EXPOSURE

BATTLING EXTINCTION

How one student is helping save a species

Story by Fresno State

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Despite the dry, desolate appearance of the Panoche Hills, the desert landscape is full of life and home to the blunt-nosed leopard lizards — one of the first species to be federally protected under the Endangered Species Act.

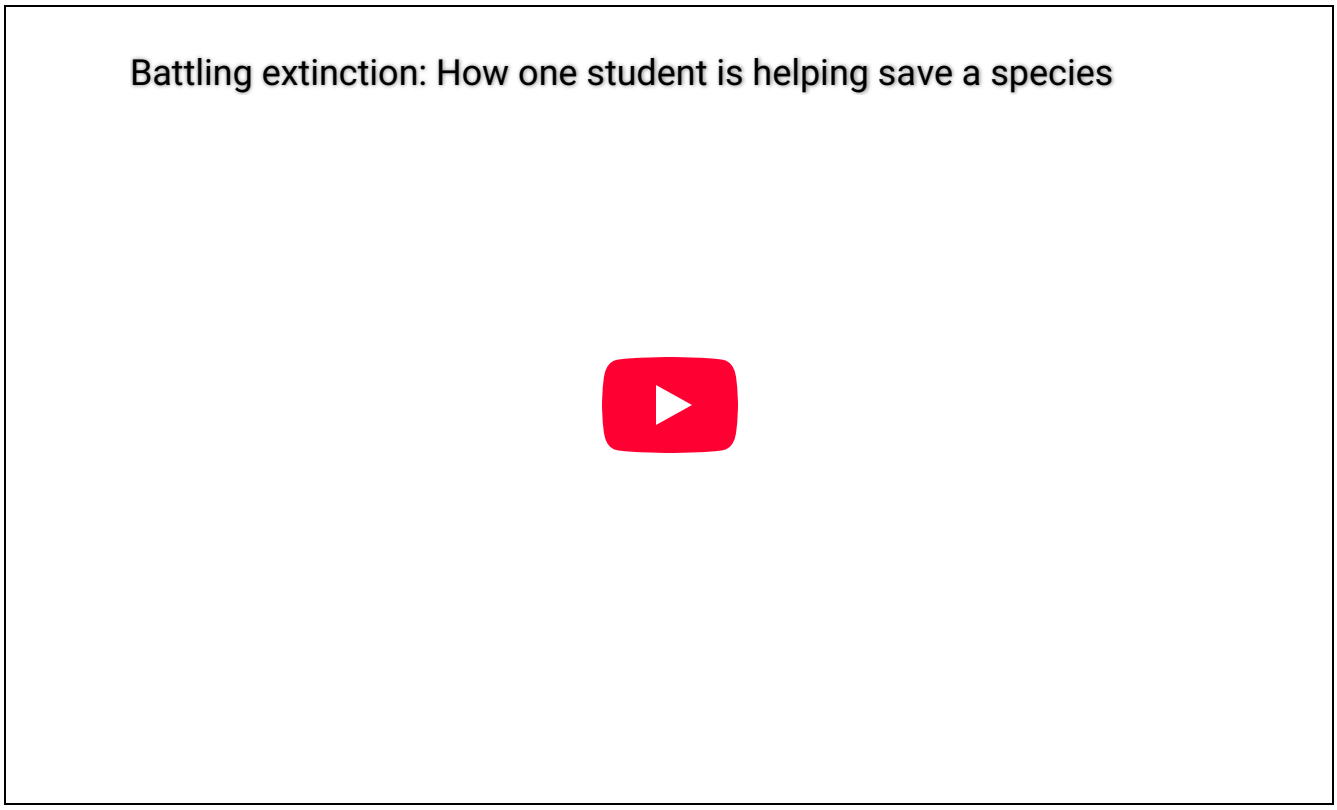
With the existing populations rapidly declining, Kathryn Ramirez is determined to save them.

Kathryn is a biology major and one of several students in Dr. Telemeco's Reptile Ecology and Evolution (TREE) laboratory who works with the blunt-nosed leopard lizards.

The student-led project is in its second year of a ten-year period and aims to investigate factors contributing to the lizards' endangerment. The ultimate goal is to create a life table that outlines the stages of a successful lifespan and helps determine the species' life expectancy.

Kathryn knows this project will impact more than just the lizards. At its core, this work will help protect the region's entire ecology from the adverse, environmental effects caused by humans.

> "I think this project exists because we have been negatively affecting the place that we live and the animals that live here," Kathryn says. "And I think that it's kind of our purpose to help correct that."



