

Status of Bird Conservation at the Ketambe Research Station, Gunung Leuser National Park

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Abstract: The conservation status of birds in the Ketambe Research Station area, Gunung Leuser National Park, needs to be done so that more attention can be paid to the preservation of bird diversity. This study aims to observe the conservation status of various birds in three altitude zones, namely zone 1 (350-550 m asl), zone 2 (550-800 m asl), and zone 3 (800-1050 m asl). Observations were made in May-August 2019 at the Ketambe Research Station, Gunung Leuser National Park, Southeast Aceh. The results of observations as a whole, there were 581 individuals from 97 recorded bird species belonging to 27 families and 10 orders. Twenty-five bird species are listed on the IUCN red list in the categories of critically endangered, vulnerable, endangered and near threatened.

Keywords: Birds; Conservation Status; Gunung Leuser; Ketambe

Introduction

Gunung Leuser National Park were famous by TNGL has a high bird species richness. There are around 438 species of birds that live in Sumatra, of which 350 species are found in the Gunung Leuser National Park area, 30 species of migratory birds and 36 species thought to be endemic to Sundaland (Wind, 1996) in the Gunung Leuser National Park area there is a research station that is used for various activities such as research and observation.

Ketambe Station is one of the oldest research stations in Indonesia which was founded in 1971 by a Dutch researcher named Herman D. Rijksen. Administratively (Djufri, 2015), this station is in the area of Balelutu Village, Badar District, Southeast Aceh District (Irfan, 2003).

The types of birds found in the Ketambe TNGL station area are conserved by obtaining initial information from the management plan. Birds can live side by side with the community on the condition (Barmantlo et al., 2021; Norton, 2021) that their needs are met and their habitat is safe from various disturbances (Peng & Broom, 2021; Silva et al., 2021; Wolf et al., 2019).

The presence of birds is very important in maintaining the environmental balance in an area (Donald et al., 2019; Liu et al., 2020; Macchi et al., 2019).

The presence of birds is very beneficial for the environment and the economy (Gerson et al., 2019; Ribeiro et al., 2019; Tarjuelo et al., 2020) therefore conservation efforts are needed. Preservation begins by looking at the conservation status of the bird species. Furthermore, utilizing biological natural resources as a conservative measure. Living natural resources and ecosystems that are maintained and in balance with national development (Bennett, 2019; Jhariya et al., 2021). Elements of natural resources and ecosystems have a mutually influencing relationship (Koval et al., 2021) so that they have an impact on ecosystems such as the presence of birds (Nainggolan et al., 2019). The purpose of this study was to find out data and information on protected bird species and their conservation status in the research status of the Ketambe Gunung Leuser National Park.

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Method

Time and Location of Research

Data collection on bird species diversity was carried out in May-August 2019. The research was conducted at the Ketambe Research Station, Gunung Leuser National Park, Southeast Aceh (Figure 1).

The observation area is distributed in three altitude zones at this Research Station, namely zone 1, the lowest altitude is in the range of 350-550 meters above sea level and this zone has the widest area of ±239 ha. Zone 2, medium altitude with a range of 550-800 masl and an area of ± 118 ha. Zone 3, altitude ranging from 800-1050 meters above sea level and has the lowest area of ±66 ha.

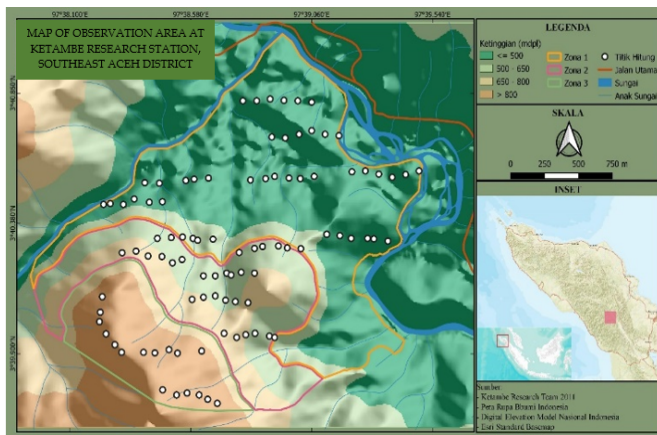


Figure 1. Observation Location Map

Data collection technique

Bird data were collected using the fixed-radius point count method and the minimum number of count points was based on Hutto et al. (1986); Bibby et al. (2000); Volpato et al. (2009). A total of 16 lines were observed, namely 7 lanes in zone 1, 6 lanes in zone 2, and 3 lanes in zone 3. Each lane has 6 count points with a fixed radius of 20 m and a distance between count points of 100 m (Figure 2). The 20 m radius was determined based on the consideration that dense forest conditions, with tall trees, are more than 30 m (Buij et al., 2006). the total count points in the three altitude zones totaled 96, respectively 42, 36, and 18 (Table 1). Observations were made at 07.00-10.00 WIB and 15.00-18.00 WIB which is the best time to observe birds (MacKinnon et al., 2010).



Figure 2. Illustration of calculating point placement

This method is carried out by stopping at a predetermined point and counting all the birds that are detected. The data taken is in the form of type, number of individuals, and activity. The time required to retrieve data at each point is 10 minutes, and another 5-10 minutes are used to move from one point to another.

