

# SPECIES COMPOSITION OF BIRDS IN PYIN OO LWIN ENVIRONS

Tint Wai<sup>1</sup>, Yin Yin Aye<sup>2</sup>

## Abstract

A total of 40 species of birds confined to 33 genera and distributed among 25 families and eight orders; amounting to a total of (3085) individuals was recorded from two study sites, National Kandawgyi Gardens and Nyaung Ne in Pyin Oo Lwin Township, Mandalay Region. The study period lasted from October 2015 to February 2016. Out of 40 species recorded 37 species are terrestrial birds, whereas the remaining three species are water birds. Among the total species recorded, 31 species were carry out in Site I (NKGS) and 25 species in Site II (Nyaung Ne). Among the 40 species, 33 species are resident, one, a vagrant and six species are winter visitors. *Pycnonotus jocosus*, *Corvus splendens*, *Pycnonotus cafer* appeared as very abundance species in the study sites. It is suggested that to maintain the abundance and diversity of birds, strict measures need to be implemented for preserve of the avifauna in Pyin Oo Lwin environs.

**Keywords:** Composition; bird species

## Introduction

The class Aves comprises almost 10,000 recognized species of varied forms descended from one another through the process of adaptation by natural selection. The current classification of living birds is a hierarchical arrangement of roughly 29 orders, 187 families, over 2000 genera, and over 9600 species (Gill, 2001). Among the globally threatened 116 bird species, five are categorized as critically endangered, seven species as endangered, 33 species as vulnerable and 71 species as nearly threatened (Davies *et al.*, 2004).

Smythies (2001) recorded 980 bird species in Myanmar; however forest Department reported 1200 species in Myanmar (Anon, 2002).

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<sup>1</sup> Associate Professor, Dr., Department of Zoology , Yadanabon University

<sup>2</sup> Student, MSc, Department of Zoology, Yadanabon University

Myanmar is rich in bird life. The high diversity of bird species is due to the country's including two zoogeographical regions, each with different avifauna. Myanmar possesses a great wealth and diversity of Wetland habitats. Each year Myanmar hosts over 50,000 numbers of resident and migration waterbirds. (Khin Swe Wynn, 2007).

Species composition change from season to season in accordance with resource availability. Species composition fluctuates regularly with the season and irregularly with climate and resource availability (Gill, 2001).

Pyin Oo Lwin, a hill resort situated between Naungcho and Mandalay is located at altitude of about 107.38 meters above sea level and about 108.7512 km north east of Mandalay. The birds of Pyin Oo Lwin Township have been investigated by Thandar since 1996. More research is needed to reinvestigate and confirm the species composition and distribution.

Therefore, the present study was conducted in Pyin Oo Lwin with the following subjects:

- to identify and record the bird species in Pyin Oo Lwin environs
- to determine the species composition of bird in the study area.

## Materials and Methods

### Study area and study Site

Pyin Oo Lwin is situated between Naungcho and Mandalay. It is situated at 22° 01' 33.50" N and 96° 28'52.78" E. (Fig. 1).

Study area is divided into two study sites, National Kandawgyi Gardens (Site I) and Nyaung Ne (Site II).

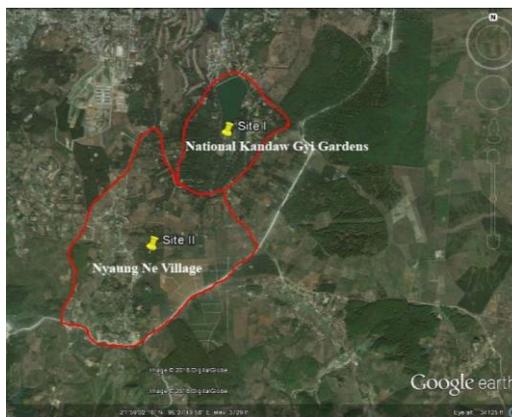


Fig. 1 A Map of study area and study site

### Study design

Subsampling points were allocated in two study sites. Each sampling site was visited once a week. The collection of data was made using point count method (Bibby, 2008). All counts were conducted during the first 3 hour

after sunrise from 6:00 to 9:00 am. The speed of walking on the routes depended on the number of bird present and difficulties in recording them. Birds were viewed using binocular and once spotted recorded on digital telescopic camera.

