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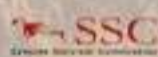
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PRIMATES IN PERIL

The world's 25 most endangered primates
2018-2020

Edited by

Christoph Schwitzer, Russell A. Mittermeier, Anthony B. Rylands, Federica Chiozza,
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GOLDEN LANGUR

Trachypithecus geei Khajuria, 1956

India, Bhutan
(2018)

Rekha Chetry, Dilip Chetry & P. C. Bhattacharjee

The Golden langur (*Trachypithecus geei*) is an attractive, arboreal and diurnal primate endemic to India and Bhutan in south-east Asia. It was first discovered by E. P. Gee in 1953. As the name suggests, its coat color is golden orange, but only during the breeding season – in the rest of the year it becomes creamy or dirty white. Ventral coat color is comparatively lighter, and the golden orange color is brighter in females than males. The species is predominantly arboreal, spending 99% of its active time in trees, foraging primarily in the top and middle strata of forest canopies (Biswas 2004). However, in degraded habitats, they descend to the ground (Chetry and Chetry 2009).

Golden langurs mature sexually after 5–7 years for males and 4 years for females. The breeding season is between June and January and the birth season is January to June. The gestation period is 168–180 days with one infant being born at a time, and the inter-birth interval is two years (Chetry and Chetry 2009). Sexual harassment is an integral part of the species' reproductive behaviour. Infants and, to some extent, females, have been identified as harassers.

The golden langur is highly social and maintains diverse forms of societies: (1) uni-male, multi-female troops/harem troops (3–9 members with 1:2.68 male–female ratio), (2) bi-male, multi-female troops (8–15 members with 1:1.94 male–female ratio), (3) multi-male, multi-female troops, (4) all male bands (2–5 individuals) and (5) lone males (Chetry and Chetry 2009). However, uni-male, multi-female troops or societies are the most stable and common form of social structure, followed by bi-male, multi-female societies (Biswas

2004). Troops are cohesive and both intra- and inter-troop interactions are mostly peaceful. The annual home range is between 10 and 58 ha for diverse social troops in different habitat conditions (Chetry and Chetry 2009) and day path lengths vary from 200 to 700 m.

The golden langur is diurnal. They spend, on an annual basis, 12.8–33% of time feeding, 40–63.1% resting, 6.3–19% in locomotion, 5–11.5% monitoring, 2–3.7% playing and 0.3–6% grooming (Mukherjee 1996; Chetry 2002; Medhi and Chetry 2003; Biswas 2004; Medhi 2004). At night, golden langurs select tall trees of few selected species to sleep in (Biswas 2004).

Golden langur deaths are being attributed to electrocution on power lines, road accidents, and attacks by domestic dogs.

Green leaves (both young and mature) form the major constituent of the folivorous golden langur's diet. Other dominant food items include fruits, seeds, flowers, stem cortex and twigs from >200 plant and tree species. Gum, soil, algae, snails and alcoholic effluence are also important supplements in the diet of golden langurs (Medhi 2004; Biswas 2004). Their primary predators are leopard, wild dog and python (Chetry et al. 2005; Chetry et al. 2018). Their anti-predator response varies according to the predator (Chetry et al. 2007).

In India, its distribution extends over an area greater than 2,500 km², bordered by the rivers Manas in the east, Sankosh in the west and the Brahmaputra in the south (Srivastava 1999). Remarkably, Ram et al. (2016) found that the Aie and Champabati rivers are also acting as natural barriers to migration between golden langur populations in Assam. Its distribution in Bhutan is limited between the Sankosh river and Chamkhar–Mangde–Manas river complex and



covers a range of 4,782 km² (Wangchuk 2005, Lhendup et al. 2018).

In India, the estimated available habitat for the golden langur is 1,255 km². While it primarily inhabits wet evergreen and tropical semi-evergreen forests, it also thrives in sal (*Shorea robusta*) dominated forests and secondary forests. In Bhutan, available habitat is 3,475 km², out of an estimated 4,782 km² potential habitat (Wangchuk 2005). The preferred habitat here is warm broad-leaved forests between 1,000 m and 2,600 m asl, and subtropical forests between 200 m and 1,000 m asl. The golden langur shares its habitat with three other primate species: Assamese macaque (*Macaca assamensis*), rhesus macaque (*Macaca mulatta*) and slow loris (*Nycticebus bengalensis*).

