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FEATURED

They eat what?: UWEC research uncover unusual carnivorous behavior of ground squirrels

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UW-Eau Claire student Tia Ravara, left, and UC-Davis student Ryann Su, right, interact with a California ground squirrel while conducting long-term research on their social behaviors. In a recent discovery detailed in an article written by students and professors, local Ground squirrel populations in the Bay Area in California were found to have been hunting voles.

Submitted photo

EAU CLAIRE — Through a continuing research of California ground squirrels and a discovery of their unique predatory behavior, students and professors at the University of Wisconsin-Eau Claire and University of California-Davis may have found something that can be difficult to stomach.

"We see active hunting of voles by these squirrels," explained Jada Wahl, a UW-Eau Claire student and member of Team Squirrel. "There is intent behind this action, and we see it happening over and over again."

Originally, this interest in squirrel populations started as a long-term study in the San Francisco Bay Area of these squirrels' social behavior by Jennifer Smith, associate professor of Biology at UW-Eau Claire, and done in collaboration with Sonja Wild, behavioral ecologist at UC-Davis.



Students have played a role helping continue the research for Team Squirrel, but now many of the UW-Eau Claire students who participated in the past year are now also co-authors on an article, titled "Vole hunting: novel predatory and carnivorous behavior by California ground squirrels," and published in the Journal of Ethology on Dec. 18.

Authors include UW-Eau Claire students Joey Ingbretson, Mackenzie Miner, Ella Oestreicher, Mari Podas, Tia Ravara and Wahl, alongside UC-Davis students Lupin Teles and Lucy Todd.

While eating meat is something not uncommon and is an opportunistic behavior of many squirrel species by scavenging leftovers, the situation with these rodents is unique in how they seemingly hunt the local vole populations.

"There have also been rare instances of members of various squirrel species actively hunting, killing, and consuming small vertebrates on rare occasions. However, our study is the first to demonstrate the widespread nature of hunting and carnivory in a natural population of squirrels," said Smith. "Our study is also unique in that it leverages the long-term data set in which we have detailed information on this highly tractable system in which the age and sex of all squirrel study subjects is known... This allowed us to study the phenomenon in detail and to demonstrate that members of all sexes and ages engaged in hunting, consuming, and competition with each other over vole prey. We had never seen this before in the previous 11 years of study!"

It's a story that many of the students and professors of this scientific article see is getting a lot of international attention. But the novel behavior of the squirrels seems to only come from some parts of where their species is located: California and the West coast.

Students at UW-Eau Claire had travelled to the Golden State expecting to delve into research on their social pack-like behavior. But for Ravara, a two-year member of Team Squirrel and student at UW-Eau Claire, and her Eau Claire peer Ingbretson, their strange eating habits was certainly not something they expected.

"In the first few days of observing California ground squirrels behavior, Joey Ingbretson and I noticed that a squirrel was interacting with a vole. I did a double take on what was happening, and I realized that the squirrel was attacking the vole," said Ravara. "I immediately started recording the behavior because I was baffled at what was happening. When I told Dr. Smith and Dr. Wild, they didn't believe me at first, until I showed them the video. After this occurrence we found other squirrels, exhibiting this behavior, and the rest is history."

"Once we started looking for it, we saw it everywhere," said Wahl. "I was shocked."

With such a shocking discovery, the question now is why is this behavior seemingly common for California ground squirrels? Should local squirrel populations be feared?

Answering the question, Smith said squirrels local in Eau Claire are not on this level of behavior, and in talking about why this behavior occurs, she said that the California ground squirrels' behavior does not necessarily indicate that these squirrels have turned into a new carnivorous species.

"These squirrels are not 'murder squirrels,' nor are the local tree squirrels in Eau Claire; they just took advantage of a recent surge in the numbers of voles in California," said Smith. "We also have voles here on campus, but they are mainly meadow voles that do not have the three to five year boom, bust cycles we see in California voles or even prairie voles in the Midwest. Nonetheless, squirrels in Putnam Park and the area are likely to be scavenging on meat should they encounter it."

"I don't think we need to fear them, but maybe they should fear us," said Wahl. "Anthropogenic activity could cause a fear response in squirrels leading to their adaptation. I don't think California ground squirrels are so different from other populations. Although the California ground squirrels have proven their ability to adapt, I think any species could adapt in a similar way, given the right circumstances."

But with all of this information that students and professors are researching, Smith said these findings are extremely interesting and offer important insights into the behavioral flexibility of animals experiencing life in a changing world, or adapting to environmental challenges.

And on top of that, undergraduate students at both UW-Eau Claire and UC-Davis are now taking their place as co-authors of the article detailing this research.



"I'm proud to say that I contributed to a study that was published," said Ravara. It has been my dream for many years to be a published research author, and I'm so glad to be able to say that I'm an undergraduate that has published a research article."

With the long-term study on the California ground squirrel continuing, it is clear that nothing can be fully expected.

"Even when studying some of the most tractable animals that live alongside humans, there is always more to learn," said Smith.

Matthew Baughman

