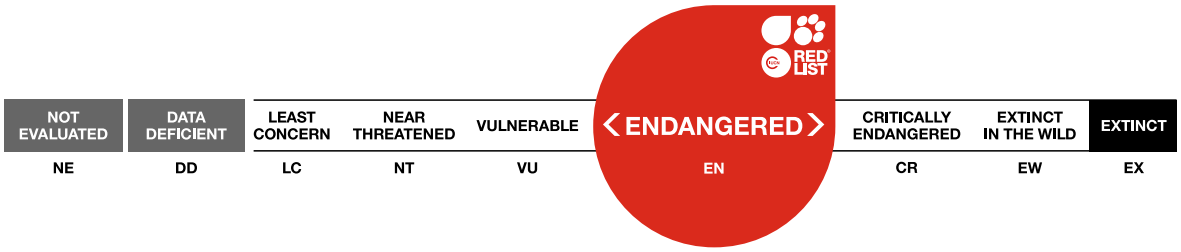
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Amendment version

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Primates	Cercopithecidae

Scientific Name: *Macaca fascicularis* (Raffles, 1821)

Synonym(s):

- *Macaca irus* Geoffroy ,1826
- *Macacus carbonaria* Cuvier, 1825
- *Semnpithecus kra* Lesson, 1830
- *Simia aygula* Linnaeus, 1758
- *Simia cynomolgus* Schreber, 1775
- *Simia fascicularis* Raffles, 1821

Infra-specific Taxa Assessed:

- Macaca fascicularis ssp. atriceps
- Macaca fascicularis ssp. aurea
- Macaca fascicularis ssp. condorensis
- Macaca fascicularis ssp. fascicularis (discarded)
- Macaca fascicularis ssp. fascicularis
- Macaca fascicularis ssp. fusca
- Macaca fascicularis ssp. karimondjawae
- Macaca fascicularis ssp. lasiae
- Macaca fascicularis ssp. philippensis (discarded)
- Macaca fascicularis ssp. tua
- Macaca fascicularis ssp. umbrosa

Common Name(s):

- English: Long-tailed Macaque, Crab-eating Macaque, Cynomolgus Macaque
- Bengali: kakravuk banor, lomba leji banor, parailla banor
- Burmese: ?????????? myauk ta-nga
- Central Khmer: ?????????? sva kdam
- Chinese: 长尾猕猴 Cháng wěi míhóu
- Indonesian: kera, monyet ekor panjang
- Lao: Ling hang yao ລ ົ ງຫ າ ງຍ າ ວ
- Tagalog: matsing, unggoy
- Thai: ลิง หางยาว ling hăang yao, ลิง แสม ling sà-mɛ̌ɛ
- Vietnamese: Khỉ đuôi dà

Taxonomic Notes:

Macaca fascicularis is a wide-ranging macaque with a patchy distribution in Southeast Asia (Eudey 2008, Gumert, 2011). According to a variety of descriptions (Raffles 1821; Fooden 1995, 2006; Groves 2001), as well as the assessors', they are not distinguished by any distinct phenotypic features; however, they are one of the smaller macaques, and are named for their long tail, which approximates the length of their body and head combined. From a distance, the dorsal pelage is generally greyish or brown, with a whitish underbelly, as well as distinct black and white highlights around the crown and face. For example, their eyelids are often white, their crowns are bordered by white or black, and distinct white spots often occur on the skin in front of their ears. Closer inspection of the pelage reveals a mottled or

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speckled pattern, due to the individual hairs being of different colour. This hair patterning produces variation in shading between individuals and across populations. Hair shading includes yellowish, golden brown, reddish brown, brown, whitish, and blackened. Their skin colouration varies and includes white, pink, black, and brown tones. Under harsh sunlight, their facial skin easily tans. Adults are usually bearded on and around their face; however, around their snout and eyes, hair is short and sparse. Older females typically exhibit the fullest bearding, while for males it is more whisker-like. They exhibit a lateral cheek crest that usually runs vertically along the face, but among some subspecific variations the crest runs horizontally, bisecting the middle of the cheek.

The species is highly variable. Groves (2001) and Fooden (1995) have divided *Macaca fascicularis* into ten subspecies; however, as of recent, the most eastern subspecies, *M. f. philippinensis* has come under dispute. (Smith *et al.* 2014). Consequently, it has been tentatively removed from Red List assessment and is currently included with *M. f. fascicularis*. Along the northern part of their range, *M. fascicularis* regularly hybridizes with the rhesus macaque, *M. mulatta* (Fooden 1964). They have also long been known to hybridize with pig-tailed macaques, *M. nemestrina* (Bernstein 1966). Hybrids can occur across subspecies too (Bunlungsup *et al.* 2016, Gumert *et al.* 2019).

In regards to synonyms*: *Simia aygula* Linnaus 1758, *Simia cynomolgus* Schreber 1775, *Simia fascicularis* Raffles 1821, *Macacus carbonaria* Cuvier, 1825, *Macaca irus* Geoffroy 1826, *Semnopithecus kra* Lesson 1830, and numerous others names have been ascribed using the above genera, as well as genera assignments that have also included *Macac*, *Pithecus* and *Cynomolgus*.

*There are numerous historical synonyms and mistaken names for this species. Early uses are highlighted here, but for a more complete historical listing and discussion please refer to Napier and Groves (1983), Groves (2001), and Fooden (1995).

Assessment Information

Red List Category & Criteria: Endangered A3cd ver 3.1

Year Published: 2022

Date Assessed: March 7, 2022

Justification:

In 2008, an IUCN primate specialist proposed that *Macaca fascicularis* urgently needed to be considered more vulnerable to decline due to its heavy demand in trading, coupled with the rapid development in Southeast Asia (Eudey 2008). In this plea, *M. fascicularis* was likened to the passenger pigeon, *Ectopistes migratorius*, a highly populous North American bird species that in the mid-1800s was decimated to extinction in only 50 years during a cataclysmic surge of persecution and hunting (Weisman 2007). Eudey (2008) had indicated this could occur to *M. fascicularis,* due to the high demand for the species in the national and international trade, and the levels of hunting and persecution they were experiencing. Sixteen years onwards, these threats have only increased.

