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# A Lion's Tale

## Cougar research opens doors of discovery on our local predator population.

BY CORY HATCH



Lefty has cut his paw. The eight-year-old bloodhound leaves a bloody smudge in the snow every fourth step, but he's a professional and he doesn't let it deter him. He sounds like an old man with smoker's cough as he barks frantically up at the tree canopy. The bloody foot and vocal chord damage come with the job. Lefty is a veteran treer of big cats; he's hunted down more than 350 cougars and bobcats during his career.

The object of Lefty's current consternation is F13, a six-year-old female cougar sitting on a tree branch about twenty feet up. Despite the racket and activity, she looks almost serene, like a tabby on a windowsill. Maybe she's used to it. Over F13's lifetime, dog handler Boone Smith and the biologists from Craighead Beringia South's Teton Cougar Project have captured her five or six times for various radio collar replacements or to gather scientific data. Today, she'll get fitted with a new collar that combines both a radio transceiver and a global positioning system (GPS) device. The GPS will give researchers more detailed knowledge about her movements, including where she eats and, if she mates, the location of the den where she raises her kittens.

Or, maybe she's pleased that—despite the ruckus below from Lefty and his three-year-old partner, Poncho—it was more dumb luck than smart dogs that caught her this time. Even with hounds and a radio collar, the hunt for F13 took several hours of

strenuous hiking, postholing, and, finally, snowshoeing through the woods above the Moran Post Office. When Poncho and Lefty finally scented the trail on a steep northwest slope with heavy dead and down timber, Smith set them free of their leashes and led us on an awkward chase over crusty April snow. Down a drainage and up a steep hillside, we'd almost returned to the half-mud, half-snow trail where we started, when the dogs came back, looking defeated through their canine grins and wagging tails. Once, Smith pointed out a perfect cougar track: four toe pads without claw marks; try to draw an X through the toes and you'll run into the heel pad. But, he said, the tracks were old and frozen over; probably from this morning.

Just as group morale begins to wane, Craighead biologist Jesse Newby casually points to the branches of a large conifer. "There she is," he says.

Now, with F13 perched above us, Smith ties Poncho and Lefty to a nearby tree and changes into dry socks. "I can see Poncho [losing the trail], 'cause he's young," he says. "But I thought Lefty would nail it."

Despite F13's seemingly pounce-ready position, none of us is carrying a cougar stick—four-foot-long shovel handles and assorted other whacking devices Smith distributed earlier in case of an emergency.

Directly beneath F13's branch, Newby and biologist Marjie MacGregor record various data and prepare a tranquilizer dart full of Ketamine, a common anesthetic with hallucinogenic properties. "We need them alert enough so that they can hang on to the tree, but dopey enough so we can climb up there [safely]," Newby says.

MacGregor explains that F13 likes to roam. Biologists have tracked her zigzag path through Jackson Hole to such far-flung places as Miller Butte, East Gros Ventre Butte, Flagg Ranch, and Death Canyon. "This is my favorite cat," MacGregor says. "She's tricky. I feel like she's a Jackson cat."

Another biologist, Peter Alexander, prepares the gun. It's a difficult shot, and Alexander is nervous. F13's hindquarters, the best place to shoot a tranquilizer dart, are visible only from a spot farther downslope. From there, the angle would be so steep that Alexander isn't sure the dart would fly correctly.

"It's kind of got an arch to it," he says. "When you're shooting up, you have to aim low. It's hard to practice for this."

Smith stands ready with rope and harness. Once the cougar is darted and the tranquilizer takes effect, he'll climb up and harness the hundred-pound cat, then lower her from the tree.

He calls F13 an oddball: "She picks some tough spots to winter," he says. "She's big enough she should hold a territory. I'm sure her mind is racing pretty fast, but she's keeping it pretty cool. This cat, historically, we've had real smooth captures with. She's sitting pretty dang good, too. She's sitting perfect."

Alexander climbs a nearby tree, hoping for a better shot. Positioning himself in the branches, he takes aim, pauses a moment, and pulls the trigger. The shot is perfect, but F13 doesn't go gently into the Ketamine torpor. With all of the athleticism of a house cat, only ten times larger, she runs down the trunk of the tree and tears into the woods. Within seconds, Newby is in pursuit. The chase is on.

