

COTLOW FIELD RESEARCH FUND

**Department of Anthropology
The George Washington University
Washington, DC 20052**

2006 PROJECT DESCRIPTION FORM

Applicant: **Lia Schwartz**

Title of Project: **A Behavioral Comparison of Peer Interactions in Orphaned and Non-Orphaned Chacma Baboons**

The Lewis Cotlow Field Research Fund is a GW Anthropology Department fund, established in 1990 as a bequest by the explorer Lewis N. Cotlow to further field work and exploration. All undergraduate or graduate students at The George Washington University are eligible to apply, but preference is given to those in anthropology programs. Funds are to be used for travel, research assistance, and other expenses related to field research.

The deadline for application is 5 p.m. on the first Friday in March of the year for which support is requested. Applications must be submitted in hard copy; no electronic submissions will be accepted.

DESCRIPTION OF PROPOSED COTLOW FIELD RESEARCH PROJECT

I. Personal Information

Name: Lia Schwartz

Permanent / Current Address:

Home Phone: Other Phone: E-mail:

Degree Sought: B.S. Field of Study: Biological Anthropology

Expected Date of Graduation: May 2008

Faculty Advisor(s) for This Project: Peter Lorch, Peter Lucas, Chet Sherwood

Does your proposed project involve the use of a "field language"? No.

If so, state what it is, and note your degree of fluency in speaking or writing.

II. Brief Abstract of the Project

Amount Requested: \$1700

In 100 words or less, clearly state the goals of the proposed research:

Baboons live in large, complex social groups, are mostly terrestrial, and form intricate friendships, animosities, and kinship bonds. This project will study a species of baboon, the Chacma baboon, which is considered a pest to the people of South Africa. For this reason, they are frequently trapped, killed, and abused, leaving behind many orphans who are not taught the intricacies of social baboon behavior. This project will compare the peer interactions of orphans and non-orphans at a rehabilitation center in South Africa. My hypothesis is that orphan baboons will establish more complex relationships, both antagonistic and pacific, with their peers while non-orphans will be mainly indifferent to other youngsters.

III. Significance of the Project to Anthropology. What is the relationship of the proposed research to other anthropological research in this field and region? (250-500 words)

In the field of anthropology, baboons are popular research subjects. They make excellent subjects because of their complex social groups, biological similarity to humans, and relatively high frequency in the wild. There are five species of baboon: Olive, Yellow, Hamadryas, Guinea, and Chacma (Strier, 2003). The subject of my proposed research is the Chacma baboon, *Papio ursinus*.

C.A.R.E. is a baboon rehabilitation center in Phalaborwa, South Africa that raises orphan Chacma baboons, allows them to form troops, and successfully releases them into the wild. The baboons at the C.A.R.E. baboon sanctuary provide a unique opportunity to observe many orphans of the same age interacting with each other. The orphans are raised with their orphan peers and with humans as surrogate mothers so they are not taught the complex rules and strategies for functioning in a hierarchical baboon society. Using Smuts' (1985) method of observing nonsexual interactions between baboons, I will compare the time spent and ways in which orphans and non-orphans engage with their peers.

It is relevant here to discuss the normal relationship between mother and infant baboons so that we may see what the orphans are likely to be missing. Body contact between the mother and infant baboon is critical to the healthy development of infants (Harlow, 1958). Surrogate mothers, even those in hairy suits, are no substitute (Mason, 1978). By clinging to their mother, infants receive both physical and psychological comfort, transportation, and protection. Since they are always together, the infant sees the mother's interactions with the troop and learns its place in the hierarchy. Primate infants raised only with peers show delayed development and deficient social skills as adults (Chamove *et al.*, 1973). From the time an infant is born until it is about five months old, it spends more than 50% of its time in contact with its mother.

