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# *From Biological to Cultural Perspectives: Reframing Primate Conservation through Ethnoprimatology in Indonesia – A Literature Review*

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**A B S T R A C T**

Conservation in Indonesia has focused on biological indicators such as population decline and habitat loss, often overlooking the cultural dimensions that shape human–primate relationships. This study aims to integrate biological and cultural perspectives by applying an ethnoprimatological approach to reframe primate conservation. A qualitative literature review of publications from 2000 to 2025 was conducted using Google Scholar with the keywords "ethnoprimatology" and "human–primate interaction". Thirty-four studies met the inclusion criteria and were analyzed thematically within a multispecies ethnography framework. The findings reveal diverse cultural meanings attributed to primates across Indonesia: in Bali, Sulawesi, and Sumatra, primates are simultaneously revered as sacred beings and perceived as agricultural pests; in Kalimantan, Jambi, and Mentawai, they are hunted for subsistence or ritual offerings; and in West Sumatra and Java, they are domesticated and trained for labor or performance, reflecting economic integration. These cultural interpretations shape community attitudes more strongly than biological conservation status. The study concludes that effective primate conservation requires incorporating cultural taxonomies to develop strategies that are both culturally grounded and ecologically sustainable.

## A. INTRODUCTION

Humans share a common taxonomic order, Primates, with monkeys, apes, lemurs, lorises, tarsiers, and galagos. For centuries, biological anthropologists have conducted numerous studies on human evolution by examining the relationship between humans and other primates. As humans, we are anthropoid primates. We have biological and metaphorical kinship relationships with other primates and often coexist with them in various social, ecological, and symbolic systems (Fuentes, 2012). Ethnoprimatology is a multidisciplinary field of study. This field employs anthropological and primatological methods to understand the relationship between humans and non-human primates, hereafter referred to as "primates." This includes various aspects such as the dynamics of interactions between humans and

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primates, the management of primate conservation programs, the impact of anthropogenic disturbances on primate ecology and behavior, the use of resources that overlap between humans and primates, cultural perceptions of primates and the transmission of human-non-human diseases (Sampaio et al., 2016). The study of the relationship between humans and primates became formal when sociocultural and ecological anthropologist Leslie Sponsel discovered the term ethnoprimatology in 1997. Sponsel (1997) recognized the existence of overlapping interests between primate ecologists and human ecologists and identified six areas in which the relationship between humans and primates can be studied: comparative ecology - primates and humans; predation ecology - human as predators of primates; symbiotic ecology - symbiotic relationship between humans and primates; cultural ecology - primate cultural relevance; ethnoecology - traditional knowledge about primates; and conservation ecology - conservation implications of the relationship between humans and primates.

The existence of primates is inherently tied to cultural contexts, as they influence and are influenced by human societies. One of these is how the local community treats primates, which varies according to their cultural context. Therefore, ethnoprimatology becomes an interesting and important tool because it makes it possible to uncover the different ways in which primate species are treated by traditional societies (Sampaio et al., 2016). To further sharpen this analytical stance, this study adopts Fuentes' (2010) notion of "naturalcultural entanglements", which rejects the separation of nature and culture by positioning humans and primates as co-produced through shared ecological, symbolic, and economic spaces. In line with Kirksey and Helmreich's (2010) framework of multispecies ethnography, primates in this article are not treated merely as passive fauna or conservation objects, but as social actors whose presence actively shapes human worldviews, cosmologies, labor systems, and moral boundaries. By combining ethnoprimatology with multispecies theory, this study emphasizes that human–primate relations must be seen not only as ecological interactions, but as ontological negotiations across species boundaries.

Sponsel (1997)For example, the Waorani, a community inhabiting the Ecuadorian Amazon, uses several species of primates as food ingredients in their diets. Thus, in a more recent study from the same community, Papworth et al. (2013) explained that, although primates are not a major food component, six species of primates are confirmed to still be part of the Waorani diet. Furthermore, Parathian and Maldonado (2010) reported that primates are also a traditional component of the diet of local people living in Amacayacu National Park, Colombia. Although their consumption has declined due to the implementation of laws banning hunting.

On the other hand, some studies mention the use of primates for medicinal purposes, including endangered species (Li et al., 2007; Lippold & Thanh, 2008). This is generally due to the use of the body parts of the primate that are hunted for other purposes, such as food. Parts such as bones can be crushed and used to make tea, while fat, blood, and brain can be processed into ointments and used to treat diseases such as rheumatism, inflammation, fever, and impotence, as well as various other purposes (Alves et al., 2013). In contrast to the research of Hill and Webber (2010), the adaptability of primates in community fields often presents disadvantages to the surrounding community. This is because the primates eat plants in the fields of the local community. Such conditions affect the perception of people who suffer from the incursion of these animals into the fields and identify them as pests. Some species of primates (especially *Macaca*) have long been considered agricultural pests (Low, 1990). The pig-tailed macaque is notorious for uprooting cassava plants to harvest their tuberous roots, consuming field vegetable crops, and damaging rice fields. In lowland swampy areas where the Iban community's longhouses depend on swamp rice cultivation, the proboscis monkey (*Nasalis larvatus*) is sometimes accused of damaging rice plants, not by picking the grain but by picking the plant and eating the inner stems. Thus, based on the research described above, primates in different parts of the world are treated in various ways, depending on the local cultural context.

