

Chimp the Hunter

These apes are cute and clever — and they're vicious predators

By BRUCE BOWER

The morning sun shimmers above Tanzania's Gombe National Park, sending its parched breath across the October landscape. Dry summer months have left the vegetation wilted and many fruit trees bare. A group of 33 chimpanzees — all members of the Gombe-based Kasakela community — wends through woods and scattered clumps of trees searching for food, scanning the vicinity with a hungry urgency.

Chattering and movement by red colobus monkeys in a nearby tree attract the chimps' attention. Several adult and adolescent males saunter to the base of the tree. Increasingly vocal colobus males form a protective wall in front of a cluster of young monkeys and adult females, some of which hold babies.

The largest chimp pulls himself into the tree and heads toward the monkeys. Like heat-seeking missiles, colobus males launch themselves at the intruder and sink their teeth into his back and arms. Two monkeys go flying as the robust chimp thrusts them off his body and plunges forward. He rips a colobus infant from its mother's embrace and heads back to the ground.

Over the next hour, chimps carry off a few more infants and kill them quickly with bites to the head and neck. Several adult monkeys put up fierce resistance and are flailed against tree branches or the ground until they hang limply from an

attacker's powerful arms. The chimps' series of assaults yields a total of seven colobus victims.

For much of the remaining afternoon, the hunting party huddles around its kills and consumes virtually all traces of them — flesh, internal organs, bones, and even hair. Male hunters eat 1 to 2 pounds of meat apiece and dole out smaller amounts to selected onlookers. Several females with swollen hind pouches, which signal their sexual readiness, copulate with male hunters before receiving a share of meat.

Craig B. Stanford, an anthropologist at the University of Southern California (USC) in Los Angeles, watches this scene of unbridled carnivory from a safe distance. Scientists know relatively little about the extent to which wild chimpanzees engage in such hunts and why, at times, they ruthlessly sate a hunger for fresh meat. Thus, Stanford meticulously records how the hunt unfolds and who gets how much when it's over. Yet he also feels pangs of anguish and helplessness.

"I was seeing some monkeys I had come to know well through years of fieldwork being ripped to pieces and eaten," Stanford points out, as he recalls the chimps' bloody midday repast.

Such scenes occur with surprising frequency, according to Stanford and his coworkers, who include famed Gombe chimp researcher Jane Goodall. The chimps in Stanford's ongoing studies kill 75 to 175 colobus monkeys each year, as well as smaller numbers of

young bushbuck antelope, bush-pigs, and other prey that usually weigh less than 20 pounds each. Kasakela chimps collectively eat as much as 1,200 pounds of monkey meat annually. Meat makes up about 3 percent of the chimps' diet.

Field observations of Gombe

chimps conducted from 1982 through 1991 have generated the largest record of primate hunting to date, Stanford notes. Enough evidence on chimp hunting now exists to compel scientists to look more closely for clues to the predatory tastes of early hominids, or members of the human evolutionary family, he asserted in March at the annual meeting of the American Association of Physical Anthropologists in Oakland, Calif. The first hominids, who evolved around 5 million years ago, may often have hunted small game in a chimplike manner, Stanford suggests.

Researchers vary in their willingness to treat chimp behavior as a reflection of ancient hominids' habits. Nonetheless, Stanford's view challenges the theory, which has gained prominence in the past decade, that early hominids obtained fat and meat predominantly by picking over the carcasses of large animals killed by lions and other premier predators.

During the 1960s and 1970s, many anthropologists supported a "man the hunter" theory, which envisioned groups of cooperative male hunters as the driving force for human evolution. However, the same researchers downplayed previous attempts to portray ancient hominids as "killer apes," devoted to the brutal slaying of big game and enjoying a meat-rich diet.

Man the hunter scenarios have been attacked for their neglect of the evolutionary role played by women. But evidence that humans do not hold a monopoly on hunting among primates has gone largely unnoticed.

Goodall first reported Gombe chimps' penchant for catching and eating small prey in 1968. Separate research teams have also observed chimp predation of red colobus monkeys and other animals in Tanzania's Mihale Mountains and in the Tai Mountains of western Africa's Ivory Coast.

"Stanford has seen things that other investigators have missed, because he also looks at chimps' meat eating from the point of view of their major prey, the colobus monkeys," says William C. McGrew, an anthropologist at Miami University in Oxford, Ohio, who also conducts research at Gombe.

A key insight of Stanford's investigation is that the proportion of meat in chimps' diet rises sharply in the dry months of late summer and early fall, reaching a level near that of some human foraging societies. At Gombe, nearly 40 percent of colobus kills occur in August and September. During that time, adult and adolescent chimps consume from 1 to nearly 4 ounces of meat daily. This suggests that some degree of planning, beyond random opportunities that arise during foraging expeditions, goes into hunting.



A Gombe chimp partakes of freshly procured monkey meat.

Dry season hunting does not spring from the sheer hunger of animals facing shortages of other foods, Stanford asserts. For instance, chimps do not spend more time during summer months foraging for oil palm nuts and other plants that remain abundant and contain a far richer concentration of calories than monkey meat.

However, colobus prey provide dietary fat that the chimps evidently crave, the USC anthropologist argues. Kasakela chimps typically first consume a monkey's brain, which contains a dense supply of fat. They then suck out the fatty marrow of long bones before moving on to meat and other body parts.

Chimps hunt for social as well as dietary reasons, Stanford contends. Sexual politics, in particular, influences decisions about whether to attack a particular group of monkeys and how meat gets shared, he maintains.

