

**SHORT COMMUNICATION: PREVIOUSLY UNREPORTED HUMAN-PRIMATE CONFLICT IN
KALISALAK FOREST, CENTRAL JAVA-INDONESIA**

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ABSTRACT

We found the phenomenon of human-primate conflict (HPC) in the Kalisalak Forest, Central Java, Indonesia. This location is also known locally as the research site of the Kalisalak Study Site or Kalisalak Grand Forest Park (KGFP) and is used for religious activities by local ethnicities. The research site is used for pilgrimages every Suro Month in the Islamic calendar. Based on the history adopted from the local people, the macaques already existed in the colonial period of the Dutch East Indies. We interviewed "caretakers", mentioning that there are about 75 to 100 long-tailed macaques, but an unusual phenomenon occurs in HPC. According to local people, this conflict is in the form of crop-raiding, expressing agonistic behaviour such as grimacing and chasing visitors. However, when we repeated observations for one month, there was no conflict between long-tailed macaques and humans. The recorded population is still one large group. Besides, to conserve long-tailed macaques and minimize the incidence of HPC, further research is needed to be related to the management of primates by considering the location of the grand forest park type as well as secondary forest types, with the main commodity of the community being forest products.

Keywords: crop-raiding, cynomolgus macaque, ethnoprimateology, human primate interface, wildlife.

ABSTRAK

Kami menemukan fenomena konflik primata dengan manusia di Hutan Kalisalak, Jawa Tengah, Indonesia. Lokasi ini juga dikenal secara lokal sebagai lokasi penelitian *Kalisalak Study Site* atau Taman Hutan Raya (Tahura) Kalisalak dan digunakan untuk kegiatan keagamaan oleh etnis lokal. Lokasi penelitian digunakan untuk ziarah setiap Bulan Suro dalam kalender Islam, berdasarkan sejarah yang diadopsi dari masyarakat setempat, monyet-monyet itu sudah ada pada masa kolonial Hindia-Belanda. Kami mewawancarai "juru kunci" menyebutkan terdapat sekitar 75 hingga 100 ekor monyet ekor panjang, namun terdapat fenomena tidak biasa yang terjadi berupa konflik primata dengan manusia. Konflik ini menurut masyarakat lokal berupa perampokan hasil tani, menunjukkan tingkah laku agonistik berupa mengancam dan mengejar pengunjung. Namun, ketika kami melakukan observasi berulang sebanyak satu bulan tidak menjumpai konflik antara monyet ekor panjang dengan manusia. Populasi yang tercatat masih dalam satu kelompok besar. Untuk terus melestarikan monyet ekor panjang di situs ini dan meminimalisir kejadian konflik primata dengan manusia perlu penelitian lebih lanjut terkait pengelolaan dan manajemen satwa primata dengan mempertimbangkan lokasi berjenis taman hutan raya sekaligus tipe hutan sekunder dengan komoditas utama masyarakat adalah hasil hutan.

Kata Kunci: etnoprimateologi, interaksi manusia primata, monyet ekor panjang, perampokan hasil tani, satwa liar.

1. INTRODUCTION

The cynomolgus macaque (*Macaca fascicularis* Raffles 1821) is one of the non-human primates (NHP) species that have a widespread habitat [1]. Reported by [2] the cynomolgus macaque distributed in Southeast Asia (Indonesia [2]–[4], Malaysia [2], [5]–[7], Philippines [2], [7], [8], Myanmar [2], [9], Thailand [1], [2], Vietnam [2], [10], [11], Cambodia [2], [10], [12]). Most natural habitats include evergreen forests [1], [13]–[15], agricultural lands [1], [9], [16], swamps [1], beach [1], [17], [18], mangrove forests [1], [19], [20], riparian forests [1], public parks [1], various human-dominated landscapes

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[1], [2], nature recreation park [21]–[23], national park [2], [24]–[27], and temples [28], [29]. IUCN last report categorised it as the least concern [30].

