

## Featured Story

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# Rational Fear

*As human populations expand and lions' prey dwindles in eastern Africa, the poorest people—and hungriest lions—pay the price.*

**By Craig Packer**



Bantu farmer oversees his field in the coastal scrublands of southern Tanzania. The makeshift hut, where he sleeps during harvest time, offers little protection from the lions that hunt at night for bushpigs—or for human prey.

*Photo by Bernard Kissui*

There are parts of Africa where humans are just another meal, where walking alone down an unlit path can bring on an overwhelming sensation of helplessness, and where a fear of the dark or of monsters under one's bed is anything but superstitious. Bantu farmers in southern Tanzania and northern Mozambique rank among the poorest in eastern Africa. They grow rice, maize, and cassava in small plots, which they hoe by hand, and live in nearby huts with thatched roofs and mud-caulked walls of interwoven sticks. Most are Muslim, and few are educated beyond primary school. Birthrates are high. Children are everywhere, walking to and from school, playing outside. Women fetch water from wells, streams, or ponds a few miles from home. No one has indoor plumbing; outhouses are at least fifty feet from the back door. Every evening people dine outside in the hot, humid air. Some have kerosene lamps, but no one owns a flashlight. Twilight is brief and the nights are always about twelve hours long. On a cloudy night, the darkness is absolute.

In a bad year, lions attack as many as 140 Tanzanians; unreported cases may double that number. During quiet intervals, lions still attack ten to thirty people a year, and the numbers often flare up again. The majority of lion attacks are

fatal, and the victims are eaten. Lions' patterns of predation on *Homo sapiens* are similar to those on wildebeest, zebra, or gazelle: they prefer to catch people who are away from others in the dark. Some cases are particularly horrifying: lions dig through thatched roofs and drag elderly people out of bed; they pluck small children from the breasts of their nursing mothers or the arms of their grandmothers; one woman lost her husband and parents in two separate attacks several months apart.



Billboards in Rufiji, Tanzania, refer to an outbreak of lion attacks from 2002 to 2004, in which forty people were killed. The outbreak ended with the death of a three-year-old male lion the villagers had come to call Osama. However, many of the reported attacks had involved a whole group of lions.

*Photos by Craig Packer*

The threat of man-eating predators has molded our evolution, and has provided fodder for folklore and travelers' tales. But there have been many more rumors and myths about man-eaters than hard facts. Two of my students, Dennis Ikanda and Hadas Kushnir, and I have conducted detailed studies of man-eating lions in the coastal scrublands of southern Tanzania for the past six years. Ikanda and Kushnir have visited the survivors and the victims' families to find out what happened in more than 300 lion attacks. Who was taken? What were they doing? Where and when did the attack take place? We hope these data will help authorities devise ways to protect local people from lion attacks and reduce the need for retaliation.

Although the problem has intensified in recent years, lions have eaten people in these areas for as long as anyone can remember. In the past century, lion populations throughout Africa have plummeted to less than 50,000 individuals in total. The big cats have largely been eradicated outside the national parks and game reserves in almost every other part of Africa, but the coastal scrublands stretching from Dar es Salaam down to the Mozambican town of Pemba host the last great population of lions that live among people—and outside any sort of protected area. And here be Man Eaters.

In the Grotte Chauvet of southern France, 32,000-year-old cave paintings detail the angle of lions' ears, their whisker spots, and their facial expressions while snarling. Since the artist(s) lacked spotting scopes, binoculars, and telephoto lenses, they must have observed lions at reasonably close range—and lived long enough to record their observations. Large, maneless cave lions (*Panthera atrox*) once ranged throughout the Northern Hemisphere, and archaeological evidence suggests that early humans were scavengers for hundreds of thousands of years before they began hunting for themselves. Thus, early humans must have relied on lions and other large predators as a major source of animal protein—chasing the carnivores away from their kills and feasting on the remains. Similarly, modern Bushmen, such as the Hadza of Tanzania, are rarely troubled by the sight of a lion; in fact, some believe that they can make “medicine” of saliva and a chewed-up seed to keep lions at bay.