### **Identification of species**

Identification of recorded birds are made according to Smythies (1986 and 2001), King (1975) and Robson (2005, 2008). Classification was followed after Robson (2008).

## **Results**

A total of 40 birds species confined to 33 genera belonging to 25 families of eight orders were recorded during the study period commencing from October 2015 to February 2016 (Table 1). Among 40 species, three species were aquatic birds and the remains 37 species were terrestrial birds.

### **Composition of bird species**

During the present study, the species composition of non-passerine birds amounted to 13 species confined to 12 genera and distributed among of families and seven orders. The passerines are represented by 27 species distributed among 21 genera, 16 families and one orders (Fig 2, 3 and Table 2, 3).

Among the eight orders, the order Passeriformes represented the highest composition of (27 species, 67.5%), followed by the order Coraciformes (four species, 10%), Piciformes (two species 5%) and Pelecaniformes, Gruiformes, Charadriiformes and Cuculiformes (one species, 2.5% each) (Fig. 4).

Table 1 List of bird species recorded from Pyin Oo Lwin environs during October 2015 to February 2016

Sr. No.	Order	Family	Genus	No.	Species	Common name	Local name
1	Pelecaniformes	Ardeidae	<i>Ardeola</i>	1	<i>Ardeola bacchus</i> *	Chinese Pond Heron	Byaing-auk
2	Gruiformes	Rallidae	<i>Amaurornis</i>	2	<i>Amaurornis phoenicurus</i> *	White-breasted Waterhen	ye-gyet-yin-phyu
3	Charadriiformes	Charadriidae	<i>Vanellus</i>	3	<i>Vanellus indicus</i> *	Red-wattled Lapping	tit-ti-du
4	Columbiformes	Columbidae	<i>Columba</i>	4	<i>Columba livia</i>	Rock Pigeon	kho
				5	<i>Spilopelia chinensis</i>	Spotted Dove	gyo-le-pyauk
				6	<i>Treron sphenura</i>	Wedge-tailed Green Pigeon	nor
				7	<i>Alcedo atthis</i>	Common Kingfisher	pain-nyin
5	Coraciiformes	Alcedinidae	<i>Halcyon</i>	8	<i>Halcyon smyrnensis</i>	White-throated Kingfisher	pain-nyin-yin-phyu
				9	<i>Coracias benghalensis</i>	Indian Roller	hnget-kha
				10	<i>Upupa epops</i>	Common Hoopoe	bi-daung-bo
6	Cuculiformes	Cuculidae	<i>Phaenicophaeus</i>	11	<i>Rhopodytes tristis</i>	Green Billed Malkoha	wapale
7	Piciformes	Megalaimidae	<i>Megalaima</i>	12	<i>Megalaima lineata</i>	Lineated Barbet	phoe-kaung
				13	<i>Megalaima asiatica</i>	Blue-throated Barbet	koe-ka-laung
				14	<i>Pericrocotus speciosus</i>	Scarlet Minivet	nyet-min-thar
8	Passeriformes	Campephagidae	<i>Pericrocotus</i>	14	<i>Pericrocotus speciosus</i>	Scarlet Minivet	nyet-min-thar
		Oriolidae	<i>Oriolus</i>	15	<i>Oriolus tenuirostris</i>	Slender-billed Oriole	net-wah
				16	<i>Oriolus xanthornus</i>	Black-hooded Oriole	net-wah
				17	<i>Hypothymis azurea</i>	Black-naped Monareh	sar-mae
		Dicruridae	<i>Dicrurus</i>	18	<i>Dicrurus leucophaeus</i>	Ashy Drango	lin-me-swae
				19	<i>Dicrurus andamanensis</i>	Andaman Drango	nor
		Corvidae	<i>Corvus</i>	20	<i>Corvus splendens</i>	House Crow	kyi-gan
				21	<i>Urocissa erythroryncha</i>	Red-billed blue Magpie	nor
		Aegithinidae	<i>Aegithina</i>	22	<i>Aegithina tiphia</i>	Common Iora	shwe-pyi-soe

