



Identification and Population Density of Primate Animals in the Stik Jantho Aceh Besar Educational Forest

Rosmalia¹, Ruskhanidar², Aswita³

^{1,2,3}Sekolah Tinggi Ilmu Kehutanan Pante Kulu, Jl. T. Nyak Arief Darussalam Banda Aceh, Indonesia

¹Bagian Kesatuan Pengelolaan Hutan (BKPH) Krueng Aceh

ABSTRACT: Long tail macac (*Macac fascicularis*) and black langur (*Trachypitecus auratus*) are two species of primates protected by law. The conservation status of both is listed as vulnerable in the IUCN and appendix II status in CITES. The very sharp population decline in the monkey population is due to declining habitat quality and poaching. The STIK educational forest is a secondary forest, which is disturbed by illegal logging and forest fires. The vegetation that forms the habitat for the lives of kedih and black langur primates in this area is not yet known. There is no data on primates from the kedih and langur groups in the STIK Jantho educational forest. This is the reason why this research is important to be conducted. The purpose of this study was to obtain data on monkey and black langurs including the number of groups, the number of species, age structure and sex ratio in the STIK Jantho educational forest. Data collection in this study used the transex path method by recording the number of groups, the number of individuals, age structure and sex ratio. Data analysis using Arch GIS 10.1 to determine the distribution of monkey and black langur by plotting each coordinate obtained, using GPS visualized in the form of a map. Determination of the density of kedih and black langur using the formula: $P = D \times A$. Found 2 types of primate animals (*Trachypitecus auratus* and *Macaca fascicularis*), each 1 group. The number of *Trachypitecus auratus* individuals 10 individuals and *Macaca fascicularis* 50 individuals. Both species of primate animals are included in the developing age structure and have a complete composition (adult males and females, infant and juvenile). The results are presented in the form of a distribution map of black langur groups, and the population density of kedih and black langur primates, narrated in the form of a research report in this document.

KEYWORDS: Black langur, Conservation, Forest Education, Vegetation.

INTRODUCTION

The black langur (*Trachypitecus auratus*) is a primate species protected by law (P.20/Men LHK/Setjen/Kum.1/6/2018). Its second conservation status in the IUCN is listed as vulnerable and appendix II status in CITES. Many factors have caused the decline in the black langur population, including a decrease in habitat quality and poaching of long-tailed monkeys and black langurs. There is currently no research data on the population growth and number of groups in the conservation area, primary forest and secondary forest in the Jantho Nature Reserve. The Jantho Nature Reserve conservation area is an important habitat for the black langur species and black langurs (Ruskhanidar, *et al.* 2023). Black langurs must compete with other primate species to obtain food sources and sleeping trees. There are eight primate species that are competitors for black langurs in the Jantho Nature Reserve conservation area (Ruskhanidar, *et al.* 2020). As a result, black langurs must move further to obtain food sources. The area of movement (Home range) of black langurs ranges from 25-36 km/ha (Ruskhanidar, *et al.* 2023), and there is no data on the movement of black langurs in the Jantho Nature Reserve conservation area. This is very dependent on the availability of food (2). This movement is increasingly carried out when food sources are not available in sufficient quantities. The less food there is, the greater the movement will be. This is related to the nutritional needs that must be met by the kedih and black langurs. To meet these food needs, black langurs from the Jantho Nature Reserve move to the STIK educational forest to look for food. The STIK educational forest is a secondary forest area where the type and composition of the vegetation as a food source are not yet known. A group of black langurs was also found in the STIK educational forest. This is what prompted researchers to make the STIK educational forest a buffer habitat for the sustainability of the black langurs in the Jantho Nature Reserve. However, to make the STIK educational forest area a buffer habitat, data is needed on the black langur species, including the number of groups, the number of individuals, age structure and sex ratio and other primate species that are competitors for the sustainability of the langurs in the STIK educational forest. Habitat data includes types of food, composition of food vegetation and sleeping trees. It is also necessary to know the socio-economic conditions



of the community around the educational forest area which have the potential to disrupt the sustainability of the kedih and black langurs. Therefore, this research is important to be conducted in order to obtain the data, for the continuation of the conservation of primate species of kedih and black langur in the future, and the educational forest can be a buffer zone for the Jantho Nature Reserve and Nature Tourism Park. Based on these problems, the formulation of the problem in this study includes:

1. What are the primate species that live in the educational forest other than the black langur, how many groups of black langurs are there in the area
2. How is the population growth of black langurs in the STIK educational forest, this is very dependent on the age structure and sex ratio of black langurs.

