



Flashing lights ward off livestock-hunting pumas in southern Chile

by John C. Cannon on 7 January 2019

- *A new paper reports that Foxlights, a brand of portable, intermittently flashing lights, kept pumas away from herds of alpacas and llamas during a recent calving season in southern Chile.*

- *Herds without the lights nearby lost seven animals during the four-month study period.*
- *The research used a "crossover" design, in which the herds without the lights at the beginning of the experiment had them installed halfway through, removing the possibility that the herds were protected by their locations and not the lights themselves.*

Pulsating lights placed around llama and alpaca herds warded off puma attacks during a recent experiment in Chile, suggesting the method might help avert conflict between herders and dwindling populations of the predator. "The implications are huge," Omar Ohrens, a postdoctoral scholar in environmental studies at the University of

Wisconsin, Madison, and lead author of a study on the findings, said in an interview.



The landscape of the Andean Plateau in Chile, with the village of Chulluncane in the foreground. Image by Omar Ohrens.

In the study by Ohrens and his colleagues published online Jan. 3 in the journal *Frontiers in Ecology and the Environment*, pumas left herds alone that had Foxlights (<https://www.foxlights.com/>) set up close to the llamas and alpacas' sleeping areas during

a recent four-month calving season. During the same period, cats killed seven animals from herds that did not have the lights, which blink in a random pattern designed to mimic a person walking with a flashlight and other human activity.

The puma (*Puma concolor*) is a critical part of the ecology of the high plains of the Andean Plateau, also called the Altiplano, of southern Chile. Such large predators regulate the number of herbivores on the landscape, keeping the entire ecosystem in balance. But when mountain lions pick off livestock, it threatens the livelihoods of the people who depend on that resource. In a 2016 study, Ohrens and his colleagues reported that pastoralists in this part of

Chile estimate they lose 10 percent of their animals each year to pumas.

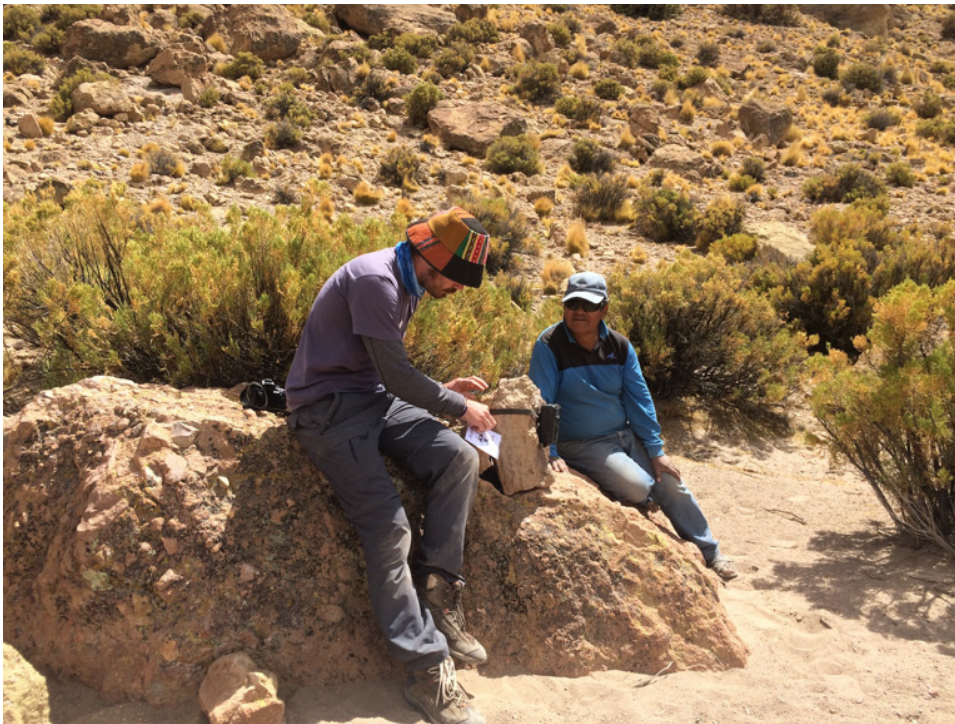


*A puma track spotted near the study site.
Image by Omar Ohrens.*

The pumas, too, are at risk following these incidents, as herders look to eliminate the threat. But research has shown that killing a predator suspected of targeting livestock doesn't always work, Ohrens said. What's more, his earlier surveys of the Aymara llama and alpaca herders of the Altiplano revealed that most people didn't want to kill pumas. That led Ohrens to find a way to identify and test a potential, non-lethal solution to this problem.

In the planning stages of this study, he asked the herders themselves to choose from a variety of potential non-lethal deterrents, and they settled on Foxlights. Developed in Australia to keep young lambs safe from foxes, Foxlights also fit the grasslands of southern Chile. The wide-open plains of

the Altiplano allow for the lights to be seen from as far away as 1.6 kilometers (1 mile), according to the manufacturer. And the sunlight that bathes the plateau, which sits between 3,000 and 5,500 meters (9,800 and 18,000 feet) above sea level, can recharge the lights' batteries during the day.



Researchers set up a camera trap near the study site. Image by Omar Ohrens.

During the calving season in late 2016 and early 2017, Ohrens and his teammates

compared the incidence of livestock kills in herds with lights installed nearby to deaths in herds without them. To make sure that they weren't just witnessing a single puma zero in on herds without lights — an unlikely, but possible, situation given the large home ranges of pumas, the authors write — they set up camera traps around the herds of the 11 farmers who were part of the study. The images confirmed that at least three different cats were in the area.

In a twist, Ohrens found that the lights did not spook off Andean foxes (*Lycalopex culpaeus*) going after young lambs. That didn't come as a shock to Ohrens, who has worked in this part of his native Chile for seven years.



*Villablanca Lagoon and Sillajuay Mountain
in the Andean Plateau. Image by Omar
Ohrens.*

"What I've seen is that Andean foxes are not very scared of humans — they can get pretty close and even take food from people's hands," he said in a statement

(<https://news.wisc.edu/flashing-lights-protect-livestock-in-chile-by-detering-pumas/>). "So they're not going to be scared by lights that simulate human activity."

To further bolster the study's rigor, the team also moved the lights partway through the experiment from the herds that had them at the beginning of the study to the ones that didn't. They got similar results, demonstrating that the location of the herds didn't determine whether the lights were effective.

"That's why this study is so important," Adrian Treves, a co-author of the study and professor of environmental studies at the University of Wisconsin, said in the statement. "Omar's study shows that non-lethal methods have been proven effective in multiple settings with different livestock and carnivores."

Banner image of study participants setting up a Foxlight next to a livestock sleeping site by Omar Ohrens.

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Citations

Ohrens, O., Bonacic, C., & Treves, A. (2019). Non-lethal defense of livestock against predators: flashing lights deter puma attacks in Chile.

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Ohrens, O., Treves, A., & Bonacic, C. (2016). Relationship between rural depopulation and puma-human conflict in the high Andes of Chile.

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