Mega Transect Survey to Estimate Population of Silvery Lutung *Trachypithecus cristatus* in Banyuasin River, South Sumatra

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Abstract. The Silvery Lutung *Trachypithecus cristatus* is recently listed as Vulnerable based on the assumption of the extensive habitat loss from forest fires, oil palm plantations and hunting. To review its status, we conduct a mega transect survey on 7 October 2023, to estimate the populations along 50 km of Banyuasin Drainage, Sumatra, Indonesia. We have been conducted census to assess population size of *T. cristatus.* Our survey found *c.* 500 individuals were documented in Banyuasin Drainage. Based on the proportion of survey site, it is assumed that the total number of *T. cristatus* in Banyuasin Drainage could approach 1.000 individuals. There is not enough evidence if this primate has become an annoyance for the primary crops of native farmers. Furthermore, no proof of capturing or hunting from native residents who keep *T. cristatus* as a favored animal. This study indicates *T. cristatus* is the most abundance primate in fluvial habitats of Banyuasin River, South Sumatra.

Keywords: Population, Vulnerable, Silvery Lutung, *Trachypithecus cristatus*, Sumatra.

1 Introduction

The Old World Monkeys (Family Cercopithecidae) are the extremely survived animals in various habitats in their distributional area with a wide elevational zone from coastal zone to mountain area, and some species live near to urban habitats [1]. The The Silvery Lutung *Trachypithecus cristatus* is a species of Family Cercopithecidae native to Southeast Asia that occur from Peninsular Malaysia, Sumatra and Borneo [2, 3, 4]. Through the whole of their distributional zone, this species occupy mangrove, marine and fluvial forest; as well as good forest and urban habitat [5].

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The status of *T. cristatus* is uncertain, possibly decreasing as a result of extensive loss of coastal forests including mangroves [6]. An overall population estimate for this primate is not available [7]. This species is currently recognized as Vulnerable because it is assumed that the population has bare a decrese probably at a rate of more than 30% over the past three generations due to extensive habitat loss from forest fires and clearance for oil palm plantations and hunting for pet trade [8].

Sumatra (473,481 km2) is largest island in westernmost of Indonesia and habitat for *T. cristatus*, includng Bangka, Belitung, Riau and Lingga Archipelagos [9, 10, 11]. This island is a hotspot island in Indonesia for animals [12, 13, 14]. The Indonesian island of Sumatrais home from 24 primates from 59 species in Indonesia [15,16, 17]. In South Sumatra Province, it was reported that *T. cristatus* was encountered 3% from five primates [18]. Due to the lack information on *T. cristatus* population in South Sumatra, here we present our assessment of this primate in Banyuasin Drainage, South Sumatra, Indonesia.

2 Methods

A survey of mega transect line approach to 50 km long distance was conducted on 7 October 2023 in Banyuasin Drainage, Sumatra, Indonesia (Figure 1).

Fig. 1. Map study site to assess the population of the Silvery Lutung *Trachypithecus cristatus* on 7 October 2023, Banyuasin Drainage, Southern Sumatra. The white arrows show survey directions and the transect lines.

The Banyuasin Drainage is a major river in Banyuasin Regency of Southern Sumatra. The study area covers the upperstream zone (Simpang PU, Tanjung Lago Subregion, Banyuasin Regency; 02°34'S, 104°44'E) and to downstream zone (mouth of Banyuasin Drainage, Banyuasin Regency; 02°22'S, 104°43'E). The River is dominated by Nypa *Nypa fruticans* and mangrove and habitats (*Sonneratia caseolaris* and *Avicennia marina*), particularly in the downstream areas [19]. The Banyuasin Drainage and its associated wetlands is considered as an essential fishery zone in Southern Sumatra [20].

