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A WIDE SURVEY TO ASSESS POPULATION OF LONG-TAILED MACAQUE *MACACA FASCICULARIS* (PRIMATES: *CERCOPITHECIDAE*) IN LOWLAND REGION OF SOUTH SUMATRA

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Abstrak

Monyet-ekor Panjang *Macaca fascicularis* merupakan primata dengan status Terancam (Endangered) secara global karena diperkirakan penurunan populasi yang sangat cepat untuk jenis disebabkan tingginya perburuan untuk perdagangan. Sebuah survei untuk mendata populasi *M. fascicularis* dilakukan di kawasan dataran rendah Provinsi Sumatera Selatan pada 7 September-16 October 2023. Survei ini dilakukan di 17 lokasi di empat kabupaten/kota utama, yaitu Palembang, Musi Banyuasin, Banyuasin dan Ogan Ilir. Dari hasil survei ini tercatat 4.316 individu *M. fascicularis.* Hasil ini menunjukkan bahwa *M. fascicularis* masih umum dijumpai di lokasi-lokasi survei. Berdasarkan pada luas cakupan daerah survei dan luas wilayah dataran rendah di Sumatera Selatan, maka kami memperkirakan jumlah populasi *M. fascicularis* di dataran rendah di provinsi ini sekitar 300.000 individu. Survei lebih lanjut sangat dibutuhkan untuk mengetahui secara pasti jumlah poulasi *M. fascicularis* di Provinsi Sumatera Selatan.

Kata kunci: Dataran rendah, Monyet-ekor panjang, *Macaca fascicularis*, individu, Sumatera Selatan.

Abstract

The Long-tailed Macaque *Macaca fascicularis* is an Endagered primate because species' population decline very rapidly due to high levels of hunting for trade. A survey to collect data on the *M. fascicularis* population was carried out in the lowland areas of South Sumatra Province on 7 September-16 October 2023. This survey was carried out in 17 sites in four main districts/cities, including Palembang, Musi Banyuasin, Banyuasin and Ogan Ilir. This survey was recorded 4,316 individuals of *M. fascicularis.* This number suggest that *M. fascicularis* has good population number and still commonly found at the survey sites. Based on the survey coverage of the survey area and the total number of the lowlands in South Sumatra, we estimate the population of *M. fascicularis* in the lowlands in this province to be around 300,000 individuals. Further surveys are needed to determine the exact number of *M. fascicularis* populations in South Sumatra Province.

Keywords: Lowland, Long-tailed Macaque, *Macaca fascicularis*, individu, South Sumatra.

INTRODUCTION

Indonesia has 61 species of primates faunas, and becoming the country is one of the highest number of primate species in the world (Supriatna 2022). The primate faunas in Indonesia distributed in four major island groups in the country, including Sumatra, Kalimantan (Indonesian Borneo), Java, Sulawesi and other smaller islands (Ruskhanidar *et al.* 2017). These primates have suffered many threats due to altered landscapes and climate change that drive to extinction (Condro *et al.* 2020).

Sumatran lowland rainforest is one of main ecoregion in Indomalayan for primate habitats (Rodriguez-Vargas 2021). Among the major island groups in Indonesia, Sumatra has the largest number of primates species which containng 24 species, then followed Sulawesi 16 species, and Kalimantan 14 species (Ruskhanidar *et al.* 2017). In Sumatra, the primates face anthropogenic threats, such as loss of habitats (more forest is converted to plantation estates and agricultural lands, and roads are built across Sumatran forests), electrocution from power lines, road accidents and hunting (Nijman 2009; Supriatna *et al.* 2017; Iqbal *et al.* 2023).

Although primates are better studied than most other tropical taxa, but there is still gaps in basic information about distribution, population status and threats for many primate taxa (Marshall & Wich 2016). The status of Long-tailed macaque *Macaca fascicularis* should be a interesting case in Indonesia. This species is native Indonesian primate found in Sumatra, Kalimantan and Java; and according to International Union for Conservation of Nature (IUCN), the population is decreasing every year and considered as Endangered (Hansen *et al.* 2022). However, it is reported that this species is considered as pest to local people main crops in Sumatra (Kuswanda *et al.* 2023). In this paper, we report a wide survey of *M. fascicularis* in lowland region of South Sumatra Province, Indonesia.

METHODS

We conduct various survey methods to detect the presence and count *M. fascicularis* in lowland region of South Sumatra Province, Indonesia. This survey was carried out in 17 sitess in four main districts/cities, including Palembang, Musi Banyuasin, Banyuasin and Ogan Ilir

(Fig. 1). The survey site is covering from various habitats, including rubber plantation, mangrove forest, garden, shrubs, swamp, secondary fores and urban area. In Banyuasin District, most area is mangrove forest (Fig. 2). All of maximum count of *M. fascicularis* in each sites were tabulated in Table 1.