Indonesia, a megadiverse country characterized by its high diversity of both flora and fauna, has 59 species of primates from 11 genera, including several endemic species (Ruskhanidar et al., 2017). Primate species in Indonesia are found across four major islands: Sumatra, Kalimantan, Java (including Bali), and Sulawesi. There is a total of 24 species in Sumatra, which includes the Mentawai Islands (4 species found on the islands are endemic). Kalimantan has 14 species, Sulawesi has 16 species, while Java and Bali have only 5 species (Roos et al., 2014). The primates found on each island are described in Table 1.

**Table 1. List of primates found in Indonesia, along with their conservation status.**

| Genus[a,b] | Species[a,b] | Island[a,b] | Conservation Status[b] |
|---|---|---|---|
| Nycticebus | *Nycticebus coucang* Boddaert, 1785 | Sumatera | VU |
| | *Nycticebus javanicus* E. Geoffroy, 1812 | Java | CE |
| | *Nycticebus bancanus* Lyon, 1906 | Sumatera and Kalimantan | NE |
| | *Nycticebus borneanus* Lyon, 1906 | Kalimantan | NE |
| | *Nycticebus cayan* Munds et al. 2013 | Kalimantan | NE |
| | *Nycticebus managensis* Trouessart, 1893 | Kalimantan | VU |
| Tarsius | *Tarsius tarsier* Erxleben, 1777 | Sulawesi | VU |
| | *Tarsius fuscus* Ischer, 1804 | Sulawesi | NE |
| | *Tarsius dentatus* Miller & Hollister, 1921 | Sulawesi | VU |

| Genus[a,b] | Species[a,b] | Island[a,b] | Conservation Status[b] |
|---|---|---|---|
| | *Tarsius pelengensis* Sody, 1949 | Sulawesi | NT |
| | *Tarsius sangirensis* Meyer, 1987 | Sulawesi | NT |
| | *Tarsius tumpara* Shekelle et al. 2008 | Sulawesi | CE |
| | *Tarsius pumilus* Miller & Hollister 1921 | Sulawesi | DD |
| | *Tarsius lariang* Merker & Groves, 2006 | Sulawesi | DD |
| | *Tarsius wallacei* Merker et al. 2010 | Sulawesi | DD |
| Cephalopachus | *Cephalopagus bancanus* Horsfield, 1821 | Sumatera and Kalimantan | VU |
| | *Macaca nemestrina* Linnaeus, 1766 | Sumatera and Kalimantan | VU |
| | *Macaca siberu* Fuentes & Olson, 1995 | Sumatera | VU |
| | *Macaca pagensis* Miller, 1993 | Sumatera | CE |
| | *Macaca nigra* Desmarest, 1822 | Sulawesi | CE |
| | *Macaca nigrescens* Temminck, 1849 | Sulawesi | VU |
| Macaca | *Macaca tonkeana* Meyer, 1899 | Sulawesi | VU |
| | *Macaca ochreata* Ogilby, 1841 | Sulawesi | VU |
| | *Macaca hecki* Matschie, 1901 | Sulawesi | VU |
| | *Macaca maura* Schinz, 1825 | Sulawesi | NT |
| | *Macaca fascicularis* Raffles, 1821 | Sulawesi | LC |
| | *Hylobates lar* Linnaeus, 1771 | Sumatera | NT |
| | *Hylobates agilis* F. cuvier, 1821 | Sumatera | NT |
| Hylobates | *Hylobates albibarbis* Lyon, 1911 | Kalimantan | NT |
| | *Hylobates muelleri* Martin, 1841 | Kalimantan | NT |
| | *Hylobates abbotti* Kloss, 1929 | Kalimantan | NT |
| | *Hylobates funereus* I.Geoffroy, 1850 | Kalimantan | NT |
| | *Hylobates klossii* Miller, 1903 | Sumatera | NT |
| | *Hylobates moloch* Audebert, 1798 | Java | NT |
| | *Presbytis thomasi* Collett, 1892 | Sumatera | VU |
| | *Presbytis melalophos* Raffless, 1821 | Sumatera | NT |
| | *Presbytis sumatrana* Muller & Schlegel, 1841 | Sumatera | NT |
| | *Presbytis bicolor*, Aimi & Bakar 1992 | Sumatera | DD |
| | *Presbytis mitrata* Eschscholtz, 1821 | Sumatera | VU |
| | *Presbytis comata* Desmarest, 1822 | Java | NT |
| | *Presbytis potenziani* Bonaparte, 1886 | Sumatera | NT |
| Presbytis | *Presbytis siberu* Chasen & Kloss, 1928 | Sumatera | NT |
| | *Presbytis femoralis* Martin, 1838 | Sumatera | NT |
| | *Presbytis siamensis* Muller & Schiegel, 1841 | Sumatera | NT |
| | *Presbytis natunae* Thomas & Hartert, 1894 | Kalimantan | VU |
| | *Presbytis chrisomelas* Muller, 1838 | Kalimantan | CE |
| | *Presbytis rubiicunda* Muller, 1838 | Kalimantan | LC |
| | *Presbytis hosei* Thomas, 1889 | Kalimantan | VU |
| | *Presbytis cranicus* Miller, 1834 | Kalimantan | NT |
| | *Trachypithecus auratus* E. Geoffroy, 1812 | Java | VU |
| Trachypithecus | *Trachypithecus mauritius* Griffith, 1821 | Java | VU |
| | *Trachypithecus cristatus* Raffless, 1821 | Sumatra and Kalimantan | NT |