In Indonesia, one of the sites on Java Island, the habitat of cynomolgus macaque is reported in Banten [31], [32], West Java [4], [21], [22], [33]–[36], Central Java [6], [13], [18], [26], [37], [38], East Java [27], [39]. Especially in Central Java, a research site called *Kalisalak Study Site* is found in Kebasen District, Banyumas Regency. This location also became a grand forest park because everyday visitors feed the macaques [40]. According to Al Hakim et al., *forthcoming* [37] reported on alpha-male daily activity, and [13] studied the factor that alpha-male became aggressive toward others. Research by [41] found unreported cynomolgus macaque population and undeveloped forests potentially becoming tourism spots. This reason is also supported by [42] that natural forest sources can provide daily macaque life.

We found the phenomenon of human–primate conflict (HPC) in the Kalisalak Forest, Central Java, Indonesia, from the local people. This phenomenon was previously unreported. We did not find any scientific literature in this location on this phenomenon. This short communication can explain notes from the field that needed further research due to mitigation of the HPC.

2. RELATED WORKS

2.1. Primate in Kalisalak Forest

In the Kalisalak Forest, as well as the secondary forest, also became a grand forest park because everyday visitors feed the macaques [40]. The macaque’s habitat co-exists with local people, and visitors are always available daily [43]. With this basis, anthropogenic disturbance between humans and primates can be potential [44]. Long-tailed macaques in this site still existed long ago (*challenging to estimate and need further research*). Nevertheless, recently, the first research by [37], [41] estimated the population and found that the habitat still undeveloped forests so that it can potentially become tourist spots. This reason is also supported by [42] that natural forest sources can provide daily macaque life.

2.1.1. Ethnoprimateology

The Kalisalak Forest is also commonly used by ethnic people for cultural and religious activities. A higher percentage of ethnical activity is a pilgrimage, with 49% higher than other religious activities such as respecting ethnic and cultural heritage 15%, ethnical ceremony 7%, and offerings (*sesajen*) 5%. Another ethnoprimateology phenomenon is reported as daily visits and vacations [45].

2.1.2. Behaviour

According to Al Hakim et al., *forthcoming* [37] reported on the alpha-male daily activity of the macaque there. He is more active than other male-subordinate in sexual and food resources. Another [13] studied the factor that alpha-male became aggressive toward others, especially with subordinates. This behaviour also contributes to incoming visitors to Kalisalak Forest.

3. METHODOLOGY

The study site was located in N7°31’53.4”, E109°14’9.099” with the local name as ‘*Makam Mbah Agung Karangbanar*’ or ‘*Makam Kramat Karangbanar*’. This location is in the Kalisalak Forest, with the type of grand forest park (KGFP, Kalisalak Grand Forest Park). It is located in Kebasen District, Banyumas Regency, Central Java, Indonesia. This site is also known as the *Kalisalak Study Site* because the location is still in the evergreen forest and is used for Islamic religious pilgrimage there. Previously research reported that this study site area is about 8,000 square metres or 0.8 hectares, consisting of plains and hilly areas with much vegetation. The dominant vegetations in the nearest study site are *Terminalia catappa* (country almond), *Codiaeum variegatum* (fire croton), *Gnetum gnemon* (melinjo), and *Syzygium grande* (sea apple) [43]. The following study site location map can be seen in Figure 1.



Figure 1. Study site in KGFP (Source: [41]). Scale in 1:50 m.

The study site is also used for Islamic religious pilgrimage events every Suro Month in the Islamic calendar; by history adopted from local people, the monkeys were already there during the colonial period. The macaques can survive because of the availability of natural food sources [42] and the provision of visitors [40] who come during the Suro event or every day who only visit for pilgrimages or vacations. The local government has not taken any action to make the site a natural conservation site but has only marked the name of the pilgrimage site at the site's entrance (Figure 2). We used an in-depth interview with the caretaker (*juru kunci, jurkun*) and the nearest neighbourhoods (with the primary work as a farmer) for the data collection on human–primate conflict (HPC) in the Kalisalak Forest. The field observation was also conducted and repeated for 30 days in March 2022. We interpreted the data with the qualitative-descriptive method.



