

DIVERSITY OF BIRD SPECIES IN THE FAONG RESORT SASARATA COASTAL MANGROVE FOREST AREA, NORTH SERAM DISTRICT

Oleh

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Abstract

This study aims to determine the diversity of bird species in the coastal mangrove area of Faong Resort Sasarata, North Seram District. The data collection method in this study used the IPA (Indices Ponctuele d'Abundance) method. The results of this study indicate that at the research site 301 birds were found with a total of 8 species of bird species, namely the Sea Pergam (*Ducula bicolor*), Garden Fan (*Rhipidura leucophrys*), Sungai Cekakak (*Todiramphus chloris*), White Eye Pergam (*Ducula perspicillata*), Gray Brush (*Myiagra galeata*) Seram Cikukua (*Philemon subcorniculatus*), Seram Cikukua (*Philemon subcorniculatus*), Australian Ibis (*Thareskiornis molucca*), Rainbow Lorikeet (*Trichoglossus haematodus*). The index value of the diversity of bird species (H') is 1.954 which is in the medium level category. The habitat of bird species on the coast of Faong Beach is quite stable.

Keywords: *Faong Coast, Mangrove Forest, Birds.*

INTRODUCTION

Indonesia now has 1812 bird species or an increase of 18 species compared to the previous year. Taxonomic breakdown is a factor that causes the increase in the number of bird species in Indonesia. Birdlife International noted that Indonesia is home to at least 17% of the number of bird species in the world and is in the 4th position in bird wealth. But based on its endemicity, Indonesia is in the 1st position which has the most endemic bird species in the world. Birds are an indicator of environmental quality and play a role in the natural regeneration of tropical forests. Birds also have an important role in pollinating various flowers in the forest, so their presence in an ecosystem is needed (Burung Indonesia, 2021).

Birds are one of the ecosystem components that have an important role in supporting the sustainability of the organism's cycle, this situation can be seen from the food chain that forms a living system with other ecosystem components such as plants and insects (Mac Kinnon *et al.*, 2010). Sujatnika *et al.*, (1995) suggested that birds can also be used as an indicator of biodiversity in one place

because: a. Birds live and are scattered in all parts of the earth, in almost all habitats, and at various altitudes. b. Birds are very sensitive to environmental changes and degradation. c. The taxonomy of birds has been so stable that it can be said that there is no change. d. Information on the geographical distribution of birds of every bird species on earth is known and well documented. Birds can occupy a variety of habitat types, one of which is wetlands. In general, birds use this habitat as a place to find food, move, breed and take shelter. Factors that determine the presence of birds are the availability of food, places to rest, play, mate, nest, perch, and shelter in a habitat (Elfidasari and Junardi, 2006).

National Parks are natural conservation areas that have native ecosystems, managed with a zoning system used for research, science, education, cultivation, tourism and recreation purposes. National parks are a type of conservation area because they are protected, usually by the central government, from human development and pollution. One of the National Parks in Maluku is Manusela National Park, precisely in North Seram District. Manusela National

Park is a conservation area with an area of about 174,545, 59 ha. The location of this area almost covers 75% of Central Maluku Regency. This national park is a combination of two nature reserves, namely Wae Nua and Wae Mual along with the entire expansion of its territory. However, administratively the Manusela National Park area is included in North Seram District with the capital OH and South Seram District with the capital Tehoru.

Sasarata Resort located in Manusela National Park is a coastal area in the form of wetlands consisting of a stretch of sandy mud and mangrove forest areas that are used as a place for foraging and resting by water birds. The Sasarata coastal area is a trajectory of migratory birds and is included in one of the

RESEARCH METHODS

This research was conducted in the Faong Resort Sasarata Coastal Mangrove Forest Area, North Seram District. This research took place in December 2020. The following is a map of the research location. Tools and materials used for field work are: Camera, Binoculars, Compass, GPS, Guidebooks, Map of research locations

The object of this research is the diversity of bird species found in the Coastal Mangrove Forest Area of Faong Resort Sasarata, North Seram District. Bird data collection was carried out in the Faong Beach area, using the IPA (Indices Ponctuele d'Abundance) method by making 5 (five) paths in the Faong coastal mangrove forest, distance between path is 364 meters and each lane is made five observation points, each observation

coastal areas of North Seram. The diversity of waterbird species includes both migratory birds and resident birds in the Sasarata coastal area, so it is necessary to know its role as a biological indicator in the area, so it is necessary to conduct research on "Diversity of Bird Species in the Sasarata Forest Area, North Seram District". Taking into account the problems above, the author wishes to conduct a research entitled "Diversity of Bird Species in the Coastal Mangrove Forest Area of Faong Resort Sasarata, North Seram District". The purpose of this study was to determine the diversity of bird species in the coastal mangrove area of Faong Resort Sasarata, North Seram District.

point with a 25 meters of diameter with a distance between observation points is 100 meters, observations were carried out in silence at a predetermined point and then recorded the encounter of birds that flew or were above trees and the ground. The parameters measured were the species of birds and the number of individual birds. The length of time for observations at each observation point is 25 minutes, 15 minutes for observations at each point and 10 minutes is the time to walk to the next observation point. Every bird species found at every point in the observation path was recorded with all forms of activity.