| Genus[a,b] | Species[a,b] | Island[a,b] | Conservation Status[b] |
|---|---|---|---|
| Nasalis | *Nasalis larvatus* Wurmb, 1787 | Kalimantan | NT |
| Symphalangus | *Simphalangus syndactilus* Raffless, 1821 | Sumatera | NT |
| Simias | *Simias concolor* G.S. Miller 1930 | Sumatera | CE |
| Pongo | *Pongo abelii* Lesson, 1827 | Sumatera | CE |
| | *Pongo pygmeus* Linnaeus, 1760 | Kalimantan | CE |
| | *Pongo tapanuliensis* Nurcahyo et al. 2017 | Sumatera | CE |

Source; a. Roos et al. 2014; b. IUCN, 2025

Table 1 explains that conservation has often been viewed solely from a biological perspective (population figures, habitat, extinction). The biodiversity richness of floral and faunal diversity in Indonesia is further complemented by the country's vast ethnic and cultural diversity, leading to variations in the treatment of primates across different communities. Primate conservation cannot rely solely on biological taxonomy, as human-primate relations are heavily influenced by the cultural meanings attached to them by society. A single species can be treated differently by different communities, making primates not merely ecological entities but also symbolic actors in social systems. This article examines the cultural dimensions of human–primate relations in Indonesia while addressing a central theoretical gap. Although research across relevant disciplines is extensive, existing studies remain fragmented and lack a unified analytical framework. No synthesis has yet applied multispecies ethnography to conceptualize primates as social actors, limiting efforts to connect cultural and biological classifications to conservation outcomes. Through a structured literature review, this study proposes a cultural–ecological framework for reframing primate conservation in Indonesia. Utilizing a *literature review* method, this study examines various articles to analyze the relationship between humans and primates. The findings are then synthesized into several key themes of ethnoprimatological studies in Indonesia.

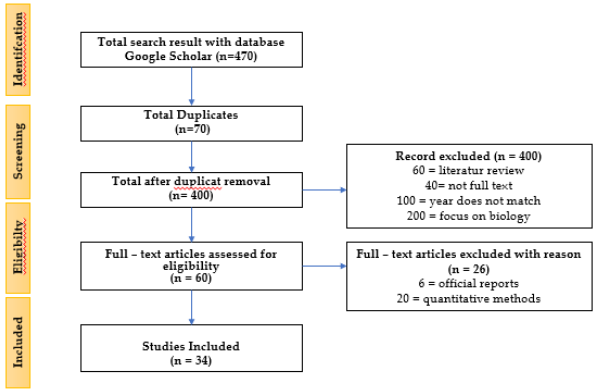
Therefore, this study aims to examine how human–primate interactions in Indonesia are culturally constructed and how these cultural perceptions shape conservation practices. By employing a literature review within the frameworks of ethnoprimatology and multispecies ethnography, this paper seeks to reframe primate conservation from a biological paradigm to a cultural–ecological perspective. This approach contributes to conservation anthropology by integrating biological taxonomy with cultural taxonomy, offering a conceptual model for culturally grounded conservation strategies in Indonesia.

## B. METHOD

This study employed a qualitative literature review approach (Marzali, 2016). The literature review approach is a way to learn and understand a topic by reading various sources of writing such as journals and books. The preparation of literature review involves several stages: (i) finding relevant literature, (ii) evaluating the sources of the review literature, (iii) identifying themes and gaps between theory and conditions in the field, if any, (iv) creating an outline structure and (v) compiling a review of the literature (Cahyono et al., 2019).

Data were collected through Google Scholar using the Publish or Perish application. The search strategy used explicit Boolean combinations, including: 'ethnoprimatology' AND 'human–primate interaction' OR 'ethnoprimatology' AND 'Indonesia'. Inclusion criteria comprised: (1) peer-reviewed publications in English or Indonesian; (2) published between 2000–2025; and (3) studies addressing human–primate relations within cultural or conservation contexts. Biological studies lacking sociocultural perspectives were excluded. A total of N = 34 publications met all criteria and were included in the final synthesis. Figure 1 presents the flow diagram of the literature selection process, detailing identification, screening, eligibility assessment, and final inclusion.

**Figure 1**: PRISMA 2020 modified flow diagram template for systematic reviews (Page et al., 2021).




Data analysis followed a thematic content analysis procedure (Braun & Clarke, 2006), which consisted of initial coding, category construction, and theme generation. The analysis was theoretically informed by multispecies ethnography (Kirksey & Helmreich, 2010), meaning that coding and interpretation were guided by concepts of natural-cultural entanglements, non-human social agency, and interspecies relationality. This ensured that primates were examined as social actors embedded within shared ecological and symbolic worlds.

