ETHOS
JURNAL PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT
Editorial Office : ETHOS, Jurnal Penelitian dan Pengabdian Kepada Masyarakat
Jalan Taman Sari No. 20, Bandung, Jawa Barat, 40116, Indonesia.
Phone : (022) 4203368, 4205546 ext. 6737
Email : ethos@unisba.ac.id
Website : https://ejournal.unisba.ac.id/index.php/ethos/index
ISSN : 1693-699X EISSN : 2502-065X

Community's Knowledge of Leopard Cats' Roles in the Cisokan, West Java

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Article

Article History
Received : 2003/08/13
Reviewed : 2003/11/27/
Accepted : 2023/12/13
Published : 2024/01/24

DOI :
doi.org/10.29313/ethos.v12i1.2603

Volume : 12
No. : 1
Month : January
Year : 2024
Pages : 1 - 8

Abstract

Local communities have ways of managing and utilizing forest products, including leopard cats' habitat. Communities have knowledge and perceptions passed down from one generation to the next through community participation in their environment. This activity aims to reveal the community's knowledge regarding the role of leopard cats in the Cisokan. The implementation of this activity consists of collecting issues and data, FGD, and evaluation. The results show that almost all informants do not know the role of leopard cats in controlling prey animal populations and agricultural pests. Although leopard cats prey on domestic birds, they are not considered a nuisance to the community. After a joint discussion with the community regarding the ecological role of leopard cats, 79% of informants understood leopard cats' role in nature, which indirectly supported agriculture. Besides that, 70% of respondents understand that leopard cats should be protected.

Keywords : Agriculture; Protection; Pest Controlling

Introduction

The greater part of Java's wildlife depends on forests. However, deforestation on Java Island is severe, posing a serious threat to wildlife (Meijaard & Ferguson, 2014). The high rate of deforestation is caused by the rapid expansion of humans into wildlife habitats. This deforestation is due to population and economic growth, which encourages land conversion, illegal hunting, and wildlife trade (Sulistyadi, 2016)

Wild animals, such as leopard cats, play a role in the ecosystem as predators. As a keystone species, leopard cats control prey animals, such as mice, which indirectly positively influence community agriculture. Thus, it is necessary to know the extent of people's knowledge and perception of wild animals,

especially leopard cats (Prionailurus bengalensis Kerr, 1792) in the Upper Cisokan Pumped Storage (UCPS) construction area, West Java. The UCPS is being constructed by PT PLN (Persero), a hydropower company, to greatly enhance the peaking capacity of the power generation system in Java-Bali, as well as to improve the ability to absorb variable renewable energy power generation on a long-term basis. The UCPS will have a capacity of 1040 MW and will be located on the Cisokan and Cirumamis rivers, Bandung Barat (West Bandung), and Cianjur Regency.

Community perceptions and knowledge are passed down through actions-in this case, community involvement. Community involvement in forest resource management integrates community participation into the forestry development system to strengthen the economy, institutions, and social community. Communities around the forest have ways of managing and utilizing forest products (Seprianto *et al*., 2019), including leopard cats' habitat. Most human attitudes, behaviors, and adaptations are determined by their perceptions. In the perception process, individuals are required to assess an object, which can be positive, negative, and so on. Attitudes will be formed by perceptions, which tend to be stable enough to act in certain ways and certain situations. These attitudes are similar to the relationship between the actions of community members and their perceptions of the forest. If people have a positive perception of the forests, their actions will also be positive. On the other hand, if the community has negative perceptions, the resulting actions are more likely to damage or harm forest sustainability (Novalanty *et al*., 2016).

Community knowledge and understanding of leopard cats' existence and ecological role in the ecosystem is still low, causing people to engage in illegal hunting and ultimately decreasing the population and habitat quality of *Prionailurus bengalensis* (Kerr, 1792). The purpose of this activity is to reveal the percentage of community knowledge regarding the leopard cats' role and community involvement in protecting leopard cats. Apart from that, this activity also aims to reveal the development of community knowledge regarding the role of leopard cats in the ecosystem. We hope that through this activity, the knowledge of the community can be increased, particularly on the roles of leopard cats in the ecosystem.

