Theodore Roosevelt's quest for wilderness: a comparison of Roosevelt's visits to Yellowstone and Africa

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Abstract

This paper will compare and contrast Theodore Roosevelt's presidential visits to Yellowstone in 1903 and eastern Africa in 1909. I will examine the reasons why Roosevelt chose to visit these regions, his experiences from both trips, his observations regarding ungulates and predators, and his visions for the future of these two wildlife reserves. In both visits, Roosevelt wanted to experience a wilderness adventure similar to his early experiences on the western frontier. Roosevelt intended to hunt dangerous game in both visits, but due to the threat of bad publicity and the protective game laws of Yellowstone, Roosevelt did not hunt in Yellowstone as he did in Africa. Despite the obvious difference between his activities during both visits and the varied ecosystems of both areas, Roosevelt took great interest in comparing the African landscape, its residents, and its wildlife with their western counterparts. In both instances, Roosevelt greatly focused on wildlife, including human–wildlife encounters, predator–prey relationships, and the effects of protective game laws on animal populations and their behavior. In his written accounts of these visits, Roosevelt expressed his vision for game reserves and game laws for both Africa and the United States. By examining Roosevelt's visits and his impressions of both Yellowstone and Africa, one can better understand the role Roosevelt played in both national and international conservation movements. Researchers can also compare the similarity and differences of early twentieth-century conservationists' perspectives of and goals for Africa and Yellowstone.

Introduction

A bronze equestrian statue of Theodore Roosevelt stands at the entrance of the American Museum of Natural History in New York City. Depicted standing beside the mounted Roosevelt is a Native American and an African. Although the artist's intent was to represent Roosevelt's visits to the American West and Africa, this statue is sometimes viewed by those unfamiliar with its context as representing the racist ideology of the Progressive Era, when Native Americans and Africans were viewed as being socially inferior to the dominant white Roosevelt towering above them. However, in the minds of Theodore Roosevelt and many of his contemporaries, the lands and the wildlife of Africa and the American West shared one very important characteristic, the ability to provide an exciting wilderness experience.

Theodore Roosevelt's visits to Yellowstone in 1903, and to eastern Africa in 1909, illustrate his continual quest for an ideal wilderness experience. On both visits, Roosevelt wanted to experience a wilderness adventure similar

to his early experiences on the western frontier, which had come to typify Roosevelt's ideal vision of a wilderness experience. Roosevelt intended to hunt dangerous game during both of these visits, but due to the threat of bad publicity and Yellowstone's protective game laws, Roosevelt did not hunt in Yellowstone as he did in Africa. Despite the obvious differences between his activities during both visits, as well as the varied ecosystems of both areas, Roosevelt took great interest in comparing the African landscape and its wildlife with their western American counterparts in Yellowstone. Roosevelt was strongly focused on wildlife, including human–wildlife encounters, predator–prey relationships, and the effects of protective game laws on animal populations and their behavior in each of these distinct ecosystems. In his greatly publicized written accounts of these visits, Roosevelt also expressed his vision for the future of game reserves and game laws in both Africa and the United States.

The American West, Africa, and a teenage boy, 1872

In 1872, three separate events, occurring far apart, would form a lasting impact on the historic development of both the American West and Africa. On March 3, 1872, President Ulysses S. Grant signed a bill setting aside Yellowstone National Park as "pleasuring ground for the benefit and enjoyment of the people." This act protected and removed from the homesteading process a vast area containing great scenic and geothermal features then-recently revealed to the American public through government-sponsored scientific expeditions. At the time, no one would guess that this region, originally intended as a "pleasuring ground," would also evolve into what Theodore Roosevelt described as a "wilderness reserve," serving as a refuge for a variety of species of western wildlife that were threatened with extinction in other western regions.

On September 8, 1872, only a few months after the creation of Yellowstone National Park, Henry Morton Stanley was presented to Queen Victoria for finding Dr. David Livingstone in East Africa. Livingstone, an English missionary and famed explorer, became stranded in his quest to find the then-unknown headwaters of the Nile River. After years of isolation in Africa, many of Livingstone's family members, friends, and the general populace of England feared him to be dead. Stanley, sponsored by a New York newspaper publisher hoping to increase newspaper sales with tales of adventure from the "Dark Continent," surprised the world by finding Livingstone still alive. Upon meeting Livingstone for the first time, Stanley uttered the famous words that came to symbolize the European conquest of the African continent, "Doctor Livingstone, I presume?" Stanley's famous expedition brought considerable attention to Africa, and many explorers followed Stanley's footsteps to map and claim eastern Africa for the European colonial powers. In 1872, most people predicted that within a few years of Stanley's famed expedition, East

Africa would be settled by a variety of Europeans, and would become another "civilized" land contributing to the growing European empires. At this time, if anyone had predicted that Africa would become a "wilderness reserve," serving as a refuge for vast herds of African wildlife for future generations to enjoy, they would have been viewed by many of their contemporaries as being of unsound mind.

In the summer of 1872, young Theodore Roosevelt celebrated his fourteenth birthday and received his first hunting rifle. Roosevelt described his first gun with a sense of nostalgia in his autobiography, "My gun was a breech-loading, pin-fire double-barrel, of French manufacture. It was an excellent gun for a clumsy and often absent minded boy. There was no spring to open it, and if the mechanism became rusted shut, it could be opened with a brick without serious damage. When the cartridges stuck they could be removed in the same fashion. If they were loaded, however, the result was not always happy, and I tattooed myself with partially unburned grains of powder more than once" (Roosevelt 1926, 20:20–21).

Roosevelt also received taxidermy lessons from John G. Bell, a professional taxidermist who previously worked under John J. Audubon during his western trips collecting wildlife species. Hoping to acquire hordes of new species with his rifle to practice his taxidermy skills, Roosevelt discovered the need to correct his weak eyesight after constantly missing his intended targets. Shortly after receiving a pair of spectacles, Roosevelt quickly built up a large collection of mounted bird specimens.

Undoubtedly, this adolescent boy dreamed of hunting unusual species of wildlife in the far western lands surrounding the newly created Yellowstone National Park. Young Roosevelt most certainly also followed the news coverage of Stanley's expedition and became fascinated with adventure tales from Africa and descriptions of its unique species of wildlife. In the winter of 1872–1873, young Roosevelt did visit Africa, and enjoyed a cruise up the Nile River on a dahabeah, an Egyptian yacht, with his family. Roosevelt's sister, Corrine, later described her brother's first African hunting expedition, "When not walking through quivering bogs or actually shooting bird and beast, he, surrounded by the brown-faced and curious sailors, would seat himself on the deck of the dahabeah and skin and stuff the products of his sport. I will remember the excitement, and be it confessed, anxiety and fear inspired in the hearts of the four young college men who, on another dahabeah, accompanied us on the Nile, when the ardent young sportsman, mounted on an uncontrollable donkey, would ride unexpectedly into their midst, his gun slung across his shoulders in such a way as to render its proximity distinctly dangerous as he bumped absent-mindedly against them" (Robinson 1921, 57). If any one of the four college students who witnessed the young Roosevelt hunting on the banks of the Nile River predicted that

this young teenage boy would one day be recognized as one of America's most respected sportsmen and an expert on western American and African wildlife, his counterparts more than likely would have scoffed at him.

Theodore Roosevelt the hunter–naturalist

Theodore Roosevelt's fascination with wildlife began at a young age after he discovered a dead seal in a fish market on Broadway. Roosevelt wrote in his autobiography, "That seal filled me with every possible feeling of romance and adventure" (Roosevelt 1913, 14). Young Theodore eventually obtained the seal's skull and began the "Roosevelt Museum of Natural History" in his room until family members' complaints regarding the stench originating from the "museum's" collections caused Roosevelt to move his material into a back hallway out of sight and of the range of smell. Receiving a rifle and taxidermy lessons shaped Roosevelt's childhood fascination with animals into a more serious study of natural history. Using his rifle and his taxidermy skills, along with the benefit of eyeglasses, Roosevelt collected a wide variety of wildlife specimens, from his family's summer retreat in Long Island to the Nile River, to add to his growing collection.

In 1876, Roosevelt enrolled at Harvard to study natural history in hopes of achieving a career in that field. However, his academic studies took on a secondary nature shortly after he met a young lady, Alice Lee, who would later become his first wife. Roosevelt subsequently decided that life in a laboratory was not for him (and his constant handling of dead animals may not have endeared him to the young lady with whom he fell in love!), and decided to study law instead. This career choice eventually led him into New York politics, where he won a seat in the New York state legislature. Despite this change in career direction, Roosevelt continued as an amateur, yet well-versed, natural historian throughout his life.

Theodore Roosevelt in the West

In 1883, Theodore Roosevelt arrived in Dakota Territory for a buffalo hunt, hoping to kill a bison before the species became extinct in the American West. Roosevelt did kill a buffalo. In the process, he fell in love with the area and its inhabitants, and he purchased a ranch to begin a brief career as a Dakota rancher. Unfortunately, shortly after his return home to New York, Roosevelt lost both his mother and his young wife, who had delivered their first child on Valentines Day, 1884. Roosevelt's budding political career also suffered when he became embroiled in a vicious political fight during the Republican National Convention. He quickly left New York and returned to Dakota Territory, hoping to escape political struggles and to privately grieve for the loss of his wife and his mother.

Throughout the remainder of the 1880s, Roosevelt spent a considerable amount of time in the American West on his ranch. He spent his time

ranching and going on various hunting trips. Roosevelt enjoyed a number of western adventures in this untamed wilderness. He fought a drunken cowboy, killed a few grizzly bears, and stood off a group of what he considered to be "hostile" Indians. Roosevelt's adventures strengthened his weak body, and his childhood asthma disappeared in the West. He became an authority on life in the West, and a respected natural historian of western wildlife. In a speech delivered in North Dakota at a library dedication in 1910, Roosevelt told the audience, "I can never begin to say what I owe to North Dakota…I never would have been president if it had not been for my experiences here in North Dakota" (Vivian 1989, 62). After recovering his emotional and physical strength, Roosevelt married Edith Carow, a childhood friend, and returned to his political career. The great blizzard of 1886–1887 destroyed his ranching operation, but the new husband and soon-to-be father of five more children returned to the American West often for hunting and camping trips, including two visits to Yellowstone National Park in 1890 and 1891.

Roosevelt explores Yellowstone National Park

Roosevelt's first documented visit to Yellowstone National Park occurred in 1890. Accompanied by his second wife, Edith, and sister, Corrine, Roosevelt enjoyed a two-week camping trip through Yellowstone. Ira Dodge guided the party through Yellowstone's backcountry, and a Chinese cook kept the party well fed. "We were all in the best of health and the best of spirits," wrote Corrine Roosevelt. "[We] ate without a murmur the strange meals of ham, tomatoes, greasy cakes and coffee prepared by our irresistible Chinese cook" (Robinson 1921, 147).

This trip through Yellowstone was not typical of Roosevelt's usual western hunting expeditions. Roosevelt's sister noted, "what he loved was roughing it; near-roughing it was not his 'métier,' nor, frankly was it his 'métier' to arrange a comfortable trip of any kind. He loved wild places and wild companions, hard tramps and thrilling adventures, and to be part of the type of trip that women who were not accustomed to actual hunting could take, was really an act of unselfishness on his part. We paid huge sums for no comforts, and although supposed to go—as we were riding—where the ordinary travelers in stage-coach could not go in Yellowstone Park, yet there were times when we seemed to be constantly camping in the vicinity of tomato cans!" (Robinson 1921, 146–147).

Despite Corrine Roosevelt's claims that Roosevelt curtailed his adventurous spirit during this trip, the Roosevelts did find some adventure during their visit. During a horseback ride near the Grand Canyon of the Yellowstone, Roosevelt's guide, Ira Dodge, lost the trail. While riding over rough, dangerous terrain in hopes of finding the lost trail, Edith Roosevelt fell from her horse. She escaped with only bruises, but her sister-in-law noted she nearly broke her back. Corrine praised the wilderness skills of Roosevelt, who assumed the

task of finding the trail and continually reassured the women until he found it and led them back to camp. In his book, *The Wilderness Hunter,* Roosevelt described the party's trip to the Grand Canyon of the Yellowstone as a true adventure. "Late one afternoon in the fall of '90…[we] clambered down into the canyon before darkness overtook us; as there was not a vestige of a path, and as the climbing was exceedingly laborious and at one or two points not entirely without danger, the rocks being practicable in very few places, we could hardly have made much progress after it became too dark to see. Each of us carried the bag of trout in turn, and I personally was nearly done out when we reached the top, and then had to trot three miles to the horses" (Roosevelt 1893, 496–97).

In September 1891, Theodore Roosevelt returned to the Yellowstone area to enjoy a more rigorous wilderness adventure with one of his ranch foremen, Robert Ferguson. On this trip, Roosevelt hunted elk south of Yellowstone National Park near Two Ocean Pass. Tazewell Woody, a veteran Indian fighter and scout, and Elwood Hofer, a local hunter famous for capturing live animals, acted as Roosevelt's guides. During this expedition, Roosevelt killed nine elk. After the hunt, Roosevelt and Hofer traveled through the park to Mammoth Hot Springs. Bad weather slowed their progress through the park. "There is no more tedious work than striking camp in bad weather," noted Roosevelt, "…It is sheer misery to untangle picket-lines and to pack animals when the ropes are frozen; and by the time we had loaded the two shivering, wincing pack-ponies, and had bridled and saddled our own riding-animals, our hands and feet were numb and stiff with cold" (Roosevelt 1893, 519). In his cold condition, Roosevelt attempted to mount his horse, only to be bucked off onto the ground. He complained, "my thumb was put out of joint. I pulled it in again, and speedily caught my horse in the dead timber." Roosevelt's horse continued its attempts to buck him off, "usually choosing a down grade, where the snow was deep, and there was fallen timber." Fortunately for Roosevelt, the two riders met a group of railroad surveyors in the Upper Geyser Basin and arranged for Roosevelt to borrow another riding horse and packhorse. One surveyor accompanied Roosevelt and Hofer for the remainder of their trip.

After leaving the Upper Geyser Basin, Roosevelt and Hofer encountered a troop of First Cavalry soldiers patrolling the park under the command of Captain Frank Edwards and Lieutenant John Pitcher. Roosevelt and his companions accepted hay for their horses and enjoyed a luncheon with the cavalry officers. After lunch, Pitcher and Edwards entertained Roosevelt and Hofer with exciting stories detailing their various violent encounters with Native Americans. Captain Edwards recounted his experiences with the Crow Indians. Lt. Pitcher detailed his involvement in a recent violent encounter with Cheyenne Indians accused of killing a government herder on the Tongue

River in northern Wyoming (Roosevelt 1893, 746–752). After listening to his guests' stories of adventures on the western frontier, Roosevelt continued his ride over snow-covered roads to Mammoth Hot Springs, where he parted from his traveling companions and prepared for his return home. Roosevelt summed up his trip: "To me still-hunting elk in the mountains, when they are calling, is one of the most attractive of sports, not only because of the size and stately beauty of the quarry and the grand nature of the trophy, but because of the magnificence of the scenery, and the stirring, manly, exciting nature of the chase itself" (Roosevelt 1893, 521).

Roosevelt's wilderness adventures, including his two trips through Yellowstone, greatly contributed to the shaping of his character. They not only allowed him to renew his emotional and physical strength, but also contributed to Roosevelt's great confidence in himself. Hunting, which played a central role in Roosevelt's wilderness experiences, would continue to play a strong role in Roosevelt's remaining years. "In hunting," he wrote, "the finding and killing of the game is after all but part of the whole…The free self-reliant, adventurous life, with its rugged and stalwart democracy; the wild surroundings, the grand beauty of the scenery, the chance to study the ways and habits of the woodland creatures—all of these united to give the career of the wilderness hunter its peculiar charm. The chase is among the best of all national pastimes; it cultivates that vigorous manliness for the lack of which in a nation, as an individual, the possession of no other qualities can possibly atone" (Roosevelt 1926, 2:xxix).

Politics and wilderness hunting do not mix

Theodore Roosevelt re-entered politics with a vengeance after his return from ranching in the Dakota Badlands, quickly rising up the political ranks of the Republican Party. In 1889, Roosevelt served as a Civil Service Commissioner, and in 1895, he served a two-year stint as a New York City Police Commissioner. After campaigning for President William McKinley, Roosevelt received an appointment as Assistant Secretary of the Navy in 1897. In 1898, with the outbreak of the Spanish American War, Roosevelt volunteered for service and formed the famed Rough Riders Regiment. Roosevelt and the Rough Riders returned from Cuba as the heroes of San Juan Hill. With his new heroic status, Roosevelt won the election for the governorship of New York state; however, reform-minded Governor Roosevelt scared the political bosses of the Republican Party. Hoping to silence Roosevelt, the party bosses pushed him into running as William McKinley's vice presidential candidate. Upon the success of the McKinley–Roosevelt campaign, many believed Roosevelt's political career and his popularity with the voters were silenced. Theodore Roosevelt himself believed that being under the shadow of McKinley would greatly curtail his political influence.

Shortly after becoming vice president elect, Roosevelt vacationed to

northwestern Colorado to enjoy a winter cougar hunt with famed cougar hunter John B. Goff. Roosevelt killed 12 mountain lions during his trip, many using only his knife and the assistance of Goff's hounds; however, Roosevelt noticed the American public and press wanted to be appraised of the famous and charismatic vice president elect's every move. Roosevelt's hunting now served an additional role as public spectacle. Stories, some true but many incorrect and silly, appeared in newspapers throughout the United States. Stories of near-death encounters with vicious bears (who must have forgotten to hibernate in the winter of 1901), and packs of hungry wolves attacking Roosevelt appeared in many papers. With the stories came editorials and opinions supporting and criticizing Roosevelt's hunting. Thomas Edison's film company produced a short film parodying Roosevelt's 1901 cougar hunt. The film depicted Roosevelt shooting and stabbing a very small stuffed cat representing a cougar while a reporter and cameraman recorded his every move (Edison 1901). Roosevelt, as a national celebrity, realized his favorite pastime of hunting in the wilderness would be carefully scrutinized by both his supporters and detractors. Hunting could no longer be a private escape into the wilderness for Theodore Roosevelt.

On September 14, 1901, William McKinley died from an assassin's bullet and "That Damned Cowboy," a moniker used by party boss Marc Hanna to identify Roosevelt, assumed the Presidency of the United States. The public fascination with Roosevelt's hunting only increased; his public image and hunting became completely intertwined. In 1902, Roosevelt attempted to arrange another hunt with John Goff and his famous pack of hounds, but time limitations and other problems cancelled out the possibility. Instead, Roosevelt hunted bear in Mississippi, and experienced a frustrating and disappointing hunt. Hounded by newspaper reporters and spectators, many of whom literally stepped on the backs of Roosevelt's feet as he stalked bear through the canebrakes, Roosevelt failed to get a bear or even a decent shot at a bear. The only possible kill was a starved bear that had been roped and tied to a tree by individuals eager to see the president shoot a bear. Roosevelt refused to kill the poor animal, and a cartoon depicting the event led to the marketing of stuffed bears under their new name, teddy bears.

After the disastrous Mississippi bear hunt, Roosevelt attempted to arrange a wilderness hunt with John Goff within Yellowstone National Park. Roosevelt, encouraged by reports of cougars killing wildlife in Yellowstone, hoped to help the military authorities by killing a few of the predators. Roosevelt's presidential advisors argued against any hunting in Yellowstone by the President for fear of bad publicity. His frustration with maintaining his public image is evident in the following letter to the army officer he met in 1891, former Lieutenant and now Major John Pitcher, Acting Superintendent of Yellowstone National Park:

> Secretary [of War and close presidential advisor, Elihu] Root is afraid that a false impression might get out if I killed anything in the Park, even though it was killed, as of course would be the case, strictly under Park regulations, and though it was only a mountain lion—that is an animal of the kind you are endeavoring to thin out. Now I have though of this, would it be possible, starting from within the Park, to go just outside the border and kill any mountain lions? Could you send a good man to explore right across the border and see if you could not get some located? Could you have this done at once and let me know what the chances are? If favorable, perhaps I might take a week or two traveling around the Park first, just for the fun of seeing everything…then go off for a week or ten days hunt in the mountain lion country just outside…If I can fix it all right I will have Johnny Goff and his dogs set in ahead of me, and probably shall send you my rifle in advance so as to avoid any talk of my taking it with me (Roosevelt 1903).

After failing to get John Goff into Yellowstone, Roosevelt arranged for the military officials in Yellowstone to purchase a pack of cougar-hunting dogs to be placed under the park's game warden, Charles Jesse "Buffalo" Jones. Unfortunately for Roosevelt, the pack turned out to be very poor for hunting, preferring to chase deer and elk instead of cougars. Frustrated with dismal reports of the new pack of hounds and the negative publicity beginning to appear in the press about his rumored Yellowstone hunt, Roosevelt decided to forego any hunting in Yellowstone. Instead, he invited famed naturalist writer and non-hunter John Burroughs to accompany him on a sightseeing adventure through the park.

1903 presidential visit to Yellowstone

On April 8, 1903, Roosevelt and Burroughs arrived at their destination: Gardiner, Montana, where they were met by Major John Pitcher. The party then made preparations for the horseback ride to Fort Yellowstone at Mammoth Hot Springs. Pitcher promised the president he would see much of Yellowstone's wildlife along the way. Before they departed, Roosevelt was swarmed by people wishing him a good trip. Meanwhile, Burroughs quietly slipped onto a wagon for a more comfortable ride. While Burroughs adjusted himself in the wagon, the president and his entourage rode off, leaving Roosevelt's elderly guest behind. Burroughs's over-eager wagon driver excitedly hurried to catch up with the presidential escort. During the chase, Burroughs received some bruises on his hand, and the wagon ran over a couple of dogs. The horses pulling the wagon refused to obey the driver's

attempts to slow them down, and the wagon continued running out of control, forcing the presidential escort to move off the road to give Burroughs's wagon the right of way. Burroughs exclaimed, "this is indeed a novel ride; for once in my life I have side tracked the President of the United States!" (Burroughs 1907, 25). Burroughs continued racing on to Fort Yellowstone ahead of the president, slowing down only when his team of horses began climbing the hill leading up to the fort.

After being forced off the road by his traveling companion's wagon driver, Roosevelt and his entourage continued riding at a leisurely pace. Shortly after crossing the park boundary, they encountered a herd of antelope grazing just off of the road. The animals' tame nature amazed Roosevelt, who later wrote, "it was easy to ride within fair rifle range of them…it was extraordinary to find them showing such familiarity almost literally in the streets of a frontier town" (Roosevelt 1905, 294). Roosevelt praised the citizens of Gardiner for resisting the temptation of antelope steaks: "it speaks volumes for the good sense and law-abiding spirit of the people of the town" (Roosevelt 1905, 294). Roosevelt spent two hours examining herds of antelope numbering in the hundreds.

During this time, the president also viewed a few deer and a small herd of bighorn sheep "which were absurdly tame...to a degree matched by but few domestic animals" (Roosevelt 1905, 296). Roosevelt dismounted his horse and crept within 20 yards of the sheep. After spending 20 minutes admiring them, Roosevelt continued along his way. He continued to see vast numbers of "tame" animals within close proximity. No animal, large or small, seemed to escape his eye, and he admired mule deer, whitetail deer, and ducks as he continued his ride to Fort Yellowstone.

Upon reaching the fort, Pitcher guided Roosevelt to the buffalo pens where Buffalo Jones bred domesticated buffalo with wild buffalo he captured within the park. Roosevelt and others hoped the cross-breeding of domestic bison with wild bison would assist in the effort to increase the park's bison populations. The president noted the buffalo were "breeding well" (Roosevelt 1905, 296). Roosevelt retired to Major Pitcher's home believing he would see no more animals for the remainder of the day, but while writing in his guest room he noticed five mule deer on the parade ground. He described the deer as being tame as cows and was surprised when the animals paid no attention to the soldiers' flag lowering and raising ceremonies. Noise filtered throughout the grounds; a bugle first sounded then the cannon was fired. The deer jumped slightly, but then wheeled around to watch the flag slowly come down the flagpole. When the ceremony ended, the deer continued grazing upon the parade ground, much to the president's amusement. That evening, he wrote to his daughter Ethel, "I wish you could be here and see how tame all the wild creatures are" (Roosevelt 1926, 19:435).

The following morning, the presidential party, which included Pitcher and Roosevelt's former guide Elwood Hofer, set out for their camp on the Yellowstone River. Burroughs was to remain at the fort until Roosevelt and his hosts established a comfortable camp. Roosevelt's hosts made sure his camp was isolated from the outside world by refusing any permission to reporters wanting to accompany the president through Yellowstone. Major Pitcher ordered soldiers to seal off any areas where the president would camp to prevent hordes of curious spectators from bothering him. One reporter ignored the soldiers' warnings and set out with his dog to find the president's camp, but was caught by a cavalry patrol before he reached it. To punish the reporter, the troopers shot the dog, escorted the reporter outside park boundaries, and ordered him never to return (Haines 1977, 2:230–31).

President Roosevelt viewed many elk along his way to the party's first campsite on the Yellowstone River, observing, "They were certainly more numerous than when I was last through the Park twelve years before" (Roosevelt 1905, 300). In one sitting, the president, with the aid of Pitcher and Elwood Hofer, counted 3,000 head of elk. The president also noticed many elk carcasses lying on the ground. He paid close attention as to what caused their deaths; two were killed by "scab," and some were killed by cougars, but the majority were killed by starvation resulting from the harsh winter conditions. "As the elk were evidently rather too numerous for the feed," he later wrote, "I do not think the cougars were doing any damage" (Roosevelt 1905, 303). This was an unusual view of predators for the time, especially from a former rancher. Coyotes also drew Roosevelt's attention. He noted that the animals were very numerous, but the elk did not fear them. The only predation Roosevelt actually witnessed was a golden eagle attempting to kill a yearling elk. The eagle came within a few feet of the elk, but caused it no harm other than scaring it a little. However, the next day the president did see two eagles feasting on the carcass of a yearling elk.

Roosevelt did not attempt to kill any predators during his trip through the park. He only fired one pistol at a large tree, injuring himself when the spent cartridge flew back and cut his cheek. Roosevelt feared that his actions would be misunderstood and his image tarnished if he were to hunt in the park. Buffalo Jones, apparently unaware of the president's final decision not to hunt, took it upon himself to entertain Roosevelt by organizing an impromptu cougar hunt with the government's newly-purchased pack of hounds. Upon reaching the campsite, Roosevelt immediately ordered the pack of dogs be returned to Mammoth. The next day, when Jones ran into John W. Meldrum, the judge of Yellowstone's court who had tried to warn Jones not to bother the president, Meldrum said to Jones, "Hello Jones, I thought you were out with the President." Meldrum noted, "Jones was so mad that he never said a word" (Meldrum 1930).

On the fourth day of the President's outing, Burroughs rejoined the party at their campsite on the Yellowstone River and was surprised to find that the President had gone hiking by himself. Burroughs noted that Major Pitcher seemed nervous about his famous guest setting off on his own without a military escort, but the president was eager to get away by himself to pursue an elk herd seen the previous day. By himself, Roosevelt soon located the elk and spent the day pursuing them for a closer view. After spending an hour observing the elk herds at a range of 50 yards, Roosevelt returned to camp, completing an 18-mile hike. Upon his return, he eagerly recounted to Burroughs all of the animals, especially the birds that he viewed along his way (Burroughs 1907, 33).

The following day, the presidential party broke camp and set out for Slough Creek. Burroughs attempted to fish the stream, but ice prevented him from doing so. He instead tried his luck at following birdcalls with the President. After hearing one strange call, the men followed the source of the sound to find a pygmy owl. "I think the President was as pleased as if we had bagged some big game," Burroughs recorded, "he had never seen the bird before" (Burroughs 1907, 40).

The president entertained Burroughs the following day by leading him on a chase for elk. Roosevelt spied the elk as the party made its way to the next camp, located near Tower Fall. He signaled for Burroughs to follow him. Burroughs ambled along at a slow pace due to "logs, rocks, spring runs, and a tenderfoot rider" (Burroughs 1907, 42). He lost sight of the president until he climbed over a hill, where he found Roosevelt standing 50 yards from the band of elk. "The President laughed like a boy," Burroughs recalled, and the elk stood in their position "with tongues hanging out…now here stood scores of them with lolling tongues, begging for mercy" (Burroughs 1907, 43). Burroughs and Roosevelt then proceeded to a plateau where they could continue to view the elk, and from their vantage point counted nearly 3,000 elk. "And then the President did an unusual thing," Burroughs recalled—he "loafed for nearly an hour" (Burroughs 1907, 45).

The next morning, Roosevelt and his hosts moved their camp near the Tower Fall Soldier Station. That afternoon, at the new camp, the president began shaving, but after he had finished only half of his face, someone informed him that a herd of bighorn sheep were approaching. The party had seen the herd before, but Roosevelt was interested to see if the sheep could traverse from a mountaintop, over an almost perpendicular cliff, to the river below for water. Roosevelt decided his shave could wait, and left camp to get a better view. Burroughs noted the president's face was half-covered with shaving soap, and a towel hung around his neck. Roosevelt remained oblivious to the state of his appearance until Burroughs sent someone to retrieve his coat and hat (Burroughs 1907, 47–49).

After the third day at Tower Fall, the presidential party broke camp and returned to Fort Yellowstone. The following day, Roosevelt and his entourage, including park concessioner Harry Child, traveled to Yellowstone's famed geyser basins in horse-drawn sleighs. Snow in this area of the park reached levels ranging from four to five feet in depth, and Pitcher ordered the roads to be cleared and packed for the president's trip before his arrival. After waiting for a newly-formed drift to be shoveled away, the party continued along their way to the geysers without delay. The president rode up front with the driver until the sled reached a bare patch of ground resulting from the heat given off by the geysers. When this occurred, he jumped to the ground from his seat and walked alongside the sleigh, causing Burroughs and the other riders to also jump down. "Walking at that altitude is no fun," wrote Burroughs, "especially if you try to keep pace with such a walker as the President is" (Burroughs 1907, 62–63). When the sleigh reached more snow, Roosevelt climbed back onto the sleigh and continued his ride next to the driver.

The sleighs eventually reached Norris Geyser Basin, where the party remained for one night in the Norris Hotel. That evening, the President and Burroughs, sharing one room, decided the temperature was too hot, and Roosevelt threw the window wide open. The next morning, Burroughs recorded the hotel caretaker's surprise: "There was the President of the United States sleeping in that room with the window open…and not so much as one soldier outside on guard" (Burroughs 1907, 65).

After a cold night's sleep, the party continued to the Fountain Hotel, located near the Lower Geyser Basin. Along the way, the president killed the only game he hunted during the trip. As they rode, Roosevelt suddenly leapt from the sled to chase a mouse across a snow-covered meadow. He threw his hat over the creature and then clapped his hand around it. While the others went fishing in the heated river waters, Roosevelt skinned the mouse and saved its pelt. He later sent the specimen to his friend Clinton Hart Merriam in Washington, hoping that he may have found a new species of mouse in the park (he hadn't). Burroughs later told this story to a newspaper writer fearing that if "[the writer] changes that u to an o and makes the President capture a moose and then what a pickle I shall be in! Is it anything more than ordinary newspaper enterprise to turn a mouse into a moose?" (Burroughs 1907, 67). Fortunately for Burroughs and Roosevelt's peace of mind, no reports of moose being captured by the president circulated in any newspaper report.

From the Fountain Hotel, Roosevelt traveled to the Upper Geyser Basin, where he watched Old Faithful erupt. Roosevelt did not record his opinions of Yellowstone's geysers in any of his travel accounts. One can only wonder if he agreed with Burroughs, who thought the geysers were boring after their uniqueness faded upon seeing so many geothermal features. In fact, Burroughs felt the geysers were a waste of the earth's energy: "One disliked

to see so much good steam and hot water going to waste; whole towns might be warmed by them, and big wheels made to go round. I wondered that they had not piped them into the big hotels which they opened for us, and which were warmed by wood fires" (Burroughs 1907, 64). It is uncertain if Roosevelt agreed with his companion. Although Roosevelt did not mention any geysers in his account of the trip, he did draw brief mention to the attractions in a speech given at Gardiner on April 24: "The geysers, the extraordinary hot springs, the lakes, the mountains, the canyons, and cataracts unite to make this region something not wholly to be paralleled elsewhere on the globe" (Roosevelt 1903).

After viewing the Upper Geyser Basin, Roosevelt returned to the Norris Hotel for another night's stay. Upon their return, tragedy struck the presidential party when one of the sleigh drivers, George Marvin, died suddenly of a heart attack. Burroughs mourned his passing and praised the man's skills. Roosevelt hurried to the barn, where Marvin's corpse laid, and paid his last respects to the man. Later, upon his return to Mammoth, Roosevelt looked up Marvin's fiancée and consoled her. Burroughs believed "the act shows the depth and breadth of [Roosevelt's] humanity" (Burroughs 1907, 69–70).

After the unfortunate loss of Marvin, the party worked its way from Norris Geyser Basin to the Grand Canyon of the Yellowstone to stay in the Canyon Hotel. From in front of the hotel, Roosevelt and Burroughs strapped on skis and proceeded over shoveled paths to scenic vistas of the canyon. Burroughs believed this to be the grandest spectacle of the entire park. An ice bridge that spanned the brink of the falls fascinated him, especially when he learned coyotes traversed this precarious crossing. After viewing the Lower Falls of the Yellowstone, Roosevelt visited a squadron of soldiers in their winter quarters and inquired about their tour of duty within the park (Burroughs 1907, 69–70).