Based on the formulation of the problem above, the purpose of this study, in general, is to find out data on the number of groups, number of species, age structure and sex ratio of black langurs in the STIK Jantho educational forest.

RESEARCH METHOD

A. Time and Place of Research

This research is planned for six months starting from April - December 2024. The selection of the research time is so that it can observe the types of feed consumed, sleeping trees, and the productivity time of kedih and lutung feed in different seasons (dry season and rainy season). This research took place in the STIK Jantho Education Forest, Aceh Besar district, Aceh Province. This location is geographically located at 05°15'16" N and 95°38'54" E. The observation site is focused on the sleeping kedih and lutung trees, riverbanks, and ridges.

B. Research Materials and Tools

The research materials are black langurs and vegetation as important components of the habitat. Observations on black langurs are focused on the number of groups, age structure, sex ratio. The tools needed in this study include: 1. Location map, 2. GPS, 3. binoculars, 4. Compass, 5. Meter. 6. Plastic rope (raffia rope), 7. Marker tape, 8. Camera, 9. Haga meter, 10. Stationery.

C. Data Collection Method

The data needed in this study consists of secondary data and primary data. Secondary data is obtained from the office or related parties (BKSDA Aceh), the community around CAJ, and other supporting literature. Primary data is obtained from the field, but to facilitate data collection, a preliminary survey is first conducted. Preliminary survey Before observing kedih and langur, a preliminary survey is first conducted. This is to facilitate the collection of primary data in the field. The activities carried out in the preliminary survey are observations aimed at obtaining initial data (Alikodra. 2019). This initial survey activity uses the transect line method (Slayer. 2015; Sinclair and Caughley. 1994; Alikodra. 1990). To obtain the initial data, observations are made by following the transect path. Data collected in the preliminary survey included the presence of kedih and black langurs and habitat conditions (types of vegetation, food trees and sleeping trees). The data collection method used a transect path as in Figure 2.

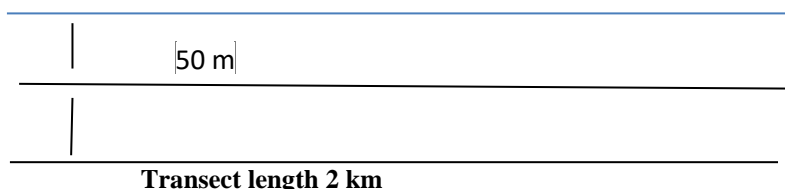


Figure 2. Black langur observation transect.

The transect position follows the north-south direction, with a path width of 50 m on each left and right of the transect (8) and a transect length of 2000 m (5). To obtain black langur data, observers walked along the transect that had been made. Observations using GPS aids by recording the coordinate points where the kedih and black langur were found. The location coordinate points were taken at every certain distance of 25-50 m. The data collected include: (a) Coordinate points; (b) number of individuals; (c) number of groups; (d) sex ratio and (e) age structure. Recording these coordinates is intended to obtain data on the distribution of langurs in the STIK Jantho educational forest. Observations were carried out with the help of binoculars and cameras. Observations were carried out from 6:00 to 18:00 WIB. and repeated for 30 working days.

D. Data Analysis

Every word in Determination of the distribution of black langurs is determined by plotting each coordinate obtained, using GPS visualized in the form of a map using Arch GIS 10.1. Determination of the density of black langurs using the formula: $P = D \times A$. The results are presented in the form of a distribution map of black langur groups.

