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People's Perceptions of Human Elephant Conflict (HEC) and The Existence of Sumatran Elephants at CRU Sampoiniet Aceh Jaya, Indonesia

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Abstract: The increase in the human population has an impact on the expansion of the agricultural and plantation sectors. This causes a decrease in the amount of forest area which results in conflicts between humans and elephants. The purpose of the study was to determine the people's perception of the Sumatran elephant conflict and to determine the existence of male Sumatran elephants. The research was conducted in August 2022 at CRU Sampoiniet, Ie Jeureungeh village, Aceh Jaya district, Aceh province. The research method is descriptive qualitative and focal animal sampling. Data was collected by means of interviews, observation, and documentation. The results of the study revealed that the conflict between wild elephants had decreased since the existence of the CRU Sampoiniet who helped overcome the wild elephant conflict in the village area of Ie Jeureungeh, however, currently there are still some minor disturbances and have an impact on the surrounding community. Some people want the environment around their plantations to be bordered by elephants through electric fences. Based on the results of observations, there are two types of feed provided by the manager and consumed by the tame elephants, namely sensitive plant (*Mimosa pudica*), cogon grass (*Imperata cylindrica*).

Keywords: CRU; people's perception; Sumatran elephant.

Introduction

Sumatran elephants are animals that are included in the four key animal groups located on the island of Sumatra which are already endangered (Abdullah et al., 2009, 2012, 2019; Abdullah & Japisa, 2013; Ayudewanti, 2013; Kuswanda, 2018; Sitompul et al., 2013; Tohir et al., 2016). Sumatran elephants also have significant ecological, economic and socio-cultural benefits for human well-being and also have an important role in maintaining a habitat that serves to ensure the availability of food for the elephant herd itself (Abdullah et al., 2011).

The Sumatran elephant is one of the subspecies of the Asian elephant, the scientific name of the Sumatran elephant is *Elephas maximus sumatranus* (Reilly, 2002). In the wild, Sumatran elephants only live on the island of Sumatra (Anita et al., 2018). Sumatran elephants live in lowland forests below 300 meters above sea level, but are also often found roaming higher ground (Raditya, 2020). The type of forest that the Sumatran elephant likes is swamp and peat forest (Rahmanda et al., 2022). The Sumatran elephant population is spread over 7 provinces including Aceh, North Sumatra, Riau, Jambi, Bengkulu, South Sumatra and Lampung (Abdullah et al., 2012). In 2007, the Sumatran elephant population in the wild was estimated at around 2400-2800 individuals.

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Down by half compared to 1985 around 4800 heads (Hamdani et al., 2021). Currently, the number is expected to continue to decline. Because their habitat continues to narrow. In the last 25 years, the island of Sumatra has lost 70% of the tropical forest area that is the habitat of elephants (Hamdani et al., 2021).

Currently, humans and Sumatran elephants are experiencing conflict for territory (Pratiwi et al., 2020). Humans need land to farm and build factories for business needs, while Sumatran elephants need a place to live and explore. The Sumatran elephant conflict in Aceh in the last three years has shown a very high number. In 2019 Aceh experienced 107 cases of conflict between Sumatran elephants and humans (Abdullah et al., 2019). Conflict between Sumatran elephants and humans can cause problems for the affected communities. Problems that arise, such as crop failure, damaged land, damaged infrastructure, can take lives (Berliani et al., 2018; Sulistiyono et al., 2021).

People's perceptions of the Sumatran elephant are currently very diverse. Some of them consider elephants for their life and others consider elephants to be pests. In psychology, perception can be interpreted as a process of transforming environmental stimuli into one's experience which is manifested in the form of objects that can be seen and touched, sounds that can be heard, smells that can be smelled, events that can be seen and others (Abdullah et al., 2019). Based on the background of the problem above, and to find out how people perceive and collect data on the existence of Sumatran elephants at CRU Sampoiniet, therefore it is necessary to conduct research.

Method

This research was conducted in August, 2022 at CRU Sampoiniet, Aceh Jaya, geographically located at coordinates 4.9255 °N, 95.4896 °E. Administratively it is located in Ie Jeureungeh Village, Sampoiniet District, Aceh Jaya Regency. Subjects in this study amounted to 24 people. Sampling technique using purposive sampling technique (Etikan et al., 2016).