The estimated population size of the golden langur in Bhutan is 6,637 (Wangchuk 2005). In India, Ghosh (2009) and Biswas et al. (2010) observed 5,141 individuals in 566 troops. Thus, the global population of the species is estimated to be >12,000 (Chetry and Chetry 2009; Horwich et al. 2013).

The conservation status of the golden langur, according to the IUCN Red List, is Endangered (Das et al. 2008). The Wildlife (Protection) Act of India (1972) and the Forest and Nature Conservation Act of Bhutan (1995) have classified the animal as a Schedule-I species, and it is an Appendix-I species in CITES. In India, protected habitat is limited to Manas National Park and the Chakrashila Wildlife Sanctuary. The combination of habitat loss and fragmentation have already taken their toll on golden langur populations in India where it is also threatened by encroachment, illegal tree felling, fuel wood collection and cattle grazing (Chetry et al. 2018). Srivastava et al. (2001) reported a 50% loss of original habitat of the species in India.

Due to severe shrinkage and fragmentation, eight isolated populations were wiped out from eight forest patches between 1970 and 1990, all in Assam, India (Choudhury 2002). Moreover, at the human-wildlife interface, golden langur deaths are being attributed to electrocution on power lines and road accidents (Chetry and Chetry 2009) and they are increasingly attacked by dogs.

In Bhutan, the species is better protected, with 50% of its habitat situated within the protected area network, including Royal Manas National

Park, Black Mountain National Park and Phippos Wildlife Sanctuary.

Nevertheless, the species remains under pressure from a myriad of anthropogenic threats including fluctuating land tenure systems, infrastructure development, shifting cultivation and commercial logging (Wangchuk 2005). However, the most severe threat has arisen from the hybridization of the Golden langur with capped langurs as a result of the recently built suspension bridges over the Chamkhar river (Wangchuk et al. 2005; Choudhury 2008; Ram et al. 2016). Alarmingly, 15% of the golden langur population is now hybridised (Wangchuk 2005).

Conservation challenges are likely to increase despite current conservation initiatives. There is no doubt that the local administration and NGOs are working at different levels to address the threats faced by the golden langur. Yet the current situation calls for more effective and continuous conservation action in order to safeguard the golden langur and prevent it from becoming Critically Endangered.

To secure the future of the species, several actions are recommended. Firstly, we advocate for a reform in the protected area network. Specifically, we propose that Bhumeswar Proposed Reserve Forest (PRF), Bamungaon PRF, Nadangiri Reserve Forest (RF), Kakiojana RF and the Sankarhola area under the Bhairabchura PRF should be declared as Community Reserves and directly involve the local community in the conservation of the golden langur. In Assam, the proposed Ripu Chirang Wildlife Sanctuary should be instated as early as possible. Finally, Chakrashila Wildlife Sanctuary along with its adjacent reserve forests such as Sreemang, Kaliragha, Buxamara and Nadangiri Hill should be upgraded to a National Park at the earliest opportunity to ensure the preservation of the golden langur's habitats in India.

Secondly, we propose forest corridors to connect these forest fragments. Specifically, forested corridors should be created between (1) Chirang RF to Bengtoli RF to Manas RF in the northern range of its population, (2) Chakrashila to Abhaya rubber garden to Naddengri RF, (3) Bamungaon to Khoragaon PRF, and (4) Nakkati to Kakiojana RF in the southern range, to provide larger areas for the long-term survival of these populations.

These efforts would be complemented by habitat restoration to reverse habitat loss. In instances where it is not possible to connect fragments by forested corridors, a translocation management plan should be considered, to reinforce remnant populations.

Thirdly, the re-assessment of the current status of the species across its entire distribution is urgently needed. Finally, a recognised and state-sponsored species action plan is needed, which includes the recommendations included here.

GOLDEN LANGUR

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