Reports throughout Southeast Asia indicate a continued and even increased persecution of *M. fascicularis* throughout large expanses of its current range. Hunting and trapping have been occurring and are now happening at unprecedented levels, as persecution from human-macaque conflict (Eudey

1994, Gumert 2004, Sha *et al.* 2009, Feng 2015, PERHILITAN 2018, Boonkong and O'Connor 2019), for subsistence food (San and Hamada 2011, Ngamkkam 2021), and, most ominously, to fuel both the legitimate and illicit trade for research and other usages (Lee 2011, Hamada *et al.* 2011, Hansen *et al.* 2021). Both price and demand for *M. fascicularis* as a trade commodity has skyrocketed during the Covid-19 pandemic, relative to the already regular and heavy pre-pandemic capture and trade (Hansen *et al.* 2021, 2022). This alone is alarming given that primate species are well-documented to be sensitive to heavy hunting pressures (Cowlishaw and Dunbar 2000).

Additional to the hunting and persecution that *M. fascicularis* face, we must also factor in the significantly changing landscape of Southeast Asia that continues to be deforested, reshaped, and degraded (Sodhi *et al.* 2004). Furthermore, we cannot ignore that very few habitat countries have authoritative estimates of their entire *M. fascicularis* populations, yet, in many places, we are seeing an indiscriminate removal of these monkeys with the assumption that they are impervious to decline. There is a general lack of protection of this species across their range, although there are laws in place to protect them in several habitat countries.

The collective mismeasurement of the vulnerability of *M. fascicularis* to population decline must be confronted before it is too late. As long-tailed macaques are being removed from the wild at these levels without the necessary population science to understand what these losses mean (particularly during a period of ongoing environmental degradation), the species may be face irreversible population loss. Significant losses could be deterred with an urgent move towards better structured wildlife monitoring and management programs that scientifically census, manage, and protect long-tailed macaques throughout Southeast Asia. Without such a change, we infer there will be significant declines in the species' population in the near future. For example, we are seeing a substantial decline, with anecdotal reports confirming local extinctions across its range. We can confirm that the species experienced a decline of 40% from mid 1980s until 2006 (MacKinnon and MacKinnon 1987, Fooden 1995, 2006), and with threats having only increased since then, the long-tailed macaque population is suspected to have increased even further decline during the last three generations.

Finally, it is worth nothing that this species faces both national (within-country) and international threats. For example, the demand for non-human primates in research is threatening the species. As such, the research industry needs to become accountable for the effects of their actions on wild non-human primate populations.

With the rationale above, we suspect the species has experienced a decline of at least 40% over the last three generations (approximately 40 years). We also suspect that the rates of decline are increasing as threats have increased and we suspect the species will experience at least a 50% decline in the coming three generations. Therefore, we assess the species as Endangered A3cd.

Previously Published Red List Assessments

2022 – Endangered (EN)
https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T12551A199563077.en

2021 – Vulnerable (VU)
https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T12551A204494260.en

2020 – Vulnerable (VU)

https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T12551A195354635.en

2008 – Least Concern (LC)
https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T12551A3355536.en

2000 – Lower Risk/near threatened (LR/NT)

1996 – Lower Risk/near threatened (LR/NT)

Geographic Range

Range Description:

Macaca fascicularis is widely distributed across South and Southeast Asia (Fooden 1995, Gumert 2011). Throughout this large range, the species is patchy in occurrence and not continuously distributed (Eudey 2008). According to Fooden (1995, 2006), and much other work, the population is distributed across the majority of mainland Southeast Asia. The species used to occur in South Asia in Bangladesh, though it is now considered extinct there (pers. obs. Tanvir Ahmed, 2022), and only remains in the Nicobar Islands in South Asia. In Southeast Asia, they occur in the northern coastal region of Rakhine, spreading south through the coastal lowlands of Myanmar, and east through Thailand, most of Cambodia, the southeastern tip of Laos, and southern Vietnam. *M. fascicularis* extends south through the Malaysian peninsula, into the Indonesia islands, and throughout the islands of the Philippines. Long-tailed macaques also occur on numerous islands throughout Southeast Asia.

The common subspecies, *Macaca fascicularis fascicularis,* occupies all of this range, except for the western most fringe around Myanmar, which is inhabited by *M. f. aurea*, as well as seven small islands, or small archipelagos, inhabited by the other subspecies, as listed below.

1. *Macaca fascicularis atriceps* occurs on Khram Yai Island, off the southeastern coast of Thailand (Groves 2001).

2. *Macaca fascicularis aurea* occurs within mainland and insular Myanmar and some southern parts of central Thailand and northwestern parts of southern Thailand (San and Hamada 2011, Gumert *et al.* 2014).

3. *Macaca fascicularis condorensis* occurs on Con Son and Hon Ba Islands, off the coast of southern Viet Nam (Groves 2001).

4. *Macaca fascicularis fusca* occurs on Simeulue Island, off the northwestern coast of Sumatra, Indonesia (Groves 2001).

5. *Macaca fascicularis karimondjawae* occurs on Karimunjawa and Kemujan Islands, Java Sea, Indonesia (Groves 2001).

6. *Macaca fascicularis lasiae* occurs on Lasia Island, off the northwestern coast of Sumatra, Indonesia (Groves 2001).

7. *Macaca fascicularis tua* occurs on Maratua Island, east of Borneo, Indonesia (Groves 2001).

8. *Macaca fascicularis umbrosa* occurs on Nicobar Islands of India, which include Little Nicobar, Great Nicobar and Katchall Islands, (Umapathy *et al*. 2003).