Like many other predators, cougars were historically considered a nuisance—not a part of the natural landscape—that warranted eradication. By 1900, human development and unregulated hunting had largely wiped out mountain lions east of the Rocky Mountains. In the western states, experts say, the cougar population suffered due to a variety of human-related factors, including hunting, cats ingesting poison intended for wolves, and market hunting of the cougar's prey, including elk and deer. Teddy Roosevelt exemplified this perception of cougars as a threat and a nuisance when, on a visit to Yellowstone National Park in 1903, the conservationist-president asked to hunt one of the big cats. Roosevelt's aids dissuaded him, pointing out that it might set a bad precedent if the President of the United States hunted in a national park.

At the time, New Mexico, South Dakota, and Wyoming paid bounties for dead cougars, a trend that quickly spread to the remaining western states with the exception of Texas. And the money was good. By 1945 in California, the bounty grew to \$60 per animal, the equivalent of more than \$700 in today's money.

But the overall take of cougars remained fairly low, and researchers think increases in elk and deer populations during the middle of the twentieth century helped the cougar stage a comeback. In the mid-1970s, Wyoming became the last state to switch from bounties to regulated hunting of the animal. Instead of cougar mortalities declining, however, the number of deaths skyrocketed; from about 1,000 animals killed in 1970, humans reported killing nearly 4,000 in the peak year of 1990. By 2000, cougar deaths had dropped off to approximately 3,200 a year.

About this time, a family of Jackson Hole cougars caught the public's attention. During the spring of 1999, a female cougar raised three cubs in a cave on Miller Butte on the National Elk Refuge. Thousands of onlookers with spotting scopes and cameras migrated to the refuge to watch and photograph the lions, until they finally moved on. The famous cats spawned the creation of the nonprofit group The Cougar Fund, as well as fostering an awareness of the animal in the local human population.

The following year, Craighead Beringia South scientists began the Teton Cougar Project. In nine years, researchers have captured and collared more than seventy individual adult cougars in an effort to learn more about the predator and how it interacts with other species, especially prey, other predators, and people.

Last summer at a location north of Kelly, Howard Quigley, senior ecologist and principal investigator of the Teton Cougar Project, pointed out the remains of a kill made by female cougar F101. Gathering data at kill sites makes up the bulk of the researchers' fieldwork. "We follow them every single day to see if they make a kill," said Quigley, who is also director of Western Hemisphere programs for the international wildcat group Panthera. "Then we go in and do the CSI thing.

"It's one of the frustrating things about a temperate climate," Quigley added. "We're really dependent on sign and really dependent on telemetry," or the remote measurement and reporting of information. This forensic intelligence gathering includes collecting hair and fecal samples, and breaking open the bones of prey species to determine the condition of the prey's bone marrow. Soupy bone marrow indicates a sick or old animal, while firm marrow usually comes from an animal in its prime. (Unlike wolves, cougars often take down healthy prey, using their teeth to sever the spinal cord in a quick, clean kill.)

What this evidence all amounts to is a look at the species' demographics: the number of males, the number of females, their age, how often they breed, what they eat, how they raise their young, how many die, and how they die.

F101's kill site is best described as tidy. She'd covered the remains with forest litter to keep smell and visual cues to a minimum. Nearby were other signs of well-organized living. "It's like being in a home," Quigley said. "Here's the kitchen, here's the toilet, here's the bed."

Like F13, whose wandering makes her somewhat of an anomaly, F101 is a model citizen of the cat population. Her outstanding trait is perseverance. The third cat collared in 2001, she is now an aged thirteen, or three years older than her expected life span. In addition to other burdens of old age, F101 has no canines remaining. An old cat lacking canines should have a very hard time making a living.

"Somehow she keeps bringing down prey," Quigley explained. "She used to have four 'knives' in her mouth. What she's probably doing [now] is using a suffocating bite on the neck. It's probably a little clumsy. She doesn't have the instant killing bite at this point. She's been this feisty old lady. We keep saying she's not going to make it."

