



Thomas T. Struhsaker: Recipient of the Lifetime Achievement Award of the International Primatological Society 2006

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Thomas T. Struhsaker received the Lifetime Achievement Award of the International Primate Society (IPS) at the International Primatological Conference in 2006 in Uganda. We here have an opportunity not only to contemplate the enormous changes

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that have occurred in primate research, and in primate conservation, since Tom launched his career but also to honor Tom's significant contribution to the changes. When Tom entered graduate school at Berkeley in 1961, field studies of primate populations in Africa were very sparse. At least in North America, people based their perceptions of tropical forests in Africa largely on Tarzan and King Kong films, and the main conservation problem in African national parks was too many elephants. Conservation organizations were just starting to become active in Africa and the global human population was 3.1 billion.

When Tom set off to study vervets (*Cercopithecus aethiops*) in East Africa in 1962, under the advisorship of Peter Marler, the field of primate behavior and ecology was still very young (Struhsaker 1967a). Approaches that focused on recognizing individuals and on following specific groups over an entire annual cycle or longer were just emerging. Many of us trace the lineage of our methodology back to Tom's study and to Stuart and Jeanne Altmann's simultaneous work on Amboseli baboons (*Papio cynocephalus*).

Researchers perhaps best know Tom's vervet work for his discovery of multiple types of alarm call (Struhsaker 1967b); the observations provided the basis for Dorothy Cheney and Robert Seyfarth's later studies that have hugely influenced our understanding of primate communication and cognition. However, at the time, everything was novel: group size and structure, diet, day range length, home range size, population density, intergroup transfer, patterns of supplantation, sleeping group composition, and much more. Description of the behavior and ecology of primates were just beginning to blossom and we were only starting to understand the extent of variability that exists in the Primates. In fact, variability was one of Tom's first themes; in his 1967 paper in *Ecology*, he emphasized the great differences in group composition, ranging pattern, and habitat use between adjacent vervet groups.

Tom subsequently worked in Cameroon, where he undertook one of the first studies on multispecific forest primate communities (Gartlan and Struhsaker 1972). Here, observation conditions were far more difficult, and even operationally defining a group was sometimes an issue. But Tom adapted to conditions on the ground with his typical force of will, and in the process began another practice that was novel at the time: involving local field assistants, including hunters, who were often happy to have a reason to watch monkeys instead of shooting them. Tom found that establishing a regular grid of narrow trails in the forest also helped observations, another now-widespread practice for which he probably deserves some credit. Tom's data on social structure were necessarily fragmentary, but at a time when John Crook and Steve Gartlan's (1966) ideas about correlates of ecology and social organization were particularly influential, the only data available on African forest monkeys came from Tom's work and that of Gartlan, Annie Gautier-Hion, and Jean-Pierre Gautier. Tom's investigations singled out several topics that subsequently generated much further work, on polyspecific associations and on the phylogenetic implications of vocalizations.

Perhaps not surprisingly, in the early papers there is little mention of conservation; the funding came from the National Science Foundation and the National Institutes of Health and was for basic research. But the intense hunting pressure that made it so difficult to observe most African forest monkeys probably

lay at the root not only of Tom's search for a better forest study site but also of his developing concern for primate conservation.

Tom's search for a forest site where primates were not hunted ended when, in 1970, he came to Kibale Forest in Uganda, where he set the stage for what arguably became Africa's leading primate and tropical forest research, conservation, and training site. His first studies were on red colobus [*Procolobus (Piliocolobus)*], and he continues to contribute to the understanding of them through active collaboration. Critically, through his long-term studies in the Kibale Forest, Tom initiated many of the methods (well described in his classic book *The Red Colobus Monkey*: Struhsaker 1975) that are now standard practice in the study of rain forest monkey ecology.

By the time Tom settled in Kibale, he displayed a commitment to conservation that was well ahead of its time. Ever since his early days in Kibale, Tom has played a critical role in the development of conservation as a major part of primatology. Kibale, being a Forest Reserve in 1970, was managed for timber production. Though the Forest Department based its working plan on a 70-yr rotation, Tom was quick to realize the serious implications for primate populations. From the early 1970s until the mid-1980s (including the worst years of Idi Amin's regime), Tom lived at Kibale and lobbied the Uganda Forest Department to elevate it to national park status, an effort that succeeded in 1993. Further, he initiated comparative studies of primate communities in parts of Kibale in which different intensities of logging had occurred. During most of his time in Kibale, Tom was employed by the New York Zoological Society (now the Wildlife Conservation Society).

Tom has made a significant impact over the generations: by mentoring students and forging ties with local and foreign biologists. Several of Tom's students went on to become researchers in their own right or university teachers responsible for training the next generation of Ugandan conservationists. Other Ugandans who benefited from Tom's legacy of training and research at Kibale joined government agencies and nongovernmental organizations, and became actively involved in conservation. One such person is William Olupot, President of the Congress Committee for the 2006 IPS Congress which honored Tom and another is Arthur Mugisha, who received training from Kibale researchers and went on to be the Executive Director of the Uganda Wildlife Authority. Despite the logistic and political difficulties associated with working in Kibale during Tom's years, the list of researchers he interacted with there is a notable one (Table 1; modified from Struhsaker 1997). Many, including several of us, benefited from their association with Tom and went on to careers in conservation in Africa and elsewhere. Tom always had lofty scientific and conservation ideals, and he instilled them in others by challenging them to rise to the same standards that he set for himself.

