Sumatera Elephant Daily Behaviour (*Elephas Maximus Sumatranus*, Temminck, 1847) in Elephant's Sub Training Center Line 21 Banyuasin District, Sumatera Selatan Province, Indonesia

Asvic Helida[a*], Wawan Hadi Kurnia[b], Asep Sunjaya Adhikerana[c]

[a]*Forestry Lecturer at the Muhammadiyah University of Palembang*
[b]*Student Forestry Department at the Muhammadiyah University of Palembang*
[c]*Zoological Society of London Province Sumatera Selatan, Indonesia*
[a]*Email: asvichelida20p@gmail.com*

Abstract

Behavior is a function of the morphological and physiological adaptation of an animal. Behavior also means all animal movements that are influenced by the relationship between animals and their environment. Behavior of Sumatran Elephants can change due to the high damage of forests in Sumatra which results in the loss of a large portion of lowland forest as its potential habitat. Disturbances from outside factors such as elephant ivory hunting, forest conversion for plantation, settlement, agriculture and mining purposes cause fragmented forests so that Sumatran Elephants can no longer move from one forest area to another. The purpose of this study was to determine the daily behavior of Sumatran Elephants (*Elephas maximus sumatranus*) and identify the habitat of Sumatran Elephants in the area of the Elephant Training Center (PLG) Line 21. The results showed that elephants had the most proportion of behavior to eat and then followed by movement, drinking, pooping, bathing, resting and light exercise. The environmental conditions of grassland vegetation in the Gajah Strip 21 Training Center do not support the comfort and safety of the elephant itself, although elephants at this location include tame elephants.

Keywords: Wildlife Reserve; Wildlife Behavior; and Sumatran Elephant.

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* Corresponding author.

1. Introduction

Indonesia is a megabiodiversity country, has a high biodiversity in terms of plants and animals. Sumatra Island is one of the islands in Indonesia which has high biodiversity with endemic levels. One of the protected species in the Province of South Sumatra is the Sumatran Elephant (Elephas maximus sumatranus). The remaining Sumatran elephants are protected in protected areas, they are trained and developed and used for various purposes [1,2].

Based on Government Regulation Number 7 of 1999 concerning preservation of plants and animals, Sumatran Elephants are a protected species, whereas under the IUCN (International Union for Conservation of Nature), Sumatran Elephants fall into the critical category. Meanwhile CITES (Convention on International Trade in Endangered Species) Conservation on International Trade in Animals and Plants) has categorized Sumatran Elephants in Appendix I group since 1990, which means that elephants are strictly prohibited from being hunted, captured and traded [3,4].

One of the government's efforts to prevent the occurrence of extinction and overcome the problem of conflict between elephants and humans is to establish the Elephant Training Center sub-line 21 which is in the Padang Sugihan Wildlife Reserve in South Sumatra Province. According to the concept of biological adaptation, behavior is a function of the adaptation of morphology and physiology of an animal [5]. Reference [6] stated that elephants have the ability to roam up to 16 hours a day to find food sources. During exploring, elephants carry out various activities such as eating, drinking, wallowing, resting, playing, salt and others. Behavior of Sumatran Elephants can change due to the high damage of forests in Sumatra which results in the loss of most lowland forests as potential habitat [4]. Disruptions from outside factors such as elephant ivory hunting, forest conversion for plantation, settlement, agriculture and mining purposes cause fragmented forests so that Sumatran Elephants can no longer move from one forest area to another [7].

This study aims to determine the daily behavior of Sumatran Elephants in the Elephant Path 21 Training Center because behavior is one way for animals to adapt to environmental changes that occur due to the decreasing habitat of Sumatran Elephants.

2. Method

2.1. Study Site

Research on the daily behavior of Sumatran elephants is carried out in the Elephant Track 21 Training Center for 2 months, namely in June 2017 to August 2017.

2.2. Materials and Equipments

Equipments used in this study are Camera, Clock and Stopwatch, while the materials used are stationery and tally sheet.

