

BAT CONSERVATION INTERNATIONAL

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bats

MAKING THE SKY SAFER FOR BATS

*How a new understanding
of bat migration can reduce
wind turbine fatalities*

INSIDE

- 06** Tomes's Sword-Nosed Bat
- 12** The Bat Kit of Peru
- 21** Tolga Bat Hospital



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Photo: J. Scott Allenbach

A Mexican long-nosed bat (*Leptonycteris nivalis*) in flight.

BCI and partners recently used environmental DNA (eDNA) to confirm a significant range expansion for the Endangered Mexican long-nosed bat (*Leptonycteris nivalis*). The species was definitively detected in Arizona for the first time and in areas beyond its previously known range in New Mexico. These discoveries provide researchers with information about the bats' migratory patterns, as well as other vital information that can help guide critical conservation actions for the species.

A less disruptive way to study bats

These discoveries were made by collecting eDNA, which is the traces of genetic material left behind from bats' saliva as they feed. Surveys using eDNA do not require catching or disturbing the bats, which is especially useful with Endangered and sensitive species like the Mexican long-nosed bat.

BCI staff and local volunteers collected eDNA samples from agave flowers and hummingbird feeders, with dozens of community scientists volunteering for the effort, including many from community groups like the Gila Native Plant Society and the Native Plant Society of New Mexico.

"People were very excited to help and to find out what bat species were visiting their hummingbird feeders," says Agave Restoration Program Director Kristen Lear, Ph.D. "Their contributions led to the northernmost and westernmost detections of the Endangered Mexican long-nosed bat, which speaks to the power of community science."

BCI staff collecting eDNA samples from a blooming agave in New Mexico.

Significant Range Expansion Confirmed for Endangered Bat

Community science is key to new detections of Endangered Mexican long-nosed bat

By Fiona Tapp

Photo: Skylar Sherbrooke

Growing CommuniTrees

Partnering with neighbors and nonprofits to plant trees for bats

By Lindsay Lee Wallace

On a sunny spring day, a group gathered in Austin, Texas, to beautify a community, restore land impacted by severe weather, support a healthy bat population, and for some, earn a day's wages—all by planting trees. The group was made up of local corporate and nonprofit volunteers, including members of BCI, TreeFolks, Mobile Loaves & Fishes, and neighbors living in Community First! Village where the trees were planted. The trees (as well as a few shrubs) were native species selected to support the insect populations eaten by local bats and provide roosting habitat.

Created by Mobile Loaves & Fishes, Community First! Village is a planned neighborhood that provides affordable, permanent housing and a supportive community for people who are coming out of chronic homelessness. After starting out small, the Village has grown to 170 acres, and it just celebrated its 10-year anniversary. It hopes to house about 1,900 people over the next eight to 10 years.

"What Community First! does is absolutely amazing," says Erin Cord, BCI's Austin-based Community Engagement Manager. "I get emotional every time I go there."

A natural partnership

As soon as Cord learned about Community First! and their work, she knew she wanted to find a way for the organizations to work together. "I reached out and they were really excited, I think because bats are such an iconic part of Austin," she says. "They were already using a lot of native plants in their landscaping work."

Katia Grenaille, a Volunteer Specialist at Mobile Loaves & Fishes, says the partnership felt natural to her and the community's neighbors, since a lot of

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—KRISTEN LEAR, PH.D.

From migration to habitat restoration

The discoveries also inform BCI's habitat restoration efforts. Because the bats' migrations depend on "nectar corridors" that link feeding and roosting areas, this information can be used to prioritize agave restoration in key areas. "We are particularly focusing on areas that are predicted to serve as 'climate refugia' in the future and that are at the current range edges of the species," Lear says. "That way, these bats will continue to have sustained food resources for their migrations and for any future range shifts."

On-the-ground restoration in southeastern Arizona and southwestern New Mexico includes planting native agave species, such as *Agave palmeri* and *Agave parryi*, at varying elevations to safeguard against climate impacts. BCI also restores native grasses that act as "nurse plants" to support young agaves and restore soil conditions to support healthy ecosystems.

"With this holistic approach, we are not just planting agaves, but ensuring the long-term conditions are present for the agaves to thrive. We work with private landowners, ranchers, local nongovernmental agencies, government landowners, universities, and community groups to achieve this," Lear explained.

As food resources and habitats shift with a changing climate, these efforts may help the Mexican long-nosed bat adapt to new areas. "If we can ensure that there are healthy, robust agave populations in these new areas, as well as restore agaves in the bats' core areas, we can help increase their climate resilience long-term," Lear says.

BCI's next steps focus on finding new roosts in these expanded areas and maintaining healthy agave populations to support the bats' migration. Residents of the Southwest U.S. can also help by planting agaves in their yards or supporting conservation organizations. 🌱



Photo: Katia Grenaille

Community First! Village Tree Planting

the work that goes into maintaining, improving, and expanding the Village involves ecological restoration.

"We're trying to be a property with all native plants and trees," she says. "It really is transforming from a construction site into a nice native space."

Strong community engagement

Many of Community First! Village's neighbors work on-site to earn a dignified income as part of the Village's Community Works program, and they were very involved with planting.

Led by TreeFolks staff and volunteer planting supervisors, the group planted upwards of 100 trees and plants that are native to the area. BCI also worked with TreeFolks to create a flier entitled "Bats need trees!" that offers information about how native trees like oaks, pecans, and elms support Texas' bat populations.

Future collaborations are in the works, and the Village has already started offering Bat Walks.

"We want to support communities as much as we can," Cord says. "There are so many intersections between our mission and other nonprofits' missions, and a lot of it just revolves around pride in community and the benefits of being outside connecting with nature. No matter where you work or what you do, that's something we all agree is important." 🌱