Nycticebus javanicus, Javan Slow Loris

Errata version

Assessment by: Nekaris, K.A.I., Shekelle, M, Wirdateti, Rode-Margono, E.J. & Nijman, V.


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Taxonomy

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>Chordata</td>
<td>Mammalia</td>
<td>Primates</td>
<td>Lorisidae</td>
</tr>
</tbody>
</table>

Scientific Name: *Nycticebus javanicus* É. Geoffroy, 1812

Synonym(s):
- *Nycticebus coucang* ssp. *javanicus* É. Geoffroy, 1812
- *Nycticebus ornatus* Thomas, 1921

Common Name(s):
- English: Javan Slow Loris

Taxonomic Notes:
This taxon was considered a subspecies of *Nycticebus coucang* but elevated by Groves and Maryanto (2008). This is further supported by morphological studies by Nekaris and Jaffe (2007) and Nekaris and Munds (2010) and genetic studies by Roos (2003) and Wirdateti *et al.* (2006). Two distinct forms regularly occur in bird markets and further research is needed (Nekaris and Jaffe 2007). Care should be taken in taxonomic studies however due to translocation of individuals from markets into forests and gardens throughout the island (Schulze and Groves 2004). The distinct black and white long-haired appearance of subadults and juveniles also might be mistaken as separate species, for example, in museum specimens or from photos only (KA. Nekaris *et al.* pers. comm. 2012).

Assessment Information

Red List Category & Criteria: Critically Endangered A2cd+4cd ver 3.1

Year Published: 2020

Date Assessed: November 23, 2015

Justification:
This species is listed as Critically Endangered under criteria A2 and A4. A combination of historic forest loss and continued degradation has resulted in less than 20% of suitable habitat for *Nycticebus javanicus* remaining. Species distribution modelling and a gap analysis have also revealed that the remaining subpopulations of *N. javanicus* are highly fragmented, with only 17% of the potential distribution within the protected area network (Thorn *et al.* 2009). The species is inferred to have experienced a population size decline of at least 80% over the last 24 years (three generations; Nadler *et al.* 2007) due to severe and persistent and ongoing persecution for the pet trade (Nekaris *et al.* 2010), in combination with habitat loss.

Previously Published Red List Assessments
2013 – Critically Endangered (CR)
https://dx.doi.org/10.2305/IUCN.UK.2013-2.RLTS.T39761A17971158.en

2008 – Endangered (EN)
Geographic Range

Range Description:
This species is known from Java, Indonesia, where it occurs in primary, secondary and disturbed lowland to highland rainforest, bamboo forest, mangrove forest and plantations from Banten, the westernmost province, to central Java (Thorn et al. 2009). *Nycticebus javanicus* been found in the following localities: Ujung Kulon, Gunung Gede Pangrango, Meru Betiri, Gunung Tilu, Gunung Simpang, and Gunung Sawa (Thorn et al. 2009, Voskamp et al. 2013). They may also occur on Gunung Halimun (border of Banten and West Java provinces) and Gunung Masgit Kareumbi (west Java), the Dieng Highlands (Central Java) and Bromo Tengger Semeru National Park (East Java). It occurs in East Java in the Meru Betiri and Alas Purwo national parks (Lehtinen et al. 2013, Voskamp et al. 2013). It probably occurred throughout the island in the past.

Country Occurrence:
Native, Extant (resident): Indonesia (Jawa)
Population
This species has been recorded at very low densities (0.02-0.20/km) (Nekaris et al. 2008). Several surveys in large forest blocks revealed few or no slow loris (Ujung Kulon, Halimun-Salak, Carita Nature Recreation Park, Gunung Gede Pangrango, Cibodas, Talaga Sumrut Game Reserve, Masigit Kareumbi, Slamet, Dieng) (Voskamp et al., 2013) indicating a decline of over 80% in the population over its range. Some small isolated populations persist in gardens and agricultural lands where they are at high risk from hunting and easily poached for the pet trade; severe population declines in these habitats have been documented (Wirdateti et al. 2004, 2011; Voskamp et al., 2013). A specific survey in Gunung Gede Pangrango reported a density of 15.6 individuals/km², with a calculation that some 70 slow lorises occupy the study area (Nekaris et al., 2014). Based on the results of the survey, a very slow walking speed was deemed important in being able to detect slow lorises. More recently Nekaris and colleagues (unpublished) surveyed East Java, increasing the geographic range of N. javanicus, finding it at sites including Tumpang Pitu Forest, Meru Betiri National Park and Salakan Forest.

