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Status and Diversity of Temple Primates in Northeast India

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Abstract: The northeastern region of India, comprising the seven states of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura, has the highest primate diversity of the country. There are numerous populations of primates living in and around the temples of the region but none have been documented. Of the 17 primates found in India, 11 occur in the tropical and subtropical forests of these northeastern states. A primate survey was carried out from April 2003 to October 2003 in Assam, Arunachal Pradesh, Manipur, and Tripura to assess the status and diversity of temple primates. We found 16 temple sites in the region that support nonhuman primate populations of four species: Rhesus macaque (*Macaca mulatta*), Assamese macaque (*Macaca assamansis*), golden langur (*Trachypithecus geei*), and capped langur (*Trachypithecus pileatus*). Loss of natural habitat and increased conflict between humans and nonhuman primates were found to be major threats for the temple primates of the region. The study suggests the need for a special conservation program with community initiatives to mitigate these problems.
Key Words: Northeast India, temple, primates, habitat loss, human-primate conflict

Introduction

Northeast India has as many as 11 species of primates, surpassing all other areas of India in terms of primate diversity. They include the rhesus macaque (*Macaca mulatta*), Assamese macaque (*Macaca assamensis*), stump-tailed macaque (*Macaca arctoides*), northern pigtailed macaque (*Macaca leonina*), Arunachal macaque (*Macaca munzala*), golden langur (*Trachypithecus geei*), capped langur (*Trachypithecus pileatus*), Phayre's leaf monkey (*Trachypithecus phayrei*), slow loris (*Nycticebus bengalensis*), western hoolock gibbon (*Hoolock hoolock*), and eastern hoolock (*H. leuconedys*). A number of studies have been carried out to ascertain their status, distribution, and demography (for example, Mukherjee and Saha 1974; Mukherjee 1978; Choudhury 1989; Gupta 1994; Mukherjee and Southwick 1997; Srivastava *et al*. 2001; Chetry *et al*. 2002, 2003; Das *et al*. 2003a, 2003b). Some studies on behavior and ecology have also been carried out (Sarkar 2002; Das 2003; Biswas 2004; Chetry 2004; Medhi 2004). Besides populations in the wild, there are primates on the premises of a number of temples, living in association with human populations. The status, diversity, and demography of these temple primates have yet to be documented. Here we report on a survey of temple primates in four states in northeast India: Assam, Arunachal Pradesh, Manipur, and Tripura.

Methods

A survey was carried out from April 2003 to October 2003 to register the temples in the states of Assam, Arunachal Pradesh, Manipur and Tripura with primate populations. At each site we made direct counts of group sizes and age-sex composition for each of the species. Ethnological data were collected using both interviews and questionnaires. A questionnaire was designed to record information on the past histories and present status of the groups, their interactions with people, and the attitudes of the people towards the primates. Traditional beliefs, which indirectly help to protect these primates, were also recorded, along with information on the problems the monkeys cause to the surrounding communities (for example, crop raiding, orchard raiding, damage to household objects, and physical attacks).

Results

Diversity of temple primates

The study identified populations of four species in the temples: rhesus macaque (*Macaca mulatta*), Assamese macaque (*Macaca assamensis*), golden langur (*Trachypithecus geei*), and capped langur (*Trachypithecus pileatus*) (Table 1).

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Temples with primate populations

We recorded 16 temples in seven states in northeastern India that were inhabited by nonhuman primate populations. A number of temple sites were formerly occupied, but today have no primates living in them (Table 2). At the time of the survey we found temple primates only in the states of Assam (16) and Manipur (2).

