

## Status of Globally Threatened and Near- threatened Bird species in Wetland areas of Wakema Township, Ayeyarwady Region

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### Abstract

The research observed in wetland areas of Wakema Township, Ayeyarwady Region. Wetlands are very crucial important area for some globally threatened and near- threatened bird species. Some of these are found in wetland habitats. Detail study has not been carried out in this wetland to assess the status and diversity of bird species. Thus the present work was conducted the globally threatened and near-threatened bird species' status in the study area. Field surveys were carried out from July 2018 to June 2019. Line transect method was applied by Bibby *et al*; 2000 in this research. During the research period, three globally threatened bird species of *Emberiza aureola*, *Grus antigone* and *Chrysomma altirostre* and five near- threatened bird species of *Mengalurus palustris*, *Ploceus hypoxanthus*, *Mycteria leucocephala*, *Threskiornis melanocephalus* and *Anhinga melanogaster* were recorded. According to the local occurrence status, four very common, two common, and two fairly common of bird species were observed. The habitat types which utilized by bird species were paddy field, marsh swamp, lotus field, agricultural land and reed bed.

Key words: bird, globally, habitat, threatened, wetland

### Introduction

Myanmar possesses a great wealth and diversity of wetland habitats. The wetland habitats of Myanmar include rivers and streams, shallow fresh water lakes and marshes, water storage reservoirs, fish pond, seasonally flooded cultivated plains, estuaries and mangrove swamps (Davies *et al.*, 2004). Wetlands are major breeding, nesting, and migration staging areas for waterfowls and shore birds (Birdlife international, 2005). All the major wetlands of the world support a variety of large birds, indicating the richness of these habitats as feeding grounds. The fresh water aquatic

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habitats include an enormous range of the types, some immense, some tiny, some short-lived, some whose duration can be measured in geological time.

A significant number of the plant and animal species that occur in Myanmar have been assessed as globally threatened, following the global threat criteria of IUCN. Many of Myanmar's globally threatened bird species are characteristic of wetland ecosystems, including some of the most threatened bird species in the country. Across the Indo-Burma Hotspot, wetlands ecosystem generally receive less conservation investment and are higher levels of threat than forest ecosystem. Myanmar supports some of the best remaining examples of these ecosystems remaining in the hotspot. In addition to forest and wetland ecosystems, open country ecosystems are also important for globally threatened bird species (Bird life international, 2006).

As different wetland type serve different ecological functions. Wetlands are usually dynamic habitats. Many wetlands system support a high diversity of wildlife, many of which are endemic or threatened. The current population size and habitat use of globally threatened and near-threatened bird species in Ayeyarwady Region are still poorly known. No attempt has been made in Ayeyarwady Region. The research objectives are designated the estimate population, local occurrence status, and habitat utilization of the globally and near-threatened bird species in wetland areas of Wakema Township, Ayeyarwady Region.

## **Materials and Methods**

### **Study area**

Wakema is a town in the Ayeyarwady Region of south-west Myanmar. It is 153 km far from Yangon. It is located between north latitude 16° 44' and 16° 43' and east longitude 95° 16' and 95° 19'. It was seasonal wetland (Fig. 1). The study site composed of different habitat types such as paddy field, marsh swamp, lotus field, agricultural land, and reed bed.

### **Study period**

The study period lasted from July 2018 to June 2019.

### **Bird observation method**

Bird watching, counting, analyzing and identifying were done during the study period. Identification of bird species was made using by spotting scope and binocular. Birds were identified to the species level and their taxonomic groups were properly categorized based on field guide of

Robson (2011). Bird observation were carried out twice per day; morning between 6:30 to 11:00 am and evening between 3:00 to 5:00 pm.

### **Field data collection**

Data were collected using the method of line transect. Field observation was conducted by visiting two times per month and two days per trip at least six hours spent in the field. Line transect method was applied by Bibby *et al.*, 2000. Transects were performed on foot although in some transect line across the canals by using boat.