Research Method

The UCPS and its infrastructure will be developed in areas of 775.64 ha, located in Cianjur Regency (three sub-districts) and West Bandung Regency (two sub-districts). The UCPS hydropower plant is located in the upper catchment area of the Cisokan River, which is a tributary of the Citarum River. The UCPS construction consists of a reservoir and two dams, a power station, a transmission line, a quarry, an access road, and others. Those facilities are expected to require an area of ± 723.15 ha. This area consists of forest and a community area of ± 385.25 ha and ± 337.89 ha, respectively, in Cianjur and West Bandung Regencies. The area is divided into seven land use types, including irrigated rice fields, mixed gardens, natural forests, shrubs, production forests (Perhutani land-owned), swidden cultivations, and settlements.

Data and Issue Collection

Issues are collected through surveys and literature studies to identify problems at the activity location. The data collection instrument used in this activity was an interview guideline for informants, which contained questions regarding community knowledge regarding the ecological role of leopard cats in the ecosystem. Interview guidelines were given to local communities in Bojongsalam, Sukaresmi, Margaluyu, and Cicadas Village. The selection of informants was focused on certain categories, such as farmers and wild boar hunters. They spend a lot of time in or near the forest, so they have the potential to encounter or have knowledge regarding leopard cats.

 DOI: https://doi.org/10.29313/ethos.v12i1.2603

Data Analyses

The Cross-checking, summarizing, synthesizing, and descriptive analysis were used to analyze the data (Newing *et al*., 2010).

Forum Group Discussion (FGD)

The FGD was held to help participants understand protected wildlife conservation policies, the ecology and behavior of leopard cats, and the mitigation of human and leopard cat conflict. This FGD was followed by a discussion and answer session. The discussion aimed to provide information and increase participants' insight into the impact of forest area conversion on wildlife habitat. FGD is a collection of various information and problem-solving through several participants' opinions based on various social experiences and interactions between participants, which are regulated and directed by a moderator (Aswat, 2019).

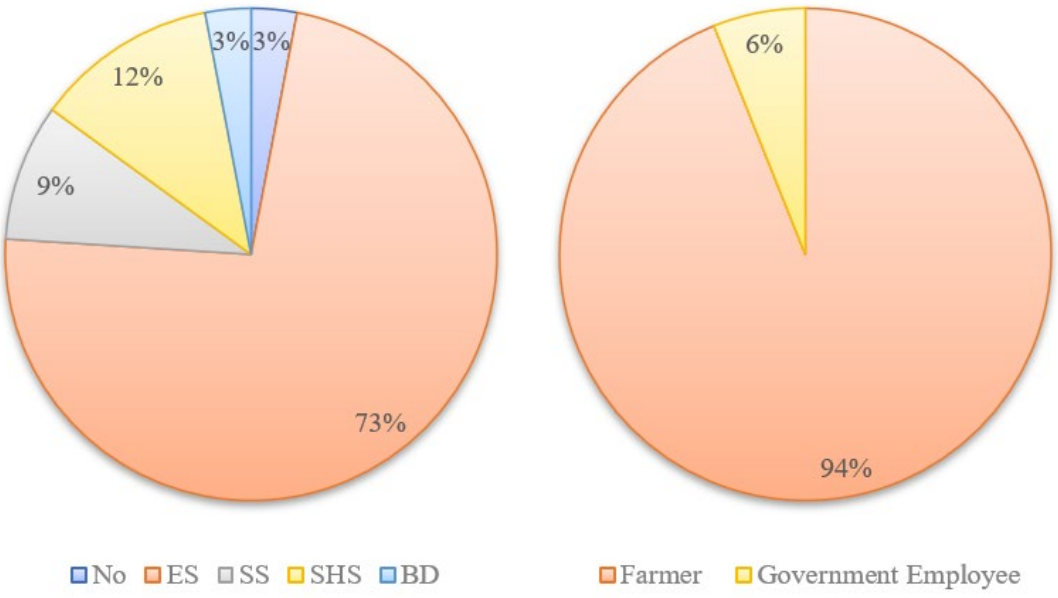
Evaluation

This activity measures the level of success of programs implemented in the community (Arfarita *et al*., 2022). Evaluation of the level of understanding in this mitigation training activity was carried out using pre-test and post-test methods (Kudsiah *et al*., 2018; Rifa'i *et al*., 2021). The pre-test was conducted before the training activities, discussions, and practical demonstrations, and the post-test was conducted afterward. The post-test was completed by filling in questions as a questionnaire (Dewi & Widiyawati, 2019; Patittingi *et al*., 2021).

