Selection of Sleeping Sites by Hanuman Langurs in Chitrakoot Forest Range of Madhya Pradesh, India

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Abstracts: Selection of sleeping sites by Hanuman langurs (Semnopithecus entellus) were studied by in Chitrakoot forest range Madhya Pradesh India, from January 2012 to December 2012. For this study we selected three troops (two bisexual and one all male bands). The entire studied troop used large tree species, with have numerous branches straight trunk and dense canopy, for roosting. Total 16 plant species were used by langurs for sleeping site. During rainy and cold season the Hanuman langurs sleep in cave and old heritage building and temple. During rainy and cold season the Hanuman langurs sleep in cave and old heritage building and temple.

Key words: Hanuman langurs, altitude, troops.

1. Introduction

Langurs are leaf-eating, tree-residing, forest-dwelling monkeys. They are regarded as among the most arboreal of all Old World monkeys. They are active throughout the tree canopy and can be found in both primary and secondary forests.

Langurs are one of the most fascinating non-human primates. Besides their importance in the fields of agriculture and medicine, the study of these animals has a close bearing on the understanding of human, social and psychological problems. The non-human primates are represented with 63 genera and about 600 species or subspecies in some 92 countries of the 25 species of these animals recorded from the Indian sub-continent, three, namely, the rhesus macaque (Macaca mulatta), the bonnet macaque (Macaca radiata) and the Hanuman langur (Semnopithecus entellus) have become urbanized (Raju Purohit, 2005). They occupy geographically vast areas and are found in thick forests from desert edge to rainforest and mountain scrub at some 92 countries of the 25 species of these animals recorded from the Indian sub-continent, three, namely, the rhesus macaque (Macaca mulatta), the bonnet macaque (Macaca radiata) and the Hanuman langur (Semnopithecus entellus) have become urbanized (Raju Purohit, 2005). They occupy geographically vast areas and are found in thick forests from desert edge to rainforest and mountain scrub at

2. Material and Methods

2.1 Study Area

The study site is situated in the border of Chitrakoot District of U.P. in North and East and partially West; while Majhgawan Range of Satna District of M.P. in South; Barondha Range of Satna District M.P. in West. Chitrakoot is the most historical and religious Hindu's place of India and surrounded by lush green hills of legendary Vindhyachal range. In Chitrakoot have many natural historical caves, streams, lakes and different types of flora & fauna. Therefore the Chitrakoot has been sacred place of worship for sages and hermits since antiquity. The general topography of Chitrakoot is hilly and undulating cut off by numerous reveres and rivulets. Chitrakoot is situated in the close vicinity of the tropic of cancer is land locked, so in this place a typical tropical climate condition occur. In Satna districts there are about 170,201.46 hectare forest area out of them about 34% forest areas in Chitrakoot region. The forest area is Chitrakoot is mainly mixed. In this type of forest most of their trees remain leafless for several weeks in dry season.

2.2 Methods

We used visual focal sampling method to record on sleeping site of hanuman langurs. With the help of direct observation method we identified their sleeping site and trees used by them and made atable in the field. Overall 15 plant species were utilized by Hanuman langurs during the study period. The focal group periodicaly from morning till the time they settled on specific locations and by recording presence of fresh faecal pellets of langurs under such locations. Each focal group of Hanuman langurs was followed for three consecutive days each month from January 2012 to December 2012. Of the total 125 days, sleeping sites could be identified only on 28 occasions of monitoring official groups from morning till evening. On rest of the days, particularly during monsoon season, the observer lost the sight of focal groups and hence data regarding their sleeping sites could not be obtained. Whether or not the same sleeping site was used for consecutive nights could be discerned on the basis of the amount of faecal patches and characteristics of faecal...
distribution. The geographical location of sleeping sites was determined with hand-held GPS and the height of trees used as ‘sleeping sites’ was measured with Hypsometer.

2.3 Study group

Initially, a thorough survey of Chitrakoot forest range was carried out and in all, 14 troops of Hanuman langur (13 Bisexual groups, & 1 all male band) were found. Of these, three groups, i.e., Kamarantah hill troop (S1), Hanumandhara Troop (S2) and Semariya turn Band (S3) were selected for the detailed study. The troops S1 and S2 were ‘multi-male bisexual’ troops while S3 was an ‘all-male’ band. These troops inhabited different habitats with the same range of climate, rainfall, topography, but different in altitude, plantation and with respect to human interference.

Table 1: Location of types of langur troops, habitats used with / without human interference by them, predominant trees and availability of their possible predators in Chitrakoot Forest Range

