

Local Knowledge of The Community in Mekarwangi Village on Long-Tailed Macaque (*Macaca fascicularis*)

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Abstract – Local knowledge is a phenomenon that is felt and experienced by the people of a particular area who have local understanding regarding the natural resources found in the surrounding environment. One of this knowledge is about long-tailed macaque (*Macaca fascicularis*). This research aims to examine local knowledge of the community regarding long-tailed macaque in Mekarwangi Village which borders Taman Hutan Raya Ir. H. Djuanda which is one of the long-tailed macaque conservation sites. The method used in this research is a qualitative approach through observation, semi-structured interviews, and strengthened by literature study. The result obtained were analyzed descriptively. The research result show that the community knows about the existence of long-tailed macaque. Community interactions with long-tailed macaque pose a threat to long-tailed macaque, some individu of long-tailed macaque be arrasted because people are disturbed by their existance. The majority of community in Mekarwangi Viilage know the food, habitat, and daily activities of long-tailed macaque from daily observation and some knowledge passed down from previous generations.

Keyword: Local knowledge, Long-tailed macaque, Mekarwangi

INTRODUCTION

Local knowledge or also known as Indigenous knowledge is defined as the process of local communities building relationship with the surrounding natural environment (Honward, 2023). The interaction between humans and biotic and also abiotic elements in nature becomes an important component in the local ecosystem (Bwambale *et al.*, 2020). This knowledge of the local community is non-formal knowledge that has been passed down orally from previous generations, using the local language, and represent personal experiences od the community with their environment, which is adaptive and dynamic (Tippeconnic & Faircloth, 2010). This local knowledge is very profound, but it also vulnerable to being forgotten because it is not clearly documented (Iskandar, 2018).

Ethnozoology is a subdiscipline of ethnobiology that studies how human cultures interact with the animals around

them (Solís & Casas, 2019). This is closely related to the evolving process of interaction between specific ethnic groups living in the area and their natural environment (Sari *et al.*, 2021). One of the studies in ethnozoology involves community knowledge about the long-tailed macaque (*Macaca fascicularis*), encompassaing its nomenclature, classification, utilization, and conservation disturbance.

The long-tailed macaque (*Macaca fascicularis*) holds significant importance for the continuity of nature. The long-tailed macaque plays a crucial role in sustainability and conservation systems (Egeustin *et al.*, 2023). The long-tailed macaque performs ecological functions as a seed disperser and controls insect populations by preying on them (Syah & Safitri, 2024).

Taman Hutan Raya Ir. H. Djuanda Bandung is an integrated area stretching form the Dago Pakar region to Maribaya, and it is known to be a habitat for the long-tailed macaque (*Macaca fascicularis*) (Jamil, 2021).

However, the long-tailed macaques are also frequently found in villages surrounding the Tahura Djuanda, such as in Mekarwangi Village. Mekarwangi Village is an area that has been inhabited by the indigenous community for many years. This creates interactions between long-tailed macaques and the village community. These interactions also lead the community to become accustomed to the presence of the long-tailed macaques, resulting in local knowledge about the macaques derived from the community's own experiences.

This research aims to investigate the local community's knowledge regarding the types, benefits, and disturbances cause by long-tailed macaques in Mekarwangi Village. The result of this research are expected to provide information about local community's knowledge and the influence of long-tailed macaque particularly in Mekarwangi Village, thereby assisting policymakers in optimizing the management and monitoring of wildlife, especially long-tailed macaque in the natural tourist area.

MATERIALS AND METHODS

1. Site location

This research was conducted in Mekarwangi Village, located in Lembang District, West Bandung Regency. Mekarwangi Village is geographically located in the northern of West Bandung Regency (Figure 1). This village falls within the Lembang District with an area of approximately $\pm 523,820$ hectares, situated at an altitude of 1.070 meters above sea level. Mekarwangi Village is bordered by Langensari village in the north, Cibural Village in the east, Bandung City in the south, and Pagerwangi Village in the west.

In terms of its area, the people of Mekarwangi Village utilize the land for various purposes, such as village hall complexes, residential areas, rice fields, plantations and agriculture, cemeteries,

gardens, and other public facilities like schools and health centers. The location was chosen because Mekarwangi Village directly borders Taman Hutan Raya Ir. H. Djuanda, which is one of the conservation areas for long-tailed macaque. The research was conducted in November 2022.

2. Tools and materials

The tools used in this research include cameras, worksheet, writing tools, GPS, voice recorders, and interview guidelines.