In the early 1970s, as the study of basic patterns in primate ecology and social organization was beginning to mushroom, Tom was already warning the academic community of the urgent need for conservation (Struhsaker 1972). Since then he has presented forceful and innovative arguments for the establishment of a network of tropical forest national parks, and making many other scientific and practical conservation contributions (Struhsaker 1981, 2005; Struhsaker *et al.* 1996). His book *Ecology of an African Rain Forest: Logging in Kibale and the Conflict Between Conservation and Exploitation* (Struhsaker 1997) is unique in presenting *ca.* 20 yr of data from both plants and animals in the same area. It is the first detailed synthesis of

Table 1 Researchers at Tom Struhsaker's Kibale study sites and primary study dates, 1970–1988 and beyond

Researchers	Study dates
John Oates	1970–72
Peter Waser	1972–73
Rudy Rudran	1973–74
William Freeland	1974–75
Deborah Baranga	1974–75
Lysa Leland	1975–88
Simon Wallis	1975–77
Gil Isabirye-Basuta	1976–
Michael Ghiglieri	1976–78
John Kasenene	1978–
Thomas Butynski	1978–84
Joseph Skorupa	1980–81
Lynne Isbell	1980–81
Jan Kalina	1981–84
Karl van Orsdol	1983–84
Matti Nummelin	1983–85
Jerry Lwanga	1984–
W. Thomas Jones	1984–86
Bonnie Cole	1985–87
Peter Howard	1985–87
Alphonse Kisubi	1985–88
Jennifer Holmes	1985–87
Steve Kramer	1985–87
Joseph Muganga	1986–88
Gary Tabor	1987–88

selective logging in a tropical rain forest and is an unrivaled landmark case study for conservationists and rain forest ecologists. He summarized data for a variety of mammalian taxa —primates, elephants, rodents, and duikers— together with rainfall, temperature, seasonality, tree phenology, and forest gap dynamics. The extensive information summarizes the adverse effects of logging on community structure and other aspects of forest ecology 25 yr after a logging event.

Tom's interest in primate communities led him to help others to set up research/conservation projects at sites around the world. He was instrumental in starting the research and conservation efforts in Kenya's Tana River forests and encouraged the work of Clive Marsh and Katherine Homewood that catalyzed the creation of the Tana River Primate National Reserve. In the Jozani Forest in Zanzibar, he researched the ecology and conservation status of endangered Kirk's red colobus (*Procolobus kirkii*) with Kirstin Siex. Most recently, he has promoted conservation efforts in sites in the Udzungwa Mountains, Tanzania, with colleagues and promoted the establishment of the Udzungwa Ecological Monitoring Center. Conservation and primate research continue at all of the sites, and Tom's contribution to their establishment continues to yield rewards.

A major contribution to come out of Tom's work at Kibale and from Amboseli is the initiation of long-term ecologically oriented field studies that bring an evolutionary perspective to primatology. The lesson was not lost on those who continue to work today in Kibale at the Kanyawara and Ngogo sites that Tom established. Tom's work clearly shows the immense value of long-term comparative

studies to unravel complex multivariate systems. An overarching point that Tom has repeatedly made in his research is that it is vital to understand the demographic context of a population before developing comparative socioecological or ecological models. Central to the approach is to separate robust demographic trends from natural variation that occurs among areas and those that occur in a particular area across years. In fact, there is no adequate substitute for long-term comparative studies for understanding the extent of demographic variation, or the aspects of social behavior that are influenced by demography.

There are also practical conservation implications from long-term integrated studies. For example, there has been much discussion about the possibilities of sustainable logging in tropical rain forests. The concept is trendy, but good data are sorely lacking. Tom showed that logging should be at a much lower intensity than that practiced at Kibale if intact ecosystems are to be maintained and regeneration is to occur at a suitable pace (Struhsaker 1997). Through his research, Tom was able to make recommendations for harvesting practices that are consistent with sustainable use, conservation, ecological integrity, and the maintenance of biodiversity. Illustrating his commitment to collect truly long-term data, Tom continues to investigate collaboratively patterns of forest regeneration and the responses of primate populations to forest recovery in the same areas of Kibale where he worked >35 yr ago.

Any summary of Tom's accomplishments must acknowledge the outstanding personal qualities that have elicited tremendous respect and affection for him by his colleagues and friends. He is a truly distinguished scientist and a special colleague to many of us, and his influence on the work of other primate researchers and conservation practitioners in many countries is immense. He is also clearly a person of high principles who is capable of working under difficult circumstances, including those that have demanded considerable personal courage in the face of political upheaval and insecurity. He has repeatedly demonstrated that such traits are often what are required to advance conservation issues. Today, Makerere University's Biological Field Station hosts national and international field courses, while the Kanyanchu chimpanzee tourism site and the Kanyawara and Ngogo research areas are among the premier sites for primate observation and study in the world. The fact that Tom was able to keep the field station operating and the forest largely intact through Uganda's dire years of political instability in the 1970s and early 1980s illustrates his strength of character and perseverance. Tom's huge efforts in both research and conservation has been made in a most selfless fashion, with virtually no part of his long career devoted to self-promotion or the quest for fame or fortune.

Tom continues to take the lessons learned from sites like Kibale, Zanzibar, and the Udzungwa Mountains and use them to formulate appropriate conservation policy for the management of national parks (Struhsaker 1998; Struhsaker *et al.* 2005). Such careful consideration of conservation practice and the almost 45 yr of research on primates have provided truly unique insights into the lives, and most importantly the conservation, of these intriguing animals (Chapman *et al.* 2005). In contrast to the early years, multiple international conservation organizations exist and jockey to support flagship primate species; African-based conservation efforts are growing and vocal and Kibale is only one of numerous African forest national parks. Yet, the global human population is now 6.6 billion. We could use more Tom Struhsakers to help.

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