

*“Ecology, Social Behavior and Seed Dispersal Patterns of the Critically Endangered Brown Spider Monkey (*Ateles hybridus*) at Serrania de Las Quinchas, Colombia”*

Short Report (January 2007)

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1. Summary

The brown spider monkey, *Ateles hybridus*, has been recently identified as a Critically Endangered primate species due to its habitat destruction and illegal hunting. Their extremely long life history variables and broad ecological requirements increase the vulnerability of its remaining wild populations. This project aims to study the ecology, behavior and seed dispersal patterns of wild brown spider monkeys. With the aid of telemetry, we will use scan sampling to obtain ecological and social data. We will focus on describing the activity patterns, diet, home range, ranging and grouping patterns of two social groups that are currently being habituated. Data on social behavior will be taken ad libitum, and demographic variables as births, deaths and migrations will be collected as the start of a long-term life history study. Finally, we will describe the seed dispersal patterns generated by *A. hybridus* and address the effects of this ecological “service” to the maintenance of tropical forest diversity. This project will obtain the first systematically collected data on several



aspects of the behavioral ecology and social structure of the variegated spider monkeys. These data will provide the basis for more focused future research on other population variables of wild populations of *A. hybridus*, that combined, will allow us to better understand the ecological requirements and population structure of these populations, and develop successful conservation strategies to prevent them from extinction. Finally, this project will train new local primatologists in several methods for the study of primates in the wild, in order to develop a stronger and more qualified “team” that will direct field conservation efforts in Colombia.

2. Statement of objectives for the past year 2006.

Our main objectives for the first year of research on a population of brown spider monkeys at Serrania de las Quinchas, Colombia were:

- To locate a research area for the study of at least two groups of *Ateles hybridus* at Serrania de Las Quinchas and set trail systems within them.
- Radiocollar one individual of each of our two main study groups.
- Habituate and identify all group members of our two main study groups.
- To begin collecting long-term data on the ecology of *Ateles hybridus* in their natural habitats in Colombia (including their diet, activity patterns, ranging patterns, and their seed dispersal services to the local plant community).
- To characterize the social structure, grouping patterns and social behavior of the *Ateles hybridus*.
- Compare the behavioral ecology of brown spider monkeys living in continuous forests against others living in forest fragments.
- Disseminate the results of this study to the general public and the scientific community.
- Develop a long-term study on the behavioral ecology and population structure of *A. hybridus*, oriented towards the conservation of this Critically Endangered primate in Colombia