2.3. Data Collected

Data collected in this study are primary data and secondary data. Primary data is through observation of Sumatran Elephants directly in the field, while secondary data is obtained from literature studies and agencies related to this study.

2.4. Research Methods

The method of this research is qualitative with a descriptive observational approach where observers pay attention and directly observe the daily activities of elephants, and before observations are carried out, a period of habituation is carried out where the observer introduces and understands the habitat area of Sumatran Elephants in the Elephant Training Center Line 21 for one week to make it easier to make observations without interfering with the elephant's daily behavior.

2.5. Research procedure

The method of data collection is done by focal animal sampling method, which is a method of taking behavioral observation data that uses one individual animal as an object of observation and uses the technique of recording the behavior of these animals at certain intervals [7]. Stages of observation will be carried out for 30 minutes and behavior recording will be carried out every 60 seconds. Each individual animal was followed for 30 minutes and observed its activity at intervals of 60 seconds. Observations were carried out from 09.00 to 16.00 WIB and recorded activities for 30 minutes divided into 60 seconds per observation, when an activity occurred a square root sign (√) was given.

2.6. Analysis Data

Then after obtaining behavioral data using the focal animal sampling method, a calculation is then performed, the calculation of the percentage of activity for each individual is done using a formula [7].

Frecuency activity percent $= \frac{A}{B}$ x 100%

A = Frequency of activity per day

B = The total frequency of all activities per day

After that the calculation data is then determined so that the Sumatran Elephant's daily behavior can be identified, then the percentage calculation data is presented in the form of a matrix, then analyzed descriptively.

3. Result and Discussion

Based on the results and analysis of data, various activities of elephant behavior observed, namely eating, moving, drinking, pooping, bathing, resting and light exercise as illustrated in Figure 1.
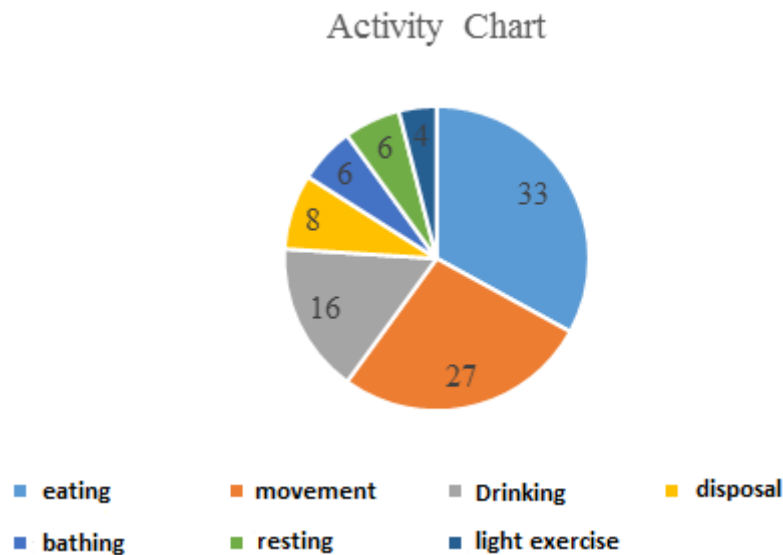
Figure 1: Various activities chart Elephas maximus sumatranus

A.   Feeding Behaviour

The results of the observation showed that the research object elephants spent their time eating as much as 33% of their overall behavior. Elephants in the Training Center search for food naturally, by eating various types of grass around the area where the elephants are tied. In addition, elephants also eat the rest of the plant skin by peeling the skin. Elephants use their trunks in taking food, the process of eating starts from choosing the food that is felt with the trunk until the food is pulled or removed afterwards then proceed to insert it into his mouth then chew it. In addition to getting food naturally in the training center, Elephants in Training Center is also provided with additional food.

B. Movement Behaviour

Sumatran Elephants in training center are wild elephants that have been tamed and intended to prevent conflict and wildlife conservation. Because the elephant used for the observation object is tame / training elephants, the range is also very large.

