	Columbidae	<i>Streptopeliachinensis</i>	Spotted Dove	Gyo-le-pyauk	✓	✓	✓	
			<i>Columba livia</i>	Rock Pigeon	Kho	✓	✓	✓	
9	Cuculiformes	Centropodidae	<i>Centropusbengalensis</i>	Lesser coucal	Bokenhan	✓		✓	
10	Apodiformes	Apodidae	<i>Cypsiurusbalasiensis</i>	Asian palm swift	Moa sa	✓		✓	
11	Coraciiformes	Halcyonidae	<i>Halcyon pileata</i>	Black capped Kingfisher	Pein-hnyin-gaung-me	✓			✓
			<i>Halcyon smyrnensis</i>	White-throated King-fisher	Pein-hnyin-yin-phyu	✓		✓	
		Alcedinidae	<i>Alcedoatthis</i>	Common Kingfisher	Pein-nyin	✓	✓	✓	
		Meropidae	<i>Meropsphilippinus</i>	Blue-tailed Bee-eater	Pasin-hto-mi-pya	✓	✓	✓	
			<i>Meropsorientalis</i>	Green Bee-eater	Hnget-pasin-hto	✓	✓	✓	
			<i>Meropsleschenaulti</i>	Chest-nut headed Bee-eater	Pasin-hto-yin-war	✓	✓	✓	
		Coraciidae	<i>Coraciasbenghalensis</i>	Indian Roller	Moe-khaw-hnget / Hnget-kha		✓	✓	
12	Passeriformes	Sturnidae	<i>Acridotherestrictis</i>	Common Myna	Zayet	✓	✓	✓	
			<i>Acridotheresfuscus</i>	Jungle Myna	Taw-za-yet	✓	✓	✓	
			<i>Sturnus contra</i>	Asian-pied starling	Zayetkya	✓	✓	✓	
			<i>Sturnusmalabaricus</i>	Chest-nut-tailed starling	Zayettaung-pan phyu	✓	✓	✓	
		Corvidae	<i>Corvussplendens</i>	House Crow	Kyi-kan	✓	✓	✓	
		Muscicapidae	<i>Copsychussaularius</i>	Oriental Magpie Robin	The-beit-lwe	✓	✓	✓	
		Timaliidae	<i>Turdoidesgularis</i>	White-thorated Babbler	Swae		✓	✓	
		Passeridae	<i>Passer domesticus</i>	House Sparrow	Aein-sa	✓	✓	✓	
			<i>Passer montanus</i>	Eurasian Tree Sparrow	Sa-ka-lay	✓	✓	✓	
		Pycnonotidae	<i>Pycnonotuscafer</i>	Red-vented-Bulbul	But-phin-ni	✓	✓	✓	
	<i>Pycnonotusjocosus</i>		Red-whiskered Bulbul	But-ka-lon	✓	✓	✓		

Sr. No	Order	Family	Scientific name	Common name	Local name	Observed season		Status	
						Dry	Wet	R	M
			<i>Pycnonotusblanfordi</i>	Streak-eared Bulbul	But-sa-mwe	✓	✓	✓	
		Sylviidae	<i>Acrocephalusarundinaceus</i>	Great Reed warbler	Mhay-wurt	✓		✓	
			<i>Orthotomussutorius</i>	Common Tailorbird	Nhan-pyi-soke	✓	✓	✓	
			<i>Priniaornata</i>	Plain prinia	Hngat let ma	✓		✓	
			<i>Cisticolajuncidis</i>	Zittingcisti-cola		✓		✓	
		Ploceidae	<i>Ploceusphilippinus</i>	Baya weaver	Sa-wadi	✓	✓	✓	
			<i>Ploceusphoxanthus</i>	Asian Golden Waver	Sa-phone-gyi	✓	✓	✓	
		Oriolidae	<i>Orioluschinensis</i>	Black-naped Oriole	Hnet war ma	✓			✓
		Dicruridae	<i>Dicrurusannectans</i>	Crow billed Drongo	Hnet taw	✓			✓
			<i>Dicrurusmacrocerus</i>	Black Drongo	Hnet-taw / Mee-taung pho-net	✓			✓
		Laniidae	<i>Laniuscristatus</i>	Brown Shrike	War-yon hngat	✓			✓
			<i>Laniusschach</i>	Long-tailed Shrike	-	✓			✓
		Turdidae	<i>Saxicolamaurus</i>	Eastern Stonechat	Kyauk-khat than-pyuhngat	✓	✓		✓
		Motacillidae	<i>Motacilla alba</i>	White Wagtail	Mee-nhaunk-phyu	✓	✓		✓
			<i>Motacillacinerea</i>	Grey Wagtail	Mee-nhaunk-mwe	✓			✓
			<i>Motacillaflava</i>	Yellow Wagtail	Mee-nhaunk	✓			✓
			<i>Dendronanthusindicus</i>	Forest Wagtail	Taw-mee-nhaunk		✓		✓
			<i>Anthusrufulus</i>	Paddy-field pipit	Sar	✓		✓	
		Hirundinidae	<i>Hirundorustica</i>	Barn Swallow	Pyanhlwar	✓	✓		✓
		Acrocephalidae	<i>Acrocephalusorientalis</i>	Oriental reed-warbler	Hngatlat ma	✓			✓
		Aegithinidae	<i>Aegithinathphia</i>	Common Iora	Shwe-physoe	✓	✓	✓	
		Alaudidae	<i>Alaudagulgula</i>	Oriental Skylark	Be-lone	✓	✓	✓	

