

Chasing Starlings,

ARTHUR MORRIS/VIREO



Kenya is home to 26 starling species, including the Superb Starling (above), one of the species the author studies. At right, a male lion rips apart a recently killed zebra carcass.

Chased by a Lion

BY DUSTIN R. RUBENSTEIN

A research adventure in the wilds of Kenya

When I was seven, I was almost eaten by a lion—not just any lion, but a member of a man-eating pride that had killed a person only the week before. I had been hiking in the highlands of Kenya, following a couple of hundred meters behind a student group my father was leading. The going was tough; the tussock grasses were almost as tall as me and as hard as I tried, I couldn't keep up with the rest of the group. Eventually, I decided to sit in a bamboo grove along the trail, waiting for them to descend. They finally did, but we headed down the mountain at an even quicker pace. It wasn't until later that



DUSTIN R. RUBENSTEIN



A cheetah (above) peers out at the researchers from the cover of tall grass. Although they are endangered throughout most of Africa, cheetahs are a relatively common large feline in this part of Kenya.

evening that I was told that upon reaching the top of the mountain, the group had been warned that the man-eating lions were resting in the shade of the bamboo along the path—in the same bamboo grove where I had rested.

A story like that doesn't quite register to a seven-year-old. Since that time, however, I have had numerous run-ins with buffalos, elephants, and other large game while hiking in Africa. Experiences like these make you realize why Africa is unlike any other place on earth; megafauna abound, and you have to be alert when they are around, which is one reason tourists in most of Africa are not allowed to leave their vehicles. So when Irby Lovette, director of the Evolutionary Biology program at the Cornell Lab of Ornithology and my companion on this trip, asked if we could walk over to a dead buffalo—not 200 meters from our camp—and try to find the lions that had killed it the night before, I was a bit hesitant. I had somehow managed to sleep through the death chorus of 18 lions killing an old male cape buffalo just outside the camp the night before. I had seen a group of three

buffalos as we came back to camp at dusk, and I had even fallen asleep to the sounds of them grazing outside our tents. The moaning buffalos and roaring lions had kept the rest of our group—four Kenyan assistants, two armed rangers, and Irby—up for half the night.

Despite the rangers' presence, and much to Irby's disappointment, we decided not to venture over to the carcass on foot. We had tried a similar stunt not two days earlier when we discovered another lion kill in a different part of Kenya. As we examined what was left of a young giraffe carcass after the hundreds of White-backed Vultures—which now sat in the nearby trees waiting impatiently for us to leave—had picked the two-day-old lion kill clean, I casually looked up to see two black rhinos galloping at full speed toward us. Black rhinos are extremely endangered and the only other one I had ever seen on foot was in Zimbabwe. That rhino had been so scared of our group that it had taken off before we could even get a good glimpse of it. As we watched these two rhinos get closer and closer, finally crossing a small valley and turning directly

toward us, I realized that maybe these rhinos weren't as skittish. We jumped into the nearby Land Rover and started it up, hoping that the noise of the diesel engine would scare them away, which it did.

By the time the old bull buffalo had been killed, we had been in Kenya for a week. Irby and I, along with our group from the National Museums of Kenya Ornithology Department and the Mpala Research Centre, were there to catch starlings to study their evolutionary relationships. As part of my Ph.D. dissertation research at Cornell on the evolution of cooperative breeding in African starlings, Irby and I had decided to build a molecular phylogeny (evolutionary tree) of the entire Sturnidae family (starlings and mynas) using DNA.

Although most people around the world are familiar with the common European Starling, the remaining 117 species in the family are Old World inhabitants. There are 48 species of African starlings and 69 species of Asian starlings and mynas. More than one third of the African species are cooperative breeders—a social system in which more than two individuals help to care for a brood of young. These cooperative breeders generally live in family groups, with offspring from previous years foregoing their own independent breeding opportunities to help raise their siblings.

I had been working in Kenya for the past four years on the Superb Starling, a bird as common in Kenya as the European Starling is in the United States. Because Kenya is home to 26 starling species, more than any other country in the world, we decided to focus our capturing efforts for the phylogeny project there. We had come for an intensive three-week trip that would ultimately cover more than 3,000 kilometers in search of four particularly elusive species: the Fischer's, the Bristle-crowned, the Magpie, and the Stuhlmann's starlings. Although specimens exist in many museum collections around the world, it had probably been decades since anyone had caught one of these species, and it is quite possible that no one had ever before handled a live one.

After spending some time in Nairobi teaching a class in conservation genetics for students from the National Museums of Kenya, we headed north to the Laikipia Plateau on the northwest slopes of Mount Kenya. We made a brief exploratory stop at the vast Lewa Wildlife Conservancy—where the rhinos chased us away

from the giraffe kill. When we found out that the dry-habitat species we sought at Lewa were seasonal migrants and not present at this time of year, we headed farther north to the Shaba Game Reserve. It was here that we planned to spend the majority of our Kenya trip focusing our efforts on the Fischer's, Bristle-crowned, and Magpie starlings.