Roosevelt and Burroughs then enjoyed some skiing on the low hills near the Canyon Hotel. During the festivities, Roosevelt tumbled into the snow. Burroughs described the humorous situation:

> The snow had given away beneath him, and nothing could save him from taking the plunge. I don't know whether I called out, or only thought, something about the downfall of the administration. At any rate, the administration was down, and pretty well buried, but it was quickly on its feet again, shaking off the snow with a boy's laughter. I kept straight on and very soon the laugh was on me, for the treacherous snow sank beneath me, and I took a header too.
>
> 'Who is laughing now, Oom John?' called out the President.

> The spirit of the boy was in the air that day about the Canyon of the Yellowstone, and the biggest boy of us all was President Roosevelt (Burroughs 1907, 73–74).

After the day's skiing and one night at Canyon Hotel, the President returned to Fort Yellowstone.

On April 24, 1903, Roosevelt presided over a Masonic ceremony dedicating the new arch at Gardiner, Montana. At least 2,500 people attended the dedication to see the president of the United States lay the cornerstone of the arch that would later carry his name. After the dedication, Roosevelt outlined his vision for Yellowstone in a speech. His remarks mainly focused on the park's wildlife resources; Roosevelt indicated his support for the continued protection of ungulates to increase their population, and for the military's predator control program, under the condition that predator populations be limited but not exterminated. To increase the park's wildlife diversity, Roosevelt recommended the introduction of new species such as pheasants and chamois, and that the park's buffalo breeding program be expanded to include the cross-breeding of park bison with domestic cattle, with the offspring used to establish ranches in Alaska (Schullery 2003).

Throughout the remainder of his administration, Roosevelt implemented many of his policies for Yellowstone National Park, and used his presidential power to monitor and control the park's future economic development, including the removal of disreputable steamboat concessionaire E.C. Waters. Sensing the need for a professional agency to manage the park, Roosevelt also began the effort to replace its military administration with a civilian park guard.

TR seeks wilderness experience in Africa

After his Yellowstone trip, Roosevelt continued his search for yet another wilderness experience in the West. In 1905, he hunted with John Goff in Colorado, but problems with spectators and news reporters continued to diminish the quality of his hunt. Upon leaving the White House in 1909, Roosevelt concluded he needed to escape the attention of the American pubic by hunting in a far away land outside of the United States. Stanley's Africa, still a considerably wild area in Roosevelt's mind, would do.

In April 1909, Roosevelt arrived in British East Africa for a year-long safari with his son, Kermit. The Roosevelt expedition would explore British East Africa, travel into the Congo, and then proceed north to the Nile River and on to Cairo. The official purpose of the expedition was to collect specimens for the Smithsonian Institution's natural history collections; however, Roosevelt viewed this expedition as an attempt to live out a wilderness hunting adventure that he could not enjoy in the American West. During his trip through Africa, Roosevelt killed 296 African animals. Kermit killed 216 ani-

mals (Roosevelt 1910, 534). Roosevelt explained, "Kermit and I kept about a dozen trophies for ourselves; otherwise we shot nothing that was not used either as a museum specimen or for meat—usually for both purposes. We were in hunting grounds practically as good as any that have ever existed; but we did not kill a tenth, nor a hundredth part of what we might have killed had we been willing. The mere size of the bag indicates little as to a man's prowess as a hunter, and almost nothing as to the interest or value of his achievement" (Roosevelt 1910, 534).

A number of events intensified Roosevelt's African wilderness experience. Roosevelt barely survived two separate animal charges, one from an elephant and the other from a rhinoceros. He witnessed a lion attack and wound a few of his African porters. Roosevelt rediscovered his wilderness in Africa and remembered similar experiences in the American West and Yellowstone, "I galloped towards the herd [of eland]; and for the next fifteen or twenty minutes I felt as if I had renewed my youth and was in the cow camps of the West, a quarter of a century ago. Eland are no faster than range cattle. Twice I rounded up the herd—just as once in the Yellowstone Park I rounded up a herd of wapiti for John Burroughs to look at…" (Roosevelt 1910, 372–373).

In 1910, Roosevelt published a collection of his writings detailing these African wilderness adventures, African Game Trails. Roosevelt's book entered into the classical African safari literary genre and did much to publicize the African wilderness experience to the American public. Now many American adventurers hoped to copy Roosevelt's experience in their own safaris.

African Game Trails also expressed Roosevelt's support for the preservation of Africa's wildlife resources. "The English Government has made a large game reserve on the way to Nairobi, stretching far to the south, and one mile north, of the track. The reserve swarms with game; it would be of little value except as a reserve; and the attraction it now offers to travelers renders it an asset of real consequence to the whole colony," he wrote (Roosevelt 1910, 14). He also expressed his opinion on the effective management of these game reserves:

> Game reserves should not be established where they are detrimental to the interests of large bodies of settlers, nor yet should they be nominally established in regions so remote that the only men really interfered with are those who respect the law while a premium is thereby put on the activity of the unscrupulous persons who are eager to break it. Similarly, game laws should be drawn primarily in the interest of the whole people, keeping steady in mind certain facts that ought to be self-evident to every one above the intellectual level of those well-meaning persons who apparently think that all shooting is wrong and that man could

> continue to exist if all wild animals were allowed to increase unchecked. There must be recognition of the fact that almost any wild animal of the defenseless type, if its multiplication were unchecked while its natural enemies, the dangerous carnivores, were killed, would by its simple increase crowd man off the planet; and of the further fact that, far short of such increase, a time speedily comes when the existence of too much game is incompatible with the interests, or indeed the existence of the cultivator. As in most other matters, it is only the happy mean which is healthy and rational. There should be certain sanctuaries and nurseries where game can live and breed absolutely unmolested; and elsewhere the laws should, so far as possible, provide for the continued existence of the game in sufficient numbers to allow a reasonable amount of hunting on fair terms to any hardy and vigorous man fond of the sport, and yet not in sufficient numbers to jeopardy [sic] the interests of the actual settler, the tiller of the soil, the man whose well-being should be the prime object to be kept in mind by every statesman. Game butchery is as objectionable as any other form of wanton cruelty or barbarity, but to protest against all hunting of game is a sign of softness of head, not of soundness of heart (Roosevelt 1910, 14–15).

Roosevelt's recommendations for the future preservation of African wildlife echoed the same policies he recommended for Yellowstone National Park. In Roosevelt's mind, these two distinct ecosystems deserved equal protection.

Roosevelt's Yellowstone and African legacies

Roosevelt continued his quest for adventure in far away lands. In 1914, he explored an unknown tributary of the Amazon River. However, the expedition took such a toll on Roosevelt's health that many believe it contributed to his early death. On January 6, 1919, Theodore Roosevelt passed away in his sleep at his home in Long Island, New York. Roosevelt's legacy, his writings, and his speeches continued to impact Yellowstone and Africa. Yellowstone's visitation in 1903, the year of Roosevelt's visit, was 13,433 people. By 1905, Yellowstone visitation had increased to 26,188 people. In the year of Roosevelt's death, 1919, Yellowstone's annual visitation had reached 62,261 individuals. Although many factors can be attributed to this increase in visitation, Roosevelt's promotion of Yellowstone certainly increased the American public's desire to visit the few remaining wilderness areas in the West. Roosevelt also promoted the idea of African safari to a worldwide audi-

ence. Kenneth Cameron noted in his history of the African safari that after Roosevelt's visit, hunters "were more likely to be hurt by a bullet than a lion" due to the increased numbers of hunters attempting to copy Roosevelt's trip (Cameron 1990, 61).

Roosevelt promoted the spirit of wilderness in Yellowstone and Africa, yet he expressed disappointment when these wilderness areas became too tame for his liking. In a conversation with John Leary, who published Roosevelt's remarks in the book, *Talks with T.R.,* shortly after Roosevelt's death, Roosevelt said the following about the wilderness areas he visited in the West, Africa, and South America:

> I have no desire to return to the scenes of my ranching days. It's all changed—and I don't want to see it…It is a mistake, I think, for one to hit the back trail after many years have passed. One finds things changed, the old picture is destroyed, the romance gone. I was back in the old country once. I saw only a little of it, but that was enough. Why there was a store down where we had a clash with the Indians!
>
> The place is all settled now. The folks there are largely of foreign stock, good people and good citizens, who lead most matter-of-fact lives. It is best that it should be so, but I don't wish to see the place again. I'd rather try and remember it as it was.
>
> Change, of course, is the rule of all new countries. I imagine that thirty or forty years from now the jungle I hunted over in Africa may be quite settled and as safe as Upper Harlem. This will not be true of the Amazon. A great many years must elapse before that country is little more than poorly charted wilderness. It is not attractive to the white man.
>
> Africa, on the other hand, is. For that reason, it will be comparatively developed when the Amazon country is still raw.
>
> I shall revisit neither place. I have done my bit. Those who come after me must do theirs. Anyway, I've no desire to hit the back trail. As a rule, it's not profitable (Leary 1920, 278–279).

Despite Roosevelt's frustrations with the taming of his ideal wildernesses, many individuals today continue to redefine the wilderness experience in Yellowstone and Africa. Theodore Roosevelt's recommendations shaped the future preservation of game reserves and their management for years to come. The game reserves of Yellowstone and Africa would move away from

Roosevelt's vision of breeding grounds to provide a surplus of game to protect the sport of hunting. Despite the limitations of these early management techniques, the wildlife of these regions, although still threatened, continues to thrill visitors today. These modern visitors carry cameras or just a simple desire to witness wild animals, instead of carrying firearms and stalking the same wildlife in both Yellowstone and Africa that Roosevelt encountered. Although the wilderness experience of today is much tamer than Roosevelt would have preferred, the opportunity to experience the wilderness and its wildlife still exists in Yellowstone and Africa because of Roosevelt's desires to preserve these areas.

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A. Starker Leopold Lecture

October 7, 2003

Richard Leakey

Richard Leakey, son of renowned paleoanthropologists Mary and Louis Leakey, was born in Kenya in 1944. His remarkable early fossil discoveries, funded by the National Geographic Society, led to his appointment, at age 25, as director of the National Museums of Kenya, a position he held for about 20 years. In 1989, he was appointed director of Kenya's Department of Wildlife and Conservation Management (later the Kenya Wildlife Service), a position he held until 1994, and again from 1998 to 1999, followed by a two-year term as head of civil service and secretary to the Cabinet. He continues to be embroiled in Kenya's stormy political scene, and has survived what many still believe was an assassination attempt. Dr. Leakey's scientific achievements, his leadership in fighting political corruption and the destruction of Kenya's natural resources, and his prominence as a global spokesperson for conservation have resulted in many awards, including Gold Medals from the Royal Geographic Society and the Scottish Geographical Society, the Hubbard Medal of the National Geographic Society, and numerous honorary doctorates. His books include ***Origins; The Origin of Humankind; The Sixth Extinction;*** *and most recently,* ***Wildlife Wars: My Fight to Save Africa's Natural Treasures.***

I tried to find out if I had sent an abstract of what I was going to talk about tonight, and nobody could remember if I did, including myself. I inquired whether I had offered a title and I was told that I hadn't. I was asked if I'd brought any notes and I said I hadn't. And so I'm just going to talk a little bit. I've listened with varying degrees of attentiveness over the last day-and-a-half. Different talks have caught my attention more than others. I don't really want to take an unfair advantage of the opportunities to discuss contributions in this setting, but I'd really like to address some of the concerns that I feel very deeply about. And I feel very deeply, principally, from my own experiences and my own opportunities on the cutting edge of a number of different intersecting components of what I think we all face.

Some of you may not know things that I've done, so let me just touch very lightly as an introduction to this first part. As somebody who looked at vertebrate paleontology for a number of years—not just the story of our own origins, but particularly looking at the evolution and extinction of animals whose remnants today represent the African fauna—I have been enormously

struck by how many things have disappeared, and how fragile species have been. And I don't need to say to most of you, but perhaps to some, that it's worth remembering that the great biodiversity we see today is estimated to represent less than 1% of all life forms that have ever lived on this planet. We are living at the end, if you like, of an extraordinary range of living organisms. And what we see today, although impressive and indeed incalculable in their numbers, is still a tiny part of what has been here before and is now gone forever.

I think the point that that brings home is that we need to keep a sober mind on the fact that we can't ultimately turn the clock back in terms of extinction, and we can't necessarily prevent things from disappearing, although I do believe the work [of Yellowstone Wolf Project Leader Doug Smith] that we've just joined in celebrating on the wolves' being reintroduced to the Rockies is a remarkable story, and one that I'm tremendously pleased to have participated in hearing a little bit about tonight, and celebrating with you in the award that's been given for the work that has been done. Of course, the wolf wasn't faced with extinction, but it got to such a low number that its extinction was certainly on the cards.

Put aside the paleontological record (and that really is to one side, but I think the part that emerges out of that is still very much with us), and I think as wildlife managers, as conservationists, as practitioners of the interlocking disciplines that go with conservation today, we cannot ignore that it is only in our time that we have threatened and brought about extinction. Most of the extinctions that I've referred to happened long before there were humans to bring them about, and we shouldn't assume that we've got a special role. Extinctions are going to happen irrespective of us. The problem is that we are making them more likely at the present time.

And the way we're making it more likely, apart from bad management and policy and the various things that some people have already been talking about, is an issue that I don't think gets enough attention today, and one which I was really quite surprised about when I attended the IUCN [World Conservation Union], the World Parks Congress; that is the issue of climate change, or global change. Whether it's the fault of the Americans or the North or the South, the Russians, or the Finns, whoever—it doesn't matter whose fault it is; indeed, it may be nobody's fault—the climate is changing. Weather patterns are changing. And with the enormous pressure on the planet from the vastly expanded human population, there may not be the capacity in some parts of the world to accommodate some of the changes that are taking place.

And I think conservationists are guilty, perhaps, of being somewhat complacent about the fact that climate change, global change, is something that is so gradual that it may not really impact us at all in our lifetime or careers. I

think you may be surprised at how quickly this phenomenon could accelerate, and how quickly we could find ourselves looking at situations that are no longer possible to control. It may not be the case in the larger ecosystems, it may not be the case in some of the temperate national parks, such as the Greater Yellowstone Ecosystem. I'm not an expert. But what is very clear is that if the temperature changes by a relatively small amount, there are going to be fundamental consequences to biodiversity. And we are going to lose species at a rate unprecedented in the human historical memory. And, I think, when talking about protected areas and conservation as we've been doing, focused, if you like, on two great ecosystems, the Serengeti–Mara and the Greater Yellowstone, we need to reflect on the context of what we're discussing and be a little, perhaps, a little more realistic about how fragile what we're charged to look after, in actual fact, is. So that will be another aspect.

Another aspect to my career that I think has been useful is that I have been quite closely involved with government in one form or another. I had the delightful experience of being head of a wildlife agency. I had the extraordinary experience of being able to raise really quite substantial funding for a wildlife agency. [Even] in this room, where people talk about big sums, it was still respectable. We raised $160 million for a five-year program for Kenya. And with that money, we were able to do a lot of things. We weren't able to make a big difference, and I think that's a fairly humbling aspect of having raised a lot of money. But the challenge of looking after wildlife, and looking after protected areas, and interacting with other people who are concerned with various aspects related to protected areas, has been certainly an enormously rich experience. And when people talk about communities, and talk about sharing revenue, and talk about predator implications to pastoralists, talk about invasive species, talk about making decisions, talk about what priorities are, I can listen with the knowledge that I've been there. Not necessarily done it, but I've had a hands-on feeling of what it's like to be in those different positions.

And I think the lesson I learned from that is that it's so much easier to think about what other people should be doing than to do it yourself. And I find no difficulty, now I have no job, in once again taking the position, "I just don't understand why you guys don't get it right." But there was a very different sensation when the buck stopped on my table. And I think that is something that many of you in this room should keep in mind. It isn't easy to do these things.

Then I went out of conservation and got extremely involved in politics. And I got involved in advocacy for the change of government—opposition politics. And in your country it's a fairly calm affair, people are quite gentle in terms of bringing about changes—although listening to the last moments of the [recent gubernatorial recall] campaign in California, it's getting a little

dirty. But in our part of the world, it's a lot dirtier than that. And if you're in opposition politics and opposing a government that has been in power a long time, and kept itself in power by methods that are not entirely acceptable to any of us, including them, it's a fairly rough home. Getting governments to change their positions is probably as difficult as advocacy for getting conservationists to change their position on issues. And I'm struck, in the discussions that have taken place here and elsewhere, particularly by people who probably haven't been on the front lines, how convinced they are that if you make enough noise and shout loud enough, people will change their positions. It's very easy for me to join in a conversation and take a strong position as to why the elk should or shouldn't be culled, or why the buffalo should or shouldn't walk past a certain point on the ground, which they don't understand. But in reality, the politics of this is very complex, and I think we need to keep that in mind. It doesn't hurt to remind [us] politicians that we're usually completely wrong, and we should listen more attentively than we do, but it's still a tough battle.

I then went into government and worked my way into an absolutely extraordinarily important position, where, basically, I could make decisions with or for the president (who was considered to be somewhat dictatorial), and basically, when the president would be leaving the country, he would say to his cabinet, ministers, the vice president, "When I'm out, Richard's in charge." There's no constitutional basis for that, but nonetheless, he would say it frequently. And after a while you like the idea, and say, "Mr. President, aren't you taking another trip?" [Laughs] It's quite good to feel...People move aside when you walk through a room, and it's a good feeling, but…It's a tough position. And the thing that most struck me, I suppose, in reflection, is that [although] I have a passion for wildlife and conservation, [when] I had a particular responsibility for reforming the public service and looking at economic reform measures, and as a consequence, every part of government's budget had to come through me for approval before it went to Cabinet, I found myself absolutely unwilling to listen to the wildlife department and the wildlife lobbyists, who wanted more money. I said, "you must be crazy, why would we want to give money to wildlife when all of these other things aren't funded?" And my conservation friends would say, "when did [you adopt] that position; couldn't you just give us a little more?" It's not as simple as that. There are enormous demands on leadership in government, as to what can and can't be done. And so really what I'm saying is that I have a career that suggests to me that this whole story that we're discussing is quite complex.

Nonetheless, I'd like to make a few remarks with that background—if you like, I'm trying to establish my credentials—to say some things which I'm sure won't be entirely acceptable to everyone. First of all, I think—and I stuck my neck out on this recently, and I'd stick it out again—I'm getting

more concerned by the day about this idea that there is an international group of people who call themselves indigenous. And that these indigenous people have, on every continent of the world, got special rights. Now, I can concede, and I can understand that the situation in the New World—Canada, North America, Central America, and South America—where to a very large extent, the indigenous people have been exterminated, disappeared from the records. Remnants do feel that they've been dispossessed, and do need, if you like, affirmative action to redress the past. I don't think there's any question there is a legitimacy to that. But when you go to other parts of the world, particularly to Africa and Asia, the situation isn't the same, because in an attempt to reach the same position of Caucasian domination, the battle was lost, and the Caucasians had to give way to the majority of the indigenous people, who now have taken over the reins of power. The sovereign states of Africa, and the sovereign states of Asia now have indigenous presidents, indigenous ministers, indigenous cabinets, indigenous civil servants, and indigenous park rangers. And the place for those nations to make their decisions is really the indigenous institutions that have been established under legal, lawful government. And I think we've got to be very careful not to mix up the tragedy that has happened and is still happening in the New World and Australia and a few places with what is actually happening in Africa. This is not to suggest for a minute that what has happened in Africa is right. The colonial experience is appalling. It's outrageous what has happened. But the people who now have to move this forward are people of the country, and they need to move it forward in a democratic way, with opportunities for due process and not advocacy for separatism. And I think this is an issue that we really can't afford to lose sight of.

Having said that, I would also suggest that even in Australia and the New World, but certainly it's applicable in Africa, there is an issue that some people call property rights. And people have been dispossessed of what was theirs. There's no question of that, and this needs to be redressed. But I'm not sure that the dispossession of rights to live in an area that is now inhabited by wildlife is any more of a legitimate cause of concern than the people who have been dispossessed by large agricultural schemes to grow sugar cane, coffee, tea, hydroelectric schemes, and things like that. I think there is an argument to be made for property rights restitution or property rights compensation, but let it not just be the open spaces, particularly because I feel the conservation wildlife cadre are probably the least equipped to deal with that battle. Let that battle be dealt with by governments who address it across the board. This whole idea of our revenue sharing is an element that comes out of that issue. We've heard it today: people have lost their land for wildlife, people who've lost that land need to be compensated by that wildlife adjacent to the national park. Why shouldn't people who live next to a hydroelectric scheme, who

are dispossessed of fertile land to create a dam that is producing electricity, why shouldn't they be compensated at the dam turbine? Why is it that those people are told the wealth generated by this dam is redistributed in a nation–state through taxation and various other categories of redistribution under a national budget? Why is it that hundreds of thousands of hectares that have been set aside for large scale agriculture, whether it's tea, coffee, wheat, corn, or the other things, why is that those people who are making profits from those activities are not expected to pay the people who were displaced from those particular parcels of land living around them? Why is it only that the wildlife has to pay people? I think it's perfectly legitimate to recognize that poverty is everywhere, but I'm not sure people are more impoverished by being pushed out for elephants or elk, than they were impoverished by being pushed out for large scale ranches or agriculture in any part of the world. And I think we've got to be very careful to keep a balanced view on some of these issues.

Having said that, I do feel that there are, of course, a number of instances where conservation has perhaps gone too far, or a protected area is calling for more than it is entitled to in terms of a national balance. But let me say something that I've alluded to earlier, and I'd like to emphasize it. In the United States, if the Yellowstone were to be covered with volcanic ash because the dome here blew up and we lost Yellowstone, I don't think the economy of the United States would take much of a blip in terms of the lost revenue from Yellowstone National Park from your entries and concessions. In fact, you might capitalize on it, and have people come to see the devastation and make a lot more money from international transit. It's what I sense would happen. But if the Maasai Mara, or the Serengeti were to be closed down for one reason or another—but let us say it was closed because there were no longer any animals—the entire economy of the country would be impacted. Ten percent of GDP in Kenya is generated by wildlife-based tourism.

For that reason, the central government has to maintain certain standards in maintaining those protected areas—for the benefit not of the animals, but for the state. We need jobs as a result of ecotourism. Currently in Kenya, some 450,000 people are directly employed because people come to see our wildlife. We can't afford to gamble with new experiments in management and find that it didn't work, the animals are gone, and it's all over. I said to my colleagues from the Maasai Mara, unfortunately people think that the only place where there's decent wildlife in East Africa is the Serengeti–Mara. I would argue that it's not true—they have some of the most spectacular wildlife in the world, but the image of Kenya, the image of Tanzania, is the Serengeti–Mara. And we have to be extremely careful what we do with these ecosystems—not simply because of the people living peripheral to the parks, the people who've lost their ground space, as it were, by being dispossessed when the park was

created, whether it was during the colonial era or subsequently, but we have to be careful, because the whole country could go belly up if we let it go. And I think that's very different between the United States and Africa, and also between many parts of Africa and other parts of the world. And I think we need to keep an economic focus on that.

But having said that, I think one of the problems we may be facing in this discourse, which is a varied discourse, is that we may have forgotten what we've already agreed. And this isn't to suggest that you can't revisit previous understandings. But many years ago, and Lee Talbot is sitting there, and he probably could remember better than me, but the International Union for the Conservation of Nature, at the end of a decade of debate and argument, decided to categorize protected areas and to agree that certain protected areas, national parks if you like, simply were too important scientifically, scenically, economically, or a combination of the three or more, for them to be subject to any form of management other than the strictest protectionism, if you like to call it that. And I think, as I remember, Lee, it was category I, II, and III, were absolutely sacrosanct. And that covers the Serengeti–Mara. I'm sure it covers the core Yellowstone area, and I'm sure it covers most of the national parks we're concerned about. The concern for participation of local communities in management—the participation of the change of revenue direction, where the local communities benefit directly, rather than indirectly—is not an illegitimate discussion, but I think it needs to be looked at in terms of the categorization that has been made. And I think many of us in the wildlife business get frightened when community leaders start demanding things about protected areas without necessarily defining which of the protected areas they're talking about. And I think if we took the time, as we said earlier in one of the sessions today, to listen before we answer, we might find that we're not so far apart at all. And I do sometimes worry that we're going back to an era of 30–40 years ago, when people seemed to be against national parks, and the parks seemed to be on the defensive—they were under siege as being inappropriate land use options. Given the knowledge we now have about biodiversity, about genetic resources, about the opportunities to make further advances that will lead to the survival of our own species as well as species we're dependent on through the exploitation of the genetic resources yet to be discovered, we simply cannot afford to lose some of these incredibly rich ecosystems. And we cannot afford to tamper with them to the extent that some of the suggestions would suggest people want to do.

I have been fascinated by the idea that wildlife threatens domestic stock. Has anyone thought that domestic stock threatens wildlife? It's true. Africa's population of lions has gone from about 80–90,000 ten years ago to less than 20,000 today. The decline in lions in Africa has been more rapid and more dramatic than the decline in elephants 10 years ago. Fortunately, lions pro-

duce lots of cubs, and the chances are you could probably bring the lions back relatively easily compared to the elephant or some of the other species, but nonetheless, a large number of these cats are dying from diseases introduced by dogs that are coming from communities living right on the park edge where there are no veterinary services, no inoculations against rabies, heartworm, distemper, feline HIV, or whatever they call it in those cases.

These are serious issues, and ones which we cannot afford to ignore, because if you lose some keynote species, as you ecologists know better than me, you can set off a chain reaction in terms of communities of species, and you can find yourself very quickly in deep trouble. I think we need to go back to where we were, and recognize that we're not going back to the drawing board, we're drawing further detail on the main drawing that was established and agreed over a period of years by very sound policy makers and research. That some people may want to revisit and change things on a national level I think is appropriate, but I think we need to be very careful not simply to lose the corporate memory, as is so often the case, and think that everything has to be done again. Everything can't be done again. We don't have the time; we don't have the money or the resources.

Having said that, let me just try, if you will, to draw this together in a way. I think the current state of conservation, or the current future of wild places, the threat to ecosystems that are largely natural, has never been greater. And I think this morning, Steven Sanderson of the Wildlife Conservation Society made the right comment: we are facing one of the most dangerous, worrying times that humankind has ever seen. Is it impossible to salvage something? Of course, it's not impossible, but I think we need to be very mature and very realistic, and I think we need to think very hard. And I think we've got to remember that one size doesn't fit all. And while I think it's extremely important for collaboration between systems, or managements of ecosystems such as the Greater Yellowstone and the Serengeti–Mara, I think we need to remember that there are going to be huge differences, and this Arch maybe isn't an arch, and maybe it's not overriding in that sense. Obviously, the objectives are very similar, but I'm not sure we want the Serengeti to be a Yellowstone. And I'm not sure you could ever get the Yellowstone to be a Serengeti. And this in no way demeans the value of either; both are very important.

Both are the property of the world. And I think one of the concerns that I have, and I've talked about this with my colleagues from East Africa, [is that] it is not adequate or appropriate today to think of—we were talking earlier about the Bwindi Trust, the Bwindi Impenetrable Forest, and the people who have been displaced. Of course it's of concern. People, you [indicating conference presenter Ann Laudati] were saying that Uganda Wildlife Authority is only giving 2% of the money back to Bwindi for distribution to the communities; I think that was the comment that you made. It is true, but are you

aware that the Bwindi gorilla tracking produces close to 70% of the Uganda Wildlife Authority's total budget, and if all the money that you want, and rightly believe your people that you worked with need, the Uganda Wildlife Authority would cease to function? And if Uganda Wildlife Authority ceased to function, very quickly Bwindi would cease to function, too, in my judgment as a former government employee. And I think there's a cascading effect to these issues, and it's not simply a matter of the Uganda Wildlife Authority being ornery. It's a question of survival.

There has been reference to whether the money that is kept in the Uganda Wildlife Authority is going for what it should be going for. And I would have thought today it's considered better than it used to be. There may be problems, but I think it's a whole lot better than it was. But I think we need to be careful in not thinking of Bwindi as simply a local community national park. It is a Uganda property. And it must play its part in the survival of Uganda as a country first and foremost. The same for the Maasai Mara, and Samson Lenjirr [of Kenya's Narok Council] and I have talked about this on many occasions. The Maasai Mara simply can't be left, I'm afraid, or I would argue it can't be left, to the whims and passions of the local Maasai leaders. It's much too important to my country. And the Maasai of the Maasai district of Narok are part of Kenya. There's no way they can detach themselves from Kenya in realistic terms. And just as other people have had to give up many other things to be part of a nation–state, so do the people on whose land they once lived, and [who] now have national wildlife reserves that have central economic importance. I think we have to keep that in mind, or at least I would argue we have to keep that in mind.

I understand where some of the...I would call, the more liberal viewpoints are coming from in terms of dispossessed people, human rights, environmental rights. I've been an advocate of human rights, environmental rights. I've had my car burnt for my advocacy, I've been whipped and lashed, and I've been jailed and tear-gassed for my advocacy, so I've been on the barricades, and I understand the importance of this, but at the end of the day, we cannot afford these experiments that are suggesting a more equitable arrangement, given the reality of our current economic situation. In the long term, we have to redress some of the wrongs that have been done—no question, and I would advocate that we do so. But let us not throw the baby out with the bath water.

The final point I would make—and I don't want to take too long, because I know that some of you have some questions, and I'm sure I've provoked some comment if not questions, but it's late, and once I stop we can all go home to bed, and I want to do that fairly soon. But let me say this. I think we've suffered—and I've said this elsewhere—I think many of us have suffered from the sense that somehow we are guilty. That taking land for wildlife,

wilderness, is something to feel very awkward about, and that it is has put people to tremendous disadvantage. It's put people at no more disadvantage than many of the other land use policies that have been devised over the last 100 years in terms of achieving nation status and participating in the commonwealth of nations in the current economic formula. I don't think we should be ashamed to say: "we are here, damn it, to see that wildlife does not decrease. We are here to see that wildlife is sustained, that it is enriched, that habitats are improved, and that future generations will not have to look to this generation for those who let the last remnants go."

That the people are hungry, that there are people in gross violation of human rights, that there are people impoverished by government policy, there's no question. But it's not the question of the Superintendent of Yellowstone National Park to become a development agency for putting in water pipes and troughs for ranchers who are facing pecuniary difficulty, any more than it is appropriate for Samson Lenjirr, as the senior warden-in-charge of the Maasai Mara, to have to worry about building schools and sitting on parents' committees as to whether the school should have two classrooms or five, and who should pay for it. [Samson's] job is to see that the lions are not being infected with feline distemper, and the lions are not being poisoned by people who have ill intent, and that your park raises the maximum amount of benefit through the distributive procedures that exist in the country under lawful arrangement. You're not a development expert, you're not an agricultural expert; you're a wildlife expert. And I don't think you should feel bad about that.

The truth is that we don't respect our wildlife people. They are the least well-paid in the public service. You, wildlife managers, I believe, control, oversee, protect, look after national assets that in—perhaps not in America, because you're very rich—but in Kenya, the wildlife estate (protected areas) is far more valuable than the entire financial assets protected in the Central Bank of Kenya. The central bank doesn't have a fraction the amount of value—monetary value—that the protected areas have. Yet we pay the office messenger, the person who delivers letters and tea, more than we pay some of our wardens. And yet they are charged with the responsibility of looking at an asset far more valuable than is in the Central Bank. We've got things twisted around. But my plea is, in these expressions of concern, in efforts to bring about dialogue, in efforts to reach together to find common solutions, let us not think what works for the Mara necessarily works for Yellowstone, or Bwindi, or some of these others. Let us look at each in its own way. But in the developing world, let's remember that we are developing; we're not developed. And we're under tremendous difficulty.

And if I could end with a swipe at the U.S. position on the World Trade Organization: as long as you subsidize your farmers the way you do, you

have an inflated value of your cattle that you believe are getting brucellosis from your bison. But more importantly, it stops our farmers ever getting to where they want to be. And the great ideas of producing "conservation cattle" —I think, was the term that Lisa [Graumlich] used—is way off for us. And until you get rid of the trade barriers and the subsidies of the West, the Third World, the developing world, is never going to have a chance of making conservation-related agriculture work, because we have no markets; it's not there. We don't exist as far as the planners of this are concerned. So let's have a reality check. Let's not give up. Let's recognize it can be done. But my goodness, we've never had a tougher time to look at the future, I think, than we do today.

Thank you.

Involving communities in conservation in Zanzibar: local factors in program outcomes

Arielle Levine

Abstract

As a newer initiative in international conservation efforts, marine protected areas lack the history of community conflict seen in terrestrial conservation in Africa. Marine conservation thus presents a tremendous opportunity to pilot innovative new techniques in community-based conservation programs. The islands of Zanzibar are home to four community-oriented marine protected areas, each of which is sponsored by an international agency, and each of which involves some form of community component. However, a number of issues arise when working at the community level, requiring nuanced attention to a variety of local factors. The Menai Bay program in southern Zanzibar provides an excellent example of the complexity of factors involved, which can result in dramatically different village-level responses to a single program. These factors include, but are not limited to differences in geography and infrastructure, the potential for tourism development and alternative sources of income, pre-existing community structures within each village, and the relationship of conservation program managers to the Zanzibari government. While these factors are complex and difficult to predict, it is essential that conservation programs take them into account when trying to establish community-based marine conservation programs that will be sustainable in the long term.

Introduction

Tanzania is internationally renowned for its parks and protected areas. With over 25% of its land surface set aside in parks, protected areas, and wildlife reserves, the country has placed a high priority on safeguarding its valuable wildlife and land resources (Leader-Williams et al. 1996). Many of these areas were established during the colonial period, and the number of national parks in Tanzania rapidly expanded after the country gained independence in 1961. Parks, protected areas, and game reserves provide a significant source of revenue for the country through international tourism, as well as through funding from international conservation and development agencies.