Thereafter, contact time drops steadily and by about seven months, an infant spends about two-thirds of the time away from its mother (Altmann, 1980). When I apply these data to the orphan

baboons at C.A.R.E., it is reasonable to hypothesize that those who lost their mothers after about eight months of age, should develop relatively normally (assuming, that is, that they have been exposed to extended social networks of baboons). The extended social network is an important factor as it has been shown that primates raised only with their mothers are hyperaggressive when interacting with their peers (Alexander, 1966).

In nonhuman primate research, orphans are a neglected subject. In the book Kinship and Behavior in Primates, there are twenty chapters about kinship behavior without once mentioning the effects of not having kin (Chapais *et al.*, 2004). The small bit of research that has been done on nonhuman primate orphans focuses mostly on their reintroduction into the wild after rehabilitation by humans (Goosens *et al.*, 2003). The vast majority of these studies are of the great apes and I have been unable to find any literature on the peer interactions of orphaned baboons. The closest study to addressing this topic found that orphaned Japanese macaques compensated for the loss of a mother by grooming with unrelated individuals. These orphans spent an equal amount of time grooming with their preferred partner as non-orphans spent grooming with their mothers (Yamada *et al.*, 2005).

IV. Methodology. What are the specific research questions you plan to ask? What data will you collect and how? How will you analyze the data? How do you plan to use these data to address and resolve your research questions? (250-500 words)

The research questions I plan to ask are:

- Do orphans and non-orphans differ in their patterns of interactions with their peers?
 - How much time is spent in close proximity to other individuals?
 - Are there “best friends” or preferred individuals that the youngsters chose to spend more time with?
- Are there different types of behavior, affiliate or agonistic, that are more prevalent in orphans or non-orphans?

The method I will use for collecting data will be a synthesis of Peter Lucas’s notes on how to observe primates and Barbara Smuts’ observational strategy (Smuts, 1985). The first step, according to Lucas, is habituation. I have to get the baboons used to me and I have to get used to them. This means that I need to learn to recognize individuals and be able to reliably identify who’s who. The next step is collecting the actual data. I think that for this project, focal sampling is going to provide better data. Focal sampling is when you choose one individual in a group and record what they are doing for a continuous ten-minute period, and then you switch subjects. I will use abbreviations to make this process more efficient.

Smuts’ observation method is to watch an individual subject and record the closest baboons to it (i.e. its nearest neighbor) and their approximate distance from the subject. This can help to determine if a certain baboon has favored baboons whom it prefers to be around. How long do they spend together before one moves away and who is it that initiates the separation?

I plan to observe an equal number of orphan and non-orphan baboons on a daily basis. I will vary the times of day and try and observe both groups at each different time of day. Ideally, I would like to find age-matched pairs (one orphan and one non-orphan) so as to eliminate the variable of age. Since I have a research assistant, one person can observe the orphans and the

other can observe the non-orphans at the same time. This will double the amount of data that can be collected which is advantageous given the limited amount of time.

I plan to focus on three affiliative and four agonistic common primate behaviors. The three affiliative behaviors are social grooming, sitting with, and feeding. The agonistic behaviors are fighting, chasing, threatening, and submissive gestures such as retreating or cowering. I will record my data using a handheld computer that has been preprogrammed with specific behaviors so that all I need to do is click at the start and end of a behavior and the computer will record the time, date, and duration of that behavior. I will also have a pen and notebook readily available in case something goes wrong. To analyze my data, I plan to look at the length of time each individual spends doing these behaviors compared to the total amount of time spent observing them. I can then compare the percentage of time spent performing affiliative or aggressive behaviors as well as any preferences for favored recipients of these behaviors.

V. Ethics. Describe how you will ensure that your research project is conducted with attention to the ethical guidelines of the discipline of anthropology and the guidelines of GW's Institutional Review Board (if your project involves living human beings).

Since my project does not involve humans, GW's Institutional Review Board guidelines are not applicable. However, I have thoroughly reviewed the code of ethics on the American Anthropological Association's (AAA) website. The AAA code of ethics states that I must "respect the well-being of humans and nonhuman primates." The research that I plan to do involves noninvasive observational data collection that will not harm or interfere with my subjects in any way.