When the habitat is terrestrial area, the survey was applied with recce walk. The recce walk survey was considered as one effective method to collect basic absence/presence data of primate (Kuhl *et al.* 2008; Yustian *et al.* 2017). As suggested by Plumptre (2000), combination of recce walk and transect line survey have been applied to get more best precious estimate on population target of species target. The sites were recce walk and transect line survey that have been applied including Lunjuk (Palembang), Bagus Kuning (Palembang), Bukit Siguntang (Palembang), Alang-alang Lebar (Palembang), Lunjuk Jaya (Palembang), Tanjung Api-api (Banyuasin), Sungsang (Banyuasin) and Gandus (Palembang).

For the wetland habitats, such as swamp or riparian, we conduct survey with motorized vessel (with speedboat 40 HP engine or smaller engine). We have also applied this method to our previous to survey *M. fascicularis* and other mammals in South Sumatra (Iqbal 2004a, b; Setiawan *et al.* 2023). The motorized vessel were applied for sites here: Pulokerto (Palembang), Sungai Gasing 1 (Banyuasin), Sungai Gasing 2 (Banyuasin), Sungai Lilin (Musi Banyuasin), Peninggalan (Musi Banyuasin), Bayung Lencir 1 (Musi Banyuasin), Bayung Lencir 2 (Musi Banyuasin), Karang Anyar (Musi Banyuasin), Karang Sari (Musi Banyuasin) and Tambang Rambang (Ogan Ilir). In addition, we interview local people to got further information about status and population size of *M. fascicularis* in surveyed areas.

RESULTS

At least 4.316 individuals of *M. fascicularis* were recorded during 7 September-16 October 2023 from 17 sites in lowland region of South Sumatra Province (Table 1). Due to the *M. fascicularis* is listed as globally Endangered by IUCN (Hansen *et al.* 2022)., the specific name of sites and coordinates were not presented here. The highest number was found in Sungai Lilin (Musi Banyuasin) with 877 individuals, followed by Bayung Lencir (Musi Banyuasin) with 458 individuals, and Karang Sari (Banyuasin) with 400 individuals.

The lowest number was found in two sites in Palembang city, resulting 22 individuals (Bukit Siguntang) and 25 individuals (Lunjuk Jaya).

DISCUSSION

Record of 4.316 individuals of *M. fascicularis* from 17 sites in in lowland region of South Sumatra Province suggest that there is good population number in South Sumatra Province. A most recent survey in South Sumatra reported 1.194 individuals of *M. fascicularis* (Setiawan *et al.* 2023). Supriatna *et al.* (1996) was estimated population number of *M. fascicularis* from three provinces in southern Sumatra, including Jambi Province (1.250.000 individuals), Bengkulu Province (400.000 individuals) and Lampung Province (275.000 individuals). After this assessment, there is no update information about *M. fascicularis* in southern Sumatra, but the population could be stable without any indication if populaton decrease. Based on our survey coverage and the total number of the lowlands in South Sumatra, it is estimated that population of *M. fascicularis* in the lowlands region of South Sumatra province to be around 300,000 individuals. The lowland region in South Sumatra Province covering four major districts or city, including Musi Banyuasin, Banyuasin, Ogan Ilir, Ogan Komering Ilir and Palembang, with a total number of area is *c.* 44.471 km^2 (BPS 2024).

The conflict or human interaction between human and primate in Indonesia has been reported, particularly for *M. fascicularis* (Syah 2020). This primate has been known as one of animal that considered to be most destructive crop raids in Sumatra (Marchall & Hill 2009). Furthermore, Kuswanda *et al.* (2023) recognized that this primate as a pet in Sumatra. During field survey, we found *M. fascicularis* has been observed attack and fed some major crops of local people, including fed fruit of palm oil (Fig. 3). Local people in each survey sites also reported that *M. fascicularis* is a most animal give disturbance for their main crop or garden plants.

The *M. fascicularis* is the most common primate in riverine habitats in lowland region of South Sumatra Province (Danielsen & Verheugt 1990). They are among the most tolerant of habitat disturbance by humans where they can live in close proximity to humans in farming, plantation, rural and urban environments (Fooden 1995; Gumert 2011). In

Banyuasin, this primate has been observed checking a bottle of soft drink and drink from the bottle (Fig. 4). This observation is a evidence if *M. fascicularis* is adaptive species in human habitats and they can learn to survive in urban environments. Due to the good number of *M. fascicularis* and no indication on population declining in lowland region of South Sumatra Province, it is presumed that regional status of this species should be least concern, and they do not qualify as near threatened or threatened.

