

Cassandra M. Nuñez
cmvnunez@princeton.edu

Mailing Address:

Department of Ecology and Evolutionary Biology
Princeton University
Princeton, NJ 08540
(609) 258-3836

Permanent Address:

184 Montgomery Street
Bloomfield, NJ 07003
(973) 743-6474

EDUCATION

PRINCETON UNIVERSITY

Princeton, NJ

Ph.D., Ecology and Evolutionary Biology, November 2000

Thesis. Mother-young relationships in feral horses and their implications for the function of development in mammals

Honors. Sigma Xi Grant-in-Aid of Research (GIAR), March 1996; National Science Foundation Grant, September 1994–September 1997; Presidential Fellowship, September 1993–September 1999

RUTGERS UNIVERSITY, DOUGLASS COLLEGE

New Brunswick, NJ

BA, Laboratory Psychology, May 1993

Thesis. The seasonal effects of estradiol treatment on serum prolactin concentrations and female sexual behavior of the goat

Honors. American Psychology Association, Minority Undergraduate Students of Excellence Program, graduated with Highest Honors

CURRENT POSITION

PRINCETON UNIVERSITY, Ecology and Evolutionary Biology Department

Princeton, NJ

Associate Research Scholar, Presently.

Research. Investigating animal movement in equid species to determine the impact of social structure on the behavior, ecology, and evolution of animals. Specifically, how do an animal's sex, age, hierarchical status, and reproductive state affect its movements and the likelihood that it will lead or follow other animals? How can this information assist in the prediction of animal movement and land use?

Teaching. Will teach Anatomy and Comparative Physiology lectures and laboratories during the fall and spring semesters, respectively.

TEACHING EXPERIENCE

UNIVERSITY OF CALIFORNIA, RIVERSIDE, Boyd Deep Canyon Desert Research Center

Palm Desert, CA

Education and Outreach Coordinator, March 2007-March 2008. Directed and coordinated educational and outreach programs in desert ecology, natural resource conservation, and environmental science. Developed lessons for students of ecology, biology, mammalogy, and geology. Taught several classes, totaling over 120 students, from three school districts, about desert ecology, invasive species, and both plant and animal adaptations to the desert. Led interpretive hikes focusing on the area's natural history and archaeological significance. Instituted the Boyd Deep Canyon Lecture Series, which offered presentations by biologists and historians who had studied locally.

ORGANIZATION FOR TROPICAL STUDIES, Duke University, NC

South Africa

Instructor, Fall 2006. Mentored 11 students on three separate field projects. Instructed students on the use of the scientific method to analyze behavioral differences in baboons and elephants. Taught field biology techniques, and instructed students on behavioral data collection, analysis and interpretation.

Lecturer, Fall 2006. Taught Conservation Biology. Instructed students on how to analyze the management of wildlife and natural resources, primarily in Kruger National Park, through field-based study, case studies, lectures, discussions, and field trips. Major issues included the control of invasive exotic species, partnerships between national parks and local communities, water quality and management within the park and surrounding communities, the relocation of big game, and the importance of and policy behind transfrontier parks.

Co-coordinator, Fall 2006. Assisted in the advising of 17 undergraduate students, in addition to the organization of both program- and individual-level logistics, local and international travel between study sites, and the re-organization of program goals and academics.

PRINCETON UNIVERSITY, Ecology and Evolutionary Biology Department

Princeton, NJ

Research Associate, Spring 2006. Prepared manuscripts investigating the function of the juvenile stage in mammals; particularly the functions of mother versus infant communication patterns and the varied effects of parental strategy on infant survivorship. Synthesized more than twenty years worth of data in order to assess the efficacy of field-based paternity determination and the reproductive success of female horses on Shackleford Banks, North Carolina.

Lecturer, Spring 2006. Assisted in the preparation of lectures, exams and other classroom materials for Evolution and Behavior of the Sexes, a course that used principles of evolutionary biology and behavioral ecology to examine reproductive strategies and their effect on social systems. Topics included mate selection, attachment, parenting, sexual diversity, and intersexual conflict and aggression.