The population is inferred to have declined by over 80% over the last three generations (24 years) due to exploitation and declining availability of suitable habitat; less than 20% of suitable habitat suitable for Nycticebus javanicus remains. Severe population declines have been documented in forested habitats in Java (Wirdateti et al. 2004, 2011).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)
This species is nocturnal and arboreal, and is found in secondary disturbed forest, in plantations and to some extent in primary forests. It needs arboreal connectivity (vines and lianas) due to its unique locomotor adaptations, although it can cross short open spaces on the ground. It feeds largely on sap and floral florescence, gum and insects with fruit being an extremely limited part of its diet (Moore et al. 2015; Wirdateti et al. 2004, 2011; Rode, et al. 2014). As with other slow loris species, exudates make up the majority of the species diet and is an important year round resource (Starr and Nekaris, 2013). The species sleeps alone, but more commonly in units of two or three individuals and in groups of up to six, in vegetation ranging from 2-30 m. It is often found in dense bamboo or branch tangles but not in tree holes (Wirdateti et al. 2004, Nekaris 2014). Home ranges vary with habitat, ranging from 3-30 ha. Although often seen alone, social pairs and trios can occur, as can adult infant/juvenile pairs. Occurs from sea level to 2,300 m, although it is less common at higher elevations. This species has been observed to go into torpor at higher elevations (Nekaris, 2014). The species is venomous; its venom is effective against other lorises as well as ecto-parasites, and can cause anaphylactic shock or death in humans (Nekaris, et al. 2013).

Systems: Terrestrial

Use and Trade
This species is used for traditional medicines (Nekaris and Nijman 2007) and as a pet species.

Threats (see Appendix for additional information)
Java is one of the world’s most densely populated areas and has a long history of deforestation.
Extensive habitat loss and fragmentation threaten the Javan slow loris throughout its range. In comparison to other Indonesian slow lorises, *Nycticebus javanicus* is significantly more vulnerable to anthropogenic activity due to intensive land use by humans (Thorn et al. 2009). Lack of connectivity between protected areas also poses a threat to loris populations, with every forest area containing slow lorises being effectively isolated by several kilometres of intensely modified and unsuitable habitat. The conversion of land to agricultural plantations is correlated with a sharp decline in slow loris population over the last 10 years (Wirdateti and Dahrudin, 2011). This species, like other slow lorises in Indonesia, is caught for use in the pet trade and to a lesser extent for traditional beliefs and folk medicines (Nekaris et al. 2010, Shepherd et al., 2004). Together with other loris species, *N. javanicus* is one of the most common protected primates found in animal markets in Java (Nekaris et al. 2008, Thorn et al. 2009). Due to their non-leaping locomotion, their choice of sleeping sites in trees and bamboo that can be cut through and accessed, and nocturnal habits, the animals are easily caught by humans (Nekaris and Starr 2015). The majority of the trade is to satisfy a large domestic demand, with a smaller proportion being smuggled abroad to destinations like the Middle East and Japan (Musing et al. 2015). From there the species may appear on online videos which perpetuate the pet trade (Nekaris et al. 2013). The trade chain poses a perilous threat for many reasons. Conditions during transport (stuffed in boxes or sacks) and inappropriate husbandry techniques (poor diet and social housing, forced diurnal activity, excessive handling) afterwards result in large mortality rate. Slow Lorises are the only venomous primates; to avoid their bites middle men or traders cut or remove teeth, a process that almost invariably leads to the animal’s death (Nekaris and Starr 2015). If confiscated, reintroduction to the wild has proven difficult. Animals with no teeth are not viable candidates, and in a two-year study of 11 healthy radio-collared animals released, only two are known to have survived (Moore et al. 2015).

Hybridization poses a real threat both on Java and elsewhere. Some taxa of slow lorises are known to hybridize in zoos. Javan slow lorises have been observed on animal markets outside Java (e.g., Medan, Bandar Lampung on Sumatra) and other Indonesian slow loris species (*N. coucang, N. menagensis*) have been observed to Javan markets. Due to the morphological similarity of *Nycticebus* spp. misidentification is rife. Furthermore, there is a general feeling that ‘if it is a slow loris, release it.’ Not only does this pose welfare risks to the individual, but also translocated individuals may harbour infections and parasites, and could potentially hybridize (Nekaris et al. 2008, Schulze and Groves 2004).