## C. RESULTS AND DISCUSSION

### 1. Human-Primate Interaction in the Cultural Context of Indonesia

In contemporary anthropological studies, a multispecies ethnography approach offers a critical lens for understanding how human life is complexly intertwined with other living creatures, including primates. This approach rejects the anthropocentric view that places humans at the center of analysis, and instead seeks to uncover the intersubjective relationships formed through

everyday interactions, cultural practices, knowledge systems, and ecological dynamics (Kirksey & Helmreich, 2010). In this context, primates are viewed not merely as biological objects to be exploited, but as active social actors that shape and are shaped by the cultural and economic structures of society.

Indonesia, with its rich primate biodiversity and ethnic diversity, is an ideal space to explore human-primate relations through this approach. Each community not only shares ecological space with primates but also constructs relational cosmologies that give special meaning to the presence of primates in their lives. These relationships are often dynamic, complex, and characterized by negotiation.

Through a multispecies ethnography perspective, this section will analyze how human-primate relations in Indonesia not only reflect ecological adaptation but also reproduce cultural values, social hierarchies, and moral concepts about nature, ownership, and livelihoods. The cases discussed—ranging from primates as sacred entities and pests in Bali, Sulawesi, and Sumatra; as objects of hunting in Kalimantan and Mentawai; and as laborers in Java and West Sumatra—demonstrate that cultural classifications often determine the fate of primates more than biological conservation status.

a. Primates as Sacred Beings and Pests: The Case of Primates in Bali, Sulawesi and Sumatera

In 1999, Wheatley published his seminal text, The Sacred Monkeys of Bali, in which he explored the role of the long-tailed macaque (*Macaca fascicularis*) in Balinese culture. Wheatley found that he could not fully understand the behavior of primates in Bali without considering the context of human culture. In his work, he describes the durability and prevalence of human-primate relationships in Bali, and discusses the conservation implications of human-primate relationships. In addition, he also explained that there is a place that is considered sacred by the Balinese people called the Ubud monkey forest sanctuary. The Monkey Forest has an area of approximately 12.5 hectares. It is considered a sacred site because there are temples within it which serve as a place of worship for Hindus. Fuentes & Gamerl (2005) Temples that have associations with forests, especially those found in South and Southeast Asia, are often inhabited by primates from the genus Macaca, making them as centers for human-primate interactions. Macaques living within these sacred sites are viewed as sacred beings and often treated well by Balinese people stemming from their local beliefs and religious teachings (Peterson et al., 2015). One of the things that makes this place sacred is because there are three temples in the Ubud monkey forest, namely Pura Utama (Pura Dalem Agung), Pura Kremasi (Pura Prajapati), and Pura Mata Air Suci (Pura Beji).

For the Balinese Hindu community, monkeys are still protected within certain limits due to the concept of Tri Hita Karana, which is a teaching about achieving balance between humans and God, fellow humans, and nature (Schilaci et al., 2010). The teachings of Tri Hita Karana are also manifested in the actions of locals and immigrants who do not hunt, kill, harass, or drive monkeys away – even if they do damage in the area (Bishop et al., 1981). This teaching is also reflected in the management of the Sacred Monkey Forest Reserve in Ubud, which provides a sanctuary for the monkey population. In Hindu texts, which are also represented in dance performances for both ritual and tourism purposes, Hanuman is portrayed as having a high and noble status. In Balinese Hinduism, monkeys are prominently featured in the Ramayana, an Indian epic story. Therefore, long-tailed macaques "*bojog*" (*Macaca fascicularis*) are considered sacred animals for the Balinese people as they carry the figure of the monkey god Hanuman.

However, the treatment of primates carried out by the Balinese Hindu community, who migrated to Sulawesi, is different. For Balinese Hindus in Sulawesi, primates in this context that they refer to as *beruk* (*Macaca ochreata*) are considered pests (Peterson et al., 2015). For the Balinese transmigrant community, *beruk* are pests due to the adverse impact of their behavior on the farmers' livelihoods. They would cause damage to crops planted, such as maize, sweet potato, papaya, and cacao plants (Hardwick et al., 2017), so they are considered unsacred. The importance of monkeys' non-destructive behavior towards their perception of sacredness is supported by recent research from Schillaci (2010) which shows that long-tailed monkeys in Bali are prevented from damaging crops by farmers using firearms. These findings indicate that, even in Bali, the sacredness of the monkeys in the temple is reduced if they begin to interfere with farmers' livelihoods. The same is true of the Balinese transmigrant community's view that monkeys will be considered sacred when they are at the temple site, unless they leave their boundaries and start damaging the crops planted by the local community. Then, the monkeys can be hunted down because they are considered a threat to the farmers' livelihood. In addition, primates in Sulawesi live wild in the forest, if they meet humans, they immediately avoid them, unlike primates in Bali who live in temples are more adapted to seeing humans.

In line with research conducted by Riley (2005) who revealed the relationship between primates and humans as sacred animals in Sulawesi. Riley explained that the theft of plants carried out by Tonkean macaques (*Macaca tonkeana*) has been a long-standing ecological interaction between humans and primates in the Lindu highlands. Subsistence farmers have experienced crop theft by these macaques for a long time, predating the Dutch conquest in the early 1900s. Nowadays the main crop stolen by monkeys is cocoa. When results of the crop losses and harvest were presented to the farmers, many of them agreed that crop losses due to the macaques were tolerable compared to their total harvest (Riley, 2007).

