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CULTURAL PRACTICES BENEFITTING PRIMATE CONSERVATION AMONG THE GUAJÁ OF EASTERN AMAZONIA

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Introduction

The negative effects of human activities such as habitat destruction, the pet trade, and medical research on Neotropical primate populations have been well documented (Aquino and Encarnación, 1994; Chiarello, 1993; Hershkovitz, 1972; Mittermeier, 1987; Mittermeier *et al.*, 1978; Rylands *et al.*, 1997). However, insufficient attention is given to indigenous cultural practices that may benefit primate conservation. Primate hunting, particularly using indigenous methods, does not always threaten primate populations. Hunting pressure often becomes a serious problem only when it is combined with widespread deforestation (Lizarralde, 1997; Mittermeier and Coimbra-Filho, 1977), or when hunting moves from traditional subsistence activities to a commercial basis, such as with the African bushmeat crisis (Hutchins, 1999; Rose, 1996).

The research here explored the role of monkeys in the culture of the Guajá Indians on the Caru Indigenous Reserve in Maranhão, Brazil. Seven species occur there: the red-handed howler (*Alouatta belzebul*), the black-bearded saki (*Chiropotes satanas*), the brown capuchin (*Cebus*

apella), the Ka'apor capuchin (*Cebus olivaceus kaapori*), the owl monkey (*Aotus infulatus*), the squirrel monkey (*Saimiri sciureus*), and the black-handed tamarin (*Saguinus niger*). Monkeys were found to be a key food source for the Guajá, largely determining the trekking behavior of these foraging people. However, it was also found that the Guajá consider monkeys kept as pets to be nearly human, even to the extent of incorporating them into their kinship system. Although anthropomorphization and consumption of monkeys would seem to be contradictory, these dual roles were found to be compatible with the symbolic cannibalistic beliefs of the Guajá religion. Preservation of the Guajá indigenous reserves is essential not only for the survival of their culture, but also for endemic species, including the endangered *Chiropotes satanas satanas* and the recently discovered *Cebus olivaceus kaapori* (Queiroz, 1992).

Methods

The importance of monkeys in the Guajá diet was assessed through daily random spot checks of Guajá activities (including eating) during wet and dry seasons with 111 sampling days and 110 individuals. Random spot checks in cultural anthropology typically involve making daily rounds of a group with one observation of each individual per day. The importance of ethnobotanical knowledge of plants eaten by monkeys was assessed through plant collecting trips with multiple informants to gather information regarding plant names and uses. A total of 275 morpho-species were distinguished. The social and religious roles of monkeys in the Guajá culture were also assessed through interviews and participant observation among the people over a period of 15 months in 1996–1997. A total of 90 pet monkeys were kept as pets by the Guajá during the research period. In addition to qualitative observations, limited focal animal samples of the pet monkeys were conducted (61 individuals, 130 hours) in order to obtain measurable data regarding the nature of Guajá-monkey interactions, as well as the consequences to the animals being kept as pets (also see Cormier, 2000).

Results

Ecology

Heavy seasonal reliance on monkeys as food was found and was also demonstrated in Guajá trekking patterns and ethnobotanical knowledge. Random spot checks revealed significant seasonal differences in the animal types utilized in the wet and dry seasons ($p < .001$). Monkeys were the most frequently eaten animal in the wet season (30.92%) while fish were the most frequently eaten type in the dry season (44.37%). The hunting of monkeys in the wet season was associated with increased trekking, while when fishing in the dry season, they were more sedentary. Random spot checks demonstrated significant seasonal differences in trekking ($p < .001$), with individuals camping away from the

village almost five times more frequently in the wet season than in the dry season.

The dietary importance of monkeys was also reflected in Guajá ethnobotanical knowledge. Of the 275 morpho-species identified, 43.64% were described as plants eaten by monkeys. Guajá knowledge of plants eaten by monkeys far exceeded the number of plants they used for food themselves (14.91%). Knowledge of plants, and particularly fruiting trees eaten by monkeys, can be considered an important hunting strategy.