Result and Discussion

The number of informants was 33 from Bojongsalam, Sukaresmi, Margaluyu, and Cicadas Village in the West Bandung and Cianjur Regencies, West Java. All informants were male and acted as head of the family. Based on the percentage of informants' education level, it is known that 73% of the informants were elementary school graduates, 9% of them were junior high school graduates, 12% were senior high school graduates, 3% had a bachelor's degree, and 3% had no education level. This result shows that the elementary school graduates still dominate the level of education. Elementary school graduates are also dominant in other areas, such as Kertasari District in Bandung Regency (Abdoellah *et al*., 2021). Based on the occupations of the informants, 94% of them work as farmers, and the others work as government employees. Based on the age of the informants, 94% of them are of productive age, and the others are of non-productive age.

In Indonesia, education does not provide enough information regarding the agricultural sector, so the younger generation does not understand its importance in life, resulting in the low interest of young farmers in entering the agricultural sector (Prawesti *et al*., 2010). Previous research shows that agricultural labor is dominated by elementary school graduates, which causes low productivity in agricultural labor (Susilowati, 2016). Education is important for personal, intellectual, and knowledge development (Fitriani *et al*., 2018). Isyanto (2011) stated that a high level of farmer education will open up farmers' insight into accepting innovations related to agricultural technology (Isyanto, 2015). Non-formal education must be conducted to enhance knowledge and perceptions in the agricultural aspect (Abdoellah *et al*., 2021). Efforts to increase agricultural capacity are made through awareness (Listiana *et al*., 2018).



Notes: No: Informants with no education level; ES: Elementary School; SS: Secondary School; SHS: Senior High School; BD: Bachelor Degree

Figure 1. Percentage of Informants' Level of Education (left), Percentage of Informants' Occupation (right)

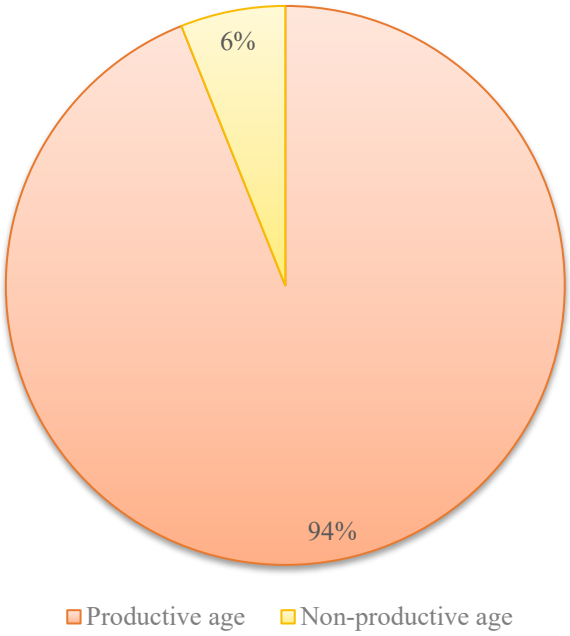


Figure 2. Percentage of Age of Informants

Based on the informant's experience, 45% of them had encountered leopard cats in residential or agricultural environments, while 55% hadn't met leopard cats directly. Besides, 39% of informants had had indirect encounters with leopard cats in agricultural and residential environments, while 61% had never had indirect encounters with leopard cats. The indirect encounters with leopard cats referred to their feces and footprints. According to direct observation, 58 leopard cats' existences were found in the UCPS area from 2012 to 2022. In the latest observation in 2022, there were 17 findings in that area (Husodo *et al*., 2022).

