

LEADER-TELEGRAM

UWEC's Team Squirrel analyzes field research in collaboration with UC-Davis

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University of Wisconsin-Eau Claire students Ellie Williamson, Marie Podas and Morgan Aldana use microscopes to identify two different flea samples that they had collected from their research trip to the San Francisco Bay Area last summer.

UW-Eau Claire students, under the guidance of Assistant Biology Professor Jennifer Smith, analyze and compile data from various sources, such as audio samples and trail camera footage.

[Staff photos by Matthew Baughman](#)

EAU CLAIRE — You might think that ground squirrels from Wisconsin are not that much different from California ground squirrels, but Team Squirrel from the University of Wisconsin-Eau Claire will tell you that there is. The major difference is that, while also bigger than Wisconsin's thirteen-lined ground squirrel, California ground squirrels have a more complex social structure. This is a significant detail that Jennifer Smith and her team focus on in their research.



"We take social behavior, and some individuals are really social and some are fairly solitary. We look at their physiology, so how stressed they are — and some individuals tend to be stressed all the time," said Smith. "So that's a big emphasis of the research is to try and understand what drives those individual differences and ultimately how it influences survival and reproduction."

When Smith joined the biology department as an assistant professor in 2022, she also brought over 10 years of experience with studying these animals and tracking their behavior.

Smith collects information on these squirrels with a multitude of different kinds of data from the Briones Regional Park in the San Francisco Bay Area. Now with the help of UWEC students in Team Squirrel, they measure social behavior by taking data from audio recordings, trail cam footage, infrared photos, flea and even sometimes stool samples.

"I was excited to recruit UWEC students," said Smith.

Over the summer, Smith invited the members of Team Squirrel to research and interact with the aforementioned squirrels in the Briones Regional Park.

Smith said that they would catch the squirrels to mark them and track them individually, as the students gave them names like delta, peanut and fishbone to identify them.

This way, these researchers can look at the individual personalities of the squirrels and see how their social behavior is influenced.

Data and samples collected from these trips are then taken back to the lab for in-depth research.

Over the next five years, Smith said in a university press release that they hope to use their research to reveal: how humans and dogs influence the stress physiology of squirrels, the role of social

learning in development, whether fear responses are consistent over space and time and the social and ecological correlates of survival and reproduction.

In helping to continue Smith's research, Blugolds currently participating in the group spend five to 10 hours a week breaking down data that was collected even before Team Squirrel's formation. The students are also paid for their work through a variety of research support programs at the university.

This research also allows for collaboration and experience into the higher levels of research and education, as Smith's study is conducted in collaboration with fellow animal behavior and ecology experts Andy Sih and Sonja Wild from the University of California-Davis.

"By having this collaboration with UC-Davis, the students can start to get windows into what it is like to be a doctoral student..." said Smith. "It opens up these windows so they can see out into the world beyond just what's on the Eau Claire campus."

Grace Wainwright and Tori Carlsten are two of the many students who spent their time in the lab analyzing 24-hour audio samples from 2021.

"We're listening to 24-hour cycles and seeing how many squirrel calls there are. And, our main focus is really looking into when they call the most," said Wainwright.

From their research, Wainwright said that they have noticed active trends during dawn and dusk.

Carlsten said that another part of the research was connecting audio data to some of their natural observations, like photos and trail camera footage.

"We're trying to connect that data that we got, the written down data, to detect the squirrels to see who's calling. Because if we can know who is calling... we can see: is it female? Is it male? Do we know why they might be calling?," said Carlsten.

Like their similar focus of research on Team Squirrel, both Wainwright and Carlsten also share a similar story to how they became involved in the research project. They connected with Smith from separate classes and felt the drive to pursue her animal behavior lab.

"It's been a real amazing bonding experience, just with everybody on the team as well as Dr. Smith," said Wainwright. "A forced proximity," added Carlsten, laughing.

But participating in the research has not been the only rewarding experience, as this opportunity has allowed students to pursue their desired career. Maddie Mueller, a junior ecology and environmental biology major, collaborated with Smith as a co-author on a publication titled "Mechanisms of Equality and Inequality in Mammalian Societies". The content of this article reflects the concepts explored by Team Squirrel, said Mueller.

Mueller was encouraged by Smith to join her in research, if it was something that truly interested her. "I've always been an animal person, so hearing her do all this research on mammals... It was really cool to see that there are opportunities at Eau Claire that align with my interests in animal research. And it kind of has trajected me into doing research after I graduate as well," she said.

As Team Squirrel will continue its research, Smith said she was happy about the work they were doing and how it will propel them into their careers as future scientists. "They are doing amazing work... They are balancing all of these personal interests, their classes and the research and they really make their research a priority because they value its importance," she said.