RESULTS AND DISCUSSION

A. Geographical Conditions of the Jantho STIK Educational Forest.

The Jantho STIK Educational Forest (HP STIK) was determined based on the Decree of the Minister of Forestry No. 724/menhut-11/2009 with an area of 80 Ha and is located along the Krueng Aceh sub-DAS river. Administratively, the location of the HP STIK is in Jantho sub-district, Aceh Besar district. Based on its geographical location, HP STIK is located at 095°38'27" - 095°38'54" E and 05°15'16" - 05°15'47" N, HP STIK borders Boeng village to the West while to the East, South and North it borders the Jantho Nature Reserve Conservation Area. The Educational Forest has an altitude of 100 to 250 meters above sea level with undulating to hilly physiographic conditions, alluvial resistant type (entisol) which shows a profile formed from the development of soil profiles from sediment results. The slope level is 16% - 25% and 24% - 40%, the rest of which is flat, wavy and undulating. This area has a rainfall of 1500 - 3000 mm / year, an average temperature of 24°-29°C and humidity of 56 - 96%. HP STIK is a state-owned forest area with a special purpose whose management is handed over to the Forestry College (STIK) Teungku Chik Pante Kulu Foundation. The allocation of HP STIK for the Tri Dharma activities of Higher Education which include education, research and community service.

HP STIK) is a secondary forest area with a vegetation structure consisting of tree-level vegetation, poles and stakes and seedlings. The height of the trees in HP STIK ranges from 10-15 m, trees with a height above 20 m are rarely found. Based on its habitus, shrubs are more dominant in covering the HP STIK area, compared to tree habitus. This is because HP STIK was previously a shifting cultivation area for the Boeng village community. The types of vegetation generally found are types of vegetation that can live on critical land. Based on Law No. 37 of 2014 concerning Soil and Water Conservation, critical land is land that does not function well as a production medium for growing cultivated or uncultivated plants. Bashit (2019) stated that critical land is unproductive land with very low fertility levels because the existing land is barren, bare, and cannot be used for agricultural purposes. The HP STIK. forest area is also inseparable from encroachment and burning carried out by the community for agricultural and garden areas. Encroachment and burning of HP STIK by the community are presented in Figure 1.

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Figure 1. Forest encroachment and land burning of HP STIK by the community.

Forest encroachment and burning are one of the causes of habitat destruction of primates in HP STIK. As a result of this encroachment and burning, a number of trees that are sources of food and sleeping trees have been lost. Encroachment and burning can also narrow the movement space of black langurs and also cut off the usual paths used to find food, because vegetation connectivity is cut off. This refers to Ruskahindar (2020) that canopy connectivity is very important for the smooth movement of primates in carrying out social activities and movement to obtain food sources. The broken canopy makes primates have to go down to the forest floor to get to the next tree. because the jumps made by black langurs cannot reach the branches or twigs of the tree they are going to. Black langurs have to expend a lot of energy to jump on vegetation whose canopies are not connected. Going down to the forest floor is a threat to black langurs from predators on the forest floor.

B. Types of Primate Animals

The results of the study showed that the primate animals found living in HP STIK Jantho were only two species, namely black langurs and long-tailed monkeys (MEP). No kedih and other types of primates were found. The primates found in HP STIK are presented in Table 1 below....

No	Spesies satwa primata		Jumlah (Individu)	Posisi Pohon tidur	
	Nama lokal	Nama Ilmiah		N	E
1	Lutung hitam	<i>Trachypithecus auratus</i>	10 (16,67%)	5°15'36,09"	95°38'47,78"
2	Monyet ekor panjang	<i>Macaca fascicularis</i>	50 (83,3%)	5°15'39,55"	95°38'33,96"
	Jumlah		60		

Both species of primates use trees near the river as their sleeping trees. This is because vegetation near the river is taller than other vegetation that is far from the river. The black langur sleeping tree is far from the road that people use for their activities, while the long-tailed macaque sleeps closer to the road that people use for their activities. The black langur and long-tailed macaque sleep trees are presented in Figure 2, below.