C.   Bathing

In the aea of the Elephant Training Center, Line 21, there is a Primary Channel as a place to drink, and used by handlers to bathe the elephant. Based on information from the handler, elephants do not have pores on their skin so elephants prefer mud compared to water when wallowing or bathing because mud is longer dry than water. Bathing is done to maintain body temperature and protect the skin from insect bites and ectoparasites [8].

D.   Drinking

Sumatran Elephant needs drinking water as much as 20-50 liters / day [8]. During observation, drinking

activities are one of the main types of activities carried out by elephants. Water sources are small gutters or puddles near the place where the elephant is bound, in the form of banana midrib leaves to meet their food needs. This can also be related because the elephant's motion area is limited, so elephants do not need much movement to do eating activities. limited to the length of the chain bond, which only ranges from 30-35 meters so that roaming movements cannot be fulfilled anymore. Often elephants only make movements when looking for food, drink and other movements from one place to another until the maximum distance from the length of the chain tie.

E. Resting

During observation, the elephant rests in a sitting or standing position by waving its ears and nodding its head. Usually elephants often rest when the weather has started to feel hot and after eating or bathing, and long breaks are often recorded between 20-30 minutes. In the wild, elephants rest by sitting or lying under a tree, but at the research location, this habit cannot be done because there are no trees around this location.

F.   Salt Behaviour

Based on information from the handler at Gajah Strip 21 Training Center in addition to growth needs, elephants usually need a lot of minerals when they are already married, usually elephants will actively conduct salt behavior to fulfill their mineral needs, besides the influence of high waterlogging makes elephants it will be difficult to carry out salt activities because elephants are looking for salt in the soil. Management in the Elephant Training Center Track 21 elephants are given an additional salt 1 (one) week and given directly to the elephant, besides salt is also given acid and brown sugar which serves to increase energy and appetite.

G. Disposal behaviour

During the observation, the frequency of excretion was recorded as 8% of the total activities. Elephants dispose of waste by standing and before removing waste, the elephant will first lift its tail to facilitate the process of sewage. Usually defecation along with eating activities. The elephant's excrement usually resembles small balls and still has a lot of fibers left over due to poor digestion of elephants.

H. Light Exercises

For elephants were observed as attraction elephants, the handler gave light exercise. Lightweight exercise aims to get the elephant familiar with what the handler has taught. Usually the handler trains the elephant in stages according to the age level, elephant's use / skill and physical condition.

The elephant exercise material is given, according to the knowledge and experience of being a handler, with the guidance provided from the Elephant Path Training Center 21. Elephants are trained in stages, such as adaptation stages, basic training, advanced training and development exercises, one of which is like exercise lift your leg up and down the handler. Practice taking items with trunks, Training for others (not the handler). The training applied by the handler to elephants can provide changes in daily behavior at the Elephant Track 21

Training Center.

4. Conclusions and recommendations

4.1. Conclusions

1. Elephant Attractions in Elephant Training Center Line 21 has the highest proportion of behavior for eating by 33% then followed by moving 27%, drinking 16%, removing dirt 8% bathing 6%, resting 6% and light exercise 4%.

2. Environmental conditions of grassland vegetation in the Elephant Training Center, Line 21, do not support the comfort and safety of the elephant itself, although elephants at this location include tame elephants.

4.2. Recommendations

1. There is a need for rehabilitation of vegetation for grassland areas in the Gajah Strip 21 Training Center, especially to increase the need for food sources and shelter.

2. It is necessary to think of ways for noise pollution from motorbikes passing on the Primary Channel (Line 21) to not disturb the comfort and safety of elephants. One effort, for example, is the installation of notification signs to reduce the speed of the boat / speedboat so that the engine noise is reduced when passing on the Primary Channel (Line 21).

3. Other research needs to be done, especially in relation to the perceptions of the people around the border area of the Elephant Training Center, Line 21 which uses the Primary Channel (Line 21) as an alternative means of transporting elephants at the Elephant Track 21 Training Center and conservation efforts Sumatran elephants in general.

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