

# Community of Psittacidae Family in Aketajawe Lolobata National Park North Maluku

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## ABSTRACT

Aketajawe Lolobata National Park has a variety of habitat types and diverse bird species. North Maluku is one of the EBA areas (Endemic Bird Area) because it has many endemic bird species. This research aims to describe the type of habitat, identify the species of Psittacidae bird, and utilize vegetation in bird habitat, especially in the Lolobata block area. The research was carried out on August 20-28, 2018. The bird species calculation is carried out by the species list method MacKinnon table and the point count method. There were nine types of Psittacidae found at Tukur - Tukur site and Beringin Lamo site. The species of bird that dominates is Chattering lory (*Lorius garrulous*). Species non-dominant is White cockatoo (*Cacatua alba*) and Violet-necked lory (*Eos squamata*). The habitat in both observed locations showed a variety of habitat types, namely lowland forests and riparian. Human activities around the habitat have a considerable influence on the distribution and population size of existing species groups. Based on the Minister of Environment and Forestry Regulation No. 20 of 2018, all bird species are protected.

**Keywords:** Aketajawe Lolobata National Park, bird, Psittacidae, Tukur Tukur, Beringin Lamo

## 1. INTRODUCTION

Aketajawe Lolobata National Park is a conservation forest in Indonesia representing the biodiversity of the eastern Wallacea Zone. The Aketajawe Lolobata National Park (TNAL) existence on Halmahera Island is one of the determining factors in managing the area, a habitat for a variety of flora and fauna. TNAL has several ecosystems such as lowland rain forest ecosystems, lower mountain forests, limestone hill forests, and swamp ecosystems. Consists of six resorts, two of the resort, Lolobata and Buli Resorts, still have less data on flora and fauna diversity. North Maluku is one of the most critical EBA (Endemic Bird Area) regions in the world because it has a large number of endemic bird species. One of the islands included in the North Maluku EBA is Halmahera Island. It is known that birds have a vital role in an ecosystem and react to

environmental changes that become their habitat. Birds such as seed eaters have an influential role as seed dispersers in the forest, while nectar-eating birds will help pollinate flowers.

Crooked beak bird is a nation of Psittaciformes that has a single-family Psittacidae. This family has three subspecies based on its morphology, namely Lacatuanidae, Loriinae, and Pattaciinae. Crooked beak bird species spread in tropical regions worldwide, especially in Indonesia in the Wallacea region, including the Maluku Islands, Nusa Tenggara, and Papua [1]. Some species of endemic Psittacidae family that are endemic in Maluku are White Cockatoo (*C. alba*), Chattering Lory (*L. garrulous*), and Moluccan hanging-parrot (*Loriculus amabilis*). Some species of the Psittacidae family are classified in the vulnerable category according to the IUCN list due to human

activities, namely poaching, illegal trade, and changing the function of land that changes ecological conditions.

Bird inventory activity is one alternative to find out the diversity of bird species in TNAL. Knowing bird diversity is one of the activities that must be carried out to consider policies that the manager will further develop. The data generated is useful for knowing the diversity of species used to make a policy.

The research aims to: (1) describe the type of habitat, (2) identify species of the Pssitacidae family, (3) describe the utilization of vegetation in bird habitat

## 2. METHODS

Data was collected in the Lolobata Block TNAL area divided into two locations: the Lolobata Resort (Region III National Park Management Section) at the Tukur-Tukur site and the Buli Resort (Region II National Park Management Section) at the Beringin Lamo site. Observation activities at each site were carried out on lowland and riparian forest habitat types for seven days starting on August 21 - August 27, 2018. Repetition was carried out five times for each habitat type. Observations were made two times a day to adjust diurnal birds' active time and sunrise at 06.30 - 09.30 Central Indonesian Time and 15.30 - 18.30 Central Indonesian Time (WIT).