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

This species is protected by Indonesian law (No. 5 of 1990) and is listed on CITES Appendix I. It is currently represented in three captive collections (Jakarta, Indonesia; Singapore; Saitama Children’s Zoo, Japan); it should be noted the specimen in Prague Zoo is in fact a *N. coucang*. There is no viable captive breeding programme, and reproduction in captivity is known to be difficult. Some ecological studies with conservation education components have been completed or are in progress. Training workshops have been conducted to provide law enforcement officers, CITES officials and zoo and rescue centre personnel with improved identification skills to identify *Nycticebus* spp. within the pet trade. Several rescue centres in the region maintain facilities for confiscated individuals, where behavioural problems occur and require enrichment and expert care (Gray et al. 2015, Moore et al. 2015). Numerous attempts have been made to release Slow Lorises, both monitored and unmonitored, but until more is known about the complexities of taxonomy and ecology of lorises within the region, whether these releases make a positive contribution to conservation remains to be seen (Moore et al. 2015).
permanent education programmes across parts of the range of *N. javanicus*, including ‘Slow Loris Forest Protector’ book and teachers pack, Nature Clubs, village Pride Days, film nights, and reforestation projects, working with farmers to explain the benefits of the slow loris to prevent pests and also as a pollinator (Nekaris 2014). There are ongoing campaigns to combat the number of slow lorises, including *N. javanicus*, observed in illegal social networking videos (Nekaris et al. 2015).

**Credits**

**Assessor(s):** Nekaris, K.A.I., Shekelle, M, Wirdateti, Rode-Margono, E.J. & Nijman, V.

**Reviewer(s):** Molur, S. & Mittermeier, R.A.

**Authority/Authorities:** IUCN SSC Primate Specialist Group
Bibliography


Citation

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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)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Season</th>
<th>Suitability</th>
<th>Major Importance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Forest -&gt; 1.6. Forest - Subtropical/Tropical Moist Lowland</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>1. Forest -&gt; 1.9. Forest - Subtropical/Tropical Moist Montane</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>14. Artificial/Terrestrial -&gt; 14.3. Artificial/Terrestrial - Plantations</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>14. Artificial/Terrestrial -&gt; 14.4. Artificial/Terrestrial - Rural Gardens</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>End Use</th>
<th>Local</th>
<th>National</th>
<th>International</th>
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</thead>
<tbody>
<tr>
<td>3. Medicine - human &amp; veterinary</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>13. Pets/display animals, horticulture</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Threat</th>
<th>Timing</th>
<th>Scope</th>
<th>Severity</th>
<th>Impact Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Residential &amp; commercial development -&gt; 1.1. Housing &amp; urban areas</td>
<td>Ongoing</td>
<td>Whole (&gt;90%)</td>
<td>Very rapid declines</td>
<td>High impact: 9</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.1. Ecosystem conversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.1. Ecosystem conversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Biological resource use -&gt; 5.1. Hunting &amp; trapping terrestrial animals -&gt; 5.1.1. Intentional use (species is the target)</td>
<td>Ongoing</td>
<td>Whole (&gt;90%)</td>
<td>Rapid declines</td>
<td>High impact: 8</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Species Stresses -&gt; 2.1. Species mortality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Biological resource use -&gt; 5.3. Logging &amp; wood harvesting -&gt; 5.3.5. Motivation Unknown/Unrecorded</td>
<td>Ongoing</td>
<td>Whole (&gt;90%)</td>
<td>Very rapid declines</td>
<td>High impact: 9</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
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

In-place species management

Subject to ex-situ conservation: Yes

In-place education

Subject to recent education and awareness programmes: Yes
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 -> 3.1.2. Trade management
4. Education & awareness -> 4.1. Formal education
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level
Research Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Research Needed</th>
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</thead>
<tbody>
<tr>
<td>1. Research -&gt; 1.1. Taxonomy</td>
</tr>
<tr>
<td>1. Research -&gt; 1.2. Population size, distribution &amp; trends</td>
</tr>
<tr>
<td>1. Research -&gt; 1.4. Harvest, use &amp; livelihoods</td>
</tr>
<tr>
<td>1. Research -&gt; 1.5. Threats</td>
</tr>
<tr>
<td>1. Research -&gt; 1.6. Actions</td>
</tr>
</tbody>
</table>

Additional Data Fields

<table>
<thead>
<tr>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower elevation limit (m): 0</td>
</tr>
<tr>
<td>Upper elevation limit (m): 2,300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuing decline of mature individuals: Yes</td>
</tr>
<tr>
<td>Extreme fluctuations: Unknown</td>
</tr>
<tr>
<td>Population severely fragmented: Yes</td>
</tr>
<tr>
<td>Continuing decline in subpopulations: Yes</td>
</tr>
<tr>
<td>Extreme fluctuations in subpopulations: Unknown</td>
</tr>
<tr>
<td>All individuals in one subpopulation: No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habitats and Ecology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuing decline in area, extent and/or quality of habitat: Yes</td>
</tr>
<tr>
<td>Generation Length (years): 8</td>
</tr>
</tbody>
</table>
Errata

Errata reason: This corrected assessment was created to correct the Geographic Range text and to add some references to the Bibliography section.
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