Table 1 Continued

Sr. No.	Order	Family	Genus	No.	Species	Common name	Local name				
	Passeriformes	Laniidae	<i>Lanius</i>	23	<i>Lanius colluriooides</i>	Burmese Shrike	hnget-be-lu				
24				<i>Lanius schach</i>	Long-tailed Shrike	hnet-balu					
		Nectariniidae	<i>Aethopyga</i>	25	<i>Aethopyga gouldiae</i>	MRS Gould's Sunbird	wutt-ye-soak				
				Estrildidae	<i>Lonchura</i>	26	<i>Lonchura punctulata</i>	Scaly-brested Munia	sar-wa-ti		
		Passeridae	<i>Passer</i>			27	<i>Passer montanus</i>	Eurasian Tree Sparrow	pa-shu-sa		
				Motacillidae	<i>Motacilla</i>	28	<i>Motacilla alba</i>	White Wagtail	mi-nyaung-hnget		
		Fringillidae	<i>Spinus</i>			29	<i>Spinus spinus</i>	Eurasian Siskin	nor		
				Sturnidae	<i>Acridotheres</i>	30	<i>Acridotheres tristis</i>	Common Myna	zayet		
		Muscicapidae	<i>Copsychus</i>			31	<i>Copsychus saularis</i>	Oriental Magpie Robin	tha-beik-lwe		
				Pycnonotidae	<i>Saxicola</i>	32	<i>Saxicola caprata</i>	Pied Bushchat	hnget-kha		
						<i>Ficedula</i>	33	<i>Ficedula hodgsonii</i>	Slaty-backed Flycatcher	sa-phyu	
							<i>Muscicapa</i>	34	<i>Muscicapa dauurica</i>	Asia Brown Flycatcher	sa-phyu
								<i>Pycnonotus</i>	35	<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul
		<i>Pycnonotus cafer</i>	36	<i>Pycnonotus cafer</i>	Red-vented Bulbul	but-phin-ni					
			<i>Pycnonotus flaviventris</i>	37	<i>Pycnonotus flaviventris</i>	Black-crested Bulbul	but				
		Zosteropidae		<i>Hypsipetes</i>	38	<i>Hypsipetes leucocephalus</i>	Black Bulbul	but			
			<i>Zosterops</i>		39	<i>Zosterops erythropleurus</i>	Chestnut-flanked White-eye	nor			
					40	<i>Zosterops palpebrosus</i>	Oriental White-eye	nor			

(\*)= aquatic bird

Table 2 Species composition of non-passerine birds in Pyin Oo Lwin Environs

No.	Order	No.	Family	Number of genus	Number of species
1	Pelecaniformes	1	Ardeidae	1	1
2	Gruiformes	2	Rallidae	1	1
3	Charadriiformes	3	Charadriidae	1	1
4	Columbiformes	4	Columbidae	3	3
5	Coraciiformes	5	Alcedinidae	2	2
		6	Corociidae	1	1
		7	Upupidae	1	1
6	Cuculiformes	8	Cuculidae	1	1
7	Piciformes	9	Megalaimidae	1	2
Total				12	13

Table 3 Species composition of Passerine birds in Pyin Oo Lwin Environs

No.	Order	No.	Family	Number of genus	Number of species
8	Passeriformes	1	Campephagidae	1	1
		2	Oriolidae	1	2
		3	Monarchidae	1	1
		4	Dicruridae	1	2
		5	Corvidae	2	2
		6	Aegithinidae	1	1
		7	Liniidae	1	2
		8	Nectariniidae	1	1
		9	Estrildidae	1	1
		10	Passeridae	1	1
		11	Motacillidae	1	1
		12	Fringillidae	1	1
		13	Sturnidae	1	1
		14	Muscicapidae	4	4
		15	Pycnonotidae	2	4
		16	Zosteropidae	1	2
Total				21	27

