Traveling Down Ocelot Road: An Exploration of Field-Based Research

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By Danielle Keerbs, Cornell DVM '26

My first experiences with research were disastrous. As an undergraduate, I worked in a plant physiology lab and hated it, which led me to swear off research as a potential career. However, during vet school, I decided to throw caution to the wind and began assisting in Dr. Brandon P. Hedrick's lab, helping to capture, evaluate, and mark salamanders in the field. That experience shifted my perspective on research.

On the recommendation of Cornell's Dr. Martin Gilbert, I reached out to Dr. Ashley Reeves, the research veterinarian for the East Foundation, a private nonprofit focused on land stewardship through sustainable ranching practices, research, and education programs. Many of their research projects center around wildlife conservation, including their ocelot program, which Dr. Reeves oversees in collaboration with researchers at the Caesar Kleberg Wildlife Research Institute (CKWRI) at Texas A&M University-Kingsville, and in partnership with Texas Parks & Wildlife and the U.S. Fish and Wildlife Service. With funding thanks to the generosity of Jake Holshuh '67, DVM '69 through the Student Support Fund, I spent a month in South Texas during the carnivore field capture season, working alongside Dr. Reeves and the East Foundation.

A Month in the Life of a Research Veterinarian

Ocelots (*Leopardus pardalis*) are native to Central and South America, with their range extending into northern Mexico and southern Texas. While the species is overall classified as Least Concern by the International Union for Conservation of Nature, it is considered endangered in multiple countries,

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including the United States and Mexico, due to habitat loss and fragmentation, road mortality, and historically unregulated hunting. Today, only two known populations exist in Texas: one at Laguna Atascosa National Wildlife Refuge and another in and around the East Foundation's El Sauz Ranch. Although ocelots in many regions can adapt to a variety of habitats, studies in Texas have found that they prefer specific habitats, which makes them more vulnerable to local extirpation due to habitat degradation.

An ocelot caught in a trap. Box traps with lures are used to capture the cats for monitoring purposes, with a towel placed over the trap prior to workup to reduce stress and visual stimulation. Photo: Dr. Ashley Reeves

Dr. Reeves and her team aim to recover and reintroduce ocelots in their historic range throughout Texas and the United States. They employ safe field trapping techniques to monitor current wild populations, answer research questions critical to their recovery, and collect semen from males for use via assisted reproductive technologies. They also trap and collect health information on bobcats and coyotes, which share the same habitat as ocelots in Texas.

The Fieldwork That Captured My Attention

Every day started with the breathless anticipation of finding out whether we had a capture that morning. With my alarm set for 6:45 am, I would wake up and spend the next hour obsessively checking my phone for a notification from Dr. Reeves while getting ready for the day. This was my first lesson in field research: it ebbs and flows, and days often passed without a single capture. The first time we had one, I was both ecstatic and nervous. A team of six to eight students, technicians, and researchers mobilized to the capture site, where each person was assigned a task ranging from sedation to blood collection to monitoring anesthesia. On that first day, I was assigned to data collection, allowing me to ease into the process while still participating.

Upon capture in a box trap, each animal was sedated by hand injection through the cage's mesh to achieve a light stage of anesthesia, then removed from the trap for processing. We collected a variety of samples and measurements for multiple studies across different labs, including blood (for parasite, viral, and heavy metal testing), ectoparasites, a punch biopsy of the ear for genetic analysis, weight, full body measurements, and photos of the body and teeth. From the males, we collected semen; from the females, we performed an abdominal ultrasound to check pregnancy

Auscultating a male bobcat during anesthesia. Photo: Victoria Locke

status. The animals were carefully monitored throughout anesthesia, and once all samples were collected, we reversed the drugs and placed the animal in a carrier for recovery and then release.

The entire process was a whirlwind; we usually spent between 65–80 minutes from initial sedation to release. After the first ocelot, I had the opportunity to help with two others: a sixteen-year-old female, for which my sole responsibility was monitoring anesthesia, and a young male, which I sedated and collected ectoparasites from. I also performed measurements on a bobcat and drew blood from a coyote. While not all of these tasks were veterinary-specific, they were important to understand and perform in a research setting.

Once a week, we also drove out to the ranch in the morning to assist Dr. Reeves' field technicians with trap opening. While our only captures on those days were birds, a raccoon, and an armadillo, I enjoyed the adrenaline of anticipation regardless. Although I had done background reading and had theoretical discussions with Dr. Reeves about ocelot habitat selection in South Texas, it was another matter entirely to apply that knowledge in the field. We carefully chose our new trap sites, analyzing the vegetation density and assessing the presence of paths that animals might use. The field technicians were indispensable in this process; because they ran the trap line every day, they provided incredible insights into capture patterns over time, which we used to help select new trap sites.