3. Research accomplishments for the past year 2006.

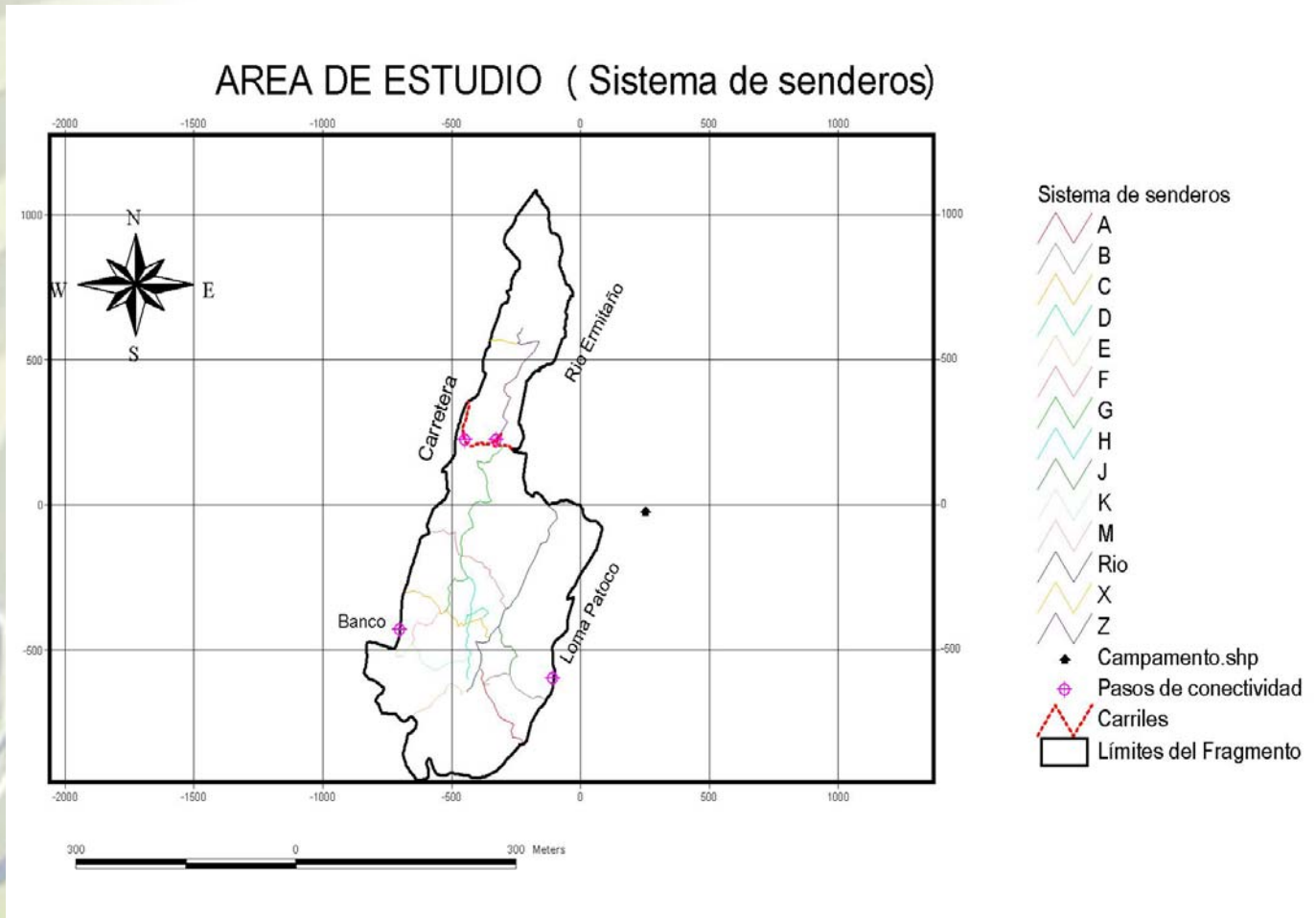
During our first year of conservation-oriented research on a population of critically endangered brown spider monkeys we have been able to start a successful long term study on a social group (CH-1) of *A. hybridus*, living in a forest fragment. Our second study group (CH-2), located in a continuous forest, has not yet been habituated, as hunting pressures are still high at this locality (it is not yet within the protected area of Fundacion Proaves), but *ad libitum* data is being collected on them ca. 4 days per month. Thus most of our research

efforts have been focused on CH-1. Following the advice of some reviewers, we have not yet set radiocollars on our study animals. Thus, daily continuous subgroup follows have been difficult to achieve given the extremely broken terrain of the study site. Nevertheless, we can normally stay with our focal subgroup for several hours and collect the required data to describe their basic ecology and social behavior.

We have collected data on the diet, activity patterns, home range use and ranging patterns of CH-1 since January 2006, and to date we have marked approximately 225 feeding trees within the ca. 80 forest fragment that the group occupies. Recently, the group has found a connection point between La Reserva and an adjacent forest fragment across a dirt road that runs along the eastern part of their previous home range (Figure 1). We have also collected systematic data on fruit availability using phenological transects (ca. 5 km) which follow Stevenson's (2002) methods, in order to understand the effect of resource availability on the variation of the diet, ranging pattern and other ecological variables of our study groups.

Our preliminary results show that brown spider monkeys follow the dietary patterns of all other spider monkey species studied as they heavily rely in fruits. We have found differences in the diet of our study groups as groups in the continuous forest (CH-2) have a more diverse plant community compared to that of heavily logged forest fragments (CH-1). We still need more data on CH-2 to properly test these differences as well as the impact of habitat disturbance on *A. hybridus*' diet.

Figure 1. Study area of CH-1. Trail system is represented by thin lines and pink dots represent recent connection (tree bridges) between forest fragments.



Recently we have also found that brown spider monkeys regularly use ground salt licks (as some populations of *A. belzebuth*) where they come to the ground to eat soil.