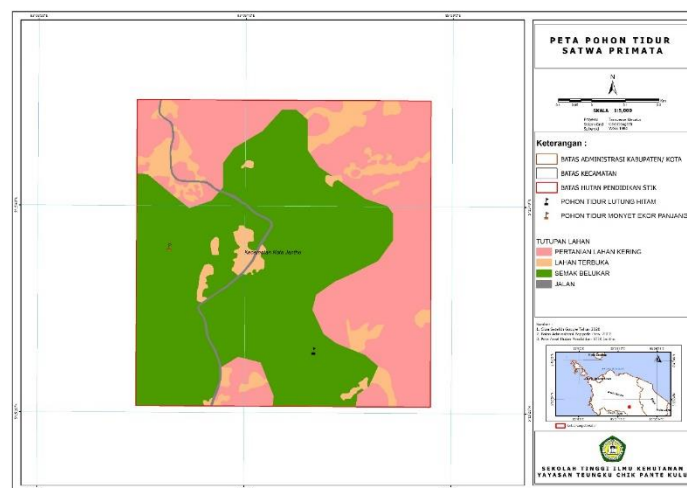


Figure 2. Map of sleeping trees of black langurs in HP STIK Jantho

Black langurs (*Trachypithecus auratus* in HP STIK Jantho, utilize sleeping trees that are 10 meters high from the forest floor. Vegetation of the Shorea, sp type is the sleeping tree of black langurs in HP STIK Jantho. In the Jantho Nature Reserve, black langurs sleep at a height of 10-15 m from the forest floor (Ruskhanidar, 2020). The Nature Reserve has high vegetation complexity.

3. Black Langur Population

As the data in table 1. that the black langurs found in HP STIK are only one group, consisting of 10 individuals, with the composition consisting of adult male and female langurs, adolescents and children. The composition and age structure of black langurs are presented in Table 2.



No	Komposisi kelamin	Jumlah Individu
1	Jantan dewasa (Adult male)	1
2	Betina dewasa (Adult female)	3
3	Remaja (infant)	5
4	Anak (juvenile)	2
	jumlah	10

Based on the research results, the black langurs found in HP STIK were only one group, with a total of 10 individuals. This number is a normal size for primates, referring to Sampurna, Yanto, & Rahmat, (2014), that a population of 7-10 individuals is the normal size of primates in primary forests. The number of primates found at this research location is higher than the black langurs found by Hendrawan et al. (2019) as many as 7 individuals per group in the lowland forest of the Leuweung Sancang Nature Reserve conservation area, Cipalaawah block, Garut, West Java. The population of black langurs at the research location is lower than the findings of Rahmawati and Hidayat (2017) as many as 14 individuals per group in the Kecubung Ulolanang Nature Reserve, Batang Regency, Central Java. Black langurs are a primate species found living in primary forest areas and secondary forest areas. As previously explained, the STIK educational forest is a secondary forest that is more dominantly found in shrubs, rather than high-level trees. Based on the results of the study, the age composition of the black langur is complete, including adult, adolescent and child ages. Referring to Hidayatullah (2015) that adult age is an individual with an age ranging from 8-20 years, Adult males have a larger body size than adult females, while adult females are generally found near children (caring for children). Adolescents are individuals aged between 4-8 years, have a medium body size, have reached sexual maturity until reaching optimum reproductive age. In male adolescents, the scrotum is visible and often separates itself from the group, while in female adolescents the mammary glands are relatively small and are often in the group. Children are individuals with an age range of 0-4 years, have a small body size and are still under the care of their parents (very dependent on their parents) until they reach sexual maturity. Morphologically, black langurs have the characteristics of a body length from head to toe (adult males and females) averaging 517 mm and an average tail length of 742 mm. While its body weight has an average body weight of 6.3 kg. Black hair color, interspersed with silvery colors, while for newborns it is orange-yellow. After growing up the color changes to grayish black. According to Sontono et al (2016) The difference between males and females morphologically lies in the development of secondary genitalia, while for age groups in black langurs is distinguished based on body size and daily activities. The table data also explains that black langurs in HP STIK are a one male multi female group (one adult male, three adult females) When viewed from the age structure of black langurs in HP STIK, they have a complete age structure, and the age structure pattern is developing (increasing), namely young age is higher than old age. In this case, children and adolescents are taller than females and adult males. Referring to Alikodra (1990) that the age structure has three patterns, namely a general decreasing structure, a stable age structure, an increasing age structure or a developing age structure. Thus, black langurs in HP STIK can grow and develop, if not disturbed (hunting and habitat destruction) by the community.

CONCLUSION

Based on the results of the discussion, it can be concluded that the population of black langurs in the STIK Jantho educational forest is very low, only one group with 10 individuals, consisting of one adult male, 3 adult females, infants and juveniles. Based on the age structure of the black langurs in HP STIK, it has a complete age structure and a developing age structure pattern. Thus, black langurs can still grow and develop in the future in HP STIK,

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