

## Seasonal Occurrence and Composition of Terrestrial Bird Species at Vicinity of Paleik In (Lake)

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### Abstract

Seasonal occurrence and composition of terrestrial bird species were investigated at vicinity of Paleik In by the using of line transect method. Observation were conducted from June 2016 to May 2017. A total of 44 species were recorded from June 2016 to May 2017. Among them, the dominant of seasonal bird species was found in cold season and hot season (37.86% each) and the lowest was recorded in rainy season with (24.47%). The highest composition of bird species was found in order of Passeriformes (68.29%) and Strigiformes, Bucerotiformes and Piciformes were the only lowest ones (2.44% each) respectively. Paleik In is suitable for breeding, foraging and roosting site for birds. The habitat loss is the greatest threat to birds. Thus, Paleik In is the important to prevent the role of habitat situation.

Key words: Composition, terrestrial birds, Paleik In (Lake)

### Introduction

In Myanmar a total of 1114 species were included, among these six species are endemic, two species have been introduced and ten species are rare. One species listed is extirpated in Myanmar (IUCN, 2015). Of these, 47 bird species are threatened and seven are critically endangered. Two species are extinct and one is possibly globally endangered. In Myanmar, there is a species (White-shouldered Ibis *Pseudibis davisoni*) has not been seen since 1940s (Birdlife International 2012).

A terrestrial bird stays primarily on the ground, they have foraging and nesting on the ground and roosting on the ground or in shrubbery and brush. Terrestrial birds prefer to freeze, walk, or run than taking flight. Because they do not readily fly away from their nests, breeding grounds, feeding ranges, roosting and other territories. They are less capable of relocating to new ranges if suitable habitat is destroyed (Mayntz, 2020).

Climate change is emerging as the greatest threat to natural communities in many, if not most, of the world's ecosystems in coming decades, with mid-range climate change scenarios expected to produce greater extinction rates than habitat loss,

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currently deemed the top threat to biodiversity” (Thomas *et al.*, 2004; Malcolm *et al.*, 2006). Seasonality of birds plays a major role in their abundance and distribution, this effect of their food and population, which in turn affects breeding success and finally survival of the bird species (Mengesha & Bekele, 2008). Abundance of bird species is largely influenced by the spatiotemporal distribution of some key environmental resources (McCain, 2009).

The climate of Myanmar has been classified in three seasons as dry or summer season, rainy and cold seasons, the dry season is from March to May, the rainy season is from June to October and the cold season is from November to February (NBSAP Myanmar, 2011). Mandalay is located in the central zone of Myanmar and it has a semi-tropical climate. The study area Paleik In (Lake) is situated in Sintkaing Township in Mandalay Region. Paleik In is also remarked as a wetland. It is covered with growing trees and bushes and many paddy fields and vegetation also covers when water has less in the Paleik In. Therefore, there are abundant birds for nesting, feeding, and sheltering in it. Thus the objectives of this investigation are to identify the terrestrial bird species of Paleik In (Lake) and to record the occurrence of terrestrial bird species.

## Materials and Methods

### Study Area

The study area of Paleik In is situated 8.7 km from Mandalay, in Sintkaing Township. The study was lasted from June 2016 to May 2017. It is 2.3 km long from east to west and 2.1 km wide from south to north. The water body of Paleik In is (96.22) hectares in rainy season and (16.35) hectares in hot season. It lies at Latitude 21°50' 14.91" N and Longitude 96°03'12.00" E (Fig. 1).

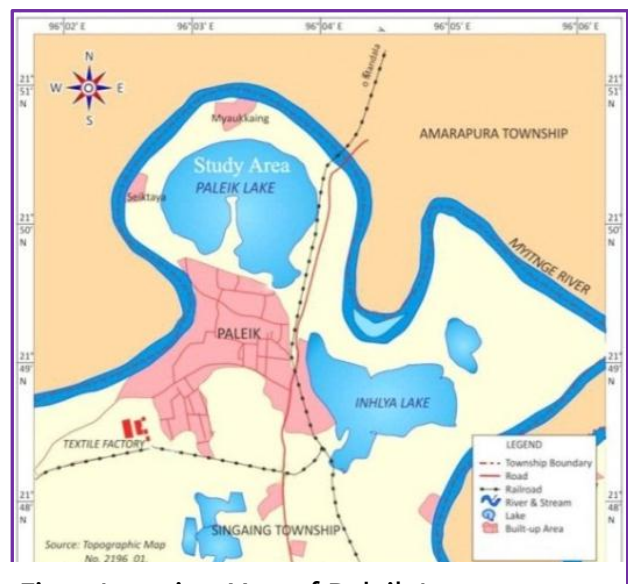


Fig. 1 Location Map of Paleik In

### Data Collection

Birds were recorded by line transect method (Sutherland *et al.*, 2005). Birds were observed and counted by walking in the edge of lake and its vicinity using binocular. The field surveys were work out in the morning (6:30 – 10:30 am) after the sunrise and in the evening (3:30 – 5:30 pm) when the activity of birds were prominent.

