

## Selection of Plants Species Hanuman Langurs (*Semnopithecus Entellus*) as Food in Chitrakoot Forest Range of M.p.



### Science

**KEYWORDS:** folivores langurs home range provisioned food arboreal

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### ABSTRACT

*Food and water are the basic requirements of life. Each organisms obtaining food in a specific form depending upon its genetic potentials. The availability of food influenced the troop home size in the focal troops. When food available in plenty, home range tend to decreased and when food available in scared the home range increased.*

### Introduction;

*Semnopithecus entellus* is commonly known as the Hanuman langur and distributed throughout India. Hanuman langurs is listed as the least concern species in IUCN red list categories, CITES Appendix I and schedule II in wildlife protection Act 1972 (India). Hanuman langurs are mainly folivores, feed on leaves, flowers, seeds, buds and fruits. However some literature proof that Hanuman langurs consume insect pupae on leaves and eggs of nesting birds 1973, Rahaman. Hanuman langurs are present everywhere in Chitrakoot especially in Hanumandhara Kamtanath, Satianusuiya, Gupt-Godavari and Sphatikshila. All of these Hindu religious places, except these places, langurs are also found in roadsides trees and villages. *Semnopithecus entellus* has invaded agriculture areas and causes losses to the farmers.

### Study Area;

A field study of *Semnopithecus entellus* was conducted in Chitrakoot forest as well as religious places. The study area constitutes about 57868.496 ha. which is surrounded by Hills and Mountains. The average total rainfall of about 1024.8 mm. Chitrakoot forest is mostly mixed, the *Boswellia serrata* (Salai), *Acacia catechu* (Khair), *Bamboo spp Anogiessus pendula* (Kardhai) are sub types occur as small patches within the mixed forest. All plants species does not lose their leaves at the same time. A detailed floristic study of Chitrakoot region has been carried out by Sikarwar, 2003-2008 and found that there are about 750 species, 445 genera and 111 families of flowering plants found in Chitrakoot. out of 750 species, 76% belong to dicot and 24% belong monocot.

### Methodology;

We used visual animal sampling method to record on feeding behavior. With the help of direct observation of langurs feeding on plants parts like stem, leaves, flowers etc., made a table in the field. We examine the utilization of different food plant by Hanuman langurs opportunistically in the study area. overall 30 plants species were utilized by Hanuman langurs during the study period.

### Result;

The hanuman langurs is mainly folivorous, but they obtain food to raid on cultivated fields, gardens, orchards and they also get provisioned food by the tourist. The food resource of langurs at chitrakoot is seasonal in their availability and leaves are the major portion of their diet. In adverse condition they fed on bark of the bamboos. In chitrakoot there are 30 plant species used by hanuman langurs in their diet (See Table no 1). Except these some of the provisioned food like Chana, Lai, Biscuits, Laddu, Chapati, Banana, Guava, and Mango are frequently fed by peo-

ple. Some provisioned items available in all months while the others are seasonal. It was observed that the availability of food is also affect the home range of troops, if the food is available in it's home range, then they get enough food near by and they did not travel a long distance to search of food, thus their home range is decreased. On the other hands if the food available is less quantity, then langurs travel more distance in search of food and thus the home range increased. The home range of hanuman langurs is also affected by provisioning because chitrakoot is famous and historical hindu religious place, so a lot of pilgrims come to here from the different region of the worlds. They provide provisioning food in to the langurs. In some places of chitrakoot such as Hanumandhara, Godavari, SatiAnusuiya and Kamadgiri the provisioned food available in high quantity. It is an important part of langur diet, it ranges maximum in December and January and minimum in May and June. Availability of provisioned items in these places langurs get more food within the home range which stop their travel so their home range is also decreased. In chitrakoot the Hanumandhara langurs troops get more provisioned food items round the year, thus their home ranges are also minimum in comparison to other troops. During study period, it was observed that the food resource is one of the major factors which are responsible for group competition. In Sati Anusuiya one troops are located and they are feeding natural plants as well as provisioned items provided by tourist, it was noted that the dominant rank first eat the provisioned items given by tourist, but during natural feeding the dominant behaviour was less because at this site the natural food resources in plenty, but when climatic condition is unfavourable, the natural food resources is scarcity the competition has increase between the groups.

