

Project Update: October 2018

I spent 4 months in northeast Mexico (Nuevo Leon and Coahuila) this summer finishing the last field season of my PhD. My collaborators and I visited four communities, where we monitored bat foraging at flowering agaves on 32 nights and conducted 27 semi-structured interviews with community leaders and agave harvesters.

Below are some highlights from the summer:

Discovery of new bat roosting sites:

- From discussions with community members, we identified and surveyed several abandoned mines near Estanque de Norias, Coahuila. We found bats roosting in several of these mines, including the threatened Mexican long-tongued bat (*Choeronycteris mexicana*), a species of interest to our team given its reliance on agave nectar as an important food resource. These mines may be candidates for PIT (Passive Integrated Transponder) monitoring, which would contribute to our bi-national effort to understand the bats' migration.
- We also learned about two small caves near Laguna de Sanchez, Nuevo Leon from our interviews with agave harvesters. We surveyed these caves, one of which contained two roosting *C. mexicana*. This cave is often visited by locals and there was much evidence of vandalism (graffiti, trash, etc.). We will work with the local communities to begin protecting these caves for bat roosting.

Maternity roost monitoring:

- We visited Infierno Cave, the main maternity cave of Mexican long-nosed bats in the region, on several occasions during the summer to monitor the bat population and conduct agave surveys around the cave.

Pollinating bat symposium:

- We hosted a symposium on pollinating bats and their conservation for protected area managers, environmental NGOs, communities, and other interested parties on July 18, 2018. 45 people attended from 19 organisations. The full-day symposium consisted of presentations from myself and project collaborators (Dr. Emma Gomez-Ruiz, Dr. Jose Juan Flores Maldonado, undergraduate and Master's students conducting bat research with Dr. Gomez-Ruiz, Dr. Thomas Lacher from Texas A&M University (USA), and Dr. Jon Flanders from Bat Conservation International) followed by a discussion session. During the discussion, we collected information about current bat conservation efforts in the region from each attendee, and garnered significant interest in conducting collaborative research and conservation efforts for pollinating bats in the future. We plan to host another symposium/workshop in the near future to continue building on these relationships.

Involvement in bi-national conservation efforts for the Mexican long-nosed bat:

- Through our community work and our symposium, we garnered interest in agave restoration programmes from several community leaders, agave harvesters, and protected area managers. We are talking with Bat Conservation International and other potential sponsors about opportunities for implementing agave restoration programmes in the region.

- Dr. Gomez-Ruiz and I helped finalise the new Mexican long-nosed bat Species Status Assessment for the U.S. Fish and Wildlife Service, an important document that will provide important support for future conservation efforts.

Outreach and education:

- We created educational materials about bats and hosted a bat workshop for the Bridgestone Monterrey summer camp, which consisted of approximately 20 girls ages 12 to 13. We gave a presentation about pollinating bats and then led a fun, interactive “pollination game” with the girls.
- I presented my research in Spanish at a meeting of the Sociedad de Cactaceas y Suculentas (Society of Cactuses and Succulents) in Monterrey (for video, see <https://www.facebook.com/scysnl/videos/10156198614830853/>)
- We are expanding our educational efforts with the first-ever “BatFest” in Monterrey (to be held November 2nd 2018 at the Parque Ecologico Chipinque). This event will introduce members of the public to bats, their ecological and economic importance, and will allow them to see how bat researchers study bats with specialised equipment. We are hoping that this will become an annual event in the city.

Conference presentation:

- I gave an oral presentation at the Integrative Conservation Conference in Athens, Georgia in September 2018.

Team recognition:

- Project team member Dr. Emma Gomez-Ruiz received a prestigious L’Oréal-UNESCO Women in Science Award for her work with bat conservation: <https://www.youtube.com/watch?v=8igi9fcnhU8>

Project media coverage:

- This project was featured in a blog post titled “Boots on the Ground” by Bat Conservation International: <http://www.batcon.org/resources/media-education/news-room/the-echo/1185-boots-on-the-ground>

Student mentoring:

- During my summer in Mexico, I was able to provide field work training and mentorship to seven local undergraduate students in Monterrey. I am continuing to work with them to analyse the data collected and publish results (two undergraduates from the University of Georgia are also helping with this).



Left: Taking measurements of a Mexican long-nosed bat (*Leptonycteris nivalis*) caught during a cave survey. ©Jon Flanders/Bat Conservation International. Right: Exploring abandoned mines and surveying for bats in Coahuila, Mexico. ©Kristen Lear.



