

EARTHWATCH INSTITUTE FIELD REPORT

Project title: Costa Rica's Howlers and Capuchins

Principle investigator(s): Tracie McKinney
Dr. W. Scott McGraw

Position/Affiliations: Tracie McKinney
PhD candidate, Department of Anthropology
The Ohio State University

Dr. W. Scott McGraw
Associate Professor, Department of Anthropology
The Ohio State University

Research Site: Refugio Nacional de Vida Silvestre Curú
Paquera, Southern Nicoya Penninsula, Costa Rica
N 9° 47' W 84° 55'

**Local Management
Status of Research Site:** Privately-Owned Wildlife Refuge and Hacienda

**Scientific Names of
Species Studied:** *Cebus capucinus* (white-faced capuchin monkey)
Alouatta palliata (mantled howling monkey)

Key Research Objectives:

- understand impact of human disturbance on neotropical primates
- explore the strategies used by different monkey species to adapt to disturbance
- explain why these species survive well in damaged habitats, where others do not
- improve management policies for ecotourism, agricultural and urban development
- educate the local and global communities about primate habitat and conservation

Date Report Completed: September 10, 2006

Data Collection and Results:

The 2006 field season ran from January 14 through July 05, and hosted three Earthwatch teams between April and June. During these short six months, a survey of the field site helped locate two study troops (in addition to the two troops chosen during a 2004 pilot study). These two troops were completely unaccustomed to human presence, and considerable time was devoted to the habituation of these animals.

Beyond habituation and tracking study troops, several types of observational data were collected this season. These included:

- Recording the location of animals using a Global Positioning System handheld unit – Using GPS data points allowed for quantitative measurement of troop territory size and daily ranging distances, and will indicate variation in group movement across seasons.
- Survey of monkey diet – Fifteen minute focal group observations recorded all items ingested by the study troop during the sample interval. This measured dietary choices and changes in diet by season, location, and time, and will provide a measure of variability among troops, environmental condition, and individuals.
- Focal animal samples – These traditional ethological observations recorded all behaviors of an individual animal for a set period of time. I used two forms of focal animal samples this season: twenty-minute interval samples, and ten-minute continuous samples. Continuous samples are best for assessing rarely occurring or rapid behaviors, while interval samples have a lower observer error and are useful for recording time allocation and proximity. Both forms of focal samples will provide a wealth of information on social behaviors of each study troop.
- Human-primate interactions – To evaluate the level of disturbance faced by each study troop, fifteen-minute focal group follows recorded all human-monkey interactions within the sample interval. This included any vocal or tactile interactions with humans, evidence of human alteration of habitat, such as vehicles or buildings, presence of domesticated animals, and crop- or garbage-raiding by the monkeys.
- Ad libitum field notes – Additional observations were carefully recorded through *ad libitum* notes. These data were typically observations that did not fit into the sample formats listed above, such as births, inter-troop encounters, or any unusual behaviors.

Excluding tracking and general contact time, a total of 482.33 hours of observational data were collected.

As a first-year project, we have made great strides toward our objectives. The first three objectives listed above will only be realized after many more data hours have been

collected and that data has been fully analyzed, but nearly 500 hours of data is an excellent start. All study troops are now accustomed to researcher presence and are becoming increasingly easy to track, and so actual observation hours yielded per work hours are expected to increase next season. Future results from these data will help to meet our fourth goal of improving management policies in monkey habitats. Local interest in monkey conservation and education has already been piqued, as the entire local community seems to know about the project and regularly asks about monkey behavior. Tourists visiting the wildlife refuge often get to observe Earthwatch researchers at work, and have the opportunity to learn about the animals first-hand. We will expand our efforts in this area next season, by providing educational materials or incorporating school visits into the schedule.

At this time, no data from the field season have been fully analyzed, and results are still merely anecdotal or preliminary. Until then, however, some basic trends have been noted which will surely lead to more in-depth study in future seasons. For example:

- Disturbed monkey troops appear to have a much larger territory than forest troops, which is contrary to what was originally expected. The next step will be to determine whether the disturbed troops are forced to defend a larger than average territory and, if so, what level of additional energy expenditure this means for the animals.
- Capuchins in the disturbed study troop appear to have an unusually high infant to adult female ratio, and the juveniles are at more varied ages than typical. This suggests that the pressures of seasonality may be reduced for this troop, allowing for a more flexible birthing season and possibly higher fecundity.
- Another surprising discovery this season is that howler monkeys are, in fact, active crop-raiders. Capuchins are notorious for exploiting diverse food sources, but howlers are traditionally folivore-frugivores that are rarely reported as agricultural pests. This may show a greater dietary flexibility for howlers than previously believed.

Significance/Benefits of Research:

There are many potential benefits of this project at the local level. Refugio de Curú is unusual in the Costa Rican park system because it is privately owned, and because it wears many hats as a wildlife refuge, a tourist beach/forest, and a hacienda. A better understanding of the impact of farming and tourism on the monkeys – along with the impact of the monkeys on the plantations – will help us determine the most beneficial association for all species involved. The project can also provide educational opportunities to local children, by talking with them about conservation in classroom visits, or having field trips to see the animals in the forest.

Having researchers in the area provides positive advertising for Curú and displays their commitment to conserving Costa Rican wildlife. Tourists are attracted to Curú because of their biodiversity and their efforts to protect local wildlife. There is a clear economic

benefit to hosting researchers and ecotourists, and this provides an important tangible incentive to conserving wildlife in a relatively poor region.

Dissemination of Results:

Because of the early status of this report, no scientific papers or management reports have yet been generated. However, this project has the potential for the development of many scholarly papers because of its wide scope of behavioral and ecological parameters.

While little hard data has been produced at this point, this project has the capability to present the importance of neotropical primate conservation in a variety of ways to the general public. The following are a few methods currently in progress:

- Costa Rican field assistant Carolina Orozco Zamora, of Universidad Nacional, will soon present a talk on monkey conservation status and field methods to a small conference of Central American biologist, forestry managers, and farmers.
- PI Tracie McKinney and Teresa Newsome, a children's author, recently submitted an informative short-story about capuchin monkeys to *Highlights for Children* magazine.
- PI Tracie McKinney and Refugio de Vida Silvestre Curú are in the planning stages with BBC to create a film about the capuchin monkeys at the refuge. Filming is planned for January 2007.