For the Lindu indigenous people, the Tonkean monkey is considered a customary guardian (customary law) and plays a role in certain folklore that depicts human-monkey interactions (Riley & Priston, 2010). For many Lindu indigenous peoples, this folklore has led to a taboo against harming the monkeys they encounter in their shared ecological space. Plant theft Is not the only way humans and primate interact in Sulawesi, monkeys also have mythological importance. Among some communities, such as the Muslim community of Buton, monkeys are considered haram (forbidden), preventing humans from killing and/or eating them. For other indigenous groups in Sulawesi, monkeys are more closely related to humans through their ancestors. The Kajang tribe believes that their ancestors were monkeys. Similarly, in the Lindu highlands, the Kaili Tado (To Lindu) people see the Tonkean monkey

(*Macaca tonkeana*) as relatives and as guardians of customary law. Because of their biological resemblance to humans, they are understood to be derived from humans. Therefore, the To Lindu people understand that they should not be negative about, or speak negatively about, monkeys (Riley & Priston, 2010).

In line with the research of Harahap et al (2024) with a different primate case, namely the *Tapanuli orangutan* (*Pongo tapanuliensis*). The appearance of orangutans in community fields occurs during the fruit season, when they take durian and petai fruit. The results of this study revealed that crop riding can be tolerated because of the cultural meaning among local communities, as they are often considered sacred animals or have myths and cultural stories associated with them. Orangutans are considered neighbors and animals that have spirits, the assumption of orangutans as neighbors is because orangutans live side by side with the community like a neighbor and orangutans have long controlled the area, so sharing the harvest is not a problem for farmers. On the other hand, farmers consider orangutans as pests by carrying out expulsion measures and even using air rifles to drive orangutans away, on the grounds that they experience crop losses due to crop riding.

In line with the studies by Tulius and Burman-Hall (2022)In a different case, a primate species, Hylobates klossii, locally known as bilou by the Mentawai people, is observed. The *bilou* is regarded as a sacred animal inhabiting the forests of the Mentawai Islands, as it is believed to embody the forest guardian spirit known as *sanitu bilou*. The *sanitu bilou* is thought to possess knowledge about illnesses afflicting individuals who have ventured into the forest, enabling the *kerei* (shaman) to seek its assistance in identifying the source of the ailment. The *bilou* is also celebrated for its melodious call, which is believed to guide the souls of the deceased so they do not lose their way on their journey to the spirit world. According to local mythology, the *bilou* is believed to have originated from humans; therefore, it is considered sacred and should not be hunted or consumed.

The existence of primates as both sacred and pests in these three communities is related to the view of the binary opposition structure, as expressed by Levi Strauss. According to Levi Strauss (2017), a structure is formed as a combination of two or more paired but opposite elements called binary oppositions. This pattern of binary opposition is always present in every aspect of life, including the arrangement of materials (objects) that exist in human life. As an opposition, the two opposing elements will certainly produce a prolonged conflict, as well as the concept of sacred and profane which can be said to be sacred when it comes to public beliefs such as temples as sacred places and the existence of folklore about the prohibition of killing primates. So, in this context, primates can be considered sacred to society, in contrast to the existence of primates if they are associated with worldly structures that are not related to religion or profane when primates are outside temples and as destroyers of plants, this condition makes primates pests.

b. Primates as animal hunting: The Case of Primates in Kalimantan and Mentawai

The hunting of primates by Indonesian communities has been practiced for several thousand years, as evidenced by archaeological findings from the Early to Middle Holocene, which revealed the hunting of Javan langur (*Trachypithecus auratus*) by prehistoric humans in Java (Amano et al., 2022). To date, several studies have documented primate hunting in different regions of Indonesia, such as among the Orang Rimba in Jambi (Masyitah et al., 2016), who hunt various monkey species for consumption. Similar to the hunting of orangutans in Kalimantan, previous research has shown that one of the most common reasons for hunting orangutans is for food (i.e., bushmeat) (Davis et al., 2013). On the other hand, orangutans are killed in response to crop riding (Campbell-Smith et al., 2012). This is different from the case of primate hunting carried out by the Mentawai people. There are four species of endemic primates on Mentawai Islands, namely 1) *bilou* (*Hylobates klossi*); 2) *joja* with two subspecies *Presbytis siberu* and *Presbytis potenziani*; 3) *bokkoi* with two subspecies *Macaca siberu* and *Macaca pagensis*; and 4) *simakobu* with two subspecies *Simias concolor siberu* and *Simias concolor concolor*.

Hunting has traditionally been carried out by the Mentawai people for hundreds of years. The Mentawai people traditionally hunt as a way to regulate their natural balance. However, the mechanism behind traditional hunting has not received much attention from researchers. In fact, hunting has traditionally ensured sustainability as it follows ancestral practices and is regulated by customary rules (Rudito, 2013; Tresno, 2017), thus becoming a pattern and ecosystem regulator in Mentawai. However, research by Quinten et al (2014) It was found that primates in the Mentawai Islands became extinct due to hunting by the Mentawai people.

Traditional hunting among the Mentawai people is predominantly conducted as the closing ritual of ceremonies (Rudito, 2013; Tresno, 2017). In Mentawai, ceremonies and hunting serve as mechanisms for maintaining balance within the natural, social, and cultural environment. As Rapaport (1968) stated, ceremonies play a central role in shaping human social relations with the environment. Tresno (2017) further revealed that ceremonies and hunting are integral to how the Mentawai people maintain ecological balance. Tresno explained that primate skulls from hunting, which are hung in the center of the *uma* (traditional house), symbolize the balance that governs interactions with nature, society, and culture in Mentawai.