There are also cases of enthnophoresy of macaques, where humans have moved this species beyond their original range. The known cases are an island off of Sulawesi (Froehlich *et al.* 2003, West Papua (Kemp and Burnett 2007), Mauritius, Hong Kong (Southwick and Southwick 1983), and Palau (Poirer and Smith 1974). They are now extirpated from Hong Kong (pers. comm. Karthi Martelli 2022).

Although we are aware of several local extinctions, such as the recent extirpation in Bangladesh, we do not have enough information yet to create an updated range map from the previous assessment.

Country Occurrence:

Native, Extant (resident): Brunei Darussalam; Cambodia; India (Nicobar Is.); Indonesia; Malaysia; Myanmar; Philippines; Singapore; Thailand; Timor-Leste; Viet Nam

Native, Extinct: Bangladesh

Native, Presence Uncertain: Lao People's Democratic Republic

Extant & Introduced (resident): Mauritius; Palau; Papua New Guinea

Distribution Map



Legend

- EXTANT (RESIDENT)
- POSSIBLY EXTANT (RESIDENT)

Compiled by:

IUCN (International Union for Conservation of Nature) 2022





The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

It is suspected that the population has undergone a decline of *ca* 40% in the last three generations (*ca* 42 years), and that the rate of population decline will rise to at least 50% in the next three generations. The rationale for this is provided below and elsewhere in this profile.

Based on past population assessments of the entire species (Mackinnon 1986, Mackinnon and Mackinnon 1987), Fooden (1995, p. 54) estimated the entire *M. fascicularis* population to have been around 5 million in the 1980s. Fooden (2006, p. 5) later indirectly estimated the entire population to have declined to about 3 million, by the early part of the current millennia. Although this was an indirect estimate, it is based on measured estimates that Southwick and Siddiqi (1994) said were more likely to overestimate the population than the converse. Consequently, they are likely erring on the cautious side. If we accept them as is, historical figures indicate a 40% decline in the species over approximately a 20-year period, and within the last 40 years or three generations. Given removal and environmental impacts have only increased, we have strong reason to suspect overall population decline has continued, and that it is likely to increase to surpass 50% over the coming three generations. Some areas with human provisioning experience high densities of long-tailed macaques, yet these are very small areas, and often human influenced with many negative interactions between humans and macaques leading to culling and capturing events. By contrast, in other areas there are reports of significant local declines and even complete disappearances, such as Cambodia (Lee 2011), Lao PDR (pers. obs. Phaivanh Phiapalath, 2021), and Bangladesh (pers. obs. Tanvir Ahmed, 2022). The actual population size in Lao PDR is now down to 300–500 individuals for the entire country (CITES 2022). A decline of 90% if we go by the mean published in 2011 by San and Hamada.

Furthermore, in an area that is regularly monitored in Cambodia, populations have declined by 50% over the last ten years (Nuttal *et al.* 2021). In another area of Cambodia, the encounter rate of long-tailed macaque detection by camera traps, also saw a reduction, and this from just 2013–2014 (Suzuki *et al.* 2017).

Mean density reported by Fooden in 1995 was 55 ind/km² for non-provisioned long-tailed macaque across habitats, except for primary and secondary forest, where densities were 1.3–9.8 times higher with densities up to <400 ind/km². For provisioned groups, he mentioned the 1600 ind/km² observed by Wheatley in Bali in 1989.

Mean densities today range from 0.833 ind/km² in Keo Seima Wildlife Sanctuary in Cambodia, which is a decline of 50% in density since 2010 (Nuttall *et al.* 2021) to 41.4 ind/km^2 in Baluran National Park, East Java (Hansen *et al.* 2019) for non-provisioned groups to 520 ind/km^2 in Pangandaran, West Java, Indonesia, (pers. obs. Vincent Nijman, 2022) for provisioned groups. However, information is sparse. A recent rapid survey of protected areas in Viet Nam revealed that the species is present in most national parks, however, group sizes are low (10–40 ind) and groups few (pers. obs. Thu Huong Trinh, 2022).

The synanthropic nature of the species has resulted in a trend of overestimation of the population sizes of the species (Kyes *et al.* 2011, Hansen *et al.* 2019). The fact that long-tailed macaques are visible in anthropogenic landscapes makes them seem ubiquitous, even though they may only occur in a very small area. Although the human-macaque interface has existed for millennia, habitat degradation forces it to increase. In Malaysia alone, 493,823 individual long-tailed macaques were culled from 2011-2018,

because of reports deeming them conflict macaques (PERHILITAN 2018). Though there is some uncertainty on the accuracy of these numbers, the constant culling is likely having an effect on the population in the country, and possibly also on the demography and behaviour of the remaining groups.
Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

The species is a generalist and opportunist and has adapted to living in a wide range of habitats, including forests, coasts, hills, and mountains (Fooden 1995). They occur most commonly in mangroves and swamp forests, particularly in riverine habitats; however, they are also commonly found in human-altered habitats, which include temples, roadsides, agricultural areas, and rural/urban settlements (Gumert 2011). It is possible that a significant portion of their population is synanthropic. They have inhabited human environments for millennia. Consequently, anthropogenic ecologies are an important aspect of their historical natural ecology (Gumert *et al.* 2011, Fuentes *et al.* 2005, Marty *et al.* 2020), and should be considered as such when considering their habitat types.