Observations were made in the morning at 06.00 - 09.00 AM and in the afternoon at 15.00 - 18.00 PM. Observations were made with 2 repetitions for each observation location. Calculation of abundance by directly counting the number of birds observed to calculate the diversity index.



Figure 1. Research location map

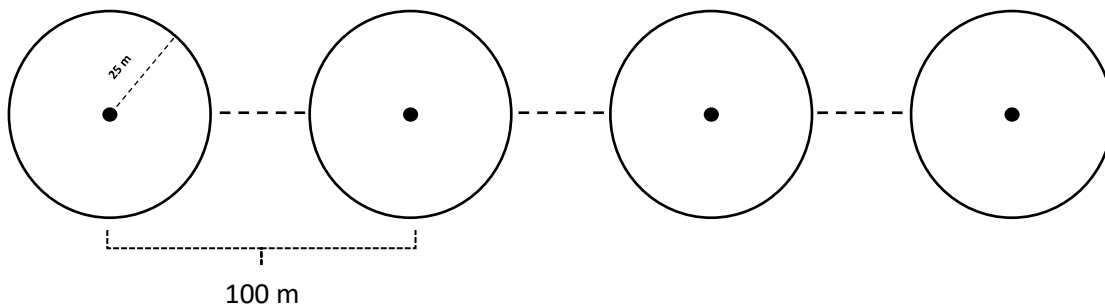


Figure 2. Placement of bird observation points using the IPA point method

Species diversity index

Bird species diversity was calculated using the Shannon-Wiener diversity index with the formula (Maguran, 1988):

$$H' = -\sum \frac{n_i}{N} \log \frac{n_i}{N} \dots\dots\dots (1)$$

With $P_i = n_i/N \dots\dots\dots (2)$

Description :

- n_i = Number of individuals of the i-th species
- N = Total number of individuals of all species found
- $H' < 1$ = Low species diversity, unstable ecosystem
- $1 < H' < 3$ = Medium species diversity, fairly stable ecosystem
- $H' > 3$ = High species diversity, stable ecosystem

Relative Abundance

Abundance is calculated by comparing the number of individuals of a species with the

number of individuals of all species using the formula (Helvoort, 1981):

$$Ki = \frac{\text{number of individuals to species } -i}{\text{total number of individuals}} \times 100\% \dots\dots\dots (3)$$

where Ki = Abundance Value

To determine the level of encounters (encounterrates) of a species, a simple scale

approach to abundance is used (Lowen et al, 1996 in Bibby et al, 2000).

- Rarely : > 0.1
- Uncommon : 0.1-2.0
- Often: 2.1-10
- General: 10,1-40,0
- Abundant : > 40.0

RESULTS AND DISCUSSION

Bird Potential

Based on the results of the research conducted, the types of birds found at the research site can be seen in the Table 1.

Table 1. List of birds in the research site

Number	Spesies name	Scientific name	Family	Ordo	Status
1	Pergam Laut	<i>Ducula bicolor</i>	Columbidae	Columbiformes	Up
2	Kipasan kebun	<i>Rhipidura leucophrys</i>	Rhipiduridae	Passeriformes	UP
3	Cekakak Sungai	<i>Todiramphus chloris</i>	Alcedinidae	Coracioformes	p
4	Pergam Mata Putih	<i>Ducula perspicillata</i>	Columbidae	Columbiformes	p
5	Sikatan Kelabu	<i>Myiagra galeata</i>	Monarchidae		p
6	Cikukua Seram	<i>Philemon subcorniculatus</i>	Meliphagidae	Passeriformes	p
7	Ibis Australia	<i>Thareskiornis molucca</i>	Threskiornithidae	Ciconiiformes (disputed)	p
8	Perkici Pelangi	<i>Trichoglossus haematodus</i>	Psittacidae	Psittaciformes	p

Source: Primary data in (2020) (research data)