While terrestrial conservation in Tanzania dates back to colonial times, marine conservation has only recently come into the spotlight. The Tanzanian government began to designate a few small marine reserves off the coast of Dar es Salaam in 1975, but these protected areas were not fully implemented until the Marine Parks and Reserves Act was ratified in 1994 (Spaulding et al. 2001), which was when the majority of marine conservation activity began (Table 1).

Table 1. Marine protected areas in Tanzania.

Site name	Designation	IUCN category	Year designated
Bongoyo Island	Marine reserve	II	1975
Chumbe Island Coral Park*	Marine sanctuary	II	1994
Fungu Yasini	Marine reserve	II	1975
Mafia Island	Marine park	VI	1995
Maziwi Island	Marine reserve	II	1981
Mbudya	Marine reserve	II	1975
Menai Bay*	Conservation area	VI	1997
Misali Island*	Conservation area	VI	1998
Mnazi Bay	Marine park	VI	2000
Mnemba*	Conservation area	VI	1997
Pangavini	Marine reserve	II	1975

**Zanzibar Marine Protected Areas (from Spaulding et al. 2001)*

At the same time, conservation and protected area management in general was undergoing a dramatic revolution in thinking. After years of exclusionary models of parks and protected areas, conservation programs began moving toward a more participatory mode of involving local communities in community-based conservation and community-based natural resource management programs in Africa and other developing countries around the world (see Brandon and Wells 1992; Murphree 1993; Gibson and Marks 1995; Leader-Williams et al. 1996; Brosius et al. 1998; Newmark and Hough 2000). Conservation and development organizations began to acknowledge the importance of obtaining community support and returning benefits to local people in order to guarantee the long-term sustainability of their programs. Community-based conservation was heralded as the way of the future for natural resource management in developing countries, and organizations ranging from government agencies to NGOs, international development institutions, and private tourism operators gradually began to incorporate local communities into their conservation agendas. By the end of the 1990s, it was difficult to find a conservation area in Tanzania that did not have a community component sponsored by an associated donor agency.

Because marine protection was initiated more recently and during the same time that this shift toward community-based conservation was underway, marine programs do not yet have the same history of conflict as land-based conservation programs in Tanzania. Marine protected areas thus provide a tremendous opportunity to pilot innovative conservation initiatives in collaboration with local community and user groups. Many new experiments are currently underway to work with local communities around marine protected areas, often incorporating techniques used in land-based conservation strategies. However, many of the issues involved in terrestrial community-based conservation initiatives may not apply to the marine environment. Marine conservation faces additional challenges in the fugitive nature of fisheries resources, in that user groups are often highly diffuse and hard

to define as traditional "communities," and in the fact that marine borders are extremely difficult to demarcate and enforce. While community-based land conservation tends to focus on working with local residents, fisheries resources are often used by people who come from great distances and local "resident" communities may not exist, or involving only nearby communities may overlook the influence and importance of other key resource users.

Marine conservation in Zanzibar

On the island of Zanzibar, off the coast of Tanzania, four protected areas have recently been established that attempt to combine marine conservation with the interests of local communities (Figure 1). This is done primarily by involving local communities in the management of these areas and/or providing nearby communities with benefits derived from conservation. Two of the programs in Zanzibar are sponsored by international non-governmental organizations (NGOs), and the other two are managed by private sector, eco-tour operators (Table 2).

An unusual feature of marine conservation programs in Zanzibar is that all are managed by external international organizations. Indeed, the divisions of government that would normally be responsible for managing protected areas do not have the funding or resources to manage these protected areas themselves. While many government programs were supported in the past by international development funding, during the 1980s the international donor community shifted its funding priorities away from providing direct assistance

Figure 1. Zanzibar's Marine Protected Areas.

Table 2. Marine conservation areas in Zanzibar.

Conservation Program	Program Type	Implementing Organizations	Location and Involved Communities
Misali Island Marine Conservation Area	Non-governmental organization (NGO)	CARE International; Government of Zanzibar–Department of Commercial Crops, Fruits, and Forestry (DCCFF); Misali Island Conservation Association (MICA)	Misali Island, west of Pemba; works actively with 12 user communities (shehias) around Pemba; involves 34 shehias in fishermen's association
Menai Bay Conservation Area	Non-governmental organization (NGO)	World Wide Fund for Nature (WWF); Government of Zanzibar–Fisheries Department	Menai Bay, southern Zanzibar; involves 17 user villages in the Menai Bay area
Mnemba Island	Private Sector	Conservation Corporation Africa; Government of Zanzibar–Fisheries Department	Mnemba Atoll, northeast of Zanzibar; involves four nearby user communities (shehias)
Chumbe Island	Private Sector	Chumbe Island Coral Park, Ltd.; Government of Zanzibar–Fisheries Department	Chumbe Island, west of Zanzibar; involves local fisher communities and Zanzibar teachers and schoolchildren

to the state. Now, donor institutions emphasize decentralization or privatization of state functions, preferring to work through what are often referred to as "civil society" organizations, which are deemed to be more efficient and representative of society, or through private sector operators, which are also seen as more efficient and flexible than the bureaucratic government structures. In essence, this means that the majority of donor funding in Tanzania is now distributed through intermediary organizations such as NGOs (often seen as institutional representatives of civil society), or it is used to encourage private sector initiatives, prompting the increased involvement of these two types of alternative organizations in conservation activities (Gibbon 1995; Levine 2002). Additionally, the political corruption and human rights violations associated with the Zanzibar elections in 1995 and 2000 (Human Rights Watch 2002) caused the rapid withdrawal of many of Zanzibar's remaining sources of international development funding, leaving the Zanzibar govern-

ment further strapped for funds (Bigg 1996).

Addressing this severe lack of state resources and capacity, Zanzibar's Environmental Management for Sustainable Development Act of 1996 specifically provides that the National Protected Area Board of Zanzibar can delegate its authority to institutions or individuals not employed by the government, stating that the board "may delegate in writing any of the National Protected Areas Board's powers except its power to recommend national protected area status to the Minister responsible for the national protected areas system" (Government of Zanzibar 1997). This appointment may be made to "any person qualified to exercise those powers," thus opening the potential for NGOs, the private sector, and local communities to become involved in protected area management. While the government still retains authority over reserve designation and delegating reserve management powers, nearly all responsibility for managing Zanzibar's marine protected areas currently lies in the hands of outside agencies, allowing for a variety of innovative techniques in conservation and community involvement.

Because of the current priority of involving local communities in conservation programs, each of the institutions managing these protected areas (be it private sector or NGO), has incorporated a community component into its management plans. However, it is nearly impossible for these external organizations to engage directly with local communities without working through pre-existing structures established by the Zanzibari government. Thus, while the Zanzibari state has essentially written itself out of the management of these protected areas, external managing institutions are still required to work through the state in order to reach local communities. This creates a rather convoluted relationship between protected area managers, the government, and local communities, that is not necessarily conducive to building strong and sustainable conservation programs (Levine forthcoming).

Communities and conservation: NGOs and private sector programs

Zanzibar's Protected Area Management Plan has opened opportunities for involvement by a variety of institutions in marine protected area management, and has resulted in a wide range of conservation programs and methods in a relatively small area. This created a natural experiment for assessing the outcome of different management styles, particularly the difference between private sector and NGO techniques for conservation and community involvement. As might be expected, village members' views of and reactions to the conservation programs vary greatly between the different programs. However, their responses also vary just as dramatically between the villages within an individual program. A single management institution may experience a positive response from a community in one village, while members of a different village may react strongly against the same program.

To assess local responses to the different types of conservation programs,

in-depth, questionnaire-based interviews were conducted in 2002 with over 500 fishermen in 25 shehias involved in each of the four marine conservation programs in Zanzibar. ("Shehia" refers to the administrative district just above the village level. Some shehias involve only one village, while others incorporate several villages located in close proximity to each other). Focus group discussions were also conducted with groups of fishermen in each village. Preliminary results from this research show that while there is no dramatic difference between average project satisfaction in villages involved in NGO vs. private sector programs, there is a striking difference in the extremity of the fishermen's reactions. Fishermen located in villages associated with private sector programs tend to be passively accepting in their attitude toward the programs. They may be somewhat disappointed to lose access to a fishing area, but are perhaps pleased to be receiving benefits from program funding in their villages. On the other hand, fishermen located in villages sponsored by NGOs often exhibit a much more extreme response. When the NGO programs are meeting community expectations, community members feel highly involved in and enthusiastic about the conservation initiatives. Conversely, if the program fails to live up to its promises, local community members may exhibit outrage and threaten to rebel against the program itself.

This dramatic difference in community-level responses appears surprising until one examines the different techniques used by NGO vs. private sector programs in implementing community-based conservation. NGOs tend to focus much more on building community-level structures, actively trying to involve fishermen in conservation and/or management. Fishermen are encouraged to form village conservation committees and may participate in patrols or become involved in deciding management issues. This creates an overall sense of engagement and community-level investment in the conservation programs. Private sector programs, on the other hand, operate more as socially responsible businesses. The hotels incorporate a conservation component to their operations and try to provide benefits to local community members. Profit-making remains a top priority, but ecotourism is a profitable niche market, and the community and environmental programs provide positive publicity for the hotels, and help to ensure good local relations. Local communities are not actively involved in management, but are passive recipients of some of the hotels' profits derived from tourism.

While a highly engaged community is much more likely to feel invested in a conservation program, this in itself cannot guarantee a positive community response. The overall outcome of a community-based conservation program at the local level depends on numerous other factors beyond the type of implementing institution, or even the techniques used to carry out the program. These factors are often complex and unpredictable, and can be either internal or external to the village or program itself. In spite of the com-

plexity of these factors, it is important to try to assess, predict, and adapt to these issues in program planning and implementation in order to avoid future problems and potential program failure.

The Menai Bay Conservation Area program

Among the marine conservation programs in Zanzibar, the Menai Bay Conservation Area provides an excellent example of the potential for extreme variation in local response within a single program. Sponsored by the World Wide Fund for Nature (WWF), the Menai program is located in southern Zanzibar, encompassing an area of about 470 km² (Figure 2) and working with 17 villages in the Menai Bay area. The program was initiated in 1994, and the region was officially gazetted as a protected area in 1997. While WWF is responsible for funding the program, it collaborates with the Fisheries Division of the Zanzibar government to work with local villages and has received financial assistance from USAID, the British government, and other sources to finance certain aspects of the program.

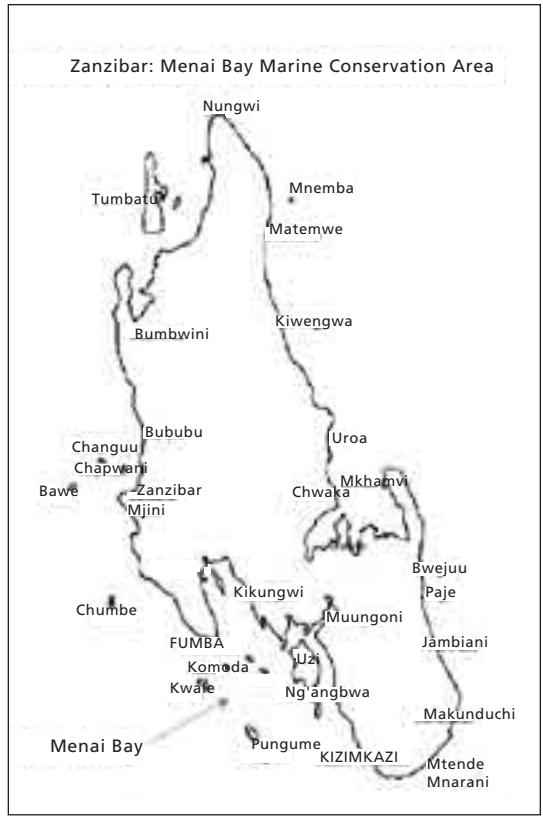

Figure 2. Menai Bay Marine Conservation Area.

The primary aims of the Menai Bay program are to sustain the biological resources of Menai Bay through the establishment of a multi-user marine conservation area, ensure local participation in conservation and monitoring of the protected area, and increase public awareness and education. The project also hopes to increase local capacity for sustaining conservation activities and provide sources of revenue to improve local livelihoods and to make the project self-supporting in the long-term (Ngaga et al. 1999). To address these goals, each of the 17 villages involved in the program has organized village conservation committees (VCCs) that provide a structure through which the program contacts and works with each village. The VCCs are also intended

as a way of organizing village members to focus on issues of environmental protection such as mangrove replanting and reduction of dynamite fishing and illegal nets (Menai Bay Conservation Project 2000).

To address the problem of destructive fishing in the area, the Menai program has established a system of local patrolling where fishermen from participating villages take radios on their boats to report incidences of illegal fishing. Five radios were distributed amongst the villages, and two patrol boats are stationed in Kizimkazi Dimbani on the east end of the bay. The patrol sometimes works together with the local coast guard to intercept illegal fishermen; between 1997 and 1999, 12 cases of illegal fishing involving 167 fishermen were brought to court (Ngaga et al. 1999). Although fishermen continue to complain that those who are prosecuted are rarely punished in any substantial way (only 40 fishermen involved in the above cases were actually fined), most villagers have reported a significant reduction in dynamite fishing in the bay since the program was initiated, particularly in the area around Pungume Island in the south.

WWF is also working to promote alternative sources of income in the Menai Bay villages. Tourism is actively promoted in some of the involved villages to bring in additional income to improve the livelihoods of local people, as well as to provide revenue to support conservation activities and program expenses in the bay. Many villages have also received assistance and training for alternative income strategies such as bee keeping, tree nurseries, and improved charcoal-making techniques.

Village-level outcomes in Menai Bay

The Menai Bay program has generally used a consistent model for conservation and community involvement when working with each of the involved communities. The VCC structure is virtually identical in each village, and the program has used similar methods for promoting conservation and alternative livelihoods (such as radio patrols and forming women's bee keeping groups to work in mangrove areas). However, although the model for implementing conservation programs is similar across villages, the outcomes at the village level have not been as consistent as the stated approach. This has resulted in highly divergent responses from community members within different villages, as well as high variation in village participation in and support of the programs.

The Menai case study involved intensive interviews and focus group discussions with fishermen in seven of the program villages situated across Menai Bay. While every village is unique, and thus different outcomes would be expected in each area, the variation in community responses from different villages within Menai Bay is extreme, with program satisfaction generally higher on the eastern end of the bay than in the West. These differences are due to a number of factors, both internal and external to the villages. These

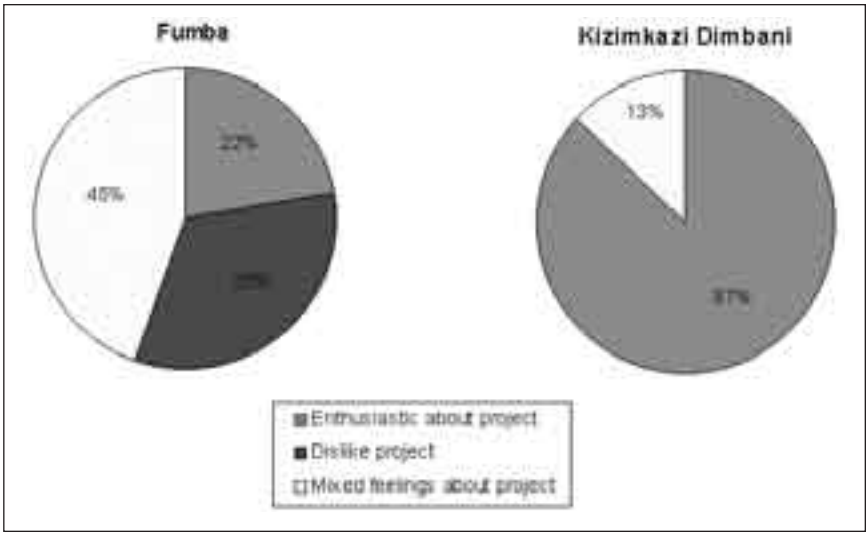

Figure 3. Fishermen's reactions to the Menai Bay project.

factors include, but are not limited to differences in the infrastructure and geography of an area, local differences in history and fishing methods, the presence of illegal fishing in the area (from either village members or outsiders), village members' access to alternative means of income, the degree of the community's dependence on fishing for their livelihood, and variations in the previously existing social structures found within each village.

Two villages in particular exemplify this extremity of variation in responses: Kizimkazi Dimbani (located on the far eastern end of the bay) and Fumba (on the far western peninsula). Fishermen in Kizimkazi Dimbani are generally highly enthusiastic about the project, believing that it has helped their village tremendously, both through the reduction of illegal fishing and through an improvement in their overall livelihoods. The village of Fumba, on the other end of the bay, is much less enthusiastic (Figure 3). While fishermen who are members of the VCC in Fumba seem to have a slightly more positive opinion of the program (a trend seen in all villages), Fumba fishermen are generally pessimistic about the program's ability to reduce illegal fishing in their area or improve their overall situation (Figure 4). Many of the differences between these two villages in local responses to the program can be explained by the aforementioned factors, a subset of which are discussed below.

Geography and infrastructure. Differences in infrastructure are perhaps the most obvious factors accounting for these divergent responses. Although Kizimkazi Dimbani is much farther from the project headquarters in town, a well-maintained, paved road runs all the way to the village. Fumba is physically much closer to town, but the road to reach the village is in poor condi-

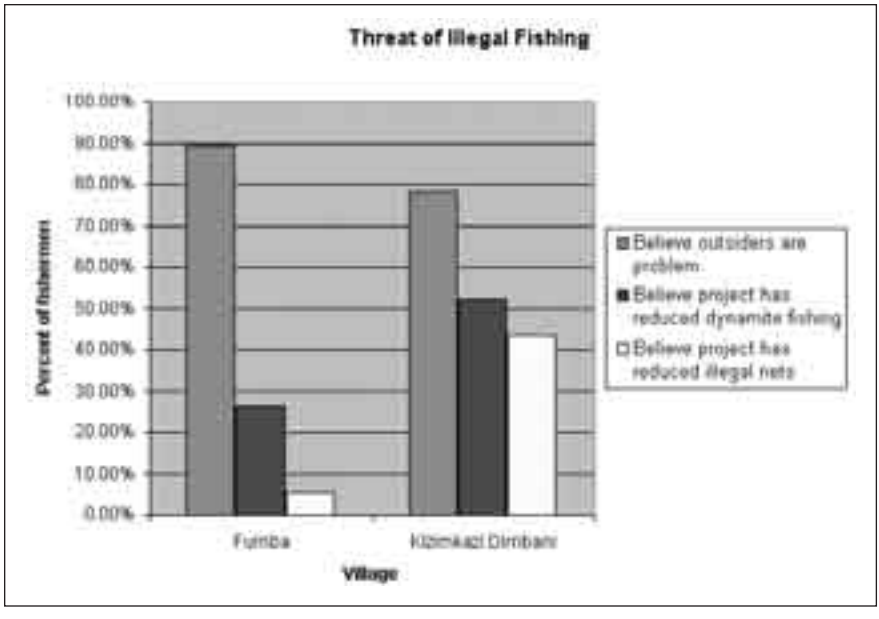

Figure 4. Perceived threat of illegal fishing.

tion, and driving to Fumba actually takes longer than the trip to Kizimkazi Dimbani. A common complaint among many fishermen is that program officials don't come to their villages, and indeed, program officers rarely make the grueling trip to Fumba. The smooth road to Kizimkazi Dimbani, however, also allows project officials to stop at other project villages en route, making a trip to this village both comfortable and convenient. Not surprisingly, program officers are much more inclined to visit Kizimkazi Dimbani than Fumba, and the village gets much more attention from the program.

Additionally, Kizimkazi Dimbani serves as the base for the program's two patrol boats and radio headquarters. One of these two boats contains two powerful outboard engines that theoretically enable the patrol team to intercept almost any illegal fishing boat that enters the bay. However, these impressive engines also use a considerable amount of fuel, and the limited project funds are often inadequate to support the cost of fueling these boats. Project officers frequently lack sufficient fuel to take the boats on patrol or intercept illegal fishermen outside the immediate area of Kizimkazi Dimbani.

As Fumba is located on the opposite end of the bay from Kizimkazi Dimbani, the patrol boat is rarely able to arrive there in a timely manner in response to illegal fishing, even if adequate fuel resources are on hand to make the trip across the bay. Both Fumba and Kizimkazi experience a number of outsiders fishing in their area. However, Fumba is located closer to the mainland and to town, meaning that the perceived threat of outside fisher-

men using illegal methods is greater (Figure 4). The presence of the patrol boats in Kizimkazi Dimbani serves as a deterrent to illegal fishing in that area, while fishermen in Fumba do not generally believe that program has helped to significantly reduce illegal fishing.

Because of the ease and comfort of transportation to Kizimkazi Dimbani, as well as the noticeable presence of program resources (such as the patrol boats), the Menai program officers have been much more likely to bring donors and other visitors to this village to visit the program. This has resulted in Kizimkazi Dimbani becoming a kind of "showcase village" for the Menai Bay program. While this was probably not the initial intent, this situation has contributed to the further concentration of program attention and resources in Kizimkazi Dimbani. It has also opened up other opportunities to the village, such as increased international attention and the presence of tourism.

Alternative income through tourism. The tourist industry, which the Menai project has actively promoted as an ecologically friendly source of alternative income generation in the Menai Bay region, is already a notable source of employment in both Kizimkazi Dimbani and Fumba. The presence and potential of tourism is probably greater in these villages (with easy ocean access) than in most other villages in the project area. Fishermen in both villages work for outside companies taking tourists out to sea, and many

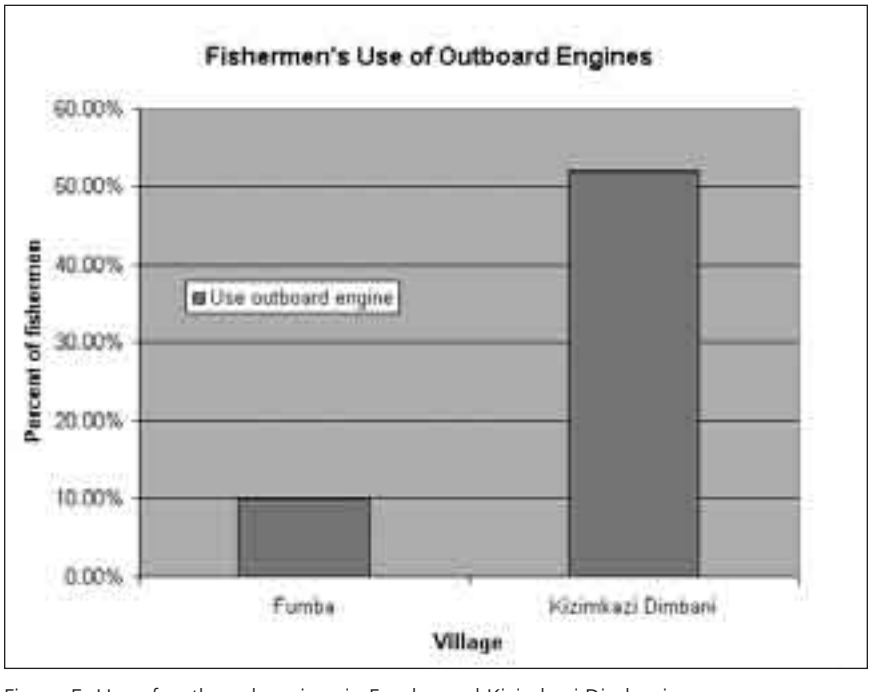

Figure 5. Use of outboard engines in Fumba and Kizimkazi Dimbani.

fishermen in Kizimkazi Dimbani also lead dolphin tours in their own boats using personal resources and initiative. The Menai project actively promotes tourism in the Kizimkazi region, and opportunities for independent employment are greater in this area because its popularity and the condition of the road bring frequent casual day visits from tourists. The Menai program has also tried to use tourism as a source of program revenue, attempting to tax tour operators at two dollars per head. This scheme met with considerable resistance from individual fishermen and tour operators alike, particularly in Fumba, where both fishermen and tour operators believed that they were receiving few benefits from the project.

Tourism is a major factor contributing to the greater relative wealth of fishermen in Kizimkazi Dimbani compared with Fumba. The use of boats with outboard engines, a proxy indicator of the economic status of fishermen, is dramatically higher in Kizimkazi Dimbani than in Fumba (Figure 5). This greater use of outboard engines allows Kizimkazi fishermen to travel farther to fish, making them less reliant on their immediate area, and thus less threatened by destructive fishing in their region. Engine ownership also allows fishermen to independently take tourists out in their own boats, further increasing their potential to earn tourist income.

Fishermen in Kizimkazi Dimbani see the presence of tourism as a strong benefit provided by the Menai program, bringing in supplemental income and employment opportunities for other people who might otherwise leave the village to find work in town. As one fisherman stated, "the village benefits because many youth get employment when indeed our own government says that there are no jobs. It isn't customary for many of our youth to move to town when they finish school because there is work here and they help each other. A person can earn two to three thousand shillings [here] that people in town can't get. Also, our village has become well known because many different visitors come here…and many make contributions" [all quotes from fishermen are translated from the original Swahili by the author].

Fumba fishermen see the relationship between the Menai project and tourism differently. When asked about the two-dollar contribution that the project was soliciting from tourist operations, many fishermen cited corruption within the project. One fisherman responded, "truthfully, this project has been given a lot of money by donors and they have not done one thing of meaning; they've used all of this money and they've done nothing…They say they do patrols, but they don't do this—they just take tourists out to make money…They say that this money will help the village, but this isn't true. If they get money they eat it themselves and it doesn't help anything here. Now many people in Fumba don't believe in Menai." Another Fumba resident emphasized the village's disillusionment with the project: "The people of Menai aren't honest…after we've seen that there is no truth, indeed we don't

even pay one dollar, because although the project appears to be doing things for the environment, still…destructive fishing occurs even though the project has boats to enforce the law. Therefore there is no need to pay to make their [the project officers'] stomachs fat—there is no meaning."

The uneven distribution of program attention and resources goes far to explain the differences in fishermen's attitudes between the two different villages. However, other villages participating in the project also suffer from negligible program attention, but their reaction against the project has not been nearly as extreme as in Fumba (Figure 6). As the village located farthest from the patrol headquarters and closest to the mainland and town, the threat of outsider illegal fishing may be greater in the Fumba area than in other parts of the bay, potentially exacerbating village-level dissatisfaction. However, the significant degree of dissatisfaction with the Menai program found among Fumba residents may also be explained by other historical factors within the village itself.

Pre-existing village structures. Fishermen in Fumba established their own village conservation committee in the early 1980s to fight the growing incursion of illegal fishing in their area. With the help of donor funding, they later expanded this committee to work with five other villages on the Fumba peninsula. Fumba fishermen frequently cite with pride how they were "the first to protect the environment." When the Menai project came to Fumba, the program officers asked the villagers to disassemble their village conserva-

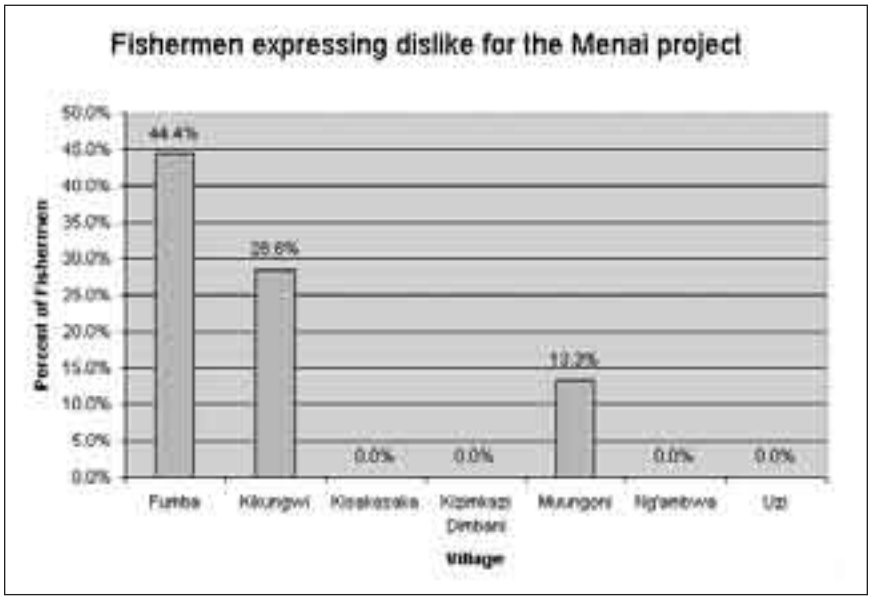

Figure 6. Other village responses to the Menai Bay project.

tion committee and create a new one under the auspices and structure of the Menai Bay program. The Fumba villagers willingly complied, expecting to receive increased support from the project. Unfortunately, the villagers state that they have since been abandoned by the project; the program officers never come to their village, and the patrol boat never reaches their area. One Fumba fisherman complained, "Menai, they've got problems—they don't send the boat. There used to be a committee here but it died a few years ago; it didn't work. People came from [the project] but they did nothing." Another complained: "Menai and WWF have done nothing for the committee—they've done zero. Nothing has come of it." Other fishermen express a sense of urgency: "They [the project] need to do real work because the coral is being broken, fish are ruined, destructive fishermen fish every day—it must be protected. Fishermen must not use destructive methods, and the project must do their work well. We don't want destructive fishing in Menai Bay."

Much of the outrage in Fumba seems to stem from the feeling that the Menai project has undermined the efforts that the villagers initiated themselves. The program officers made promises to assist them, but instead focused their resources elsewhere. As one Fumba fishermen stated: "People in Fumba were the first to protect the environment. Here we were teachers for other areas, but the project removed us…now people from here have had their hearts broken—they don't continue [to work to protect the environment]." Many cite the increase in illegal nets in their area as a big problem, and they are frustrated that the program focuses its efforts on the other side of the bay. "Our strength has decreased because we have gotten nothing, it all goes to Kizimkazi…We've gotten no tools to protect against anything. People from Menai don't come often now…they've stopped coming completely, they only go to Kizimkazi." Some villagers are outraged enough to state that the program officers are no longer welcome in Fumba.

The Menai project's failure to work with, and in fact, its undermining of pre-existing village-based conservation structures goes far to explain the extreme resentment that most Fumba fishermen feel against the program. Kizimkazi Dimbani, on the other hand, had no formal village conservation committee before the Menai project began. The Menai program brought a formal structure and resources to the village to address issues such as the incursion of illegal fishermen in their area. It also helped increase tourism in the village. Rather than undermining local structures in Kizimkazi Dimbani, the Menai project helped to build them, a factor which may help to explain the fishermen's high level of support for the program.

Implications for community-based marine conservation programs

Although the Menai Bay project's formally-stated goals and models are the same for each village within the Menai Bay region, the outcomes and community-level responses vary tremendously within individual villages. The dif-

ferences in responses from fishermen in Fumba and Kizimkazi Dimbani are an extreme example, but the responses from other villages involved in the Menai program also show similar variation across the bay. This variation at the village level is not unique to the Menai program, but is seen in the results from the majority of the case study villages associated with marine protected area programs in Zanzibar, regardless of the structure of the program or the type of sponsoring organization. This within-program variation makes it very difficult to deem any single program a complete "success" or "failure," but requires that attention be paid to the nuanced differences within the program area itself.

It is difficult to predict which of the numerous potential contributing factors may account for program variations at the village level, and local factors vary significantly by case and by region. However, the Menai program provides some interesting lessons regarding important factors to consider in implementing community-based marine protected area programs. One of the more obvious and widely applicable considerations is the need to try to disperse program benefits across villages as evenly as possible. While differences in geography and in local infrastructure may make this difficult, the resentment between villages that can result from unequal distribution of program attention and resources can be detrimental to the success and stability of the overall program. In the case of Kizimkazi Dimbani, the Menai program focussed more resources in this easily accessible location, using it as a successful "showcase village" for donors, and indeed, the level of program success and local support in Kizimkazi Dimbani is very high. However, this tactic did not go unnoticed by other participating villages, and many felt alienated or abandoned by the program. Focusing resources in an easily accessible location may also serve to further marginalize villages that are already politically and economically marginalized by poor access to transportation, communications, and infrastructure.

Additionally, it is important to pay particular attention to differences in local situations and history. Community-based conservation programs can be important tools for building local community structures to address conservation problems and for gaining community support. However, these programs must also take into account the previously existing societal structures within each village and attempt to work with these structures of civil society, rather than undermine them. While a village's previously existing organizations and techniques for addressing conservation issues may not necessarily fit neatly with the conservation model of a wider program, it is important to try to work with these local structures that have a strong local base of support, rather than dismantle them in the hopes of creating a more even, generic program structure across villages. In the case of Fumba, the dismantling of the local conservation committee in favor of the Menai program's VCC model not only

alienated local fishermen from the program, it also left the village without any effective, village-based structures to address the growing problem of illegal fishing in the area.

Externally-sponsored conservation and the state

A wider issue in community-based marine conservation in Zanzibar, and one that is perhaps more difficult to address, is the structural relationship between the government and the external institutions implementing marine conservation on the island. Although the government is a key collaborator at the ground level in terms of program implementation, the state does not generally play largely in the funding or formulation phase of the programs. The shortage of internal resources in the Zanzibari government requires that it work with external institutions to fund its conservation programs. However, this means that the government may not feel ownership of, or investment in, the projects. It places the program sponsors, whether they are NGOs or private sector operators, in the position of a fatted calf that can be seen as a potential source of funding for government priorities that may not fall in line with the program's conservation agenda. Government officials may cooperate with the program only as a means of gaining access to outside funding, rather than because they support or believe in the program's aims and goals.

