

Obituary:

Dorothy L. Cheney, Ph.D. (24 August 1950 - 9 November 2018)

by Kelly Stewart

University of California, Davis, California, USA

Dorothy Cheney, professor in Biology at the University of Pennsylvania, died on November 9 at the age of 68 from breast cancer, after several years of telling the disease to sod off. She is renowned for her ground-breaking research into the communication, cognition and social behavior of wild primates, research conducted in collaboration with her husband, Robert Seyfarth. Their work lends support to the notion that human intelligence and language had their beginnings long ago in group-living animals, that, to survive and reproduce successfully, had to navigate the complexities of social life.

The couple developed innovative, meticulous experiments that involved playing back tape recordings of animals' vocalizations to other group members and observing, often filming, their reactions. These methods enabled them to explore the function and meaning of primate vocal signals, by asking the monkeys what they knew about the world they lived in. They always viewed their results in the context of their detailed, long-term data on the individual monkeys' social relationships.

When Dorothy graduated from Wesley college in 1972 with a BA in political science, she planned to study law, not monkeys. But the previous year, she had married Robert Seyfarth. With a BA in anthropology from Harvard University, he was headed to South Africa to study wild baboons, having been accepted to Cambridge University as a graduate student of the eminent ethologist, Professor Robert Hinde.

Dorothy Cheney in the field. Photographs courtesy of Robert Seyfarth (below) and Lynne Isbell (right).



Dorothy put law school on hold to go along on this two-year monkey-watching adventure. Thus began a brilliant, productive collaboration that has influenced diverse fields, from socioecology to cognitive psychology. Dorothy, as graduate student of Professor Hinde's, received her PhD from Cambridge in 1977.

In the late 1970s, the couple began research on wild vervet monkeys in Kenya's Amboseli National Park. There they became innovators in the use of playback experiments to study the meaning and function of various vocal signals, such as alarm calls. In one of their early and revealing experiments, they played the fear scream of an infant (from a hidden speaker) to a group of adult females. The infant's mother immediately looked at the speaker (her "infant"). But other nearby females looked at the mother. That indicated that these animals were aware of and attended to the relationships of others

in their social milieu. In 1990, Cheney and Seyfarth summarized the work in their first, highly acclaimed book, "How Monkeys See the World: Inside the Mind of Another Species". It is a brilliant presentation of their findings on social cognition and its relevance to the evolution of intelligence and language.

Their research influenced work that I and my husband, Sandy Harcourt, were conducting on vocal behavior in wild mountain gorillas. In the early 1980s Dorothy and Robert joined us in Rwanda, at the Karisoke Research Center, to study the acoustic properties and behavioral correlates of gorillas' "grunts". This was no mean feat in the thick vegetation and steep terrain of the Virungas, given how cumbersome recording equipment was in those days.

In the course of their careers, Dorothy and Robert have held posts at Rockefeller University as post-doctoral fellows with Peter Marler and later as assistant professors. From 1981-85 they served as assistant profs at Dept Anthropology, UCLA, after which they moved to the University of Pennsylvania.

In 1992 they established a field site in the Moremi Game Reserve, in Botswana's Okavango Delta. Their study subjects were chacma baboons, previously observed by William Hamilton III, from UC Davis, California. For the next 15 years, they conducted extraordinary long-term research in collaboration with a group of gifted post-docs with whom they formed close bonds. The work, again using playback experiments, further examined the nature and extent of monkeys' knowledge about their social world and how they navigated through it.

A striking set of findings have been described in a series of papers using network analyses, most in collaboration with Professor Joan Silk. The results show that close friendships among female baboons can enhance their own and their offspring's survival. In fact, it turns out that close friendships can sometimes trump social rank in a female's reproductive fortunes. A female might be able to overcome the limitations of being born into a low-ranking family by forming close friendships with females who are themselves well-connected. Hormone analyses revealed that close friendships can also enhance females' health by lowering stress levels. Their 2007 book, "Baboon Metaphysics", elegantly summarizes this work.

Along with their two books, their research since the 1970s has produced a steady stream of high-quality publications, the latest appearing in 2018. From the beginning it was evident that Dorothy was not just a superb scientist, but also a gifted writer. She could produce clear, flawless prose on the first

draft, occasionally inserting wry witticisms into the midst of serious academic discourse. In the course of her career, Dorothy was distinguished with numerous honors, including induction into the National Academy of Sciences.

Dorothy and Robert have always firmly believed that for the questions they were asking, it was vital to observe animals in the habitats in which their behaviors evolved. The couple has spent years living and working in the field, conducting their research on foot, sharing their lives with abundant wildlife, including lions, elephants, hippos, crocodiles and, of course, baboons. Their two daughters, Caroline (Keena) and Lucy, essentially grew up in research camps in Africa. It was a life in which Dorothy thrived.

In addition to being a brilliant scientist and writer, Dorothy was a supportive mentor, inspiring and guiding a new generation of primatologists; she was also a great friend, and an irreplaceable *bon vivant*. Evenings with her and Robert, whether in the hallowed halls of Cambridge or on the edge of a hippo-filled lagoon in Botswana, always had plenty of wine, good food, wide-ranging conversation and much hilarity. Dorothy Cheney will be deeply missed. The world has become less wise, less interesting, and less funny.