Behind the Scenes of Ocelot Conservation

While I loved the adrenaline and excitement of fieldwork days, I grew to appreciate the more practical, less glamorous aspects of the work as well. Throughout the month, I sat in on multiple meetings with Dr. Reeves, including the Ocelot Species Survival Plan (SSP) breeding-and-transfer meeting and the East Foundation science team's quarterly meeting. The SSP meeting brought together a small team of veterinarians, researchers, and zookeepers from across the country who work with zoos and other institutions to implement a multi-pronged approach to ocelot conservation and recovery. Much of the discussion focused on genetics and population modeling.

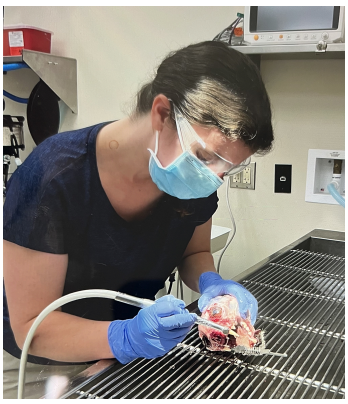
One of the goals of recovering Texas ocelots as a distinct subspecies is to maintain at least 75% of their genetic structure. Dr. Reeves and the East Foundation are working to build a captive breeding facility in Texas in conjunction with CKWRI, federal and state agencies, and zoo partners. The

facility will house females from zoo populations and wild Texas males for breeding purposes. Current captive populations in U.S. zoos and other facilities include ocelots with both Brazilian and mixed genetic backgrounds. The SSP aims to conserve as much genetic diversity as possible, helping to reduce potential inbreeding problems in zoo populations and to ensure that Texas ocelots retain the genetic flexibility to survive in their current environment and to adapt to additional changes that may come. Since ocelots only breed every other year and typically only produce one or two kittens per litter, the team must carefully consider the feasibility and logistics of sustaining zoo populations while simultaneously providing animals for the recovery program.

Hands On at the Lab Bench

In between captures, meetings, and lessons, I assisted Dr. Reeves with several of her other projects. For each animal caught in the field, four blood smears were prepared and stained. We spent several days at the microscopes, catching up on the backlog of blood smears from the last few capture seasons. I supplemented these microscope days with at-home research, reviewing blood cell morphologies, learning the normal hematological reference ranges reported for wild species, and comparing the bloodwork of ocelots and bobcats to that of domestic cats.

Another project aimed to correlate visual characteristics of teeth with cementum annuli analysis, a technique that counts growth rings in a tooth's root, to improve the accuracy of age estimation in the field. As part of the study, I helped photograph the rows of teeth and extract canine teeth from deceased bobcats. Dr. Reeves will do the same with ocelots, and we will use the photographs of the heads to make preliminary age estimates. Once we receive the cementum annuli results, we will use the data to assess and refine our aging scheme. Outside of the field captures, this was one of my favorite parts of my externship as I had the opportunity to contribute to ongoing research while also practicing my dental extraction skills!



Extracting a maxillary canine from a deceased bobcat as part of an aging study. Photo: Dr. Ashley Reeves

Future Directions

I was surprised—and pleased—by how thoroughly I enjoyed an aspect of medicine that I had always sworn I would never pursue. Although I only spent one month with Dr. Reeves, it was a month in which I could envision the foundation of a lifelong career. Admittedly, Dr. Reeves' situation is

unique: she has broad freedom to choose the research projects that interest her and a phenomenal team that supports and uplifts her. After many discussions with her, I am inclined to pursue a PhD and integrate research into my future career, provided I can find a project with a strong fieldwork component. Regardless, I learned the importance of keeping an open mind—even if I think I dislike something, there's always another aspect of it or another path to take that I may still enjoy.

Danielle Keerbs is a fourth-year DVM student in the class of 2026 at Cornell University. She received her bachelor's degree in environmental studies with a minor in Spanish from Washington State University, where she cemented her interest in wildlife medicine. She has worked with wildlife in many contexts, including rehabilitation, clinical medicine, governmental, and research. Her interests and career goals include field-based research focused on emerging and infectious diseases, mitigating human-wildlife conflict, and working in support of underserved international communities.

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