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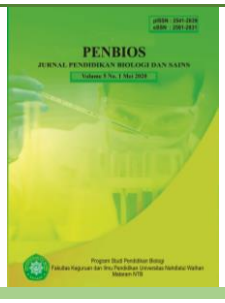

Research Article

Birds Diversity In The Karang Jangkong Rice Field Area, Mataram City

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ABSTRACT

Birds are an important part of an ecosystem and are part of biodiversity whose sustainability must be maintained to avoid the threat of extinction. The purpose of this study was to determine the diversity and dynamics of bird populations along with environmental parameters in rice fields based on the seasonal dimension (time) and plant species around the city of Mataram and to determine the food webs that make up the rice field ecosystem occupied by birds. Bird observation using the roaming method. The results showed that the value of bird species diversity using the Shannon-Wiener formula in the Karang Jangkong rice field area was 1.27 (moderate diversity). Based on the observations, 7 species of birds were found consisting of 6 families, namely Pycnonotidae, Estrildidae, Cisticolidae, Apodidae, Passeridae, and Pycnonotidae. The conclusion of this study is that in general, the Karang Jangkong rice field area has sufficient environmental carrying capacity as a habitat for various species of birds in the rice field area.

INTRODUCTION

Indonesia is ranked fourth among countries rich in bird species and is ranked first in the world based on the number of endemic species (Sujatnika et al., 1995). Until now, there are 1598 out of 9000 bird species in the world found in Indonesia. Of these, 372 (23.28%) species are endemic, 149 (9.32%) migratory bird species, and 118 (7.38%) birds in Indonesia are categorized as endangered species (Sukmantoro et al., 2007).

Birds are an important part of an ecosystem and are part of biodiversity whose sustainability must be maintained to avoid the threat of extinction (Silahooy et al., 2020). As part of the ecosystem, birds have ecological, socio-economic, and cultural roles for humans. Birds act as keystone species, predators, prey, pollinators, and seed dispersal agents. In addition, the diversity of bird species also acts as a counterweight to an

ecosystem, so its existence can be used as an indicator of environmental stability, changes in environmental quality, and indicators that can be used in determining a conservation area (Iskandar, 2015; Iskandar, 2017; Masrudy, 2016; Nugraha et al., 2021).

Currently, the diversity of bird species in nature is increasingly being pressured due to disturbances from various factors, such as poaching, human activities that change the function of bird habitats, and a lack of public awareness of natural and environmental sustainability such as environmental pollution by pesticides. Changes in the condition of vegetation in an area and the presence of visitor activity (tourism) can also affect the diversity of birds in the area (Hakim et al., 2020; Iskandar & Iskandar, 2022; Masrudy, 2016; Syafina et al., 2020). As a result of this disturbance, several types of birds have moved and looked for new suitable habitats (Hadinoto & Suhesti, 2021), experienced population declines, and even local extinction of certain species in nature ((Masrudy, 2016; Syafina et al., 2020; Iskandar & Iskandar, 2022). In addition, the development of supporting tourism areas that do not pay attention to environmental preservation can also contribute to disturbing biodiversity and can cause threats to bird habitats.

The biodiversity of bird species is affected by the diversity of habitat types (Clements et al., 2013). Vegetation structure and availability of food in habitats are the main factors affecting species diversity in habitats so habitats with more diverse vegetation variations will have a higher diversity of bird species compared to other habitats. which has few types of vegetation (Sumual et al., 2017).

Bird watching is one of the attractions of observing live birds which is a very interesting and potential activity. Birds have an attraction for tourists because of their color, sound, shape, behavior, and other aspects, and the richness of birds which is very high is owned by this area. There are a number of things that need to be studied for the use of the area as a bird-watching attraction, such as the richness of bird species, and activity status/presence of birds. With that in mind, this study emphasizes the inventory of bird species and their potential for ecotourism attractions. The purpose of this study was to determine the diversity and dynamics of bird populations along with environmental parameters in rice fields based on the seasonal dimension (time) and plant species around the city of Mataram and to determine the food webs that make up the rice field ecosystem occupied by birds.

METHOD

This research was conducted in West Pagesangan, precisely in the Karang Jangkong rice field area (Near UNW Mataram Faculty of Health) Mataram City. The materials and tools used in this study were TDS and EC meters, pH meters, HTC-1 (measuring instrument for temperature and humidity), cameras or long lens binoculars, cellphones to determine GPS and observation time, observation sheets, and rice field bird identification books. Observations were made 2 times, from 06.00-11.00 WITA and 14.00-17.00 WITA. Observation and documentation of birds present in the rice fields using a long-lens camera or binoculars and a cell phone then record the species of birds, their number, arrival time of birds, environmental parameters (air temperature and humidity, rice field water pH, water temperature meter, total dissolved solids, and electricity). rice

field water conductivity). Then determine the trophic position of the bird species found in the paddy field ecosystem by recording the type of food, plant species, or tree where the bird perches and calculate the value of the diversity index using the Shannon-Wiener formula. Observations were made 3 times at the same location, with 2 different rice field conditions (when the rice grain and after harvest) (see Figure 1).