### **Local occurrence status method**

Local Occurrence Status method was applied for the status of bird diversity (Bull, 1974). The bird species found more than 1000 individuals per day in the locality were termed as very abundant, those between 200 to 1000 individuals were termed as abundant, and those found between 51 to 200 individuals were termed as very common, whereas those found between 21 to 50 individuals were considered as common species. Bird species, similarly, were termed as fairly common having population seven to 20 individuals per day, whereas those observed between one to six individuals were named as uncommon. Correspondingly, birds with one to six individuals per season were described as rare. On the other hand, bird species having infrequent occurrence were termed as very rare species.

### **Field equipment**

The utilized equipment for species identification were spotting scope (Swift 20x40&60mm), binocular (Minox 10 x42mm), bird field guide book (Robson, 2011), call recorder (Remax RB-M9) and digital camera (Canon powershot SX 60) (Plate.3.1). Geographic coordinates for each location (tracks and waypoints) were recorded by using GPS devices (Garmin etrex 10) (Plate I). The open source software Quantum GIS (QGIS) was used for GIS data analysis.



A. Binoculars



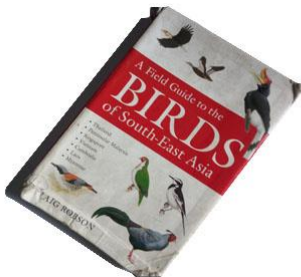
B. GPS



C. Camera



D. Speaker



E. Field guide book



F. Spotting scope

Plate I. Field equipment

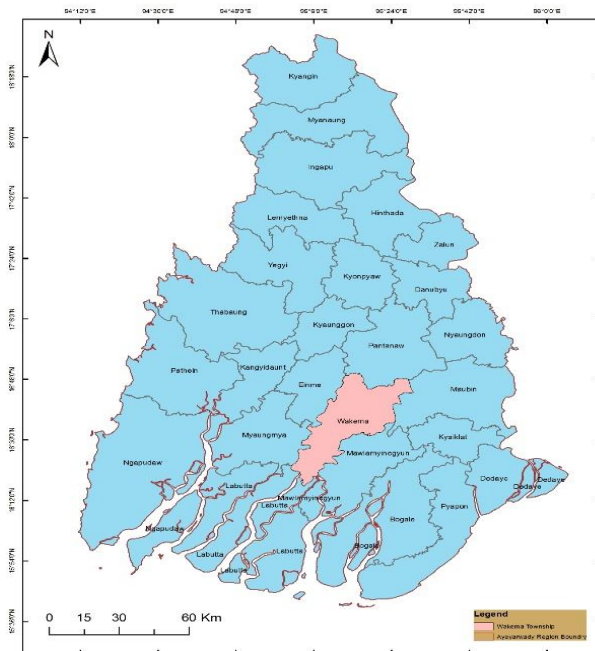


Fig.1. Map of the Study area

## Results

### Species composition

A total of three globally threatened bird species and five near-threatened bird species of eight genera belonging to eight families and representing four orders were recorded during the study period. Among them, four species of four genera belonging four families and representing one order were recorded as terrestrial bird while four species of four genera belonging to four families and representing three orders were recorded to be waterbirds (Table 1 and Figure 2). Among the recorded bird species (8 species), one critically endangered (CR) bird species Yellow-breasted Bunting *Emberiza aureola*, two vulnerable species (VU) of Sarus Crane *Grus antigone* and Jerdon's Babbler *Chrysomma altirostre* (Plate II. A, B and C) and five near-threatened bird species (NT) of Striated Grassbird *Mengalurus palustris*, Asian Golden Weaver *Ploceus hypoxanthus*, Painted Stork *Mycteria leucocephala*, Black-headed Ibis *Threskiornis melanocephalus* and Oriental Dater *Anhinga melanogaster* were recorded by IUCN status (Plate II. D, E, F, G and H). The highest numbers of globally threatened bird species were recorded in order Passeriformes.

During the study period, one globally threatened bird species of Jerdon's Babbler *Chrysomma altirostre* was rediscovered bird species. It had last been seen in July 1941 in Myanmar. After 73 years, this species was rediscovered by the scientific team from Wildlife Conservation Society (WCS), Myanmar's Nature and Wildlife Conservation Division (MOECAF), and National University of Singapore (NUS) at Uto Farm in May, 2014.