Primate hunting occurs during the fruiting season when monkeys feed on cultivated fruits such as durian, rambutan, paggu, cempedak, and other local fruits. During this period, Mentawai fruit orchards face increasing threats from primates. However, this season also benefits primates, as species such as *bilou*, *joja*, *bokkoi*, and *simakobu* descend into agricultural fields to feed on the available fruits. The Mentawai people refer to this time as the bright moon season, which often triggers hunting activities. In addition to this seasonal hunting, primate hunting is also conducted in two ritual contexts: ceremonies related to the life cycle, known as *punen*, and ceremonies aimed at maintaining balance, known as *puliaijat*. Several examples of *puliaijat* ceremonies that conclude with hunting include repairing or constructing a new *uma* (traditional house), strengthening relationships between relatives, including those by marriage, building new canoes (*kud abag*), establishing new agricultural fields (*tinunglu*), and commemorating

ancestral spirits (*saukkui sabulungan*). These practices reflect an awareness of the need to balance the physical and supernatural realms through rituals. As a result of human activities that utilize environmental resources, these ceremonies serve as mechanisms that regulate the relationship between humans and their natural, social, and cultural environments in Mentawai (Tresno, 2017).

The first primate hunting ceremony Is known as *punen eneget*. *Punen eneget* serves as a rite of passage for a Mentawai boy, allowing him to establish a connection with the ancestral spirits and granting him the legitimacy to hunt. The first monkey caught by the father is offered to the ancestral spirits to ensure that the child becomes a skilled hunter and that his soul is recognized by the forest spirits. This ritual is believed to enable the child to hunt safely using his bow and to consume their catch without harm. In this ceremony, the father hunts on behalf of his child, venturing into the forest to capture a specific type of monkey. The *sikerei* (Mentawai shaman) plays a central role in this ritual, facilitating communication between the ancestral spirits and the spirits of the forest. The *sikerei* chants sacred incantations over the child while chewing the selected leaves and then blowing them onto the child. Following the ritual, the monkey is prepared for consumption. The fur is first burned off, and the monkey is then butchered. The *sikerei* calls upon the spirits of the sky, earth, and forest to accept the monkey as an offering. After this invocation, the community shares the meal. The monkey is also symbolically linked to the newly crafted hunting bow, ensuring that the bow's spirit does not harm the child and that it will aid him in his future hunting endeavors. Once the ceremony is complete, the child is officially recognized as part of the hunting tradition and may partake in communal rituals. This ceremony establishes his spiritual connection with the forest spirits, ensuring his safety in future hunts and allowing him to fully engage with the natural environment of Mentawai (Tresno, 2017).

**Figure 2.** Primate skulls, among other skulls, hung inside the *uma*

Source: Personal Documentation, 2017

After completing the hunt, the monkey's head must be hung. The skulls of hunted animals are displayed in the center of the *uma*, serving as a ritual marker of the completed hunt (Figure 1). Rather than being discarded, these skulls are placed on the *abag simatei ketcat*, a designated space believed to house the spirits of the hunted animals. This practice is intended to ensure that the hunted animal's spirit calls its counterparts from the forest, facilitating future successful hunts. Therefore, when hunters return to the forest, they believe they will be able to secure new game (Tresno, 2017).

For the placing of the *abag simatei ketcat*, a mantra will be recited by the *kerei*. The skull of primates is hung in the middle of the *uma* and all the heads of the fugitive skulls are facing the outside of the *uma*. The skulls of animals hunted from the wild are placed facing the forest as they are believed to serve as pets of the spirit who guards the forest (*Si Bara Ka Leleu*). The *Punen Simatei Ketcat* ritual is performed so that the spirit of *Leleu* can extinguish the spirit of their hunted animals, in accordance with its name, *Simatei Ketcat* (which means "extinguishing the spirit"). As a result, they can obtain their hunted animals and are permitted to take them. The skull of the hanging monkey will call its friend to be with them because they are happy to be in the *uma*. The hanging of the animal skull is done out of respect for the spirits of their ancestors and the keeper of the forest, because these animals are their pets. On the other hand, the making of primate skulls is also their belief that the balance is not only a balance for the soul that is still alive. In fact, It is believed that the soul of the hunted animal does not die, and the hanging of the skull signifies that the soul remains alive and can call upon its friends (Tresno, 2017).

c. Primates as Labor: The Case of Primates in Java and West Sumatra

Human-primate relationships have existed for thousands of years, reflecting the dynamics of social, economic, and cultural interactions. Human-animal relationships are formed on the basis of professional interests, medical purposes, and recreational activities (Mukherjee et al., 2022). In various societies, primates are not only seen as part of the ecosystem, but are also utilized in various economic activities. In Indonesia, especially in Java and West Sumatra, the practice of using primates as labor can be seen in two main forms: beruk (Macaca nemestrina) as coconut pickers and long-tailed macaques (Macaca fascicularis) in dancing monkey performances. The use of primates as labor is rooted in their high cognitive and adaptive abilities. Primates have intelligence that allows them to be trained in various tasks that support human life, both in the agricultural and entertainment sectors (Clarke, 2001). The use of animals for economic purposes aligns with the concept of animal labor, where animals serve as workers within human production systems, much like the role of dogs in hunting or elephants employed in transportation and tourism (Pacheco-Cobos & Winterhalder, 2021). Although the practice of using primates in the human economy has strong cultural roots, its existence continues to be debated, especially in relation to ethics and animal welfare (Sunstein & Nussbaum, 2005). This section will explain the learning stages that macaques must go through when being trained to become coconut pickers, as well as the process of training monkeys for dance performances.