Systems: Terrestrial

Use and Trade

The consumption of *M. fascicularis* occurs for both trade of specimens and subsistence food sources. For example, *M. fascicularis* faces significant threats from subsistence hunting, such as in Myanmar (San and Hamada 2011), which we should expect to be exacerbated by the current political instability there. More threatening than hunting for food, is that long-tailed macaques are the most highly traded species of primate and are heavily demanded for biomedical and toxicology research (Cowlishaw and Dunbar 2000, Eudey 2008, Foley and Shepherd 2011, Hansen *et al.* 2021, 2022). This demand has seriously intensified over the Covid-19 pandemic (Hansen *et al.* 2022). For many years now, very large numbers of long-tailed macaques have been exported from Indonesia, Philippines, Cambodia, and Viet Nam, among others, which has been considered by trade monitors as “extremely unsustainable” (Foley and Shepherd 2011, Hansen *et al.* 2021, 2022). This puts a significant strain on *M. fascicularis* population levels, and even more so given the current rises in trade. The trade issue is compounded by a deficiency in the scrutiny by wildlife managers to ensure that such cropping from the wild population is managed sustainably, or where not sustainable, that it is ceased. One significant problem arising around the *M. fascicularis* trade is the capturing of wild caught macaques to bring into the so-called breeding facilities found in the eastern nations of Southeast Asia – Cambodia, Laos and Viet Nam, (Lee 2011, Hamada *et al.* 2011). These captured macaques are subsequently traded as captive born and bred, which masks the true level of impact on the wild population (Foley and Shepherd 2011). These high levels of trade and uncertainty on their population-level effects leaves *M. fascicularis* highly vulnerable to significant declines in the near future. From 2010 to 2019, 450,000 live long-tailed macaques were traded legally internationally. The illegal trade (trade without CITES export permits) and the trade within habitat-countries is not included. A recent study on animal products entering the USA found that the illegal trade adds an estimated 28% to legal imports (Tittensor *et al*. 2020), meaning that for every 100 animal products imported legally another 28 are imported illegally, which could be the case for long-tailed macaques too.

The international demand for long-tailed macaques is primarily coming from the USA, Japan, China and the EU. While China banned all exports of wildlife at the onset of the pandemic (The Globe and Mail,

2020), and apparently had already stopped exporting monkeys by 2019 (Hansen *et al*. 2022), they did not ban imports of wildlife and thereby continued to import long-tailed macaques (CITES Trade Database 2022). The true number of long-tailed macaques traded during the pandemic is still not apparent in the CITES Trade Database. However, it is clear that the export ban from China effectively changed the patterns of the international trade in long-tailed macaques and further exerted pressure on the species as habitat countries took over as suppliers (CITES Trade Database 2022, Hansen *et al*. 2021, 2022).

The species is also highly threatened by national trade for pets, entertainment, and now also abuse videos (Hansen *et al.* 2021, SMACC 2021). The species used to be traded domestically in markets for pets and entertainment, and while this is still the case, the trade now also occurs on social media, where for example more than 4,700 individuals were offered for sale on Facebook in 2020 and 2021 in Indonesia alone (unpublished results, anonymous source). As no breeding center claims to be selling long-tailed macaques privately in Indonesia, we assume that all macaques offered for sale are wild-caught.

A justification for both the international and national trade is the removal of so-called "problem monkeys" from areas with a high degree of negative human-macaque interactions. This narrative, framing long-tailed macaques as problems extends beyond governmental management initiatives and into an illicit trade, where people justify treating individuals of the species in an abusive way. However, this is only one of the justifications people will use to mistreat and extirpate the species, another one is the large amount of money that can be made in the trade. The international trade in long-tailed macaques is a multi-billion dollar industry (Hansen *et al.* 2022), and this has only increased during the Covid-19 pandemic. The average price internationally has quadrupled from 2019 (Hansen *et al.* 2022) to 2022, which threatens its survival significantly.

Threats **(see Appendix for additional information)**

The changing landscape of Southeast Asia is affecting long-tailed macaques by reducing available undisturbed habitat and increasing contact between *M. fascicularis* and humans (Gumert *et al.* 2011). Deforestation and habitat fragmentation are rampant (Sodhi *et al.* 2004), and this has real impacts on the kinds of habitats available to *M. fascicularis*. Environmental shifts are driving even more of the *M. fascicularis* population into an extensive overlap with anthropogenic habitats (Gumert 2011). Furthermore, the synanthropic nature of the *M. fascicularis* relationship with humans goads a widespread persecution towards the species, leading to formal and informal population control measures, such as out-right killing, culling and sterilization (Eudey 1994, Gumert 2004, Sha *et al.* 2009, Feng 2015, PERHILITAN 2018, Boonkong and O'Connor 2019, Beech 2020).

A more insidious, but real, threat is the opinion of some public and wildlife authorities that *M. fascicularis* is unimportant, a maligned pest, over-abundant, and should be removed. Such sentiment has given rise to the illusory perception that long-tailed macaques are continuously distributed and overabundant everywhere throughout their range, exonerating the unsustainable removal of large numbers of individuals from the population. Take for example the large numbers removed in Malaysia, >400,000 individuals from 2011 to 2018 (Alpert 2013, Perhilitan 2018), and the current removal activities in the Philippines and Malaysia (GMA News 2022, The Star 2022). This practice has contributed to known localised declines and extinctions, and will likely contribute to many more in the future. These

perceptions and attitudes held by many also underlie the notable lack of legal protection and malaise of enforcement for any laws that do apply to protecting long-tailed macaques. Given these challenges, without properly planned wildlife management programs, *M. fascicularis* will continue to experience significant and substantial population declines into the near future.

In Viet Nam, keeping the species as a pet is very common, although it is protected by law. Confiscated long-tailed macaques are often released without proper procedure, contributing to negative human-macaque interactions and possible disease and parasite introduction in the release area (Aldrich and Neale 2021). Currently, Indonesian, Philippine, and Vietnamese organisations report capture for pets and research as the main threat. Cambodia reports it to be deforestation.

Hunting for subsistence is also a threat for the species, mostly documented by anecdotal reports, but in, for example, the Eastern Plains of Cambodia, hunting is monitored and well documented (see, for example, Ibbett *et al.* in review).

Conservation Actions **(see Appendix for additional information)**

In general, there are only a few sustainable efforts to maintain long-tailed macaque populations in Southeast Asia. Most work on the species involves persecution and removal. There is only one national-level program run by governmental wildlife agencies for censusing long-tailed macaques, and that is in Singapore (Sha *et al.* 2009, Riley *et al.* 2013). Even here, there can be improvement in methods, ecological focus, and increased regularity of assessment. Establishing wildlife management programs for long-tailed macaques is critical, and urgent efforts are needed to establish regular censusing of *M. fascicularis*, as well as designing and implementing evidence-based management and protection plans throughout Southeast Asia.

