Primates of the Amarkantak Forests, Madhya Pradesh

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Abstract

In the Amarkantak forests, Madhya Pradesh, we are monitoring primates (Langur and Rhesus monkey), in both disturbed and undisturbed forest sites to determine if extraction of forest resources has a significant impact on the populations of these species. To test the sensitivity of primate species to routine extraction of natural resources by local villagers, we compared population demography and density for both the species in different localities. Population densities at each site and estimates of population size across the entire forests was calculated and used to evaluate the design of a new biosphere reserve in the area, and to ensure that it will be large enough to support viable populations of these threatened primates.

Introduction

Most primates live in tropical, developing countries and humans compete with them for resources. In many parts of the world, primates are exploited for food, 'medicine', and commercial trade, besides being killed or poisoned, for being crop raiders. The alarming rate of worldwide tropical forest destruction is estimated to be 200 acres per minute. Over 40% of the 234 primate species are threatened with extinction and 13 of these species are critically endangered and may disappear within the next few years if greater efforts aren't made to protect them (www.primate.org).

Madhya Pradesh is one of the major forest rich states in the country, with 25 Wildlife Sanctuaries and 9 National Parks (Anon., 2000). Recently, the Pachmarhi forest area has been declared as a Biosphere Reserve, and there is a proposal to declare the Amarkantak forests also as another Biosphere Reserve in the state. Various research studies have been initiated in the Amarkantak forests to assess the suitability of the area for its declaration as a Biosphere Reserve. This brief report on the primates of Amarkantak is part of such research studies.

The study aimed to access the impact of forest product extraction on the population status and conservation of two primate species in the Amarkantak forests, to help managers in designing the Biosphere Reserve and Forest Management Zones for the region. The study further aims at long-term monitoring trends in the population dynamics of primates, as indicator species for a better understanding of the influence of forest product extraction on forest ecology.

Study Area and Census Methods

The study was conducted in the Amarkantak forests located in the Shahdol district. The

Amarkantak range is spread over an area of 835 km^2 with 2 circles namely Amarkantak circle (336 km^2) and Bhundocona circle (499 km^2).

Primate census was conducted following Merenlender ***et al.*** (1998). This method relies on repeatedly identifying social groups, and obtaining demographic data on all the identified groups.

At most sites, data was collected on pre-existing trails (marked at 50 m intervals) that had either been created by villagers for forest product extraction, or by researchers working in the area. However new trails were also cut afresh wherever needed. The team consisted of a researcher and 2 villagers who were trained in data collection. Each trail was surveyed from early morning to early afternoon, at a slow pace. During the census period, all detectable groups were identified to count total numbers and determine the age, sex classes (adults, juveniles, and infant females and males) whenever possible. Information was also collected on: total groups, closest trails, approximate distance from the trail marker to where the animals were found, and details on feedings and behaviour. Data collections were repeated 5–8 times at each site, over 3-day periods.

Results

Amarkantak Forests

The forests of the Amarkantak plateau represent tropical moist deciduous forests. The valleys have Sal (***Shorea robusta***) as the dominant species. The vegetation abruptly changes to mixed forests on the plateau and slopes. According to a study conducted by the State Forest Research Institute on vegetation characteristics during 1995 in Amarkantak range, a maximum of 48 tree species (density of 1269 trees/ha.), the plains with 24 species (1354 trees/ha), and 24 species on the slopes (density of 1274 trees/ha) were recorded. ***Shorea robusta*** (sal), ***Terminalia bellerica*** (saja), ***Emblica officinalis*** (aonla), and ***Madhuca indica*** (mahua) regenerated profusely compared to ***Syzigium cumini*** (jamun) and ***Meliusa velutina*** (kari).

Primate Species

Only 2 primates species have been recorded from the Amarkantak range: the Common langur (***Semnopithecus entellus***) and the Rhesus macaque (***Macaca mulatta***), and their population estimates have been provided in Table 1.

Table 1. Primate Populations in Amarkantak Forests

S. No.	Site	Species	Group size	Location*
1.	Forest School	CL	26	1 km North
2.	Sonumura	CL RM	30 15	3 km East
3.	Shambhudhara CL	28 RM	28 28	3 km North
4.	Rudraganga	CL	25	3 km East
5.	Kapildhara	CL	36	5 km West
6.	Kabir chabutra	CL	30	5 km South

*Distance from Amarkantak village

CL: Common langur, RM: Rhesus macaque

Human Activities

This study has identified 4 major types of human disturbances, which are likely to affect the primate habitat (Table 2). These are:

1. Mining: In Amarkantak forests 2 mines belonging to HINDALCO and BALCO, extract bauxite by the open cast mining technique. At present only HINDALCO is extracting bauxite while the other is closed. Mining activity involves cutting down natural forests, which are substituted through mandatory monoculture plantations using eucalyptus and some fruit trees. However, even these species don't grow, due to heavy grazing pressure in the area. Mining activities are present in 2 study sites: 3 and 5 (Table 2).

2. Tree felling: Large-scale felling of trees was found at 4 study sites (Table 2). Besides this, due to heavy infestation by sal borer (***Hoplacerambix spinicornis***) since 1998, the Forest Department had to cut around 20,000 affected trees.

3. Pressures of Pilgrimage, Tourist and Road Traffic: Amarkantak forests attract thousands of tourists, especially during Shivratri and Dussehera, which, has lead to the damage of these forests and road accidents; with an average 2–3 langurs dying in road accidents every month.

4. NTFP Collection: People residing in and around Amarkantak forests collect various non-timber forest products (fuel wood, fodder, fruits, gums, seeds, and medicinal plants) for their daily subsistence. Surplus collections are also sold in the local market for a livelihood.

Table 2. A profile of the human activities in Amarkantak forests

S. No.	Site	Human activities					
		Mining	Tree felling	Pilgrimage	Tourist	Road Traffic	NTFP Collection
1.	Forest school	–	+	–	–	–	–
2.	Sonmura	–	++	+++	+++	+++	+
3.	Shambhudhara	++	++	+	+	–	+++
4.	Rudraganga	–	–	+	+	+	+
5.	Kaildhara	+	+	+++	+++	+++	++
6.	Kabirchabutra	–	–	++	+	+	+

–Absent, +Low, ++Medium, +++Heavy

Conclusion

Humans who damage their habitat and are also involved in commercial hunting for food and pets threaten primates in Amarkantak forests. A primate group size is often associated with resource distribution and abundance (Chapman, 1990). Primate groups found in disturbed or marginal forests may be smaller when available resources are limited, or larger if regenerating forests produce increased food resources (Ganzhorn, 1988, Olupot ***et. al***., 1994). Primates in Amarkantak forests suffer from 2 major threats: a) fragmentation and loss of habitat due to conversion of forests for mining and b) high level habitat alteration following selective extraction of timber and non-timber forest products which adversely affects primate populations.

It is recommended that the area be declared

a Biosphere Reserve and an overall Conservation and Resource Management Strategy be prepared for the entire Amarkantak Biosphere Reserve.

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