In the first case, primates were trained to be used as coconut pickers in West Sumatra. Based on Wiranata's (2019) research, the monkey known as pig-tailed macaque which has the Latin name *Macaca nemestrina* In Pariaman, monkeys have long been a useful animal for the local community, namely as a colleague to pick coconuts. There is even a College of Macaque Studies (STIB) established by Village-Owned Enterprises (BUMD) to train monkeys to be

used as coconut pickers. People who specifically use monkeys to pick coconuts are known as *tukang ambiek karambie* in the Minangkabau language, which is the local community's language.

First, the *maaja pancang* process involves hanging coconuts on low tree branches. After coconuts are hung, the monkeys are directed to drop the coconuts. The next stage is *maaja kambie puyuah*, which means teaching the monkeys to pick coconuts from low trees approximately 4-5 meters high. In this stage, the monkeys will be taught how to recognize and pick coconuts. First, the monkeys will be directed to recognize and pick old coconuts with brown characteristics. If the old coconuts have been picked, then the monkeys will be directed to pick young coconuts. In the next stage, the monkeys will be taught how to move from one coconut tree to another. After the monkey has finished picking one bunch of coconuts, the monkey is directed to move to another tree. This training makes the monkey accustomed to working neatly. This training process usually takes one to two months. When working to pick coconuts, the monkey must not escape the attention of the monkey owner. The monkey's gestures must be observed carefully. If the monkey looks tired, the owner must give the monkey a drink. The types of drinks given are sweet ones such as sugar water and milk. After drinking, the monkey is directed back to continue picking coconuts until break time. The lunch break starts before 12 noon until half past one. During break time, the monkey is given white rice for lunch. If there are a lot of coconuts, one monkey can take down at least 500 coconuts in a day (Wiranata, 2019).

Dancing monkeys are a traditional art form in Javanese society, where handlers train macaques (*Macaca fascicularis*) to perform various activities that mimic human behavior. For example, the monkey will be dressed in human clothes, dance, ride a bicycle, and even smoke a clove cigarette. The monkey is chained around the neck, with its handler playing drums or gamelan with one hand, whilst holding the monkey's leash with the other. According to research from the International Institute for Asian Studies at Ohio University, this acrobatic attraction actually existed in the 19th century in India, and spread to the island of Java in the early 1890s. It has been very well known in Indonesia since ancient times, especially in the Central Java and West Java regions. In Jakarta it is known as dancing monkey, in Central Java as *ledhek kethek*, East Java as *tandak bedes* and Bandung as *doger monyet*. The handler and his monkey walk around for days and perform in the countryside and villages throughout western Indonesia. Nowadays, dancing monkeys entertain children and other spectators in big cities such as Jakarta, Cirebon, and other places in Java (Sandi Irawan & Dwiprigitaningtias, 2019).

Dancing monkey training is typically conducted when the monkey is between 2.5 and 3 years old. They are separated from their parents and then taken by a coach to be trained so that they can be proficient in performing. Before conducting the training, the dancing monkey coach feeds the monkey first so that the monkey can be more docile and easier to train. The food ranges from rice to fruits. For an energy boost, monkeys are given milk and energy drinks. The first training is to train the monkey to be able to stand upright with the help of a wooden stick used as a monkey handle, then the leash on the neck is upheld to guide the monkey to walk repeatedly. After being able to stand upright and smoothly, they are taught various kinds of movements.

The existence of this dancing monkey has been the subject of controversy with acts of violence against primates, because it has violated the Criminal Code (KUHP) Number 302, which regulates animal torture, and Law Number 41 of 2014 concerning Animal Husbandry and Health Article 66 paragraph (2). In 2013, when Jokowi was the governor of Jakarta, a ban was imposed on the appearance of dancing monkeys. In 2016, following a number of regions against the ban on dancing monkeys, especially in West Java, the ban continued in 2019, and nationally, dancing monkey was banned, so there are no longer many performances that show this dancing monkey action[1].

## 2. From Biological to Cultural Perspective: Reframing Primate Conservation

Understanding human-primate interaction in the context of Indonesian culture is important because it opens up new perspectives on conservation, animal ethics, and power dynamics within culture. Conservation has often been viewed solely from a biological perspective (population numbers, habitat, extinction), as described in Table 1, without recognizing that primates' lives are largely determined by the cultural meanings communities place on them—whether they are considered sacred, pests, relatives, or workers. By understanding this cultural logic, conservation policies cannot simply prohibit or punish them, but must negotiate with local beliefs and practices by integrating biological classifications (genus, species, IUCN status) alongside cultural classifications (sacred, workers, pests, rituals) as outlined in the table below.