PRINCETON UNIVERSITY, Ecology and Evolutionary Biology Department

Princeton, NJ

Lecturer, Fall 2005. Assisted in the preparation of lectures, laboratory design and both in-class and laboratory exercises for Ecology of Fields and Forests, an introduction to the identification, natural history, and ecology of local terrestrial plants. Exercises explored adaptive patterns of physiology and architecture, interactions with physical environment and with other organisms, spatial dispersion and dispersal, forest succession, biological bases of human usage, and/or conservation.

Lecturer, Fall 2005. Mentored students on their Independent Projects for Conservation Biology. Students were assigned a conservation-based case study to research and then present to their classmates. Worked closely with a class of sixteen. Taught students how to critically review the scientific literature, outline pertinent information, and then present the information in a clear and concise manner.

PRINCETON UNIVERSITY, Princeton University Preparatory Program (PUPP)

Princeton, NJ

Biology Teacher, Summer 2005. Co-taught the Biology Laboratory Course for PUPP, a program designed to help gifted children of lower income families become better candidates for college acceptance. Developed additional course materials to be used by high school teachers at Princeton, Edison and Trenton public schools. Laboratory-based lessons addressed the diversity of life, comparative anatomy and the concept of evolution by natural selection. Assignments were designed to enable students to think critically via the scientific method.

Undergraduate Mentor, Summer 2005. Mentored two students preparing their senior theses. Taught basic field and data collection techniques; advised on the analysis and interpretation of behavioral data of two ungulate species.

PRINCETON UNIVERSITY, Ecology and Evolutionary Biology Department

Princeton, NJ

Research Associate, Spring 2005. Began preparation of manuscripts of Ph.D. thesis work (see above).

Lecturer, Spring 2005. Taught Comparative Physiology, an upper level biology course focusing on how animals function with emphasis on the integration of physiological processes at the cellular, organ, and whole organism levels in both ecological and evolutionary contexts.

RUTGERS UNIVERSITY, Ecology, Evolution and Natural Sciences Department

New Brunswick, NJ

Lecturer, Fall 2004. Taught Animal Behavior, an upper level biology course focusing on the evolutionary and ecological processes that promote the vast diversity of behaviors found on our planet. Designed the curriculum to place a strong emphasis on natural selection and the adaptiveness of behaviors. Defined and organized this diversity by considering two basic questions: *How* do animals behave and *why* do they behave as they do?

PRINCETON UNIVERSITY, Ecology and Evolutionary Biology Department

Princeton, NJ

Lecturer, Fall 2004. Taught the Junior Tutorial, a statistics course for Biology majors, focusing on the statistical methods students will use in their senior theses. Topics included basic statistical principles, in addition to detailed lessons on the most commonly used statistical tests (Chi Square, t-test, ANOVA, Repeated Measures ANOVA, non-parametric tests).

PHILLIPS ACADEMY, Math and Science for Minority Students (MS)² *Andover, MA*
Biology Teacher, Summer 2004. Co-taught two sections of Introductory Biology for (MS)², a program designed to help minority students, gifted in math and science, become better candidates for acceptance into college. Lessons included the core concepts of evolution, ecology and ecosystem dynamics, organic molecules, cell theory and parts of the cell, vertebrate anatomy and physiology, and animal behavior. Included a strong lab component in order to improve students' mastery of the scientific method, scientific writing, critical thinking, and observational skills.

PRINCETON UNIVERSITY, Ecology and Evolutionary Biology Department *Princeton, NJ*
Lecturer, Spring 2003. Taught Comparative Physiology (see above).

PRINCETON UNIVERSITY, Ecology and Evolutionary Biology Department *Princeton, NJ*
Lecturer, Spring 2002. Taught Evolutionary Ecology, an introductory biology course focusing on the mechanisms and processes of population biology and the demonstration of these concepts in the field. Prepared and led all laboratory discussions and activities.