The tools used during the observation were binoculars, GPS Garmin 62S, zoom recorders, tally sheets, bird field guide books in the Wallacea region [2], cameras, stationery, and binocular. The objects observed and entered into the data are the birds found directly or through the identification of sounds in each habitat.

The data collection technique was carried out using the point count method or transect and the MacKinnon species list method. The MacKinnon species list method is carried out throughout the day, starting from the arrival in TNAL Block Lolobata until leaving the area by writing down ten species of birds identified for each species list by not writing the same species in one species list.

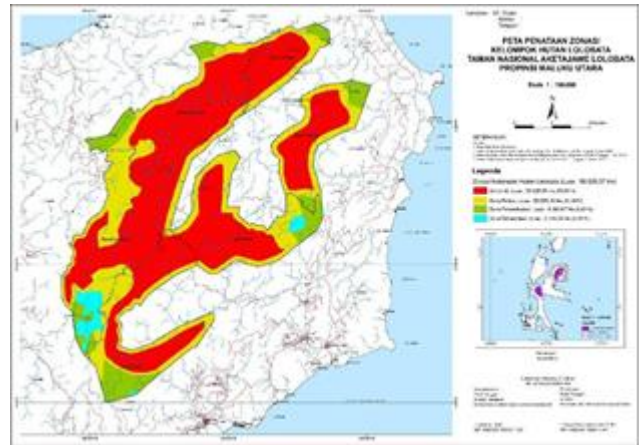


Figure 1 Aketajawe Lolobata National Park Map Area

The counting point method is done by determining five observation points with a radius of 50 meters wide with 150 meters between the observation centers. The duration of observation at one point is carried out for 10 minutes. The illustration of plot making can be seen in Figure 2. Determination of observation points considers several aspects: observer safety, canopy openness, accessibility of paths, and potential encounters with animals. Observed record the types of birds that are seen or heard along the path of observation. The types of data taken include bird species, number of individuals, activities, and time found of bird species. Observed birds are documented with a camera to get pictures and a zoom recorder to record sound. A field guide identifies birds that are visible and documented to identifying the species of Wallacea bird.

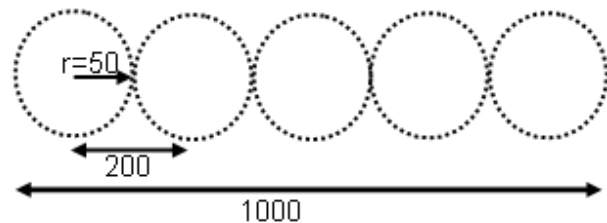


Figure 2 Illustration of observation point counting point method

Data analysis was carried out qualitatively and quantitatively. Data on bird diversity by habitat type, use of canopy strata, and bird conservation status were analyzed descriptively qualitatively. Data were analyzed quantitatively by calculating the number of bird species in each ecosystem.

### 3. RESULT AND DISCUSSION

Based on bird species observations conducted in the Lolobata Block in the TNAL area, Psittacidae species have been found (Table 1).

**Table 1.** Species Found of Psittacidae at TNAL

No	Species Name	Scientific Name	Endemic	Protection Status
1.	Grilled-billed parrot	<i>Tanygnathus megalorynchos</i>	-	Protected
2.	White cockatoo	<i>Cacatua alba</i>	✓	Protected
3.	Chattering Lory	<i>Lorius garrulus</i>	✓	Protected
4.	Eclactus parrot	<i>Eclactus roratus</i>	-	Protected
5.	Violet-necked lory	<i>Eos squamata</i>	-	Protected
6.	Red-cheeked parrot	<i>Geoffroyus geoffroyi</i>	-	Protected
7.	Moluccan king-parrot	<i>Alisterus amboinensis</i>	-	Protected
8.	Red-flanked lorikeet	<i>Chamosyna placentis</i>	-	Protected
9.	Moluccan hanging-parrot	<i>Loriculus amabilis</i>	✓	Protected

