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Golden Langur *Trachypithecus geei* (Khajuria, 1956) feeding on *Cryptocoryne retrospiralis* (Roxb.) Kunth (Family: Araceae): a rare feeding observation in Chirang Reserve Forest, Assam, India

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The Golden Langur *Trachypithecus geei* Khajuria, 1956 is one of the rarest primates of South Asia. Because of its restricted distribution and numbers, it is listed under Schedule I of the Wildlife (Protection) Act of India (1972), assessed as Endangered on the IUCN Red List (Das et al. 2008), and under Appendix I of CITES. It is a leaf-eating, arboreal, canopy-dwelling langur endemic to India and Bhutan. It is found only in a small pocket of forests of north-western Assam, India and south-central Bhutan at the Indo-Bhutan border. It is distributed in India between the rivers Manas in the east, Sankosh in the west and Brahmaputra in the south.

A rare feeding behaviour of Golden Langur was observed in Chirang Reserve Forest (26.30^0–26.52^{0}N & 90.15^0–90.25^{0}E), Assam, during 2010 on four occasions; two in October and two in December. The Chirang Reserve Forest is bounded on the west by the Saralbhanga River, on the north by the international boundary with Bhutan, on the east by the river Bhur, and on the south it is bounded at present by National Highway 31. The Chirang Reserve Forest is in the buffer area of the Manas Biosphere Reserve and Ripu-Chirang Elephant Reserve.

We observed a group of Golden Langurs feeding on *Cryptocoryne retrospiralis* (family: Araceae) in Samukha River. The group was composed of a total of 10 individuals consisting of two adult males, five adult females, two infants and one juvenile. The langurs would go down to the river, get a portion of the plant, and eat it as they moved on. The feeding bout lasted for two to three minutes, extending up to five minutes. On all these four occasions, langurs were found actively seeking the plant. On exposed stream beds, they would sit digging the plant until a piece was chosen and eaten. Movement to the site was direct, with clear intent. In eight cases, some bits of the plant that had been picked up were tasted, smelled and subsequently rejected. They fed on the stalks, leaves and flowers of the plant. In one instance a male went down to the water to feed on the whole plant (Image 1a). They purposefully fed on this plant species among other aquatic macrophytes. Adult males were the most frequent users of the plant.

Abbreviations: CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora; IUCN - International Union for Conservation of Nature; RF - Reserve Forest.

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Cryptocoryne retrospiralis (Roxb.) Kunth., also known as water trumpet, a submerged herb, is native to India, Bangladesh, Bhutan, Myanmar, Lao PDR, Vietnam and Thailand. It is commonly found all over India as a submerged herb (Gupta 2011). The plant is perennial, occurs mostly in streams and rivers with not too rapidly flowing water, and in lowland forest, where it often forms turf-like communities (Image 1b). The rhizomes of the plant grow up to 1.5cm thick and knotty, with stolons, bearing long, thick, contractile roots, leaves linear to narrowly oblong, narrowly cartilaginous, sometimes minutely toothed near base. Spathe is pale green on the outside, with white spotted purple inside (Image 1c) (Noltie 1994). Flowering of the plants has been observed from November until March. However, this plant species is rare in Chirang Reserve Forest and is localized only in this part of the reserve forest. The water at the locality had a pH of 5–5.4.

Das (2012) reported 91 plant species as food species for Golden Langur comprising both trees and climbers in Chirang RF. Floristic composition of the habitat appears to determine the spectrum of food plant species in their diet. The proportion of foliage in the overall diet of Golden Langur is 70% (Biswas et al. 1996). Consumption of young leaves probably meets the requirement of essential nutrients and protein for langurs because they contain a high percentage of crude protein (Struhsaker 1975; Krishnamani 1994; Kumar & Solanki 2004). Golden Langurs get about 65% of their diet from leaves, 25% from fruits, and 10% from flowers (Das 2012). The selectivity and preferences of primates for specific plant species are viewed as strategies for dealing with the nutrient and secondary compound content variation in these foods (Das 2012). However, it is not clear why the Golden Langur select *Cryptocoryne retrospiralis* to feed on among other aquatic plant species. The chemical analyses have demonstrated that plant parts of *Cryptocoryne* sp. contain carbohydrates, glycosides and alkaloids, and very specifically contain oxofattyacid esters like ethyl 14-oxotetracosonoate and 15-oxocicosanyl 14-oxoheptadecanoate together with hentriacontane (Rastoji & Mehrotra 1980). There are also reports of consumption of *Cryptocoryne* species as greens by the tribes in the Western Ghats of India (Narayanan & Kumar 2007). Ethnobotanically this plant is used locally in medicine (Cook 1996). The fresh tuber paste is applied twice a day for relief from boils and burns (Kamble et al. 2010); used as antiperiodic, febrifuge, tonic, beneficial in infantile vomiting, cough and for abdominal troubles (Chatterjee & Prakashi 2001). Therefore, further investigation is needed regarding the consumption of

Image 1. a - Golden Langur feeding on the *Cryptocoryne retrospiralis;* b - habitat of the plant species; c - inflorescence of *Cryptocoryne retrospiralis*

Cryptocoryne retrospiralis by the Golden Langur.

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