Additionally, if the government does not see itself as directly invested in the project, then government officials and employees may be more likely to try to skim resources from the program (at the expense of overall program goals) rather than actively support it. A number of fishermen, and even some program employees, claimed that corruption was a problem in the Menai Bay program. If this is the case, then already-inadequate program resources must be stretched even more thinly across the project's 17 villages. This perception of corruption also detracts from the program's relationship with individual villages, undermining community trust and cooperation.

Another challenge to the Menai program is that it lacks adequate support within the Zanzibari state's legal structure. Although the incidences of illegal fishermen being brought to court increased dramatically after the patrol system was established by the Menai program, very few of these fishermen have been substantially fined or punished, providing very little disincentive for the use of illegal fishing nets in the area. This might not be the case if the Zanzibari state felt ownership of the Menai program, potentially prompting a more active level of support and collaboration across the different sectors of the islands' government.

The Menai program provides an excellent example of the extremely complicated factors involved in implementing community-based conservation programs. The wide variation in village-level outcomes, both for and against the program, illustrates the need for increased attention to the nuances and details at the local level, as well as to the program's institutional and

contextual setting. Applying a single model of conservation and community involvement across multiple villages—even villages located in a similar region and setting—is bound to result in very different outcomes once that model hits local cultural, historical, and political realities. Although these different results are not entirely predictable, it is important to take local differences into account to try and minimize inequitable outcomes that might undermine long-term program success. Program techniques and policies must be adaptive to pre-existing local structures and to unpredicted individual situations that may arise. It is certainly a daunting task for an international conservation NGO (or any organization) to create a community-based marine conservation program that is sensitive to local contextual differences, has an adaptive management style that can respond to unexpected needs, and is integrated into both local-level and state-level structures. However, this kind of structure is necessary if community-based conservation programs are to be effective and sustainable in the long term.

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A brief survey of standing: seeking shelter without technicalities in Africa

Kelly Matheson

Abstract

The pursuit of environmental protection and ecological preservation requires widespread access to justice. In part to protect the integrity of the judiciary, all governments, to an extent, limit their citizens' access to the courts by adopting a series of barriers one must overcome to bring a lawsuit. The requirement that a plaintiff be granted "standing to sue," or locus standi, *is one such barrier.*

While the U.S. courts are developing jurisprudence to restrict standing to sue, many other countries, including those in the developing world, have adopted interpretations of standing better calculated to allow the law to play its part in protecting the public interest. They do so based on the understanding that the inequality between those with power and resources and those without is magnified when access to courts is restricted. This paper briefly explores a citizen's ability to bring environmental lawsuits in three African countries: South Africa, Kenya, and Tanzania, examining both the constitutional provisions and the record of judicial interpretation. In each of these countries, the existing constitution provides a basis for standing to sue. The security of this basis in an environmental context, however, depends on the varying language of the countries' constitutions and traditions of judicial interpretation.

Introduction

The pursuit of environmental protection and ecological preservation requires widespread access to justice. In part to protect the integrity of the judiciary, all governments, to more or less of an extent, limit their citizens' access to the courts, by adopting a series of barriers one must overcome to bring a lawsuit. The requirement that a plaintiff be granted "standing to sue," or *locus standi,* is one such barrier.

Standing is the determination of whether a specific person, group of persons, or organization is the proper party to bring a particular matter to court for adjudication. In many judicial systems, this means that the plaintiff must show it was, or is likely to be "sufficiently and personally injured" as a result of a legal wrong. Governments often justify and defend this stance by arguing that this requirement helps hold back the floodgates of litigation. However, when applied to environmental law, standing to sue, if not liberally interpreted, threatens access to justice. This is partly because of the complexity of determining the cause and effect relationship in environmental cases and partly because public interest organizations, rather than individual victims, are often best placed to file suit to remedy environmental wrongs.

Narrowing access: the U.S. approach

The stance of the U.S. Supreme Court illustrates the stifling impact that narrow interpretations of standing can have on valid environmental claims. In the early 1970s, for instance, the U.S. Forest Service granted Walt Disney Enterprises a permit to construct a major resort complex despite the environmental degradation that would result from the completion of the project. The Sierra Club, a non-profit, non-governmental organization, filed suit, asserting, "[A] special interest in the conservation and sound maintenance of the national parks…and forests of the country." The Supreme Court dismissed the case, finding that the members of the club would not be "significantly affected" by the proposed activities and concluding that "a mere interest in a problem, no matter how longstanding the interest and no matter how qualified the organization is in evaluating the problem, is not sufficient." This holding put the American public on notice that only those who are "sufficiently," and later, "personally" injured have standing to sue those who fail to fulfill their legal duties. Since this case, the U.S. Supreme Court has issued a line of opinions that consistently embraces a conservative interpretation of *locus standi* which, in turn, restricts access to the courts when the public's well being is at issue.

Broadening access: a worldwide trend

While the U.S. courts develop jurisprudence to restrict standing to sue, many other countries, including those of the developing world, have adopted interpretations of standing better calculated to allow the law to play its part in protecting the public interest. They do so based on an understanding that the inequality between those with power and resources and those without is magnified when governments restrict access to courts. In the now-famous case, *Oposa v. Factorann,* for instance, the Supreme Court of the Philippines expanded standing to sue to take in the progressive concept of intergenerational responsibility by allowing children to sue on behalf of themselves and others of their generations as well as for succeeding generations not yet born. This court supported its decision by citing to the nation's constitutional right to environmental protection and the constitutional guarantee of a right to life. Moving on to Africa, in Nigeria, Chief Justice Fatayi-Williams declared, in the case of *Adesanya v. The President*, "To deny any member of…society who is aware or believes…that there has been an infraction of any of the provisions of our Constitution, or that any law passed…is unconstitutional, access to a Court of law to air his grievance on the flimsy excuse of lack of sufficient interest is to provide a ready recipe for organized disenchantment with the judicial process."

This essay briefly explores a citizen's ability to bring environmental lawsuits in three African nations: South Africa, Kenya, and Tanzania, examining

both the constitutional provisions and the record of judicial interpretation. In each of these countries, the existing constitution provides a basis for standing to sue. The security of this basis in an environmental context, however, depends on the varying language of the national constitutions and the traditions of judicial interpretation.

The African experience

South Africa. Of the countries considered, post-apartheid South Africa has, on paper at least, the most expansive legal methodology for granting citizens standing to sue in public interest cases. In its 1997 constitution, not only are South African citizens granted the right to an "environment that is not harmful to their health or well being," but they are also provided an explicit and comprehensive guarantee of legal standing to sue in cases affecting the public interest. Section 38 provides:

> Anyone listed in this section has the right to approach a competent court alleging that a right in the Bill of Rights [which includes a right to an environment that is not harmful to their health or well being] has been infringed or threatened, and the court may grant appropriate relief, including a declaration of rights. The persons who may approach the court are: anyone acting in his/her own interest; (a) anyone acting on behalf of another person who cannot act in his/her own name; (b) anyone acting as a member of or in the interest of a group or class of person; (c) anyone acting in the public interest; and (d) an association acting in the interest of its member/s.

While South Africa's formulation is extremely wide, capable of accommodating a variety of substantive and procedural claims, and may resolve virtually all the procedural difficulties to the enforcement of environmental rights through the judiciary, this constitutional approach is young. Thus, only time will determine whether this explicit promise of broad access to justice will remain.

Tanzania. In Tanzania, the constitutional guarantee of environmental standing to sue is less clear. Article 30(3) of the country's constitution states that "Any person alleging that any provision in this Part of this Chapter or in any law concerning his right or duty owed to him has been, is being or is likely to be violated by any person anywhere in the United Republic, may institute proceedings for redress in the High Court." At first glance, this may appear to be expansive. However, when carefully reviewed, this section implies that to bring suit to enforce the constitution, the plaintiff himself would most likely need to have suffered a "sufficient and personal injury." Additionally, because

Tanzania's constitution fails to provide an explicit right to a clean and healthy environment, a court has grounds to deny standing if the case involved an issue of environmental rights. The restrictive nature of this provision, taken in isolation, however, is lessened by Section 27(1) which provides, "[E]very person has the duty to protect the natural resources of the United Republic," and also by Section 26(2), which states, "Every person has the right, in accordance with the procedure provided by law, to take legal action to ensure the protection of this Constitution and the laws of the land." Taking Sections 27(1) and 26(2) together, Tanzanian courts have reason to grant individual citizens and groups of citizens standing to bring environmental lawsuits on behalf of the public interest, as the bringing of any such suit would fulfill a citizen's constitutional *duty* (not "right") to safeguard Tanzania's natural resources.

Although the practical implications have been little tested, the Tanzanian courts have generally taken a progressive stance and upheld a broad right to sue in the public interest. To illustrate, in 1993 Rev. Christopher Mtikila, a human rights campaigner and political activist, brought suit challenging the constitutionality of myriad laws. When the attorney general contested the reverend's standing to bring suit, the High Court, relying solely Article 30(3), but supporting its conclusion with Section 26(2), issued an amazingly comprehensive and progressive opinion in *Mtikila v. Attorney General,* holding,

> In matters of public interest litigation this Court will not deny standing to a genuine and bona fide litigant even where he has no personal interest in the matter…[S]tanding will be granted on the basis of public interest litigation where the petition is bona fide and evidently for the public good and where the Court can provide an effective remedy.

The Court reasoned that

> Given all these circumstances, if there should spring up a public-spirited individual and seek the Court's intervention against legislation or actions that pervert the Constitution, the Court, as guardian and trustee of the Constitution and what is stands for, is under an obligation to rise up to the occasion and grant him standing.

The Rufiji Delta case, considered by the High Court in 1999, illustrates the need for expansive standing jurisprudence. In 1996, the African Fishing Company began efforts to secure government approval to build an environmentally-disastrous and economically-unsustainable prawn farm in East Africa's largest expanse of mangrove forest. In November 1997, the Tanzanian government granted this request without consulting the communities impacted by the project and despite recommendations from the government's own

environmental agency that the permit be denied. If constructed, this project would have wholly destroyed 10,000 hectares of mangrove forest, including 4,000 hectares located in National Mangrove Forest Reserve and Mafia Island Marine Park. This loss of mangroves would have, among other impacts, led to coastal destabilization; eutrophication of water bodies; destruction of the nursery ground of thousands of fish and marine invertebrates; a reduction in fisheries stocks upon which delta inhabitants, other Africans, and commercial fishers depended; increased the threat to the endangered sea cow; and destroyed an internationally-significant wintering ground for migratory birds. The project also would have forced between 4,000–6,000 delta residents to leave their traditional homes and ways of life behind.

To prevent this project from moving forward, the villagers took a variety of actions without success, and thus were forced to pursue legal action against the government. During the first round of legal arguments, the villagers successfully obtained a restrictive injunction halting the project until the court could hear the villagers' preliminary objections. In response to this injunction, the government filed a motion asking the court to dismiss the case, arguing that the villagers did not have standing to sue. The villagers, fortunately, and thanks to the progressive stance of the High Court, defeated this motion to dismiss. If they had lost, however, and the court had decided to deny them standing to legally challenge the Rufiji Delta project permit, then the destruction of the mangrove forest and coastal environment would have gone forth unheeded, the villagers would have lost their ability to assure the laws are faithfully executed, and the natural resources on the delta would have been irreversibly destroyed.

Kenya. In Kenya, the law of *locus standi* and its judicial interpretation have proved to be the least favorable, of the countries considered, to the pursuit of environmental justice. The situation is not hopeless even here however, as a 1997 judicial opinion gave citizens a small foothold into court.

The legal framework set up in Kenya's constitution has a number of downfalls with regard to standing to sue in environmental cases. Specifically, section 84(1) provides:

> [I]f a person alleges that any of the provisions of [the fundamental rights guarantees] of this Constitution has been, is being or is likely to be contravened in relation to him…then, without prejudice to any other action with respect to the same matter which is lawfully available, that person may apply to the High Court for redress.

Again, while this language may appear expansive, its limits are twofold. First, the language "in relation to him" supports the traditional "sufficient and personal injury" test and thus, according to the plain language of the provi-

sion, courts may bar plaintiffs from bringing a suit on behalf of the public interest. Second, the language "that person may apply" fails to acknowledge the standing rights of a group of citizens, and thus has the potential to bar citizen organizations and non-governmental organizations (NGOs) from bringing environmental lawsuits.

These shortcomings are exacerbated by the absence from the Bill of Rights of any explicit mention of the right to a clean and healthy environment, and also by legislation that identifies the attorney general as the individual assigned to prosecute cases in the public interest (thus by implication excluding private individuals and NGOs from assuming the responsibility to bring suit when the environment has been degraded). Such problems highlight the importance of including an unrestricted grant of standing of both individuals and groups and fundamental environmental rights in any constitution.

The rulings by the High Court of Kenya that blocked cases brought by Professor Wangari Maathai, coordinator of the Greenbelt Movement in Kenya, illustrate the stifling effect these provisions have had on the capacity to bring environmental suits in Kenya. In 1989, Ms. Maathai filed suit seeking to bar the Kenya Times Media Trust, Ltd., from constructing a large building complex in Nairobi. The High Court at Nairobi summarily concluded that only the attorney general has the authority to sue on behalf of the public, and thus dismissed the case. This ruling was reaffirmed in *Wangari Maathai v. City Council of Nairobi* and *Raila Odinga v. Cockar*. In this second *Maathai* case, decided in 1994, the Court justified its decision by reasoning that "[T]he constitution of the country has wisely entrusted the privilege with a public officer, and has not allowed it to be usurped by private individuals."

While the rule set fourth in this trilogy of cases appeared ingrained in the Kenyan judiciary, the High Court's 1997 ruling in *Paul Nderito Ndungu v. Pashito* questions this position. In the *Ndungu* case, residents of the Loresho estate sought to stop the commissioner of lands from allocating lands reserved for a police station and a water reservoir to developers. The developers planned to take possession, develop, fence, and sell the lands allocated parcels. The *Ndungu* Court recognized that "The submission that the Attorney General is the only competent authority to institute a suit on behalf of the public is, with respect, restrictive and may lead to the miscarriage of justice if accepted as such." While this language is only *dicta*, and thus not a rule of law, it indicates the chipping away of the traditional restrictions on standing to sue.

Conclusion

While this essay merely touches on the approaches taken by African governments regarding standing to sue, one conclusion is clear: if courts are to discharge justice effectively and guarantee environmental accountability, the doctrine of standing to sue must be expressly guaranteed in national constitu-

tions and interpreted in a manner that serves rather than obstructs the public's need for environmental justice. Such explicit grants would ensure a principle eloquently adopted in 1999 by the High Court of Tanzania in *BAWATA v. Attorney General*, "It is our view, that the constitutional gates, into the house of human rights, should always be open and ajar, for any aggrieved, to seek shelter and redress there under, without adoration of technicalities."

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Livelihood diversification among the Maasai of northern Tanzania: implications and challenges for conservation policy

J. Terrence McCabe

Abstract

This paper was part of a panel that included J. Terrence McCabe, a University of Colorado anthropology professor; lawyer Jeanette Wolfley and Idaho State University instructor Drusilla Gould, both members of the Shoshone-Bannock Tribes; NPS anthropologist Don Callaway; and Herb Anungazuk, an NPS anthropologist and Native Alaskan. The panel was submitted under the following abstract:

The creation of national parks in the Greater Yellowstone Area (GYA) and East Africa displaced mobile, indigenous tenants. Over a century has passed since Native Americans historically associated with the GYA were removed to reservations and ceased practicing traditional livelihoods, though many traditions associated with their identities, and some with their livelihoods, continue to survive. In contrast, Maasai pastoralists continue to live in protected areas such as the Ngorongoro Conservation Area in Tanzania (adjacent to Serengeti National Park), but conservation policy has changed their land use practices, among other things. They cannot hunt lions or graze their livestock in Kenyan and Tanzanian national parks/reserves, most of which are located inside Maasailand. Eligible rural native and non-native residents of most Alaskan parks, on the other hand, by federal law can continue to engage in a subsistence way of life. Fishing, hunting, and plant gathering for Alaska natives are considered integral to their cultural, economic, and physical existence. In the course of this panel, presenters will explore historical reasons for these differences; identify some examples of traditional ecological knowledge and management regimes; define "traditional;" address some commonly-held misconceptions about mobile peoples and conservation; speak to the role of ethnographic research in informing policy decisions; and explore ideas and models for ethical conservation strategies that protect wildlife as well as the interests of indigenous peoples.

Introduction

For the past two decades, conservationists, protected area managers and planners, indigenous peoples living in proximity to national parks and protected areas, advocates for indigenous peoples, and social scientists have been struggling with the need to protect wildlife and biodiversity while protecting the rights and livelihoods of indigenous peoples. With the publication of the World Conservation Strategy by the World Conservation Union (IUCN) in 1981, the rights of indigenous peoples with respect to conservation policies was formally recognized; indeed, it was argued that the goals of conserva-

tion could only be met by involving local communities in the conservation process. Since that time, many attempts have been made at bridging the gap between the goals of conservation and the welfare of human communities. Community conservation projects, integrated conservation and development projects, multiple use conservation areas, and attempts at cooperative management have all been tried. In each of these frameworks, there have been varying levels of success and failure, but no one framework has emerged as the model of success to be emulated throughout the world.

For many, if not most, of these conservation frameworks, a national park based on the Yellowstone model remains the centerpiece of the conservation strategy. However, even the strongest advocates of wildlife policy that excludes any form of human habitation or use within the protected area recognize that in the long term, wildlife conservation may only be possible with the cooperation and involvement of local communities. Nowhere is this more true than in the savanna regions of East Africa, where the majority of the wildlife live outside protected areas and large migratory ungulates seasonally depend on resources outside national parks. The *Christian Science Monitor* recently reported that 75% of wildlife in Kenya lives outside reserves and protected areas (Christian Science Monitor 2003). In Tanzania's Tarangire National Park, conservationists and park managers are concerned that the viability of the wildebeest and elephant populations may be threatened as wildlife corridors are being cut off due to the expansion of mechanized agriculture in the areas east of the park. In the Ngorongoro Conservation Area (NCA), the adoption of cultivation by the resident Maasai has challenged the multiple use concept and may result in the expulsion of Maasai families engaged in agropastoralism.

Failure to incorporate local peoples can come at a great price. The expulsion of peoples from protected areas has resulted in great hardships for the communities involved, as documented by both Neumann (1998) and Brockington (2002). The destruction of national parks and the decimation of wildlife have followed periods of political unrest in Uganda and Ethiopia. The expansion of cultivation around Tarangire National Park has, to some extent, been a response by local peoples to perceived threats posed by conservation policy (Lynn, personal communication).

Mobile peoples, such as the Maasai and Barabaig, living close to the eastern border of Serengeti National Park, pose unique challenges to bring together conservation policy, indigenous rights, and development. A positive development is that it is becoming increasingly recognized that nomadic pastoralism and wildlife conservation can co-exist, and may be mutually beneficial when combined with revenues generated from tourism (McCabe 2003; DeLuca 2002). The old, accepted wisdom that pastoralism is a destructive form of land use is being replaced by one that argues that mobile livestock

keeping is environmentally benign (Scoones 1996). This shift is illustrated by the following quotations:

> In balance, it seems that the symbiosis of pastoral man and his domestic animals has been very successful if viewed as a survival strategy in the short term. In the long term it appears less successful since it tends to destroy its own habitat (Lamprey 1983, 656).

> Most traditional pastoral management can now be seen as to be environmentally benign, and indeed customary institutions for land management are potential models for the future (Scoones 1996, ix).

This view has been incorporated into the management plan for the Ngorongoro Conservation Area (NCA), and to a lesser degree in the policy for the new Wildlife Management Areas in Tanzania. However, many East African peoples who formerly depended nearly exclusively on livestock for their livelihood have recently diversified their economies, especially through the adoption of cultivation. After decades of disparaging nomadic pastoralism, conservation policy is finally catching up to the scientific understanding of how arid and semi-arid ecosystems work, but the people who have traditionally inhabited these areas are undergoing major transformations in their livelihoods and their integration in larger regional and state social and economic systems.

A few recent publications have attempted to address how changing livelihoods could impact current conservation policy and programs. For Africa, Hulme and Murphree examine community conservation issues through a series of case studies (Hulme and Murphree 2001). In a recent book edited by Dawn Chatty and Marcus Colchester, the unique challenge posed by incorporating mobile peoples into conservation programs is taken up on a worldwide basis (Chatty and Colchester 2002). Chatty and Colchester's book was based on a conference held in Oxford, England, in 1999, which was followed by a conference held in Dana, Jordan, in 2002. At the Dana conference, social scientists were joined by conservationists, wildlife researchers, and policymakers. The result was the "Dana Declaration," presented at the World Parks Congress recently held in South Africa. The Dana Declaration consists of five core principles relating to how conservationists and mobile peoples can work together to help conserve wildlife and biodiversity while protecting the rights of nomadic peoples. I do not have time or space to discuss these in detail here, but the text of the Declaration can be found at www.danadeclaration.org.

In the paper that follows, I want to present some of the results of research conducted among the Maasai living on the eastern borders of the Serengeti,

and discuss how the types of livelihood changes mentioned above impact how the Maasai see themselves, their livelihoods, their livestock, and wildlife. These changes have important implications for conservation and the management of wildlife. I conclude by arguing that management needs to be flexible, adopting what development experts and ecologists working in arid and semi-arid lands refer to as "adaptive management" (more detailed discussions of these issue can be found in McCabe 1992; 2002; 2003; in press).

Maasai land use and livelihood change

The Maasai have often been referred to as the archetypal pastoral people, living on a diet of milk, meat, and blood, moving across the plains of East Africa with their vast herds of cattle. This "myth" was probably never true, but it certainly was the case that livestock, particularly cattle, were the centerpiece of their economy, and critical to their identity. The Maasai have incorporated small amounts of grain into their livestock-based diet since recovering from the rinderpest epizootics of the late nineteenth century, and the Maasai of northern Tanzania began to cultivate small gardens approximately 40–50 years ago.

Population

Colleagues and I have just completed a study examining some of the causes and consequences for adopting cultivation. One of the first questions we asked was, to what extent did increases in the human population drive the diversification of the pastoral economy?

It was formerly thought that human population and the livestock populations were tightly articulated—that a rise in one necessarily meant a rise in the other. The NCA is one of the only places in East Africa where a long history of human and livestock census data is available. This data demonstrates that the two populations are not linked (see Figures 1 and 2). The livestock population fluctuates around a mean, while the human population continues to increase. More and more people depend on the same number of livestock, and with each generation, households become poorer. It certainly makes sense that people have found it necessary to supplement their livestock based economy with some other food source or income.

Based on interviews conducted over the last three years, this explanation has been borne out, to some degree. I have reported on the extent to which cultivation has made a difference in the nutritional status of children (McCabe 1991; 2003), and on the degree to which herd owners were able to dramatically reduce the selling of livestock, especially reproductive animals (McCabe 2003). But this is not the whole explanation. Survey analysis suggested that an increasing human population did indeed result in more poverty, and those who adopted cultivation initially were the poorest families. But once cultivation began to spread, families from all wealth categories began to cultivate.

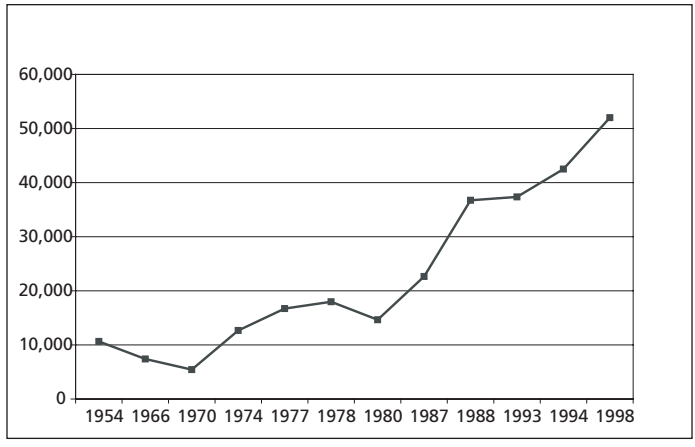

Figure 1. Human population in NCA, 1954–1998.

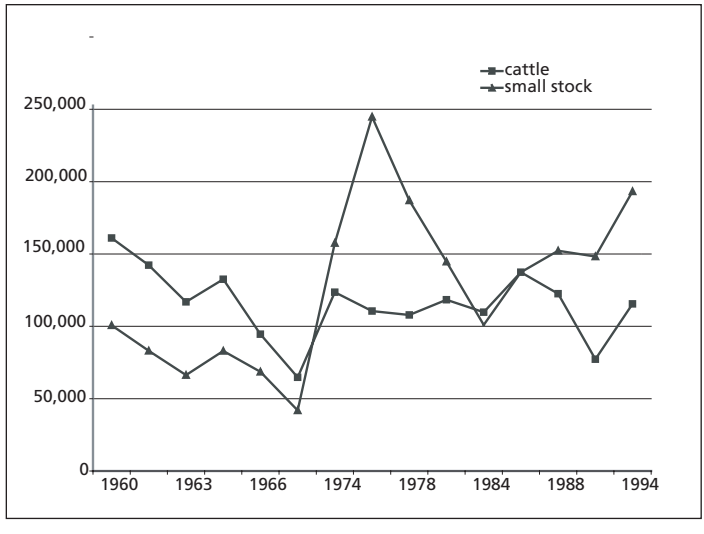

Figure 2. Livestock population in NCA, 1960–1994.

Those in the mid-range to wealthy categories desired to avoid selling livestock that prompted them to adopt cultivation. In many cases, this was related to the maintenance of the core herd and to the reproduction of their pastoral identity. Many people thought that the combination of losses due to disease, drought, and the need to purchase grain combined to create a situation that could not be offset by the natural reproductive capacity of the herd. Thus, in a counterintuitive way, Maasai were adopting cultivation to remain pastoralists.

Cultural models

Much of what I am reporting on below will be published in a special edition of the journal, *Nomadic Peoples* (McCabe in press), but it is directly relevant to the goals of this session, and to the conference as a whole, so I am including it here in a somewhat abbreviated form. The adoption of cultivation cannot really be separated from larger forces of change emanating from the social and political contexts within which their lives are embedded. One way to explore how people conceptualize change is through the use of cultural models, which are "taken-for-granted models or schemas of the world that are widely shared by members of a particular social group (Holland and Quinn 1987). They are also learned over time and can be motivational, thus linking cognition to behavior. Using this approach, we examined how elders, both men and woman, conceptualized important changes in general as well as changes in land use and cultivation, family formation, and wildlife.

General. The results of the cultural models study with respect to overall change are presented in Table 1. Three issues emerge as especially important here: (1) the increased individualization of decision-making and the decrease of cooperative management practices; (2) the reduction of respect for elders, especially by the Moran (warriors); and (3) the changing role of the Moran in Maasai society. Natural resources have always been cooperatively shared among the Maasai. People and livestock can move anywhere within their sectional territory, the *iloshon*; indeed, the Maasai say that people and livestock can move anywhere within Maasailand. While this may be true in the abstract, the actual process of moving out of one's sectional territory takes time and must be negotiated at a number of levels. The important point here is that natural resources are used cooperatively, and the notion that decisionmaking is becoming more individualized and cooperation among families decreasing is a sign that significant shifts are underway concerning the management of natural resources, including the commons.

Table 1. Change in general.

Past	Present
Many families living together	Often one herd-owner and family living together in an enkang
Smaller, less dense population	Larger population, increased density
Collective decision-making	More individualized decision-making
More cooperation between families	Less cooperation
Maasai sections living in separate areas; few non-Maasai	Sections mixing in the same area; more non-Maasai
More respect for elders	Less respect for elders, especially among Moran
Moran were "warriors"	Moran herd, work, go to school, hang around; less like warriors now

The decreasing influence of the elders could have important implications for the use and management of natural resources. Maasai society is organized around a series of age grades, from warriors to senior elders. Traditionally, all important decisions were made by those within the senior elder age grade. Elders tend to be more conservative than those in more junior grades, and have been concerned with maintaining traditional values and livelihood practices. The decreasing influence of elders could lead to more rapid social and economic change.

With a decrease in mobility (see "Herding and land use"), and a reduced threat of raiding from neighboring groups, the traditional role of the warriors has been undermined. Young men are no longer needed to take the livestock to remote *manyattas*, or to protect the livestock from raiders. In many Maasai communities, these young men are beginning to migrate to urban areas in search of work, usually as night watchmen and guards. This experience again reinforces the need for skills other than livestock keeping and intensifies the forces of modernization and change within the Maasai community.

Family formation. There are significant changes in how people have viewed family formation (see Table 2), but what is most important in this context are the skills seen as necessary for success. In the past, a man had to have access to livestock and the knowledge and skills necessary to manage them. Now, a man still needs livestock and the knowledge and skills necessary to manage them, but this is just one component of a diversified livelihood strategy. It should be noted here that livestock management remains at the core of a diversified strategy, and this is reflected in both cultural practices and when the needs for land or labor are in conflict with the needs of livestock. Nevertheless, our research revealed that it is now understood that cultivation is an important component of household subsistence practices, and that people growing up now have to have access to money. In fact, the need for money was often mentioned as the most dramatic change between the time that the elders were young and that of today. Education is seen as necessary for young Maasai men, and to a lesser extent, women, to be successful both within and outside of Maasailand. It is evident that wage labor will be important in the future, and the key to success here is education.

Table 2. Family formation.

Past	Present
Marriage for men while junior elders	Men marry while still "warriors"
For success, a man needed cattle, goats, sheep, and knowledge of herding	For success, a man needs livestock, knowledge of herding, land for cultivation, education, and money
Fewer children	More children

Herding and land use. The cultural models study on land use and herd-

ing shows that very important changes have occurred over the last 30–40 years (see Table 3). Once again, the importance of cultivation is apparent, but what is also important is the decreased mobility of the people and livestock, and the fact that people feel like they cannot depend on livestock. People frequently mentioned access to schools, shops, and medical facilities as contributing to becoming more sedentary. They also mentioned that increased human population had reduced the areas available for grazing. The combination of a series of outbreaks of livestock disease and increasing variability of the weather has undermined people's confidence in any single livelihood strategy. In recent years, droughts have been followed by floods, followed again by drought. Whether this is a result of global warming or a temporary climatic event is unclear, but it has had an impact on livelihood strategies. People often remarked that livestock would do well in one year, while cultivation failed. In other years, livestock would not produce milk and many would die, but cultivation would provide enough to survive. In some years both failed, and in other years both were productive. It was understood that a diversified strategy was not just a possible option, but a necessity.

Table 3. Herding and land use.

Past	Present
Move frequently	Less mobility
Large herds	Smaller herds
Less livestock disease	More disease, especially tick-borne disease
Large common grazing lands	Grazing lands restricted by population
More rain; "land was sweet" for livestock	More drought; cannot depend on livestock
Maasai did not cultivate; diet consisted of milk, meat, and blood	Almost everyone cultivates; diet now consists of meat, milk, and crops grown at home
Small gardens, crop was mostly maize	Large cultivated plots; crops grown are maize, beans, and potatoes

Wildlife. Finally, the cultural models study on wildlife revealed that attitudes toward wildlife were changing, but that wildlife were still viewed as abundant (see Table 4). Most people still viewed wildlife as something they valued in the environment, but believed that wildlife created problems for cultivation that did not exist in the past. Zebras, wildebeests, and buffaloes were seen as especially problematic in terms of incursions into fields, but people thought that the problem was manageable. Fields have to be guarded day and night in some areas, often resulting in labor shortages. However, people insisted that wildlife were rarely if ever killed for damaging crops, and that they had no desire to do so.

Table 4. Wildlife.

Past	Present
More diverse wildlife; many rhinos	Less diverse wildlife; not many rhinos, but many other animals
Wildlife not a problem	Wildlife bring disease, eat crops
Wildlife viewed as important	Wildlife viewed as important

Conclusions and implications for conservation policy

With respect to the northern Tanzanian case, it is clear that the Maasai are undergoing rapid social and economic change. The growing human population, coupled with a fluctuating livestock population, may have been the initial factors for the adoption of cultivation, but the process of change has included increased sedentarization, the desire for education, and the understanding that wage labor may be a necessary component in a future diversified livelihood strategy. Of special importance here is the adoption of cultivation.

In the Ngorongoro Conservation Area (NCA), the authorities believe that if livestock production is improved and veterinary services made more readily available, the Maasai will willingly give up cultivation. The results of the research presented here suggest that this will not be the case. Cultivation is now considered a necessary and desirable component of a diversified livelihood with livestock as its base. Not only have the Maasai developed a taste for cultivated foods, but by cultivating people feel they have more control of their lives, and their food supply is more secure than in the past. Regaining confidence in livestock as an exclusive source of subsistence and income will be difficult, if not impossible. Even if a portion of gate receipts is returned to the residents of the NCA, the process is not transparent, and increases their dependency on government largess. Land for cultivation and knowledge pertaining to cultivation are now thought to be critical components of a sustainable livelihood. The diversified economic strategies are well established and people are unlikely to be willing to give up cultivation even with improvements in livestock health and production.

North of the NCA, where the new Wildlife Management Areas (WMAs) are planned, the issue of cultivation is also problematic. The new wildlife policy stipulates that cultivation will not be allowed in the WMAs, but that revenue from tourism will not only replace the losses accruing to the loss of cultivation, but also increase the local communities' economic well-being. One problem is that foregoing cultivation makes the local communities dependent on the vagaries of international tourism, and events over which local people have no control can greatly influence the numbers and kind of tourists that visit East Africa. Following the events of September 11, 2001, tourism as a whole was greatly depressed, with those catering to the more

wealthy tourists impacted the most.

