Maintenance Management Of Mentilin (*Cephalophacus bancanus bancanus*) In Captivity In Alobi PPS As A Means Of Exsitu Conservation

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Abstract.

Conservation is one of the efforts that can be made to prevent the decline in the population of Mentilin (Chephalophacus bancanus bancanus) and maintain its existence in nature so that the population is not disturbed. PPS Alobi is an animal rehabilitation center that plays a role in ex-situ conservation efforts for wild animals, so it must have the capacity to realize the ideals of conserving wild animals while ensuring the welfare of these animals in captivity. This research aims to determine the management of keeping mentilin (Cephalophacus bancanus bancanus) in captivity at the Alobi PPS as a means of ex-situ conservation of wild animals. The research was conducted using a survey approach, open and closed interviews, and questionnaires. Mentilin (Cephalopachus bancanus bancanus) maintenance management at PPS Alobi based on drum management parameters adopts an outdoor cage concept. It is built based on the natural needs of mentilin (Chephalophacus bancanus bancanus), and there is environmental enrichment for mentilin activities. Feed management operational standard feed management includes feeding based on the type and amount of feed as well as the frequency of feeding. Health management carries out animal health checks when the animals enter the Alobi PPS, followed by routine checks on the animals. Intensive care for animals that are sick or in unhealthy conditions means the frequency of administration of medicines and vitamins will be more intensive. Animal Health Management is to determine the animal's condition to be released back into its habitat and is supported based on knowledge of Mentilin primate animal conservation. Keywords: Mentilin (Cephalophacus bancanus bancanus), Exsitu conservasi mentilin, Maintenance management mentilin.

Keywords: *Maintenance management mentilin, population of Mentilin and PPS Alobi.*

I. INTRODUCTION

The Bangka Belitung Islands Province has a special type of primate animal, namely Mentilin, which consists of two subspecies, namely *Cephalopachus bancanus bancanus* (Bangka Island) and C. b. Saltator (Belitung Island) [1]. Like other types of primate animals, such as mentilin, this type of primate animal typical of Bangka Belitung also experiences threats and disturbances in its existence in its natural habitat in nature. Mentilin is categorized as an endangered animal [1]. Mentilin is a primate that belongs to the genus Mentilin, a monotypic genus from the family Tarsiidae. Mentilin is also included in the list of animals that cannot be traded (Appendix II CITES).Mentilin itself is threatened by forest conversion activities for tin mining and palm oil plantations [2]. Conservation efforts are urgently needed to ensure the survival of this species. Conservation includes activities related to the protection, preservation, maintenance, rehabilitation, introduction, preservation, and sustainable use of wild animals [3]. Mentilin conservation efforts can, among other things, be carried out in situ (in its natural habitat) or ex-situ (outside its habitat). Ex-situ conservation efforts are very appropriate and useful for rare animals with low population numbers in their natural habitat. As is known, PPS Alobi is an animal rescue center as a means of rehabilitating wild animals in ex-situ conservation efforts for wild animals.In order to achieve the goal of PPS Alobi as a means of ex-situ conservation, good management is needed to carry out an ex-situ conservation program to ensure the preservation of orangutan species.

Management is responsible for planning, implementing, monitoring, and evaluating various aspects related to animal welfare. Aspects of animal welfare include freedom from hunger, thirst, and malnutrition, freedom from discomfort caused by environmental conditions, freedom from pain, injury and disease, freedom from fear and anxiety, and freedom to behave naturally.Several aspects of management that are directly related to animal welfare include cage and feed management. This research aims to determine the maintenance management of Mentilin at PPS Alobi as a means of ex-situ conservation. Information about knowledge, perception and maintenance management is needed to ensure the success of ex-situ conservation

efforts by preserving, protecting and utilizing wild animals, especially the endemic primates of Bangka Belitung. This research is also expected to support the Muhammadiyah University of Bangka Belitung's research strategic plan, especially in the field of Natural Resource Conservation. Apart from that, research on Mentilin maintenance management at PPS Alobi has never been carried out before. Therefore, the importance of carrying out this research is increasing.