Figure 2. The sign of the pilgrimage site's name is at the site's entrance (in Indonesian).

4. RESULT FINDINGS

Based on the in-depth interview, the site is designed for Islamic religious activities by residents. There is no sign posted on the site associated with these macaques. The myth of local residents is that if visitors take this macaque out (stolen), it is said that it will get sick and must be brought back. Some visitors feed the macaques by providing peanuts, bananas, snacks, and food supplies that visitors bring [40]. Of course, this is a bad habit for macaques to eat food that is not natural and has the potential to interfere with their health [22]. The macaques here are habituated to the presence of humans [43]. They tend to approach visitors when visitors come to the site location to ask for food that visitors bring (Figure 3), although some visitors were found not to bring food.



Figure 3. Feeding macaques by visitors is a daily event of the visitor and some local people.

Visitors who come are generally locals and out of town. Their goals vary, such as daily visits, sharing sustenance with macaques, pilgrimages, and other religious activities. Based on interviews, it was encountered several times that the phenomenon of aggressiveness is unusual when macaques are not fed. However, we found one adult male expressing a grimace to a male visitor when he did not get the food. Besides, other macaques welcome visitors by following them and ignoring them until visitors leave the location. According to Djuwantoko et al. [46], mitigating the HPC must reduce the number of visitors. As well as adult male is the most aggressive individual that commonly threatens male-visitor. In the KGFP, no connecting corridors were found; only a road fragmented the forest into western and eastern parts. This similarly human-primate interaction was found in Sumatra respectively [14].

This site is a historical site used for religious activities of the Islamic religion. Based on the caretaker interview, the existence of long-tailed macaques at this site has existed for decades (it is not known for sure the year it was first discovered), then co-existed with humans. As well as, the most religious activity that happened in the KGFP is the pilgrimage to the ancestors [45]. According to Estrada [47], between humans and primates, it was possible to become co-existence when they share the same habitat and the same agroecosystem. In the KGFP, they have shared the same habitat and agroecosystem possibility. However, until this study was conducted, the local government only used the site as a religious tourist place. The state of this site which is used as a religious tourist place, is not in line with efforts to maintain the welfare of the existing long-tailed macaques.

Local farmers also reported crop-raiding incidents of their crops. Young macaques do this; no old macaques do this; what else is an infant. According to farmers, they are just a whim but sometimes steal their crops. Expulsion attempts such as stone-throwing and repellent measures are still effective in avoiding crop-raiding. Elsewhere, based on our observations, these troops had no conflict with humans, but based on local perspectives, they found that phenomenon; this is also found in other sites but still in the same province [23]. Besides, four villages in North Sumatra-Indonesia were reported to be crop-raiding by the primates [48]. As well as, primate crop-raiding in Asia is a normal phenomenon [49]. In addition, another anthropogenic location reported finding the primate disturbance in the village [50], but not found in the KGFP and any nearest village.

There are no installed slogans for no food, no littering, or warnings to always protect wild animals because this location is also one of the secondary forests in Central Java and especially his grand forest park. Another threat possibility is the dancing monkey (*topeng monyet*), and this phenomenon must be a concern [51]. The local government should consider this. However, the latest IUCN report regarding the conservation status of long-tailed macaques is vulnerable [52]. There should still be efforts to preserve and

environmental-based conservation efforts at KGFP, such as ecotourism or eco-edutourism for bioconservation, as well as biosocial conservation in the human-primate interface situation [53].

5. CONCLUSION AND RECOMMENDATION

The KGFP is a historical site used for religious activities. The recorded population is still one large group. Action to preserve the long-tailed macaques at this site, there must be efforts to preserve and environmental-based conservation efforts at this site. Future research needs to be carried out about any human-primate interaction to assess this site's population status and conservation efforts.

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NOMENCLATURE

HPC meaning human-primate conflict

KGFP meaning Kalisalak Grand Forest Park