3. Methods

The research object to be used in this research is the long-tailed macaque (*Macaca fascicularis*) commonly found in the area of Mekarwangi Village.

The method used in this research is qualitative method. Qualitative data collection techniques were conducted through semi-structured interviews and literature studies. Types and data collection techniques are presented in Table 1. Semi structured interviews were conducted with the informants.

Informants selection was carried out using the snowball technique, where chosen informants were considered to have better knowledge than the general public (Albuquerque et al., 2014). Selected informant were deemed competent and possessed in-depth knowledge about the long tailed macaque (Azura et al., 2024).

Study literature was conducted to gather data on the general conditions at the research site, including physical, biological, social, economic, cultural, condition, an the location map of the research site.

Qualitative data analysis form interviews with informants was analyzed using criss checking, summarizing, synthesizing, and creating descriptive (Prasetyo, 2021). *Cross-checking* involves

validating data obtained from different sources to enhance the researcher's

understanding of the data an facts (McClure & Brewer, 2015).

RESULT AND DISCUSSION

Table 1. Types of Data Collected

Tyes of Data	Variables	Data Collection Techniques
General condition of the area	a. Biophysical	Semi-structured interview Study literature
	Geographic location	
	Village area	
	Land use in the village	
	b. Socio-economic-cultural	
	Population size	
Presence of long-tailed macaque (<i>Macaca fascicularis</i>)	Education level	Observation Semi-structured interview
	Livehoods	
	Where found	
	Habitat found	
	Activites performed	
	Diet types	
	Disturbance factors	

1. General Condition of the Research Site

a. Socio-economic-cultural

According to the village monograph data until May 2022, the population of Mekarwangi Village is 6,261 people, with

3,208 males and 3,053 females. The total number of households in Mekarwangi Village is 1,962. Considering its area, the population of Mekarwangi Village falls into the moderate category.

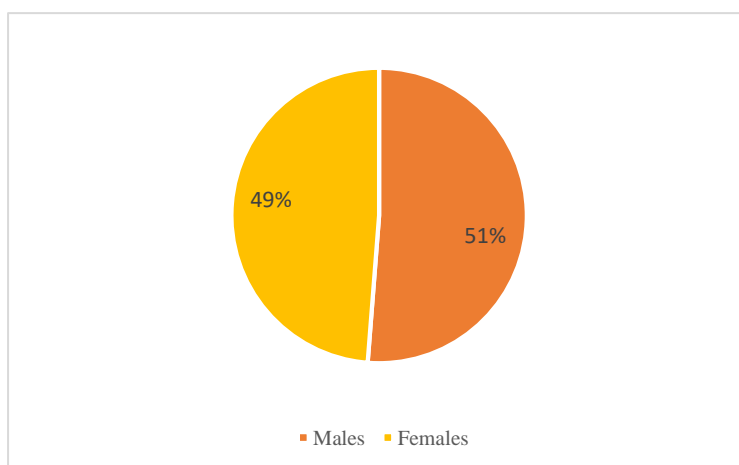


Figure 1. The gender percentage in Mekarwangi village

Gender influences the transmission of knowledge from one generation to the next. In many traditional societies, the division of labor between men and women is very clear. Men and women have different tasks and responsibilities, allowing them to develop specific knowledge related to their duties. For example, in agrarian societies, men may be more knowledgeable about agricultural techniques, while women understand food processing and traditional medicine. Additionally, women are often

responsible for childcare and the transmission of knowledge to the next generation (Appleton et al., 2017).

The majority of the people in Mekarwangi Village are elementary graduates, followed by graduates of senior high school (SLTA/SMA/SMU) or equivalent. Education and local knowledge have a symbiotic relationship where both support each other to achieve the goals of cultural preservation, welfare improvement, and sustainable community development.

