

CHAPTER I. INTRODUCTION

1.1 Background

Javan deer is an animal that is potentially for breeding because it is easy to breed and has economic value. This kind of deer is often kept in a zoo, captivity, or parks. Deer has multiple benefits, namely that it can be a source of food and as a spectacle animal at tourism locations. Deer is also used for socio-cultural interests and the development of science and education as well as aesthetics while maintaining the preservation of population and the purity of their species (Adnyani *et al.*, 2018; Basuni, 1989; Rumakar *et al.*, 2017). Because of that, many captivities were established in Indonesia, including Deer Captivity BNR located in Bogor City.

One of the efforts to maintain the sustainability of Javan deer is to know their behavior. Understanding of social behavior is needed to support the successful maintenance efforts, captivity, and cultivation and improve animal welfare (Suratmo, 1979 in Wirdateti *et al.*, 1997). Social behavior is defined as behavior that is done by interacting with each other between individuals or groups (Madja *et al.*, 2018). Social behavior on deer can be seen from some activities like licking hair (grooming), interaction rubbing against male-specific horns, and spacing interactions while grazing (Gusmalinda *et al.*, 2018). In Javan deer, social behavior is mostly done by adult female deer towards their infants and adult male deer towards female deer and fellow adult male deer. Meanwhile, young deer and infants show less interaction in the group (Madja *et al.*, 2018). Especially in male deer, living socializing in a small environment

such as in captivity naturally is difficult. Even in the wild, male deer tend to live alone and only gather during mating season (Semiadi and Nugraha, 2004).

Grouping patterns are traditionally classified based on observation in the field from the number of adults traveling together (Isbell, 2017). Grouping patterns can be observed by the process of aggregation (fusion) and separation (fission) (Gueron and Levin, 1995). In general, grouping patterns on deer are male group, female group, and mixed-sex group (Salazar *et al.*, 2016). Grouping patterns on deer in nature are influenced by density in the deer population where there is a positive correlation between group size and animal density, availability, and food dispersion where if more food is available in one place then the group size will be bigger. Besides, the presence of predators and habitat structure also affect group behavior. Whereas in habitats with more open vegetation, the group size is usually bigger (Raman, 1997).

Animals including Javan deer will adapt to the captive environment through changes in behavior. Deer in captivity are different from deer in their natural habitat, deer in captivity have to adapt to the enclosure environment and limited space. This adaptation will affect the activity of the deer, especially with the presence of visitors who come to captivity (Amiati *et al.*, 2015). But, deer in captivity always get enough food, regardless of the changing seasons, thereby reducing the causes of competition. Besides, there are no predators or other types of animals that can threaten the existence of deer. Individual deer already know each other because they come from the same lineage. This kind of condition will affect the grouping patterns that occur in captivity.

Understanding the Javan deer behavior is very useful in increasing conservation efforts and animal welfare. The deer behavior in captivity can improve

our understanding of deer that live in the wild where detailed observations are difficult. Grouping patterns in deer in captivity including the size and structure of the group, whether the structure of the group is influenced by lineage, sex, and age, is their fission-fusion the group. It is very important to be investigated. The results of this research are expected to become a reference in handling Javan deer both in the scope of captivity and in natural conditions.

1.2 Problem Formulation

Based on the background above, problems in the research can be formulated as follows:

1. How is the grouping pattern in Javan deer (*Rusa timorensis*) kept in BNR Captivity?
2. What are the factors that influence the grouping pattern of Javan deer (*Rusa timorensis*) kept in BNR Captivity?

1.3 Research Objectives

1. To know the grouping pattern of Javan deer (*Rusa timorensis*) kept in BNR Captivity.
2. To know the factors that influence the grouping pattern of Javan deer (*Rusa timorensis*) kept in BNR Captivity.

1.4 Benefit

The results of this research are expected to become references in handling Javan deer (*Rusa timorensis*) both in BNR Captivity and other captivities. Understanding the behavior of Javan deer will be useful in improving conservation efforts and animal welfare.