**Table 2.** Biological and Cultural Perspective

| **Species** | **Conservation Status** | **Cultural Status** | **human-primate interaction** | **Conservation Strategy** |
|---|---|---|---|---|
| *Macaca fascicularis* | LC | Sacred | Pura Coconut picker | Hindu-based animal ethics education |
| *Macaca ochreata* | VU | Pests | Agriculture | Conservation must link economic incentives with ethical education |
| *Macaca tonkeana* | VU | Sacred | Agriculture | Custom-based conservation collaboration |

[1] https://www.jaanindonesia.org/program/ex-dancing-monkeys diakses pada tanggal 02 September 2025

| | | | | |
|---|---|---|---|---|
| *Macaca nemestrina* | VU | Worker | Dancing Monkey | Animal labor ethics certificatio n |
| *Pongo tapanuliens s* | CE | Sacred | Agricultur | Custom-based conservatio collaboratic |
| *Hylobates klosi* | NT | Sacred | Forest | Custom-based conservatio collaboratic |
| *Presbytis potenziani* | NT | Animal hunting | Forest | Custom-based conservatio collaboratic |
| *Macaca siberu* | CE | Animal hunting | Forest | Custom-based conservatio collaboratic |
| *Simias concolor* | CE | Anima hunting | Forest | Custom-based conservatio collaboratic |

*Source: Primary Data, 2025*

A preliminary examination of Table 2 shows that human–primate relations are never uniform; instead, they are heavily determined by the cultural context, local knowledge systems, and economic interests surrounding them. A species considered sacred by one community may be considered a pest by another. In other words, there is no single meaning for "primate" in human culture—rather, relationships are diverse, situationally and historically shaped by each society.

These narratives emphasize that the relationship between humans and primates is always relational and nonlinear. It cannot be understood solely through the framework of conservation or biology, but must be read as a product of the intersection of ecology, economics, politics, and culture to uncover the cultural dimensions of conservation. By demonstrating that primates are not simply treated as biological entities, but as symbolic actors—deified in one context, employed as workers in another, and declared pests in a different place—this article implicitly deconstructs the assumption that conservation is a purely technical-ecological matter. In this regard, conservation cannot be understood solely through the IUCN categories of endangered or vulnerable, but must be read in conjunction with cultural categories such as sacred, profane, beneficial, or disruptive. In this way, this article reinforces the framework of multispecies ethnography (Kirksey & Helmreich, 2010), which positions animals not as ecological backdrops but as subjects that contribute to social structures.

Furthermore, these findings contribute to a paradigm shift in conservation from a prohibition-based approach (protection through exclusion) to one based on the negotiation of cultural meaning (protection through integration). In many of the cases described in the article, cultural practices such as hunting taboos, restricted sacrificial rituals, or mythological personifications serve as ecological regulatory mechanisms that are not formally recognized by the state or modern conservation agencies. Therefore, rather than being viewed as "outdated traditions," local culture can be read as effective ecological capital if properly translated into policy models.

Thus, the case of human–primate relations in Indonesia is not merely an ethnographic anecdote, but provides a theoretical foundation for building a new perspective: that biological taxonomy must be paired with cultural taxonomy in designing conservation policies. This is where the importance of this study lies for science: it not only documents cross-species interactions but also challenges how we define protection, agency, and ethics in human–nonhuman relations.

## D. CONCLUSIONS

This study highlights the diverse relationships between humans and primates in Indonesia, shaped by cultural beliefs, traditions, and economic activities. In some communities, primates are considered sacred, as seen in Bali and Sulawesi, where religious and mythological beliefs protect them. However, in other cases, primates are seen as pests that threaten crops, leading to conflict with humans. In Mentawai, primates are hunted as part of traditional ceremonies, reflecting the deep cultural significance of these animals. Meanwhile, in West Sumatra and Java, primates are domesticated and trained for tasks such as harvesting coconuts and performing in cultural entertainment, demonstrating their role in supporting local livelihoods. These findings demonstrate that human attitudes toward primates are not uniform and are influenced by local customs. While cultural beliefs can contribute to primate protection, they do not always align with formal conservation efforts. In some cases, traditions that involve hunting or domestication may pose challenges to primate conservation. Understanding these relationships through ethnoprimatology is crucial for developing conservation strategies that respect local cultures while ensuring the protection of primate populations. Future efforts should focus on finding solutions that balance tradition and conservation, encouraging sustainable coexistence between humans and primates in Indonesia.

Beyond summarizing empirical findings, this study reveals the epistemological and ethical contribution of ethnoprimatology to interdisciplinary knowledge. By positioning primates as social actors within shared ecological and symbolic worlds, ethnoprimatology bridges the fields of biological anthropology, cultural studies, and environmental ethics. It reframes conservation not as a purely scientific or managerial endeavor, but as a moral and cultural negotiation embedded in local ontologies of coexistence. Through cases from Bali, Sulawesi, the Mentawai Islands, and Java, this approach demonstrates that cultural continuity and local ethical systems—such as taboos, rituals, and labor practices—constitute living frameworks for sustaining biodiversity. Thus, ethnoprimatology contributes to a broader anthropology of the environment, showing that conserving primates also means conserving the moral landscapes and cultural logics that shape human–nature relations. Future research should therefore strengthen the dialogue between the biological sciences and the humanities to design conservation strategies that are grounded in both ecological and cultural sustainability.

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