### **Estimate population number of bird species**

Findings of research revealed that maximum account of 263 individuals in terrestrial bird and 270 individuals in waterbirds. In waterbird species, the highest population numbers of near-threatened species (Painted Stork, 125 individuals) in order Ciconiformes and follow after by vulnerable species (Sarus Crane, 97 individuals) were recorded in order Gruiformes. On the other hand, the lowest population numbers of near-threatened waterbirds species of (Black-headed Ibis, 17 individuals) in order Ciconiiformes and follow after (Oriental Darter, 31 individuals) were recorded in order Pelecaniformes. In terrestrial bird species, the highest population numbers of near-threatened species of (Asian Golden Weaver, 155 individuals) and follow after (Striated Grassbird, 56 individuals) were recorded in order Passeriformes. In contract, the lowest population numbers of vulnerable species ( Jerdon's Babbler, 33 individuals) and follow after critically endangered bird species (Yellow-breasted Bunting, 19 individuals) were recorded in order Passeriformes (Figure 3).

### **Local occurrence status of Bird species**

According to the local occurrence status, four very common (Asian Golden Weaver *Ploceus hypoxanthus*, Striated Grassbird *Megalurus palustris*, Painted Stork *Mycteria leucocephala* and Sarus Crane *Grus antigone*) two common (Jerdon's Babbler *Chrysomma altirostre* and Oriental Dater *Anhinga melanogaster*), and two fairly common (Yellow-breasted Bunting *Emberiza aureola* and Black-headed Ibis *Threskiornis melanocephalus*) of bird species were observed.

### **Habitat utilization of Bird species**

The recorded bird species utilized in seasonal wetland habitats. In this wetland area, there were many microhabitats for bird species. One wetland site consists of more than one wetland type. The habitat types which utilized by bird species were paddy field, marsh swamp, lotus field,

agricultural land and reed bed. The terrestrial bird species of Jerdon's Babbler *Chrysomma altirostre*, Yellow-breasted Bunting *Emberiza aureola* utilized in reed bed and Asian Golden Weaver *Ploceus hypoxanthus* utilized in paddy field, agricultural land and most utilized in reed bed habitats for foraging, nesting and roosting. (Figure. 4 and Table 2).

One vulnerable species of Sarus Crane *Grus antigone* was recorded in paddy field, marsh swamp and lotus field in breeding season and non-breeding season. In breeding season, their nests were built in flooded paddy field mingled with lotus field. In non-breeding season, they used marsh swamp where the water level was low. Near-threatened bird species of Painted Stork *Mycteria leucocephala* and Black-headed Ibis *Threskiornis melanocephalus* were recorded in agricultural land mixed with marsh swamp habitat.

Table1. Recorded bird species in study area

No	Scientific name	Order	Family	IUCN Status
1	<i>Grus antigone</i>	Guriformes	Gruidae	VU
2	<i>Chrysomma altirostre</i>	Passeriformes	Tamaliidae	VU
3	<i>Emberiza aureola</i>	Passeriformes	Emberizidae	CR
4	<i>Mengalurus palustris</i>	Passeriformes	Megaluride	NT
5	<i>Ploceus hypoxanthus</i>	Passeriformes	Ploceidae	NT
6	<i>Mycteria leucocephala</i>	Ciconiiformes	Ciconiidae	NT
7	<i>Threskiornis melanocephalus</i>	Ciconiiformes	Threskiornithidae	NT
8	<i>Anhinga melanogaster</i>	Pelecaniformes	Anhingidae	NT
CR	Critically endangered			
VU	Vulnerable			
NT	Near-threatened			

Table 2. Recorded bird species in different habitat types

No.	Scientific name	Paddy field	Marsh swamp	Lotus field	Agricultural land	Reed bed
1.	<i>Grus Antigone</i>	✓	✓	✓	✓	
2.	<i>Chrysomma altirostre</i>					✓
3.	<i>Emberiza aureola</i>	✓			✓	✓
4.	<i>Mengalurus palustris</i>	✓			✓	✓
5.	<i>Ploceus hypoxanthus</i>	✓			✓	✓
6.	<i>Mycteria leucocephala</i>	✓	✓		✓	
7.	<i>Threskiornis melanocephalus</i>		✓		✓	
8.	<i>Anhinga melanogaster</i>		✓		✓	