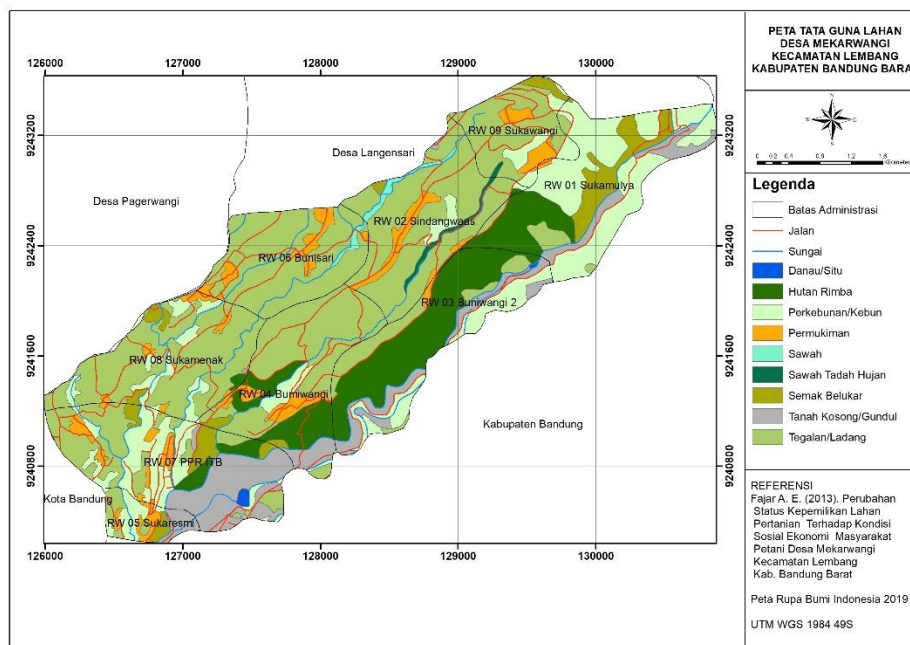


Figure 2. Map of Mekarwangi Village
(Source: Mekarwangi Village Monograph 2022)

With these levels of education, the people of Mekarwangi Village have diverse livelihoods. The majority work as entrepreneurs or traders, while others work as civil servants, military/police personnel, farmers, agricultural laborers, livestock breeders, and even craftsmen. Communities that depend on natural resources for their livelihoods, such as farmers or fishermen, tend to have rich local knowledge about their environment.

2. Distribution of Long-Tailed Macaque on the Area of Mekarwangi Village

Distribution, also referred to as dispersion, refers to the distribution of a species of plants, animals, or humans, whether evenly or unevenly (Cassini, 2013). The research conducted by Hafsa *et al.*, (2024) states that the population of long-tailed macaques in the Taman Hutan Raya Ir. H. Djuanda is 192 individuals. From interviews conducted with the village head and several residents, the long-tailed

macaque (*Macaca fascicularis*) is often found in residential areas, especially those located near the Ir. H. Djuanda Forest Park. According to the interview results, the areas where long-tailed macaques are frequently encountered are RW 07, RW 03, RW 04, RW 01, and RW 11. The residents of Mekarwangi Village mention that these macaques are often found on roads, around

residential areas, and in agricultural or wooded areas nearby. Long-tailed macaques are often found in colonies. Decreased habitat or increased capacity exceeding habitat limits causes long-tailed macaques to also be found in surrounding rural areas or public roads around Taman Hutan Raya Ir. H. Djuanda.

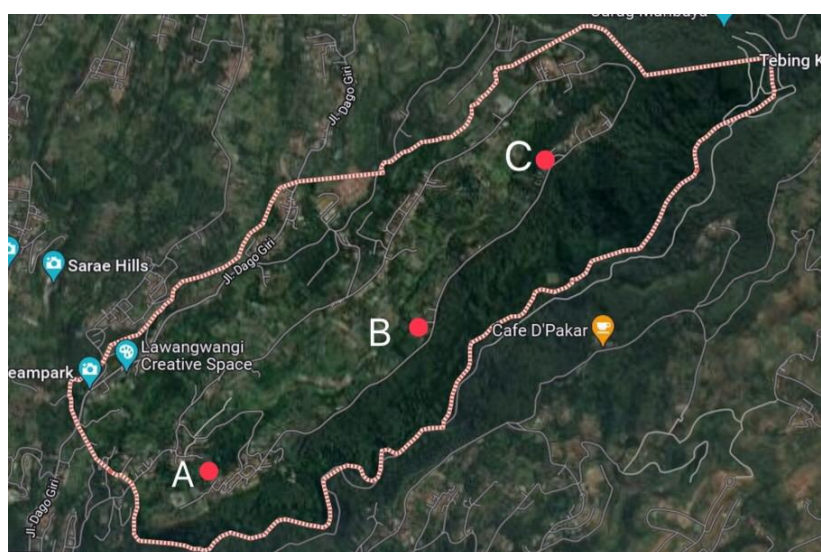


Figure 3. Map showing the distribution location of long-tailed macaque in Mekarwangi Village (Source: Personal documentation)

Taman Hutan Raya Ir. H. Djuanda is one of the habitats of long-tailed macaques in Bandung Regency, West Java. The presence of these macaques is part of efforts for conservation and protection, as the long-tailed macaque is listed as endangered according to the IUCN (Hansen *et al.*, 2022). Long-tailed macaques live in groups with a social hierarchy led by a dominant male known as the alpha male (Hambali *et al.*, 2012)

Taman Hutan Raya Ir. H. Djuanda is also used as a tourist area. Tourism activities play a role in increasing the birth rate of long-tailed macaques, as they utilize leftover food or food provided by tourists (Ilham *et al.*, 2017). When the number of long-tailed macaques exceeds the carrying

capacity of their habitat, it can have negative impacts on the macaques themselves, visitors, and the surrounding community (Dhaja *et al.*, 2019).

