

The Contributions of Jeanne Altmann

Jeanne Altmann is one of the founding figures of contemporary primate behavioral ecology. Her name is synonymous with the highest standards of methodological rigor and research quality. Jeanne's legacy is built on four major foundations: publication of the definitive guide to observational sampling methods; the creation and development of the Amboseli Baboon Project, now in its fourth decade; completion of the first detailed study of maternal behavior in a wild mammal; and commitment to the value of interdisciplinary research.

Virtually every paper that presents data derived from observational sampling cites Altmann 1974.¹ This paper, entitled "Observational Study of Behavior: Sampling Methods," provides a detailed analysis of the differences among various sampling schemes and a description of their appropriate uses. This paper literally changed the face of observational research in animal behavior. Before its publication, no careful analysis of the effects of sampling method on research outcomes had been done. Results within studies were frequently interpreted incorrectly and results across studies were often impossible to compare. Jeanne's paper changed all that. Researchers became aware of the biases in *ad lib* sampling, the trade-offs between scan sampling and focal sampling, the difference between events and states, and the importance of adjusting frequencies of behavioral events for time observed. This article, which achieved Citation Classic status in 1986 (8,508 citations to date on Google Scholar), remains the primary resource on sampling methods for observational studies, and should be re-read regularly by everyone who collects observational data.

In the 1970s, Jeanne and Stuart Altmann established the Amboseli Baboon Research Project (ABRP), which has become one of the longest running and most detailed studies of any mammalian population. Jeanne reports that when she and Stuart began working with the Amboseli baboons they did not have long-term research in mind. However, Jeanne's unique view of behavior and its connections to demography and life history naturally lent itself to long-term study. It takes special dedication to sustain long-term projects. In addition to maintaining consistent data collection procedures and quality control, investigators must be prepared to cope with regular but unpredictable equipment failures, funding gaps, political instability, and personnel changes. Jeanne's understanding of the importance of long-term, individual-based research in animal behavior, as well as her promotion of this kind of work through her own example, are unquestionably among her most lasting contributions.

By the mid-1980s, the ABRP was well established as a notable long-term project, and its importance has only grown in the years since then. The project has provided not only an unparalleled source of data on behavior and life history in the wild, but also provided a model for many other studies. Jeanne has consistently raised the bar for field studies by incorporating new ideas, methods, and techniques for observational studies. Jeanne and her coworkers were among the first to use digital data-collection devices and bring portable computers into the field (does anyone remember the Osborne?). When she wanted to chart growth rates, she set up a butcher's scale in areas that the baboons frequently used. When the baboons shifted their range far beyond the national park boundaries, she and her colleagues fitted a small number of individuals with radio collars so that the groups could be consistently located. The ABRP was also one of the first projects to take advantage of molecular methods for assessing paternity and genetic relatedness. These methods were first applied to

blood samples and later extended to fecal samples. In the 1990s, Jeanne set up a hormone lab so that she could monitor reproductive function in more detail.

In *Baboon Mothers and Infants*,² which was based on Jeanne's PhD thesis and was published in 1980, Jeanne provided a detailed analysis of variation in maternal behavior and its consequences. The decision to study maternal behavior was a courageous choice because her work was conducted at a time when male reproductive behavior was the focus of intense interest in behavioral ecology, and females were of relatively little interest. Indeed, one member of the department in which Jeanne did her PhD had written, "only males are directly involved in differential selection among rhesus and probably all of the terrestrial and semiterrestrial primates."³ Jeanne's choice was also notable because during the 1970s changing views of the role of women in society made a focus on maternal behavior seem somewhat retrograde. But there was an important empirical gap to be filled. Most previous studies of maternal behavior had focused on the development of relationships between mothers and their infants in captive settings. Jeanne realized that mothers in the real world face important ecological and social challenges: Food is scarce, predators are dangerous, and other group members can be helpful or harmful. Jeanne's careful quantitative analyses of the behavior of a dozen baboon mothers brought the abstract trade-offs of Trivers' theory of parental investment vividly to life and profoundly changed the way we view primate females.

Jeanne's fourth contribution is less widely known. Beginning early in her career, Jeanne has embraced multi-disciplinarity, which has resulted in richly textured work informed by diverse academic and intellectual perspectives. Her first academic love was math; not statistics, as is often assumed, but pure math. Her greatest enjoyment was losing "all sense of time or place for

innumerable uninterrupted hours or even days” in her work.⁴ Her path to a Bachelor’s degree in math was a long and winding one, as marriage and children interrupted her college years. Along the way, she worked at the NIH for Wilfrid Rall, early explorer of models of neural networks; did computer programming for Beatrice Whiting, leader of the famous Six Cultures Study of Socialization at Harvard; and rubbed shoulders with Ed Wilson and other leaders (including her husband, Stuart Altmann) of the new “sociobiological” approach to animal behavior. By the time she began her

Ph.D. at the University of Chicago’s interdisciplinary program in Human Development in the late 1970s, she had been exposed to remarkably diverse disciplines: biology, psychology, anthropology, computer science, and mathematics. This broad perspective has informed her work and, in turn, shaped the field.

REFERENCES

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