Modern pastoralists have a more complex relationship with lions. The Maasai, for example, retaliate against lions that kill their cattle, and they are also motivated to kill lions in a ritual hunt known as *ala-mayo*, in which young warriors prove their courage by spearing a lion and taking its tail. Dennis Ikanda and another of my students, Bernard Kissui, have studied the relationship between lions and Maasai in northern Tanzania, and they found that lions almost never seek Maasai as prey. Rather, lions only attack the warriors in self-defense or injure herders during cattle raids. Working in the Ngorongoro Conservation Area, Ikanda found that while lions are especially likely to attack livestock herds tended entirely by children—yes, children, often only six or seven years old—a hungry lion will push a child aside to get to a goat or cow. Kissui has found that the “exchange rate” around Tarangire National Park is approximately one lion killed for every dead cow. Consequently, lions in the land of the Maasai are strikingly nonthreatening to humans, slinking off whenever tourists or other harmless bipeds emerge from their vehicles.

Unlike the Maasai with their warrior traditions, rural farmers in southern Tanzania and northern Mozambique have less direct experience of wild animal behavior and fewer, if any, weapons to protect themselves. And, of course, agriculturalists transform land from its native state to grow crops, reducing the carrying capacity for the lions' natural prey and replacing herbivore biomass with more and more people. The human population in southern Tanzania and northern Mozambique has nearly doubled in the past twenty years.

But agriculturalists do not live in a vacuum—their crops invite various unwanted species, such as monkeys and birds. Daytime pests require daytime vigilance and extra time in the fields. But it is a nocturnal species that provides the necessary link between lions and people to create the optimal circumstances for an outbreak of man-eating: bushpigs (*Potamochoerus larvatus*).

Typical lion prey such as buffalo, wildebeest, and zebra cannot survive the transformation of savanna grasslands to cropland. Highly disturbed habitats, on the other hand, are ideal for bushpigs. Those nocturnal omnivores remain hidden in thick vegetation during the day and emerge as voracious crop pests during the night. Pigs also breed easily and are virtually impossible to eradicate. In northern Tanzania, some areas are predominantly Christian; farmers there dig trenches around their fields, too wide for the pigs' short legs to clear, and then feast on anything that falls in. In largely Muslim southern Tanzania and northern Mozambique, however, most people will not eat pork; some Muslims hesitate even to touch a pig. So the main strategy for pig control there is to build a simple covered platform, or *dungu*, where the farmer can sleep in the field, listen for disturbances during the night, and chase away any pigs with loud noises, sticks, and stones.



In Ruhokwe village, Lindi District, a man acts out how his four-year-old grandson was being lifted out of the bath basin by the grandmother when the boy was snatched by a lion. The boy's remains were found later.

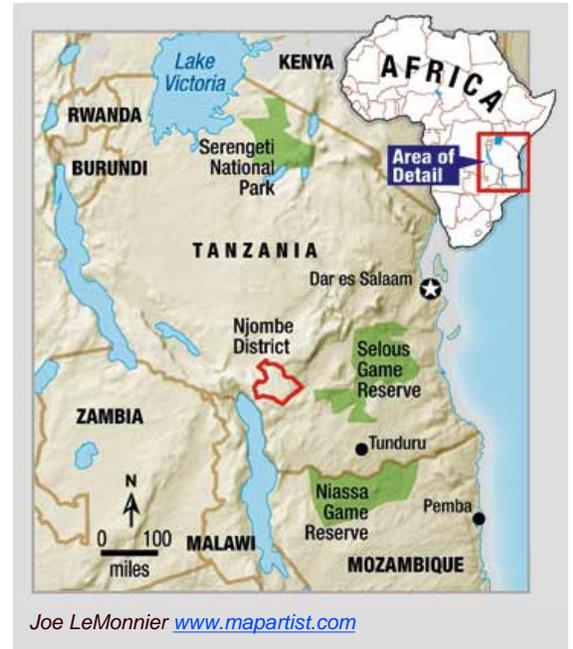
Photo by Hada Kushnir

Loud noises and sticks and stones are not much defense against the lions, which specialize in bushpigs, the greatest biomass of their prey in the coastal agricultural region. Villagers say that the loud squeal of a dying pig is a sure sign of lions, and any Christians in the area will eagerly chase off the lions for a free meal of wild pork. So the pigs, being maintenance food for lions, act as magnets that draw predators all the way into the fields and villages. We have found that the most common context of lion attack is when the victim sleeps in a *dungu*—and lions following bushpigs into the fields have stumbled across easier prey.