Description : UP = Unprotected, P = Protected

The type of food Pergam Laut (*Ducula bicolor*) consists of various types of fruits found around coastal areas, coastal forests and small islands. One of the fruits favored by the Sea Pergam (*Ducula bicolor*) is the beach fruit. Pergam Laut does not include birds that are not

protected. The type of food Kipasan Kebun (*Rhipidura leucophrys*) consists of various types of small insects found around the mangrove forest area and does not include bird species that are not protected. The type of food for the Sungai Cekakak (*Todiramphus chloris*)

does not always prey on shrimp or fish. Some species prefer to eat lizards, snakes, crabs, or even insects caught in flight. The river cuckoo (*Todiramphus chloris*) is one of the protected species and is included in the IUCN Red List of Threatened. The type of food for the White Eye Pergam bird (*Ducula perpicillata*) is mainly forest fruits such as banyan and other fruits found around the mangrove forest location. This type of bird is not included in the type of protected species. The Gray Sikatan bird's diet (*Myiagra galeata*) consists of fruits and insects, this bird is not a protected species. The type of food for the Cikukua Seram bird

(*Philemon subcorniculatus*) consists of fruits and seeds found around the coast of mangrove forests. This bird is very common on Seram Island. Inhabits forests, forest edges, mangroves and coconut plantations on the coast and is not a protected species. The type of food for the Australian Ibis (*Threskiornis Molucca*) is in the form of frogs, fish, insects from wetlands and beaches. And it is a protected bird species. The food for the Rainbow Lorikeet (*Trichoglossus haematodus*) consists of seeds and fruits. The Rainbow Lorikeet (*Trichoglossus haematodus*) is a protected species.

Table 2. The index value of bird species diversity in the research area

Number	Species name	Scientific name	Total	H'
1	Pergam Laut	<i>Ducula bicolor</i>	37	
2	Kipasan kebun	<i>Rhipidura leucophrys</i>	35	
3	Cekakak Sungai	<i>Todiramphus chloris</i>	46	
4	Pergam Mata Putih	<i>Ducula perspicillata</i>	40	1,954
5	Sikatan Kelabu	<i>Myiagra galeata</i>	60	
6	Cikukua Seram	<i>Philemon subcorniculatus</i>	47	
7	Ibis Australia	<i>Thareskiornis molucca</i>	34	
8	Perkici Pelangi	<i>Trichoglossus haematodus</i>	6	
Jumlah (N)			305	

Source: Primary data in (2020) (research data)

Abundance of Birds

Abundance is used to determine the density of individuals in an ecosystem. Relative abundance data was calculated using the

Relative Abundance Index (IKR) calculation. The relative abundance index of bird species in the coastal mangrove forest area of Faong Resort Sasarata can be seen in Table 3

Table 3. Index of relative abundance of bird species in the coastal mangrove forest area of Faong Resort Sasarata

Number	Species name	Scientific name	Abundance Index Relatif (%)
1	Pergam Laut	<i>Ducula bicolor</i>	12,29%
2	Kipasan kebun	<i>Rhipidura leucophrys</i>	11,62%
3	Cekakak Sungai	<i>Todiramphus chloris</i>	15,28%
4	Pergam Mata Putih	<i>Ducula perspicillata</i>	13,28%
5	Sikatan Kelabu	<i>Myiagra galeata</i>	19,93%
6	Cikukua Seram	<i>Philemon subcorniculatus</i>	15,61%
7	Ibis Australia	<i>Thareskiornis molucca</i>	11,29%
8	Perkici Pelangi	<i>Trichoglossus haematodus</i>	0,66%
Total			100%

Source: Primary data in (2020) (research data)

According to Lowen et al, 1996 in Bibby et al, (2000), to determine the level of encounters (encounter rates) of a species, a simple order scale approach of abundance was used with the following values: rare (<0.1), not common (0.1-2.0), often 2.1-10.0, common 10.1 - 40.0) and abundant (>40.0) so that the abundance of each bird species obtained from the results of data analysis varies greatly. One of the contributing factors is that the relative abundance values in the Faong Coastal mangrove forest area are very different as shown in Table 3. From table 3. It can be seen that the types of birds found only have moderate abundance values, namely the Gray Sikatan bird (*Myiagra galeata*) with a presentation value of 19.93%, the Cikukua

Seram bird (*Philemon subcorniculatus*) with a presentation value of 15.61% and the River Cuckoo (*Todiramphus chloris*). with a presentation value of 15.28%. and for other species it has a low abundance value ranging from 0.66% to 13.28%. the value of moderate abundance in the gray brushfish (*Myiagra galeata*) because the gray brushbird (*Myiagra galeata*) was found in many research locations in the entire observation path made while other bird species were only found in several observation lines so that they had a relatively low abundance value, as for the types of birds that were found on the whole path but had a small number in each lane, so that the abundance index value was relatively low.

