

Abundance of Bird Species in Minhla Lake Environs, Sintkaing Township, Mandalay Region

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Abstract

Abundance of bird species were studied at Minhla Lake environs in Sintkaing Township, Mandalay Region, from July 2019 to June 2020. A total of 50 bird species confined to 37 genera belonging to 26 families and 11 orders were recorded. Among the bird species, 21 species are water birds and 29 species are land birds. In the present study, 47 species are residents and three species are winter visitors. When the status of bird species was considered based on their abundance in the study area, six species were regarded as very common species, 21 species were common species and remaining 23 species regarded as uncommon species. During the study, Myanmar's endemic species *Turdoides gularis* (White-throated Babbler) was recorded.

Keywords: abundance, endemic, Minhla lake

Introduction

Birds belong to the Class Aves of the Phylum Chordata. The current classification of living bird is arrangement of roughly 29 orders, 187 families, over 2029 genera, and over 9,600 species (Gill, 2001). All over the world, birds attract the attention and interest of people. Birds are found worldwide in many different habitats. Birds are also involved in most common and developed species among vertebrates. Birds are conspicuous and found everywhere. They indicate season symbol. Many ecologists feel that birds are one of the more visible indicators of the total productivity of such biotic systems. Life-history studies identified many important biological attributes by species (Weller, 1965).

Birds belonging to the several groups, insect eater birds, waterbirds, flightless birds, birds of prey, wading birds and seed eater birds (Daniel and Zike, 2005). Birds are the recognized biodiversity indicator species of inhabited areas in an environment (Gregory, 2006).

Bird's surveys are among the most widely employed biodiversity inventories and serve as the basis for an increasing proportion of pure and ecological research (Watson, 2003). Birds are crucial to the healthy functioning on many natural systems on the Earth. Birds of all kinds have played the important roles in the human history, yet waterbirds share with us special, intimate

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relationship based on admiration, imagination, exploitation, and the watery habitats we both require or enjoy. The importance of these species ranges from the biological riches they occupy to nutrition, income, and aesthetic inspiration. Waterbirds are an excellent indicator of water quality and help to measure the biodiversity. Wetland birds are the indicators of wetland function (Weller, 1999).

Waterbird species depend on the wetlands for feeding and breeding. To breed successfully, waterbirds require suitable places to build their nest. Nesting sites vary from species to species. Without the necessary flooding and drying cycles the vegetation might either die or not regenerate (Scott, 1997).

Minhla Lake is an area of natural fresh water wetland habitat representative of the flood plains in Myanmar. It is connected by Minye canal (Zawgyi River) for contributing water to cultivated fields and fish culture. In Minhla Lake, the aquatic vegetation is found abundantly throughout the year. Therefore, this place is suitable for the breeding of waterbird and to study their diversity.

Moreover, it is covered with medium size trees, flowering trees, many shrubs, aquatic plants and paddyfields. Therefore, the research has been conducted with following objectives;

- to record and identify the bird species
- to examine the monthly occurrence of bird species
- to determine the relative abundance of bird species

Materials and Methods

Study area

Minhla Lake is located at the Northeast part of the Sintkaing Township, Mandalay Region which lies at latitude 21° 12' 69" N and longitude 96 ° 32' 83"E. Minhla Lake is about 7.15 km away from Yangon-Mandalay highway road. Minhla Lake is about 3.25 km in length and about 1.22km in width. (Fig.1)

Study period

The field survey was conducted from July, 2019 to June, 2020.

Data collection

Birds were observed with the aid of binocular. The bird's photos were taken with digital camera through Telelens. The birds were surveyed two times during the period from 7:00 am to 10:00 am in the morning and from 3:00 pm to 6:00 pm in the evening twice a month. Bird watching and counting were conducted using a boat and also walking along the edge of the study area. Data collection was made using point count method. Point count involved standing in one spot and recording all birds seen or heard within 15 minutes. The distance between each point was 100 m away. Data counting was used by direct and estimation methods that followed after Bibby (2000).

Out of 50 bird species, 47 species are residents and three winter visitors were recorded in this study.