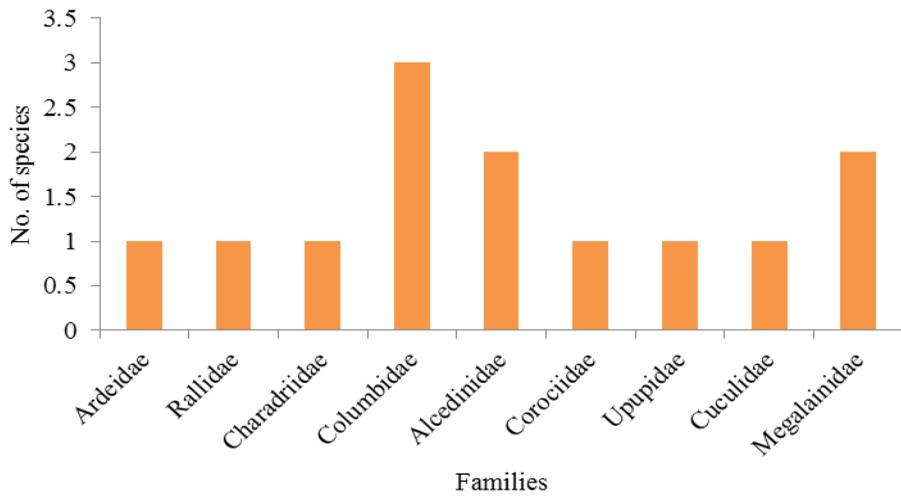


Fig. 2 Species composition of non-passerine birds in Pyin Oo Lwin Environs

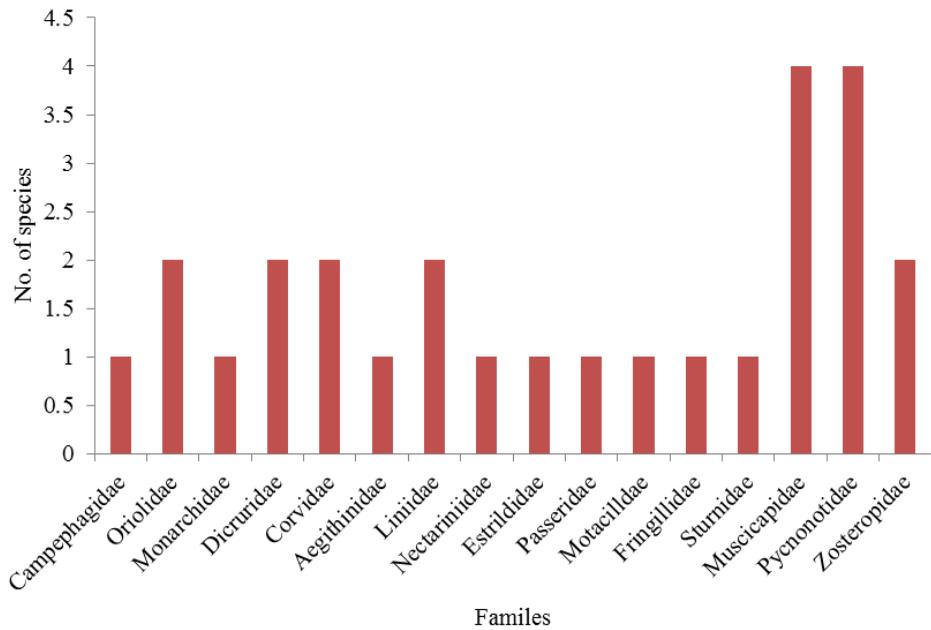


Fig. 3 Species composition of Passerine birds in Pyin Oo Lwin Environs

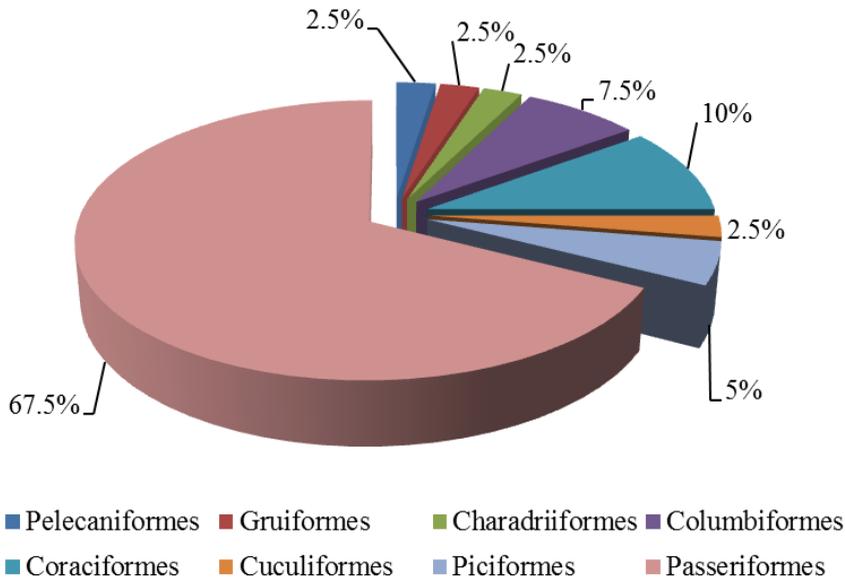


Fig. 4 Relative composition of bird species in different orders recorded

## Discussion

A total of 40 species of birds belonging to 33 genera, 25 families and eight orders were recorded during the study period. Among 40 species, three species are aquatic birds and the remaining 37 species were terrestrial.

The highest number of species was observed in order Passeriformes followed by that of order Coraciiformes. Among the different order included in the study, it was revealed that the order Passeriformes represented the highest number of 27 species, 21 genera and 16 families followed by the order Coraciiformes, which is represented by four species confined to four genera and three families. The order Columbiformes was represented by one family, three genera and three species. The order Piciformes was represented by single family, single genus and two species. The aquatic species are recorded to the family, Ardeidae, Rallidae and Charadriidae, however, water birds were not only observed in water but also on the adjacent open ground.

With respect to the species, *Treron sphenura*, *Halcyon smyrnensis*, *Megalaima lineata*, *M. asiatica*, *Oriolus tenuirostris*, *Hypothymis azurea*, *Dicrurus andamanensis*, *Urocissa erythroryncha*, *Aegithina tiphia*, *Lanius*

*schach*, *Aethopyga gouldiae*, *Ficedula hodgsonii*, *Muscicapa dauurica*, *Pycnonotus flaviventris*, *Zosterops erythropleurus* and *Z. palpebrosus* were recorded in Site I. *Ardeola bacchus*, *Amaurornis phoenicurus*, *Vanellus indicus*, *Coracias benghalensis*, *Lanius collurioidea*, *Lonchura punctulata*, *Passer montanus*, *Acridotheres tristis*, *Saxicola caprata* were encountered only in Site II.

