

The Echo

It Takes a Village

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We recently sat down with BCI scholarship recipient, Kristen Lear, to discuss her work developing “bat-friendly” agave programs with rural communities in northeast Mexico, and why the ability to listen to local communities is key to long-term conservation success.

Tell us about your research?

Through my research, I am hoping to help understand how we can alleviate one of the key threats to Mexican long-nosed bats: the fragmentation of their food resources. I am working in northeast Mexico to develop “bat-friendly” agave programs with rural communities that harvest and use agaves. These programs could include planting agaves for the bats to feed on or protecting wild agave populations. Part of my work involves using infrared cameras to monitor wild agaves for feeding bats at night to help us understand the bats’ foraging requirements.

This information will help us design “bat-friendly” programs that meet the bats’ needs. Another part of my work involves talking with local community members about their uses and management of agaves, and what kinds of “bat-friendly” programs would be most suitable for each community.



Kristen with an agave plant.
Courtesy of Kristen Lear

Why is the Mexican long-nosed bat (*Leptonycteris nivalis*) important to agave plants?



The Mexican long-nosed bat (*Leptonycteris nivalis*) is one of the primary pollinators of the agave plant.

Courtesy of Merlin Tuttle.org

In some places, people destroy the roosting caves (where the bats sleep during the day) because of misguided fear of bats. The bats’ foraging habitat is also being fragmented by activities like agriculture and urban expansion. When natural habitat (where agaves grow) is destroyed, the bats have a harder and harder time finding food during their yearly migration. This is one reason why the species is listed as Endangered.

Why are agave plants critical to the local communities?

Agaves are known for being one of the only plants for which all the parts can be used in some way by people. Communities use the large leaves and tall, thick stalks to feed to their cattle, and for building houses. People turn the leaves’ long spines into needles, and the fibers into clothing. They eat the flowers and make traditional medicines from the plants, and they plant agaves on their land to control erosion or to act as property fences. Most famously, agaves are harvested to make tequila and mezcal from their rich sugary sap. Agaves are a very important cultural and economic resource.

Mexican long-nosed bats are one of the key pollinators of agave plants. The bats feed on the nectar and pollen of agaves as an important food source during their long-distance migrations (over 600 miles!) between central Mexico and the U.S. Southwest, and when the bats feed on the flowers, they transfer pollen between plants. The bats are strong fliers and can travel over 20 miles from their roosting cave every night to look for food, so they can spread pollen among many agave plants! This cross-pollination helps maintain the genetic diversity of agaves and helps the plants stay resistant to pest and disease outbreaks. Agaves, in turn, create healthy ecosystems by preventing erosion, maintaining healthy water resources, and providing food and shelter to many animal species. So ultimately these bats are critical to healthy ecosystems.

What are some of the issues facing the bat today?

Human activities are a main threat to Mexican long-nosed bats.

What is it like working with farmers and local communities on this conservation issue?

It has been such a great learning experience! It has definitely been challenging, especially in terms of the language barrier (since I am not completely fluent in Spanish), but I think that challenge is one of the things that has made the experience so rewarding.

Farmers and community members who harvest agaves are so knowledgeable about agaves, and it is a privilege to be able to share in their experiences and to share my own passion for bat conservation.

I am also working with some amazing conservationists from Mexico, including a conservation non-profit (Especies, Sociedad y Habitat, A.C.), and it is inspiring to see how they have developed such close connections with local communities to achieve bat conservation.

What are some of the obstacles you face while discussing a mutually beneficial relationship between the bats and the local communities?

I am a bat conservationist, and the goal of my work is to contribute to conservation efforts, but it is important to acknowledge that others may have different values that may not always align with our own.

The challenge, and I think one of the most rewarding parts of doing this kind of work that involves local communities, is to find common ground upon which to build a respectful relationship.

This can be an even harder challenge in a foreign country where you don't speak the language fluently, but I have found that a positive attitude, an open ear, and a smile can go a long way in cultivating a dialogue.

What advice would you give to others looking to work with local communities to address conservation issues?

One of the most important things you can do when working with local communities is to listen. It is important to be open and respectful of others and to understand that you are their guest, and your "agenda" may not be their top priority. Even in those cases, sharing your enthusiasm for your work can open doors for conversation. Finally, partnering with a local conservation group that has experience working with communities in the area is immensely helpful. I don't know where I'd be without the support from my colleagues in Mexico!



A community leader walks into the community's agave plantation.
Courtesy of Kristen Lear



Cooked *quite* (agave stalk) that is chewed for the sweet juices. *Courtesy of Kristen Lear*

I would also encourage students, and bat conservationists in general, to push their comfort zones in their work, if possible! Working abroad in a foreign language is a challenge, but I definitely think it's made me a better researcher and conservationist. It adds a unique perspective to doing conservation work in contexts that are different from what you're used to. And for those who are not involved directly in bat conservation and research, you can still help protect bats by putting up a bat house, donating to bat conservation groups, and advocating for bats to your friends and family!

Read more about Kristen's research in [BATS Magazine](#).