According to the monthly data, the highest number of individuals (1203) was found in December and the lowest numbers of individuals (320) were recorded in May. In December, *Egretta gazetta*, *Bubulcus coromandus*, *Anartomus oscitans*, *Dendrocygna javanica*, *Porphyrio poliocephalus* and *Metopidicus indicus* were observed as the highest individuals in this month. These six species were regarded as very common species (vC). In May, although the numbers of individuals are the lowest, number of species are found as 42 species. (Table.1, Fig.2)

Table.1 Abundance of bird species recorded from the study area (July 2019 to Jun 2020)

Sr No.	Scientific name	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	Jun	Total	Relative Abundance	Average Relative abundance	Status
1.	<i>Tachybaptus ruficollis</i> *	6	2	4	25	20	22	24	10	6	10	4	8	141	0.0173	C	R
2.	<i>Phalacrocorax niger</i> *	12	20	25	30	20	30	25	20	10	8	12	6	218	0.0268	C	R
3.	<i>Ardea purpurea</i> *	0	0	0	0	0	2	2	0	0	0	0	0	4	0.0005	uC	R/LM
4.	<i>Ardea cinerea</i> *	2	0	0	3	4	6	5	2	1	1	0	2	26	0.0032	uC	R
5.	<i>Ardea alba</i> *	6	4	10	8	12	20	25	10	6	4	2	4	111	0.0136	C	R
6.	<i>Mesophoyx intermedia</i> *	8	6	15	20	18	25	20	15	5	4	2	3	141	0.0173	C	R
7.	<i>Egretta garzetta</i> *	50	80	82	70	90	100	85	95	70	60	40	30	852	0.1048	vC	R
8.	<i>Bubulcus coromandus</i> *	30	35	50	80	92	120	100	60	30	25	35	40	697	0.0857	vC	R
9.	<i>Ardeola bacchus</i> *	20	22	28	35	38	40	45	15	10	8	6	10	277	0.0341	C	R
10.	<i>Ardeola grayii</i> *	15	18	20	25	30	20	30	10	8	6	4	5	191	0.0235	C	R
11.	<i>Ixobrychus sinensis</i> *	20	25	28	20	25	35	30	25	15	10	10	15	258	0.0317	C	R
12.	<i>Ixobrychus cinnamomeus</i> *	10	15	18	15	16	18	15	16	10	8	6	10	157	0.0193	C	R
13.	<i>Anastomus oscitans</i> *	0	0	0	80	90	120	100	50	30	15	10	8	503	0.0619	vC	R/LM
14.	<i>Plegadis falcinellus</i> *	0	0	0	0	0	8	50	30	20	15	10	5	138	0.0170	C	R
15.	<i>Dendrocygna javanica</i> *	10	20	50	85	100	120	80	60	40	20	10	8	603	0.0742	vC	R
16.	<i>Porzana cinerea</i> *	8	15	10	20	25	30	20	18	15	10	10	12	193	0.0237	C	R
17.	<i>Porphyrio poliocephalus</i> *	25	28	30	40	80	100	110	50	40	20	18	30	571	0.0702	vC	R
18.	<i>Gallinula chloropus</i> *	0	0	20	40	50	80	85	30	10	5	0	0	320	0.0394	C	Wv
19.	<i>Fulica atra</i> *	0	0	0	10	40	50	30	20	8	0	0	0	158	0.0194	C	Wv
20.	<i>Metopidius indicus</i> *	25	20	25	40	50	60	80	70	40	20	10	18	458	0.0563	Vc	R
21.	<i>Hydrophasianus chirurgus</i> *	4	0	0	20	30	50	70	40	20	10	5	0	249	0.0306	C	R
22.	<i>Columba livia</i>	12	7	9	10	15	18	10	8	6	5	12	9	121	0.0149	C	R
23.	<i>Streptopelia chinensis</i>	6	8	6	4	8	10	4	4	2	3	2	1	58	0.0071	uC	R

24.	<i>Streptopelia tranquebarica</i>	1	2	3	2	2	3	4	2	0	0	0	2	21	0.0026	uC	R
25.	<i>Psittacula krameri</i>	5	3	2	4	4	2	8	5	2	4	1	2	42	0.0052	uC	R
26.	<i>Halcyon smyrnensis</i>	4	3	6	8	10	10	8	6	5	4	3	6	73	0.0090	uC	R
27.	<i>Merops philippinus</i>	5	8	4	6	2	8	4	2	1	3	4	6	53	0.0065	uC	R

Table 1. Continued

Un = uncommon, C = common, Vc= very common, R = resident, Wv=winter visitor, R/LM = resident with local movement