Status and demography of temple primates

All except one of the temple primate populations registered were free-ranging, and the groups traveled extensively in the adjacent areas (Table 3). In all cases, except for the Umananda temple, the primates were native to the area. The Umananda temple is on a small island of 4.9 ha in the Brahmaputra River near Guwahati, Assam. The golden langur population there is confined to the island, and it is the only existing provisioned and semi-free-ranging population of the species. Other temple primate populations that reside in the temples and depend on provisioning for their survival include the Assamese macaques in Tukreswari temple and the rhesus macaques in Negheriting Shiva Dol and Mahabali temples. The sizes of these four populations are shown in Table 4. The remaining temples were occupied by groups that are transitory — they visit the temples at times but do not reside in them permanently.

Foods of the temple primates

All the temple primate populations, irrespective of species and locality, are semi-provisioned. They eat naturally occurring food items from the surrounding vegetation and other food items provided by people visiting the temples. The natural food items vary with season, and include young and mature leaves, leaf buds and petioles, flowers and flower buds, seeds, unripe and ripe fruits, twigs, and stem cortex. In Mahabali Negheriting, Tukreswari, and Umananda, primates are regularly fed with diverse foods, both raw (for example, banana, gram, soaked gram, pulses, and uncooked rice) and processed (for example, cake, biscuits, cream rolls, and sweets). The Assamese macaques in Tukreswari temple even feed on the blood of the animals (pigeons, goats, and buffalo) that are slaughtered in front of the deity. At other sites visitors offer food to the monkeys.

Human perceptions of primates

The Hindus believe that both the golden langur and the capped langur are descendants of the Lord Hanuman, and because of this they believe in conservation measures on behalf of these species. Their attitudes toward rhesus macaque are negative mainly because of the damage the macaques cause to their crops.

Threats to the temple primates

The study identified three major threats to the temple primates of the region. First, the loss of natural habitat through



Figure 1. Assamese macaques (*Macaca assamensis*) at the Temple of Tukreswari, District of Goalpara, Assam. Photo by Dilip Chetry.

Table 1. Species of primates in temples and their conservation status.

Common name	Scientific name	IWPA 1972 [1]	CITES	IUCN (2006) [2]
Rhesus macaque	*Macaca mulatta*	Schedule-II	Appendix-II	LC
Assam macaque	*Macaca assamensis*	Schedule-II	Appendix-II	VU
Golden langur	*Trachypithecus geei*	Schedule-I	Appendix-I	EN
Capped langur	*Trachypithecus pileatus*	Schedule-I	Appendix-I	EN

[1] IWPA= Indian Wildlife (Protection) Act, 1972
[2] VU = Vulnerable, LC = Least Concern. EN = Endangered

Table 2. Past and present records of temple primate in northeast India.

State	Numbers of temples with primates		Species	
	Past	Present	Past	Present
Assam	20	16	RM, AM, GL, CL. HG	RM, AM, GL, CL
Arunchal Pradesh	2	None	RM, CL	None
Manipur	2	2	RM, CL	RM
Meghalaya	None	None	None	None
Mizoram	None	None	None	None
Nagaland	None	None	None	None
Tripura	2	None	RM, CL, PL	None

RM = rhesus macaque, AM = Assamese macaque, CL = capped langur, GL = golden langur, HG = hoolock gibbon, PL = Phayre's leaf monkey

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human settlement in and around the temple sites is evidently the primary threat for the temple primate populations in most cases. The resulting loss of food sources from the natural habitat leads to increased conflicts through crop raiding, and the greater persistence of the monkeys near to humans, their habitations and places of worship. Second, people in more remote parts reported increasing incidences of human-primate conflicts. The monkeys raid crops, orchards and households; attacking, fouling, and destroying property and household objects are the most common manifestations of this conflict. Third, people's attitudes toward the monkeys are changing. The traditional beliefs are becoming weaker and, with burgeoning conflicts and inconveniences, attitudes are becoming less benign. Some people even expressed their wish to have the monkeys removed from the area and taken elsewhere. Ironically many of these same people feed the animals. The golden langurs in Umananda, the Assamese macaques in Tukreswari temple, and the rhesus macaques in the temples of Mahabali and Negheriting Sivadol are, on the other hand, highly revered.

