

Out West With The Black-Footed Ferret

Ride along with a researcher on a quest to save the endangered black-footed ferret.

By Bob Church

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Travis Livieri knows a good animal when he sees one. He sees one (or more) most nights and has done so for more than 10 years. Badgers, mule deer, pronghorn antelope, coyotes, fox, burrowing and great horned owls, rattlesnakes, skunks, black-widow spiders, various birds, lots of mosquitoes, and yes, the occasional black-footed ferret have all been spotted under his watch. You might say Livieri is at home on the range. He has deer, he has antelope, and he doesn't have a discouraging word; he monitors perhaps the most successful area for black-footed ferret recovery in the nation.

Livieri monitors, studies, protects and nurtures a group of more than 250 black-footed ferrets living in the U.S. Forest Service's Buffalo Gap National Grasslands in the Badlands of South Dakota. He captures them, takes them to his on-site medical facility, checks their general health, removes ticks and fleas, weighs them, takes a few other measurements, inserts a tracking chip, and then gives them canine distemper inoculations before returning them to the exact burrow from which they were originally collected. Livieri is like the ultimate shelter operator, except his charges live in the wild, and he doesn't have to change the litter. With such a large number of ferrets, that would be a good thing.

Little Office On The Prairie

Livieri is the executive director of Prairie Wildlife Research, a 501(c)(3) tax-exempt, nonprofit corporation located in Wall, S.D. Wall got its name from a wall-like cliff that sort of separates the Badlands from the rest of South Dakota. It is a small town, perhaps best known for Wall Drug, a tourist-oriented shop that has advertised their 5 cent coffee and free ice water worldwide. Black-hills gold jewelry is a big seller in Wall, and numerous banners shout out impressive discounts.

Domesticated Ferrets & Black-Footed Ferrets

Learn more about the relationship between domesticated ferrets and black-footed ferrets. [Click Here>>](#)

A large, painted dinosaur stands next to Wall's Interstate-90 offramp, forever headed west. At the south end of town, near the interstate, is the U.S. Forest Service's Buffalo Gap National Grasslands visitor's center, full of grasslands displays and examples of the local flora and fauna. In a small room nestled within this building is Prairie Wildlife Research. If you are lucky, you will find Livieri at his desk. If he is lucky, he will be out on the prairie.

Preparing For The Hunt

A typical "Black-Footed Ferret Research Day" begins about 10 p.m., with Livieri standing next to his research truck topping off the gas tank for a long night of searching. Livieri can sometimes burn through a third of his gas tank each evening and — as remote as parts of the prairie are — it is better to leave with a full tank than wait for a rescue. As he pays for his gas, he picks up a few drinks and snacks; not a perfect dinner, but it will get him through the night. Then he drives off, away from the lights of Wall, deep into the Buffalo Gap National Grasslands. The road surfaces vary from blacktop to gravel to dirt, but Livieri maneuvers them with practiced ease until he reaches his goal — a small travel trailer converted to a research station.

Standing in the middle of wild prairie, the trailer lacks electrical power until Livieri lugs a generator from the back of his truck. Once started, the generator powers the transformation of the trailer from a dark cave into a brightly lit medical research station. Livieri goes inside and prepares the area for a night of research and documentation, inspecting the anesthesia machine, scales, drugs and other scientific apparatus needed to complete the evening's tasks. Before he returns to his truck, he makes sure to have extra traps, transfer containers and reflectors. Livieri shuts down the generator and then drives off into the darkness.

The Eyes Have It

Livieri finds his black-footed ferrets by driving around the prairie shining a spotlight on the horizon until he "spots" the eye-shine of the black-footed ferret.

The eye-shine is the result of light bouncing off a reflective layer behind the retina of the black-footed ferret's eye. This

layer, called the tapetum lucidum, bounces light back through the retina, which is why the eyes seem to shine. They also color that shine, in this case a light green, which you can also see in most domesticated ferrets. Darken the room and shine a bright flashlight in the ferret's direction and, as it looks toward you, the eye-shine will appear as a bright green glow.

Most nocturnal animals, when spotlighted, will show glowing eyes, although not always the same color as the black-footed ferret. Livieri can distinguish the eye-shine of many animals, including pronghorn antelope, deer, badgers, coyotes and skunk. All are subtly different.

One of the distinguishing characteristics of a black-footed ferret's eye-shine is periscoping. From the confines of a research truck, it appears as if the eye-shine is moving up and down, sort of like a periscope. What is happening is that the black-footed ferret is moving up and down, periodically lifting its head in an attempt to better see the object of its curiosity. A four-wheel drive pickup truck dashing across the prairie with high beams shining and spotlight flashing is bound to make some animals curious.

When Livieri sees periscoping, bright-green eye-shine, he dashes in the direction as fast as he can, deftly maintaining his spotlight on the prairie dog burrow (black-footed ferrets take over prairie dog burrows, their main prey). He parks, keeping both his eyes and the spotlight on the burrow, and exits to inspect the entrance.

He uses a flashlight that is usually clipped to the brim of his ever-present ball-cap with the football logo (Livieri likes Green Bay). Often, he will see a pair of bright eyes hidden within a mask peering back at him from the burrow. At times, the black-footed ferrets are almost fearless, holding their ground in the burrow entrance. Other times, nothing is there, or perhaps a black widow spider, or a rattlesnake, or even a badger. However, Livieri knows his eye-shine and is not deterred by an empty burrow.

