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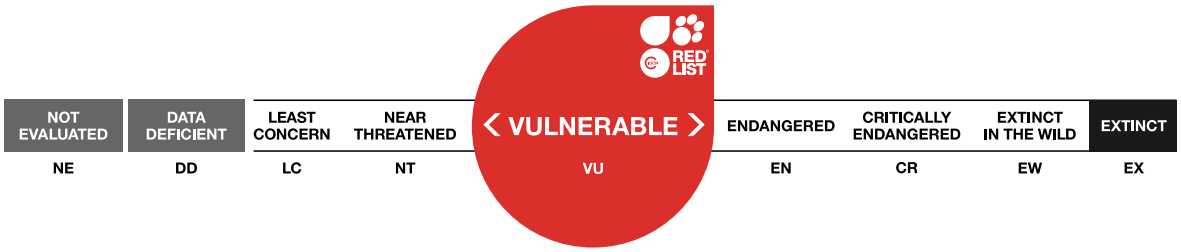
Scope(s): Global
Language: English

Macaca fascicularis ssp. aurea, Burmese Long-talied Macaque

Assessment by: Gumert, M.D., Ahmed, T., Hansen, M.F. & Ang, A.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Primates	Cercopithecidae

Scientific Name: *Macaca fascicularis ssp. aurea* (Geoffroy Saint-Hilaire, 1831)

Synonym(s):

- *Macaca fascicularis* ssp. *aureus* (Geoffroy Saint-Hilaire, 1831)
- *Macacus aureus* Geoffroy Saint-Hilaire, 1831

Parent Species: See *Macaca fascicularis*

Common Name(s):

- English: Burmese Long-talied Macaque
- Bengali: Kakrabhuji Banor, Lomba-leji Banor, Parailla Banor
- Burmese: Myauk ta-nga, Za-yat-taw myauk

Taxonomic Notes:

Diagnostic features include a buffy to medium brown trunk with pale yellowish to golden, rarely rufescent hair annulations; the crown usually brighter than the back, sometimes with an indistinct blackish wash. The preauricular hair pattern flows posteriorly back and ventrally down the cheek, forming into an infrazygomatic lateral facial crest, which is a key morphological identifier of the subspecies (Fooden 1995). Their relative tail length (against the crown-rump length) is > 90%.

Assessment Information

Red List Category & Criteria: Vulnerable A4cde ver 3.1

Year Published: 2022

Date Assessed: March 14, 2021

Justification:

The subspecies is assessed as Vulnerable under criterion A4cd, due to suspected past and future decline of at least 30% over three generations because of the levels of exploitation and the reduction in extent of occurrence (EOO). Of note, a national Red List assessment conducted in early 2019 in Myanmar by the national primate working group also assessed the subspecies as Vulnerable using criterion A2abcde; B2ab(i,ii,iii,iv,v).

Although we have learned much more about *Macaca fascicularis aurea*, we are still lacking critical long-term data on population trends. Based on what we know about Myanmar, there is significant habitat loss, degradation, and conversion, and their range is restricted primarily to the coastal regions of Myanmar and Thailand. There is a strong, suspected hunting pressure in Myanmar, and thus there is good reason to suspect notable losses in population size over the last 10 years. The true impact of hunting in Myanmar needs to be assessed. For several decades now, the population has been split in half by the loss of the subspecies from the Ayerwaddy Delta, except in one wildlife sanctuary. The

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extirpation of the subspecies from this otherwise prime habitat to support them, provides strong evidence of the vulnerability to localized extinction due to advancing human development and activity, as well as persecution. In Bangladesh, they are considered very likely extinct, following a survey of the remaining probable habitats that did not detect any Burmese long-tailed macaques (pers. obs. Tanvir Ahmed, 2022). This followed a rapid population decline of over 90% over a ten year period due to severe anthropogenic threats to its habitat (Hasan, 2015), and only five individuals had been thought to remain in Bangladesh as recently as 2021. In Thailand, there are potential issues with human-macaque conflict, the impact of human activity, and tourism impacting the subspecies populations and their habitats, which occurs in only a limited range in Thailand.