Figure 1. Observation location of the Karang Jangkong rice field area (Near UNW Mataram, Faculty of Health).

Bird identification activities are carried out based on morphological characteristics which include body shape, body size, plumage color, and bird sounds. In addition, identification was carried out using bird guidebooks on the islands of Lombok and Sumbawa (Amin & Yusuf, 2018; Suana et al., 2016), and identification with the help of xeno-canto.org on birds whose voices could only be heard.

RESULTS AND DISCUSSION

Based on the results of observations of bird species diversity in the 'coral jangkong' rice field area (Near UNW Mataram Faculty of Health) found 7 species of birds consisting of 6 families namely Pycnonotidae, Estrildidae, Cisticolidae, Apodidae, Passeridae, and Pycnonotidae. A total of 54 individuals were identified from one observation location. The types of birds found in the research location can be seen in Table 1 below.

Table 1. The diversity of bird species in the Karang Jangkong rice fields

No.	Species	Sub-total	Family	IUCN status	H'
1	*Pycnonotus aurigaster.*	9	*Pycnonotidae*	LC	
2	*Pycnonotus goiavier*	4	*Pycnonotidae*	LC	
3	*Lonchura leucogastroides*	7	*Estrildidae*	LC	
4	*Lonchura maja*	5	*Estrildidae*	LC	
5	*Orhotomus sepium*	9	*Cisticolidae*	LC	
6	*Collocalia esculenta.*	5	*Apodidae*	LC	
7	*Passer montanus*	15	*Passeridae*	LC	
Total (∑)		**54**			**1,27**

Based on the results of data analysis in Table 1, shows that the value of bird species diversity in the Karang jangkong rice fields using the (Shannon-Wiener) formula is 1.27 ($1 \leq H' \leq 3$), included in the medium category. According to Ekowati et al., (2016) and Prabowo et al., (2019), bird species diversity is generally influenced by the composition of the plants that make up the vegetation in the area, where the higher the plant composition in an area, the more diverse bird species there are. on that community. The moderate diversity of bird species can be caused by the condition of the Karang jangkong rice field area, which is a homogeneous or natural vegetation type with relatively uniform vegetation dominated by many paddy fields. This also shows that the jangkong coral rice fields support the needs of bird life in the form of adequate food sources, nesting sites, and places of activity for various bird species. In addition, the results of the study also showed that the highest species abundance was the *Passer montanus*.

The highest distribution of bird species in the observation area is also found in *Passer montanus*. This indicates that this bird species is a bird with a fairly even distribution and is often present in the observation area as seen from the intensity of its presence at predetermined counting points. While the lowest distribution of bird species was the *Pycnonotus aurigaster* from the Pycnonotidae family, *Lonchura leucogastroides* from the Estrildidae family, *Orhotomus sepium* from the Cisticolidae family *Collocalia esculenta* from the Apodidae family, *Pycnonotus goiavier* from the Pycnonotidae family, and *Lonchura maja* from the Estrildidae family. The six species have a low presence compared to other species in the observation area. Differences in the distribution and presence of these bird species are generally influenced by the suitability of the place where each bird species lives, such as differences in plant vegetation strata, adaptation of birds to the environment, and availability of feed (Ridki et al., 2016). Based on Widodo (2010) and Wulandari & Kuntjoro (2019), the Church sparrow (Passer montanus), is known to be often found in rice fields using rice as a place for it to find food, perch, and forage. Meanwhile, *Pycnonotus aurigaster*, *P. goiavier*, *Lonchura leucogastroides*, *L. maja*, *Orhotomus sepium*, and *Collocalia esculenta*, are known to be birds that have a high level of adaptation to feed availability, weather changes, to the presence of humans (Abidin et al., 2021; Soendjoto et al., 2015). The results of these adaptations cause some birds to be present or live in several places that are suitable for their lives (Juliana et al., 2016).

CONCLUSION

It can be concluded that the observation area in the coral jangkong rice fields (near UNW Mataram, Faculty of Health) has ecosystem conditions that are good enough to support the survival of various bird species. The results showed that there were 7 species of birds consisting of 6 families with a total of 54 individuals. The diversity index value (H') is included in the medium category. In addition, the highest abundance was found in Passer montanus from the Passeridae family. The results of this study indicate that, in general, the observation area in the jangkong coral rice fields has sufficient environmental carrying capacity as a habitat for various bird species.

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