Regardless of their initial experience with human flesh, once lions learn that people can be eaten, some become repeat offenders. Some habitual man-eaters are males, some are females, some are old, and some are young. Sometimes whole prides partake.

An outbreak of man-eating lions may last for two to three years, or until the habituated lions and their offspring are killed. In the meantime, more than forty people may fall victim in a roughly forty-square-mile area. The worst outbreak of man-eating lions in history was in the Njombe district of southern Tanzania, where as many as 1,500 people were killed between 1932 and 1947 (see map right). The outbreak was apparently precipitated by a game-control program on the border with Malawi and Zambia, intended to prevent the spread of rinderpest (a livestock disease) between eastern and southern Africa. George Rushby, a British game warden, was sent by the colonial authorities to eradicate the man-eaters, and he expressed surprise that there could be so many lions in the area, since there seemed to be so little lion prey and so many bushpigs!

In a statistical analysis, my students and I found that the districts of Tanzania with the highest number of lion attacks on humans in the twenty-first century also had the lowest abundance of “normal lion prey” and the greatest abundance of bushpigs. Areas surrounding the famous national parks in northern Tanzania (Serengeti, Tarangire, and Manyara) have abundant wildebeest, zebra, and buffalo and very few bushpigs—so tourists have little to fear!



Fear among locals, however, has been a significant impediment to dealing with man-eaters. The belief is pervasive among local people that these are not animals at all, but malevolent magic spirits. Sometimes the first victim's family won't even tell their neighbors about the attack, fearing that the death was retribution for some heinous crime committed by their dead relative. People's perceptions of magic are deep and abiding. In some cases, villagers rely on the local medicine man to tell them if it is a spirit lion or a real lion. Local villagers will tell you that they don't mind real lions—it is the spirit lions that terrify them. But over the course of any persistent outbreak, the medicine man eventually changes his mind and declares the offending lions to be real—and control strategies are finally implemented.

The belief in spirit lions can tear apart the fabric of local society. In northern Mozambique, outbreaks of man-eating lions have led to public lynchings of villagers who were accused of unleashing evil spirits. Elsewhere in Mozambique, the number of official reports of man-eating lions fell to zero during the tenure of a particularly powerful and famous medicine man. After his death, cases were no longer exclusively attributed to spirits, and the number of reports returned to normal.

Further reinforcing the belief that the killers are supernatural, the movements of man-eating lions can be highly erratic and unexpected. One famous man-eater in southern Tanzania was called Simba Karatasi, literally “paper lion”, because he seemed to move about as randomly as a piece of paper blown by the wind. Lions rely on stealth and surprise when capturing their prey: they cannot outrun their usual quarry of wildebeest or zebra, so they often stalk them to within several feet before a final charge. Since lions are primarily nocturnal, most of their long-range movements are under cover of darkness, and even in undisturbed areas like the Serengeti, lions may move two miles in a single night looking for unsuspecting prey. Where prey is scarce, they can move as much as twelve and a half miles overnight.



Woman explains how, one evening, her five-year-old son was grabbed from a path by a lion when she had briefly stepped aside to relieve herself. The lion dropped the boy when she gave chase, but his upper ribcage had been crushed and he died the next morning.

Photo by Craig Packer

And since many man-eaters survive mostly on bushpigs, they may only feed on human flesh every fourth or fifth meal. So it is no surprise that people think they are appearing out of nowhere.