There is no doubt that the adoption of cultivation has the potential to impact biodiversity and wildlife conservation. Crops have to be protected, and attitudes toward wildlife can and do change. What is unclear is the extent to which various mixes of livestock and crops impact biodiversity and the large ungulates that East Africa is famous for. Other considerations are location of agricultural plots and the types and costs of fences that would protect crops from wildlife.

Banning cultivation would solve one aspect of the problem, but would come with a significant price. Local communities would experience increased vulnerability to conditions over which they have no control, as well as decreased food security. In addition, the level of cooperation and trust between local communities and conservation authorities may be undermined. In a previous publication, I noted that one of the most important lessons from 40 years of trying to combine conservation and development within the NCA was that relationships between local communities and conservation organizations must be based on trust, transparency, and free flow of information (McCabe 2002).

Adaptive management

The "new ecological thinking" concerning ecosystem function and development options in the world's rangelands has important implications for pastoral peoples, and should have important implications for incorporating pastoral peoples in conservation projects. The new development alternatives stress flexibility, mobility, and adaptive management—a process that is locally-based and requires "approaches to planning and intervention that involve adaptive and incremental change based on local conditions and local circumstances" (Scoones 1996, 6). The old "blueprint" formula for development is viewed as inappropriate where climatic variability is high and predictability low. In addition to climatic variability, pastoralists make contingent responses to changing economic and political circumstances.

If we apply the same thinking to the incorporation of pastoral peoples in conservation projects, then local conditions and circumstances would be of prime importance in developing conservation policy. Flexibility, mobility, and scale must be maintained. The Dana Declaration, mentioned earlier, also adopted "adaptive management" as one of its five core principles. In this context, an adaptive management approach "should build on traditional/existing cultural models and incorporate mobile peoples worldviews, aspirations and customary law. They should work towards the physical and cultural survival of mobile peoples and the long-term conservation of biodiversity" (Dana Declaration 2002).

What this would mean in the northern Tanzanian case would be to allow more flexibility in local management practices, encourage mobility and scale,

allow for diversified livelihoods, and recognize the value of "cultural sustainability" as well as biological conservation.

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Democratizing natural resource management: experiences from northern Tanzania

Fred Nelson

Abstract

Northern Tanzania's savanna rangelands contain some of the most renowned national parks and extensive wildlife populations found anywhere in Africa. Since the colonial period, the management of this resource has been characterized by central control and proprietorship. Wildlife conservation has emphasized establishing protected areas such as national parks and restricting the use of wildlife resources in order to prevent over-exploitation. These strategies are insufficient for conservation of wildlife populations across northern Tanzania's savanna landscapes. Wildlife disperses across much larger annual ranges than are contained in even the largest parks, thus depending heavily on unprotected communal and private lands. Sustainable conservation therefore requires matching protected areas with viable incentives for landholders to invest in wildlife conservation as a valued form of land use. Creating such incentives necessitates reforming traditional centralized wildlife management strategies to devolve managerial authority, property rights to wildlife, and control over resources' economic value to local landholders. Such devolution, or democratization of wildlife management, is a substantial reform effort, and inevitably involves contests over control, access, and power. The dynamics of these management issues are explored here in terms of experiences in northern Tanzania's Tarangire ecosystem.

Introduction: protected areas and local communities in East African savanna rangelands

Northern Tanzania's savanna rangelands are home to some of the world's most renowned national parks and other state-protected areas. These protected areas vary in size (Serengeti National Park: 14,000 km^2; Lake Manyara National Park: 330 km^2), vegetation and biota, and legal status (national parks, game reserves, Ngorongoro Conservation Area), but the region's savanna parks share a number of common features central to their management. First, these parks and reserves were established principally in order to provide protection for the region's large mammal populations, and in particular to develop a profitable tourism industry based on this natural resource. Wildlife conservation and sustainable tourism development are therefore the chief management objectives of northern Tanzania's parks. Second, these parks exist in semi-arid environments where rainfall is unpredictable and critical resources such as grazing and water sources are unevenly and erratically distributed throughout the landscape. Consequently, mobility and flexibility

for both wild animals and domestic livestock—and therefore, people—are essential ecological survival strategies throughout this region (Homewood and Rodgers 1991). Wildlife ranges spread far beyond the boundaries of even the largest protected areas, into adjacent communal and private lands, and may shift considerably from year to year according to locally variable range conditions. As a result of this underlying reality, the interests, incentives, and actions of local landholders are central to conservation outcomes at the landscape level.

This background context of the state's aims to maintain wildlife populations and the dependence of those wildlife populations on communal and private lands outside the parks is central to protected area management in northern Tanzanian rangelands. Over the past 20 years, it has become increasingly clear that conservation strategies focusing solely on the establishment of exclusive protected areas and restrictions on wildlife use—the traditional preservationist, "Big Government" approach—are insufficient given wildlife's widespread and variable distribution outside the parks. In Tanzania, as in much of sub-Saharan Africa, this has led to a new emphasis on community-based conservation (CBC) (Leader-Williams et al. 1996a; MNRT 1998; Baldus and Siege 2001). CBC aims to create positive incentives for wildlife conservation at the local level by empowering rural landholders to make management decisions and capture economic benefits. Local participation in wildlife management in lands surrounding protected areas has become critical to sustaining the biological resources within northern Tanzania's national parks. These strategies revolve around matters of land and resource property rights, legal reform, and social equity. CBC in northern Tanzania is thus fundamentally a matter of democratizing natural resource management and economic opportunities in the interest of both biodiversity conservation and local livelihoods.

People, land, and wildlife in the Tarangire ecosystem

The Tarangire ecosystem stretches across an area of roughly 20,000 km^2 in north-central Tanzania, and is one of Tanzania's most important wildlife areas (Borner 1985). At the center of this area is Tarangire National Park, first established as a game reserve by the British in 1956, and later gazetted as a national park in 1970. The park comprises 2,600 km^2 of important dry season habitats for elephants, buffaloes, zebras, wildebeests, and other large mammals along the Tarangire River. While wildlife is densely concentrated in the park during the dry season, during the rains animals disperse widely into areas outside the park on community and private lands, particularly to the north of the park towards Lake Manyara, and to the east of the park in the Simanjiro plains (TCP 1997; TMCP 2002). Northern Tanzania's largest elephant population, comprising approximately 3,000 animals, resides in the Tarangire system, using extensive unprotected areas to the northeast and

southeast of the park. The shortgrass plains in Simanjiro District are particularly important to the overall dynamics of the Tarangire system, because tens of thousands of zebras and wildebeests migrate there for grazing and calving during the rainy season (TMCP 2002). This migration is driven by the variable nutrient contents in the soils and vegetation within the Tarangire system, coupled with the seasonal variance in water availability. Were zebras and wildebeests restricted to Tarangire's less nutritious grasslands during the calving season, their populations would be severely reduced (Voeten 1999). Thus, the areas to the north, east, and southeast of the national park are essential corridors and dispersal grounds for the Tarangire's large mammal populations. These unprotected village lands make up, in total, over 80% of the Tarangire system.

The majority of these areas outside the park fall under the jurisdiction of local communities, primarily Maasai pastoralists and agropastoralists in the Simanjiro area east of the park and a more diverse mix of agropastoralists and farmers to the north and west of the park. Lands are either individually-held homesteads and agricultural plots or larger, communally-managed tracts of rangeland used for livestock pasture. Land use practices combine traditional rangeland management practices with more recent individualization of lands for farming. All land in these local communities is classified as village lands, however, by Tanzania's land legislation, and is managed by elected village councils on behalf of the overall community.

Pastoralists and wildlife have a long history of co-existence in East African savannas (Ole Parkipuny and Berger 1993; Homewood and Rodgers 1991; Collett 1987). Traditional Maasai land use practices that maintain open, unfenced rangeland and disfavor cultivation have served to maintain wildlife habitats, including large tracts of rangelands that pastoralists keep free from cattle for most of the year as dry season grazing reserves. Traditional Maasai taboos against eating the meat from wild animals have also greatly benefited wildlife populations in the region, as has the tribe's unusual tolerance of large predators such as lions, spotted hyenas, and cheetahs (Maddox 2001).

Increasingly during the last 30 years, however, this co-existence between people and wildlife has been eroded by changing land uses and resource exploitation in the Tarangire system. Agricultural cultivation has increased considerably in the area, affecting both human and wildlife ecologies (Mwalyosi 1992). In Simanjiro District, cultivation has spread rapidly in recent years, increasing from about 1% to 4% of the land area, with significant conversions continuing (TMCP 2002). To the north and northwest of Tarangire National Park, agricultural expansion has eliminated numerous wildlife migration routes and severely restricted the movement of animals between Lake Manyara National Park and Tarangire (Borner 1985).

Over-exploitation of wildlife is the other main pressure on wildlife popu-

lations in the Tarangire area. Bushmeat consumption in northern Tanzania is widespread in unprotected areas. Barnett (2000) records 75%, 94%, and 67.9% of people in respective northern Tanzanian survey groups as illegally consuming bushmeat, and anecdotal information from around Tarangire suggests that this pervasive illegal use of wildlife occurs there (TWCM 2000). The open access exploitation of wildlife for bushmeat in northern Tanzania occurs due to a tenure system that puts ownership of wildlife in the hands of central authorities who lack the capacity to enforce these laws. Local communities, meanwhile, are alienated from the resource and have few incentives to promote its conservation.

These changing land uses and open access exploitation in the Tarangire ecosystem are leading to the escalating decline and depletion of the area's wildlife. Recent surveys indicate significant declines occurring in the large herds of migratory zebras and wildebeests. Recorded zebra numbers have dropped by around 60% from approximately 35,000–40,000 animals in the system in 1988–1990, to only 10,000–15,000 a decade later (TWCM 2000). Wildebeest numbers plummeted during the same period, from 40,000–45,000 to only 9,100 in 1999 (TWCM 2000). Similarly, numbers of the area's giraffe declined by 60% from 1994 to 1999, according to aerial census data (TWCM 2000). Hartebeest numbers dropped from about 4,000 to 1,000 from 1990 to 1999 (TWCM 2000). Driving transect counts done in Tarangire National Park over the past 10 years further indicate that zebra and wildebeest populations may have declined by over 60% and 75% respectively (C.A.H. Foley personal communication). In the Kwakuchinja corridor that links Lake Manyara to Tarangire National Park, eight large mammals have reportedly gone extinct, while the proportion of cultivated land has risen from 8.25% in 1987 to 16.36% (Kidegesho 2000).

The decline of Tarangire's wildlife populations has important consequences at the national level in terms of both protected area management and economic growth. Tarangire National Park is a keystone of northern Tanzania's rapidly growing tourism industry. The number of visitors to Tarangire National Park increased from 7,290 in 1987–88 to 54,454 in 1996–97, when it earned the park $1,145,517 in gate fees alone (Otto et al. 1998). Tarangire is one of only four national parks in the country that earns revenues in excess of expenditures, meaning that Tarangire's tourism revenues fund the management and protection of many of the other national parks elsewhere in Tanzania. The tourism industry is also a central element in the nation's poverty reduction strategies, as it is one of the few sectors where the country has seen consistently high rates of growth over the past decade, and where Tanzania enjoys a considerable competitive advantage over developed nations (URT 2002).

Sustaining wildlife populations and park values in the Tarangire system

depends on land and resource use decisions in the village lands outside Tarangire National Park that maintain open savanna rangelands and prevent unsustainable uses of wildlife. Traditional Maasai pastoralist land use practices provided this type of voluntary landholder conservation, but changes in land use practices and local livelihoods have led to a considerable increase in agricultural cultivation. This spread of agriculture, coupled with open access exploitation of wildlife populations for bushmeat consumption, is currently driving the depletion of Tarangire's biological resources and may ultimately threaten the tourism values of the national park as well. Creating a sustainable framework for managing the Tarangire ecosystem requires greater incentives for landholders to invest in wildlife conservation and to maintain rangelands at the expense of agriculture. The next section explores how a variety of different conservation initiatives carried out or attempted over the past two decades in the Tarangire area have attempted to address this fundamental issue.

Communities and conservation in the Tarangire ecosystem

The landscape-level challenges facing the sustainable conservation of the Tarangire ecosystem's wildlife have been broadly recognized for over two decades now. In the 1980s, there were a number of published warnings from biologists and other observers regarding the danger of Tarangire becoming an "island park," isolated from surrounding lands and habitats, which would render wildlife cut off from key habitats and depleted inside the park (Ecosystems Ltd. 1980; Borner 1985). By this time, it had become clear that Tarangire's viability depended on stopping the trends of agricultural conversion in the Simanjiro plains and other key dispersal areas. This realization corresponded to a shift in thinking about wildlife management in Tanzania during the late 1980s and 1990s. This change comprised a new emphasis on community participation in wildlife management, and reflected the spread of CBC approaches throughout sub-Saharan Africa at this time (e.g., IIED 1994; Hulme and Murphree 1999; Barrow et al. 2001). In Tanzania, as throughout the region, it was increasingly argued that centrally-managed protected areas and restrictive laws prohibiting consumption of wildlife were not enough to safeguard the resource. Protected areas were insufficient to conserve wildlife that used much larger areas, and anti-poaching laws had not prevented Tanzania's losing nearly all of its black rhinos and half of its elephants during the 1970s and 1980s. The Wildlife Policy of Tanzania (MNRT 1998) concluded that a key element of meeting this challenge would be enabling "rural communities and private landholders to manage wildlife on their land for their own benefit." Such new approaches that built conservation on the economic self-interest and local knowledge of rural communities were required, and the Tarangire ecosystem was one of many places where experiments in community-based conservation took place.

The Simanjiro Conservation Area

The first major proposal for addressing the landscape level conservation challenges being created by land use changes in the Tarangire system did not look toward communities as part of the solution, but rather served to demonstrate the increasing infeasibility of reliance on conventional protectionist tactics. In 1982, a proposal for a Simanjiro Conservation Area, modelled on the Ngorongoro Conservation Area, was put forth by a biologist with the Frankfurt Zoological Society (Igoe and Brockington 1999). This new conservation area would cover 6,000 km^2 of savanna rangelands centered on the dispersal areas in the Simanjiro plains east of Tarangire National Park. Agricultural cultivation would be prohibited in this area, and de-stocking of livestock was recommended as well (Igoe and Brockington 1999). The proposal did not lead to any immediate change in the status of the dispersal areas; a 1984 workshop and subsequent commissioning of a land use assessment for the Tarangire area were the most tangible products.

The proposal for enveloping Simanjiro within a new conservation area prompted more focused responses by local people than it did on the part of conservation authorities. Igoe and Brockington (1999) note that if the recommendations of a cultivation ban and de-stocking had been implemented, "the ability of the Simanjiro Maasai to feed themselves would have been severely constrained." This threat to local lands and livelihoods embodied by the conservation area proposal fostered an indigenous movement in the area to secure land tenure through surveying and titling. Local communities, in concert with a number of local activists and community-based organizations, mobilized to survey their lands and obtain village title deeds in order to protect themselves against land alienation (Igoe and Brockington 1999). With these land rights better secured, changing the status of village lands to a new protected area in Simanjiro became less feasible, and also demonstrated the firm local resistance that any attempts at encroachment or protected area expansion were bound to meet from increasingly mobilized rural communities.

National park outreach and benefit sharing

The Tanzania National Parks Authority (TANAPA) manages Tarangire and Lake Manyara national parks, but has little or no jurisdiction beyond the boundaries of those areas. After expanding the formally-protected portions of the Tarangire system became politically and legally unrealistic by the late 1980s, following the failure of the Simanjiro Conservation Area proposal, protected area managers changed tactics in their effort to confront the area's conservation challenges. By this time, TANAPA had developed a broad realization regarding the inadequacies of protected areas for conserving large and mobile wildlife populations that spent much of their time outside the

parks' boundaries (Bergin 2001). TANAPA was also burdened with tensions between park managers and neighboring communities over boundaries, resource access, and other contentious issues. Regardless of such practical difficulties in the relationship between these parties, park managers realized that without support or at least cooperation from the local communities around national parks, these areas' conservation objectives could be undermined and even basic management tasks rendered difficult. As a result of the widely acknowledged need to involve these local neighbors, TANAPA initiated the Community Conservation Services (CCS) outreach and benefit sharing program in the late 1980s (Bergin 2001).

The CCS program was initiated around Tarangire in the early 1990s. In the villages bordering the park, TANAPA's CCS activities have focused on improving relations with local communities by fostering dialogue and building cooperation on issues such as anti-poaching (Bergin 2001; Kangwana and Ole Mako 2001). More tangibly, TANAPA has devoted considerable financial resources to benefit sharing activities designed to ensure that local people reap some of the rewards of living with wildlife, and to partially compensate them for costs such as crop raiding and livestock predation that result from this co-existence. This benefit sharing has consisted of contributions by TANAPA to villages' social infrastructure, such as construction of schools, dispensaries, village government offices, boreholes, and other local development projects. The amounts of money involved in this redistribution are considerable; between 1992 and 2002, Tarangire National Park paid over 314 million Tshs. (approximately $350,000) to local community projects (Wildlife Working Group unpublished data).

TANAPA's outreach and benefit sharing has improved relations with its neighbors, fostered better communication, and made the tasks of protected area authorities more practicable around Tarangire National Park (Kangwana and Ole Mako 2001). Nevertheless, considerable tensions and suspicions remain on the part of local people toward the park and wildlife conservation activities in general due to their past experiences and history of resource appropriation (Nshala et al. 1998; Igoe and Brockington 1999).

More importantly, the TANAPA outreach activities have not been able to address the fundamental issues of agricultural expansion and depleted wildlife populations in the communities surrounding Tarangire National Park. Nor has the benefit sharing created a direct link between wildlife populations on village lands and community earnings. Despite the program's good intentions, the reality is that these benefits consist of donations from an outside entity, are perceived as donor gifts or handouts, and are not "earned" by locals from enterprises they control on their lands. The TANAPA program has not been able to address fundamental issues of pastoralist land tenure or community rights to use and benefit from wildlife found on village lands. The

limitations of the TANAPA outreach approach as a landscape-level conservation strategy are illustrated by the fact that while benefits provided to villages around Tarangire increased substantially during the 1990s from implementation of the CCS program, agricultural expansion in surrounding villages continued and wildlife populations in the Tarangire system decreased.

Institutional reform and devolution

A fundamental constraint on TANAPA's efforts to create village-level benefits from wildlife has been their limited jurisdiction and inability to influence wildlife management practices outside the national park. Wildlife outside the parks is managed by the Wildlife Division of the Ministry of Natural Resources and Tourism; wildlife is owned by the state and controlled by this authority. The main form of wildlife management in areas outside national parks in Tanzania is tourist hunting; revenue from these activities flows centrally, and little trickles down to villages even when hunting is conducted on village lands (Leader-Williams et al. 1996b; MNRT 1998). For communities to benefit directly from wildlife resources on their lands, a devolution of ownership or usufruct rights is required; this has been widely advocated by Tanzanian policymakers during the past decade (WSRTF 1995; Ndolanga 1996; MNRT 1998). Tanzania's official Wildlife Policy states its aim of "conferring user rights of wildlife to the landholders to allow rural communities and private land holders to manage wildlife" (MNRT 1998). However, this policy has not been implemented, and no user rights to wildlife in the Tarangire area have been granted to landholders. The result is that wildlife remains an inaccessible and uncompetitive land use option in most cases, a problem that national park authorities can do little to redress.

Ecotourism

While communities remain excluded from wildlife management and uses on their lands, new opportunities for generating benefits from wildlife on village lands around Tarangire have developed from ecotourism during the last five to ten years. As tourist arrivals have increased in the northern circuit, and in Tarangire National Park, tourism activities have also spread into the village lands adjacent to the park. These tourism ventures, usually formulated through written agreements between tour companies and village governments, have created an increasing source of tangible village-level benefits from Tarangire's wildlife. Direct revenues from tourism to the communities can be substantial. For example, Loiborsoit village in Simanjiro District earned a total of $43,000 from a luxury camping operation conducted on its lands between 1994 and 1998 (AWF 2001).

Lolkisale village in Monduli District, situated along the northeastern boundary of Tarangire National Park, has entered into a joint venture resulting in the construction of three lodges on the community's land. The

combined revenue accruing to the village from these operations totals up to $50,000 per year (Lolkisale Biodiversity Conservation Support Project 2003). The scale of revenues earned from ecotourism by Lolkisale village is among the highest of any community in Tanzania. As a consequence of wildlife's increasing value to these landholders, the community has begun looking for ways to further develop its tourism business. Its most recent initiative is a joint venture between the village and a private tourism company for the construction of Boundary Hill Lodge that gives the village a 50% stake in the ownership of this development (Lolkisale Biodiversity Conservation Support Project 2003). In order to provide a high-quality tourist experience, the village has designated approximately 35,000 acres of land adjacent to the park to form the Lolkisale Conservation Area to be used for wildlife-based tourism only, and an additional 99,000 acres have been zoned by the village for use as an integrated livestock grazing and wildlife area (Lolkisale Biodiversity Conservation Support Project 2003). The village and its private-sector collaborators are currently exploring ways of buying out a number of small-scale farmers holding agricultural plots within these resource conservation zones. Thus while most of the Tarangire ecosystem is under increasing threat from agricultural conversion, Lolkisale presents a unique exception where conservation incentives created by wildlife-based tourism on village lands actually stand to reverse some of these land use changes.

Despite tourism's potential for creating conservation incentives in areas such as Lolkisale, these community-based initiatives currently are not supported by wildlife authorities in Tanzania. All tourism activities occurring on village lands outside national parks are illegal according to regulations issued several years ago, as a result of conflicts between tourism in these areas and centrally-managed tourist hunting concessions (MNRT 2000; Nelson 2003). The central government captures revenue from the hunting blocks, as stated previously, and has been unwilling to enable local communities to determine what types of ventures will occur, even though villages are legally empowered to make land use decisions. Tourism operations in villages throughout the northern part of the country have been at risk of being legally halted for the past three or four years, threatening the existing revenues earned by communities such as Lolkisale.

Democratization or degradation?

The landscape-level conservation challenges facing the Tarangire system have been the subject of discussion among conservationists and protected area managers for over two decades now. There has been an array of initiatives designed to address the problem of conservation outside the park's boundaries, ranging from alienating more community lands for a much-expanded conservation area in the Simanjiro plains to benefit sharing directed by the national park authorities. Expanding formal state conservation areas has

proved infeasible, while benefit sharing has been inadequate in terms of directly linking wildlife, rural livelihoods, and land use decisions. The result has been that habitat loss due to expanding cultivation has continued in the Tarangire system, open access exploitation of wildlife populations remains rampant, and critical migratory wildlife populations are declining. Although a more promising way of creating conservation incentives for local landholders has arisen by way of the growth of ecotourism in village lands surrounding Tarangire National Park, these initiatives have not received sustained support from central authorities, and are currently legally and politically tenuous.

At the heart of these issues is the control of lands and resources and access to the economic value of wildlife and tourism in the Tarangire area. Ecological and land tenure realities in the Tarangire system are such that conservation over the long term must be driven largely by the interests of rural communities in order to be sustainable. But creating these requisite incentives for landholder investments in wildlife is contingent upon devolving market opportunities and managerial authority to the local level. Such reforms amount to a democratization of the control of wildlife resources. While these institutional changes are advocated by Tanzanian policy (MNRT 1998), they are not supported in practice. Even incipient positive instances of local benefit generation and resultant conservation measures through community-based tourism have not been supported by central authorities. By contrast, recent legal measures impose greater restrictions on local options for earning revenue from wildlife on village lands (MNRT 2000). If such institutional obstacles persist, they will largely eliminate the possibility of integrating wildlife management with rural land uses in the majority of the Tarangire ecosystem. This will result in the further depletion of local populations and degradation of the natural resource base and tourism value of Tarangire National Park.

Conclusion

Tarangire National Park embodies the challenges of managing protected areas in East African savannas where large, mobile wildlife populations spend the majority of their time outside the park's boundaries. As a result of these ecological realities, the Tarangire ecosystem's future is largely dependent upon the interests and actions of local landholders and the ability of wildlife to compete as a viable form of land use. This reality exists throughout sub-Saharan Africa; an estimated 75% of Kenya's wildlife occurs outside protected areas (Kock 1995), as does the 80% of the total range of Africa's elephants (Campbell 1998).

Protected area management must take account of this context by working toward democratizing control over wildlife and natural resources on surrounding unprotected lands. Experiences in the Tarangire ecosystem suggest that despite a clear understanding of landscape-level management challenges, relatively little progress has been made in achieving such reforms. Village-level

ecotourism presents some important new economic opportunities for local communities, but has not been supported by national law or central management authorities. These institutional issues represent the greatest long-term threat to the Tarangire ecosystem and its biological and economic values.

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A century of changing land uses and property rights in Tanzania's Selous Game Reserve

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Abstract

The 98-year history of Tanzania's Selous Game Reserve—at 48,000 km², the largest uninhabited protected area on the African continent—offers a compelling and complex case study of shifting land use and property rights. Popularly known today as "Africa's last wilderness," at the time of its designation it was home to tens of thousands of African agriculturalists, hunters, and laborers. During the British colonial occupation, the peoples who lived in and around the reserve retained their common property rights to wildlife, honey, and a range of other wild resources. Over the decades, the boundary expanded, and legal restrictions on land use and resource exploitation within the reserve increased. In 1945, the colonial government forcibly relocated all of the resident population, some 40,000 people, outside the reserve's boundaries. People whose primary land use had been farming fertile bottomland in the reserve's river valleys were compelled to take up slash-and-burn agriculture on the boundary where they have been plagued by crop-raiding wildlife. In 1989, as part of a crackdown on elephant poaching, the Tanzanian government curtailed all remaining local rights to the reserve's wild resources. Since then, the government has attempted to alleviate antagonisms by initiating a community-based conservation program that allows some wildlife exploitation in a buffer zone. This paper places these new initiatives in the context of nearly a century of displacement, changing landscapes, and diminishing resource rights. It evaluates the possibilities for such programs to establish a more cooperative and mutually beneficial relationship between protected areas and surrounding communities.

Introduction

This study focuses on the history of the Selous Game Reserve and the impact of its establishment and management on local land uses and property rights. At 48,000 km², it is the largest uninhabited protected area on the African continent. During the British colonial occupation, some 40,000 people were evicted from the region that later became the core of the Selous Game Reserve. Over the decades, the boundary expanded, and legal restrictions on land use and resource exploitation within the reserve increased. In 1989, as part of a crackdown on elephant poaching, the Tanzanian government curtailed all remaining local access rights to the reserve's wild resources. Since then, the government has attempted to alleviate antagonisms by initiating a community-based conservation program that allows some wildlife exploitation in a buffer zone. This study evaluates this new conservation initiative,

in the context of nearly a century of state interventions characterized by the displacement of local residents and the loss of villagers' rights of access to land and resources. The following analysis of changing land uses and property rights in the Selous area is based on research conducted over a three-year period (1997–1999) that included on-site interviews and the study of colonial archives in Tanzania.

The setting

The region of the case study is comprised of two administrative units of the Tanzanian state, the Selous Game Reserve and the Liwale District (see Figure 1). The terrain is mostly rolling, forested hills—called *miombo* (*Brachystegia* spp.) woodland after the dominant tree species—and is heavily bisected by frequent streams and rivers. The larger valleys have deep alluvial soils. Most of the land falls within 300–700 meters of elevation and receives an average of 600–800 millimeters of rainfall annually. The German colonial administration initially established two smaller game reserves in the northern portion of the area in 1905, which the British later incorporated into the Selous Game Reserve. During most of the British colonial period, the Liwale District fell within the Southern Province, now called the Lindi Region, and was administered at various times from district administrative offices in Liwale, Kilwa, and Nachingwea. The colonial government recognized Liwale as the ancestral home of the Ngindo people, and in 1926 created the Ngindo Native Authority, whose boundaries more or less overlapped with those of the district. The Ngindo will be a focus of this paper.

Figure 1. Location and boundaries of present-day Liwale District and the Selous Game Reserve. (Adopted from GTZ/Selous Conservation Programme 1995).

In the late nineteenth century, prior to the imposition of German colonial control in 1885, Liwale and the territory surrounding it functioned as the economic hinterland of the Indian Ocean trade in African commodities funneled through Zanzibar and Kilwa (Wright 1985). Slaves, ivory, rubber, and, to a lesser extent, various non-timber forest products

such as gum-copal, beeswax, and honey flowed through and from Liwale to the coast. The Ngindo and neighboring peoples were actively involved in the production and trade of export commodities. By the late 1870s, vine-grown rubber collected from the forest and bush by Ngindo, Makonde, and Ndonde inhabitants of the hinterland, had surpassed both slaves and ivory as Kilwa's principal export (Wright 1985). While their involvement in extraction and trade was an important economic activity, the Ngindo were primarily millet farmers, with the most productive cultivation focused in the upper valleys of the Rufiji and Matandu River basins. Though geographically limited, these valleys held highly fertile soils that allowed permanent cultivation. European explorers noted large granaries in place for storing grain surpluses in the villages of these valleys.

Throughout Tanzania, wide-ranging negative demographic, ecological, and economic effects accompanied the imposition of German colonial rule in 1885 (Iliffe 1969; Ford 1971; Kjekshus 1977; Iliffe 1979; Turshen 1984; Wright 1985). In the Kilwa hinterland, human and animal disease epidemics, followed by German military actions, took a huge toll on the economy and population. Following the suppression of the 1905 Maji Maji rebellion, German estimates of population in Songea District, part of which would later be included in the Selous, declined from 166,000 in 1902–03 to 20,000 in 1907 (Turshen 1984, 113). It is estimated that Liwale and surrounding areas suffered a loss of one-third of their population in the aftermath of Maji Maji (Iliffe 1979, 200). African peasants and their livestock have never reoccupied many areas that were heavily cultivated in the late nineteenth century.

In the early twentieth century, one of the main factors inhibiting the reoccupation of territory in southeastern Tanzania and throughout East Africa was the spreading presence of tsetse fly (*Glossina* spp.), which is the vector for trypanosomiasis in livestock and wildlife, and sleeping sickness in humans. Through the combined effects of conquest, ecological crisis, and the reorientation of African labor to European enterprises, tsetse fly began to take over large portions of East Africa beginning in Uganda about 1900 (Langlands 1967; Ford 1971; Iliffe 1995; Hoppe 1997). In effect, an unintended consequence of conquest and the early incorporation of the region into the colonial economy was the expansion of wild nature at the expense of African settlement and civilization. The British emphasized a spatial strategy of population evacuation of affected areas and settlement concentration elsewhere (Ford 1971; Hoppe 1997). Many of the major sleeping sickness evacuation areas formed the core of East Africa's well-known protected areas, including Queen Elizabeth and Murchison Falls national parks in Uganda (Langlands 1967; Kinloch 1972).

British colonial conservation and development schemes

When the British took control of Tanzania (then, Tanganyika Territory)

in 1919, they initially left the Germans' game and forest reserves intact (Neumann 1998). Outside the game reserves, African subjects were allowed to hunt for their own subsistence needs and defend their cultivated fields against crop-raiding wildlife. Under British game laws, Africans were not allowed to hunt certain "scheduled" animals, elephant being the most important, without a relatively expensive license. Commercial wild meat hunting was illegal, but enforcement was lax and many African communities had thriving markets in wild meat.

Early colonial wildlife policies and practices were mostly concerned with controlling wildlife in terms of numbers, variety, and location. During most of the British colonial occupation, the principal concern was balancing conservation with the need to protect commercial plantations and peasant plots from raiding wildlife, particularly elephants.

In the 1920s, the Game Preservation Department (GPD) scouts annually killed over 800 elephants in the territory in an effort to limit crop predation. In the Liwale area of the Southern Province, an ambitious and geographically extensive scheme was devised after the governor toured the district in 1933 and was alerted to the serious damage being done to crops by elephants and other wildlife. The scheme, in essence, was an attempt to corral elephants toward the west and eradicate them in the east (Blunt 1933; Southern Province Game Ranger 1935). In the first year of the scheme, European game rangers accounted for the shooting of 1,304 elephants in the Southern Province alone (Acting Game Warden 1934).

As elephants were driven westward, the government strategy required the creation and expansion of the game reserves in the Liwale District to contain them. In the early 1930s, the government approved a southward extension of the extant Selous Game Reserve to accommodate the exiled elephant herds. This lengthened the reserve to about 241 kilometers along a north–south axis; in 1937, the game warden declared that it was too narrow for elephant movement and recommended a westward expansion. While the effort to herd elephants into what would eventually become the Selous Game Reserve progressed, the GPD's opposition to peasant occupation of Liwale's fertile western valleys increased.

The government's strategy was to have elephant "control be intensified to the east and abandoned to the west, to try and force the natives in the west to come into country which could be protected" (Blunt 1933). Not only did the game warden ban all African hunting within the expanded reserve, he also prohibited defending cultivation plots against marauding elephants. The resident Ngindo, who were cultivating some of the most fertile soils in the district, resisted relocation and continued to exercise their legal rights to defend their crops. GPD officials believed this was foiling their efforts to relocate the elephant herds. Initially, there were no compulsory relocations, though the

government supported the GPD's campaign of neglect with regard to crop protection in the reserve. The strategy was to coerce people into "voluntarily" vacating the game reserve, as the GPD would neither provide protection within the reserve nor allow residents to arm and defend themselves. This strategy essentially followed a policy put in place by the first Director of Game Preservation, C.F. Swynnerton. In 1927, he instructed his cultivation protectors to give no aid to sparsely-populated or distantly-located settlements (Swynnerton 1927).

