

Chapter 5

Relationship between *Lannea coromandelica* (a garden tree) and *Presbytis entellus*

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ABSTRACT

The population of monkeys is decreasing at an alarming rate, particularly in rural and tribal areas, due to a lack of food. Often, they are seen in urban areas searching for food from different sources. In this aspect, the plantation of fruiting plants for monkeys, particularly the Hanuman langur, is important for their conservation. Keeping this in view, an attempt has been made to observe the feeding habits of hanuman langur (*Presbytis entellus*) in Cuttack and Bhubaneswar cities in Odisha. Survey results revealed that Hanuman Langur consumed the fruits and tender leaves of *Lannea coromandelica* from January to May 2024, as presented in this chapter. The present study recommends more plantations of *L. coromandelica*.

Keywords: Fruiting plants, mammals, monkeys, conservation

Introduction

The relationship between monkeys and fruiting plants goes way back; the incident of Lord Hanuman, an incarnated monkey, trying to eat the sun, thinking it was a mango fruit, is known to all. The monkeys like to consume fruits and disperse the seeds, playing a vital role in many ecological processes (Guchhait *et al.*, 2023; Sharma *et al.*, 2023; Devi *et al.*, 2024). These seed dispersers have a major impact on plant regeneration and diversity in any area (Lambert and Garber, 1998). Seed dispersal directly helps in the afforestation of the ecosystem, especially in forests. In the present time, monkeys are seen roaming the urban streets, picking food from homes, garbage bins, etc., causing conflicts and spreading diseases. Therefore, there

is a need to plant more fruiting plants in urban areas to solve the issues of conflicts and food problems among monkeys. Keeping this problem in mind, a survey was done in the Cuttack and Bhubaneswar cities of Odisha to observe the feeding habits of Hanuman langur and list their preferred fruiting plants. The Hanuman langur, *Presbytis entellus*, is abundant in South Asian countries like India and Sri Lanka. These arboreal animals are naturally found in rainforests and scrublands. They also frequent urban areas and interact with humans, causing conflicts between them. They are listed as the least concern species in IUCN red list categories, CITES Appendix I, and Schedule II in the Wildlife Protection Act 1972 (India). Hanuman langurs, mainly florivores, feed on leaves, flowers, seeds, buds, and fruits (Dular 2015).

Morphology of *Lannea coromandelica*

Lannea coromandelica is a small to moderate-sized tree belonging to the family Anacardiaceae whose bark is light-coloured and smooth in young trees, rough and dark in old ones; branchlets, leaves, and inflorescences scattered to densely stellate hairy. Leaves 10-22 cm long, clustered at the ends of thick branchlets; leaflets 5-9 or more, ovate or ovate-oblong, 6-12 x 2.5-4 cm, entire, acuminate, oblique at base, puberulous beneath; lower smaller leaflets shortly petiolate, upper pairs sometimes sessile, terminal with 2.5-4.5 cm long petiolule. Flowers small, yellowish green, dioecious, 4-rarely 5-merous, fascicled on the rachis of numerous racemes crowded towards the ends of leafless branchlets; inflorescence appearing before the leaves; racemes 7-20 cm long, elonging in fruit. Sepals ovate, ciliate. Petals oblong, calyx 3mm long, acute, pistillode deeply 4-lobed in male flowers. Petals larger, obtuse in female flowers. Staminodes 8. Ovary 4-6-lobed, usually 1-celled. Drupes red, curved, oblong, compressed, 1-1.2 cm long. The flowering season is from March-April and the fruiting period is between April-June. The plant remains leafless from November to May (Saxena and Brahmam 1994).

Methodology

A field survey was carried out to observe the feeding habits of Hanuman Langur in the Cuttack and Bhubaneswar cities of Odisha from January to May 2024. Data were collected from the people living in the cities through semi-structured questionnaires on the timing, frequency, and plants that the Hanuman Langurs prefer. Seeing the feeding pattern of Hanuman langurs, a

literature survey was also done to list the plants preferred by the langurs for consumption. The observed plant, *Lannea coromandelica* was identified by Dr. Sanjeet Kumar.