Although Kenya is one of the least dangerous countries in Africa, only the bottom third of the country is safe for tourists. Shaba lies



on the northern edge of this safe zone. Due north of Shaba, barren desert stretches a few thousand kilometers into Sudan, Ethiopia, and Somalia. Bandits armed with AK-47s roam the area, routinely crossing the unmarked national borders to steal cattle, rob vehicles, and generally cause trouble. We were never quite sure whether our mandatory armed rangers in Shaba were there to protect us from wildlife or from humans.

After watching the lions gorge themselves on the old bull from the safety of the roof of our Land Rover, our team split into two groups: one to focus on the Fischer's Starling, the other on the Bristle-crowned Starling. The day before, we had seen a large mixed-species flock of Superb, Fischer's, and Golden-breasted starlings foraging in the savanna about 10 kilometers from our camp, as well as a second flock of Superb, Magpie, and Bristle-crowned starlings coming to drink at a stream just outside the reserve gate. After dropping one group off in the bush with one of the rangers, Irby and I

The endangered black rhino (above) is making a comeback on many private conservancies throughout Kenya. The rhinos the researchers encountered on their trip seemed less afraid of humans than those in other parts of Africa the author had visited. One day, two rhinos came galloping toward the researchers as they were examining a lion kill, and they had to flee to their nearby Land Rover.



Above, a group of Wattle Starlings perches on the back of a cape buffalo.

staked out the spot where we had seen a large flock of Bristle-crowned Starlings the evening before. Unfortunately, we ran into some dramatic vehicle problems just outside camp. The Land Rover blew a universal joint 50 meters from the lion kill. We sat stranded with lions surrounding the vehicle. Although they were mostly resting idly in the shade, some would occasionally stroll to the carcass to continue feeding, often passing close to us. The Land Rover was as dead as the buffalo, and there was simply no way to leave on foot. Even our heavily armed ranger would not step out of the vehicle with a pride of lions so close. After several hours, a passing park guard happened to spot us and drove over to see why we were stopped. With his help, we risked a quick trip out to attach a cable to our Land Rover, and he towed us to a safer spot where we could install a spare universal.

After finally being dropped off at the reserve gate, we spent the rest of the day waiting for starlings with Wilson Nderitu Watetu, my friend and assistant who had helped me with my dissertation research for the previous four years. The only starlings we saw for most of the day were Superb Starlings. These iridescent birds

have one of the most complex social systems of any bird species, living in large, stable groups of up to 30 or more birds. Within each group, as many as six breeding pairs build individual nests in acacia trees on a group-defended territory that they maintain year-round. Nonbreeding group members help to raise the offspring of the breeding pairs by bringing food to nestlings and mobbing predators. Although the majority of these male and female helpers are offspring from previous years that assist mostly at their parents' nest, they sometimes help at more than one nest, and even breeders occasionally help at nests that are not their own.

Although the Superb Starlings came and went for most of the day, they didn't go down to the papaya we had put out as bait, and they rarely stayed long. They were continually disturbed by the herds of camels, cows, and goats that were brought to drink at the water hole frequented by the Bristle-crowned Starlings. The herders were used to seeing tourists daily, but they couldn't seem to understand why a Kenyan and two Mazungus (or white men) were sitting under a tree by the river watching piles of rotting papaya slowly melt in the sun. The young boys who herded the goats

were afraid to stop and talk with us, but one group of elderly cow herders came over to see what we were doing. Wilson translated their Swahili for us, and after they learned what we were doing, they couldn't seem to understand why we would want to waste perfectly edible papaya to catch birds. After we declined to give them some of our rotten and moldy fruit, they became angry and argued back and forth in their tribal language, Turkana. Little did they know, but Wilson also spoke Turkana. Although he didn't let on that he knew what they were saying, he later told us that they were arguing about what to do about our refusal and what to do with us. Luckily, they eventually strode away—we were starting to run low on the papaya bait and even if our Land Rover had been reliable, the nearest place to buy papaya was more than two hours away.

Soon after the herders left, the Superb Starlings returned. This time, however, they came with a pair of Magpie Starlings. Striking birds with contrasting black-and-white feathers and glowing red eyes, the Magpie Starlings never came to the ground or approached the papaya. They spent all of their time in the tops of trees, seeming to mock our primitive methods of trapping. Anecdotal reports suggest that Magpie Starlings are also cooperative breeders, but we were never able to confirm this because we only saw two pairs during our week at Shaba.