FIRST-HAND FIELDWORK

Throughout the summer, Kathryn spends 40 hours a week in the field tracking two separate populations, one in a valley and one on a plateau. She and her peers work diligently under the glaring sun to ensure daily data collection.

Given the lizards' incredible speed, Kathryn has developed her own skill for catching them

they are measured, weighed, microchipped and given a radio collar with a unique frequency, making it easier to relocate and capture them.

In the field, every day is different, and although some days are more challenging than others, the research process has helped Kathryn develop her self confidence and affirm her sense of belonging.

When we're doing something that's beyond ourselves, it's kind of hard to see yourself in that picture, at least it is for me," she says. "But I think that being in this lab has really helped me to say 'Yeah, I'm supposed to be here, and I'm good at what I do.'"

Knowing that the lizards can only brave the intense heat for so long, the team sets up camp for a week at a time, pitching tents on the edge of the plateau to perform early morning fieldwork.

Despite the harsh conditions, minimal cell service and lack of running water, Dr. Telemeco, principal investigator and assistant professor of biology at Fresno State, finds that his students revel at the challenge.

“It's not an easy environment. There's no shade. There are high winds. It gets hot and cold,” he says. “But we get to interact together. We'll enter data out there. We'll talk about the next project. We make group meals together much of the time. So it's a great bonding experience.”

→Did you know? “Learning by doing” in research contributes to higher retention and creates a skilled workforce that is able to tackle challenges related to food, water, energy, health and the environment.

TAKING THE LEAD

On top of tracking and measuring the lizards, Kathryn leads two additional field studies. The first serves as Kathryn’s undergraduate honors thesis, which aims to identify the lizard’s primary predators and evaluate the level of threat to each population.

To do this, Kathryn shapes and hand-paints clay replicas of the lizards and places them throughout the habitat, hoping to lure in a predator. She also uses cameras to record motion around the models and analyzes the markings in the clay.

“It’s just really valuable for what we’re doing with the Fresno Chaffee Zoo because we need to know if the predation risk is really high so then we can reintroduce the population accordingly,” she says.

→Did you know? The TREE lab has partnered with multiple organizations, including the Fresno Chaffee Zoo, the U.S. Bureau of Land Management, the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife, in a collaborative effort to sustain and repopulate the blunt-nosed leopard lizards.

The second study is a result of Kathryn's participation in the Research Training Initiative for Scientific Enhancement (RISE) program. Throughout the season, Kathryn monitors the lizards' levels of corticosterone, a steroid hormone that indicates a stress response. Her data will be used to analyze how lizards across the range are responding to the current drought and their changing environments over time.

→Did you know? The RISE program is designed to ensure that talented and motivated minority or disadvantaged students can obtain the skills needed to earn doctoral degrees in the biomedical and behavioral sciences.

Through multiple projects, each with a unique objective, Dr. Telemeco is able to support students through a comprehensive research plan aimed at repopulating the species and promoting environmental responsibility.

> “There's this really unique community of organisms that only exist here,” he says. “Our part of this much broader effort is focused on the leopard lizards in the hopes that at least that part won't blink out and we can continue to support the other organisms that live in that community.”

BEYOND THE CLASSROOM

When it comes to science, Dr. Telemeco knows both the importance and the limitations of the classroom, calling it the “foundational bedrock” that students need to thrive in a research setting.

“I want to create an environment where students can push themselves to discover what they're capable of while making sure there's this solid safety net that they can't actually fall too far,” he says.

He hopes his research lab serves as a starting point for students like Kathryn to explore their interests, conquer new challenges and gain hands-on learning experience.

“I've been trusted with so much that it's kind of surreal to think about that, “ Kathryn says. “I wish that every undergraduate student could experience that, especially undergraduate students in biology and in fields related to mine. I think that it's really invaluable.”

For Kathryn, this experience has been the main driver in her decision to continue her education and forge her own career path.

> “There's always something new to discover and I think that's what really draws me to research,” she says. “This is what I love to do, and I don't think I would have discovered that if I didn't have Dr. Telemeco's lab.”

Kathryn is proud of the work she and her peers have accomplished so far and grateful to have played a lead role in this research. Although this project will continue past her time at Fresno State, she hopes its larger message will spark a passion for conservation in others.

“At the heart of it all, I want people to feel compassion for other animals and other creatures,” she says. “But I also want people to see that these lizards are definitely worth saving, and all of the research that we're doing with them is important and worth being funded.”

WHERE BOLD BEGINS

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Footnote: *Photos by Cary Edmondson, Story by Victoria Cisneros, Video by Domenick Satterberg — University Brand Strategy and Marketing*

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