II. METHODS

This research will be carried out from September to December 2023. The research location is at PPS ALOBI Jalan Air Jangkang, Sinar Rembulan Hamlet, Riding Panjang Village, Merawang District, Bangka Regency, Bangka Belitung Province.Data collection methods were carried out using primary and secondary surveys. Primary data will be collected by conducting direct observations in the field, conducting interviews with authorized officers, and distributing questionnaires. Meanwhile, secondary data is obtained by conducting literature studies. The survey was carried out using direct interviews and questionnaires based on questionnaires that had previously been tested for validity and reliability [4]. Interviews and questionnaires were distributed and filled out by Alobi PPS managers, especially officers who care for mentilin in terms of cage management, feed, and health.

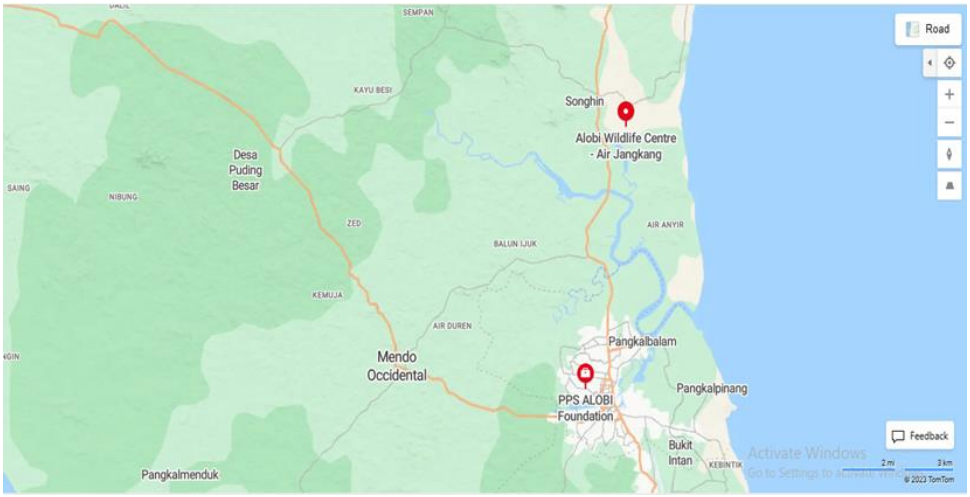

Fig 1. Research Locations at PPS Alobi Foundation

Alobi which were in charge of caring for the Mentilin primate animals. Respondents were grouped based on gender, age, education, and occupation. The method for determining the sample size was carried out using the number of indicators (respondent characteristics), which were managers and staff at PPS Alobi, so the number of samples surveyed was 13 respondents. Interviews that will be conducted with respondents will be conducted with the management of PPS Alobi and the staff in charge of looking after Mentilin primates, which is related to cage management, feed, and health.

III. RESULTS AND DISCUSSIONS

Cage management

Aspects of orangutan cage management that were observed and assessed included design, cage type and size, environmental enrichment, individual arrangement and cage maintenance. Six aspects are used as parameters in implementing animal welfare management, free from temperature and physical discomfort, namely (1) type of cage, (2) temperature, ventilation and lighting conditions, (3) cage floor, (4) condition of cage ducts, (5) Condition of shelters and sleeping pens, (6) Cleanliness of drums.The housing system design at PPS Alobi generally adopts an outdoor cage concept. It is built based on the natural needs of Mentilin (*Chephalophacus bancanus bancanus*) and also provides the environmental enrichment needed to support mentilin activities. In cage design, it is a must to consider the environmental conditions of the mentilin so that it suits the needs of each age group and gender. The cage must pay attention to technical requirements, which include being isolated and out of reach of people, made in a high place, protected from open areas and striving for many protectors such as trees. The direction of the cage is to face east-west to optimize sunlight

[5]. Enclosures function to provide living or movement space for animals, protect animals from the heat of the sun, cold, wind and rain, and protect animals from external dangers and disturbances.

Fig 2. Outdoor enclosure concept with environmental enrichment

Environmental enrichment is an important component required in the Mentilin demonstration cage. Environmental enrichment can be divided into several categories such as physical, social, occupational (environmental enrichment functions to improve psychological aspects and physical training of orangutans), sensory and feed enrichment [6]. Efforts to optimize the function of environmental enrichment should use materials that are easily replaced and have low costs, such as wood, natural materials and not iron. Environmental enrichment assessments must be carried out empirically to evaluate the intended achievements, one of which is by assessing the behavior of animal subjects. The results of the research show that the Tarsius genus uses small trees for eating, resting, grooming, jumping, looking around (scanning), and marking home areas with urine (scent marking) [7].The breeding cage at PPS Alobi is a single cage type whose function is to use a sleeping cage, mating cage, reproduction cage, and isolation/quarantine cage. There is only one type of cage system at PPS Alobi because PPS Alobi is a type of captivity rehabilitation for animal rescue activities so that the animals do not stay in captivity for long. In the rehabilitation program, animals are placed in cages with environmental enrichment that is as similar as possible to their natural habitat so that the animals are motivated to behave naturally.