A selection of Dorothy Cheney's publications

- Cheney, D.L. & Seyfarth, R.M. 2018. Flexible usage and social function in primate vocalizations. *Proceedings of the National Academy of Sciences* 115: 1974-1979.
- Cheney, D.L., J.B. Silk & R.M. Seyfarth. 2016. Network connections, dyadic bonds, and fitness in wild female baboons. *Royal Society Open Science* 3: 160255.
- Seyfarth, R.M. & D.L. Cheney. 2015. How sociality shapes the brain, behaviour, and cognition. *Animal Behaviour* 103: 187-190.
- Seyfarth, R.M., J.B. Silk & D.L. Cheney. 2014. Social bonds in female baboons: the interaction between personality, kinship, and rank. *Animal Behaviour* 87: 23-29.
- Cheney, D.L. 2011. Cooperation in Non-Human Primates: Function and Cognition. In *Animal Thinking: Contemporary Issues in Comparative Cognition*. R. Menzel & J. Fischer, eds. MIT Press, Cambridge. Pp. 239-252.
- Cheney, D.L. & R.M. Seyfarth. 2009. Stress and coping mechanisms in female primates. *Advances in the Study of Behavior* 39: 1-35.

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Cheney, D.L., R.M. Seyfarth, J. Fischer, J.C. Beehner, T. Bergman, D. Johnson, D.M. Kitchen, R. Palombit, D. Rendall & J.B. Silk. 2004. Factors affecting mortality and reproduction among free-ranging baboons in the Okavango Delta, Botswana. *International Journal of Primatology* 25: 401-428.

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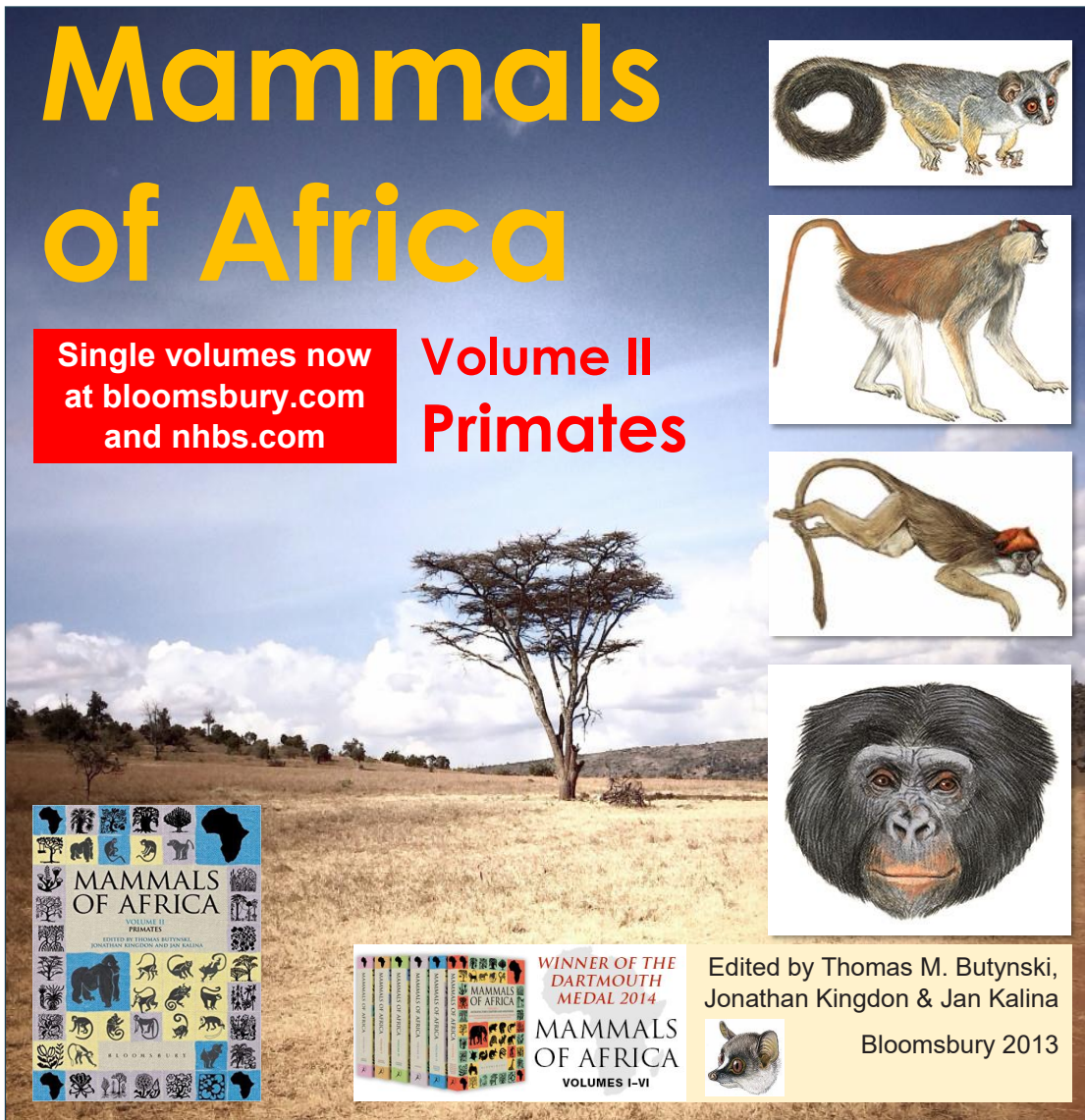
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Cheney, D.L. & R.M. Seyfarth. 1990. *How Monkeys See the World: Inside the Mind of Another Species*. University of Chicago Press, Chicago.

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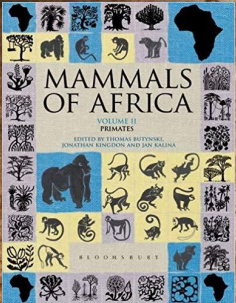


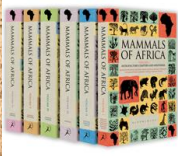
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