Table 4. The relative abundance of bird species on the coast of Faong

Nilai	Scale	Presentase (%)	Bird species
1	sometimes	-	-
2	Not common	1,50	<i>Trichoglossus haemotodus</i>
		1,50	<i>Ducula perspicillata</i>
		7,50	<i>Ducula bicolor</i>
3	often	6,00	<i>Rhipidura leucophrys</i>
		9,75	<i>Todiramphus chloris</i>
		7,50	<i>Duculla perspicilatta</i>
		5,25	<i>Thareskiornis molluca</i>
4	common	14,25	<i>Myiagra galatea</i>
5	overflow	19,93	<i>Myiagra galeata</i>

Source: Primary data in (2020) (research data)

The bird species found can also be grouped based on the pattern of utilization of the same resource class in the same way (guild) (Root, 1967 in Liordos, 2010). The dominance of bird species with certain niches based on foraging guilds can be used as an indicator of changes in habitat/environment quality. In table 4. it can be seen that the bird species in the (rare) < 0.1 : no bird species were found, for the (uncommon) 0.1-2.0 bird species were found in the field, namely the Rainbow Lorikeet (*Trichoglossus haemotodus*) and the White Eye Pergam

(*Ducula perspicillata*) and for the category (often) from 2.1 to 10.0 bird species were found, namely the Sea Pergam (*Ducula Bicolor*), Garden Fan (*Rhipidura leucophrys*), River Cuckoo (*Todiramphus chloris*), White Eye Pergam (*Duculla Perspicilatta*) and The Australian Ibis (*Thereskiornis molluca*) for the (general) category of 10.1-40.0 bird species found in the field, namely the Gray Sikatan (*Myiagra Galeata*) and for the category (abundant) <40.0 bird species found in the field were the Gray Sikatan (*Myiagra galeata*).

Table 5. The abundance of bird species in each observation path

Number	Bird Type	track I	track II	track III	track IV	track V	Total
1	Pergam Laut (Nama Latin)	10	6	8	7	6	37
2	Kipasan Kebun	8	9	4	8	6	35
3	Cekakak Sungai	13	6	9	11	7	46
4	Pergam Mata Putih	10	12	5	2	11	40
5	Sikatan Kelabu	19	11	9	11	10	60
6	Cikukua Seram	10	7	13	8	9	47
7	Ibis Australia	7	6	6	7	8	34
8	Perkici Pelangi			6			6
	Total	77	57	56	54	57	

Source: primary data in (2020) (research data)

Based on Table 5, it can be seen that overall at the research site there are 301 birds with a total of 8 species of birds. In Table 5, the 1st lane shows that 7 bird species were found with a total of 77 individual bird species found and the most common species found was the Gray Brush (*Myiagra galeata*) with a total of 19 birds in the 2nd lane found 7 bird species with a total of 57 individual bird species found and the most common species found was the White Eyed Pergam Bird (*Ducula perspicillata*) which was found as many as 12 birds, on the 3rd track 8 bird species were found with a total of individuals found namely 56 birds and the most species of birds found were Cikukua Seram (*Philemon subcorniculatus*) which amounted to 13 birds, on line 4 found 7 bird species with a total of 54 individual bird species found and the most common species found was Bird The River Lizard (*Todiraphus chloris*) and the Gray Sikatan (*Myiagra galeata*) as many as 11 birds and for the 5th

line 7 bird species were found with a total of 57 individuals found and the most common species found was the White Eyed Pergam Bird (*Ducula perspicillata*) as many as 11 birds. Meanwhile, for the least bird species found, the Rainbow Lorikeet (*Trichoglossus haematodus*) was 2 which were only found on the 3rd line.

The number of bird species found in each lane was due to the fact that there were a lot of food sources in the path at the research site. This is in accordance with the opinion of Alikodra, 2010 which states that the availability of high feed triggers the presence of bird species in a place. From the 5 research lines, it was found that the dominant species were the Gray Sikatan (*Myiagra galeata*) as many as 19 birds, the White Eye Pergam (*Ducula perspicillata*) as many as 12 birds, Cikukua Seram (*Philemon subcornicu*) as many as 13 birds, and the Sungai Cekakak (*Todiramphus chloris*) as many as 13. tail.

CONCLUSION

The results of the study found 301 birds with a total of 8 species of birds, namely the Sea Pergam (*Ducula bicolor*), Kipasan Kebun (*Rhipidura leucophrys*), Cekakak Sungai (*Todiramphus chloris*), White Eyed Pergam (*Ducula perspicillata*), Sikatan Gray (*Myiagra galeata*) Seram Cikukua (*Philemon*

subcorniculatus), Seram Cikukua (*Philemon subcorniculatus*), Australian Ibis (*Thareskiornis molucca*), Rainbow Lorikeet (*Trichoglossus haematodus*). The index value of the diversity of bird species (H') is 1.954 which is in the medium level category. The habitat of bird species on the coast of Faong Beach is quite stable.

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