CONCLUSSION

Record of 4,316 individuals of *M. fascicularis* in the lowland areas of South Sumatra Province during 7 September-16 October 2023 suggest that this species has good population number and still commonly found at the survey sites. Based on the survey coverage of the survey area and the total number of the lowlands in South Sumatra, we estimate the population of *M. fascicularis* in the lowlands in this province to be around 300,000 individuals. Regional status of *M. fascicularis* should be least concern, and this species do not qualify as near threatened or threatened locally.

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Table

Table 1. Result of number of Long-tailed Macaque *Macaca fascicularis* count from 7 September-16 October 2023 in lowland region of South Sumatra Province.

Location (District/City, Site)	Date	Maximum Count of *M. fascicularis*	Number of site in Map
Palembang, Bagus Kuning	07–08 Sep 2023	250	1
Palembang, Bukit Siguntang	09–10 Sep 2023	22	2
Palembang, Alang-alang Lebar	15–16 Sep 2023	42	3
Palembang, Lunjuk Jaya	15–16 Sep 2023	25	4
Palembang, Pulokerto	17–18 Sep 2023	96	5
Banyuasin, Tanjung Api-api	23 Sep 2023	54	6
Banyuasin, Sungsang	24 Sep 2023	40	7
Banyuasin, Sungai Gasing 1	25–26 Sep 2023	416	8
Banyuasin, Sungai Gasing 2	25–26 Sep 2023	699	9
Palembang, Gandus	27–28 Sep 2023	126	10
Musi Banyuasin, Sungai Lilin	29–30 Sep 2023	877	11
Musi Banyuasin,Peninggalan	29–30 Sep 2023	347	12

Musi Banyuasin, Bayung Lencir 1	01–02 Oct 2023	458	13
Musi Banyuasin, Bayung Lencir 2	01–02 Oct 2023	158	14
Banyuasin, Karang Anyar	08 Oct 2023	46	15
Banyuasin, Karang Sari	09 Oct 2023	400	16
Ogan Ilir, Tambang Rambang	15–16 Oct 2023	260	17
Total Individuals		**4.316**	

Figures

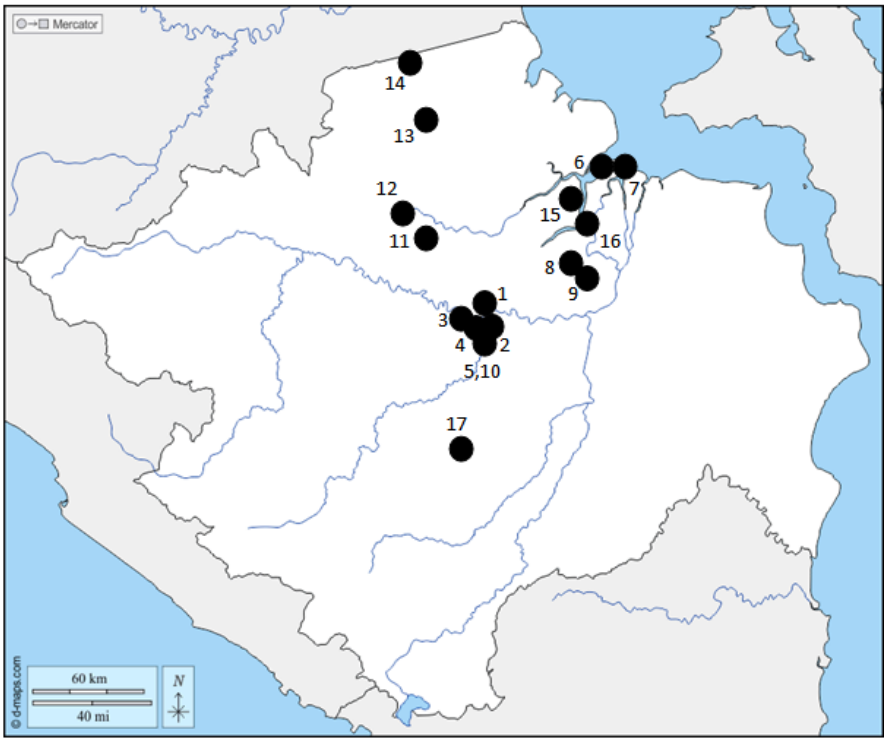

Figure 1. Location of wide survey to assess the population of the Long-tailed Macaque *Macaca fascicularis* during 7 September-16 October 2023 in lowland region of South Sumatra Province.

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Figure 2. Mangrove forest in coastal zone of Karang Sari, Banyuasin. A typical of habitat Long-tailed Macaque *Macaca fascicularis* in lowland region of South Sumatra Province (Photograph by Muhammad Iqbal).

Figure 3. A Long-tailed Macaque *Macaca fascicularis* eats a palm oil fruit on the edge of the plantation of local people in Pulokerto, Palembang (Photograph by Muhammad Iqbal).

Figure 4. A Long-tailed Macaque *Macaca fascicularis* investigating a bottle of softdrink, and try to drink the water from the bottle (Photograph by Muhammad Iqbal).