**Table 1; Utilization of plant species as food by hanuman langurs (*Semnopithecus entellus*) in Chitrakoot forest Range between August 2011 and September 2012.**

S. No.	Botanical Name	Local name	Family	Habit	Parts Consumed
1	<i>Acacia indica</i>	Babool	Mimosaceae	Tree	Leaves
2	<i>Azadirachta indica</i>	Neem	Melaceae	Tree	Leaves
3	<i>Ficus racemosa</i>	Umar	Moraceae	Tree	Leaves & Fruits
4	<i>Ficus bengalensis</i>	Barjad	Moraceae	Tree	Leaves & Fruits
5	<i>Diospyros melanoxylon</i>	Tendu	Ebenaceae	Tree	Leaves & Fruits
6	<i>Ficus religiosa</i>	Pipal	Moraceae	Tree	Tender Leaves, & Fruits
7	<i>Meduca longifolia</i>	Mehus	Sapotaceae	Tree	Leaves & Fruits
8	<i>Mangifera indica</i>	Aam	Anacardiaceae	tree	Flower, Fruits & Seeds
9	<i>Syzygium cumini</i>	Jamun	Myrtaceae	Tree	Fruits
10	<i>Tamarindus indica</i>	Imli	Caesalpinaceae	Tree	Leaves & Fruits
11	<i>Aegle marmelos</i>	Bel	Rutaceae	Tree	Leaves
12	<i>Anthocephalus chinensis</i>	Kodamb	Rubiaceae	Tree	Fruits
13	<i>Holoptelea integrifolia</i>	Chila	Ulmaceae	Tree	Fruits
14	<i>Lannaecoromandelia</i>	Gurja	Anacardiaceae	Tree	Ripe fruits
15	<i>Prosopis juliflora</i>	Vilayti babool	Mimosaceae	Tree	Leaves, Pods & Seed
16	<i>Psidium guajava</i>	Aamrood	Myrtaceae	Tree	Leaves & Fruits
17	<i>Terminalia arjuna</i>	Kaulhus	Combretaceae	Tree	Dry fruits & Tendril Leaves
18	<i>Ziziphus mauritiana</i>	Ber	Rhamnaceae	Tree	Leaves, Fruits & Seed
19	<i>Lantana camara</i>	Gadhaeli	Verbenaceae	Shrub	Leaves & Flower
20	<i>Caricacappaya</i>	Papita	Caricaceae	Shrub	Fruits
21	<i>Carissa carand</i>	Karodha	Apocynaceae	Shrub	Fruits
22	<i>Cassia obtusifolia</i>	Chikauda	Caesalpinaceae	Herb	Leaves, pods and seeds
23	<i>Celastrus paniculatus</i>	Malkangni	Celastraceae	Shrub	Fruits
24	<i>Chenopodium album</i>	Bathua	Chenopodiaceae	Herb	Leaves
25	<i>Clerodendrum serratum</i>	Bharangi	Verbenaceae	Shrub	Fruits
26	<i>Cucumis melo varagresif</i>	Senda	Cucurbitaceae	Herb	Fruits
27	<i>Cuscuta reflexa</i>	Amarbel	Cuscutaceae	Herb	Stem
28	<i>Ziziphus nummularia</i>	Makoya	Rhamnaceae	Shrub	Fruits
29	<i>Thevetia peruviana</i>	Kaner	Apocynaceae	Shrub	Androecium
30	<i>Tinospora</i>	Gilos	Menispermaceae	Climber	Fruits and

**Discussion**

Majumder et al. 2010, our found that 50 plant species were utilized by hanuman langurs in Pench Tiger Reserve, Madhya Pradesh, while the Hadi et al. found that Presbytis potenziani utilized 118 food plant species in his study. On the other hand Ahsan and Khan 2006, observed the hanuman langurs of Keshabpur (Bangladesh) consumed food from over 60 plants species of natural and cultivated plant. We observed the utilization of different food plant species by hanuman langurs in the study area and found that langurs spend maximum time of feeding, and they utilized 30 plant species and their various parts (leaves, fruits, flowers, barks, stem, and petiole) for their diet. Hanuman langurs mostly arboreal animal, they spend most of the time on tree, but we opportunistically found that some times hanuman langur sitting on ground and eats seeds of Pueraria tuberosa (Bidarikand) tree, and provisioned food items provided by pilgrims. This finding is similar to that reported earlier by Majumder (2010). It was also observed that the langurs used different techniques to intake food items, generally they picked up, hold and ate the food from the hands and sometime they picked and put directly in to the mouth or some food items such as jackfruit or other large fruits they ate directly from trees. Hanuman langurs does not eat whole part of the plants, but they utilized some portion such as mature leaves of Lantana camara, fruits apex of Syzygium cumini (Jamun), bark of bamboos, stem of sugarcane and ripe fruits of Lannaecoromandelia. Sayers and Norconk, 2008 our study showed that in winter season hanuman langurs mostly utilized leaf buds of Cotoneaster frigidus and Sorbus cuspidate and ripe fruits, but in Chitrakoot forest range we do not found these plant species.

**Conclusion;**

The hanumans of chitrakoot consumed food from 30 plants species of natural and cultivated plant, in addition to the provisioned food either offered by pilgrims or stolen from them by the hanumans. It was also observed that the hanumans eat a lot of cultivated crops such as gram, pea, carrot, cabbage, brinjal etc.

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