The myth of the Great White Hunter has resonated for well over a century in Europe and North America. David Livingstone, the famous explorer and missionary, traveled through eastern and southern Africa seeking to eradicate the slave trade and to spread Christianity throughout Africa. Livingstone largely supported himself through his writings, and his books contained florid accounts of the man-eating lions he killed in what is now Zambia (then Northern Rhodesia) and Zimbabwe (then Southern Rhodesia). In the 1890s, about two decades after Livingstone's death, Colonel J.H. Patterson was sent to Tsavo, Kenya, by the colonial authorities to deal with an outbreak of man-eaters during the construction of a railway from Mombasa to Kampala. The lions proved to be difficult quarry, and his subsequent book, *The Man-Eaters of Tsavo*, spawned no fewer than three Hollywood films: *Bwana Devil* (1952), *Killers of Kilimanjaro* (1959), and *The Ghost and the Darkness* (1996). Indeed, popular culture has been quite obsessed with the notion that white men are somehow the only reliable agents for protecting helpless villagers. Certainly *The Man-Eaters of Tsavo* had a disproportionate impact on this perception, with Colonel Patterson being the only man who could rescue the railway crew. Yet at least twenty-eight of the scores of Tsavo victims were laborers from India who had likely never owned a weapon in their lives and any of the victims might have fared better with Patterson's means. In the 1932 outbreak, George Rushby relied on his Tanzanian assistants as well as his experience as a hunter to finally end the terror in Njombe (see "Man-Eaters of Tsavo," November 1998).

The falsehood at the heart of the Great White Hunter myth is the notion that African villagers will forever remain helpless and that only outside expertise can protect them against the forces of nature. It is certainly true that when you are very, very poor and cannot afford anything more than the clothes on your back, there is no way that you can buy your own guns to shoot the marauding lions or erect fences to keep the pigs out of your fields or even provide adequate lighting around your house at night. And certainly the scale of rural poverty in southern Tanzania and northern Mozambique is heartbreaking.

But the fact is that very simple technology now makes man-eating lions almost trivially easy to kill. And the word spreads fast. A few years ago, an elderly couple were sleeping in their hut one night when the wife had to go to the outhouse. She didn't come back, and the husband went out to look for her. At the outhouse, he found the upper half of her body lying on the ground. He quietly went back to their hut, fetched a box of rat poison, and came back to lace the remains of his wife. It worked.

Whether independently or in recollection of this first case, a man in another village found the lower half of his mother-in-law's body a year or so later. He, too, laced her body with rat poison. It worked again. Now people know what to do, and rat poison is something anyone can afford. In some areas, people tolerate lions because they help control the bushpigs, but most people would rather deal with bushpigs than with man-eating lions, so they have even started lacing bushpig carcasses with poison and setting out poisoned goats as bait.