## Discussion and Conclusion

This research is carried out in Moeyingyi wetland wildlife sanctuary. The wetland is a very important area for many resident and migratory birds particularly in the dry and cold season. They seemed to locally move to avoid the unfavorable climate. Many wetland systems support a high diversity of wildlife, many of which are endemic or threatened. In the present study, species richness and abundance of avian community change depending on the food availability and seasonal conditions.

A total of (87) bird species, belonging to (66) genera, (40) families and (12) orders were recorded during the study period. The data were recorded by using point count method. Edwards and Otis (1999) stated that seasons were generally most important in predicting bird species richness and abundance of the resident or short distant migrant group. In fall and winter, the resident/ short distance migrant group was most abundant, which had very high use by waterfowl. Finlayson, et al., (2001) stated that the abundance and diversity of birds varied greatly according to seasonal changes and confirmed that during the wet, when the area is under flood, the number and variety of bird species diminishes greatly.

Bird species are not present uniformly in the study area. During November to February more birds were present in the area. According to these data, total number of bird species was the lowest in June to August and highest in February to March. In the present study, low number of species was recorded during the wet season and high number of bird species and individuals were recorded during cool and hot seasons. Hence, the increase in number of species richness of bird was assumed as due to the plentiful of food in cool season and also in migratory time.

Low temperature, high rainfall and reduced sunshine can reduce invertebrate activity and hence less availability of food for birds is observed McCarty and Winker, 1999. Thus, these observations show bird species and numbers vary as the seasons change. Moeyingyi Wetland was full of water in wet season but the water level reduced in cool season and hot season. Wetland adapted birds spend all or part of their lifecycle on the waters or in the wetland that dive or swim through the water in pursuit of fish prey. Other birds, including most diving ducks and shore birds seek invertebrate prey in the sediments of the wetlands. Marsh-dwelling passerine birds search for insects on plants or the soil surface. Some seek a variety of mobile prey including fish, crabs, small mammals and other birds. Freshwater wetlands originally supported a wide variety of breeding waterbirds, as well as large numbers of wintering waterfowl. However, most large waterbirds, particularly storks, herons, ibises, egrets, pelicans, cormorants and darters are now severely threatened throughout the regions. Smaller waterbirds such as bitterns, crakes, rails, jacana and wintering flocks of ducks are still quite widespread and use of certain man-made wetlands.

Rivers, Cable and Lee (2001) described that, habitat variables were not correlated positively among avian indices, avian use of farmed wetlands appear to be dependent on other factors such as food resources. However, bird abundance is directly related to habitat types and conditions. During study period, water bird species were observed most in grasses and swamp habitat. Swamps are coated with algae favorable for decomposers to recycle nutrients. These decomposers form the base of a rich food chain. Thus, the shorebirds probe the swamp in search of mollusks and worms. Water bird species prefer this habitat than the other. Terrestrial bird species were also recorded abundant in agriculture land habitat where rice field and vegetable plantation is agriculture land in study area. Thus, the terrestrial bird species preferred this habitat than other habitats.

The effect of habitat heterogeneity on species diversity is subject to the measurement of species diversity. Ecologists have discovered factors, include latitude, climate, biological productivity, habitat heterogeneity, habitat complexity, disturbance and the sizes relating on diversity. These relationships have suggested mechanisms that might regulate diversity. In the present study, the factors of climatic condition, habitat heterogeneity, habitat complexity and disturbance were found to be related to the richness and diversity. In most habitats, plant communities determine the physical structure of the environment and therefore, have a considerable influence on the distribution and interactions of animal species (Lawton, 1983; Mc Coy and Bell, 1991). Human can influence birds and their habitats directly by modifying vegetation or by hunting. They can also have indirect impacts since habitat change can alter the impact of predators or allows the spread of invasive species. Due to the establishment of new cultivated lands, river courses and polluted creeks, some birds have become endangered species. Such species are thus found only in the conservation places. They can also have indirect impacts since habitat change can alter the impact of predators or allows the spread of invasive species Bibby et al., (1998). Now a day, the degradation and loss of wetlands is more rapid than that for other ecosystems. Similarly, the status of both freshwater and coastal species is deteriorating faster than that of species in other ecosystems.

Wetland- dependent biodiversity in many parts of the world is in continuing and accelerating decline. Wetlands play an important role in conserving and supporting the biodiversity of plants and wildlife species. It is essential for mankind to take utmost interest in conservation in order to prevent the species from extinction. Thus the local people need to know the importance of wetland which is vital for ensuring a common sustainable future involving conservation and sharing socio-economic values.

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