Not long after the Magpie Starlings arrived, a group of more than 50 Bristle-crowned Starlings returned to drink in the late afternoon. Their calls were musical and high-pitched, and we could hear them from a long distance as they made their way down and around a nearby mountain in small groups. Almost immediately upon arrival, they discovered the papaya and flocked to the rotting fruit. I learned early in my Ph.D. work that starlings are generally too intelligent to be captured reliably in mist nets. Although nets do work around nests during the breeding season, during the rest of the year, starlings evade them easily. After spending a year playing with various traps, I resorted to a basic design suggested by Wilson and my other field assistants that mimicked the handmade traps they built as kids to catch doves. We ended up making a number of wire traps shaped like an oil drum cut in half with a small door wired to the side for removing trapped birds. We would prop the traps up with sticks attached to 100 meter rolls of twine, and then hide behind bushes and hope for the best. When the birds approached the bait—papaya seemed to

work best—we would pull the string, trap the bird, and then quickly remove it through the small door. Using this simple method, I have caught hundreds of Superb Starlings over the years. Although the Magpie Starlings were not fooled by our bait, this method now looked as though it might work on the Bristle-crowned Starlings.

As sunset approached, our Land Rover was still undergoing repairs, and we faced the prospect of having to walk back to camp past the lions. Fortunately, we managed to hitch a ride with a tourist vehicle returning from a neighboring reserve in exchange for showing them the kill. The next morning, we realized we wouldn't be so lucky and would have to



hike to retrieve our Land Rover. Although the buffalo carcass had nearly been picked clean by this time, we could still hear the loud roars of the lions. Despite their nearby rumblings, and much to Irby's pleasure, we took one of the armed rangers and set off on foot. We had our first sighting of a pair of Secretary-birds and found an old elephant skeleton, but we managed to avoid running into the lions.

By midmorning, the Land Rover was mobile, the traps were set and baited, and we again hid in a ravine waiting for the flock of Bristle-crowned Starlings to arrive. In the late afternoon, small groups began appearing from around the nearby mountain, as they had the day before. They went to drink and again found our papaya. It wasn't long before we had caught five birds in the traps; the first of our target species was in hand. Being able to hold these odd creatures and view them up-close made us appreciate them all the more. Atop

The Bristle-crowned Starling (above) has a distinctive crown of bristly feathers on its large forehead. Although some Asian starlings have similar ornamental crests, this is the only African starling with this type of crown. Its function remains a mystery.

their large foreheads was a projecting crown of bristly feathers. We don't know what purpose this crown serves; both males and females have the bristle-crown, and this is the only species of African starling with such a structure. A few mynas from southeast Asia have similarly placed crests, but the bristle-crown of this species is certainly unique. Our subsequent

ling in one of the nets. Our second target species—a cooperatively breeding one at that—was in hand and our trip to Shaba was a success. These two species of starlings were both strikingly different from any of the starlings I had captured before, and they would be of great use for our phylogeny.

After three days, all that remained of the old bull buffalo were skin and bones, and not much of either. Surprisingly, this kill was never visited by scavenging hyenas or vultures, which attend most carcasses in the African savanna. This had been a truly ravenous pride of lions; they ate everything and kept the scavengers away. In hindsight, even Irby agreed that it was probably a good idea we used the vehicle that first morning instead of venturing in on foot. After the lions finally departed we decided that perhaps it was time for us to leave as well. We had caught two of our three target species, and it didn't look like we would have much luck with the Magpie Starling.

We headed south, making stops at several of the Rift Valley lakes to capture additional species of starlings and pick up a new set of ornithologists from Nairobi. We closed our trip in the few remnant rainforest patches on the Kenya-Uganda border, home of the rare Stuhlmann's Starling. Except for a frighteningly close encounter with a black mamba snake, the rest of the trip was free from dangerous animal encounters. Overall, we managed to locate 16 species of starlings, the last being the Slender-billed Starling, which we found in the center of Nairobi on our final day. We had observed more than half of the starling species in Kenya and managed to capture half of those.

As Irby and I prepare to take a group of Cornell undergraduates back to Kenya for a three-week field course, I wonder how we can top this trip. I just hope that outdoing this past research expedition doesn't mean stumbling onto more lions or rhinos while on foot. ■

Dustin Rubenstein is a Ph.D. candidate in the Department of Neurobiology and Behavior and a lecturer in the Department of Ecology and Evolutionary Biology at Cornell University. His dissertation research examines the evolution of cooperative breeding in African starlings, and much of his molecular work is done in the Cornell Lab of Ornithology's Fuller Evolutionary Biology Laboratory.



The beautiful Lilac-breasted Roller (above) is a common resident in the savannas of East Africa.

DNA studies have shown that the mynas and Bristle-crowned Starlings evolved their crests independently.

After drawing blood, attaching metal leg rings, and taking some photographs, we triumphantly lugged our gear to the reserve gate and awaited our newly repaired Land Rover. Despite the vehicle and animal mishaps, this adventure was finally turning into a success.

Although we stalked the Magpie Starlings for several more days and even searched the entire reserve and other neighboring reserves for larger flocks, the birds never approached the ground, staying too high for the mist nets we had set up. Our focus shifted to the flock of Fischer's Starlings that our other group had been trailing for days. Although we were repeatedly able to locate the mixed species flock we had seen on the first day, the birds roamed over an area of many square kilometers and they never approached our papaya baits. Because they occasionally used the same trees to perch, we set up some mist nets and crossed our fingers. With a bit of our new-found luck, we managed to capture a single Fischer's Star-