Data in Table 1 shows that in the Lolobata block forest found nine species of the Psittacidae family found. There are three species which are endemic to Maluku, namely White cockatoo (*C. alba*), Chattering lory (*L. garrulus*), and Moluccan hanging-parrot (*L. amabilis*). Based on the data, it can also be explained that all species of Psittacidae family found are protected by Minister of Environment and Forestry Regulation No. 20 of 2018. According to the CITES list all species of Psittacidae family that are found to have the status of Appendix II are not immediately threatened with extinction, but may be threatened with extinction if not included in the list and trade continues so that trade in these species is monitored. All species of Psittacidae

family found are included in the list of IUCN (The International Union for Conservation of Nature), there are two species of birds that are included in the vulnerable category (Vulnerable; VU), namely White cockatoo (*C. alba*) and Chattering lory (*L. garrulus*) and seven other types including the low-risk category (Least Concern; LC).



**Figure 3** Chattering Lorry (*L. garrulus*)

The Lolobata block was conducted at two sites in different locations, namely the Tukur - Tukur site in the Dodaga area and the Beringin Lamo site in the Buli area. Tukur-Tukur site has a lowland primary forest ecosystem (0-750 masl) with high soil fertility with relatively steep topography with a 30-35% slope. The location of data collection is at an altitude between 207-450 meters above sea level. Vegetation conditions at the Tukur-Tukur site have relatively close canopy cover and are dominated by tall trees and thick litter. Temperatures range from 25-28°C, with humidity around 90%. Beringin Lamo Site has lowland primary forest type (0-750 masl) with high soil fertility with thick litter and steep topographic conditions. The land slope between 15-37%, and the data collection location is at an altitude of 400-600 masl. Vegetation conditions have relatively close canopy cover with high rainfall. Temperatures range from 24-26°C, and humidity averages 90%. Research at each site used five bird observation plots in two lowland and riparian forest ecosystems.

Lowland forest ecosystems on the site Tukur - Tukur found seven types, namely White Cockatoo (*C. alba*), Chattering Lory (*L. garrulous*), Parrot Parrot (*E. roratus*), Eclactus parrot (*E. squamata*), Red-cheeked parrot (*G.geoffroyi*), Moluccan king-parrot (*A. amboinensis*), and Red-flanked Lorikeet (*C. placentis*). The conditions for observing lowland forest ecosystems in the Tukur - Tukur site are quite good. Land cover tends to be open and overgrown by Burseraceae and

Sapotaceae, a food and habitat source for crooked beak birds. The dominant trees in the Tukur - Tukur site are Canary (*Canarium sp.*) and Kerikis (*Palaquium sp.*). Both types of trees have a characteristic height of trees that can grow to a height of 15 m, have strong wood so that it is used for construction, and the trunk grows straight up to become a habitat for species Psittacidae.

The species that predominate in the Tukur - Tukur site's lowland forest ecosystem are Chattering lory (*L. garrulous*) and Red-cheeked parrot. According to [2], Red cheek Pssitacidae (*C. placentis*) tend to utilize the selection of nest holes where they can use trees inside or on the edge of a primary yard. Chattering lory (*L. garrulous*) is a bird that local people often raise because it has beautiful colours and can be trained and mimicked human voices [3]. Habitat of Chattering lory (*L. garrulous*) is generally in primary and secondary forests, selective logging forests, and community gardens. Chattering lory (*L. garrulous*) has a uniquely loud sound and gathers in large groups in the food source tree. The condition of lowland forests dominated by dense canopy trees is an ideal habitat for Chattering lory (*L. garrulous*). Therefore, Chattering Lory's (*L. garrulous*) dominance is quite dominant because it is found every morning and evening observation. Non-dominant types include Moluccan king-parrot (*A. amboinensis*) and Red cheek Pssitacidae (*C. placentis*).