Feeding Management

Feeding animals at PPS Alobi is based on the type of animal, so the frequency of feeding animals varies. The frequency of feeding is once a day, once a week, or once a month. Nutrition has a very important influence on growth, reproduction, and longevity, as well as the ability to survive disease attacks. The nutritional needs of primates are dynamic and influenced by genetic and environmental factors. Operational standards for feed management include feeding based on the type and amount of feed as well as the frequency of feeding.

Fig 3. Animal feeding by feeding units at PPS Alobi

When feeding animals in captivity, it is very important to consider the various factors that can influence the diet of individuals. The types of food given include insects, including crickets, grasshoppers, and

sometimes German caterpillars. The amount and type of feed are regulated by the feed unit implementing unit. The frequency of feeding is carried out every afternoon at around 16.00 or 17.00 WIB and, at the same time, replaces the animals' drinking water. The distribution of food to each animal is carried out by the nurse or keeper based on the food provided by the feeding unit.Based on observations in the PSSP IPB enclosure area, tarsiers were given insect food and drinking water in containers that had previously been cleaned. The cricket feed requirement for each tarsier is 40/day, while for caterpillars, it is 20/day. Apart from that, PSSP IPB routinely evaluates water and measures the pH of the water [8]. Optimizing feed management is intended to optimize the fulfillment of animal nutrition and realize animal welfare, including aspects of freedom from hunger and thirst as well as freedom from disease [9].

Health Management

Animal health management at PPS Alobi has been going well. Aspects of animal health at PPS Alobi are the responsibility of the management and veterinarians. Animal health checks are carried out when the animals enter the Alobi PPS, and routine checks are performed on the animals. To maintain animal health, provide vitamins and other medicines once a month. However, if an animal is sick or in an unhealthy condition, the frequency of administering medication and vitamins will be more intensive. The risk of primates in captivity or rehabilitation centers being infected with parasites is lower than that of primates in their natural habitat.Animal health management is the most important thing to see the readiness of the animal's condition to be released back into its habitat. To prevent the transmission of disease from animals to humans, and vice versa, there is a need for health management standards at PPS Alobi to provide initial preventive measures for animal keepers, which require the use of complete equipment when entering animal enclosure areas. Personal Protective Equipment (PPE) is always used before and after sanitation in the tarsier cage [10]. Personal protective equipment for workers includes masks, goggles, hair caps, wear packs, boots and gloves. Maintenance activities carried out at PSSP IPB include sanitizing cages, providing food, implementing the use of PPE, and administering anthelmintics. Health examinations of feces as a medium for detecting microorganisms in the tarsier digestive tract, one of which is endoparasites, are carried out every six months or if cases are found [8] health management.Animal health management at PPS Alobi has been going well.

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Managers Knowledge and Perceptions

Respondent Demographics

This survey was conducted on managers of animal shelters and rehabilitation units at ALOBI in 2023. The number of respondents was 10 people. Demographically, respondent data can be seen in the image below. This data includes age, gender, education and occupation.

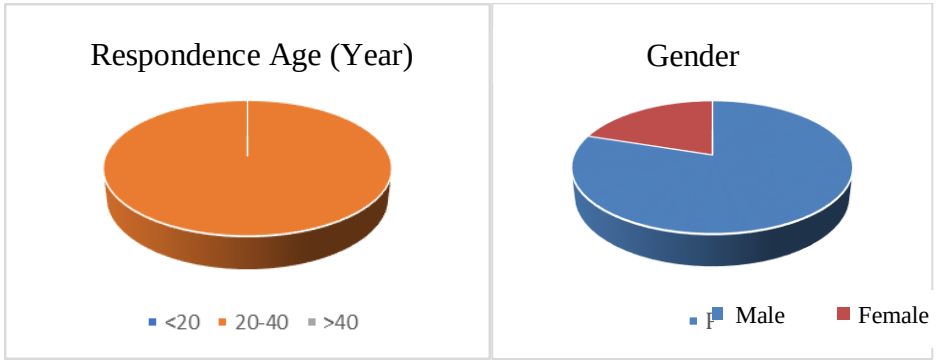

Fig 4. Respondent demographics based on age and gender

All respondents in this study were in the age range of 20–40 years. This is related to the productive work period, where all respondents were employees and final semester students who were doing internships at the research location. In terms of gender, 80% of respondents were men, and the remaining 20% were women.