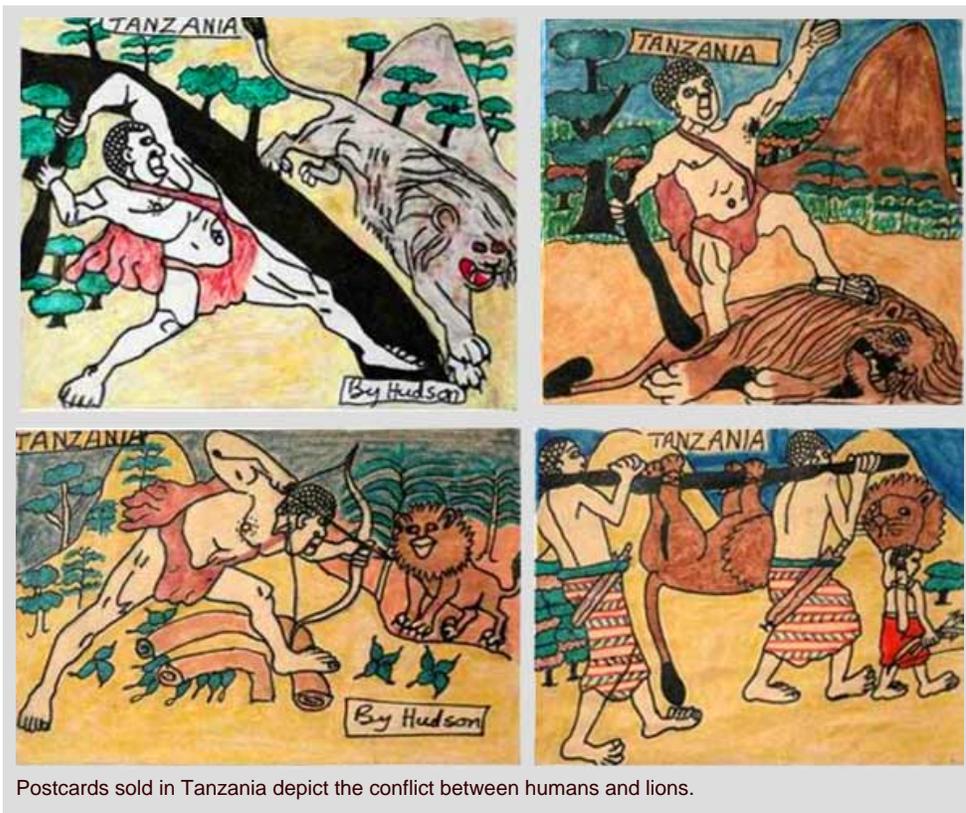
This started about five years ago, and it seems likely that most of the lions have been eradicated from the rural areas of southern Tanzania, because we have only heard of a dozen or so fatal attacks each year since 2005. But there will always be lions emerging from Tanzania's vast Selous Game Reserve (which, at 17,300 square miles, is larger than Switzerland and held as many as 4,000 lions a decade ago) and Mozambique's vast Niassa Reserve (which is nearly as large as the Selous and may be home to a thousand more lions). And rural villagers quickly become complacent after the last lion has been destroyed in a particular outbreak, thinking that it will never happen again—but, eventually, it will. Thus it would be best to take precautionary steps to protect people from being eaten in the first place.

Our scientific research focuses on some-how trying to mitigate this brutal conflict. Currently a new Tanzanian wildlife student, Harunnah Lyimo, is testing various strategies for keeping pigs out of the villagers' fields. Bushpigs cannot be eradicated, but it should be possible to exclude them from the fields with trenches or a string of chili peppers or even the sort of animal repellent used in America to deter raccoons and deer from suburban gardens. And even if those measures don't fully protect the villagers against lions, they could at least reduce crop losses.



Typical outhouse of poles and grass in background offers little protection.

Photo by Hada Kushnir



Postcards sold in Tanzania depict the conflict between humans and lions.

Education may be useful, too; it is simply not a good idea to walk alone at night. And certainly, friends should never allow friends to walk home alone drunk in the dark—lions seem to have a particular fondness for drunks. But then they also catch the simple and delusional outcasts: schizophrenics and the slow-witted.

It is difficult to exaggerate the toll that even a few man-eating lions can exact on the psychology of a rural community. Harvest season is man-eating season. Beyond the direct costs of injury and loss of life, people can become almost paralyzed with fear, leaving their crops to rot in the fields.

There are fewer than 50,000 lions left in all of Africa; Tanzania is their final stronghold. There may only be a dozen or a hundred lions in the coastal scrublands. But what can you do when one of those lions comes from nowhere? It's hungry. It strikes in the dark. You have no weapons.

That lion could be anywhere, even under your bed.

[Hear author Craig Packer interviewed by Vittorio Maestro, Editor in Chief of \*Natural History\*. \(MP3, 32 minutes, 53 seconds\)](#)

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- ["When Lions Ruled France," by Craig Packer and John Clottes \(\*Natural History\*, November 2000\)](#)
- [Selous Lion Project](#)



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*Craig Packer has studied the lions of the Serengeti since 1978, with his primary funding consistently provided by the National Science Foundation. He spends several months a year in Africa and the remainder in Minnesota, where he holds a position of Distinguished McKnight University Professor at the University of Minnesota. Currently Packer serves on the Panthera Foundation's advisory*

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