As a result of the state's control efforts, the population of elephants throughout the territory grew. The Southern Province had the largest concentration, and as these were driven westward, their densities in the de facto reserve increased. Those villages unfortunate enough to be in the path of the drive came under intense pressure from crop-raiding elephants. With the passage of the 1940 Game Ordinance, those pressures increased. The boundaries of the Selous were expanded by the ordinance, which now encompassed the most fertile and productive valleys in the district. Describing the implications of the new boundaries, the Liwale district commissioner wrote that the Ngindo "are valley cultivators and a cursory glance at a map will show the West and South of the District [now in the reserve] offer at once the greatest number of valleys" (District Officer, Liwale 1942). As had been the case, the 1940 Game Ordinance did not require forced evictions, but "discouraged" settlement by withholding crop protection.

The GPD's strategies eventually began to have the effect of forcing some people to abandon their cultivated fields and homes in fertile valleys such as those of the Njenje and Mbarangandu rivers (Acting District Officer, Liwale 1936). The "pressure of elephant," one Liwale district officer noted, "is already very great and the natives are finding it difficult to maintain their cultivations" (District Officer, Liwale 1941). Some local administrators realized that the GPD's twin strategy of driving elephants westward while withholding crop protection was promoting an invasion of wildlife and the spread of tsetse fly into the most agriculturally productive areas of the district. As early as 1936, Liwale District officials noted that the number of elephants had increased inside the future reserve, and that the best valley lands subsequently had been given over to wildlife (Acting District Officer, Liwale 1936). The district records note that the reoccupation of once-prosperous settlements on the Mbarangandu River had been curtailed by the 1940 extension of the Selous, and that elephants had become "a great menace to the fertile Ndapata valley and to Mbindera which borders with the reserve" (Nachingwea District Book, no date [a]).

While the game warden lobbied the local administration to order the Ngindo Native Authority to evacuate the expanding Selous, officials in Dar es Salaam were pondering the larger question of how to proceed in the econom-

ic and political development of the residents of Liwale. In 1943, Tanganyika's administrative secretary, J.E.S. Lamb, revealed that he had "for some time had in mind the need for 'doing something' about the Liwale district" (Lamb 1943). His overriding concern was the same as that of his official predecessors: that Liwale and its inhabitants were just too cumbersome to administer. The only viable solution for future economic and social development was "resettlement of the bulk of the population." Once the area was depopulated, it "should be declared a game reserve," the use for which it was best suited (Lamb 1943). A subsequent minute by the governor justifies compulsory relocation as a necessary first step in bringing Africans "the 'civilizing' influences" of colonial occupation (Governor, Tanganyika Territory 1943).

Since the 1930s, the colonial government had, as part of its civilizing mission to "induce natives to settle in productive areas and develop them," endorsed an overall "concentration policy" (Tanganyika Territory 1934). According to British authorities, Liwale, where concentration would be in "the natives' own interest," was an ideal target (Acting District Officer, Liwale 1935). For one thing, the administration viewed settlement concentration as a means to strengthen a politically weak Ngindo Native Authority by bringing their subjects under closer supervision. For another, Liwale was in all regards difficult to administer, "especially with regard to tax collection," and concentrating populations closer to large towns and administrative centers would relieve this problem (Acting District Officer, Liwale 1935). Following the governor's approval of Lamb's evacuation plan, events progressed swiftly in Liwale, and it quickly became the largest single settlement concentration in Tanganyika.

The resettlement scheme created three concentration centers in the northeast, central east, and southeast of the district, evacuating everything to the west. This would leave only Liwale town, which would serve as a local headquarters for the game reserve on its new eastern boundary. The operation's records indicate that nearly as many people fled the concentration schemes as were actually relocated by the government. By 1947, much of central Liwale was evacuated. As district administrators made plans to evacuate another 3,195 families in 1948, however, an even more ambitious plan for Liwale's development appeared on the horizon. Compared glowingly in the press to the settlement of the western frontier of North America, the Overseas Food Corporation's (OFC) enormous groundnut scheme dwarfed and ultimately halted the evacuation plans in the interest of maintaining an *in situ* labor force.

The colonial office in London, and the OFC, had big plans for Liwale. The entire groundnut scheme would cover 3,210,000 acres in three colonies, with 2,400,000 acres falling in Tanzania. Of this total, 55 units of 30,000 acres each, by far the largest single block, was planned for Tanzania's Southern Province.

Over half of these units were located in Liwale. The groundnut scheme originated in early 1946 in a plan submitted by Frank Samuel, Managing Director of United Africa Company (UAC), to the Secretary of State for the Colonies and the Minister of Food. The idea was to use "all the latest techniques of mechanized production in remote and undeveloped areas" to produce large quantities of groundnut oil for the world market. A vision of "[i]mmense fleets of heavy tractors, bulldozers, angle-dozers and rippers" celebrated the potential of modern technology to transform the African bush (Samuel 1947).

While mechanization and high capitalization were the dominant theme of the scheme, the planners recognized that there was still a need for the unskilled African laborer. Tanganyika, as the planners were well aware, was in notoriously short supply of African labor. In a 1948 report, the deputy labor commissioner estimated that the total labor requirement for the Southern Province sector in 1949 would be at least 35,500, and declared "the labor situation…very critical" (Deputy Labor Commissioner, Tanganyika 1948). It quickly worsened, as the dream of mechanized efficiency faded. First, the "immense fleets of heavy tractors" never materialized due to a worldwide shortage. Instead, the managers imported and patched together surplus military equipment from the World War II campaigns in the Pacific and Middle East. Second, the plans and equipment were wholly unsuited to clearing the land of stumps, which proved beyond the power of the machinery. It was quickly clear that manual labor in great quantities was needed for clearing land.

The Ngindo of Liwale were thus in great demand. Many of the areas of central Liwale that had been evacuated in 1946 and 1947 were reoccupied after an initial government prohibition. Others would never be able to return because their villages were now inside the Selous Game Reserve, and the GPD remained vigilant against attempted reoccupations. All of these people were in easy walking distance to the first areas being cleared to the south, and to the OFC headquarters and groundnut labor camps. By the middle of 1949, "a very large portion of the 4,000 tax payers in the Liwale division" was at the OFC's groundnut camps (District Commissioner, Ruponda 1949). Patchy OFC records indicated that 500 Ngindo (all men) were working on the plantations at any one time. Nearly all were hired as unskilled laborers for clearing bush by hand (Crosse-Upcott 1954). The land clearing work, which demanded the single greatest pool of unskilled laborers, was highly unpopular. Economic necessity drove the Ngindo, particularly the former evacuees, to seek wage labor in the OFC camps, but they tended not to linger once their cash needs were met. The rate of desertion in the scheme was high, and the monthly turnover rate was 30% (Overseas Food Corporation 1951). In 1950, the OFC was able to obtain only one-third of the needed 3,000 workers

for hand clearing operations in the Southern Province, causing them to fall behind in planting and requiring an even greater number of workers the following year to recover the lost target.

Within a few years of its conceptualization, the groundnut scheme became the archetype for bloated, ill-planned Third World development projects. Among the many miscalculations, there was little understanding of climate and soil conditions of the area. Rainfall had been uncharacteristically high in the years preceding the scheme, leading to over-optimistic production projections. What scant production of groundnuts there was had to be chipped out of the sun-baked soil with picks at times. Late in 1949, "Block A," the first site cleared just south of Liwale, was revised downward to 420,000 acres, subsequently to 200,000, and finally to only 150,000 of economically viable land (Area Manager, OFC 1951). Most of "Block B," which fell entirely within the Liwale/Ngindo Native Authority, was under water during the rainy season—a fact of which the OFC representative seemed initially unaware (Acting District Officer, Rubonda 1948). Plans to develop it were abandoned in 1951. A few years later, journalists portrayed Nachingwea, the OFC headquarters, as a ghost town.

What were the cumulative effects of these colonial conservation and development schemes on the region's land uses, ecology, and economy? The general effect of the elephant control schemes and settlement concentrations was to fundamentally transform the land rights and land uses of Liwale's inhabitants. The pressure from the increasing numbers and density of elephants reduced peasant production in two ways; by increasing crop losses and by displacing cultivation from the most productive soils. Elephant control schemes included a general policy of African peasant disarmament, and the state took over most crop protection efforts. In the case of the game reserve, the state provided no assistance at all while simultaneously denying the right of farmers to defend fields. The records make clear that colonial officials were aware of increasing elephant populations and crop losses, and that wildlife managers and advocates of closer settlement used the knowledge effectively to drive Ngindo peasants off their lands. When, in 1944, it came time to "do something about Liwale," two decades of elephant control had made the area unfit for human habitation.

At the core of the shift in Ngindo land uses and land rights was their evacuation from well-watered, fertile valley bottom lands to dry, infertile uplands along the boundaries of the new reserve. Settlement concentrations eliminated what remained of peasant cultivation in the upper Rufiji and Matandu river basins, and the expansion of the Selous Game Reserve curtailed any possibility of recovering lost land rights. The reduced access to fertile valleys meant fewer people could be supported by permanent cultivation, while at the same time greater demands were made on the valley lands

that were available outside of the reserve boundaries. Ngindo peasants had to adapt their cultivation to the new ecological conditions and land tenure regime. Extensive shifting cultivation techniques in the *miombo* woodlands spread as the productive capacity of the remaining valleys was reached. While population densities remained low (the district average is currently about 1.5 people per square kilometer), the possibilities for permanent cultivation were greatly reduced. Consequently, settlement patterns also shifted and homesteads became widely scattered and semi-permanent.

The ecology of the region was transformed, as well. The elephant control policies made the most fertile valleys uninhabitable, promoted the advance of bush at the expense of cultivation, and thus encouraged the spread of tsetse fly (Kjekshus 1977; Iliffe 1979). Earlier studies of the Selous concur that very little wildlife was found in the area prior to the 1930s (Matzke 1972; Rodgers 1976; Kjekshus 1977). Ngindo elders interviewed in the 1970s unanimously remembered that no elephants were in the area prior to the 1920s, and associated their occurrence with the imposition of British rule (Rodgers 1976, 23). By the early 1930s, it was widely recognized by game officers in the field that elephant numbers were increasing throughout the territory, "occupying great tracts of land where they have not been seen for years" (Blunt, 1933, 3). The GPD was consequently forced to kill ever-larger numbers of elephants, from 800 in the 1920s to over 3,000 annually by the 1940s, in an effort to control damage to cultivation areas. Year after year, the GPD reported that "[i]n spite of so many beasts being killed, it is estimated that the elephant...is still on the increase" (Tanganyika Territory 1953, 10).

The various colonial plans for Liwale, from the first elephant control scheme to the evacuation, to the groundnut scheme, never mentioned a desire to preserve wilderness, a need to protect wildlife populations, or any other significant conservation motivation. Wildlife control policies were, however, inextricably linked to the general policy of settlement concentration of the 1930s, which was driven by overriding concerns for the political control and economic development of the territory. The twin spatial strategy of park and reserve creation and "closer settlement" became the foundation upon which to construct a colonial economic development strategy in the 1940s. This "modernization" strategy failed, however, to translate into "advancement" for the Ngindo and neighboring groups, though it did produce a vast wilderness area. As the colonial era closed, an administrator concluded in hindsight, "it would be untrue to say that Development to any appreciable extent has taken place" in Liwale (Nachingwea District Book, no date [b]).

Conservation and communities in the postcolonial era

When the independent government of Tanzania came to power in 1961, it publicly announced its commitment to wildlife conservation and national parks (Neumann 1998). The national parks and other protected areas

remained intact, and there was a new emphasis on creating more national parks to attract foreign tourists' hard currency. The legal status of the game reserves allowed for both tourist trophy hunting and the continued extraction of non-timber forest products by neighboring communities, though permanent settlement, cultivation, and traditional hunting within the boundaries were banned. The Wildlife Division (the renamed GPD) was responsible for the control and management of the game reserves and all wildlife outside of national parks, which were controlled by a parastatal organization, Tanzania National Parks. In the case of the Selous, the populations evacuated in the 1940s continued to enjoy access rights to various forest products within the reserve boundaries, particularly honey and beeswax. Traditional hunting of small game, while illegal, remained important for both subsistence and market purposes.

For a variety of internal and international political and economic reasons the Tanzanian government's capacity to rule their territory was shrinking rapidly by the second and third decades of independence. In all sectors of civil service, including the Wildlife Division, salaries were often unpaid, and when they were paid, they were wholly inadequate for meeting the costs of living. In the context of the economic collapse of the state, energies were directed away from official duties toward petty entrepreneurial activities. Rent seeking, black marketeering, and bribery among officials became widespread. These political and economic conditions, along with rising prices for ivory on the world market, provided the context for a steep decline in elephant and rhino population numbers in the Selous, from an estimated 110,000 in 1976 to 30,000 in 1989 (Siege 2000). In the terms of property regime theory, the Selous was de jure under state ownership, but was de facto an open access situation as a result of the government's inability to control its boundaries. Uncontrolled commercial extraction of ivory and rhino horn reduced elephant numbers by an estimated 70%, and nearly extirpated rhinos.

The government, with a great deal of assistance from international conservation organizations, responded to the crisis with a two-pronged strategy: strict control of all illegal hunting through paramilitary tactics, and the development of community-oriented conservation programs. In June 1989, Tanzania launched "Operation Uhai" in an effort to sweep protected areas and adjacent communities clean of "poachers" using a military strike force comprised of army, police, and Wildlife Division personnel. As part of the crackdown in the Selous, all of the local communities' legal access rights, such as the right to collect honey and beeswax, were curtailed. In addition, the government shifted its energies away from crop protection and adopted a hands-off policy toward farm-raiding elephants. Since the crackdown, elephant populations have recovered significantly (Siege 2000). At around the same period as Operation Uhai, the government began to implement a

new policy for protected areas that encouraged community participation and benefit sharing. Around the Selous, this new policy emphasis took the form of a buffer zone. The remainder of this section will focus on the details of this project.

The Tanzanian government and the German agency Deutsche Gesellschaft Fur Technische Zusammenarbeit (GTZ) jointly implemented the Selous Conservation Programme (SCP) in 1988. The key to the program was the creation of a buffer zone around the reserve (GTZ/Selous Conservation Programme 1995). The buffer zone consists of a strip of the villages' lands lying between the reserve boundary and surrounding farms and houses in which wildlife conservation is the dominant land use. The buffer zone thus creates a new type of land designation wherein sections of village lands are dedicated to managing a portion of the country's wildlife estate. In exchange for restricting the extent of cultivation and settlement, villages are allowed limited access to the wildlife on their lands. As a prerequisite to gaining access to wildlife, the villages must produce village land use plans that designate "wildlife management areas" (WMAs) along with areas for cultivation and forests. Contiguous WMAs thus comprise a buffer zone outside of the reserve boundaries. As part of this process, the village lands are surveyed, registered, and titled in the name of the village council (an elected and legislatively designated corporate body).

Once the village land use plan and village title application are completed, the Director of Wildlife grants a wildlife utilization quota for the WMA of each village. This constitutes a partial and temporary devolution of property rights. Under current law, there is no legal basis for transferring the ownership of wildlife—thus, each allocation must take the form of a special permit issued by the director. Consequently, the allocation can be revoked at any time at the discretion of the director or SCP officials. The allocation is made to the village council and administered through the newly-created institution of the village natural resources committee. Each village appoints "village game scouts" (*wahifadhi*) whom the SCP instructs at a training center set up south of the reserve. A syllabus and manual guide the training in order to standardize the performance of duties by all village scouts. Upon being instructed and equipped, the *wahifadhi* take primary responsibility for monitoring village wildlife lands and conducting hunts under the utilization quotas. Currently, over 45 villages participate.

SCP provides the umbrella under which wildlife found both within the reserve boundaries and in the village lands are managed for sustainable harvest. The reserve itself is divided into 45 hunting blocks that are leased to private safari companies that guide foreign big game hunters (GTZ/Selous Conservation Programme 1996). Within the buffer zone, GTZ and the Tanzanian government have planned that the sustainable off-take of wild

meat on village lands will provide a long-term source of income for participating villages. Meat is sold to villagers at or below market prices for beef; this is counted as "income" from wildlife, which goes toward the recurring expenses of the project and for community development projects, such as schools and dispensaries. In assessing the benefits to the community, it is important to bear in mind that villagers pay for wild meat taken from their own lands; therefore, meat sales do not generate any "new" money for the village (GTZ/Selous Conservation Programme 1996, 91). The main benefit touted by the SCP staff is that villagers have legal access to wild meat for the first time. In fact, as was noted previously, villagers did have legal access to wild meat for subsistence during the colonial period. The current level of access is comparatively limited, both in the total amount of wild meat and in the length and frequency of its availability.

In Liwale, the implementation of the buffer zone did not go smoothly. It was the only area in which the program was begun and then halted over conflicts between the SCP and neighboring villages. The main source of conflict appears to have been the problem of crop raiding wildlife and the villagers' claims that the SCP was not providing adequate protection. It should be noted here that the government provides no compensation for loss of property, injury, or death resulting from wildlife coming from protected areas. In my interviews with village representatives in the Liwale area in 1997 and 1998, they claimed that the situation of crop raiders was so severe that some people were abandoning their cultivation plots and moving away. I also noted in my interviews that while government officials viewed the creation of WMAs as a permanent and irrevocable change in land tenure, villagers portrayed the agreement as something that they could legally break should conditions change. The situation reached a head sometime in 1998, when the local Parliament member put pressure on the Wildlife Division to recall the wildlife officer in charge of the buffer zone project in Liwale. The program for the nine Liwale villages was subsequently suspended for the 1998–99 and 1999–2000 fiscal years, then reinstated in 2000–01.

Discussion and conclusion

For the Liwale Ngindo, the buffer zone is one more scheme in a long line of external interventions that have restructured their interactions with non-human nature and closed their access to the local commons and fertile cultivation plots in the river valleys. Elephant control, the settlement concentration scheme, and the groundnut scheme produced major changes in land use and land rights, but as colonial administrators recognized, achieved little in the way of development. Supporting the development plans were the state's proprietary claims over the territory and its resources, most notably elephants. The creation of the game reserve thus constituted a large-scale enclosure and a shift from a common property regime to state ownership.

Under the independent government, Operation Uhai eliminated the few rights to the commons that remained. The buffer zone project is meant to redress these historic displacements through the limited devolution of some property rights back to local communities.

Whether program officials acknowledge it or not, the buffer zone program thus bears the weighty burden of overcoming a century of antagonisms between the state and the Liwale Ngindo communities. In peddling a future of local development benefits from the game reserve and the new village WMAs, it echoes the (failed) promises of every intervention that preceded the SCP in Liwale. Is this project up to the task? The two-year suspension of the buffer zone project in Liwale hints at some of the challenges, and suggests that a few pounds of wild meat every year may not be enough to compensate for crop losses. The situation of the buffer zone historically highlights how much land and resource access the Liwale Ngindo have lost to wildlife conservation and how relatively small the compensation offered by the program is. The history of how the Selous wilderness was created, of who gained and who lost, will be a key focus in the continuing negotiation over the control of local commons and the proprietary rights of nature.

From a geographic perspective, the buffer zone represents a de facto expansion of the reserve boundaries onto village lands. That is, the villages pledge to dedicate a portion of their village lands to managing wildlife. Though the land remains under village ownership, the wildlife belongs to the state, which oversees its management. The main difference between the buffer zone and the reserve itself is not ecological, but social and political. The implications of this expansion, the principal one of which is the greater proximity of wildlife to cultivation crops, are not lost on village residents. As evidenced in the Liwale buffer zone, the failure to protect crops from raiding wildlife can result in the breakdown of the agreement. To exacerbate matters, elephant numbers have been increasing rapidly since Operation Uhai, and they now number over 60,000 (Siege 2000). Crop raiding by protected elephants will undoubtedly rise with their population numbers, resurrecting the old land use conflicts between wildlife and agriculture that have been at the center of Liwale residents relations with the state since the colonial period. Human/wildlife conflicts continue in the buffer zone villages, and it remains to be seen whether village game scouts are up to the task of controlling them.

Finally, there remains the question of the development potential of the buffer zone project. The key economic benefit is access to the economic benefits from wildlife, based on the temporary restructuring of property rights and the commodification of a wild resource. Wild meat, once available as a subsistence resource from the commons, now has to be purchased from village game scouts. The economic benefit of this scheme for villagers is dubious

for a number of reasons. First, the money from meat sales is generated when villagers purchase it from village game scouts. The village councils deposit these funds in village bank accounts for later allocation. Thus, the meat sales function as a sort of wildlife tax on village members, rather than as a source of individual income. Second, the meat is sometimes priced out of reach for most villagers, or is harvested during periods when villagers are short on money and so access is financially restricted. Third, on average, over half of the revenue from all sources combined (principally meat sales and revenue sharing with the reserve) goes toward meeting the recurring costs of managing the village WMAs (Hahn and Kaggi 2002). The extent to which the buffer zone constitutes a path to integrating community development and conservation is thus a subject for closer analysis.

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Connecting islands of hope in a raging sea

Opening Keynote
October 6, 2003

Charles R. Preston

Charles R. Preston is the Founding Curator and Curator-in-Charge of the Draper Museum of Natural History, part of the Buffalo Bill Historical Center complex in Cody, Wyoming. He has previously been Chairman of the Department of Zoology at the Denver Museum of Natural History, and Associate Professor of Biological Sciences at the University of Arkansas at Little Rock. He has received numerous awards for his teaching, research, curatorial, and public service activities. Dr. Preston's current interests focus on ecological and socioeconomic aspects of wildlife conservation and management, and the evolving role of natural history museums in society; he is a strong advocate for the role of museum scientists as public educators. He is the author of three books and more than 50 other scientific, technical, and popular publications. He is currently at work on a companion book to the Draper exhibits, **Greater Yellowstone Adventure: The Braided Paths and Tangled Destinies of Humans and Nature in Yellowstone Country.**

When I listen to my introduction and biography at these events, I'm always a bit shocked at how often I've moved from one type of position to another through my career. I'd like to think that this pattern is due to a versatile intellect and an inclination to seek and embrace new challenges, but there are those who might argue that I simply become bored easily. I don't believe that is true, but even if that evaluation had some merit, I can assure you that there are some things in this world that I will never tire of exploring and thinking about—these include the Galapagos Islands, the Cockscomb Basin of Belize, the Serengeti–Mara and Greater Yellowstone areas, and, of course, my wife Penny. Each is beautiful, wild, and therefore unpredictable, and at times more than a little dangerous! I am delighted to have the opportunity to consider two of these this evening.

When we opened the Draper Museum of Natural History last year, we were in a bit of a quandary. Our staff and trustees at the Buffalo Bill Historical Center felt very strongly that the Draper's focus should be the Greater Yellowstone Area. To some, that appeared a bit myopic; after all, the great natural history museums established a century ago aspired to bring the world to their communities. Our thrust was quite the opposite—to showcase one particular region to the world. But our rationale was that the Greater

Yellowstone Area is a global resource and treasure, and by exploring this resource in depth, we could reveal global connections—connections binding human cultures with nature. Our quandary was how to kick off the Draper Museum in some tangible way that expressed our global, interdisciplinary perspective. Our solution was to feature an internationally-known figure who could help us articulate that message by his or her very presence. Our first choice was Richard Leakey, and he graciously accepted our invitation to help open the Draper. Richard was subsequently interviewed for an article published in *Yellowstone Science*, and I believe his presence and interview helped in some way create or at least support the theme of this conference—no doubt from ideas and projects that have been brewing for many years in the minds of people like John Varley, Glenn Plumb, and Lisa Graumlich, among others. I should admit that we lured Richard to the Draper and to this region initially with the opportunity (he says "guarantee," by the way) to see grizzly bears. Of course, we failed to produce any bears during his short stay last year. So, this year, we lured him back for this conference with the opportunity (he insists "promise") to see wolves. Again, despite the best efforts of many, we failed. Next year, Richard, we hope you will return to see bears and wolves together, perhaps with a cougar thrown in for good measure.

I was invited to speak to you this evening to help set the stage for the next two days of this conference—to explore connections between two places in the world, the Greater Yellowstone Area and the Greater Serengeti–Mara area, that on many levels are as different as night and day. They are located on different continents and separated by vast oceans. The indigenous people in the two regions differ greatly from one another in ethnicity, history, language, and culture. Current prevailing regulatory bureaucracies, though derived and flavored heavily from a common European or Caucasian spice pot, represent distinctly different recipes. These two places represent biomes and wildlife assemblages bound by processes common to life throughout the globe, but differing significantly in species composition, diversity, dynamics, and biological productivity.

Yet there are profound connections between these two world treasures. Though as ecologists we may wince at the term, there may be some basis for regarding Yellowstone as the "Serengeti of North America." Indeed, the thesis I'd like to advance this evening is that the fundamental connections between these two magnificent places are far more profound than the differences, and recognizing and reinforcing those connections is far more important today than at any time in history. Each of these places individually represents an island of hope for long-term wildlife and wildlands conservation, and each is confronted with essentially the same raging sea of challenges, though they may be manifested somewhat differently.

Before developing these specific points further, I'd like to digress for

a few minutes to introduce you to another island of hope that might help provide perspective on both the challenges and opportunities connecting the Yellowstone and Serengeti areas. In 1990, I left a tenured university position to assume the dual position of Curator of Ornithology and Chairman of Zoology at the Denver Museum of Natural History. As much as I enjoyed academia, I was anxious to be involved again in large-scale public education—as I had been even long before graduate school. I was also anxious to pursue a growing research interest focused on teasing apart ecomorphological relationships among bird and mammal assemblages along an elevational gradient. The Rocky Mountains of Colorado provided an ideal setting for this work. But a funny thing happened on the way to the high country; I was waylaid by an unlikely island of hope on the plains just east of Denver. A U.S. Fish and Wildlife Service biologist introduced me to this place in a phone call when he invited me to tour a future wildlife refuge that was once deemed one of the most polluted areas on the face of the earth. The paradox was intriguing, but frankly, I would not have agreed to a tour so quickly if it hadn't been for the insistence of my colleague on the phone.

During my first tour of the Rocky Mountain Arsenal, I found a complex of buildings interspersed with a mixture of native shortgrass prairie broken by cottonwood riparian corridors and disturbed areas dominated by cheatgrass and other invasive species. Most of the buildings were abandoned. They had once been the site of chemical weapons production—everything from mustard gas to various nerve agents. The Rocky Mountain Arsenal was established shortly after the beginning of World War II to help develop weapons for the Allied war effort. After the war, the arsenal was leased by private companies to produce chemical pesticides for agriculture. Toxic wastes from both weapons and pesticide production were simply dumped on the arsenal property. That was standard operating procedure during those naïve times. Amid reports of waterfowl dying or flying into buildings after landing on arsenal ponds, and groundwater contaminating crops on nearby farms, chemical production and dumping was halted, and access to the site was restricted even further. The arsenal was eventually named a federal Superfund site and slated for cleanup. But nobody could decide how clean the area should be, nor what the area should eventually become. Some people argued for a children's park, some argued for low-income housing, some for an industrial park, some for agricultural use, and so on. Several state and federal agencies were involved, and lawsuits seemed to be springing up everywhere. By the time I arrived in Colorado in 1990, the proposal that at first seemed to be the most unlikely was gaining momentum. That proposal was to turn the Rocky Mountain Arsenal Federal Superfund Site into the Rocky Mountain Arsenal National Wildlife Refuge. Which brings me back to my first tour of the Rocky Mountain Arsenal. In addition to the buildings and mixed vegetation I saw

on that cold January day, I recorded 31 mule deer, 2 white-tailed deer, 12 cottontail rabbits, 5 black-tailed jackrabbits, 4 coyotes, 1 badger, 3 active prairie dog towns, 62 ferruginous hawks, 3 red-tailed hawks, 3 rough-legged hawks, and 19 bald eagles. Now that's a decent day afield anywhere, but what makes it truly remarkable is that the Rocky Mountain Arsenal is a tiny, 7,000-hectare island surrounded by commercial developments and intensive agriculture, within about 16 kilometers of downtown Denver and in the midst of a sprawling metroplex of some three million people. This small area had become a de facto refuge for wildlife because it was the one area of this size (ironically, due to the restrictions associated with a contaminated military installation) that had not been fragmented and developed.

The Rocky Mountain Arsenal became the unlikely focus of a massive conservation effort supported by the National Wildlife Federation, National and Denver Audubon societies, National Fish and Wildlife Foundation, and U.S. Fish and Wildlife Service, among others. I became intrigued by the challenges of creating an island wildlife refuge in a heavily contaminated Superfund site, and had the opportunity to direct a series of wildlife habitat studies and educational programs related to the site. Amid continued challenges from some development interests, legislation was introduced by both Colorado republican and democratic legislators and passed by the U.S. Congress to establish the Rocky Mountain Arsenal National Wildlife Refuge pending appropriate contamination cleanup and habitat restoration. The process is expected to take 15–20 years. In the meantime, the area is known as the Rocky Mountain Arsenal National Wildlife Area under the joint authority of the U.S. Fish and Wildlife Service and U.S. Army, and attracts tens of thousands of visitors yearly. It has become a highly valued community resource for local residents and visitors alike to learn about and experience a small vignette of the shortgrass and mixed grass/shrubland ecosystem of the western Great Plains of North America. Admittedly, it remains a highly compromised environment, but that's what makes this story so poignant. How is it that such a compromised environment has become so valuable to wildlife and to people? To the residents of the Denver metroplex, the Rocky Mountain Arsenal has become an island of hope—a remnant, a pale vision, really, of a native biome that has all but disappeared from North America. Larger, less impacted tracts of native grasslands remain in some areas of west–central North America, but nothing that truly reflects the pre-Columbian diversity and dynamics of this biome. From an ecological point of view, it was the once-expansive Great Plains grasslands, rather than the uplifted plateau of Yellowstone National Park, that most nearly warranted the designation, "Serengeti of North America." Unfortunately, no one saw fit to value and preserve a large expanse of Great Plains grasslands before they were altered and fragmented by intensive livestock grazing, agriculture, and urban and suburban sprawl.

We're here this week because visionaries more than 100 years ago recognized the value and the vulnerability of some natural systems and created the powerful idea of a park—a national park—to preserve the integrity of a functioning ecosystem. Yellowstone National Park was established in 1872 to become the world's first national park, and at least the symbolic model of all national parks to follow. Initially protected for its active thermal features, Yellowstone has become increasingly valued as a refuge for the suite of native wildlife that once occupied a much broader temperate landscape in the intermountain region of western North America. Yellowstone National Park (900,000 hectares) has become the centerpiece of what is generally termed the Greater Yellowstone Area (GYA, 7 million hectares), often described as encompassing the last, large, nearly intact native ecosystem in the northern temperate zone of the earth. The GYA covers portions of three states and includes all of Yellowstone and Grand Teton national parks, portions of six national forests, two national wildlife refuges, lands managed by BLM, Indian reservation lands, and substantial state and private lands. Only 6% of this land is in national parks; 34% is privately-owned.

The Serengeti–Mara Area (SMA), defined by the movements of the migratory wildebeest, covers roughly 2.5 million hectares, and like the GYA, crosses several jurisdictional boundaries—including the two sovereign nations of Tanzania and Kenya. The SMA includes the Ngorongoro Conservation Area, Maswa Game Reserve, three game-controlled areas in Tanzania, the Maasai Mara National Reserve and adjoining group ranches, and of course, the Serengeti National Park (1.5 million ha). The Serengeti was afforded national park status in 1951, with extensive boundary modifications in 1959. The SMA supports the largest herds of migrating ungulates in the world and one of its highest concentrations of large predators—both carnivores and raptors.

Both Yellowstone and Serengeti national parks are recognized as Bioshpere Reserves and Natural World Heritage Sites. Each has become an icon of conservation the world over—arguably the two most widely-celebrated natural preserves in the world. And if Rocky Mountain Arsenal is an island of hope for the Colorado Front Range, GYA and SMA are islands of hope for the world. Of course, they differ in some obvious ways. The GYA occupies a largely mountainous landscape dominated by coniferous forest. Only about 20% is covered by grasslands, and these are cool, temperate grasslands. In contrast, SMA occupies a broad, sloping plateau covered almost entirely by warm, tropical grasslands and savannah. Where the Serengeti–Mara supports more than two million ungulates of 31 species, fewer than a half-million ungulates of eight species occupy the GYA.

Creation of both Yellowstone and Serengeti national parks displaced indigenous residents. But more than 100 years have passed since Native American people and traditional lifestyles have been displaced and largely

replaced with EuroAmerican ranching, farming, and other land uses outside protected areas; this latter culture, though relatively recent, is firmly entrenched, and exerts profound influences on land use and wildlife management issues in the region. Maasai pastoralists and other Native Africans continue to have a significant presence in the SMA, though traditional land use and lifestyles have changed. Tourism is important to both areas, and both attract worldwide audiences. But SMA is far more dependent on foreign tourism.

Despite these differences, there are some well-documented underlying similarities, particularly involving certain grazing ecology and dynamics. Seasonal and geographic variations in forage characteristics within each region require ungulates, and the omnivorous grizzly bear in the GYA, to range widely to make most efficient use of foraging opportunities. The large herbivores help regulate grazing ecosystem processes in each area, but they, along with the large predators that track them, help create common conservation challenges that connect the GYA and the SMA. The point is that success of the parks, themselves, as wildlife reserves, depends to a large extent on land management and other human activities not only within the parks, but also in broad buffer zones that are defined by park wildlife needs. And here is where Yellowstone and Serengeti are so intimately connected—by the general nature of the challenges they face. These challenges may be shared by other national parks and reserves throughout the world, but it is in these most celebrated parks where the world focuses so much hope for identifying and meeting these challenges.