It also important to create coexistence programs for humans and long-tailed macaques, where local people receive the help they need to coexist with the species.

In terms of protection already conferred to *M. fascicularis*, the species is included in Appendix II of CITES, and thus is monitored and requires permits for international trade of live specimens and its parts. In Cambodia and the Philippines, it is a normally protected species. In Myanmar, it has recently be assessed to be vulnerable, but legally is still a normally protected species. It is a protected species on Appendix 2B on Decree 84/2021/ND-CP in Viet Nam. It is not listed as a protected species in Indonesia (MOEF 2018), but is subject to a national wild capture quota system. In Thailand it is not specifically listed on the Wild Animal Preservation and Protection Act, B.E. 2535 (1992), but it is given the normal protection of wildlife, which restricts hunting and capture in all protected areas and forest lands. In Singapore, all wildlife is restricted from being captured, held as pets, or traded without permission, according to the Wild Animals & Bird act. In Malaysia, it is protected according to the Wildlife Conservation Act of 2010. In India, it is listed on Schedule I, Part I, Indian Wildlife (Protection Act) of 1972, and is considered an endangered species due to it limited range.

The long-tailed macaque is the most traded primate species, the most culled primate species, the most persecuted primate species and when looking at numbers of threats and population decline, possibly one of the most endangered primate species currently. To be able to conserve it, we must recognise the ecological and cultural roles it play and change our narrative regarding the species. We must acknowledge its place in our ecosystems and initiate conservation activities.

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Bibliography

Abeyasinghe, R. 2016. Plasmodium knowlesi current status and the request for review by an Evidence Review Group Malaria Policy Advisory Committee Geneva, Switzerland.

Aldrich BC and Neale D. 2021. Pet macaques in Vietnam: an NGO's perspective. *Animals* 11(60).

Alpert E. 2013. Alarm among activists after Malaysia kills nearly 100,000 monkeys. *Los Angeles Times*.

Beech, H. 2020. These Monkeys Were Once Revered. Now They Are Taking Over. *The New York Times*.

Bernstein, I. S. 1966. Naturally occurring primate hybrid. *Science* 154: 1559-1560.

Boonkong, C. and O'Connor, P. 2019. 20 monkeys poisoned in Rayong with more reports of monkey attacks on visitors as populations increase. Available at: https://www.thaiexaminer.com/thai-news-foreigners/2019/01/18/thailand-monkeys-human-beings-monkey-bites-thai-police-food-attacked-local-man/.

Bunlungsup S., Imai H., Hamada Y., Gumert M.D., San A. and Malaivijitnond, S. 2015. Morphological characteristics and genetic diversity of Burmese long-tailed macaques (*Macaca fascicularis aurea*). *American Journal of Primatology* 78: 441-455.

Bunlungsup S, Imai H, Hamada Y, Gumert MD, San AM, Malaivijitnond S. 2016. Morphological characteristics and genetic diversity of Burmese long-tailed Macaques (*Macaca fascicularis aurea*). *Am J Primatol* 78(4): 441-455.

CITES. 2022. CITES Trade Database. Available at: https://trade.cites.org/#.

CITES. 2022. Review of Significant Trade in specimens of Appendix-II species. IMPLEMENTATION OF RECOMMENDATIONS OF THE ANIMALS AND PLANTS COMMITTEE. Seventy-Fourth Meeting of the Standing Committee. Lyon, France.

Cowlishaw, G. and Dunbar, R. 2000. *Primate conservation biology*. The University of Chicago Press, Chicago, IL, USA.

Eudey, A. 1994. Temple and pet primates in Thailand. *Revue D'Ecologie (Terre et la Vie)* 49: 273-280.

Eudey, A. 2008. The crab-eating macaque (*Macaca fascicularis*) widespread and rapidly declining. *Primate Conservation* 23: 129-132.

Feng, Z. 2015. To cull or not to cull pesky monkeys. *The Straits Times*.

Foley K-E. and Shepherd, C. R. 2011. Trade in long-tailed macaques (*Macaca fascicularis*). In: Gumert MD, Fuentes A & Jones-Engel L (ed.), *Monkeys on the edge: Ecology and management of long-tailed macaques and their interface with humans*, pp. 20-23. Cambridge University Press, Cambridge, U.K.

Fooden, J. 1964. Rhesus and crab-eating macaques: intergradation in Thailand. *Science* 143(3604): 363-365.

Fooden, J. 1995. Systematic review of Southeast Asia long-tail macaques, *Macaca fascicularis* Raffles (1821). *Fieldiana Zoology* 64: 1-44.

Fooden, J. 2006. Comparative review of *fascicularis*-group species of macaques (Primates: *Macaca*). *Fieldiana: Zoology, n.s.* 107: 1-43.

Froehlich, J., Schillaci, M., Jones-Engel, L., Froehlich, D., Pullen, B. 2003. A Sulawesi beachead by longtail monkeys (*Macaca fascicularis*) on Kabaena Island, Indonesia. *Anthropologie* 41: 74-76.

Fuentes, A., Southern, M. and Suaryana, K. G. 2005. Monkey forests and human landscapes: is extensive sympatry sustainable for Homo sapiens and Macaca fascicularis on Bali? In: Paterson, J. D. and Wallis, J. (eds), *Commensalism and Conflict: The Human–Primate Interface*, pp. 168–195. American Society of Primatology Publications, San Diego.

GMA News. 2022. Mga unggoy sa Banton, Romblon, nagiging perwisyo na raw sa tao dahil sa sobrang dami. *GMA News*.

Groves C.P. 2001. *Primate Taxonomy*. Smithsonian Institution Press, Washington, DC, USA.

Gumert M.D. 2004. Spirits or Demons? *Tempo* 52: 27.