Observations

In the present study, the feeding habits of Hanuman langurs were observed. The study revealed that Hanuman langurs preferred to consume fruits and tender leaves of *L. coromandelica* till 3 PM (Figure 1-3).

Table 1: Plants preferred by Hanuman langur for consumption

Scientific name	Common name	Family	Part consumed	Source
<i>Aegle marmelos</i>	Indian bael	Rutaceae	Leaves	Present study
<i>Anacardium occidentale</i>	Cashew	Anacardiaceae	Gum and fruits	Ahamed and Dharmaretnam 2003
<i>Artocarpus heterophyllus</i>	Jackfruit	Moraceae	Fruits	Present study
<i>Azadirachta indica</i>	Neem	Meliaceae	Leaves	Ahamed and Dharmaretnam 2003
<i>Bombax ceiba</i>	Red cotton tree	Malvaceae	Flowers	Present study
<i>Buchanania lanzan</i>	Charoli	Anacardiaceae	Leaves and fruits	Present study
<i>Carica papaya</i>	Papaya	Caricaceae	Fruits	Present study
<i>Diospyros melanoxylon</i>	Coromandel ebony	Ebenaceae	Leaves and fruits	Present study
<i>Ficus benghalensis</i>	Banyan	Moraceae	Shoot and fruits	Ahamed and Dharmaretnam 2003
<i>Ficus religiosa</i>	Peepal	Moraceae	Tender leaves and fruits	Present study
<i>Holoptelia integrifolia</i>	Indian elm	Ulmaceae	Fruits	Present study
<i>Lannea coromandelica</i>	Indian ash tree	Anacardiaceae	Ripe fruits	Present study
<i>Madhuca longifolia</i>	Mahua	Sapotaceae	Leaves and fruits	Present study

<i>Mangifera indica</i>	Mango	Anacardiaceae	Fruits	Present study
<i>Musa</i> × <i>paradisiaca</i>	Banana	Musaceae	Fruits	Present study
<i>Phoenix sylvestris</i>	Indian date palm	Arecaceae	Fruits	Present study
<i>Psidium guajava</i>	Guava	Myrtaceae	Fruits	Ahamed and Dharmaretnam 2003
<i>Samanea saman</i>	Rain tree	Fabaceae	Leaves	Ahamed and Dharmaretnam 2003
<i>Syzygium cumini</i>	Jamun	Myrtaceae	Fruits	Present study
<i>Tamarindus indica</i>	Tamarind	Fabaceae	Leaves and fruits	Present study
<i>Terminalia catappa</i>	Indian almond	Combretaceae	Leaves	Ahamed and Dharmaretnam 2003
<i>Ziziphus mauritiana</i>	Indian jujube	Rhamnaceae	Leaves and fruits	Present study



Figure 1: Hanuman langur family feeding on fruits of *L. coromandelica*



Figure 2: Hanuman langur consuming the fruits of *L. coromandelica*



Figure 3: Hanuman langur consuming the fruits and young leaves of *L. coromandelica*

The langurs were also found to throw the seeds of *L. coromandelica* after consumption and the consumed seeds passed through faeces facilitating afforestation of the plant. From the literature study and present study, some of the fruiting plants preferred by the langurs were *Mangifera indica*, *Psidium guajava*, *Ficus benghalensis*, *Bombax ceiba*, etc. and others are listed in Table 1. The people said that due to the unavailability of fruiting plants in the urban areas, the langurs sometimes come into the houses to take food.

Conclusion

From the study, it was concluded that the Hanuman langur preferred to consume the fruits and young leaves of *L. coromandelica* in urban areas. They also feed on fruits of many different plants available in the cities. However, there is the unavailability of fruiting plants in the urban areas mainly due to urbanization, construction of houses and factories, etc. leading to the movement of langurs to the houses in the urban cities causing human-monkey conflicts. These conflicts harm both the monkeys and humans but, sometimes cause deaths of the monkeys. Therefore, to conserve the population of Hanuman langur, there is a need for more plantation of *L. coromandelica* and other fruiting plants in the urban areas.

Recommendations

Seeing the preferable consumption of fruits and tender leaves of *L. coromandelica*, the authors recommended more plantation of *L. coromandelica* trees in the urban areas to not only provide food to the monkeys but also increase their population in the cities.

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