Kinship

Orphaned monkeys whose mothers were killed for food are returned to the village and cared for by a Guajá woman. These pet monkeys are given a nearly human status, are addressed as kin, and function to a degree as surrogate children. Like infant Guajá children, the monkeys stay in constant physical contact with the "mother," and are breast-fed, bathed, played with, sung to, and even eat pre-masticated foods directly from the women's mouths.

Monkeys also serve as a form of body art. Nurturing surrogate monkey children projects an image of female fertility, the ideal of feminine attractiveness in the culture. The ability of the monkey to function in this role is predicated on the physical and behavioral similarities of infant monkeys to infant human children. Maturation changes, however, make it impossible for monkeys to sustain the role of a dependent child. Focal animal samples revealed significant differences ($p < .001$) in the amount of time primate infants, juveniles, and adults spent in contact with the Guajá. Older monkeys eventually began to display aberrant and often aggressive behaviors, and were consequently tied up much of the time. Unfortunately, such social isolation only compounds the abnormal behaviors.

Cosmology

The seeming incongruity of monkeys serving as surrogate children while also being the preferred food can be understood through the symbolic endocannibalism (eating of kin) in the Guajá religion. The two key principles involved are the extension of kin relations to forest species and the recurrent theme of "like eats like" in their spiritual beliefs. According to the Guajá creation myth, monkeys were at one time human, and thus, all forest monkeys are considered to be either consanguineal or affinal kin. Monkeys are the preferred game source because they are considered to be most like humans. All forms of plant and animal life are believed to be endowed with a spiritual as well as a physical nature. Thus, consumption is not merely an act of predation, but is sacred. Eating another releases the physical body and sends the spirit to the eternal sky home. Relations of consumption are a form of reciprocity with one form of life giving the gift of divinization to another form of life. For example, the squirrel monkey is believed to be spiritually kin to the mariawa palm (*Bactris setosa*) which it also eats, and thus divinizes, just as the Guajá divinize their monkey kin when they eat them. In addition, the Guajá believe they also receive help in hunting from monkey divinities during their *karawara* spirit possession ritual.

Conclusions

Guajá cultural survival as well as the survival of endemic primate species in the region is extremely threatened. The situation has escalated since 1985 with construction of the Carajás railway through the middle of their territory to mine iron. Guajá reserves are highly contested from agribusiness, loggers, and *posseiros* (illegal Brazilian squatters) systematically encroaching into their habitat, creating subsequent deforestation and development.

Conservation of the indigenous reserves is of particular importance for the endangered *Chiropotes satanas satanas* and the recently identified *Cebus olivaceus kaapori*, whose habitat is restricted to the traditional territory of the Guajá people. The hunting of monkeys for food in itself, particularly using indigenous methods, is often not the real threat to monkey populations. Hunting pressure more often arises in the wake of deforestation when monkey populations are reduced and restricted to circumscribed patches which may then allow a species to be hunted out entirely. The fates of the Guajá people and the local monkeys are intertwined. Preservation of the indigenous reserves of the Guajá for traditional hunting also provides primates a refuge from habitat destruction.

Acknowledgments

I am most grateful to the Guajá people, the National Indian Foundation (FUNAI), the Brazil Science Council (CNPq), the Museu Goeldi Herbarium, the Tulane University Herbarium, and João Farias Guerreiro of the Universidade Federal do Pará. Financial support was obtained through grants from the Fulbright Institute for International Education, the American Society of Primatologists, and the Tinker Foundation.

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HABITAT FRAGMENTATION AND PARASITISM IN HOWLER MONKEYS (*ALOUATTA CARAYA*)

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Introduction

Comparative studies of ecto- and endoparasitism affecting howler monkeys (*Alouatta caraya*) in relation to the fragmentation of their habitat are unknown for Argentina. Translocation of fauna is potentially dangerous for both the translocated and resident populations, which may lack resistance when confronted with new species of parasites. In order to better manage the translocation of species and to help solve conservation issues, it is important to understand the effects of parasitism. Here we report observations on the fragmentation of habitat and parasitism in populations of *Alouatta caraya*.

Methods

Habitats

Three study sites were chosen in northeastern Argentina. The first was a severely fragmented and degraded semideciduous forest (SF) in the basin of the Río Riachuelo, San Cayetano (Corrientes province) (27°30'S, 58°41'W).