Gumert, M.D. 2011. The common monkey of Southeast Asia: Long-tailed macaque populations, ethnophoresy, and their occurrence in human environments. In: Gumert MD, Fuentes A & Jones-Engel L (ed.), *Monkeys on the edge: Ecology and management of long-tailed macaques and their interface with humans*, pp. 3–44. Cambridge University Press, Cambridge, U.K.

Gumert, M. D., Fuentes, A. and Jones-Engel, L. 2011. *Monkeys on the Edge: Ecology and Management of Long-tailed Macaques and their Interface with Humans.* Cambridge University Press, Cambridge.

Gumert, M.D., Fuentes, A., Engel, G., Jones-Engel, L. 2011. Future directions of research and conservation of long-tailed macaque populations. In: Gumert MD, Fuentes A & Jones-Engel L (ed.), *Monkeys on the edge: Ecology and management of long-tailed macaques and their interface with humans*, pp. 328-353. Cambridge University Press, Cambridge, U.K.

Gumert, M.D., Tan A.W.Y., Luncz L.V., Chua C., Kulik L., Switzer A., Haslam M., Iriki A. and Malaivijitnond S. 2019. Prevalence of tool behavior is associated with pelage phenotype in intraspecific hybrid long-tailed macaques (*Macaca fascicularis aurea* x *M. f. fascicularis*). *Behaviour* 156: 1083-1125.

Gumert, M.D., Tan A.W-Y., Malaivijitnond S. 2014. Current knowledge on the distribution of long-tailed macaque stone tool use. *XXVth Congress of the International Primatological Society. Hanoi, Vietnam*.

Hamada, Y., Hiroyuki, H., Goto, S., Morimitsu, Y., Malaivijitnond, S., Pathonton, S., Pathonton, B., Kingsada, P., Vongsombath, C., Samouth, F., and Praxaysombath, B. 2011. Distribution and present status of long-tailed macaques (*Macaca fascicularis*) in Laos and their ecological relationship with rhesus macaques (*Macaca mulatta*). In: Gumert MD, Fuentes A & Jones-Engel L (ed.), *Monkeys on the edge: Ecology and management of long-tailed macaques and their interface with humans*, pp. 72-98. Cambridge University Press, Cambridge, U.K.

Hansen MF, Gill M, Briefer EF, Nielsen DRK and Nijman V. 2022. Monetary Value of Live Trade in a Commonly Traded Primate, the Long-Tailed Macaque, Based on Global Trade Statistics. *Front. Conserv. Sci.* 3(839131).

Hansen, M. F., Gill, M., Nawangsari, V. A., Sanchez, K. L., Cheyne, S. M., Nijman, V. and Fuentes, A. 2021. Conservation of long-tailed macaques: implications of the updated IUCN status and the CoVID-19 pandemic. *Primate Conservation* 35.

Hansen, M. F., Nawangsari, V. A., van Beest, F. M., Schmidt, N. M., Fuentes, A., Traeholt, C., Stelvig, M. and Dabelsteen, T. 2019. Estimating densities and spatial distribution of a commensal primate species, the long-tailed macaque (Macaca fascicularis). *Conservation Science and Practice* 1(9): e88.

Ibbett, H., Keane, A., Dobson, A. D. M., Griffin, O., Travers, H., Milner-Gulland, E. J. In review. Estimating hunting prevalence and wild meat reliance in Cambodia's Eastern Plains.

IUCN. 2022. The IUCN Red List of Threatened Species. Version 2022-1. Available at: www.iucnredlist.org. (Accessed: 21 July 2022).

IUCN. 2022. The IUCN Red List of Threatened Species. Version 2022-2. Available at: www.iucnredlist.org. (Accessed: 08 December 2022).

Kemp, N.J. & Burnett, J.B. 2007. A non-native primate (*Macaca fascicularis*) in Papua: implications for biodiversity. *The Ecology of Papua: Part II*, pp. 1348-1364. Periplus Editions Ltd., Singapore.

Kyes, R. C., Iskandar, E. and Pamungkas, J. 2011. Preliminary survey of the long-tailed macaques (*Macaca fascicularis*) on Java, Indonesia: distribution and human-primate conflict. In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds), *Monkeys on the Edge: Ecology and Management of Long-tailed Macaques and their Interface with Humans*, pp. 65-68. Cambridge University Press, Cambridge.

Lee, B. P. Y. H. 2011. A possible decline in population of the long-tailed macaque (*Macaca fascicularis*) in northeastern Cambodia. In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds), *Monkeys on the Edge: Ecology and Management of Long-tailed Macaques and their Interface with Humans*, pp. 83-88. Cambridge University Press, Cambridge.

MacKinnon, J. and MacKinnon, K. 1987. Conservation and status of the primates of the Indo-Chinese subregion. *Primate Conservation* 8: 187-195.

MacKinnon, M. 1986. The conservation status of nonhuman primates in Indonesia. In: K. Benirschke (ed.), *Primates. The road to self-sustaining populations*, New York and Berlin.

Marty, P.R., Balasubramaniam, K.N., Kaburu, S.S.K. et al. 2020. Individuals in urban dwelling primate species face unequal benefits associated with living in an anthropogenic environment. *Primates* 61: 249-255.

Menteri Lingkungan Hidup dan Kehutanan Republik (MOEF) Indonesia. 2018. Peraturan Menteri Lingkungan Hidup dan Kehutanan Republik Indonesia nomor P.20/MENLHK/SETJEN/KUM.1/6/2018 Tentang jenis tumbuhan dan satwa yang dilindungi dengan rahmat tuhan yang maha esa.

Napier, P. and Groves, C.P. 1983. *Simia fascicularis* Raffles, 1821 (Mammalia, Primates): request for the suppression under the Plenary Powers of Simia aygula Linnaeus, 1758, a senior synonym Z.N.(S.) 2399. *Bulletin of Zoological Nomencature* 40(2): 117-118.