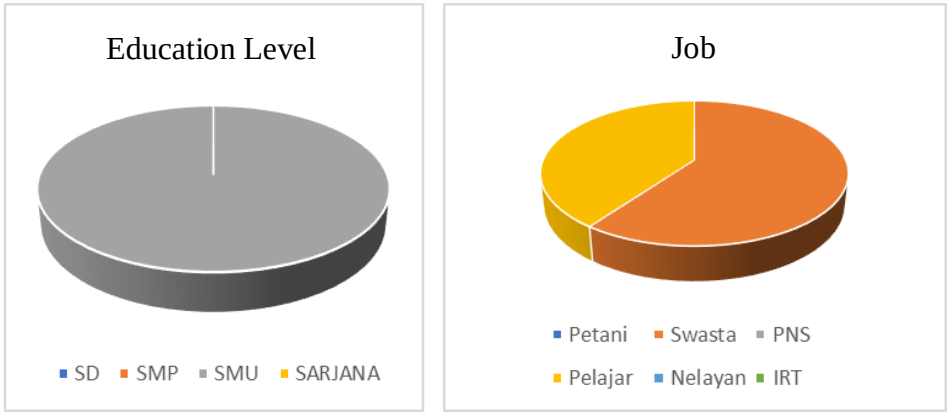

Fig 5. Respondent Demographics Based on Education and Occupation

In terms of education, all respondents had a high school education (100%). In terms of work, as many as 60% of respondents were employees or volunteers from the institution where the research was conducted. In comparison, 40% were students or students who were doing internships at that location. The characteristics of respondents in a survey were reported to be closely related to their participation role. Furthermore, the higher a person's level of education, the easier it will be to reject or accept new things [11].

Primate Conservation Knowledge

The results of the questionnaire regarding knowledge related to primate conservation are shown in the image below:

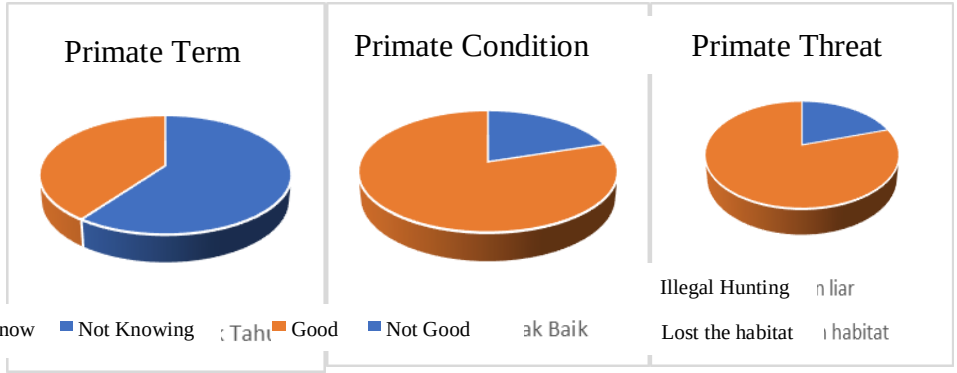

Fig 6. Knowledge of Primate Conservation based on terms, conditions and Primate Threats

The interesting thing about this research is that only 60% of respondents had heard of the term primate, the remaining 40% had never heard of the term. However, when asked about mentilin as a local primate of Bangka Belitung, all respondents had heard the term. In fact, all respondents stated that they had encountered mentilin, which was possibly caused by the fact that there was mentilin in captivity at the research location.When asked about the type of mentilin food, all respondents stated that they knew about

mentilin food. In fact, all of them were able to provide examples of mentilin food such as insects or crickets. When asked about the condition of mentilin in nature, 80% of respondents stated that its condition was not good, and the remaining 20% stated that mentilin was still in good condition. When asked about the threats faced by mentilin in nature, 2 types of threats were obtained, namely habitat loss (80%) and poaching (20%).