RELEVANT RESEARCH EXPERIENCE

FOUNDATION FOR SHACKLEFORD HORSES *Beaufort, NC*
Consultant, December 2005-August 2006. Collected and synthesized behavioral data on a herd of wild horses living on Shackleford Banks, North Carolina. The purpose of the project was to assess whether there are any significant differences between two classes of female horses: those which have, or are currently receiving contraceptive drugs and those which have never received contraceptive drugs. The information was obtained to ensure that behavioral, structural, and genetic changes in the population are considered when making future assessments and decisions.

OXFORD RISK RESEARCH AND ANALYSIS LTD., Oxford, United Kingdom *Princeton, NJ*
Project Manager, Summer 2005. Designed and implemented experiments to investigate the efficacy of specific ultrasonic signals in discouraging deer. Managed logistics and coordinated activities between two study teams and sites. Monitored and reported on project progress to senior research members.

PRINCETON UNIVERSITY, Carnivore Disease Project *Serengeti National Park, Tanzania*
Project Manager, July 2002–November 2003. Managed field logistics and data collection for three Ph.D. students and two research assistants. Advised students and monitored both individual and group level progress. Collected behavioral data on bat-eared foxes and performed opportunistic sampling on several species, including bat-eared foxes, jackals and lions. Administered vaccines to, and obtained blood and fecal samples from domestic dogs, developed and maintained relationships with government and park officials, and managed project accounts.

EARTHWATCH INSTITUTE, Zebras of Kenya Project *Lewa Wildlife Conservancy, Kenya*
Project Coordinator, September 2000–August 2001. Collected data on the population dynamics and behavior of both Grevy's and Plains zebra for the purpose of developing a viable conservation strategy for Grevy's zebra. Hosted 48 volunteers. Taught volunteers the premise of the project and all necessary data collection techniques (including the collection of census, behavioral and ecological data and methods for individual zebra identification). Facilitated the identification of local flora and fauna for both research and enjoyment purposes.

NATIONAL PARK SERVICE *Cape Lookout National Seashore, Beaufort, NC*
Consultant, November 1996, March 1997, November 1997, January 2000. Instrumental in the statewide effort to control the spread of equine infectious anemia by identifying individuals for testing and the eventual removal of those infected. Facilitated removal and immunocontraception decisions by determining the optimal size, structure and genealogy of the population.

PRINCETON UNIVERSITY, Shackleford Banks Horse Project *Shackleford Banks, NC*
Coordinator, Summers 1994–1997. Implemented research schedules and monitored individual and group level research progress. Managed all aspects of camp logistics.

Instructor, Summers 1994–1997. Taught field biology techniques to twenty undergraduates over a three-year period. Instructed students on data collection, the identification of individual animals, and fundamental survival and camping skills. Mentored students on the analysis and interpretation of behavioral data.

CENTER FOR ENERGY AND ENVIRONMENTAL STUDIES

Brazil

Field Assistant, June 1998. Recorded on-the-ground information and verified data with that of satellite images, to develop a land cover map of Northeastern Brazil. Used Geopositioning Systems (GPS), map, and land navigation techniques to locate and characterize diverse landscape units, and organized the transportation and logistics of a continuously moving field camp.

PUBLICATIONS

Kaplan, D.H., C. Nuñez and L.S. Katz. 1993. Effect of photoperiod on the behavioral response to estradiol (E2) in ovariectomized (Ovx) goats. *Biology of Reproduction*, **48 (Suppl.1)**: 138.

Nuñez, C.M.V. 2002. Safety first. *Swara, East African Wildlife Society*, **25 (1)**: 35.

Nuñez, C.M.V., J.S. Adelman, C. Mason and D.I. Rubenstein. Behavioral effects of contraception on Shackleford Banks wild horses. In prep.

Nuñez, C.M.V. and D.I. Rubenstein. Mothering strategies and the subsequent survival of feral pony foals ‘disturbed’ and ‘undisturbed’ by culling. In prep.

Nuñez, C.M.V. and D.I. Rubenstein. Variation in the function of communication for mares and foals; subsequent differences in the usage of different communication forms. In prep.