As the study area is fluvial forest habitats and its associated wetlands, the study was carried out using a motorized vessel of 40 HP (Horse Power) engine. All *T. cristatus* observed along the drainage were noted and counted. The highest number of individuals of *T. cristatus* was summed and fixed on the map (Figure 2). The carrying out motorized vessel was conducted in biodiversity survey [21, 22]. Surveys of primates with motorized vessel have been implemented in Borneo [23, 24]. In the lowands region of Southern Sumatra, biodiversity studies using motorized vessels were implemented in certain areas, eg. Sembilang National Park [25, 26]. To complete the study, we carry out interviews with native residents to examine their knowledge about the status and populations size of *T. cristatus* in Banyuasin Regency and surrounding areas.

3 Results and Discussion

A calculation of *c.* 500 individuals of *T. cristatus* was documented on 7 October 2023 along the 50 km of fluvial habitats in Banyuasin Drainage, Southern Sumatra (Figure 2).

The total number of *c.* 500 individuals of *T. cristatus* was derived from direct count from upstream area to downstream area (transect line) There are six subtransectsof *T. cristatus.* A riparian survey was the largest documented number of individuals, recorded 150 individuals. Based our survey, the individual number of *T. cristatus* are increasing from upper stream to downstream (except for riparian), following 30 individuals, 40 individuals, 90 individuals, 120 individuals and 70 individuals. The *T. cristatus* in coastal and mangrove forests, and they diet comprises mainly young leaves, shoots, flowers, seeds and fruits, especially those of mangrove population [4]. During the survey, we observed that this species feed young leaf of two common mangrove plants in Banyuasin River: *Sonneratia caseolaris* and *Avicennia marina.* A survey from West Sumatra reported 14 species of plants eaten by *T. cristatus*, including *Arenga pinnata* (Arecaceae), *Cassia esculenta* (Fabaceae), *Commersonia bartramia* (Malvaceae), *Cyclea barbata* (Menispermaceae), *Eugenia cumini* (Myrtaceae), *Eugenia polyantha* (Myrtaceae), *Eurya acuminata* (Theaceae), *Ficus benjamina* (Moraceae), *Ficus fulva* (Moraceae), *Ficus variegata* (Moraceae), *Homalanthus populneus* (Euphorbiaceae), *Mallotus floribundus* (Euphorbiaceae), *Mangifera indica* (Anacardiaceae) and *Terminalia catappa* (Combretaceae) [27].

The largest count of a subtransect of *T. cristatus* was 150 individuals. This count was recorded in a riparian in the middle of Banyuasin Drainage. On some occasions, we found a group of *T. cristatus* with their infants (Figure 3). Infants are bright orange, but patches of grey appear until they adopt the full adult colouration [4]. This primate has been reported as the polygamous, social mating system and one male-multifemale cluster sizes of around 10-40 individuals, together with one individual and lower multimale groups, are the norm; and once a while, more than one male is present in a multifemale cluster [28].