Yet another cougar anomaly is F27. In 2008 this female adopted three twenty-month-old subadults after a hunter killed their mother, known as F1. F27 took in the orphans, allowing them to eat, sleep, and play alongside three eight-month-old kittens of her own. It was the first documented cougar adoption in history. Altruism likely wasn't F27's motivation. The researchers think F1 was F27's mother, and therefore the adopted kittens were related to her, possibly her half-siblings. Regardless, F27 forced researchers to rethink their notion of the big cats as solitary killers of the forest.

These feline anomalies demonstrate not only the value of long-term research, but the value of research in a place that's truly wild. With the reintroduction of wolves, many scientists consider Greater Yellowstone the last complete ecosystem in the lower 48 states. For Quigley, this means a unique opportunity to learn how the cats interact with their prey—and with their competition.

"For forty years, we've been studying wildlife biology without a full complement of predators," he said. "Now we have one place we can do it: the Greater Yellowstone Ecosystem."

For the final two years of the Teton Cougar Project, Quigley is collaborating with other predator researchers in the region in the hopes of compiling data that will provide a better idea of how competition plays a role in the life histories of cougars, bears, and wolves. Over the years, researchers from the U.S. Fish and Wildlife Service, the National Park Service, the Interagency Grizzly Bear Study Team, and the Wyoming Game and Fish Department have gathered the dates and locations of various predators' whereabouts from hundreds, if not thousands, of radio and GPS collars. For Quigley, the synthesis of this information is the obvious next step. Otherwise, you could miss what he calls the "eureka moment" of learning how the Greater Yellowstone Ecosystem works. "This allows us to look at the forest, not just the trees," he said.

Back in the woods above the Moran Post Office, I follow the craters in the snow left by F13 as she bounded northwest into thicker woods. Newby's footprints follow the Jackson cat's tracks, occasionally veering around a tree or onto a patch of dry earth. By now, the sun has turned the crusted snow into a sort of granular slush, and the chase is less a sprint than an arduous slog.

After about half a mile, I come across a shaded tree stand and see Newby standing among some deadfall. He looks at me and puts a finger to his lips; then I see F13. She's hunkered down, with her head under one of a pair of side-by-side logs like she's protecting her eyes from the sunlight. Smith and the other biologists arrive within moments.

"I don't think we have much time," Newby says. "We better get started."

Alexander packs snow under the cougar's "armpits" to keep her cool. Her temperature is stable at 104.5 degrees Fahrenheit, and her heart rate is twenty beats per minute. "Nothing serious would happen to her until we hit 106 or 107 [degrees]," Newby explains. The biologists put a blindfold over F13's still-open eyes and begin the examination. The cat is missing her upper left canine, but she shows minimal gum recession. Her teeth are just beginning to turn yellow from age.

"She was fighting it," Newby says, referring to the tranquilizer. "She was not having it. I thought she was going to run it off."

As Newby and the other biologists remove her old collar and replace it with the GPS/radio collar combo, they continue to check the cat's temperature and pulse about every five minutes. After the work is complete, Newby motions for me to come closer. I hold the cougar's head in my lap and put her paw on the palm of my hand. Newby pushes out one of her needle-sharp, retractable "killer claws."

"It's good for severing vertebrae," he says.

Touching the warm, barely conscious big cat is both exhilarating and frightening. F13 is the wildest thing I've ever held, or will ever hold. After a moment, the biologists inject a dose of antidote and stand and slowly back away. To my surprise, the cat returns to her feet within minutes, glares at us with bleary eyes, and slinks away into the forest.

Weeks later, F13 ceased her wide-ranging movements and settled down in a remote location near Jackson Lake in Grand Teton National Park. Not long after, from the hollow between two fallen conifers, researchers pulled out her two female kittens, now officially known as F20 and F24.

The primary cooperators in Craighead Beringia South's Teton Cougar Project are Grand Teton National Park and the Wyoming Department of Game and Fish. Additional cooperators include the Bridger-Teton National Forest and the National Elk Refuge. The project is funded by donations.