Males make nearly all the monkey kills at Gombe, but females may be the "driving force" behind chimp predation, according to Stanford. The presence in a hunting party of females in heat encourages more males to join the expedition and increases the chances of a hunt taking place. And a group of 10 or more adult and adolescent males nearly always bags some prey, whereas a lone hunter captures a colobus about 30 percent of the time.

Still, male meat seekers act largely on their own during and after the kill, even in the largest hunting parties, Stanford notes. Each animal eats much of what he catches and gives the rest to those females who provide sex in return, as well as to selected family members and friends.

Females apparently have good reason for acceding to hunters' meat-for-sex demands, McGrew notes. Gombe females who regularly obtain generous shares of meat produce more offspring that survive past infancy than other females, he finds.

Japanese researchers working in the Mihale Mountains have reported that a dominant male in one community distributes meat to his male allies and withholds it from rivals. Further studies at Gombe will examine whether meat sharing helps to forge alliances between males, Stanford says.

In a provocative extension of his findings, Stanford argues that human ancestors living more than 4 million years ago may have hunted in much the same way as chimps do now. Early hominids killed prey for reasons at least as complex and politically charged as those of Gombe chimps, he theorizes.

Most early hominid hunters were probably males who hunted within a core area of a larger foraging territory, the pattern shown by Gombe chimps, Stanford asserts. Other likely character-

istics of hunting by hominids, in his view, include increased meat eating during lean, dry months; a preference for consuming the brain and marrow of prey; meat sharing by members of a hunting party; and the use of meat to gain political and sexual advantages.

Fossil finds in Ethiopia of the earliest known hominid species, *Australopithecus ramidus*, generally support this scenario, Stanford argues. *A. ramidus* lived about 4.4 million years ago in a forested area it shared with colobus monkeys, small antelopes, and many other animals (SN: 10/1/94, p.212).

Although *A. ramidus* had a body adapted for two-legged walking and undoubtedly climbed in trees less adeptly than Gombe chimps, it still had the capacity to capture the tree-dwelling ancestors of colobus monkeys, the USC researcher contends. For example, 8 to 10 hominids could have cornered several monkeys in an isolated tree, with some hunters shaking the prey off branches and others catching and killing them.

A. ramidus and other early hominids had small canine teeth compared to Gombe chimps, but sharp canines prove far less valuable to chimp hunters than having the arm strength to grab monkeys and flail them to death. "Modern chimpanzees in the wild have little interest in dead animals as food and offer little support for a scavenging phase in human prehistory," Stanford says.

Investigations have yet to turn up any solid evidence that *A. ramidus* hunted monkeys or any other creatures, says Tim D. White, an anthropologist at the University of California, Berkeley, and director of the *A. ramidus* excavations in Ethiopia. Future work will attempt to reconstruct the ancient environment of *A. ramidus* and compare it to the forested regions now inhabited by chimpanzees.

"Our early hominid ancestors were more like chimps than anything else," White asserts. "Modern chimps show us the kinds of possibilities that were open to hominids, but the final evidence has to come from fossils and other information at hominid sites."

Still, the significance of Stanford's data on chimp hunting remains in dispute.

Milford H. Wolpoff, an anthropologist at the University of Michigan in Ann Arbor, expresses doubt that living chimps offer a looking glass into the world of early hominids. "I don't think chimps are a good model for hominids," he says. "It's not clear that we even know what ances-

tral chimps were like from 4 million to 6 million years ago. Stanford may end up showing us what hominids didn't do, which would also be important."

Robert J. Blumenshine, an anthropologist at Rutgers University in New Brunswick, N.J., argues that living chimps serve up only a partial glimpse of how hominids procured meat. Stanford's data concern the hunting of prey weighing no more than 20 pounds, Blumenshine says, but ancient hominid sites in Africa bear evidence that hominids frequently consumed much larger animals. Many of these sites contain the remains of adult antelope and other prey of comparable size mixed with stone tools appropriate for pounding and slicing carcasses, he adds.

"Scavenging is the best explanation for how hominids acquired large prey," the Rutgers investigator holds.

Given that Gombe chimps literally eat away all traces of their colobus prey, Stanford suspects that archaeological data cited by Blumenshine underes-

timate the extent to which hominids hunted small game.

Hominids undoubtedly exerted diverse influences on their prey that are equally difficult to extract from ancient bones and stones, Stanford remarks. At Gombe, for instance, the chimps' preference for infant and juvenile monkeys skews the composition of the colobus population. Immature animals make up 17 percent of all colobus living in the chimps' hunting range, whereas they compose 40 percent of the colobus population in adjacent areas.

Moreover, the number of monkeys killed in hunts rises or falls substantially, based on the composition of the chimp population. Colobus mortality has increased sharply since 1990 because of growth in the number of adult and adolescent males in the Kasakela community, Stanford says.

A single avid or skilled hunter can take a big bite out of a prey population. Consider Frodo, a 120-pound adult male chimp who in the past few years has distinguished himself as the fiercest and most successful Gombe hunter. In 2 years, 1990 and 1992, Stanford estimates that Frodo single-handedly killed nearly 10 percent of the colobus living in the home range of the Kasakela chimps. That works out to 40 solo kills in each of those years.

"Early hominids could have hunted in this way if they lived in woodlands with low, isolated trees," Stanford asserts. "Predation may have had an important influence on social and group behavior in all primates." □



Gombe chimps huddle while dividing spoils of a hunt.

Stanford