Safely Trapped

From the back of Livieri's truck comes a specially designed live trap, which he shoves into the burrow opening. It sticks out of the burrow at about a 70-degree angle; the bottom two-thirds are wrapped in fabric so the black-footed ferret will assume it is an extension of the burrow. Then he carefully inspects the area, looking for exits of the main burrow, which he plugs with scientific obstruction devices (otherwise known as wood plugs). The plugs are unceremoniously booted into the burrow exits, and then Livieri sticks an ordinary driveway reflector into the ground near the trap. Well, not exactly ordinary; it has been modified with a unique number so that its exact location can be plotted using a GPS locator. With this data, Livieri can map the location of every black-footed ferret he collects, as well as return the animal to the exact burrow from which it was collected.

Livieri then drives off to look for more eye-shine. He continues on the off-trail prairie circuit, driving slowly among the prairie dog burrows while deftly maneuvering his spotlight to catch the gleam in a black-footed ferret's eye. While on his survey, Livieri will set other traps, plug other exit holes, and mark other locations. Eventually, he will return to those traps.

Sometimes, Livieri can see eye-shine in the traps as he approaches and he knows he has bagged a black-footed ferret. Mostly, he has to approach the trap and peek inside to see the elusive predator. More often than not, if Livieri spots eye-shine and sets a trap, he will catch the inhabitant of the burrow, a black-footed ferret.

"Everyone talks about how smart ferrets are, but they can't be too smart if I can catch them in unbaited traps," Livieri said.

Once captured and while the black-footed ferret is still in the trap — sometimes chattering loudly in irritation or warning — Livieri first checks the sex, then runs a chip reader over the animal to check if it has been captured before. If it is a recapture, Livieri updates its inoculations, weighs it and releases it back into the burrow. If not, then the black-footed ferret gets the ride of its life.

Transferred from the trap into a unique transportation device made from a section of black plastic sewer pipe, the ferret is brought to the research trailer. Livieri likes to call his research inventions "redneck science," adding that inventiveness is born from poor funding.

Back At The Trailer Lab

When Livieri reaches the trailer, he powers up the generator and takes the black-footed ferret inside. He turns on the anesthesia machine, hooks up the occupied section of sewer pipe, inserts a homemade plunger into the opposite end of the pipe (more redneck science), and coaxes the black-footed ferret from the pipe into the anesthesia chamber. Sometimes the coaxing requires Livieri to use a giant plunger to "inject" the black-footed ferret into the anesthesia chamber as if the trap were a giant hypodermic needle.

Livieri probably has more experience anesthetizing black-footed ferrets than many veterinarians have on the domesticated ones, but he always remains vigilant during and after the procedure. Once the black-footed ferret is asleep, Livieri hooks up a monitor, takes a rectal temperature, inserts a transponder chip (gluing up the wound created), measures the canines, and inoculates the animal against canine distemper. He also removes ticks and checks for fleas, both of which are surprisingly common.

DNA samples are obtained while the black-footed ferret is in the tranquil state. The samples consist of tufts of plucked hair and oral scrapings. Livieri is so experienced in this procedure that he stops anesthesia so that by the time the black-footed ferret is weighed — the last task in the research protocol — it is just beginning to wake up. He then places the animal in a pet carrier for recovery and eventual return to the exact same burrow from which it was captured.

A Passionate Routine

Protocols are changed seasonally to check for various things such as litter size, sexual state, or to monitor disease. Sometimes a donut-shaped chip reader is placed over a burrow to monitor the comings and goings of the animals with minimal human interaction.

However, the basic procedure to find and capture black-footed ferrets remains the same. This means Livieri does the same thing over and over again, which transferred to an office setting would be the formula for a tremendously boring job. Livieri doesn't see it that way, however, insisting his passion for the endangered animal will keep him "On the job for as long as possible!"

With the number of black-footed ferrets in his location hovering around 250 animals, Livieri is involved in one of the most successful reintroduction programs that is also generating a wealth of information on how to maintain the species in the wild.

The Prairie Dog Connection

Will the sun rise or set for the future of the black-footed ferret? "It is all centered around the prairie dog," Livieri said. "No prairie dogs, no [black-footed] ferrets. You can't establish [black-footed] ferrets without a lot of prairie dogs."

Livieri pointed out that because black-footed ferrets, like the domesticated ferret and polecats, are solitary predators, they take an extraordinary amount of space -- space that has to be occupied by prairie dogs. "The prairie dog provides the [black-footed] ferret with food and shelter. They can't survive without them," Livieri said. "To save the [black-footed] ferret, we have to think about prairie dogs on a large scale: 40,000 acres, not 40 acres."

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Livieri added that current government funding cannot do the job. "Sponsors are needed, both corporate and private. It will take a lot of money to save the [black-footed] ferret," he said.

Into The Sunrise

Throughout the night, a spectacular diamond-studded sky shines down upon the lone pickup with a spotlight stabbing into the darkness. Livieri retraces his path over and over, probing eye-shine, watching the other native animals, and growling a warning to badgers to leave his black-footed ferrets alone. He continues until the first salmon-colored rays of light erupt from the eastern horizon and the mosquitoes come out to play. He releases the last of his black-footed ferrets, loads the generator back onto his truck, locks up the trailer, and starts down the dusty dirt road that eventually leads back to Wall. He will be back when darkness falls for another evening designed to put the black-footed ferret in the spotlight.

Bob Church is a former photojournalist and current zooarcheologist. He resides in Missouri with 19 ferrets that keep his chicken blender overheated and his heart overfull.