

bats

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*seeking
answers
in the*
WIND

BCI and the
wind industry
are seeking
the best path
forward to
protect bats
from wind
turbines



With the field team after a morning of agave surveys. From back to front: Kristen Lear, Gehú Paz, Israel Castrejón

Bat-friendly agriculture

By KRISTEN LEAR

Conserving the Mexican long-nosed bat with bat-friendly agave harvesting

We sit on the side of a mountain in northeastern Mexico in darkness that is only punctuated by the dim light from the camcorder video screen in front of us. Two softball-sized infrared lamps sit on a tripod on the rocky ground beside us, illuminating the scene with invisible light that only the Sony NightShot camcorder can see. We wait in silence, intently watching for nocturnal visitors to a clump of flowers on an agave plant. The agave's stalk reaches nearly 20 feet into the air, advertising its flowers full of nectar to bats scouting for their nightly meal. The silence is interrupted by the whooshing of a

Photo: Israel Castrejón

small group of endangered Mexican long-nosed bats as they rocket into the area to feed on the agaves, and we watch as they take turns sipping the sugary liquid from the plants.

I excitedly scratch tally marks on a piece of paper each time a bat drinks from the flowers. After several minutes of feeding, the bats move on to another area, and we wait in silence again for the next bout of feeding activity.

This monitoring is all part of my Ph.D. research to help conserve the Mexican long-nosed bat (*Leptonycteris nivalis*), a bat that is in danger of extinction. Every year, Mexican long-nosed bats migrate more than 600 miles between central and northern Mexico and the southwestern U.S., where each female gives birth to one pup (baby). In northeastern Mexico, the bats depend on the nectar of agaves as their only food resource. During feeding, the bats pollinate the agaves, ensuring the exchange of genetic material and increasing the plants' resistance to pests and diseases.

You may have heard of agaves: they're the plants that tequila is made from! Agaves are also used by rural Mexican communities for many other cultural products, including for food and several traditional beverages. Unfortunately, during harvest, farmers often remove the flowering stalk to increase the yield of sugar, which removes the food supply for the bats. Ultimately, extensive harvesting of wild agaves may be causing declines in bat populations.

With a grant from Bat Conservation International that is supporting my field research, I am working with a local conservation organization in Mexico (Especies, Sociedad y Habitat, A.C.) to help communities implement bat-friendly agave management and harvest



An agave harvester cutting the leaves to access the "heart" of the plant where the sap collects.

Photo: Kristen Lear

practices, such as replanting agaves in areas where they have been harvested or planting agaves as fences on their properties. These practices will allow people to continue harvesting agaves for their important cultural products, but also help provide ample food sources for the migratory bats.

My research is an important first step in this effort. Nights spent in the darkness watching the bats' feeding behavior will enable us to discover what draws the bats to an area to feed. For example, do the bats prefer to feed in areas with a higher number of flowering agaves? Do they prefer to feed on plants with more flowers? Answering these questions will ultimately help us figure out where bat-friendly practices should be targeted.

However, bats are only part of the story. Conservation is not just about the animals or plants we are trying to protect, but also about people. In situations where wildlife and people are tightly connected, paying attention to human needs and engaging local people is just as important as studying wildlife needs. In my research, I am working with rural Mexican communities to understand how they use and manage agaves on their land, and to discover how bat conservationists can encourage bat-friendly management practices in these communities.

Back on the mountain slopes, we continue watching the bats circling the agave flowers, drinking their fill of the nectar. While conservation of these bats won't be achieved overnight, our time spent in the dark as silent observers to this dance of survival is a step in the right direction.

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Setting up the infrared cameras to watch for bats feeding at agaves.

Photo: Israel Castrejón