Ngamkkam, W. 2021. Houses searched as macaque trafficking bound for cooking to Cambodia investigation widens. *Khmer Times*.

Nuttall, M.N., Griffin, O., Fewster, R. M., McGowan, F. J. K., Abernethy, K., O'Kelly, H., Nut, M., Sot, V., Bunnefeld. 2021. Long-term monitoring of wildlife populations for protected area management in Southeast Asia. *Conservation Science and Practice* 4(2): e614.

Pacifici, M., Santini, L., Di Marco, M., Baisero, D., Francucci, L., Grottolo Marasini, G., Visconti, P. and Rondinini, C. 2013. Generation length for mammals. *Nature Conservation* 5: 87–94.

PERHILITAN. 2018. Laporon Ketahunan (Annual Report) 2018. Department of Wildlife and National Parks Peninsular Malaysia. Available at: https://www.wildlife.gov.my/images/document/penerbitan/laporantahunan/LT2018.pdf.

Poirier, F. E. & Smith, E. O. 1974. The crab-eating macaques (Macaca fascicularis) of Angaur Island, Palau, Micronesia. *Folia Primatologica* 22: 258-306.

Raffles, S.T. 1821. Descriptive catalogue of a zoological collection made in the island of Sumatra and its vicinity. *Transactions of the Linnean Society of London* 13: 247.

Riley, C.M., Srikantan, L.J., and Gumert, M.D. 2013. Results of a nationwide census of the long-tailed macaque (*Macaca fascicularis*) population of Singapore. *The Raffles Bulletin of Zoology* 63: 503-515.

San, A.M. and Hamada, Y. 2011. Distribution and current status of long-tailed macaques (*Macaca fascicularis aurea*) in Myanmar. In: M.D. Gumert, A. Fuentes and L. Jones-Engel (eds), *Monkeys on the edge. Ecology and management of long-tailed macaques and their interface with human*, pp. 45-64. Cambridge University Press, Cambridge, UK.

Sha JCM, Gumert MD, Lee BPY-H, Fuentes A, Rajathurai S, Chan S & Jones-Engel L. 2009. Status of the long-tailed macaque *Macaca fascicularis* in Singapore and implications for management. *Biodiversity and Conservation* 18: 2909-2926.

SMACC. 2021. Available at: https://www.asiaforanimals.com/smacc-report. (Accessed: 04 March 2022).

Smith, D. G., Ng, J., George, D., Trask, J. S., Houghton, P., Singh, B., Villano, J. and Kanthaswamy, S. 2014. A genetic comparison of two alleged subspecies of Philippine cynomolgus macaques. *American Journal of Physical Anthropology* 155: 136-148.

Sodhi, N.S., Koh, L.P., Brook, B.W. and Ng, P.K.L. 2004. Southeast Asian biodiversity: an impending disaster. *Trends in Ecology and Evolution* 19(12): 654-660.

Southwick, C. H. & Siddiqi, M. F. 1994. Population status of nonhuman primates in Asia, with emphasis on rhesus macaques in India. *American Journal of Primatology* 34: 51-59.

Southwick, C. H. & Southwick, K. L. 1983. Polyspecific groups of macaques on the Kowloon Peninsula, New Territories, Hong Kong. *American Journal of Primatology* 5: 17-24.

Suzuki, A., Thong, S., Tan, S. and Iwata, A. 2017. Camera trapping of large mammals in Chhep Wildlife Sanctuary, northern Cambodia. *Cambodian Journal of Natural History* 1: 63-75.

The Globe and Mail. 2020. Chinese wildlife ban freezes export of test monkeys amid worldwide push for COVID-19 vaccine. *The Globe and Mail*. Available at: https://www.theglobeandmail.com/world/article-chinese-wildlife-ban-freezes-export-of-test-monkeys-amid-worldwide/

The Star. 2022. Perhilitan culled over 14,000 monkeys, 1,000 wild boars last year, says Perak govt. *The Star*. Avaiable at: https://www.thestar.com.my/news/nation/2022/03/30/perhilitan-culled-over-14000-monkeys-1000-wild-boars-last-year-says-perak-govt

Tittensor, D.P., Harfoot, M., McLardy, C., Britten, G.L., Kecse-Nagy, K., Landry, B., Outhwaite, W., Price, B., Sinovas, P., Blanc, J., Burgess, N.D. and Malsch, K. 2020. Evaluating the relationships between the legal and illegalinternational wildlife trades. *Conservation Letters*: 13:e12724. DOI: 10.1111/conl.12724.

Umapathy, G., Singh, M. and Mohnot, S. M. 2003. Status and distribution of *Macaca fascicularis umbrosa* in the Nicobar Islands, India. *International Journal of Primatology* 24(2): 281-293.

Weisman A. 2007. *The world without us*. Thomas Dunne Books, St. Martin's Press, NY.

Yanuar, A., Bekti, D. and Saleh, C. 1993. The status of the Karimata primates *Presbytis rubicunda carimatae* and *Macaca fascicularis carimatensis* in Karimata Island, Indonesia. *Tropical Biodiversity* 1(3): 157-162.

Citation

Hansen, M.F., Ang, A., Trinh, T.T.H., Sy, E., Paramasivam, S., Ahmed, T., Dimalibot, J., Jones-Engel, L., Ruppert, N., Griffioen, C., Lwin, N., Phiapalath, P., Gray, R., Kite, S., Doak, N., Nijman, V., Fuentes, A. & Gumert, M.D. 2022. *Macaca fascicularis* (amended version of 2022 assessment). *The IUCN Red List of Threatened Species* 2022: e.T12551A221666136. https://dx.doi.org/10.2305/IUCN.UK.2022-2.RLTS.T12551A221666136.en