Riparian site ecosystem Tukur - Tukur found six species of Pssitacidae, namely White Cockatoo (*C. alba*), Chattering Lory (*L. garrulous*), Eclectus parrot (*E. roratus*), Violet-necked lorry (*E. squamata*), Moluccan king-parrot (*A. amboinensis*), and Red-cheeked parrot (*G. geoffroyi*). The riparian area of the Tukur site - Tukur has a relatively flat characteristic around a hill with a shallow rocky river flowing in a valley with open vegetation. The species found are similar to those in lowland forests; the same dominating bird is Chattering lory (*L. garrulous*) and Red-cheeked parrot (*G. geoffroyi*). Species that do not predominate in the riparian ecosystem are Tukur - Tukur, namely the Moluccan king-parrot (*A. amboinensis*), White Cockatoo (*C. alba*), and Violet-necked lorry (*E. squamata*).



**Figure 4** White Cockatoo (*C. alba*)

Beringin Lamo site has two ecosystems, namely lowland and riparian forest ecosystems. Beringin Lamo lowland forest ecosystem has steep hilly characteristics and tightly closed vegetation. Many large trees are suitable homes for the Pssitacidae family. The type of tree that dominates is the star of the Clusiaceae family. Environmental influences and habitat conditions are located in lowland forest areas and have relatively moist soil and relatively flat to gentle sloping topography. Types of plants from the Clusiaceae family, such as Bintangur, can grow in habitats with heights ranging from 100-150 meters above sea level and grow well in mineral soils [4]. Three species of Pssitacidae were found in lowland forest, namely White Cockatoo (*C. alba*), Red-cheeked parrot (*G. geoffroyi*), and Chattering lory (*L. garrulous*). The types that dominate are Chattering lory (*L. garrulous*) and Red-cheeked parrot (*G. geoffroyi*). White Cockatoo (*C. alba*) does not dominate lowland forest ecosystems because vegetation tends to be dense. White Cockatoo (*C. alba*) was found in trees that had died during the study.

Beringin Lamo site's riparian site has steep characteristics with shallow water sources due to many rocks, so the resulting river flow is not swift. The river flow in the Banyan Lamo riparian site ecosystem leads to a waterfall in the fifth observation plot. Types found include White cockatoo and Chattering lory (*L. garrulous*). White Cockatoo (*C. alba*) is a type that has tolerance to habitat modification [6].





**Figure 5** The riparian ecosystem in Beringin Lamo

Based on the four observation sites conducted with the same two ecosystems, the Tukur-Tukur site found more species of Pssitacidae compared to the Beringin Lamo site. The condition of the abundance of feed is the main factor determining birds' presence in a place. The abundance of feed will affect bird species' presence and their ability to adapt to a location to create separate niches to meet their needs. Site characteristics Measures - Relatively flat gauges with sufficiently open vegetation and bird feed availability are factors in the species of Pssitacidae that are found more than the Beringin Lamo site.

#### **4. CONCLUSION**

The Lolobata Block of the TNAL area for data collection is divided into two locations: in the Lolobata Resort (Region III National Park Management Section) on the Tukur-Tukur Buli Resort (Region II National Park Management Section) on the Beringin Lamo site. Tukur-Tukur site has a lowland primary forest ecosystem (0-750 m asl) with high soil fertility with relatively steep topography with a 30-35% slope. The location of data collection is at an altitude between 207-450 meters above sea level. Vegetation conditions at the Tukur-Tukur site have relatively close canopy cover and are dominated by tall trees and thick litter. Beringin Lamo site has lowland primary forest type (0-750 masl) with high soil fertility with thick litter and steep topographic conditions. The land slope between 15-37%, and the data collection location is at an altitude of 400-600 masl. Vegetation conditions have relatively close canopy cover with high rainfall. Nine species of Pssitacidae were found, the dominant birds being Chattering lory (*L. garrulous*), Red-cheeked parrot (*G. geoffroyi*), and White Cockatoo (*C. alba*). The dominant tree species are Canary, Kerikis, and Bintangur.

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