3. Habitat and Diet of Long-Tailed Macaque

Interview results with informants indicate that long-tailed macaques are often found in areas densely populated with trees, which serve as their food source. They are typically spotted in the morning and late afternoon, times when they come down to forage (Riptianingsih *et al.*, 2015). Research conducted by Azhari *et al.* (2012) states that long-tailed macaques spend their daytime and afternoon activities resting on tree branches.

When encountered, long-tailed macaques in Mekarwangi Village feed on leaves and fruits. Trees that typically attract their attention include cherry (*Muntingia calabura*) and bamboo trees. However, it is

not uncommon for long-tailed macaques to also be found eating human waste and stealing goods from residents of Mekarwangi Village.



Figure 4. Long-tailed Macaques A) at Mekarwangi Village B) <https://primata.ipb.ac.id/>

Generally, long-tailed macaques eat fruits, young leaves, and flowers. Long-tailed macaques are frugivorous animals, with fruits being their main food source (Sajuthi *et al.*, 2016). Their food selection is based on color, smell, fruit weight, and nutritional content. Vitamin C dosage is a nutritional requirement for long-tailed macaques (Ritonga *et al.*, 2022). Cherry fruit contains nutritional content such as water content, fiber, and 379.75 mg of vitamin C (Kurniati & Rohmani, 2017). Due to their habit of often discarding seeds rather than chewing them, this species also plays a role in seed dispersal (Schapiro, 2017).

Mekarwangi Village is a rural area surrounded by trees. The village directly borders the Taman Hutan Raya Ir. H. Djuanda, and additionally, several village lands are utilized for plantations and agriculture by the local community. This encourages long-tailed macaques to come and search for food

The long-tailed macaque inhabits various types of forests ranging from tropical

rainforests to mangrove forests (Rifqi *et al.*, 2023). This species is also commonly found in secondary forests that are busy with human activities. Long-tailed macaques can adapt well to their environment and can exhibit behavioral changes that tend to be more aggressive (Ruppert *et al.*, 2018).

When encountered, a colony of long-tailed macaques (*Macaca fascicularis*) is often seen foraging for food. Besides eating, they are frequently found playing. Some residents of Mekarwangi Village express disturbance due to the presence of long-tailed macaques. This is because the macaques are not afraid of humans and often disrupt village activities. Residents who feel disturbed sometimes resort to capturing long-tailed macaques.

The long-tailed macaque (*Macaca fascicularis*) generally engages in several daily activities such as resting, feeding, grooming, moving, foraging, aggression, object play, and mating (Catra Pradhany *et al.*, 2016). These activities are conducted to establish territorial boundaries (Saputra *et al.*, 2015). The emergence of aggressive behavior by

long-tailed macaques, which results in damage to agricultural fields and plantations, can be triggered by disturbances to their natural habitat or population density exceeding habitat capacity (Kusumadewi *et al.*, 2014).

Knowledge about long-tailed macaques is very important because this species has economic value in the biomedical field, and on the other hand, has a negative impact as they often become pests in some regions. Negative behavioral changes can also occur because long-tailed macaques perceive threats from their surroundings (Wulandari *et al.*, 2022) such as humans entering their territorial areas (Fachrozi & Setyawatiningsih, 2020). Several parties who directly encounter long-tailed macaques, such as the guards of the Taman Hutan Raya Ir. H. Djuanda, say that there is no need to harm the macaques to deal with them, as they will leave if they feel threatened. Information about long-tailed macaques is very useful for

protecting and enhancing the population that is starting to decline.

CONCLUSIONS

Long-tailed macaques are often found in the area of Mekarwangi Village, which borders the Taman Hutan Raya Ir. H. Djuanda, their habitat. The residents of Mekarwangi Village are accustomed to seeing long-tailed macaques in trees and other food sources. Long-tailed macaques feed on leaves and fruits such as cherry and bamboo fruits, but they also frequently steal food from local vendors and disrupt activities.

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