Previously Published Red List Assessments

2020 – Data Deficient (DD)
https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T39770A195342602.en

2008 – Data Deficient (DD)
https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T39770A10256106.en

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

Geographic Range

Range Description:

This subspecies is primarily found around coastal areas and in lowland forests of Myanmar, and is distributed throughout the Myeik Archipelago, Moscos Islands, and other islands (Fooden 1995, Groves, 2001, San and Hamada 2011, Gumert 2018). They are found in two major ranges, 1) in and around Rakhine and 2) throughout southern Tanintharyi, which extends into Thailand. These two populations are fragmented by a large gap, as *M. f. aurea* is nearly absent from the Ayerwaddy Delta except for one small isolated and protected location (San and Hamada 2011). The Tanintharyi population extends into southern and western Thailand, predominantly in Ranong, but also into Phang Nga, Phuket, and Prachuab Khirikan (Gumert 2018). In the latter three provinces, the Burmese long-tailed macaque hybridizes with the common subspecies, *M. f. fascicularis* (Bunlungsup *et al.* 2015, Gumert 2018, Gumert *et al.* 2019). *M. f. aurea* is recently considered extinct in Bangladesh (pers. obs. Tanvir Ahmed, 2022). The extent of occurrence (EOO) for this subspecies and its habitat quality is suspected to have declined in the recent past and is expected to continue to decline in the future (San and Hamada 2011, Gumert *et al*. 2013).

Country Occurrence:

Native, Extant (resident): Myanmar; Thailand

Native, Extinct: Bangladesh

Distribution Map

Legend

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

The population size for *M. f. aurea* is not fully known, and current estimates have a very wide margin of error. It is, however, suspected to be in decline across its range. In Myanmar, the Rakhine population was estimated to be between 4,380–43,800, while in Tanintharyi, it was estimated 7,140–71,400 individuals. Overall, the total population in Myanmar is estimated to be 11,130–107,900 (San and Hamada 2011). The portion of the population extending into Thailand has not been counted, but potentially adds on several thousand to the population; however, outside Ranong, much of that population is hybridized with the common subspecies. The population is under threat and requires monitoring, as it is predicted to continue to decline into the future due to hunting, habitat degradation, and trade (San and Hamada 2011). Recently, wildlife organizations from Myanmar, including their Primate Working Group, also suspect large declines in the population and predicted continued decline, especially in the northern and central parts of Myanmar (Lwin et al., 2019). In Bangladesh, *M. f. aurea* now appears extinct, which is based on recent surveys failing to find any long-tailed macaques in the country (pers. obs. Tanvir Ahmed, 2022). The extinction in Bangladesh followed an observed population reduction of more than 90% over three generations (Hasan 2015).

Current Population Trend: Decreasing

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

M. f. aurea primarily occurs in coastal regions, mangroves, and associated lowland evergreen forests (San and Hamada 2011). A core region of their population is highly insular living on many islands in the Myeik Archipelago, Moscos Islands, and other islands in Thailand (Gumert 2018). They appear highly dependent on mangroves, islands, and coastal habitats, and thus are highly reliant on successful preservation of these habitats. This subspecies is the only Old World monkey known to customarily use stone tools to access encased foods, which is used predominantly for opening oysters and other shellfish (Carpenter 1887, Malaivijitnond *et al.* 2007, Gumert *et al.* 2009, Tan *et al.* 2015). The behaviour seems adaptive to the coastal environments they inhabit (Gumert *et al.* 2019), showing their adaptive specialization to coastal niches.

Systems: Terrestrial

Use and Trade

The *M. f. aurea* population is heavily hunted in Myanmar, with reports of wild macaques being extremely wary of humans due to hunting pressure (San and Hamada 2011, Gumert 2018). They are hunted for both trade and food in Myanmar, although trade of macaques was banned by the Forestry Ministry in 2006. This action supposedly reduced more overt trade, such as trapping for monkey farms, but local capture and trade still occurs (e.g., for pets and display). There is no reason to conclude hunting for food has decreased, and likely has increased for subsistence due to economic, immigration, and political conditions currently facing Myanmar. San and Hamada (2011) note, "…a considerable portion of immigrants subsist on …wildlife, including long-tailed macaques…" (p. 63). In early 2021, Myanmar experienced a military coup, which has likely increased pressure on wildlife populations due to subsistence hunting.

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

M. f. aurea is facing numerous potential threats throughout their core population in Myanmar. Over the last several decades there has been significant habitat loss, conversion, and degradation, as well as hunting. These factors have caused the population to decline and become fragmented. Of particular importance, is that most macaques have been extirpated from the Ayerwaddy delta, except for two groups in a wildlife sanctuary (San and Hamada 2011). The Ayerwaddy delta has been heavily affected by development, farming and human activity, due to its proximity to Yangon, Myanmar's main center of commerce. The loss of macaques from this region shows how vulnerable *M. f. aurea* is to development and human activity, which can produce large localized losses in the population. San and Hamada (2011) noted "…the risk of localized extinctions of populations may be rather high." (p. 62).

This subspecies, and particularly the Tanintharyi population, is in a coastal and insular region that historically has been greatly affected by sea level changes. Regional sea fluctuations in the Andaman Sea have shaped the current distribution of islands and the macaques on them (Gumert 2018, Gumert *et al*. 2019). We can expect theses near-shore islands to continue to be affected by sea level changes in the future, which is likely to impact key areas of coastal habitats that they depend on throughout the southern portion of their range

In Bangladesh, *M. f. aurea* is very likely extinct (pers. obs. Tanvir Ahmed, 2022) and has faced a changing habitat (e.g., conversion for shrimp culture, logging, fuel wood collection, cattle grazing). Human population pressure has also increased, and immigrant refugees in the region may have hunted the last remaining macaques out. (i.e., increasing Rohingya refugee camps along the Naf River) (Hasan and Feeroz 2010, Kabir and Ahsan 2012).