### Identification of Species

Birds were identified by Roson (2016), Symithes (2001) and Avibase – Bird Checklists of the World, Myanmar (2017).

### Data analysis

Data were analyzed by presenting in percentage (%) methods (Thrusfield, 1995)

$$\text{Species composition} = \frac{\text{Total no. of individuals in each species}}{\text{Total no. of individuals in observed species}} \times 100$$

### Results

In this study, seven bird order, 24 families, 33 genera and 44 species were recorded in the study period of June 2016 – May 2017. In the rainy season, 24 species were recorded, in cold season and hot season, 39 species were recorded (Table 1-2).

### Seasonal occurrence of bird species

The highest of bird species was found in cold season and hot season with 39 species (37.86% each) and the lowest was found in rainy season with 25 species (24.47%) (Table 3).

### Species composition of birds

The highest composition of bird species was found in order of Passeriformes (68.29%), followed by Coraciiformes (12.20%), Cuculiformes (7.32%), Colubiformes (4.88%) and Strigiformes, Bucerotiformes and Piciformes were the only lowest ones (2.44% each) respectively (Fig. 2).

Table 1 List of terrestrial bird species at Paleik In (Lake) during June 2016 to May 2017

Order	Family	Genus	No.	Scientific name	Common name	Local name
Columbiformes	Columbidae	<i>Columba</i>	1	<i>Columba livia</i>	Rock Pigeon	kho
		<i>Spilopelia</i>	2	<i>Spilopelia chinensis</i>	Spotted Dove	gyo-le-pyauk
Cuculiformes	Cuculidae	<i>Eudynamys</i>	3	<i>Eudynamys scolopaceus</i>	Asian Koel	Aut-aww
		<i>Centropus</i>	4	<i>Centropus sinensis</i>	Greater Coucal	Bok
		<i>Cacomantis</i>	5	<i>Cacomantis merulinus</i>	Plaintive Cuckoo	-
Strigiformes	Strigidae	<i>Athene</i>	6	<i>Athene brama</i>	Spotted Owlet	Zi-gwet
Bucerotiformes	Upupidae	<i>Upupa</i>	7	<i>Upupa epops</i>	Hoopoes	
Coraciiformes	Alcedinidae	<i>Halcyon</i>	8	<i>Halcyon smyrnensis</i>	White-throated Kingfisher	-
		<i>Alcedo</i>	9	<i>Alcedo atthis</i>	Common Kingfisher	-
		<i>Ceryle</i>	10	<i>Ceryle rudis</i>	Pied Kingfisher	-
	Meropidae	<i>Merops</i>	11	<i>Merops orientalis</i>	Little Green Bee-eater	Hnget-pa-sin-hto
			12	<i>M. philippinus</i>	Blue-tailed Bee-eater	Pasin-hto-yin-pyu
Piciformes	Picidae	<i>Jynx</i>	13	<i>Jynx torquilla</i>	Eurasian Wryneck	-
Passeriformes	Dicruridae	<i>Dicrurus</i>	14	<i>Dicrurus macrocerus</i>	Black Drongo	Lin-me-swae
	Corvidae	<i>Corvus</i>	15	<i>Corvus splendens</i>	House Crow	Kyee-gan
	Aegithinidae	<i>Aegithina</i>	16	<i>Aegithina tiphia</i>	Common Iora	Shwe-pyi-soe
	Nectariniidae	<i>Cinnyris</i>	17	<i>Cinnyris asiaticus</i>	Purple Sunbird	Witye-soak-hnget
	Laniidae	<i>Lanius</i>	18	<i>Lanius cristatus</i>	Brown Shrike	Wa-yon-hnget
			19	<i>L. schach</i>	Long-tailed Shrike	Hnget-bee-lue
	Acrocephalidae	<i>Acrocephalus</i>	20	<i>Amondava amandava</i>	Red Avadavat	
Estrildidae	<i>Amondava</i>	21	<i>Lonchura punctulata</i>	Scaly-breasted Munia	Sar-wa-ti	
		22	<i>L. malacca</i>	Tricoloured Munia		