The research uses a combination of qualitative descriptive methods and focal animal sampling (Luborsky & Rubinstein, 1995). The purpose of the qualitative descriptive method is to describe, explain and answer in more detail the problems to be studied by studying as much as possible an individual, a group or an event. While the Focal Animal Sampling method is observing the behavior of certain individuals or focus individuals who are first seen in a group (Bosholn & Anciães, 2018).

Community data collection by interview, observation and documentation methods (Luborsky & Rubinstein, 1995). Elephant data collection also uses the same method, but the tally sheet method is also used (Aldous, 1944).

Result and Discussion

People's Perception of Sumatran Elephant Conflict

Based on the results of research on community perceptions of elephant conflicts in Ie Jeureungeh Village. The research was conducted based on 2 factors of public perception, namely internal factors and external factors

Table 1. Community Perception of Elephant Conflict in Ie Jeureungeh Village, Aceh Jaya, Indonesia

Internal Reason	Perception Description	External Reason	Perception Description
Desire / motive	1. People's wanted an electric fence to reduce elephant conflicts. Because according to the subject it is not easy to drive elephants out of the garden. 2. People's wanted an electric fence to keep the elephants away from settlements and plantations. 3. People's wanted a ditch to prevent elephants from entering the plantation area. Because according to the subject it is less effective to use an electric fence, because it can still be passed by elephants.	Education	1. The subject has never attended a workshop or training related to elephant conservation. 2. The subject held a routine training program every 3 months related to elephant conservation. The subject has attended training related to elephant conservation held by the CRU.
Needs	1. People needs a network and electricity to make it easier for the community to contact the CRU in the event of an elephant conflict. 2. People needs support in the form of a special team and transportation to help the CRU conduct socialization to the community. 3. People's need supporting facilities to help reduce and prevent elephant conflicts.		

Based on the results of interviews that have been carried out with the community in Ie Jeureungeh Village, Aceh Jaya Regency, data related to community perception factors consist of internal factors and external factors. Internal factors are divided into motives/wants and needs, while external factors include education, both formal and non-formal education, the hope that the community can participate in training and socialization activities related to elephant conservation held by CRU Sampoiniet.

Internal factors, the community wants electric fences to keep elephants away from residential areas, ditches to prevent elephants from entering people's plantation areas, relocation of community gardens from the middle of the forest to the outskirts of the forest to reduce elephant conflicts, network and electricity are needed to make it easier for people to communicate. supporting facilities to help prevent elephant conflicts, and require support in the form of a special team and transportation to help CRU conduct socialization to the community.

Figure 1. The Process of Collecting Social Data for the Community around CRU Sampoiniet, Aceh Jaya

Data on the Existence of Sumatran Elephants at CRU Sampoiniet, Aceh Jaya District, Aceh Province

Morphological data of a tame elephant named Aziz was taken when the condition of the elephant was moving and moving, the weather conditions when the data was collected the weather in the field was drizzling and the temperature in the field ranged from 28-30 ^{0}C.

Figure 2. Process of Collecting Morphological Data on Sumatran Elephants at CRU Sampoiniet, Aceh Jaya.

Based on observations, it is known that the morphology of a tame male elephant at CRU Sampoiniet, Aceh Jaya Regency, named Aziz, has a body length of 2.45 m, a body width of 2.25 cm, a leg length of 1.6 m and a foot diameter of 1.36 m. The width of the ears is 65 cm, the length of the tusk is 99 cm, the diameter of the tusk is 33 cm and the last is the length of the trunk 1.36 m.