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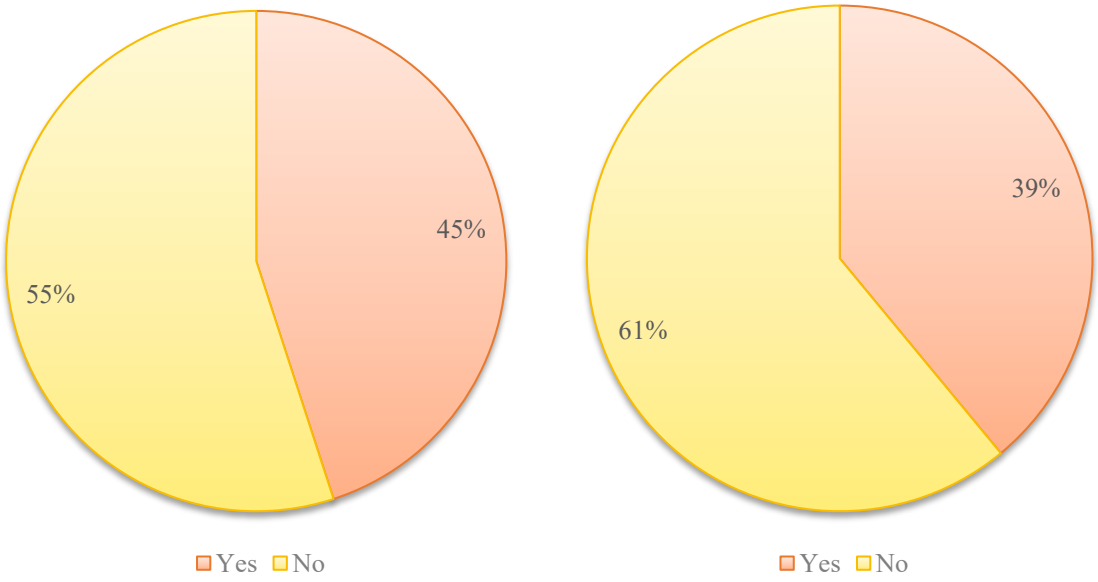

Figure 3. Percentage of Informants Who Had Direct Encounters with Leopard Cats (left) and Indirect Encounters with Leopard Cats (right)

Based on the informants' knowledge, almost all informants did not know the ecological roles of leopard cats. They knew that leopard cats are living creatures that benefit from the ecosystem like other living creatures, but they did not know leopard cats have special ecological roles in controlling agricultural pests and prey animal populations.

Based on community experience, people tend to ignore the existence of leopard cats when they encounter them, both directly and indirectly. Even though leopard cats prey on people's chickens, there is no follow-up action from the community to hunt them. People tend not to care about the presence of leopard cats in the ecosystem and do not consider them a nuisance, even though they prey on people's chickens.

People in the UCPS hydropower development area also do not hunt leopard cats. Leopard cats have no economic benefit to society. Besides, there have been community awareness activities regarding protected animals, including leopard cats. This awareness activity is carried out by installing protected animal signs and regulations in several locations.

According to the results of the pre-test given to informants, 82% of informants did not know the roles of leopard cats in the ecosystem, as previously explained. Besides, 100% of the informants also did not know the role of the community in protecting leopard cats in the ecosystem. Based on that, discussions were held with the community regarding the role of leopard cats.

The leopard cats act as agricultural pest controllers, which indirectly positively influence the economies of agricultural communities. As prey for leopard cats, agricultural pests (rats) can reduce agricultural productivity and harm farming communities. Considering the roles of leopard cats in the ecosystem, people can actively protect them by not hunting them, leaving them in their habitat, and putting chickens in cages at night. By protecting leopard cats, the community indirectly maintains the agricultural land, even increasing rice production.

Increasing the productivity of rice plants is one of the most important elements in efforts to achieve national food security. Optimizing land potential by increasing the rice planting index is a method that is currently widely used to increase productivity. However, on the other hand, this creates a new problem, namely the increase in pest populations, one of which is the rice field rat population (Siregar *et al*., 2020).