Table 1 Continued

Order	Family	Genus	No.	Scientific name	Common name	Local name
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Passeriformes	Passeridae	<i>Passer</i>	23	<i>Passer domesticus</i>	House Sparrow	Sar-ka-lay	
			24	<i>Anthus rufulus</i>	Paddyfield Pipit	-	
	Motacillidae	<i>Anthus</i>	25	<i>Motacilla alba</i>	White Wagtail	Mi-nyaunt-hnget	
			<i>Motacilla</i>	26	<i>M. cinerea</i>	Grey Wagtail	-
				27	<i>M. tschutschensis</i>	Eastern Yellow Wagtail	-
				28	<i>Ploceus hypoxanthus</i>	Asian Golden Weaver	-
			Ploceidae	<i>Ploceus</i>	29	<i>P. philippinus</i>	Baya Weaver
	Sturnidae	<i>Acridotheres</i>	30	<i>Acridotheres grandis</i>	White-vented Myna	Taw-sayat	
			31	<i>A. tristis</i>	Common Myna	Sayat-myat-kwan-wa	
			32	<i>A. burmannicus</i>	Vinous - Breasted Myna	-	
			33	<i>Mirafra microptera</i>	Burmese Bushlark	-	
	Alaudidae	<i>Mirafra</i>	33	<i>Mirafra microptera</i>	Burmese Bushlark	-	
	Muscicapidae	<i>Copsychus</i>	34	<i>Copsychus saularis</i>	Oriental Magpie Robin		
			<i>Luscinia</i>	35	<i>Luscinia svecica</i>	Bluethroat	Tha-beik-lwae
				36	<i>Saxicola maurus</i>	Eastern Stonechat	-
				37	<i>S. caprata</i>	Pied Bushchat	-
			38	<i>S. ferrea</i>	Grey Bush Chat	Hnget-kya	
	Pycnontidae	<i>Pycnonotus</i>	39	<i>Pycnonotus cafer</i>	Red-vented Bulbul		
			40	<i>P. blanfordi</i>	Streak-eared Bulbul	But-phin-ni	
			41	<i>Hirundo rustica</i>	Barn Swallow	But-chwae	
	Hirundininae	<i>Hirundo</i>	42	<i>Turdoides gularis</i>	White-throated Babbler	Pyan-hlwa	
	Pellorneidae	<i>Turdoides</i>	43	<i>Cisticola juncidis</i>	Zitting cisticola	Swae	

Table 2 Total number species in family, genus, species and percent composition of terrestrial bird species recorded at Paleik In during June 2016 to May 2017

No.	Order	Total number			Orderwise composition (%)
		Family	Genus	species	
1	Columbiformes	1	2	2	4.88
2	Cuculiformes	1	3	3	7.32
3	Strigiformes	1	1	1	2.44
4	Bucerotiformes	1	1	1	2.44
5	Coraciiformes	2	4	5	12.20
6	Piciformes	1	1	1	2.44
7	Passeriformes	17	21	31	68.29
Total		24	33	44	

Table 3 Seasonal percent composition of terrestrial bird species recorded at Paleik In during June 2016 to May 2017

No.	Season	Number of species	Composition (%)
1	Rainy season	25	24.47
2	Hot season	39	37.86
3	Cold season	39	37.86
Total			