Sr No.	Scientific name	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	Jun	Total	Relative Abundance	Average Relative abundance	Stat us
28.	<i>Merops orientalis</i>	3	10	8	4	6	10	8	2	4	2	6	8	71	0.0087	uC	R
29.	<i>Upupa epops</i>	4	2	1	3	2	2	1	0	0	0	0	0	15	0.0018	uC	R
30.	<i>Megalaima haemacephala</i>	7	15	4	6	10	8	10	13	8	10	15	12	118	0.0145	C	R
31.	<i>Hirundo rustica</i>	10	15	8	11	8	5	10	8	10	5	9	10	109	0.0134	C	R
32.	<i>Dicrurus macrocercus</i>	1	5	3	2	4	2	0	3	1	1	2	3	27	0.0033	uC	R
33.	<i>Acridotheres burmannicus</i>	12	15	10	8	9	3	2	5	4	7	7	10	92	0.0113	C	R
34.	<i>Acridotheres tristis</i>	15	20	8	10	12	7	5	10	11	8	12	10	128	0.0157	C	R
35.	<i>Acridotheres fuscus</i>	1	2	1	0	0	0	0	2	1	1	1	3	12	0.0015	uC	R
36.	<i>Corvus splendens</i>	6	10	5	4	3	5	10	8	7	6	5	20	89	0.0109	C	R
37.	<i>Pycnonotus cafer</i>	5	8	6	3	5	2	1	10	8	6	6	4	64	0.0079	uC	R
38.	<i>Pycnonotus blanfordi</i>	10	15	10	7	5	4	6	8	10	5	4	10	94	0.0116	C	R
39.	<i>Turdoides gularis</i>	2	5	4	0	0	0	2	2	1	1	0	2	19	0.0023	uC	R
40.	<i>Copsychus saularis</i>	3	6	8	2	1	1	4	3	2	2	1	4	37	0.0045	uC	R
41.	<i>Saxicola caprata</i>	5	10	8	9	10	12	8	6	4	3	2	1	78	0.0096	uC	R
42.	<i>Saxicola maurus</i>	0	2	4	3	2	1	4	2	0	0	0	2	20	0.0025	uC	R
43.	<i>Remiz consobrinus</i>	2	1	2	1	2	1	5	2	2	1	3	2	24	0.0030	uC	R
44.	<i>Ploceus philippinus</i>	8	10	8	7	4	3	6	10	4	2	2	10	74	0.0091	uC	Wv
45.	<i>Ploceus hypoxanthus</i>	1	2	1	2	3	2	2	1	2	1	2	5	24	0.0030	uC	R
46.	<i>Lonchura punctulata</i>	5	12	8	10	6	4	2	8	4	8	2	10	79	0.0097	uC	R

47.	<i>Lonchura atricapilla</i>	2	8	6	8	5	2	2	5	3	7	2	6	56	0.0069	uC	R
48.	<i>Passer domesticus</i>	8	20	10	12	15	18	20	15	10	16	20	25	189	0.0232	C	R
49.	<i>Passer montanus</i>	4	10	8	5	3	2	5	1	7	2	1	4	52	0.0064	uC	R
50.	<i>Prinia inornata</i>	2	4	1	3	1	2	2	2	1	1	2	6	27	0.0033	uC	R
Total no of individuals		400	548	577	820	987	1203	1184	799	514	373	320	407	8132			
Total no of species		44	43	44	46	46	48	48	48	46	45	42	45				

Un = uncommon, C = common, Vc= very common, R = resident, Wv=winter visitor, R/LM = resident with local movement

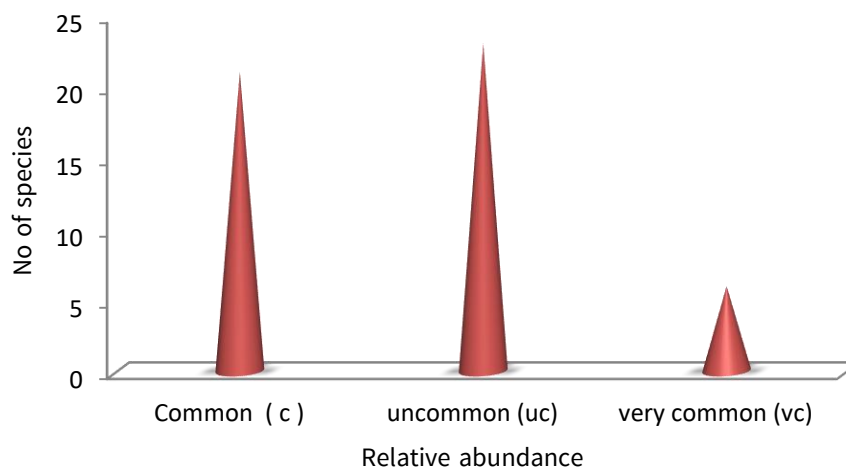


Fig.2 Relative abundance of bird species recorded from the study area (July 2019 to June 2020)



