

Community Perceptions of Human-Elephant Conflict on Agricultural Land

Yohanes Dwi Susilo*, Tri Edhi Budhi Soesilo and Dwi Nowo Martono

School of Environmental Science, University of Indonesia, Jl. Salemba Raya No. 4, Jakarta 10430, Indonesia

*(email: leprosulla@gmail.com)

(Received: June 10, 2024; Accepted: November 20, 2024)

ABSTRACT

This study aims to analyze community perceptions. We surveyed 110 people living on the border of Way Kambas National Park. The data was collected using questionnaire instrument given to respondents randomly, with proportional number. The analysis was conducted with *Top Two Boxes* and *Bottom Two Boxes*, a method that combines the percentage of respondents' answers on a Likert scale. The results showed that the community has a positive response to the conservation and understands the causes of human-elephant conflict, and its mitigation are shared responsibility. This study recommends the need for insurance as a mitigation effort.

Key words: elephant, way kambas national park, mitigation, elephant conflict, perception

INTRODUCTION

Sumatran elephants are large mammals whose population status is *Critically Endangered*, according to the IUCN Redlist. (IUCN, 2024). One of the Sumatran elephant habitat locations is in Lampung Province, Indonesia. Sumatran elephant population continues to decline due to habitat loss, poaching, and conflict with humans. (Hedges et al., 2005). Degraded habitats are unable to provide food and shelter needed by elephants, so they leave their habitat and take food from the community agricultural land around the forest.

Wildlife conflict is currently a major issue in conservation. Conflict can be defined as a negative interaction between

humans and elephants, in which there is a clash or disagreement between the people involved, involving a species of conservation concern. (SSC, 2023).

Negative interaction between humans and elephants was reported that it had killed 100-200 people in India (Veeramani et al., 1996). While elephant-human interaction caused 2081 conflicts between June 2000 and December 2006 in Way Kambas National Park, Indonesia, which invaded people's farmlands (I.G. Febryano, G.D. Winarno, Rusita, 2018).

The presence of elephants in farmland causes damage to agricultural crops, leading to losses for the community.

The challenge in elephant conservation in Indonesia is decreasing number of elephant habitat due to forest conversion for commercial use that does not place environmental sustainability as a priority. Conflicts between humans and elephants due to deforestation have further degraded elephant

habitat, causing elephants to move out and attack crops, causing injury and even death. The impact of massive elephant attacks has led to elephant poaching by community around the forest due to frustration (EleAid, 2017).

Mitigating human-elephant conflict is an effort to reduce negative impacts on both humans and elephants. Community perceptions of elephants are important to know as a first step in developing mitigation recommendations that are in line with the social and economic views of local communities.

METHODOLOGY

The data collection technique in this study was to distribute questionnaires to people in villages bordering Way Kambas National Park in East Lampung District who were reported to have been attacked by elephants. The number of respondents sampled in this study was 110 people from 21 villages. Respondents who became the research sample were heads of family, and worked on agricultural land, either owned or leased. The questionnaires distributed to respondents used a Likert scale to describe community perceptions in 5 different levels. Data analysis of the questionnaire results used Top Two Boxes and Bottom Two Boxes to simplify respondents' answers on a Likert scale.

RESULTS AND DISCUSSION

The majority of villagers around Way Kambas National Park are farmers (68.2%) as shown in Table 1.

Table 1. Livelihoods of communities around Way Kambas National Park

Livelihood	Total	Percentage (%)
Farm laborer	4	3.6
Student	1	0.9
Farmers	75	68.2
Farmers and fishermen	1	0.9
Private	27	24.5
Self-employed	2	1.8
Number of Respondents	110	100.0

The survey results in Table 2 show that 64 respondents or 58.18% agreed that elephants leave the forest to look for food, the community believes that elephants leaving the forest is because the availability of elephant food in the forest is insufficient. An adult elephant weighing 3,000-4,000 kg needs at least 250 kg of food per day. (Berliani et al., 2018). Way Kambas National Park as a habitat for Sumatran elephants is considered insufficient to provide food for elephants in the Way Kambas National Park area.