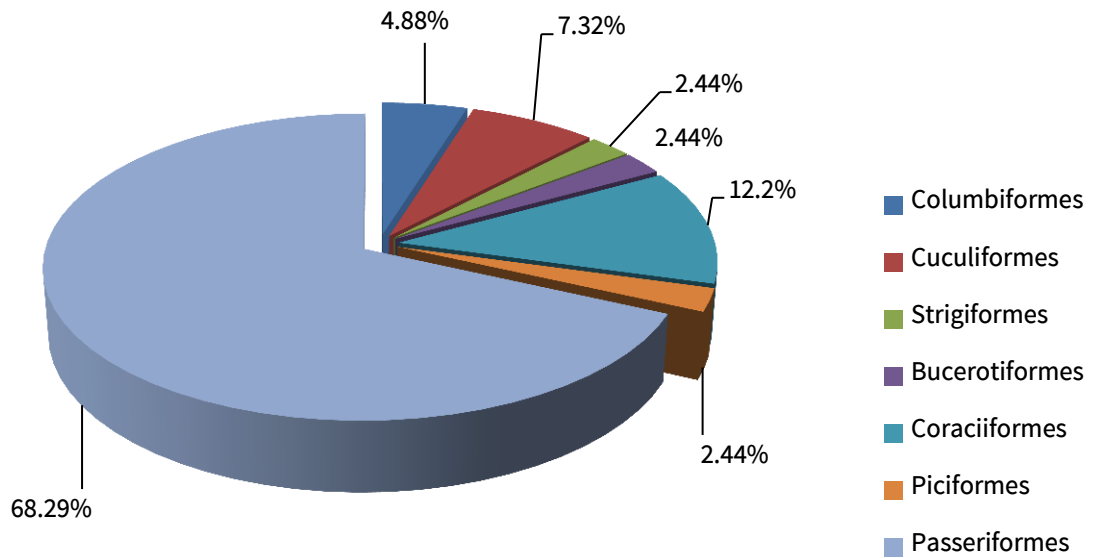


Fig. during June 2016 to May 2017

### Discussion

Paleik In (Lake) is situated at 8.7 km from Mandalay on the high-way road of Yangon-Mandalay. The water surface was (96.22 hectares) in the rainy season and reduces in the hot season (16.35 hectares). There are some small trees in the flooded area used as rice cultivation and growing vegetables such as cabbages and corn around this study lake margin. This situation is suitable for birds to foraging, breeding, and inhabit.

In the observed terrestrial bird species, 44 species were recorded. In all seasons, there are 23 species were recorded. In the rainy season, there are 25 species and in the cold and hot season there are 39 species were recorded. Thus it is clear that the highest number of bird species was found in the cold and the hot seasons and the lowest was found in the rainy season and also recorded that 23 species were resident bird species. In the monthly data, the largest number of bird species was found in May (hot season) and the smallest was found in July 2016 and March 2017. It is assumed that the water in the lake fell down to low minimum level and the most of lake was prepared to grow some vegetables by farmers from near villages in March and became flooded in July (rainy season).

Khin Maung Oo (2009) reported that most areas of the Paleik In (Lake) were flooded in the rainy season with some vegetation projecting above the water surface and some small trees and bushes area in the flooded area. In the that time plankton population declined. These condition caused fill the population of the avian fauna as minimum level. In this study period, the dominant recorded bird species were found in cold and hot season and the lowest was found in rainy season. Thus, this research agreed with Khin Maung Oo's report.

Regarding the species composition in different orders, the dominant species was found in order Passeriformes and the lowest was found in orders Strigiformes, Bucerotiformes and Piciformes. It may be due to the most area of lake found paddy field and thus this condition was more attracted to Passeriformes bird species to settle mostly by suitable for available foods and shelter for resting and nesting.

Nu Nu Tun (2011) recorded 98 species in Mandalay environs, 77 terrestrial and 21 aquatic birds including 18 winter visitors. In this research, 44 terrestrial birds were recorded within the study period. Thus, it appeared that Paleik In is environmentally friendly to the terrestrial birds.

The association of birds with their habitats has been essential for understanding the influence of biotic interactions on bird species distributions (Wiens, 1989; Jankowski *et al.* 2013). In this study, 44 species terrestrial bird were recorded. During this study period, various species of birds were occurred during the cold and hot seasons in the Paleik In (Lake). Thus, this condition provides sufficient food, suitable shelters, good habitat for breeding places and net sites in this study area. According to the above data, the highest number of species was found in cold seasons and the lowest number in rainy season. Because most of the study area is covered with water and sheltering while raining in the rainy season and the cold season is favourable habitat as their food, shelter, breeding for birds.

Regarding the seasonal species, seven species: Spotted Dove *Spilopelia chinensis*, Rock Pigeon *Columba livia*, House Crow *Corvus splendens*, Black Drongo *Dicrurus macrocerus*, Scaly-breasted Munia *Lonchura punctulata*, Streak-eared Bulbul *Pycnonotus blanfordi* and House Sparrow *Passer domesticus* were dominant. It is because of food availability and habitat are seasonally changes in the study area. Trees, shrubs and vegetation are growing more in the edge of this area. Thus, habitat of the Paleik In is better for birds. Therefore, seasonal recorded bird species may be considered as different in the same study area.

Lebbin, 2010 observed that the physical environments of habitat were inhabited by living organisms are fundamental to their survival. The habitats of Paleik In prevent from the predators and breeding, wintering and migration for some birds and places to



forage roost and nesting for bird species. Habitats used as the important role in survival and the loss or degradation of any one habitat pattern of them can potentially have the population level impact. The habitat loss or degradation is the greatest threat and move to birds from this area. Thus abundance of bird species depends on suitable shelters, food availability and then good habitat for birds. Thus, Paleik In is the important role to prevent in this habitat situation to conserve the most of bird species.

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