Life in transit: habitat use, behavioural profile and feeding ecology by Nilgiri langur (*Semnopithecus johnii*) in a fragmented evergreen habitat of the Anamalai Tiger Reserve, Western Ghats, India

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Primates in fragmented habitats show behavioural flexibility and adaptive changes in response to ecological challenges in the search for food resources within their home range. Nilgiri langurs (NL, *Semnopithecus johnii*), endemic to the Western Ghats, face anthropogenic pressures, including habitat modifications. To understand its behavioural profile, feeding ecology and habitat use in such habitat conditions, we observed NL in a forest fragment in the Anamalai Tiger Reserve, India. Their daily path length, though shorter in the dry season, did not significantly vary seasonally. The home range in the dry season, though smaller than in the wet season, was more intensively used in the dry season, indicating the patchy distribution of food sources. They fed on resources from 23 plant species, largely from *Elaeocarpus munronii*, *Ficus* sp. and *Cullenia exarillata*, with leaves being their primary diet. Most of the time the langurs spent on resting which is a typical trait of folivorous colobines to digest the leaves with the cellulose wall. In response to disturbances such as firewood extraction and increased tourism, they shifted habitat use from the understorey and middle canopy to intensive use of the upper canopy (>15 m). These findings suggest management interference in these forest fragments and highlight the need for a proper conservation plan.

Keywords: Daily path length, habitat usage, resource availability, socioecology, time activity patterns.

HABITAT loss and distu[illegible] mentation[3], understanding how they persist within a fragmented habitat becomes crucial. Primate social environments are highly dynamic, changing dramatically over an individual's lifetime. The ability to rapidly adapt their behaviour in response to new ecological and demographic challenges determines which species, or their populations, will survive[4].

Under the influence of human-induced changes, a key focus of primate studies has been to understand the influence of food resources on the ecology and distribution of primates[5]. The availability of food resources varies spatially and temporally across different ecological settings. For instance, in winter, many primates prefer to feed on protein–rich plant parts[6,7]. In response to such variations, primates traverse their home ranges to obtain sufficient food to meet nutritional requirements[5,8], selecting optimal diet and travel routes[9–13]. Highly arboreal and leaf-eating monkeys often show specialised foraging strategies, such as leaping large distances in the forest canopy, to minimise the costs associated with resource acquisition[14–16]. Understanding such patterns of movement and habitat use provides valuable information for conservation management[17–19], particularly in fragmented landscapes.

Nilgiri langurs (*Semnopithecus johnii*), endemic to the Western Ghats, represent one such species struggling with habitat fragmentation[20,21]. With a population of fewer than 10,000 individuals, they are accorded the status of 'Vulnerable' by the IUCN Red List[22], and protected under