Table 3. Population sizes of temple primates in northeast India.

Temple	Species	Number	Status[1]
Assam			
Nabagraha	Rhesus macaque	150	FR
Kamakhya	Rhesus macaque		FR
Basistha	Rhesus macaque		FR
Daul Gobinda	Rhesus macaque	25	FR
Umananda	Golden langur	7	C
Lankeswar	Rhesus macaque	20	FR
Hajo Haigrib	Rhesus macaque		FR
Tukreswari	Assamese macaque, capped langur	90, 8	FR
Surya pahar	Rhesus macaque, capped langur	75,10	FR
Baba Than	Rhesus macaque		FR
Nighreting Sivadol	Rhesus macaque	59	FR
Gupteswar	Rhesus macaque	70	FR
Biswanath ghat	None		
Mahabhairav	None		
Padumoni	None		
Basudev	None		
Durga	None		
Sivdham Tinsukia	Rhesus macaque	50	FR
Mahamaya	Rhesus macaque	35	FR
Kali Mandir	Rhesus macaque	30	FR
Manipur			
Mahabali	Rhesus macaque	59	FR
Arunachal Pradesh			
Malinithan	None		
Parsuram kunda	None		
Tripura			
Kaisabha kalibari	None		
Udaipur Matabar	None		

[1]FR = free-ranging, C = confined

Discussion

A number of primates live permanently or occasionally in temples; an association between monkeys and humans that is an age-old phenomenon in the region. The changing values of society are, however, creating conservation problems for the temple primates. Earlier studies have identified habitat loss as the primary threat for the natural populations of all the nine species in the region (Choudhury 1989, 2002; Srivastava *et al*. 2001; Chetry *et al*. 2002; Das *et al*. 2003) and this is true even for the temple primate populations that are unable to find enough food merely from incidental or irregular provisioning and the trash left by the visitors and tourists. Along with habitat loss, hunting is another major threat to the primates of the region (Choudhury 1989; Chetry *et al*. 2003; Das *et al*. 2003). For temple primates it is not hunting but increased human-primate conflict that is the most critical threat. Despite the long association between humans and other primates in northeastern India, the rapid loss of natural habitat and the increase in human populations is leading to a greater association between animals and humans, to the discomfort of many human communities and to the detriment of the langurs, macaques and gibbons, which are in decline. The temple primates are disappearing—they are neglected and there have been no efforts on behalf of their conservation and management. Management predictably will be one of crisis as the tendency of a burgeoning presence in the temples and increasing hunger will precipitate more and more serious conflict. The following measures are recommended to ensure their future existence and survival.

- Establish a special conservation program for the temple primates.
- Set up conservation education programs to increase awareness of the problems of temple primates in the region.
- Set up reforestation and planting programs of native species, providing foods for both monkeys and humans.

Table 4. Group composition of resident population in temples in the states of Assam and Manipur.

State	Temple	Species	Group composition[1]							Total
			AM	AF	JM	JF	IM	IF	I?	
Assam	Turkreswari	*Macaca assamensis*	13	25	12	17	8	10	2	90
	Neghereting Sivadol	*Macaca mulatta*	9	25	10	16	9	10		79
	Umananda	*Trachypithecus geei*	2	1			3	1		7
Manipur	Mahabali	*Macaca mulatta*	10	20	8	11	4	6		59

[1]AM = adult male, AF = adult female, JM = juvenile male, JF = juvenile female, IM = infant male, IF = infant female, I? = unidentified infant

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Figure 2. A golden langur (*Trachypithecus geei*) drinking water at the Umananda Temple, Guhawati, Assam. Photo by Dilip Chetry.

- Immediately incorporate the golden langur population confined to Umananda Island into an appropriately managed breeding program.

- Establish a regular monitoring program to follow demographic trends so that appropriate conservation and management plans can be formulated.

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