Many of the challenges to wildlife conservation in the GYA and SMA are ecological, to be sure, but they are also economical, sociological, ideological, and educational. I suspect many of us who have taught courses in wildlife management have begun the course with the rejoinder that successful wildlife management includes a healthy dose of people management. Today more than ever, humans are a critical element in wildlife conservation and management, and there are no more high-profile proving grounds than the GYA and SMA.

To summarize a bushel of challenges in a thimble, there are simply increasing human demands on landscape and resources adjacent to and intimately tied to the parks. Private land use practices that may have presented little threat 100 or even 20 years ago, are now a much greater threat because of the sheer number of people and the movement away from mere subsistence living toward mass production and extraction. In both the GYA and SMA, largely open, natural landscapes surrounding protected areas that help support park wildlife are being changed in character. Symptoms include sprawling settlements and residential development, poaching, logging, and other extractive industry, invasive species, and wildlife diseases. Adjacent

landowners often view wildlife as being a source of livestock diseases, competition for grazing, threats to crops, depredation on livestock and pets, and even threats to human life. Park managers must also deal with inherent natural processes—wildfire, drought, long-term climate change, predator-prey and grazing dynamics—that sometimes present management, or at least public relations challenges in compromised nature. Managers must monitor, evaluate, and mitigate impacts from park visitors as they demand increasing access to park resources and experiences. The task is made more difficult by a chronic lack of adequate resources, often allocated through political ideology and even out-and-out corruption, rather than management needs.

While those living around national parks stand to gain the most from landscape aesthetics and tourism economy provided by the parks, they are also most vulnerable to land use restrictions and wildlife-related impacts connected to park management. In general, financial incentives are greater for landowners to manage their land for farming or ranching, or subdivide it for housing, than to manage it for wildlife conservation.

In some ways, the financial challenges may be easier than ideological ones. This is particularly true for the GYA, where long-held distrust and antipathy for the federal government, fears of losing personal property rights and personal freedoms, a deeply-held fear and loathing toward predators, and cultural clashes between American Western neo-traditionalists and conservation advocates create obstacles for wildlife and landscape conservation supporting national park goals.

Let me relate the gist of a recent conversation I had with a friend of mine who happens to be a local rancher/outfitter. He was complaining to me about wolves and grizzlies in his elk hunting area. He didn't like having to spend so much time and energy protecting his clients and campsites from grizzlies, and he was worried that the combined predation from grizzlies, cougars, and now reintroduced wolves, would reduce his and his clients' elk hunting success. He had already lamented the fact that the number of hunting clients had been declining, and that they tended to be older and more difficult customers to deal with. I agreed that recovered grizzly and wolf populations might make elk hunting more of a challenge and that the current, very liberal, elk hunting regulations might be modified in the future. But I pointed to a few hunting outfitters who have been very successful branching out to include backcountry natural history expeditions, including wolf- and bear-watching opportunities for clients. At least one former hunting outfitter in Wyoming has chosen to specialize in these kinds of experiences for clients. My friend was appalled by my suggestion, shook his head, and said, "That's just not the cowboy way!" At least for this guide/outfitter, his interpretation of his cultural identity outweighed economic, or even logistical pragmatism.

If, indeed, the GYA and SMA are connected via common challenges to

wildlife conservation, how do we stand to benefit from exploring those connections together? The obvious potential benefit is to increase opportunities for articulating problems and finding solutions. We've all walked the path between the ponds of strict protectionism and community-based cooperation and dangled our toes in each to test the temperature. Many of you carry the scars to prove it! We've emerged with new lessons about the right times, places, and methods to immerse ourselves in each pond. Sharing those lessons across a broader experimental field may help us identify general patterns and shape future applications.

Exploring and nurturing connections also helps to focus broader attention on both the importance of these areas and the challenges they face. It helps reduce the isolation of islands of hope, and places local obstacles to conservation in a much larger global context. Just as creating connections between geographic islands encourages gene flow and reduces the chances of species extinction in a rapidly changing environment, forging intellectual connections between disjunct conservation reserves encourages the flow of ideas and solutions, and reduces the chances of failure in creating sustainable wildlife conservation strategies in a world of increasing human demands. A broader dialogue also helps identify sweeping threats to conservation, e.g., global climate change, beyond the local context.

If our overarching goal is to create sustainable wildlife conservation strategies, then our objectives should include:

- improving our ecological understanding;
- improving our economic understanding;
- improving our cultural understanding;
- reducing ecological barriers to conservation by employing ever more effective wildlife management practices;
- reducing economic barriers to conservation by creating financial or other compensatory incentives where possible; and
- reducing cultural barriers to conservation through community involvement, education, and protectionist regulations, as appropriate.

Judging from the abstracts, the presentations, panels, and posters featured at this conference address these objectives, and will hopefully provide object lessons for future work and application. I am anxious to hear from this distinguished gathering of thoughtful people.

Before I leave the stage, I would be remiss if I didn't pound one drum that I think is too often overlooked and marginalized in scientific and conservation circles: the importance of public education, particularly by museums and other similar, non-governmental institutions. Education is far too important to occur only in classrooms. Public museums and similar institutions are in a unique position to attract, engage, and inform. Museums are now address-

ing conservation issues and the connections between people and nature like never before. My own institution was conceived with the vision of integrating natural sciences with humanities to explore and inform about conservation issues through exhibits, field experiences, courses, conferences, lecture series, and other venues. We've only just begun, and have a lot to learn and to do, but we've made some inroads in what many of you know is a difficult cultural and politically-charged environment.

Finally, I hope you will indulge my thoughts on a key role for scientists and scholars in resource conservation. It seems to be a conspicuous thread running through the tapestry of issues featured in this conference. In my mind, advocacy for a particular position or policy is a personal matter appropriately pursued by anyone as a private citizen. But I strongly believe scientists and other scholars have not only the opportunity but also the professional responsibility to interpret their work and unique level of understanding for the public—to seek out and help replace dogma with information in our fields of expertise. Just as bad things often happen when good people do nothing, bad environmental policy happens when informed professionals don't share their knowledge. Science is poorly understood by the general public, in part because there are so few working scientists willing or able to communicate effectively in public venues and truly connect with lay audiences. Aldo Leopold, among others, clearly recognized and worked to improve this situation in the twentieth century. I am fortunate to be married to a very bright, highly professional and competent journalist, but I believe we continue to rely too heavily on journalists to interpret newsworthy scientific information to the public.

Thirty years ago, when I first considered becoming an ecologist, I read an editorial in a professional newsletter that sticks with me today. The author argued that what society needs/wants from ecology is predictability. I think much the same thing can be said today of the interdisciplinary realm of natural resources conservation. I believe that among our most critical responsibilities is to explore and clearly inform policy makers, managers, and the general public regarding what we know (and don't know) about the ecological and socioeconomic consequences of human activities and proposed policies. We do not always have the opportunity to make policy decisions, but we should do everything in our power to ensure that the public, and public policies, are adequately informed. The Greater Yellowstone Area and Serengeti–Mara Area are certainly two of the most important laboratories in the world for creating and applying information about how nature works and the ecological and cultural consequences of human actions.

Thank you for your attention and indulgence—I am looking forward to learning from you and sharing ideas over the next few days.

Excluding people from parks in East African savannas: unintended consequences for wildlife?

Keynote Address
October 8, 2003

Robin Reid

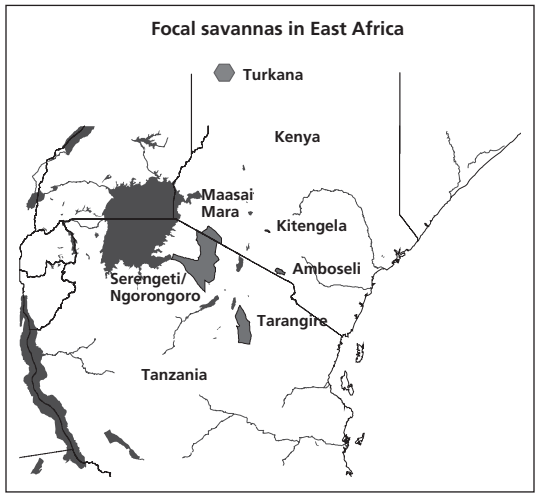
Robin Reid is a systems ecologist and Programme Coordinator for the People, Livestock and Environment Programme at the International Livestock Research Institute, Nairobi, Kenya. She started her career with the National Park Service, where she served as a ranger and biologist at Gateway, Canyonlands, Olympic, and Yellowstone national parks. For the last 15 years, she has worked with pastoral peoples and wildlife throughout East Africa. She currently leads transdisciplinary research teams investigating how to balance the often conflicting needs to conserve biodiversity and improve livelihoods of pastoral peoples around the world. Dr. Reid serves on international scientific advisory panels for land use and biodiversity science (IGBP-LUCC and DIVERSITAS), and founded an East African network of scientists and policy makers concerned with land use issues called LUCID. Her scholarly articles have appeared in **Conservation Biology, Development, Journal of Applied Ecology, Biological Conservation, Ecological Applications and Landscape Ecology.**

I'm going to present a talk today that is data-driven, unlike [those of] some of the other keynote speakers (although much of what they said was data-driven—they just didn't present the data). And so you're going to see a lot of information here. Part of the reason I'm going to do that is that my great-grandfather was a criminal lawyer, and I learned at an early age that evidence is important. And my mom is a scientist, and so I learned that early, as well.

I'd like to thank some people on my team first, because they are so much a part of what I'm going to present. I have the fantastic good fortune of working with a team of people from 20 different countries; I'll present much of their work today. I'd also like to say that I recognize—and I really want to recognize for all of us—that we stand on the shoulders of giants. There are a number of people who have gone before in science, particularly Jim Ellis, and some other folks that I've worked with; many of those people are here in the audience. I want to recognize the great work of people in the past, and that which is still ongoing. Finally, I want to thank the great Maasai people that I get to work with, and other pastoral people. They're terrific, and they've been

always gracious about welcoming me into their lives, and I'd really like to pass that on to them.

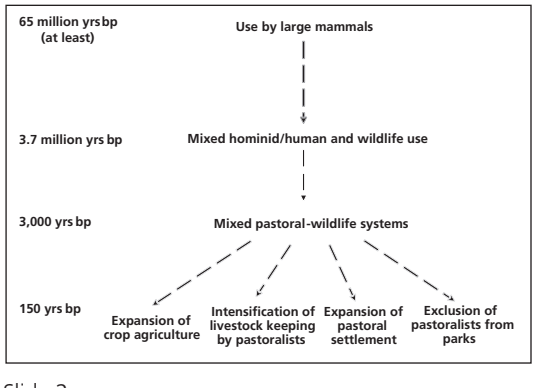
I used this provocative title because I wanted us to investigate the idea of whether excluding people from parks has unintended consequences for wildlife. So what am I going to talk about today? First, I'm going to talk a little bit about prehistory. And I'm relieved to see that I can't find…Oh, there's Richard [Leakey]! Second, I'm going to talk a bit about the current spasm of wildlife loss in East African savannas. It's truer in some places than others, but I want to recognize it because it bears on the question of whether people should be in parks. I also want to point out some of the things that we may have lost with the exclusion, or removal of homo sapiens from parks, and then about some specific things that people do on landscapes: grazing, burning, and pastoral settlement. Then, I want to sum up by saying something about conservation policy and management and what all this might mean.



Slide 1.

This is a map [slide 1] of some of the places that I'm going to talk about in East Africa, areas in Kenya, and in Tanzania. I'm going to talk a bit about the northern area in Turkana, and about the Serengeti–Mara ecosystem that most folks have talked about [at this conference], and the Ngorongoro area. I'll talk a little bit about the Kitengela system that is near the city of Nairobi, and then the Amboseli system near Kilimanjaro, down in southern Kenya.

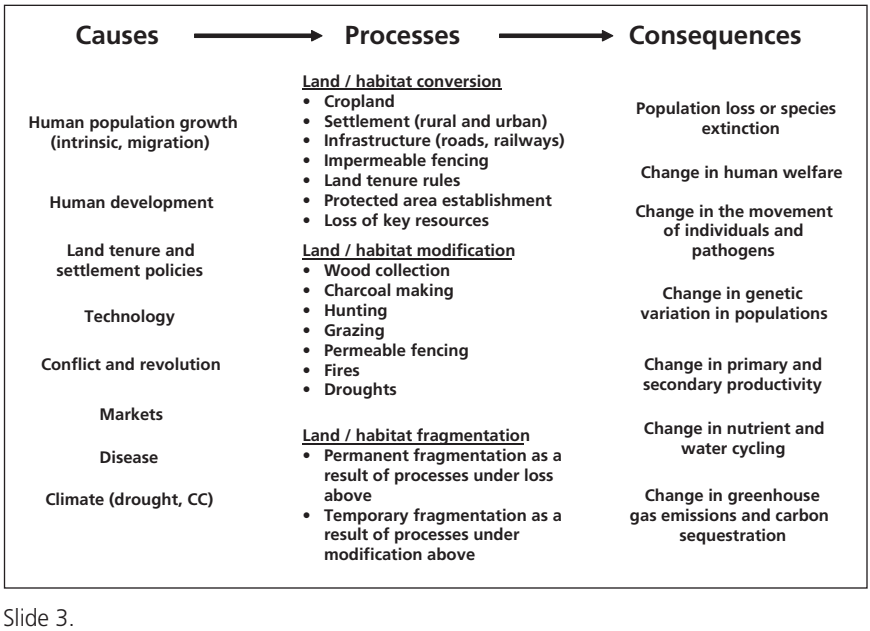
Here's my dangerous prehistory slide [slide 2]. I just want to remind us about East Africa and its long history with wildlife and people, because I think it's an important context



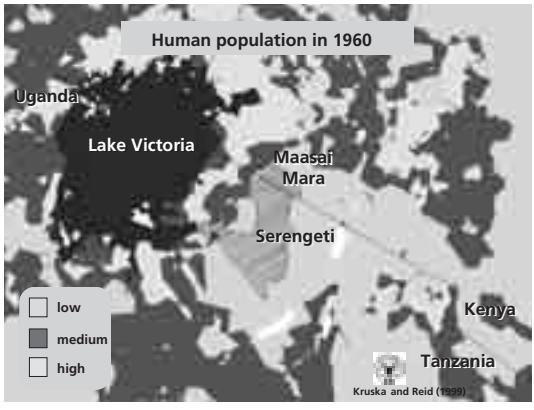
Slide 2.

for thinking about people and parks. Also, it's very different than it was in much of North America—at least [in terms of] the length of time—and so I'm crazy enough to say that large mammals have been part of these landscapes for many, many millions of years, and I've probably got the date wrong, but it's a very, very long time. Richard's mom [Mary Leakey] found some footprints in Tanzania, or at least [published] work [resulting] from the footprints, showing two hominids walking, maybe side by side, or maybe one behind the other, 3.7 million years ago. One with larger footprints and one with smaller, in volcanic ash, preserved for us in the present. What was so remarkable about those footprints was not only the evidence of bipedalism, but also the fantastic array of wildlife footprints that were also preserved there, as well as acacia leaves and things like that, that are there in those savannas [today]. And so there's been a very long mixing of people and wildlife in these landscapes.

More recently—quite a bit more recently, but still a long time ago—wildlife were both domesticated in Africa (which is some new evidence in the last couple of years), and brought to Africa, arriving at East African savannas maybe about 3,000 years ago. So there has been a pastoral–wildlife landscape for the last 3,000 years. In the last 150 years or so, there's been a wide array of new ways of using the land. Expansion of cultivation, expansional settlements, intensification of livestock keeping, and also the exclusion of people from parks have all happened during that time.



Slide 3.



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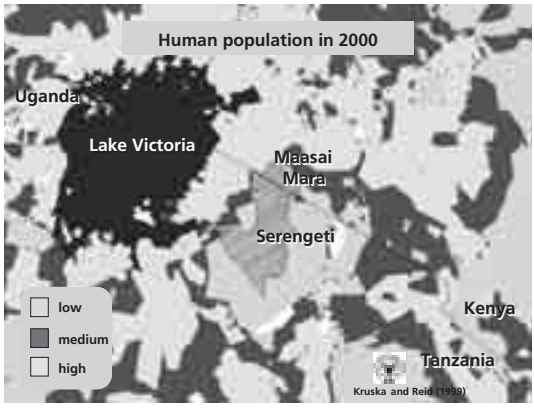


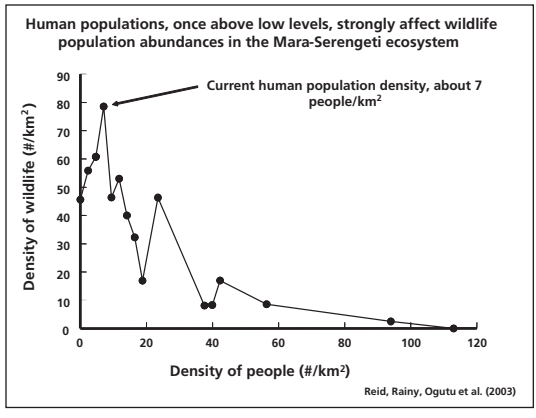
Slide 5.

So what is this loss, this spasm of wildlife loss? This is a complicated slide [slide 3], and I'm just going to point out some highlights. It's complicated because the causes and consequences of habitat fragmentation and loss are complicated anywhere in the world; you will all recognize many of these things [also] driving the landscapes in the Greater Yellowstone Ecosystem. Exponential growth of human populations certainly has been a strong driver in this case. Changes in land ownership have [also] been very important. Civil unrest has been very important in Uganda, [along with] a whole range of other things, particularly markets. The development of markets, and economic development, has been a big cause of fragmentation. A whole range of things happen when habitat is converted. There are consequences for the ecosystem. I'm going to talk about more the wildlife end, but there's a whole range of consequences for ecosystems that many of you are very, very conscious of in this system.

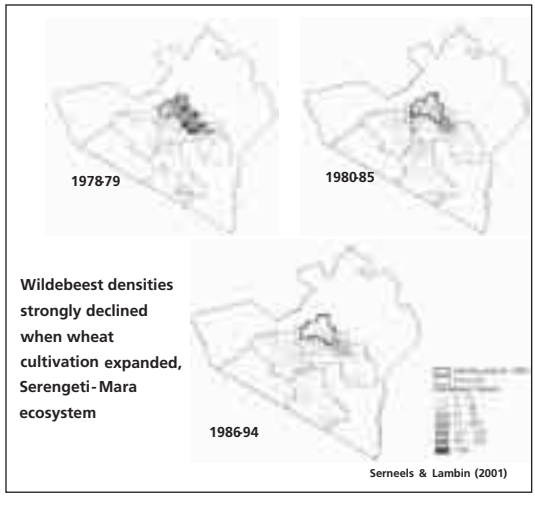
There are some other things happening in East Africa as well, such as bushmeat harvesting, particularly in the western Serengeti. I saw some numbers last week when I was in the Serengeti where it looks like there's been a pretty strong loss in the resident wildlife populations. But I'm dangerously saying, with Tony Sinclair in the room, that it looks like poaching has had a big impact on the migratory wildebeest, as well. Second, not only do people kill wildlife, but they harass them with their dogs and different things, which is important. Finally, competition between livestock and wildlife for forage and water is also important.

In slide 4, I'm showing a section of the border between Kenya and

Tanzania, and what human population was like in 1960. What you can see in this landscape is that the Serengeti–Mara, and also Ngorongoro (not shown here), is in an area that extended out into surrounding areas of low human population, and there were connections in this landscape. Slide 5 shows you the human population in 2000. You can see now that many of these savanna landscapes are becoming islands within this sort of sea of humanity. But that is different in different parts of edges of the park, much like it is here in Yellowstone.



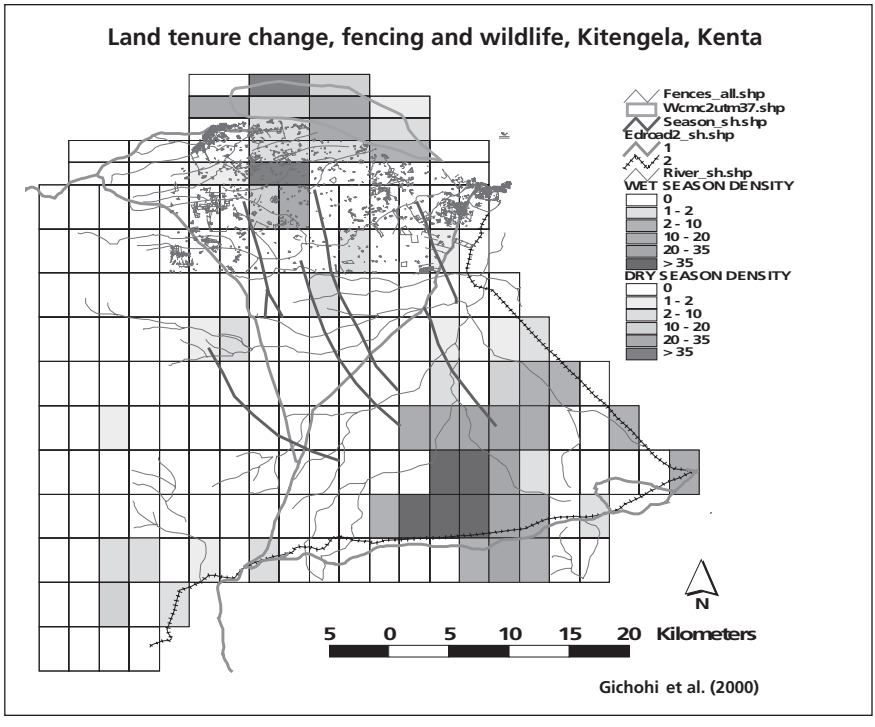
Slide 6.



Slide 7.

Another thing I want to show is the consequences for wildlife. This is a correlation, so don't take it as a causative relationship, but the right side of this graph [slide 6] indicates that as human population increases, we're seeing a very strong loss in the abundance of wildlife. That's what we assume will happen. We'll come back to this.

So we have this human population increase. Another driver of change is the leasing of land to commercial wheat farmers in the northern Mara ecosystem. Slide 7 shows the Mara reserve and surrounding pastoral lands. From the upper left, we can see what wildebeest distribution looked like in about 1976; in the early 80s, when they started farming the area for wheat; and more recently, about the mid-1990s. So there's a strong loss in the resident wildebeest population. We saw, on average, about a 70% decrease in all species of wildlife in this ecosystem in the last 20 years. So, big, big changes [are happening].

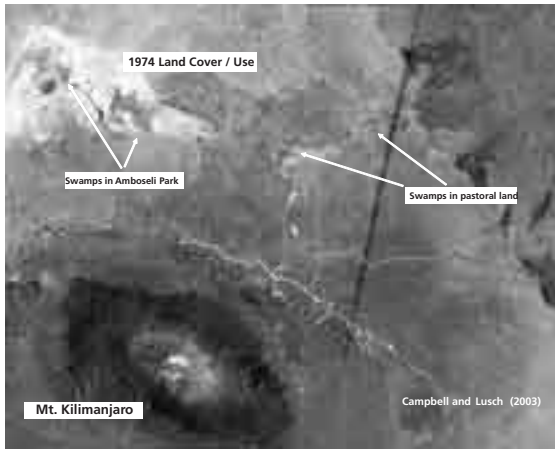


Slide 8.

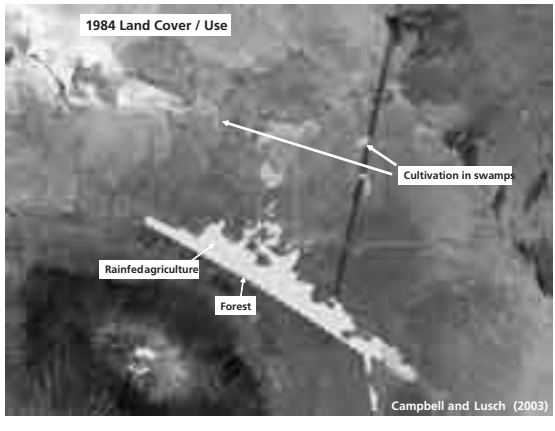
Slide 8 shows an ecosystem near Nairobi, where I live. This is the Kitengela landscape. The sort of mango-shaped thing at the top is Nairobi National Park. The area to the south of it [contains] the pastoral lands of the Kitengela. To the southeast are the wet season calving grounds for wildebeest and zebra; during the dry season they migrate up into Nairobi National Park. The things that look like little worms are the fences that are going up on private land. They are having a huge impact on the migration of wildebeest, and also on vegetation and burning practices.

Slide 9.

Slide 10.



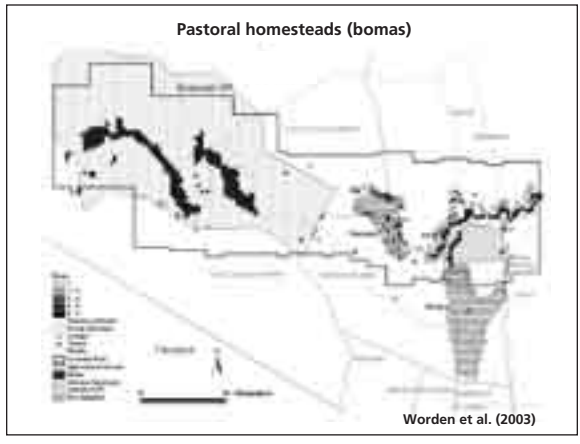
Slide 11.



Slide 12.

Slide 13.

Slide 14.



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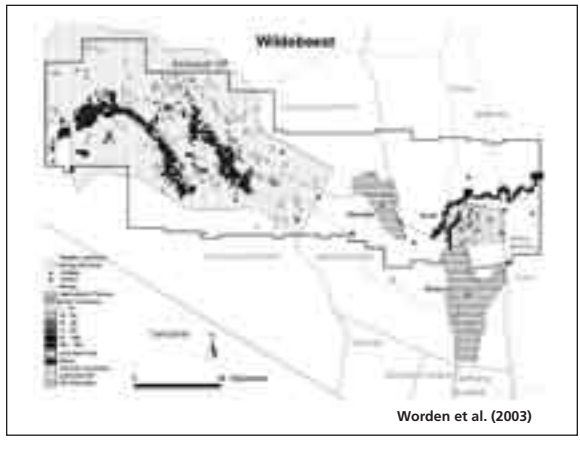

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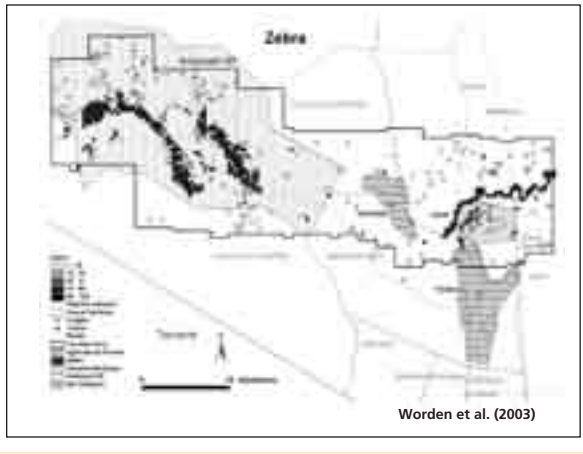
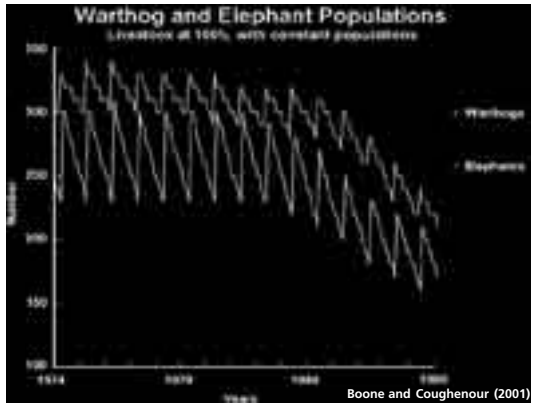




Slide 17.

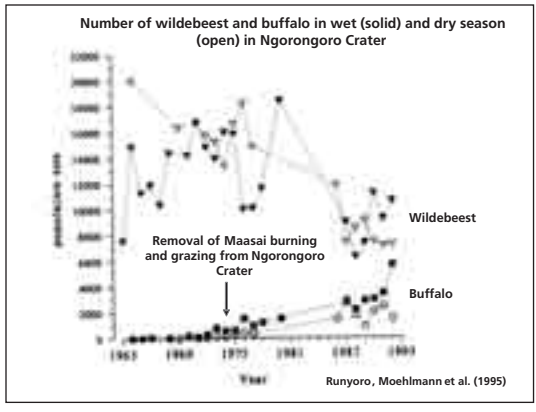
The last thing I'm going to point out about this wildlife loss is from the Amboseli at the base of Kilimanjaro. Slide 9 is an aerial photograph of the Amboseli swamps, a key resource for people and wildlife—or at least they used to be. At present, they are inside Amboseli National Park [slide 10]. In some of our research, we are asking what happens when this kind of swamp turns into this kind of cultivated area. Slide 11 is a satellite image showing what those swamps looked like in 1974. Slide 12 shows the same area in 1984; you can see a dramatic increase in cultivation in the swamps, and also the expansion of rain-fed cultivation along the edge of Kilimanjaro. More recently, that cultivation has solidified, and a lot of those areas have been fenced [slide 13].

Slide 14 shows the distribution of bomas, or settlements, around the swamps. Some bomas look like they're in Amboseli, and there is a high concentration around the swamps outside the park. Slide 15 shows wildebeest distribution; there's a very strong impact of cultivation in the swamps, although not a complete exclusion of wildebeest. Slide 16 shows zebra, which seem to be somewhat less affected, but still very strongly affected, by this conversion of land to cultivation.

Slide 17 shows the results of some work done by Randy Boone and Mike Coughenour in Ngorongoro, looking at what happens to different wildlife populations as you increase livestock populations. This is a back-casted simulation using the savanna model that Mike Coughenour developed, looking at what would happen to warthog and elephant populations if the livestock population were increased by about 50%. At the start of the simulation, the livestock populations go up, but we don't actually see the effects on the wildlife until quite a bit later. I think it's really important to remember that we have huge time lags in these systems. It's maybe 10 years before we really start to see a perceptible decrease.

Are there any synergies? Pastoral people do four types of things to landscapes that are important to account for as we exclude people from parks, and also as we think about the land around parks. In East Africa, the existence of pastoralism prevents less sustainable uses, or less wildlife-compatible uses of landscapes. That's a backhanded way of saying that wildlife is conserved

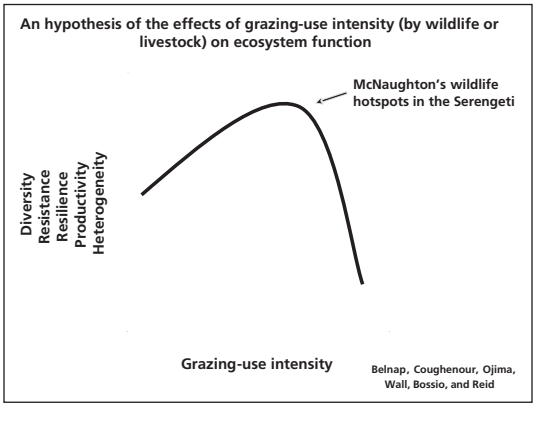
on pastoral lands. There's not much evidence about pastoral burning practices and the patterns that they bring to the landscape, but I think fire is actually a very important factor that can be replaced in protected areas by burning in other ways. A lot of work has been done in the Serengeti about wildlife improving the nutrient flows and improving the nutrient cycling in some of these systems. Our hypothesis is that livestock do that, too. Finally, settlement does two things: creates long-lasting nutrient hotspots, and protects grazing ungulates from predators around pastoral settlements.



Slide 18.

Can people diversify by burning? In Australia, aboriginal peoples do some very complicated burning in small patches. They do it in the cool season, and when scientists have compared the diversity of plants and wildlife and other factors between aboriginal lands and nearby national parks, they've found that there are just as many species of wildlife and plants, and very few invasive species on aboriginal lands. There's certainly evidence in North America of the diversification of landscapes by Native American burning practices.

Slide 18 shows what has happened to the wildebeest and buffalo populations in Ngorongoro crater in northern Tanzania between the 1970s and the present. The wildebeest populations have tracked downward, and the buffalo populations have tracked upward. The Maasai used to live in the crater. In their research, Victor Runyoro, Patricia Moehlmann, and colleagues hypothesized that since the Maasai were excluded in 1974, the lack of burning has caused the grasses to become less nutrient-rich, and so it has attracted more buffalo and become less attractive to wildebeest.



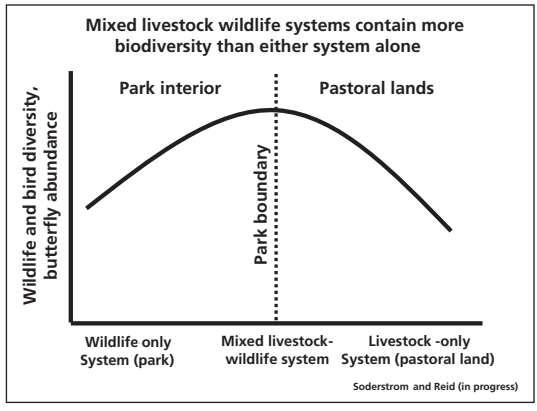
Slide 19.