On the whole, the percentage composition of bird species was the highest in order Passeriformes, represented by 27 species (67.5%) followed by order Coraciiformes with four species (10%), Columbiformes three species (7.5%) and Piciformes with two species (5%). According to Smythies (2001) and Robson (2011) Passeriformes represented the largest order among all recorded in South-East Asia. Similar conclusion was made by Thandar (1996), Nu Nu Tun (2011), Zaw Myo Win (2013) and Khin Ma Ma (2015).

During the study period, non-passerine bird confined to the order Pelecaniformes, Gruiformes, Charadriiformes, Columbiformes, Coraciiformes, Cuculiformes and Piciformes were observed in the study area. There are three species of *Ardeola bacchus*, *Amaurornis phoenicurus*, *Vanellus indicus* aquatic birds were recorded. All non-passerine birds are resident. Out of the 27 species of Passeriformes, six species were migratory birds. The highest number of species was recorded in January and agreed with Thet Thet Tun (2010) who recorded 105 species in Shwesattaw wildlife sanctuary.

Among the 40 species of birds recorded, 32 species are insectivorous, 17 species are frugivores, 10 species are granivores, four species are pecivores and three species, nectarivores. The number of species and individuals depend on the abundance of food sources and availability, favourable climate condition, lack of disturbance and lack of disease in their environment (Gill, 2001).

In recent years, activities of human such as urbanization, deforestation, men made pollution and environment deterioration, caused loss of habitats of birds. In order to ensure that future generation continue to enjoy the abundance and diversity of bird known today, it is important to implement strict measures to maintain the sustainability of the avifauna.

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