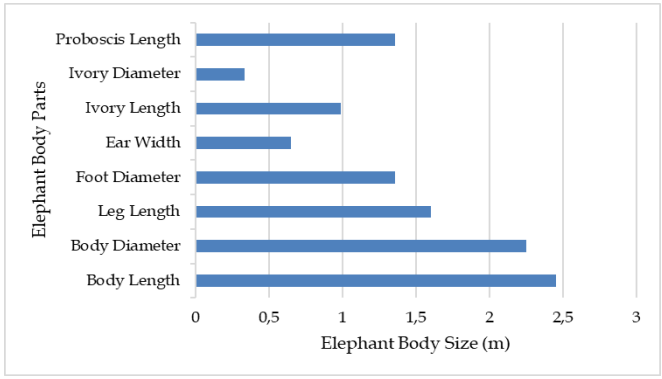

Figure 3. Sumatran Elephant Morphology

Based on the results of observations that have been made, the daily behavior of 1 tame Sumatran elephant at CRU Sampoiniet named "*Aziz*" shows that this tame Sumatran elephant has the highest proportion of behavior is eating (0.13%) then moving (0.7%), grooming (0.1%), urinate (0.03%), defecate (0.03%). This is because the behavior of elephants during rainy or drizzling weather conditions is different from hot conditions, as explained by Mahout at the location that in summer the elephants drink and rest more often.

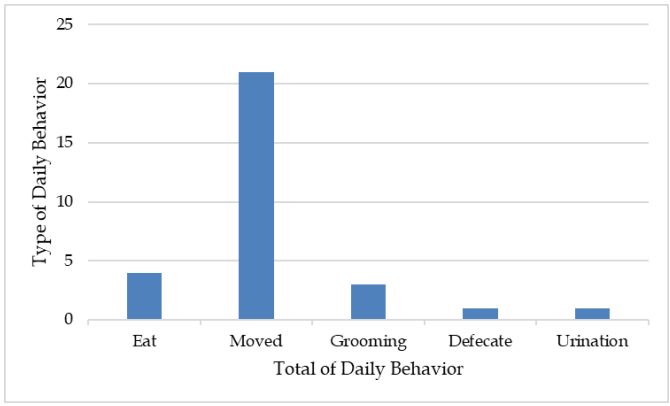

Figure 4. Sumatran Elephant Daily Behavior

Description of Sumatran Elephant Feed at CRU Sampoiniet, Aceh Jaya District, Aceh Province

Based on observations sumatran elephant feed at CRU Sampoiniet, Aceh Jaya District, Aceh Province, it is known that feed is one of the main factors for creatures to survive. Elephants are herbivores (plant eaters). The types of food eaten by elephants include sensitive plant (*Mimosa pudica*), cogon grass (*Imperata cylindrica*), tampoi

tree (*Baccaurea macrocarpa*), fig tree (*Ficus* sp), jackfruit (*Artocarpus heterophyllus*), sugar palm (*Arenga pinnata*), and some other plant species. The elephant's need for food is very large, because it follows the size of the elephant itself. Based on the results of research that has been carried out at the time of the study, there are two dominant types of food being eaten by elephants.

(a) (b)

Figure 3. a. *Imperata cylindrica*, b. *Mimosa pudica*

Cogon grass (*Imperata cylindrica*) are plants that grow wild in various places. This plant can thrive in dry places that get sunlight, cogon grass have several characteristics, namely sharp leaves, long shoots, noisy and spreading underground, the type of leaves is ribbon and has short stems and has flowers. Almost all parts of the cogon grass were eaten by the Sumatran elephants at the Sampoiniet CRU.

Sensitive plant (*Mimosa pudica*) is a plant that is very, very easy to recognize because it has a special feature, namely its leaves bend when touched, this is to protect themselves from predators. *Mimosa pudica* has red and thorny stems, but there are several types of shy daughters that have green stems. This plant is often found in various places, especially the banks of rivers. Almost all of the plant parts of the *Mimosa pudica* are consumed by Sumatran elephants at CRU Sampoiniet.

These two types of plants are the dominant feed given by CRU Sampoiniet officers to support food intake, although food reserves in the CRU area are still very abundant, but there is also additional food in the form of various types of plants that are still supplied from outside on a certain scale to maintain welfare. tame elephant at CRU.

Conclusion

The results of the study concluded that the expansion of agricultural and plantation land is the cause of conflict between elephants and humans, according to the community around the area there are several effective ways to overcome elephant conflicts, namely by using electric fences, building ditches to limit elephant habitat and community settlements and relocating community gardens to forest borders and settlements. The community also needs supporting facilities such as electricity, a network of special teams to help the community deal with conflicts with wild elephants. The tame elephants at the Sampoiniet CRU really helped field officers to overcome the wild elephant conflict that occurred in the Ie Jeureungeh Village area, Aceh Jaya Regency, Aceh Province.

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