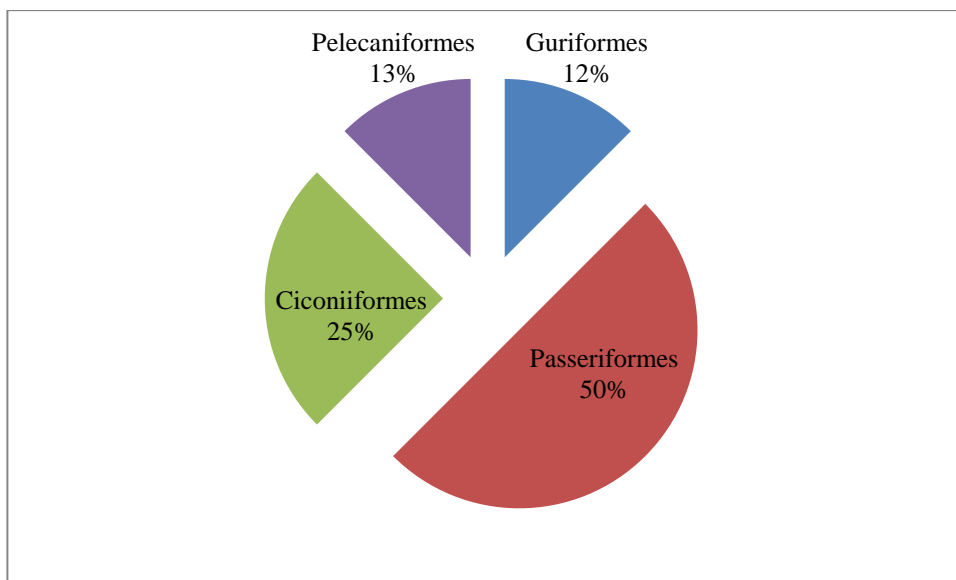


Fig.2. Percentage of recorded bird species under taxonomic status



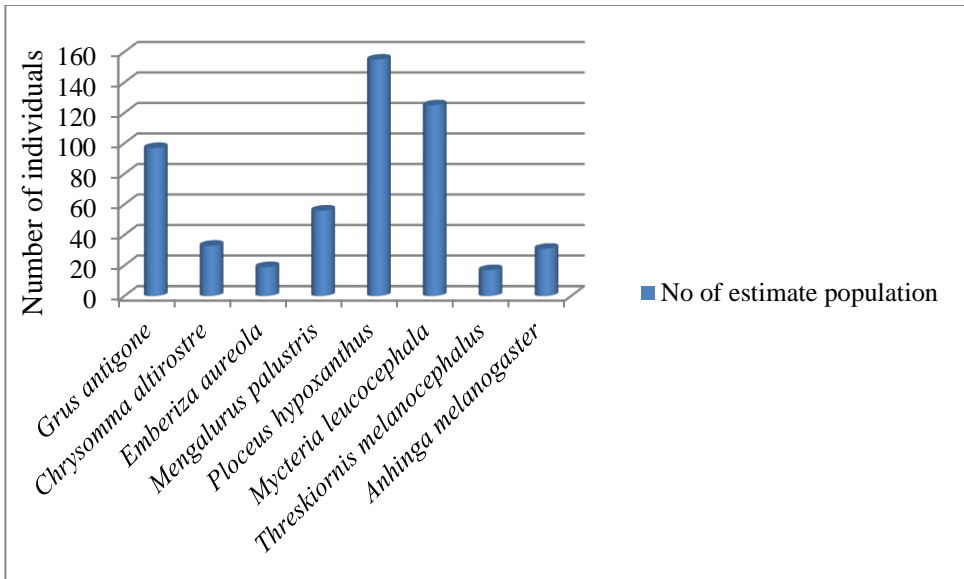


Fig. 3. Recorded bird species and their estimate population

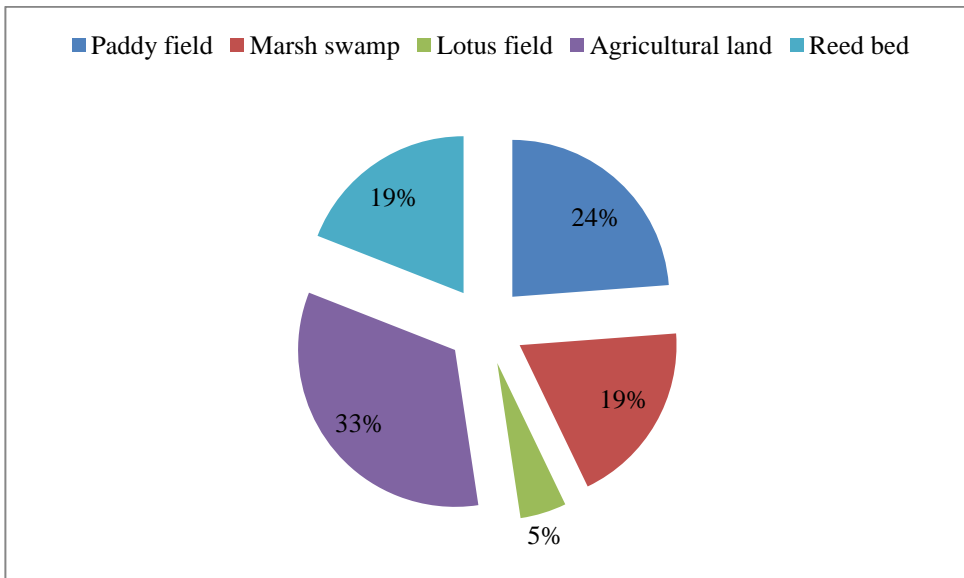


Fig. 4. Percentage of recorded bird species in different habitat types



A. *Emberiza aureola*



B. *Grus antigone*



C. *Chrysomma altiliostre*



D. *Mengalurus palustris*



E. *Mycteria leucocephala*



F. *Anhinga melanogaster*



G. *Ploceus hypoxanthus*



H. *Threskiornis melanocephalus*

Plate II. Recorded bird species in study area

## Discussion

Based on the results, a total of eight species were recorded during the study period (three globally and five near-threatened). Among the total species, one critically endangered species of Yellow-breasted Bunting *Emberiza aureola* was the migratory species. It was recorded only in cold season. Yellow-breasted Bunting *Emberiza aureola* decreased dramatically, both in numbers and in distribution area (Kamp *et al.*, 2015). The species has recently been uplisted from vulnerable to endangered, because of indications that the rate of population decline is more rapid than previously thought (BirdLife International 2015). A major cause of the dramatic decline seems to be illegal trapping in other country. In the present study site, 19 individuals of Yellow-breasted Bunting were observed during the study period. Yellow-breasted Bunting has the habit of feeding and roosting in large groups in paddy fields and reed bed habitats. It may be assumed that, these habitats were very important for these bird species. Most of their times spent in these two habitats There, birds are easily caught. In the study site, some passerine birds including Yellow-breasted Bunting were threatened by trapping by bird catcher. It may be assumed that the trapping of birds can have the disastrous effect on a population.

During the study period, the rediscovered bird species of vulnerable of Jerdon's Babbler *Chrysomma altirostre* was observed. Kaythy Khine, 2017 stated that a total of 47 individuals were recorded in Wakema Township. In the present research, 33 individuals of bird species were recorded in the study area.

According to the results, the recorded bird species utilized one or more habitat types. But the rediscovered bird species of Jerdon's Babbler *Chrysomma altirostre* was recorded only in reed bed habitats. It may be assumed that this habitat was important habitat for this species for foraging, roosting and nesting site. A large number of avian species depend on wetland habitats to satisfy their needs and perform other activities. They select wetland habitats based on vegetation structure and composition, food resources and microclimatic conditions that provide optimal resources for their survival ( Rajpar and Zakaria, 2010).

## Conclusion

According to the results, wetland habitats which bird species utilized were vital role for their life. Thus, if the amount and quality of wetland

habitats will substantially reduce, population of wetland dependent bird species especially globally threatened bird species in the area also can be expected to decrease.

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