I also researched the code of ethics provided by the Animal Behavior Society. The most relevant statement in the ABS code of ethics states that researchers "shall use their knowledge, skills, and training to assist in achieving the harmonious interaction of the human species with other organisms." I understand that it is my obligation not to exploit or harm the animals that I will be working with.

While it is not directly a part of my research, I think it is important to say that I will be respectful at all times of my colleagues as well as the people of South Africa and their customs and traditions.

VI. Product. What kinds of results do you expect to come from the proposed research?

If I am awarded Cotlow funding, my most immediate product will be a presentation of my research at the annual Anthropology Student Research Conference in February 2008.

Regardless of receipt of a Cotlow Award, I intend to use my research as the basis of an Honors Thesis to be completed in Fall 2007 and Spring 2008 under the guidance of Professor Peter Lucas. I may also submit my paper to be presented at a professional conference or in a peer-reviewed journal. Finally, I hope that my results will serve as a way to improve the care of baboon, and possibly even human, orphans by recognizing both the strengths and weaknesses of their current care.

VII. Schedule.

- Week 1: Habitation. Allow the baboons to get used to me while I learn to recognize individuals. Ask caretakers for ages and histories of the baboons. Practice using the computer to record data and make sure everything is working properly.
- Week 2: Start collecting data
- Week 3: Continue collecting data. At the end of this week, look at what's been collected to see if anything is being overlooked or forgotten.
- Week 4: Continue collecting data and gather all necessary information to present findings.

VIII. Budget. Provide a detailed budget for the proposed activities.

Airfare from New York to Johannesburg: \$993 roundtrip

Hotel in Madrid for overnight layover: \$90

Airfare from Johannesburg to Phalaborwa: \$113

Room and Board at C.A.R.E.: \$1395

Total: \$2591

Requested: \$1700

IX. Staff.

Some data collection may be done by Jillian Vitacco, a third year biology student at Cornell University. She will be traveling with me and has agreed to help, without monetary compensation, with the observational data collection.

X. Outside Support.

Funding from parents: \$500

XI. References cited and select bibliography (one page maximum).

Alexander, B. K. (1966) The effects of early peer deprivation on juvenile behavior of rhesus monkeys. Doctoral dissertation, University of Wisconsin, Madison.

Altmann, Jeanne. (1980). Baboon Mothers and Infants. Chicago: The University of Chicago Press.

American Anthropological Association. Code of Ethics. (<http://www.aaanet.org>), 1998.

Animal Behavior Society. Code of Ethics. (<http://www.animalbehavior.org>), 2004.

Bekoff, M. and Byers, J. A. (1981) "A critical reanalysis of the ontogeny of mammalian social and locomotor play, an ethological hornet's nest." In: Behavioral Development, The Bielefeld

Interdisciplinary Project (Ed. by K. Immelmann, G. W. Barlow, L. Petrinovich, and M. Main), pp. 296-337. New York: Cambridge University Press.

Chamove, A. S., Rosenblum, L. A., & Harlow, H. F. (1973). "Monkeys (*Macaca mulatta*) reared only with peers: A pilot study." Animal Behaviour, 21, 316-325.

Chapais, Bernard and Berman, Carol (2004) Kinship and Behavior in Primates. New York: Oxford University Press.

Harlow, H.F. (1958) "The Nature of Love." Proc. 66th Ann. Conv. Am. Psych. Assoc. August 1958, 673-785.

Mason, W.A. (1978) "Social experience and primate cognitive development." In: The development of behavior: comparative and evolutionary aspects (Ed. G.M. Burghardt and M. Bekoff), New York: Garland STPM Press.

Smuts, Barbara. (1985) Sex and Friendship in Baboons. New York: Aldine Publishing Company.

Strier, Karen. (2003) Primate Behavioral Ecology. Boston: Allyn and Bacon.