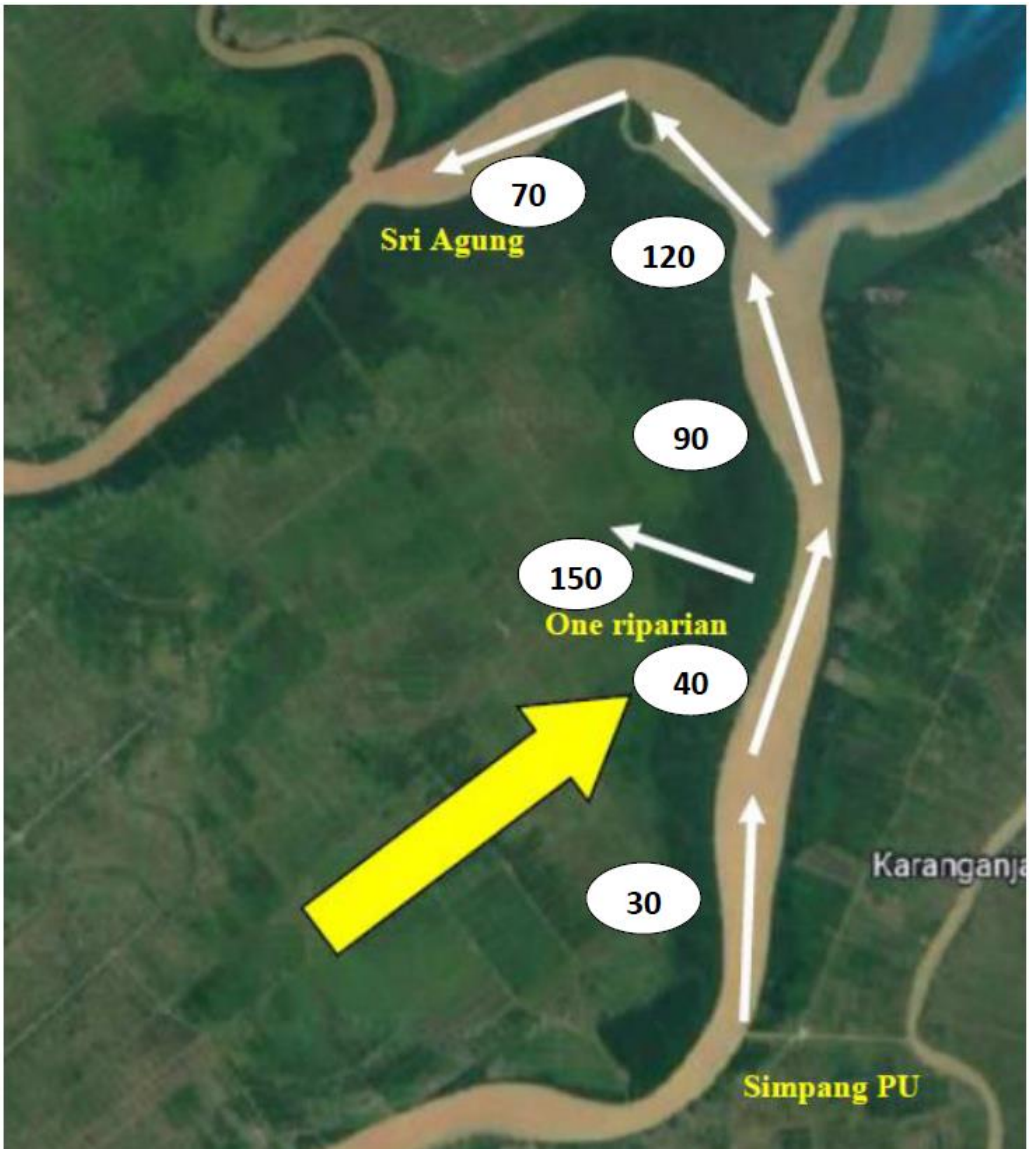

Fig. 2. Distribution and number of the Silvery Lutung *Trachypithecus cristatus* on 7 October 2023, Banyuasin Drainage, Southern Sumatra. The white circle indicate the area of *T. cristatus* documented, and number in circle indicate total number of individuals.

Fig. 3. One of the Silvery Lutung *Trachypithecus cristatus* and infant on 7 October 2023, Banyuasin Drainage, South Sumatra Province.

The *T. cristatus* has been listed as Vulnerable based on the continuing rate of decline in habitat of forest fires and clearance for oil palm plantations and increased hunting [8]. Our interview with local people was not confirmed if this animal has become an annoyance for the primary crops of native residents. Furthermore, no proof of capturing or hunting from native residents who keep *T. cristatus* as a favored animal. This study indicates *T. cristatus* is the most abundance primate in fluvial habitats of Banyuasin Drainage, Southern Sumatra. As long with other primates in Indonesia, *T. cristatus* exposeed whole its range by deforestation, capturing for food and medicinal reasons, and hunt for the pet trade [22]. The further survey and monitoring are required to determine and evaluate the population trends of *T. cristatus* in Indonesia, especially in Sumatra.

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