<table>
<thead>
<tr>
<th>Types of troops &amp; its size</th>
<th>Type of habitat occupied with/without human interference (Altitude (Latitude, Longitude))</th>
<th>Dominant tree</th>
<th>Predator presence in the study troop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisexual troop S1 (59)</td>
<td>Forest area having crop land nearby (with Temple and human interference) 190m 80°50’59.3” &amp; 25°10’24.1”</td>
<td><em>Anogeissus pendula</em>, <em>Mitragyna parviflora</em>, <em>Acacia catechu</em>, <em>Ficus religiosa</em>, <em>Ficus arremonosa</em>, <em>Diospyros melanoxylon</em>, <em>Terminalia arjuna</em>, <em>Vilayti babool</em> (<em>Azadirachta indica</em>), <em>Ber</em> (<em>Ziziphus mauritiana</em>) and <em>Mahuja</em> (<em>Madhucalongoifolia</em>).</td>
<td>Dhol, Jakal, Dog</td>
</tr>
<tr>
<td>Bisexual troop S2 (102)</td>
<td>Forest area having crop land nearby (with temple &amp; human interference) 206m 80°53’0.3” &amp; 25°09’24.1”</td>
<td><em>Diospyros melanoxylon</em>, <em>Dendrocalamus strictus</em>, <em>Acacia catechu</em>, <em>Ficus religiosa</em>, <em>Diospyros melanoxylon</em>, <em>Azadirachta indica</em></td>
<td>Dhol, Jakal, Dog</td>
</tr>
<tr>
<td>Bisexual troop S2 (102)</td>
<td>Forest area having crop land nearby (with no human interference) 157m 80°50’31.7” &amp; 25°07’31.7”</td>
<td><em>Acacia nilotica</em>, <em>Indica</em>, <em>Azadirachta indica</em>, <em>Ficus religiosa</em>, <em>Mangifera indica</em>, <em>Aegle marmelos</em>, <em>Ziziphus mauritiana</em>, <em>Ziziphus nummularia</em>, <em>Ficus benghalensis</em>.</td>
<td>Jakal, Dog, Fox</td>
</tr>
</tbody>
</table>

3. Result and Discussion

During the study period, the sleeping sites and plant species used for roosting by Hanuman langur (*Semnopithecus entellus*) were recorded. At the evening when sunset, all individuals of each troop would gather around the ground and at the onset of darkness, they would climb the trees for sleeping. All the individuals of studied troop used large trees species, with numerous branches straight trunk and dense canopy, for roosting. Total 16 tree species, namely, *Mahuja (Madhucalongoifolia)*, *Neem (Azadirachta indica)*, *Tendu (Diospyros melanoxylon)*, *Bargada (Ficus benghalensis)*, *Aam (Mangifera indica)*, *Safeda (Eucalyptus globulus)*, *Khair (Acacia catechu)*, *Siris (Albiziiaceae)*, *Jamun (Syzygium cumini)*, *Salai (Boswellia serrata)*, *Imli (Terminalia arjuna)*, *Vilayti babool (Prosopis juliflora)*, *Cheed (Pinus roxburghii)*, *Peepal (Ficus religiosa)* and *Umar (Ficus racemosa)*were used as sleeping trees (Table 2). To study the table it was show that the Hanuman langur’s different focal troop used different plant species for roosting but it was similar to all troop they used tallest plant species for sleeping. Average height of sleeping tree was 17.3m (range 7-28m). The individuals of a troop usually used one large tree or combination of some high trees and 2-3 small trees close to each other. This combination play ant import ant role in protection of the troop during attack by predator as the langurs can jump from one branch to another branch and thus protect itself from natural predator. During rainy and cold season the Hanuman langurs sleep in cave and old heritage building and temple. It is possible that variation in microclimate affect choice of sleeping sites in langurs. Strong wind also disturb them. The sleeping trees of Hanuman langurs were well protected from strong wind and that changes in wind direction could influence choice of sleeping site. During summer months, the langurs’ used to sleep on high trees to avoid the excessive heat during the months of May and June. In present investigation it was observed that the Hanuman langur’s troop of Kamarantah hills selected the same tree for 5 nights of observation. Many factors influence the selection of sleeping site by Hanuman langurs such as protection from predators, accessibility to water and food sources, physical comfort in terms of shelter from cold wind and rain, avoidance of biting insects, parasite avoidance and human disturbance. In Kamanath hill (S1) and Hanumandhara (S2) langurs troop during rainy season used tree near temple or in which place where permanent shelter constructed. At the time of crop harvesting, S3 troop living in the vicinity of crop fields, shifted to the trees near the crops fields to raid them for food. When chased by the farmers and their pet dogs, the individuals repeatedly reverted to the roosting sites. During extreme hot weather it was observed that all study troop shifted to the trees around

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natural or man-made water sources. It was concluded that the Hanuman langurs usually change our sleeping site due to the disturbance by the predators and human being.

Table 2: Sleeping sites, sleeping trees and their heights for the three focal troops in Chitrakoot forest range

<table>
<thead>
<tr>
<th>Types of troop</th>
<th>Sleeping site</th>
<th>No. of trees in sleeping site</th>
<th>Plant Species used as sleepingsites</th>
<th>Approximate height of trees (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamanathan hills (S1)</td>
<td>A</td>
<td>3</td>
<td>Anogeissus pendula, Anogeissus latifolia, Ficus benghalensis</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>3</td>
<td>Mitragyna parvifolia, Madhuca longifolia, Ficus religiosa</td>
<td>12</td>
</tr>
<tr>
<td>Hanuma--ndhara Troop(S2)</td>
<td>C</td>
<td>2</td>
<td>Ficus racemosa, Tamarindus indica</td>
<td>13</td>
</tr>
<tr>
<td>Semariyaturn Troop (S3)</td>
<td>D</td>
<td>3</td>
<td>Mangifera indica, Azadirachta indica, Diospyros melanoxylon,</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>3</td>
<td>Prosopis julifolia, Acacia catechu, Acacia nilotica, Indica</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2</td>
<td>Azadirachta indica, Ficus benghalensis, Mangifera indica, Ziziphus nummularia</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>2</td>
<td>Azadirachta indica, Bulnesia serrata, Cheesemaria serrata,</td>
<td>15</td>
</tr>
</tbody>
</table>

References


