

Princeton University

Honors Faculty Members
Receiving Emeritus Status



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Jeanne Altmann



Behavioral ecologist Jeanne Altmann, the Eugene Higgins Professor of Ecology and Evolutionary Biology, was born in New York City in 1940 and raised in the Maryland suburbs of Washington D.C. She received her bachelor's degree in mathematics from the University of Alberta in Canada, where she and her zoologist husband Stuart started a family. Joining Stuart for a year of fieldwork in southern Kenya in 1963 provided Jeanne with an introduction to nonhuman primates and their savannah environment, which would later become a focus of her methodological and empirical research. Following a move from Canada to Atlanta in 1965, Jeanne developed and taught a remedial mathematics program for the local school system and received a master of arts in teaching degree in mathematics from Emory University. With the family's relocation to Chicago, Jeanne turned her professional endeavors toward integrating her quantitative background with behavioral biology by addressing methodological issues in non-experimental research design for observational research. This culminated in a 1974 publication, *Observational Study of Behavior: Sampling Methods*, which soon became an Institute for Scientific Information citation classic in several categories and remains a standard for animal behavior research.

This project, which coincided with her younger child's entry into school, also helped Jeanne decide to enter a Ph.D. program that would suit her growing multidisciplinary interests in behavioral ecology and research methodology. She received her Ph.D. in human development from the University of Chicago in 1979. Her thesis was published by Harvard University Press the next year as *Baboon Mothers and Infants*. Jeanne's thesis research on the ecology of motherhood focused on the allocation challenges faced by simultaneous investment in survival, maintenance, and reproduction in non-seasonal breeders with high offspring investment in slowly maturing young. The study reinforced her

original idea that studying mothers and infants was not the “cute,” soft female topic that it was then considered in biology. Rather, this life stage is a situation of particularly great opportunity for selection, especially so in challenging environments such as the arid African savannahs. She was further intrigued by the extent to which the social environments of mothers enhanced or hindered their ability to succeed in negotiating this perilous period. Equally striking was the great degree to which parents and offspring were dependent on each other for success. Although the interests of parents and offspring were not identical, their ability to find creative, mutually beneficial solutions to potential conflicts of interest seemed at the core of success in the primate lineage, perhaps a major factor in evolution of human ontogeny and sociality. In the past several decades, these issues and approaches have remained salient for Jeanne’s investigations. Like the changes in observational field methodology that she introduced, her emphasis on ontogeny and on female life histories moved from radical outsider status to accepted and expected.

Both non-invasive methodology and life history variability have remained major themes of Jeanne’s research. Intimately connected to these themes was her development of the Amboseli Baboon Research Project into one of the most intensive, longstanding, and ongoing studies of any wild population of large mammals in the world. Now completing its 39th year, the project database currently represents more than seven generations of individually known animals. In the mid-1980’s, Jeanne joined both the newly established research and conservation department at Brookfield Zoo and the faculty in ecology and evolution at the University of Chicago. She subsequently served as chair of the Committee on Evolutionary Biology, a graduate training and faculty program that spanned across the university and several major scientific institutions.

As the Amboseli field project approached almost two decades in the late 1980’s, three new areas gained saliency, all of which called for development of new non-invasive methodologies. These areas were intertwined with an understanding of life history variability in natural environments, including a rapidly changing climate and environment in Amboseli; the role of physiology in life-history variability and

in adaptation to environmental variability; and the importance, for understanding survival and reproduction, of genetic relatedness through paternal as well as maternal lines. To tackle these issues, Jeanne established in 1989 several collaborations and developed new techniques to get “under the skin” with minimally or non-invasive methodologies. Initial investigations produced a number of novel papers throughout the 1990’s that just scratched the surface and provided compelling motivation to continue studies of steroid hormones and behavior and of molecular ecology, and to do so in the context of climate change. However, to answer the next set of questions required genetic samples from individuals who could only be accessed by fully non-invasive techniques such as fecal sampling. Fortunately, a few research groups around the world were starting to validate fecal steroid methods in primates and to advance use of fecal sources of DNA. In 1998, Jeanne joined Princeton’s Department of Ecology and Evolutionary Biology and established a steroid hormone lab in which such techniques could be expanded and validated, complementing a molecular ecology lab that her primary collaborator, Susan Alberts, had established at Duke University.

Once at Princeton, Jeanne continued to explore which patterns and aspects of primate lives are relatively stable, exhibit little variance across time and space, even across individuals in some cases, and conversely, which aspects are highly age-dependent, contingent on ecological and social factors, and on genetic differences. The themes of survival, reproduction, care, the importance of ecological and social context, parental effects, ontogeny, demography, and the relationship between demographic structure and both genetic relatedness and social structure, were all topics of study in the first decade of the baboon project, and all were ones for which as many questions remained as were answered. They increasingly interwove with each other and continued or re-emerged in exciting directions with the help of new methodologies, diverse collaborations, and changing developments in the fields of ecology, evolution, and behavior.

Elected to the U.S. National Academy of Sciences in 2003, Jeanne also has received a range of broad and disciplinary scientific honors. She

has served on a number of national and international scientific advisory committees, was editor of the top international journal in animal behavior for a number of years, and has served as associate editor for a variety of major journals in fields including evolution, behavior, primatology, and endocrinology.