The grouping patterns of our main study group are very similar to those of other species of spider monkeys. Brown spider monkeys also have a fission-fusion society in which group members range in smaller “parties” which can vary in size and composition within short temporal intervals. Average subgroup size in CH-1 has been smaller than those found in other spider monkey studies, and seem to coincide with those found at Tinigua, Colombia during periods of fruit scarcity. These results suggest that probably the low fruit productivity of a heavily logged forest fragment does influence the grouping patterns of these frugivorous primates. Nevertheless more data is needed to sort out other potential explanations (e.g., high hunting pressure on previous years).

Given that our research project only began in Dec 2005, and that systematic data started to be collected around Apr 2006, we have not attempted to compile our data into scientific publications yet. Nevertheless, we have presented our research goals and projects on the conservation of *Ateles hybridus* at the International Primatological Meetings in Uganda (2006), and the results of our first undergraduate project have been presented in the National Biological Meetings in Colombia (2006).

4. Training and educational accomplishments for the year 2006

During the past year the project has provided the opportunity to four young biologists to develop their careers in conservation biology and ecology:

- Jane Guerrero has successfully completed her undergraduate thesis at Universidad Javeriana: “Preliminary study on the ecology of brown spider monkeys at Serrania de las Quinchas Colombia”. (Jan 2006 – Aug 2006).
- Diego Zarate gained additional field experience and knowledge on field methods in ecology and conservation. He has been accepted at Universidad de Los Andes for a Master’s degree under Dr. Pablo Stevenson. (Jan 2006 – Aug 2006).
- Nelson Galvis is actually conducting his undergraduate thesis at Universidad del Tolima focused on the “Diet and seed dispersal patterns of brown spider monkeys at Serrania de Las Quinchas”. (Aug 2006 – Jan 2007).
- Sandra Serrato is actually conducting her Master’s thesis at Universidad Nacional de Colombia on the “Grouping and ranging patterns of a group of brown spider monkeys at Serrania de las Quinchas”. (Sep 2006 – Mar 2007).

5. Conservation accomplishments for the year 2006

As stated above we were able to present our project goals and results at IPS 2006 meetings in Uganda, and at the National Biological Meetings in Colombia. Through these presentations we have started to raise some local and international awareness of the threats and opportunities towards the conservation of brown spider monkeys and their habitats. In June 2006, we had the opportunity to present our conservation project at the 3rd Forum on in-situ conservation projects for the European zoos and aquaria, “Conservation and

Partnerships: Creation of a European and Latin-American Network". We were able (through M. Sc. A.L. Morales) to raise interest from several organizations to work together towards the creation of a private reserve that would encompass the conservation of several endangered species (i.e., Spectacled bears, Brown spider monkeys, *Saguinus leucopus*, amongst others) in Colombia (still in progress). We have been able to create stronger bonds with other national NGO's and a few landowners interested in developing conservation actions in their areas of influence. Recently, Conservation International has funded the continuation of our research project at Serrania de Las Quinchas, which will give continuity to the research and conservation actions started at this site.

6. Proposed activities for first semester 2007.

During the first semester of 2007 we plan to:

- Continue with our research on CH-1 group focused on gathering a more complete data set on the ecology and social behavior of *A. hybridus* in fragmented areas.
- Increase the research efforts devoted to studying social groups of *A. hybridus* in continuous forests at Serrania de Las Quinchas.
- Continue with conservation workshops held by CIEM (Stevenson et al.) with local school at Serrania de Las Quinchas.
- Conclude the thesis projects of Nelson Galvis and Sandra Serrato and open the opportunity for two students or young biologists to work on the project and gain research experience.
- Evaluate the possibility of expanding our research efforts to other localities where wild populations of *A. hybridus* still remain, in order to promote their priority for conservation.
- We will continue disseminating our results and conservation efforts at a national level through local meetings where the results of students thesis will be presented.
- We expect to analyze a first set of data and submit 1 – 2 articles to ecology and conservation oriented peer-reviewed journals.

FUNDACIÓN

Acknowledgements

We greatly appreciate the trust given by Doue La Fonataine Zoo and Primate Conservation Inc. to start the conservation project on *Ateles hybridus* at Serrania de Las Quinchas in Colombia. It has given us the “inertia” to continue (step by step) our work towards the conservation of *Ateles hybridus* and other endangered species and ecosystems in Colombia. We will keep these efforts going and hope we can collaborate much more in the future toward successful conservation of endangered primates and their habitats. Finally, we appreciate any comments or suggestion you can make on the progress of this project.

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