Rats can damage all stages of rice growing, from seeding to harvesting and even post-harvesting in storage sheds. The most severe attacks occur when rats attack plants in the generative phase, namely in the milk-ripening phase, until they are ready for harvest (Siregar *et al*., 2020). Rat pest attacks on rice are increasing along with the increased rat population. The rat population increased in the third planting period (Garfansa *et al.*, 2023). Rat populations tend to increase with each planting season in paddy fields with three plantings per year. The increase occurs because an increase in the ricefield index indirectly causes the formation of favorable environmental conditions for rats, namely the availability of abundant food sources, which supports their breeding process (Sudarmaji & Herawati, 2017). Such an area becomes the only food center for rats while the surrounding lands are not planted (Arifandi *et al*., 2021).

After a joint discussion, a post-test was given to the informants to determine the development of their knowledge in understanding the roles of leopard cats in the ecosystem. The post-test results showed that 79% of informants understood the roles of leopard cats in general and their roles in supporting community agriculture. Besides that, as many as 70% of informants understood the need for leopard cat protection.

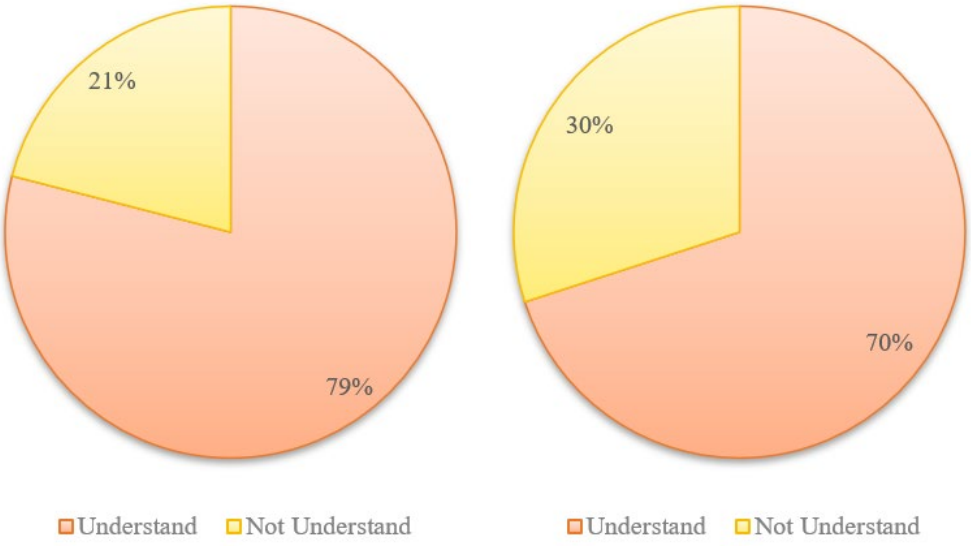

Figure 4. *Community's Knowledge about the Roles of Leopard Cats (left) and the Community's Roles in Protecting Leopard Cats (right)*

Conclusions

Most people (82%) do not know the roles of leopard cats in the ecosystem, especially on agricultural land. The entire community (100%) also does not know that they can be involved in protecting leopard cats. After awareness-raising, the community's knowledge developed, with 79% knowing the roles of leopard cats ecologically and economically. The community (70%) also knows that they have a role in protecting leopard cats.

Acknowledgements

The authors would like to acknowledge the PT. PLN UIP JBT (Hydropower Company), World Bank, Perum Perhutani (Indonesia state-owned enterprise for forestry), Rector of Padjadjaran University through Academic Leadership Grant (ALG) by Prof. Dr. Erri Noviar Megantara, Directorate of Research and Community Service or *Direktorat Riset dan Pengabdian pada Masyarakat* Padjadjaran University (DRPM UNPAD), *Pusat Unggulan IPTEK Perguruan Tinggi* Center of Environment and Sustainable Science (PUIPT CESS) Padjadjaran University, researcher team, surveyor team, and the local community.

 DOI: https://doi.org/10.29313/ethos.v12i1.2603

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 DOI: https://doi.org/10.29313/ethos.v12i1.2603