Slide 19 is a model we're developing in relation to a whole range of

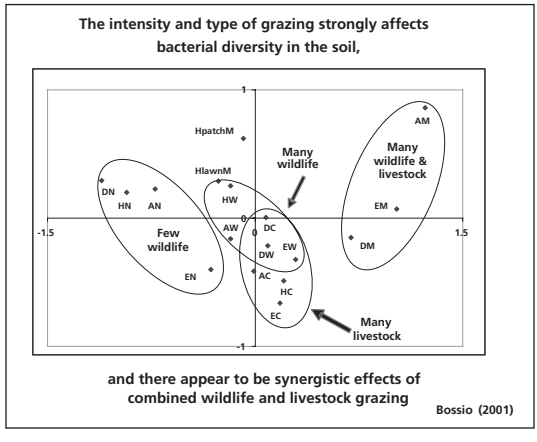
diversity from microbes to elephants. We have pretty good evidence from Sam McNaughton's work in the Serengeti that there's a peak of diversity and abundance of wildlife on hotspots that are heavily grazed. There's a whole range of things going on at these spots; we think they contribute to resistance and resilience, and also to landscape heterogeneity. There is evidence that leads us to believe that this is a reasonable hypothesis.

Slide 20 shows the results of some work we're doing in the Mara, looking at what happens to different aspects of biodiversity as we go from inside parks (the wildlife-only system on the left side) to areas where wildlife and livestock mix at the edge of park boundaries, and then finally to areas that are livestock-only. We've found that there is a higher density of wildlife, a higher diversity of wildlife, and a higher diversity of birds in areas where wildlife and livestock mix, and the abundance of butterflies is higher.

Another thing that we're looking at is microbial diversity. Slide 21 shows some nice work by



Slide 20.



Slide 21.

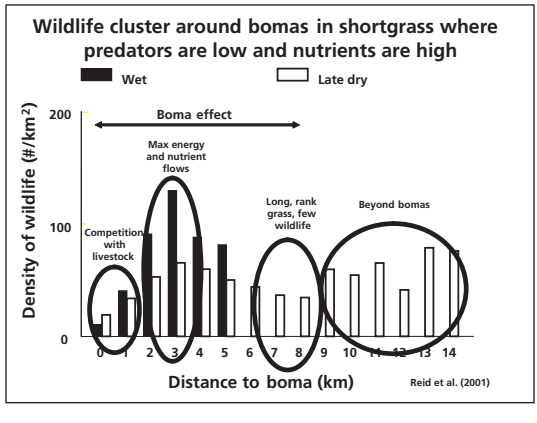
Slide 22.

Deborah Bossio. On the left side of this graph, the microbial communities are really different where we don't really have any grazing at all, where few wildlife are. On the right side, we have these mixed, wildlife–livestock systems. They're also very different in diversity. There are areas in the middle that aren't actually very different from each other. These are the areas where we have lots of wildlife or we have lots of livestock. We're kind of puzzled by this, but we have some good evidence from the soil that there's something going on here in these different systems.

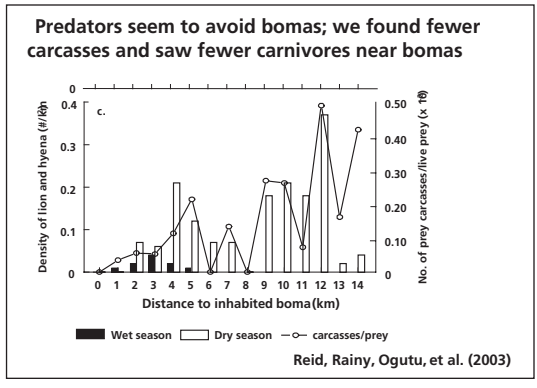
Slide 23.

What happens when pastoral people settle in these landscapes? Slide 22 shows an aerial photograph of a pastoral settlement in northern Kenya. These are enclosures that people build to keep their livestock safe from predators at night. They cut branches from acacia trees and pile them up. These folks live in these settlements up in northern Kenya, often for as little as a month. In the wetter areas of southern Kenya and northern Tanzania, they might live in them for three to five years. In southern Kenya, I've often seen settlements that, when people move away from them, have a pile of dung that's taller than I am—I mean, just a huge pile of dung in the middle of these settlements. That's kind of unusual, but this is a real piling of nutrients in one spot over time.

Slide 23 is a satellite image of the pastoral settlements of the Mara ecosystem. All the little dots that sort of look like measles on this landscape are pastoral settlements. The center point is where the dung is, and then there are impact rings of grazing around the settlements. These are settlements that people currently live in. So we started asking the question, "well, what the heck is happening to wildlife around these settlements?" We



Slide 24.



Slide 25.

expected to see negative impacts of settlements on wildlife; that was our starting hypothesis. But what we found really surprised us. In slide 24, the x-axis shows the distance to the nearest boma (settlement) in kilometers; the y-axis shows the density of wildlife. Close to these settlements, we're seeing areas where we think there's competition with livestock for forage—there's really not so much to eat, and so the wildlife don't want to hang out next to these settlements. Then, there's an area where wildlife are actually most abundant on the landscape in both the wet and the dry seasons, 2–3 km from a settlement. We think these are places where these grazing lawns, or hotspots, are set up by livestock and wildlife together, and where the grass is an intermediate biomass, and so this is where wildlife are clustering. We have areas some distance from settlements where the grass is very tall. A lot of the small and medium grazers don't want to be in the tall grass. Finally, we have these parts of the landscapes that are far from the settlements that we don't think have anything to do with it.

The other piece of information that we collected is shown in slide 25. What we see here is that predators basically want to be away from people, and that's probably no surprise to people that live here. People are scaring away the predators. The basic message of slide 26 is that if you compare the areas inside the protected area with the areas outside it, you find that there are species that want to be around people and species that don't. The big things, like elephants and carnivores, don't want to be around people, and the medium-to-small things do want to be around people, prefer to be around people. Then there's a whole suite of species that actually seem not to be affected by the presence of pastoral people.

Why are wildlife clustering around pastoral settlements? We've got four hypotheses, and we think all of them are right. First, there's been some nice work by John Fryxell and Tony Sinclair looking at intermediate biomass areas, and by Sam McNaughton and his hotspots, basically getting across the idea that there are places that have been grazed that wildlife really like to cluster in. That's where they are most productive, and that's also where nutrients are the highest. Second is the predator protection hypothesis—the idea that people are chasing away predators, and so wildlife want to be around settlements.

Some species of wildlife are more abundant in parks, others are more abundant in pastoral lands

More livestock, dik-diks, giraffe, impala, topi, Thomson's, Grant's, and vervets on the pastoral ranch

More buffalo, crocodile, eland, elephant, hippo, hyena, hartebeest, lion, ostrich, wildebeest, zebra, reedbuck, vultures and warthogs in the Mara reserve

Species	1999	2002
Dik-dik	Ranch	Ranch
Giraffe	Ranch	Ranch
Impala	Ranch	Ranch
Vervet	Ranch	Ranch
Cattle	Ranch	Ranch
Donkey	Ranch	Ranch
Shoat	Ranch	Ranch
Buffalo	Reserve	Reserve
Crocodile	Reserve	Reserve
Eland	Reserve	Reserve
Elephant	Reserve	Reserve
Hippo	Reserve	Reserve
Hyena, Spotted	Reserve	Reserve
Hartebeest	Reserve	Reserve
Lion	Reserve	Reserve
Ostrich	Reserve	Reserve
Reedbuck	Reserve	Reserve
Topi	Reserve	Ranch
Vulture	Reserve	Reserve
Warthog	Reserve	Reserve
Mongoose	Reserve	Same
Baboon	Same	Same
Bat-eared Fox	Same	Same
Bushbuck	Same	Same
Cheetah	Same	Same
Duiker	Same	Same
Grant's Gazelle	Same	Ranch
Jackal	Same	Same
Leopard	Same	Same
Rhino	Same	Same
Thompson's Gazelle	Same	Ranch
Tortoise	Same	Same
Waterbuck	Same	Same
Wildebeest	Same	Reserve
Zebra	Same	Reserve
Honey Badger	Same	Same
Hare	Same	Ranch

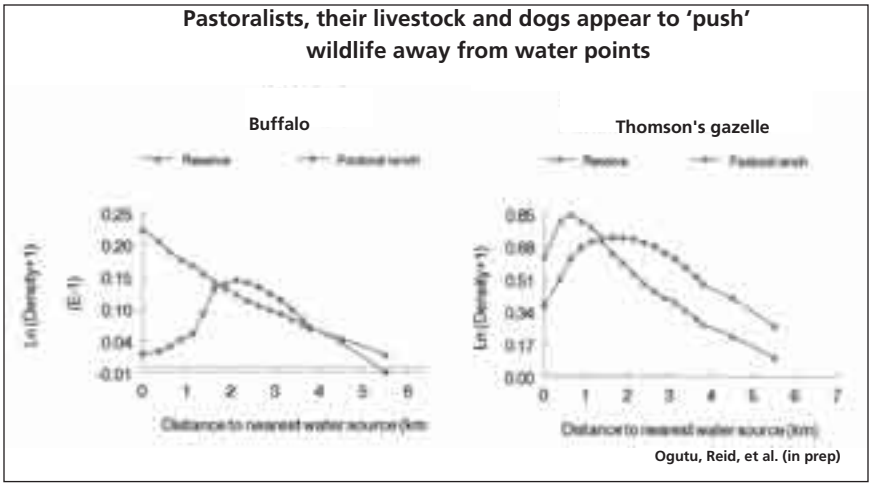
Same number of mongoose, baboon, fox, bushbuck, cheetah, duiker, jackal, leopard, rhino, tortoise, waterbuck, honey badger, hare – but most of these species are rare, so no conclusions can be made

Reid, Rainy, Ogutu, et al. (2003)

Slide 26.

In fact, what we're finding now, as we do a night study looking at predators around settlements, is that wildlife are coming very, very close to these settlements at night to be around people. The "best places" hypothesis is one of my favorites—in other words, people live in the best places, and wildlife want to be there, too. That's very possible. Finally, there's the old boma, or "old settlement" hypothesis: all the new settlements are near older settlements that have been abandoned, and so these are nutrient hotspots, and the wildlife come in and graze on those at night, particularly hippos and elephants; I've also heard the Maasai talk about impala coming in at night. I think that probably all of these are right. We're doing some experimental work right now to try and sort that out.

We're also doing some work on looking at the relationship of wildlife to water [slide 27], which shows that buffalo in the reserve would prefer to hang out near water, but when they're outside the reserve and people are also using the water with their livestock, they're being pushed away from water a bit. There's a similar sort of effect for Thomson's gazelle; they don't want to be right next to water in the reserve, but they do cluster near water. Outside the

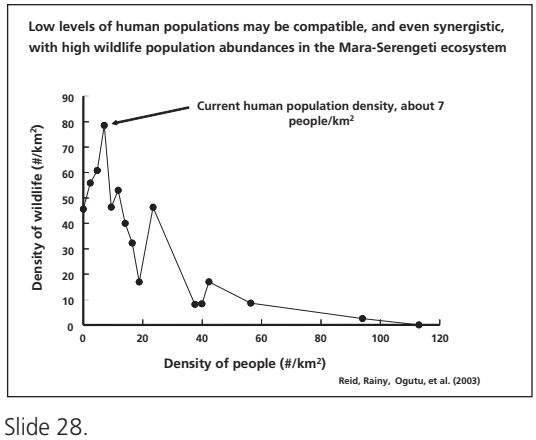


Slide 27.

reserve, the pastoralists are pushing the wildlife a bit away from water. This is a pretty subtle effect but probably very important.

Returning to slide 6, [see slide 28] I want to talk about the left-hand part of the curve. I find it really kind of interesting that when there are no people on a landscape, wildlife density and abundance is lower than when you have some people on this landscape. This is another way of looking at the effect of pastoral settlements on wildlife.

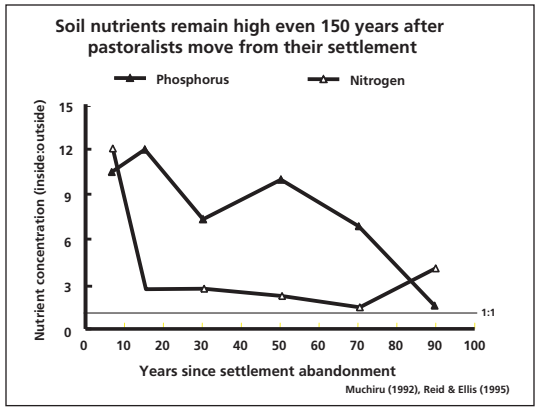
What happens when people move out of settlements and leave behind nutrient hotspots? My team in northern Kenya sifted goat dung from a settlement, pulling the acacia seeds from it. People feed the seeds of acacia trees to their goats and some calves, and they end up in the corrals at night, and trees come up in the corrals. We've found that in a normal year, about 50% of the trees on the landscape may grow up inside old pastoral settlements. In dry years, almost all the trees in the landscape are regenerating in the corrals, so there's an important vegetation effect of pastoral settlement.



Slide 28.

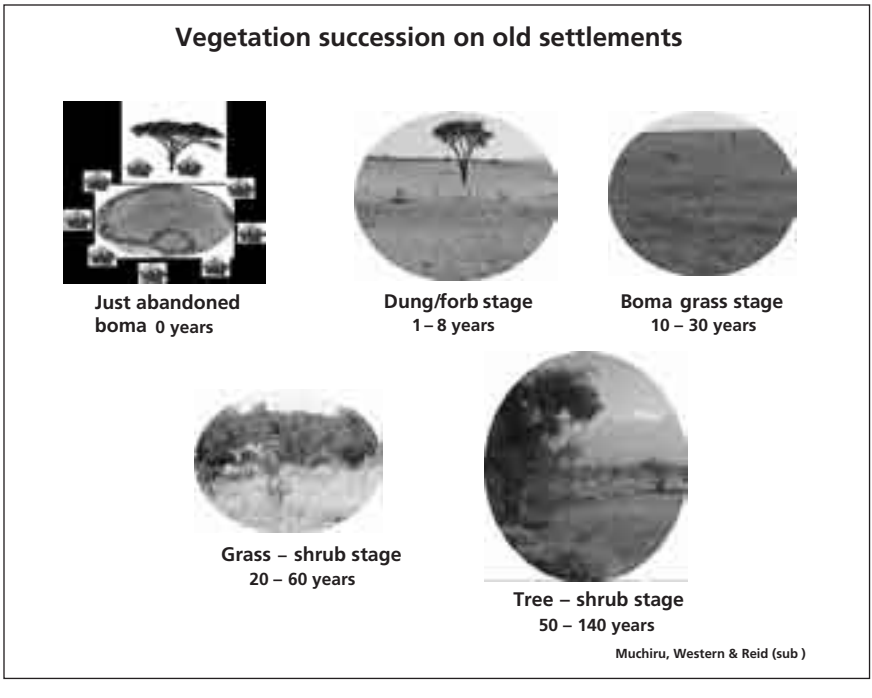
Another thing that's going on is that in settlements where people stay quite a long time, maybe 30 years, we find grassy areas along with some

low shrubs and trees. The grasses grow on top of the settlement, and the shrubs beyond it. And so the settlement areas, we're finding, are more productive. They have more nutrients, and I would probably guess that they're also improving the nutrition of the wildlife and the livestock, but we don't have any evidence of that.



Slide 29.

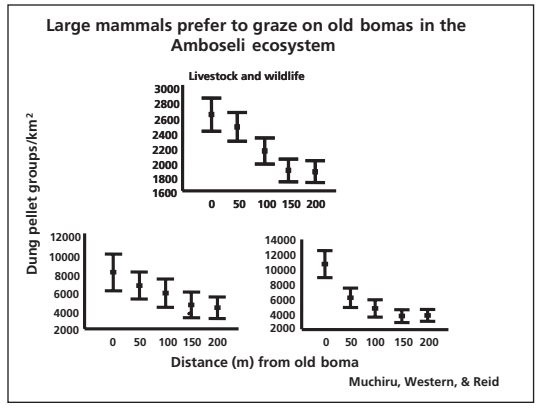
Slide 29 shows the nutrients and nutrient signal over time; the y-axis is the number of years since the settlement was abandoned. The graphic that goes down very quickly is what happens to nitrogen over time as these areas are abandoned. The more gradually-sloping line is phosphorous. We're finding, again, that there are differences in different nutrients, particularly that the nutrient signal is lasting on the landscape for a century, or maybe a century and a half, and maybe even



Slide 30.

longer in these settlements, so they are nutrient-rich areas for a very, very long time.

Slide 30 is a bit of a cartoon showing the vegetation succession on old settlements—from being a bare area to an area with herbaceous plants and then, after about 30 years, a boma grass or grassy landscape, and then shrubs and trees come in. You will see this kind of succession going on in any landscape, but at different times; people have abandoned different parts of the landscapes at different times, adding significant diversity to the vegetation in these landscapes.



Slide 31.

Large mammals and livestock prefer to graze on old settlements. The x-axis in slide 31 is the distance to the nearest settlement. The wildlife, depending on the species, might be twice as abundant on top of these settlements, or sometimes three times as abundant, so they're really preferring these spots. They're also doing a lot of observing the landscape; some of these old settlements may create some predator advantage by opening up vegetation for the ungulates. Slide 32 is a map of Africa showing the places that different researchers have found old settlements, to give an idea of how important they are.

So what does all this say about excluding people from parks? Is this a hare-brained idea in East Africa, or are we doing the right thing? Well, culture matters. I think it's no coincidence that most of the wildlife-rich areas of East Africa happen to be in pastoral areas. I don't think that is just an accident; I think it's about the way people have used the land, and their cultural practices. There's a rule within the Maasai culture not to harm harmless animals—not to

Slide 32.

kill harmless animals like giraffe and eland and things like that, and also to use the wildlife products from dead animals. There is regulation of where cattle go, so that they don't overuse different parts of the landscape. That's true in some cases and not in others. Around settlements I've seen some pretty heavy use, but there is a good potential that they're adding diversity to these landscapes by their diverse cattle grazing practices. Then there's the clustering of settlements—people clustering in a certain area and leaving different parts of the landscapes open. Our information would bear out that that's a really important part of the conservation of wildlife in these systems. And I think that the pastoral burning practices are probably important, but I haven't seen the work that talks about that in East Africa.

So what does the information we've collected from a scientific perspective say about these cultural practices? First, we have some evidence that would lead us to believe that livestock can create these hotspots, or grazing lawns, that wildlife are attracted to. However, they also compete with wildlife for forage. Second, this practice of leaving behind old settlements can create the nucleus for development of these long-term hotspots that wildlife cluster around. Now, obviously, that's not happening in Jackson, [Wyoming,] and it's not happening in Yellowstone, so that's not the only way these things can be set up. But it certainly is an important one. Third, our information is just beginning to show that occupied settlements may have an important role in these landscapes for some species of ungulates, attracting them and protecting them, potentially being safer places on the landscape. But we need to remember that in this ecosystem and a number of others, we've seen very strong loss of wildlife. So we've got two things going on. In some of the systems we're working in, the Maasai did not cause this loss, and they also did. The causes of this loss of wildlife for which the Maasai are not responsible include a series of droughts that have exacerbated some of the things going on. I don't think that we can say the Maasai are responsible for that, although they may say they are; I don't know. The poaching does seem to be mostly carried out by people that are not pastoral people, although I have a little skepticism about some of that. But the Maasai are responsible for leasing their land for commercial cultivation; I think they have to take credit for that. And they also are responsible for the expansion of some of the villages in the area, and so there's sort of this tension going on.

So should we let people back in parks, you know, just open up the doors in East Africa and bring the pastoralists back in? Well, I think the colonial and African governments inadvertently created new ecosystems in East Africa by excluding people. People had been there for a heck of a long time, and so we've created these new ecosystems, and we're trying to substitute some of the things that people do to landscapes, like burning, those kinds of things, but it's still very different. I mean, all of you here in Yellowstone know exactly

what happens when you bring in something new. You bring in your wolves. Well, imagine excluding something that is doing more to a landscape than the wolf from the ecosystem, and how that affects the ecosystem. These are, in a sense, new ecosystems in a certain time scale. And we can guess, we don't know, that this removal of people from these landscapes may have taken nutrient-rich grasslands and turned them into more nutrient-poor grasslands, may have or did alter fire burning regimes, certainly removed the nucleus of these old settlements that can generate hotspots, and probably impoverished savannas in some sense through cascading effects through the food webs as you're seeing with wolves here in Yellowstone. Probably, but maybe not, but at least they're different. I think we can probably agree on that. But there's a very big "but" in this, and that is that the modern pressures on societies, on all peoples in East Africa, including the Maasai, are pushing them, and they're accepting to be pushed, to adopt practices that are highly incompatible with wildlife—in other words, taking up cultivation for the first time. That's highly incompatible with wildlife. Leasing land to commercial interests, that also can be highly incompatible, along with settling and heavily developing villages and settlements where people stay for long periods of time. So it's neither a good or a bad story, it's just a story.

So what is the way forward? I would say we should keep the parks without people, and the Maasai should be given the credit for giving this gift to their nations, and to the people of the world. Even though this may be a new experiment, because of modern economic pressures, we really need these parks for wildlife. On the other hand, I think that folks with a long history of indigenous knowledge of how to manage these landscapes sure as heck ought to be more involved in the management of both the parks and the areas outside the parks—but particularly the parks. And I think that culture does matter, and there are people who do have more experience in this than others, and I would say that's very important. I think that we need to be much more careful about helping Maasai have access to the incentives that will allow them to benefit from and conserve wildlife on landscapes outside reserves.

The last thing I'm going to say is about these incentives outside reserves. Given all the things we're seeing in the world with globalization, with climate change, with extreme weather events, it may be that Maasai outside reserves, sitting in these areas that conservationists would call buffer zones, actually may end up saving this great wildlife heritage, because they are in the position to conserve the wildlife that will, when we have these extreme events, re-colonize some of these reserves, providing us a real future. I think that we really need to support their efforts to do so.

Play, place, and safety in images of Yellowstone and other national parks

Bruce A. Richardson

Abstract

Safety is a practical policy issue with legal ramifications in national parks. It may be inherent in the original national park idea that valued sublime and therefore inherently dangerous landscapes. Tourists, of course, accept safety, but were and are attracted to the danger. This paper addresses the tension between creating an ordered, secure space out of a dynamic, inherently dangerous, and chaotic landscape and also allowing the visitor some room to feel free and to play freely—to feel some wildness within. This tension can be seen in images and maps that depict the Upper Geyser Basin and Mammoth Hot Springs. These images teach a way of experiencing the space in an orderly way while feeling some element of choice and exploration. The fort at Mammoth is a reminder that Yellowstone was originally a kind of imperial outpost for the United States and a collection of nationally significant images that warranted military protection. The paper concludes by discussing Yellowstone as a national commodity as well as images of the energy and desire for order and control that made it a symbolic stand-in for the United States. A short section on Kenyan National Parks suggests how this sort of analysis would apply to them.

Recently, it's been an exciting time in Yellowstone, or rather in the virtual Yellowstone that lives in the very real world of television, newspapers, and websites. There's the big bulge under Yellowstone Lake, the seething ground and closure of the Norris Back Basin, another set of large fires, and a report that Yellowstone is exceedingly vulnerable to human crime. We might also remember the bear attack that made its way all to the David Letterman show and the ongoing legal saga of the hotel employees burned in a hot spring near Pocket Basin.

All this might just make a visitor pretty jumpy. One was my fiancé's sister Janet. As a wedding present, we gave Janet and her husband Bob their first trip to Yellowstone. The fires were a concern for them, but the bulge in the Lake had stimulated Janet's interest in the big caldera and what it might do. "What did you think of standing at the brink of the Falls," I asked her. "That this might be my last moment on earth" replied Janet, a generally cool-headed Seattle lawyer.

My brother-in-law Jim, from Texas, was even more concerned when he found a website issuing an early stage alert for a large-scale Yellowstone eruption. Under the headline "It is time to cast a worried eye toward Yellowstone," Larry Park and Marshall Masters predict that one recent earthquake is evi-

dence for a cataclysmic eruption and the attendant destruction of most of the western United States. The site does admit that "Larry Park's theories [about volcanism] are on the outside of conventional science," but that does not stop the panicky author from providing page after page of lurid images, maps, and predictions. My brother-in-law, a computer engineer, was worried that Yellowstone might blow up before his kids had seen it.

He might have been more concerned had he read the new novel, *Yellowstone Farewell,* by Wayne and Judy Sutherland. This page-turner packs in plenty of geological information, wacko environmentalists, myopic government bureaucrats, annoying feminists, sensationalizing news people, a love story, and a very big boom. The hero, a geologist from [Wyoming's] Casper College, predicts a large eruption in Yellowstone, but in the manner of these sorts of novels and films, the bureaucrats, environmentalists, and other dismiss his concerns. As a reward, most of them are obliterated in the explosive conclusion. The hero witnesses a giant pyroclastic flow from Yellowstone race across the Bighorn Basin. In scenes like those in the film *Dante's Peak,* he drives down the Bighorn Mountains through the volcanic muck and back to the relative safety of Casper and the prospect of starting a new life with the novel's one good journalist, a comely reporter from the Casper TV station who really just wants to be a good wife and mother and keep the humanity going after this very big bang.

Radical environmentalists are also the enemies in Kyle Hannon's *The Yellowstone Faithful.* The worst of them uses attacks on humans by a horror-film scaled grizzly bear to argue that Yellowstone should be off limits to people. The hero, ranger Dusty Steward, a lover of Yellowstone and a passionate defender of access to it, gets mixed up in a complex political fight to keep the gates open.

This energetic book has a lot of emotion, and much of it, interestingly, is about the possibility that fewer people will visit Yellowstone and get to experience the magic it has and the lessons it teaches. That, of course, does not seem to be a problem. In fact, the awareness of some danger may be part of the appeal of the place. Tourists have had a long interest in erupting volcanoes, dangerous mega-predators, terrifying heights, mighty waters, and the like. The Imax film for Yellowstone gets much of its energy from a bear that might be cast in the film version of *The Yellowstone Faithful.* The Imax begins and ends with the beast, whose concluding roar elicited a few screams from the audience with whom I saw it.

The quest for thrills has an interesting history and a lively present with the rise of extreme sports and adventure tourism. One might have expected Jon Krakauer's *Into Thin Air,* a vivid account of the horrors of a climb of Mount Everest, to have discouraged amateur climbers from going to the mountain, but in fact, their numbers have swelled. I have been enjoying and marveling

at *Adventure* magazine, published by the National Geographic Society and aimed at nature-loving thrill seekers. In one issue, Robert Young Pelton writes about being kidnapped by guerrillas during a hike through adjoining national parks in Panama and Columbia. Astonishingly, one of the people who signed on for Pelton's expedition was hoping for such an adventure, something like what happened to Kathleen Turner in the film *Romancing the Stone*.

Tourists from Radersburg, Montana, did not set out to be captured by Nez Perce Indians during their 1877 tour of Yellowstone, but when they were, that became the central part of the trip. Mrs. George Cowan describes the experience not as a nightmare, but a sort of exciting and sometimes amusing adventure, despite the fact that her husband was shot in the head and left for dead. Laughter and survival are, of course, antidotes to fear.

In fact, it may be argued that a common element of early writings about Yellowstone was danger. Calvin Clawson's recently reprinted newspaper articles describing a tour in 1871 is a sort of anthology of terrors. Clawson vividly describes a bear attack, fear of Indians, nervousness about geysers, supposed ghosts on Yellowstone Lake, and an unnerving earthquake. In some ways, Clawson is an ideal tourist; he's very careful. It's as if he had memorized Lee Whittesley's *Death in Yellowstone* and sees potential disaster everywhere. If there had been boardwalks, Clawson would have stayed on them.

Nonetheless, we might praise Clawson for getting something about Yellowstone right. It is an alluring and unnerving package of wonders and trouble. Why this combination of danger? It's worth pointing out that this is no random accident, some perversity designed to torment the National Park Service, injure visitors and generate lawsuits. Yellowstone was marked off as a pleasuring ground to be preserved for the enjoyment of the people in large part because it was dangerous. We might say the same for Yosemite, Mount Rainier, Grand Canyon, Zion, Glacier, and many others.

The central reason is the aesthetic and cultural attachment to scenery sublime as well as beautiful. The word "sublime" has a long and tangled history and has generated excellent commentaries, so of course what follows is too simple, but it points us in an important direction. In the eighteenth century, the sublime came to be applied to scenery that was huge, jagged, rough, dark, powerful and, most of all, dangerous. Edmund Burke argued that the sublime is a feeling akin to terror evoked by the thought of death and in the presence of death-dealing powers. So lakes are beautiful and powerful waterfalls are sublime, meadows beautiful and mountains sublime. Especially sublime were glaciers and volcanoes. The beautiful, for Burke, is harmonious, peaceful, sensual, orderly, and connected to love.

Marjorie Hope Nicolson, in *Mountain Gloom and Mountain Glory,* has argued that we can see the developing preference for the sublime in a shift in European attitudes toward mountains. From being treated as disgusting piles

of chaotic rubble, mountains became glorious emblems of power and divinity. Nicolson's approach is quite literary, but her subject has been expanded this year by Robert MacFarlane in *Mountains of the Mind: How Desolate and Forbidding Heights Were Transformed into Experiences of Indomitable Spirit*. MacFarlane has plenty of literary examples, but makes use of his own experience as a mountain climber and that of other mountaineers in an attempt to answer the "why climb it" question in more detail than was provided by George Mallory.

Such studies begin to tell us why Kansas got passed over early on for national parks and why so few pieces of original prairie have been preserved. I remember asking my late father why not have more national parks on flat lands as we drove through the middle of Wyoming. "Well," he said "this place would be named 'Boring National Park.'" Sublime landscapes just seem naturally more interesting. This would have surprised Daniel Defoe, whose *Tour of Britain* in 1720 praises flat, useful lands near water and dismisses the mountains of the English Lake District as an abominable wasteland. Today, a residue of Defoe's sort of thinking can be found here and there, but has generally been replaced by a rage for mountains. A casual survey of car ads with vehicles climbing mountains or posing in front of them gives us a commodified sublime and return to usefulness to these big masses of rock.

Sublime landscapes that became national parks were sometimes mountainous, but also included canyons, waterfall, glaciers, rivers, and other emblems of power. Yellowstone was a mountainous region, but the main objects of interest were the geysers, hot springs, and Grand Canyon. Though described as carnival oddities by some, many were pulled to the sublime qualities. Langford's account of Yellowstone is almost a glossary of the sublime. His account of their first encounter with the canyon stresses terror:

> The immense cañon or gorge of rocks through which the river descends, perhaps more than the falls, is calculated to fill the observer with feeling of mingled awe and terror…At all points where we approached the edge of the canon the river was descending with fearful momentum through it, and the rapids and foam from the dizzy summit of the rock overhanging the lower fall…were so terrible to behold that none of our company could venture the experiment in any other manner than by lying prone upon the rock, to gaze into its awful depths…the stillness is horrible and the solemn grandeur of the scene surpasses conception. You feel the absence of sound—the oppression of absolute silence (Langford 1972, 30–31).

In his 1785 tour of Yellowstone, John Muir found both the canyon and

the geysers terrifying. Camping in the Upper Geyser Basin, he sleeps badly because of the frightening sounds, especially an eruption of nearby Castle Geyser:

> The ground sounds hollow underfoot, and the awful subterranean thunder shakes one's mind as the ground is shaken, especially at night in the pale moonlight, or when the sky is overcast with storm-clouds. In the solemn gloom, the geysers, dimly visible, look like monstrous dancing ghosts, and their wild songs and the earthquake thunder replying to the storms overhead seem doubly terrible, as if divine government were at an end (Muir 1979, 45).

I have written elsewhere that Yellowstone's volcanism distressed Muir because it seemed more compatible with catastrophic theories of geology instead of the uniformitarian model of slow change through time which he saw in the glaciers carving Yosemite (Richardson 1990). Muir used "sublime" as a synonym for grand, orderly, and elevated, though in this passage he employs the Burkean language of disorder, obscurity, power, and terror—which is what he found in Yellowstone.

Behind the dangerous features that made Yellowstone sublime is a grander one: the caldera now used by Sutherland's novel and that website to evoke the most sublime thought of all: the end of or actually radical alteration of the earth. In his recent bestseller, ** A Short History of Nearly Everything*, Bill Bryson writes vividly about the Yellowstone caldera and the likely effects of an eruption, and after raising a good level of readerly panic, he ends the discussion with reassurances from [former Yellowstone geologist] Paul Doss: "But the thing is, most of the time bad things happen" (Bryson 2003, 233).

The preservation of animals came later and added a new element to the sublime: the grizzly bear. Parenthetically, one might wonder about the use of active volcanoes such as Yellowstone and Mount Rainier as Noah's arks for endangered animals. A longer paper would consider how the drive for commodification of animals has worked over time and led to shifting hierarchies of creatures in the West. The issue is even more complex, I gather, in East Africa. I am also passing over the difficult topic of how Indians became part of the definition of sublime and how all things defined as "other" by a group can fall into the category of the unknown, powerful, threatening and, therefore, sublime. There is also the question of how national parks fit into the ongoing history and political struggles of the time, as encountered by the hikers in Panama/Columbia and the Radersburg tourists in Yellowstone. Further, one might consider the status of national parks as symbolically powerful images of a nation and possible targets for media-savvy attackers.

A dangerous place calls for many responses. The result is a rich culture

that accommodates danger and provides security. We see this in the development of park roads, trails, hotels, and advertising. It is difficult to create an ordered, secure space in a dynamic, inherently dangerous, and chaotic landscape and allow the visitor the chance to play freely within this space, to feel some wildness within, resulting in tensions within the arrangement of the park and the depictions of it.

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