Rhesus macaques prefer large fruits: Study

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By Sridhar Vivan Sridhar Vivan , Bangalore Mirror Bureau | Jan 12, 2016, 07.53 PM IST

It's common to encounter them at pilgrim places, trying to snatch away fruits from the visitors

The large, red-faced, rather scary rhesus macaque (Macaca mulatta) is a species of monkey a lot of us have encountered. The primate is highly adaptable, and eats almost anything - fruits, small leaves and human food. In the context of forests, the fruit-eating habit of primates makes them ecologically important as seed dispersers.

Studying what kind of fruits primates prefer can reveal their importance in this important activity of seed dispersal, and in turn the impact the primates can have on forest dynamics.

Asmita Sengupta and Sindhu Radhakrishna from the School of Natural and Engineering Sciences, National Institute of Advanced Studies (NIAS), undertook a study at the Buxa Tiger Reserve in West Bengal to explore this further. The researchers chose a group of monkeys near the Checko Timber Depot in the buffer zone of the reserve.

The study group comprised 18 males (9 adults and 9 juveniles), 21 females (11 adults and 10 juveniles) and 2 infants. These monkeys were completely dependent on natural resources.

"The broader aims of this project were to look at how seasonal fruit availability, fruit characteristic preference of the macaques themselves and human interference in the form of providing food subsidies to the macaques influenced seed dispersal effectiveness of rhesus macaques", said Sengupta.

At Buxa, there were enough macaque groups that were completely dependent on the forest - a rarity, because human interference in the form of providing food, accidentally or on purpose, is common. "Buxa was also logistically convenient. A number of researchers had worked there before us, so setting up a base was rather convenient and we had highly experienced field assistants also," she added. The study was carried out between July 2012 and June 2013. Individuals were observed for snapshots of 30 minutes, to note various aspects of their feeding behaviour -- like which parts of the fruits they fed on, and whether the seeds were eaten or not. For each month, the researchers calculated the amount of fruit available, and the physical characteristics of the available fruits. The monkeys ate 43 out of 80 observed species of fruits. The period from May to September was estimated to be the months during which fruit availability was high.

Macaques seemed to eat all kinds of fruits, which varied in terms of pulp, seed and whether the fruit was protected by a hard covering, for example. However, they seemed to prefer large fruits with good fruit protection and medium-large seeds. The chaplash (Artocarpus chaplasha) was the fruit that was most preferred throughout the year. They also showed preference to fruits with juicy edible tissue that could be pierced with a fingernail, and did not often eat dry fruits with little or no pulp. "I observed that usually

juveniles avoided feeding on fruits with harder covers such as Dillenia indica. For Artocarpus chaplasha, I observed that even within the same tree, the juveniles usually fed on smaller fruits as compared to adult individuals. I have not recorded any sex based variations,"said Sengupta.

Within primate troops, there are usually hierarchies, with dominant individuals that exert more 'control' over others and subordinate individuals. "While the dominant individuals fed on fruits for a longer period of time sitting on the same tree, I believe subordinate individuals may be more important for long distance dispersal as they would store larger number of fruits in their cheek pouches, move away from dominant individuals and spit out the seeds away from the parent trees," said Sengupta.

The rhesus macaque is more tolerant of human disturbances than many species of birds or bats which are also known to be important seed dispersers. Thanks to this and the fact that these monkeys preferentially disperse seeds of large fruits, the researchers concluded that they may have a significant role to play in seed dispersal in forests. This is in opposition to the common view that macaques in general tend to destroy seeds. They are also capable of dispersing a wide range of fruit species, even though soft, juicy fruits are preferred.

Are these results specific to these monkeys in Buxa Tiger Reserve? "Fruit trait preference is measured in terms of fruit availability. At sites with varying plant community compositions, fruit availability and hence, preference measures might differ. But I do think that the results will remain similar with respect to implications for seed dispersal i.e. juicy fruits with easily removable pulps would be dispersed whereas those without any discernible pulp or dry pulp would be destroyed,"says Asmita. This paper appeared in the International Journal of Primatology, in October 2015.