Table 1. The number and area of the calculated point area

Zone	Number of count points	Area (km ²)	Coordinate		Altitude range (m dpl)
			X	Y	
1	42	0.053	97.643.033	3.662.179	350-550
2	36	0.045	97.643.458	3.668.427	550-800
3	18	0.023	97.649.057	3.675.796	800-1050
Amount	96	0.121			

Data analysis

Descriptive analysis is used to describe the general condition of the observation area used by birds, tabulated and described based on the results of the observations made. The obtained bird data is calculated using the ecological approach formula. The identified bird species are then tabulated and their conservation status made based on the Regulation of the Minister of Environment and Forestry No.P.92 of 2018 and based on the International Union for Conservation of Nature (IUCN) red list.

Result and Discussion

Based on the Regulation of the Minister of Environment and Forestry No.P.92 of 2018, of the 82 bird species found, 15 of them are protected bird species.

Meanwhile, based on the International Union for Conservation of Nature (IUCN) red list, 82 bird species are recorded on the red list with the categories critically endangered (CR), endangered (EN), vulnerable (VU), near threatened (NT), and least concern. low risk (LC) (International, 2008) (Figure 3).

Based on Figure 3, the number of bird species included in the critically endangered category is one species, namely the king prawn blue necklace (Alcedo euryzona). The blue collared king prawn (Alcedo euryzona) is a shy bird and is usually found near streams of water. The main diet is fish and alternative foods are insects or small vertebrates (eg frogs or lizards), including resident but uncommon birds (MacKinnon et al., 2010) (MacKinnon et al., 2010). Furthermore, as many as 3 species are included in the endangered category, namely blue winged cica (Chloropsis cochinchinensis),

rock caladi (*Meiglyptes tristis*), and bearded gills (*Alophoixus bres*). Two species are included in the vulnerable category, namely the rhinoceros hornbill (*Buceros rhinoceros*) and the golden hornbill (*Aceros undulatus*). A total of 19 types were included in the near threatened category and 57 other types were included in the least concern/low risk category. Based on Wind (1996) there are 5 species of hornbills in ketambe, but there is one species that was not recorded either directly or indirectly, namely the ivory hornbill (*Buceros vigil*). The decline in this bird species is likely due to poaching.

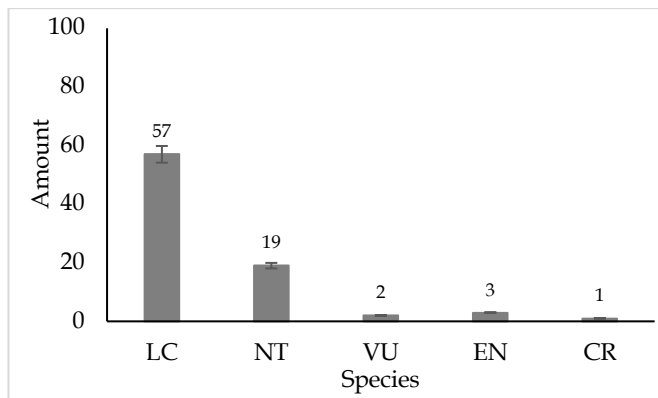


Figure 3. Number of IUCN protected species

Overall the pattern of diversity at the Ketambe Research Station increases from the lowest zone to its peak in zone 2 (550-800 m asl) and decreases above that altitude. Based on field observations and the results obtained, habitat productivity and heterogeneity play an important role in shaping patterns of bird species diversity (Sari et al., 2015). For example, the swamp perenjok bird (*Prinia flaviventris*) which is only found in the riparian zone in zone 1 and the striped uncal bird (*Macropygia unchall*) which is only found in zone 3. Likewise with bird species that have special habitats/niches such as birds from the Alcedinidae family which prefers places close to water both in search of food and for nesting sites. Therefore, there are significant differences in the composition of the bird community between zones (1 and 2) and zone 3, as evidenced by the community similarity index of only 18%. The bird community in Ketambe is still relatively stable with an evenness value close to 1, which means that the habitat conditions are still good and can support populations of various bird species, however there are a number of birds that were not recorded in this study, such as the ivory hornbill (*Buceros vigil*) which may be caused by bird activity. human beings, namely poaching, logging, forest encroachment and land conversion. Only one type of migratory bird was recorded, which is probably because it is not yet the season for migration.

As a side note, in Ketambe there are also aerial insectivorous bird species, but they were not included in

the list of findings because observers were not sure whether these birds belonged to the Swallow family (*Apodidae*) or kites (*Hirundinidae*). Both of these families have the same habit of flying while hunting for insects in the air and at first glance have similar characteristics, and several species from these two families sometimes mix so that it is difficult to distinguish them (MacKinnon et al., 2010). In addition, bird species from the Chloropseidae family (*Chloropsis cochinchinensis*, *C. cyanopogon*, *C. sonnerati*), are warbler species protected by the government. There are two reasons why this bird is rarely found, firstly because the population of this bird is decreasing as a result of hunting for cryptic (hidden/shy) bird species and high canopy dwellers, and this bird has a plumage color that is dominated by bright green (leaf green) making it difficult to find it. to detect it. Further research needs to be done to see the density of bird populations, especially for passerines which are widely sold in bird markets.

Conclusion

The conclusion of this study is that twenty-five bird species are listed on the IUCN red list with the categories critically endangered, endangered, vulnerable, and near threatened.

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