A. *Tachybaptus ruficollis*



B. *Phalacrocorax niger*



C. *Ardea purpurea*



D. *Ardea cinerea*



E. *Ardea alba*



F. *Mesophoyx intermedia*



G. *Egretta garzetta*



H. *Bubulcus coromandus*



I. *Ardeola bacchus*

Plate 1. Recorded bird species in the study area



J. Ardeola grayii



K. Ixobrychus sinensis



L. Ixobrychus cinnamomeus



M. Anastomus oscitans



N. Plegadis falcinellus



O. Dendrocygna javanica



P. Porzana cinerea



Q. Porphyrio poliocephalus



R. Gallinula chloropus



S. Fulica atra



T. Metopidius indicus



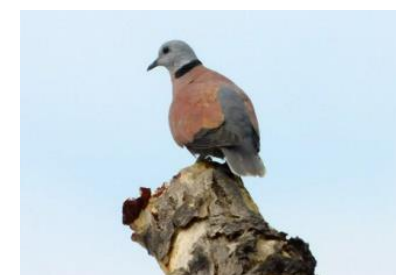
U. Hydrophasianus chirurgus



V. Columba livia



W. Streptopelia chinensis



X. Streptopelia tranquebarica

Y. *Psittacula krameri*Z. *Halcyon smyrnensis*AA. *Merops philippinus*AB. *Merops orientalis*AC. *Upupa epops*AD. *Megalaima haemacephala*AE. *Hirundo rustica*AF. *Dicrurus macrocercus*AG. *Acridotheres burmannicus*AH. *Acridotheres tristis*AI. *Acridotheres fuscus*AJ. *Corvus splendens*AK. *Pycnonotus cafer*AL. *Pycnonotus blanfordi*AM. *Turdoides gularis*



AN. *Copsychus saularis*



AO. *Saxicola caprata*



AP. *Saxicola maurus*



AQ. *Remiz consobrinus*



AR. *Ploceus philippinus*



AS. *Ploceus hypoxanthus*



AT. *Lonchura punctulata*



AU. *Lonchura atricapilla*



AV. *Passer domesticus*



AW. *Passer montanus*



AX. *Prinia inornata*

Plate 1. Continued

Discussion

The study area possesses variety of environment such as marshes, shrubs, culture field, patches of green land, providing favourable resources for different bird species inhabiting in it.

A total of 50 species confined to 11 order, 26 families and 37 genera were recorded from Minhla Lake environs from July 2019 to June 2020. Among the recorded bird species, 21 species were water birds and 29 species were land birds. According to the record of study area, six species were classified as very common species, 21 species were regarded as common species and remaining 23 species were regarded as uncommon species. Based on the present result, the number of species and individual was found to be related to the favourable environment condition and suitable habitat. With regard to the results, the highest number of individual was recorded in *Egretta gazetta*, *Bububus coromandus*, *Anastomus oscitans*, *Dendrocygna javanica*, *Porphyrio poliocephalus* and *Metaopidius indicus*. Those six species were observed throughout every month and may be considered very common species. They were dominated species in this study area. Another species *Ardea purpurea* was only recorded during the two months of December and January. Therefore, this species was regarded as rare in this study area.

Myanmar has six endemic bird species. In the present study white-throated Babbler (*Turdoides gularis*) was uncommon species in the study area. Many people live around the lake. Intensive fishing and lotus harvesting was observed in this lake but this in itself conflicts with conservation only to some extent that it may reduce the amount of food available for fish-eating birds. A more serious problem is that people hunt birds and disturb their nest, and this is the main reason that affected bird populations. Existing hunting laws need to be more strictly enforced, particularly in the protected area.

Acknowledgements

We would like to express our profound thanks to Rector Dr Tint Moe Thuzar, Yadanabon University for her taking been interest in our research. We also thank to Prorectors Dr Khin Myot, Dr Myint Myint Oo and Dr Khin Maw Maw Soe, Yadanabon University for their encouragement on our research work. We are deeply indebted thanks to Dr Aye Aye Cho, Professor, Head of Department of Zoology, Yadanabon University for her invaluable help. We also thank to Professor Dr Thi Thi Han, Department of Zoology, Yadanabon University for her suggestions.

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