In Thailand, macaques on Piak Nam Yai Island in Laem Son National Park were found to be impacted by human activity on this protected island. The impacts included conversion to rubber tree plantations and disturbance from domestic dogs, which reduced the macaques' coastal foraging times and potentially increased juvenile mortality rates (Gumert *et al.* 2013). *M. f. aurea* has hybridized populations with the common subspecies, *M. f. fascicularis* in Phang Nga, Phuket, and Prachuab Khiri Khan. In western Phuket they are affected by human-macaque conflict and population management programs, while in much of their range they occur in areas impacted by tourism activity and recreational development.

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

Threats facing *M. f. aurea* have been documented and need to be monitored and controlled, particularly hunting. An updated population census is needed to determine their current distribution, population size, and extent of change more precisely. We also need to gather updated information on threats across its range. The impact of hunting and trapping needs to be fully assessed in Myanmar and Bangladesh, while the influence of tourism should be further investigated in Thailand.

In Bangladesh, an *ex-situ* breeding program, reintroduction program, or other measures could be implemented to re-establish this sub-population, if suitable habitat remains. (Molur *et al.* 2003).

M. f. aurea occurs in several national parks in Thailand, including Laem Son National Park, which is protected by the National Parks Act (1961). They also occurs in national parks and protected areas in Myanmar, including Lampi Marine National Park and Meinmahla Kyun Wildlife Sanctuary.

M. f. aurea is protected under Myanmar Wildlife Protection Law (1994), and trade was banned under

this act in 2006. They are protected in Schedule I under Wildlife (Conservation and Security) Act, 2012 in Bangladesh. In Thailand it not listed on the Wild Animal Preservation and Protection Act, B.E. 2535 (1992), but is afforded normal protection of wildlife, which restricts hunting and capture in protected areas and forest lands.

Future sea level projections are needed to assess future changes to the coastal and insular habitats of Thailand and Myanmar.

We need to assess genetic introgression into the population from the common subspecies, *M. f. fascicularis*.

Credits

Assessor(s): Gumert, M.D., Ahmed, T., Hansen, M.F. & Ang, A.

Reviewer(s): Reuter, K.E.

Contributor(s): Ong, P., Richardson, M. & Rylands, A.B.

Authority/Authorities: IUCN SSC Primate Specialist Group

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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
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	-
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
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	-	Suitable	Yes
12. Marine Intertidal -> 12.2. Marine Intertidal - Sandy Shoreline and/or Beaches, Sand Bars, Spits, Etc	-	Marginal	-
12. Marine Intertidal -> 12.3. Marine Intertidal - Shingle and/or Pebble Shoreline and/or Beaches	-	Suitable	Yes
12. Marine Intertidal -> 12.4. Marine Intertidal - Mud Flats and Salt Flats	-	Suitable	Yes
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	-	Suitable	No
14. Artificial/Terrestrial -> 14.4. Artificial/Terrestrial - Rural Gardens	-	Suitable	No

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Habitat	Season	Suitability	Major Importance?
14. Artificial/Terrestrial -> 14.5. Artificial/Terrestrial - Urban Areas	-	Marginal	-
14. Artificial/Terrestrial -> 14.6. Artificial/Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest	-	Marginal	-

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	No

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	Minority (50%)	Slow, significant declines	Low impact: 5
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	Majority (50-90%)	Slow, significant declines	Medium impact: 6
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

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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
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
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
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.3. Persecution/control	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
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	Majority (50-90%)	Causing/could cause fluctuations	Medium impact: 6
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
11. Climate change & severe weather -> 11.5. Other impacts	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6

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: No
Area based regional management plan: No
Occurs in at least one protected area: Yes
Invasive species control or prevention: Not Applicable
In-place species management
Harvest management plan: No
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: No

Conservation Action in Place
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 -> 3.2. Species recovery
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 -> 5.4. Compliance and enforcement -> 5.4.1. International level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.3. Sub-national level
6. Livelihood, economic & other incentives -> 6.1. Linked enterprises & livelihood alternatives

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

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Research Needed
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): 100
Population
Population severely fragmented: Unknown
Continuing decline in subpopulations: Yes
Extreme fluctuations in subpopulations: Unknown
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

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The IUCN Red List Partnership

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The IUCN Red List Partners are: ABQ BioPark; Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; Missouri Botanical Garden; NatureServe; Re:wild; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.