Perceptions of Primate Conservation

The results of the questionnaire regarding perceptions regarding primate conservation are shown in the image below:

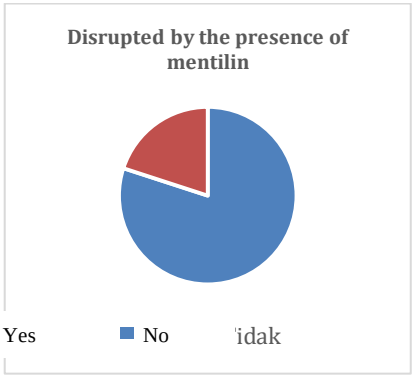

Fig 7. Perception of Primate Conservation

Of the five questions regarding perceptions of mentilin conservation, 4 questions, including the term conservation, the meaning of conservation, the role of mentilin, and interest in mentilin, obtained uniform answers from all respondents. All respondents stated that they liked mentilin and thought that mentilin had a role. The only difference in response was found in the question regarding whether the presence of mentilin made respondents feel disturbed; 20% said yes, and the remaining 80% said no.

Respondents' Concerns

In this research, questions regarding visitor concerns regarding primate conservation consisted of 5 questions. The first question was how respondents would react if they encountered mentilin in the wild. Most respondents (50%) stated that they would "leave" mentilin and not disturb it. Meanwhile, the rest said they would arrest 30% and protect 20%. When asked whether they had ever seen other people catch mentilin, the number of respondents who said they had "ever" seen it was very small, namely 10%. Furthermore, when asked how respondents would respond if they saw someone catching mentilin, as many as 50% of respondents said they would try to "prevent as much as possible," as many as 30% would report it to the authorities, and 20% would prevent as much as possible.

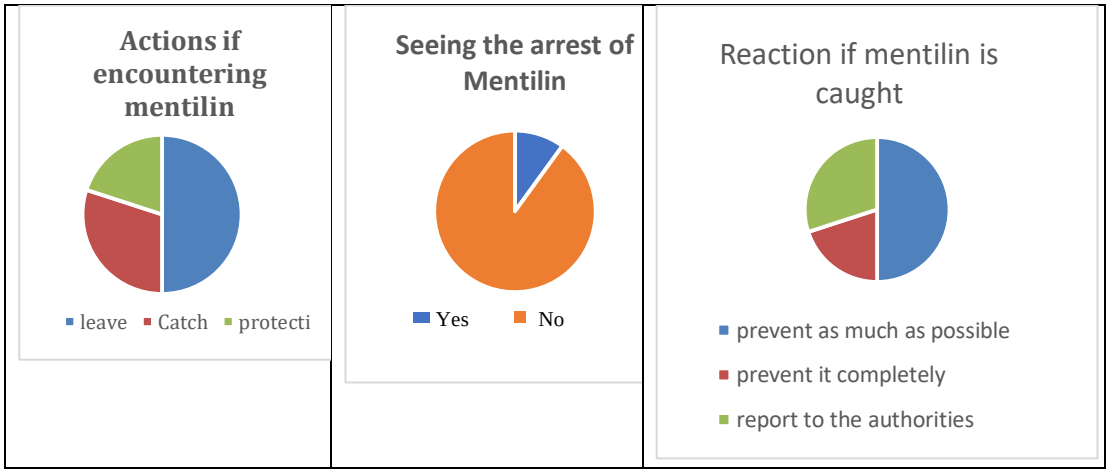

Fig 8. Respondents' Concern Based on Actions, Seeing Arrests, and Reactions if Mentilin is Arrested

Based on the results of the questionnaire above, there are differences between respondents' responses to the questions asked compared to research [12] in the aspects of knowledge, perception, and concern for primate conservation. This is related to the respondent's level of education and work related to animal conservation activities, including primate animals, namely mentilin.

IV. CONCLUSION

Mentilin (Cephalopachus bancanus bancanus) maintenance management at PPS Alobi is based on the parameters of drum management, feed management, and health management. The cage adopts an outdoor cage concept and is built based on the natural needs of Mentilin (*Chephalophacus bancanus bancanus*), and environmental enrichment is provided for mentilin activities. Feed management operational standards include feeding based on the type and amount of feed as well as the frequency of feeding. Health management carries out animal health checks when the animals enter the Alobi PPS, followed by routine checks on the animals. Intensive care for animals that are sick or in unhealthy conditions means the frequency of administration of medicines and vitamins will be more intensive. Animal Health Management to see the readiness of the animal's condition to be released back into its habitat.

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