Another result illustrates that 79.09% of respondents believe that elephant attacks on agricultural land can occur at any time, so that they have awareness to take prevention measures, such as carry out joint patrol with National Park officers.

Table 2. Community perceptions of human-elephant conflict using Top Two Box and Bottom Two Box Analysis

Perception Indicator	TTB	Neutral	BTB
	(%)	(%)	(%)
Elephants come out of the forest to find food	58.18	7.27	34.55
Elephant attacks can occur at any time	79.09	0.91	20.00
Growing certain types of agricultural crops can increase the risk of being attacked by elephants	67.27	3.64	29.09
Human-elephant conflicts that occur will become more widespread.	44.55	12.73	43.64
Damage from elephant attacks should be insurable	90.00	8.18	1.82

The study found that 67.27% of communities were aware that growing certain types of agricultural crops could increase the risk of elephants attacks. Most of attacked crops were food crops 65%, plantation crops 17%, and industrial crops 5% (I.G. Febryano, G.D. Winarno, Rusita, 2018). The survey result illustrates that 44.55% respondents believe the conflict will expand. In fact, almost all villages around Way Kambas National Park have become agricultural land. (I.G. Febryano, G.D. Winarno, Rusita, 2018). In theory, conflicts will continue to occur, but 43.64% respondents believe conflicts will decrease, because the efforts that have been made can reduce the number of elephant attacks on

community agricultural land.

Another finding of this study illustrates that 90% respondents consider that there is a need for insurance that can protect agricultural products damaged by elephant attacks. They considered that insurance can guarantee the damage caused by elephant attacks, but currently there is no insurance. They also understand the need of elephant conservation and consequences of being so closed to elephant habitat, but the perception found in this research

CONCLUSIONS

There is a positive community's perception of human-elephant conflict. The community around the forest understands the causes of could be changed, depends on the future condition. elephant attacks on the farmland. The positive perception will support conflict mitigation. The awareness of the importance of insurance is an important asset in developing conflict mitigation strategies.

ACKNOWLEDGMENTS

We would like to thank the Directorate General of Natural Resources and Ecosystem Conservation, especially the Way Kambas National Park Center for assisting in field data collection. We thank the School of Environmental Science, University of Indonesia for providing assistance and support during this research process.

REFERENCES

- Berliani, K., Alikodra, H. S., Masy'Ud, B. and Kusri, M.D. (2018). Food preference of Sumatran elephant (*Elephas maximus sumatranus*) to commodity crops in human-elephant conflict area of Aceh, Indonesia. *J. Phys. Conf. Ser.* **1116**. <https://doi.org/10.1088/1742-6596/1116/5/052015>.
- EleAid (2017). *Elephant Conservation in Indonesia*. EleAid. <http://www.eleaid.com/coun-try-profiles/elephants-indonesia/>.
- Hedges, S., Tyson, M. J., Sitompul, A. F., Kinnaird, M. F., Gunaryadi, D. and Aslan. (2005). Distribution, status, and conservation needs of Asian elephants (*Elephas maximus*) in Lampung Province, Sumatra, Indonesia. *Biol. Conserv.* **124**, 35-48. <https://doi.org/10.1016/j.biocon.2005.01.004>.
- Febryano I.G., Winarno G.D., Rusita, Y. (2018). *Mitigation of*

Elephant & Human Conflict in Way Kambas National Park.

- IUCN. (2024). *Elephas maximus ssp. sumatranus* (Sumatran Elephant). <https://www.iucnredlist.org/species/199856/9129626>.
- SSC, I. (2023). IUCN SSC guidelines on human- wildlife conflict and coexistence. In *IUCN SSC guidelines on human-wildlife conflict and coexistence*. <https://doi.org/10.2305/ygik 2927>.
- Veeramani, A., Jayson, E. A. and Easa, P. S. (1996). Man-Wildlife conflict: Cattle lifting and human.