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External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.5. Forest - Subtropical/Tropical Dry	-	Suitable	Yes
1. Forest -> 1.6. Forest - Subtropical/Tropical Moist Lowland	-	Suitable	Yes
1. Forest -> 1.7. Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level	-	Suitable	Yes
1. Forest -> 1.8. Forest - Subtropical/Tropical Swamp	-	Suitable	Yes
1. Forest -> 1.9. Forest - Subtropical/Tropical Moist Montane	-	Suitable	Yes
2. Savanna -> 2.1. Savanna - Dry	-	Marginal	-
2. Savanna -> 2.2. Savanna - Moist	-	Marginal	-
3. Shrubland -> 3.5. Shrubland - Subtropical/Tropical Dry	-	Marginal	-
3. Shrubland -> 3.6. Shrubland - Subtropical/Tropical Moist	-	Marginal	-
3. Shrubland -> 3.7. Shrubland - Subtropical/Tropical High Altitude	-	Marginal	-
4. Grassland -> 4.5. Grassland - Subtropical/Tropical Dry	-	Marginal	-
4. Grassland -> 4.6. Grassland - Subtropical/Tropical Seasonally Wet/Flooded	-	Marginal	-
4. Grassland -> 4.7. Grassland - Subtropical/Tropical High Altitude	-	Marginal	-
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	-	Suitable	Yes
5. Wetlands (inland) -> 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks	-	Marginal	-
5. Wetlands (inland) -> 5.3. Wetlands (inland) - Shrub Dominated Wetlands	-	Marginal	-
5. Wetlands (inland) -> 5.4. Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands	-	Suitable	Yes
5. Wetlands (inland) -> 5.9. Wetlands (inland) - Freshwater Springs and Oases	-	Marginal	-
7. Caves and Subterranean Habitats (non-aquatic) -> 7.1. Caves and Subterranean Habitats (non-aquatic) - Caves	-	Marginal	-
12. Marine Intertidal -> 12.1. Marine Intertidal - Rocky Shoreline	-	Marginal	-
12. Marine Intertidal -> 12.2. Marine Intertidal - Sandy Shoreline and/or Beaches, Sand Bars, Spits, Etc	-	Marginal	-

Habitat	Season	Suitability	Major Importance?
12. Marine Intertidal -> 12.3. Marine Intertidal - Shingle and/or Pebble Shoreline and/or Beaches	-	Marginal	-
12. Marine Intertidal -> 12.4. Marine Intertidal - Mud Flats and Salt Flats	-	Marginal	-
12. Marine Intertidal -> 12.7. Marine Intertidal - Mangrove Submerged Roots	-	Suitable	Yes
14. Artificial/Terrestrial -> 14.1. Artificial/Terrestrial - Arable Land	-	Marginal	-
14. Artificial/Terrestrial -> 14.2. Artificial/Terrestrial - Pastureland	-	Marginal	-
14. Artificial/Terrestrial -> 14.3. Artificial/Terrestrial - Plantations	-	Marginal	-
14. Artificial/Terrestrial -> 14.4. Artificial/Terrestrial - Rural Gardens	-	Marginal	-
14. Artificial/Terrestrial -> 14.5. Artificial/Terrestrial - Urban Areas	-	Marginal	-
14. Artificial/Terrestrial -> 14.6. Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest	-	Marginal	-
16. Introduced vegetation	-	-	-

Use and Trade

(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
1. Food - human	Yes	No	No
13. Pets/display animals, horticulture	No	Yes	Yes
14. Research	No	Yes	Yes
15. Sport hunting/specimen collecting	No	Yes	No
16. Establishing ex-situ production *	No	Yes	Yes

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5

2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.1. Shifting agriculture	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.1. Small-holder plantations	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.2. Agro-industry plantations	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.1. Nomadic grazing	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or farming	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.3. Agro-industry grazing, ranching or farming	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.4. Marine & freshwater aquaculture -> 2.4.1. Subsistence/artisinal aquaculture	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
2. Agriculture & aquaculture -> 2.4. Marine & freshwater aquaculture -> 2.4.2. Industrial aquaculture	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
3. Energy production & mining -> 3.3. Renewable energy	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.3. Persecution/control	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5
10. Geological events -> 10.2. Earthquakes/tsunamis	Ongoing	Minority (<50%)	Causing/could cause fluctuations	Low impact: 5
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5

11. Climate change & severe weather -> 11.5. Other impacts	Ongoing	Minority (<50%)	Slow, significant declines	Low impact: 5

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: Yes, over entire range
Area based regional management plan: No
Occurs in at least one protected area: Yes
Invasive species control or prevention: Yes
In-place species management
Harvest management plan: Yes
Successfully reintroduced or introduced benignly: Yes
Subject to ex-situ conservation: No
In-place education
Subject to recent education and awareness programmes: No
Included in international legislation: Yes
Subject to any international management / trade controls: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
3. Species management -> 3.1. Species management -> 3.1.3. Limiting population growth

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Conservation Action Needed
4. Education & awareness -> 4.1. Formal education
4. Education & awareness -> 4.2. Training
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.1. International level
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.1. Legislation -> 5.1.3. Sub-national level
5. Law & policy -> 5.1. Legislation -> 5.1.4. Scale unspecified
6. Livelihood, economic & other incentives -> 6.1. Linked enterprises & livelihood alternatives
6. Livelihood, economic & other incentives -> 6.2. Substitution
6. Livelihood, economic & other incentives -> 6.3. Market forces

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods
1. Research -> 1.5. Threats
1. Research -> 1.6. Actions
2. Conservation Planning -> 2.2. Area-based Management Plan
2. Conservation Planning -> 2.3. Harvest & Trade Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Lower elevation limit (m): 0
Upper elevation limit (m): 2,250

Population
Continuing decline of mature individuals: Yes
Extreme fluctuations: Yes
Population severely fragmented: Yes
Continuing decline in subpopulations: Yes
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 13.9
Movement patterns: Not a Migrant

Amendment

Amendment reason: This amended assessment was created to correct two of the Assessor names ("Trinh, T." should have been "Trinh, H." and "Paramasiwam, S." should have been "Paramasivam, S.". The distribution map has also been updated.

The IUCN Red List Partnership



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