Left: Kristen Lear presenting about her research at the symposium “Conservation of Pollinating Bats in Northeast Mexico”. ©Jon Flanders/Bat Conservation International. Right: Project team members leading an interactive “pollination game” with middle school students at a Bridgestone summer camp in Monterrey, Mexico. ©Daniel Hernandez.



Participants of our symposium on the conservation of pollinating bats in northeast Mexico (Photo from <http://www.fcb.uanl.mx/nw/es/media-bio/fotogalerias/1542-fotogaleria-del-coloquio-murcielagos-polinizadores-del-noreste-de-mexico>).



Left: Project team member Dr. Jose Juan Flores Maldonado (right) discussing conservation efforts for pollinating bats with a symposium attendee. ©Kristen Lear. Right: Kristen Lear presenting at a meeting of the Sociedad de Cactaceas y Suculentas (Society of Cactuses and Succulents) in Monterrey. ©Daniel Hernandez.



Left: The project team conducting agave surveys. ©Kristen Lear. Right: Surveying agaves in a cultivated field in Coahuila, Mexico. ©Kristen Lear.



Left: Kristen Lear conducting an agave survey in Laguna de Sanchez, Nuevo Leon, Mexico. ©Tom Prebyl. Right: Demonstrating to undergraduate students how to set up and use the infrared cameras to monitor bat foraging at night. ©Jon Flanders/Bat Conservation International.



Left: Looking for flowering agaves with a community member. ©Jonathan Esqueda. Right: Learning about the effects of harvest on agave plants. ©Tom Prebyl.



Left: Talking with an agave harvester to learn about his uses and management of agaves. ©Kristen Lear. Right: Cutting agave flowers to measure nectar sugar concentration. ©Kristen Lear.



Observing the agave landscape in Laguna de Sanchez, Nuevo Leon, Mexico. ©Tom Prebyl.

Sala Polivalente de la Facultad de Ciencias Biológicas (Unidad A)
Universidad Autónoma de Nuevo León

Miércoles, 18 de julio de 2018 | Hora: 9:00 am - 2:00pm

COLOQUIO:

Conservación de Murciélagos Polinizadores del Noreste de México



Temas a discutir:

Generalidades de murciélagos
polinizadores del noreste

Proyectos actuales

Oportunidades de sinergias para
la conservación

Sesiones de discusión

Los murciélagos nectarívoros
proveen invaluable servicios de
polinización a especies de plantas
de gran importancia económica y
ecológica en nuestra región.

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PosterMyWall.com

Our flier for our symposium about pollinating bats

The Echo

Boots on the Ground

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The Echo

Boots on the Ground

Published on September 14, 2018

Written by Merrill Read



If you're a bat biologist, chances are that the summer months mean it's time for field work - and lots of it! This past July, Jon Flanders, BCI's International Program Manager, went to visit several project partners to get a firsthand experience of their contributions to bat research and conservation.



Courtesy of Jon Flanders/BCI

Flanders first traveled down to the small town of Laguna, Mexico, to visit with Kristen Lear, a PhD student at the University of Georgia and BCI student scholar. Lear is currently working on how growing wild agave affects both bats and humans. Much of Lear's work involves conducting agave surveys in different habitats to estimate abundance, age structure, flowering times, damage by livestock, and human usage. Flanders was able to join Lear in her research by assisting in a night watch. This consisted of three teams tracking and filming bat visitation rates at flowering agave plants from 9:00 PM to 3:00 AM. The data collected at different sites is used to identify optimal foraging areas for pollinating bats.

About two hours away at El Infierno cave, Emma Gomez, an Assistant Professor at the Universidad Autónoma de Nuevo León and former BCI student scholarship recipient, was spending the summer monitoring Mexican long-nosed bat (*Leptonycteris nivalis*) populations. Gomez and her team collected invaluable data about the Mexican long-nosed bat populations. This included looking at genetic variability in bat DNA, and monitoring for heavy metal exposure in their diets. In addition, the team conducted acoustic monitoring, while also attaching PIT tags to the bats to track population movements between different roosting sites across the United States and Mexico.

Later, Gomez, along with Dr. José Maldonado, organized a colloquium to discuss the importance of pollinating bats, including *Leptonycteris nivalis*, and what can be done to protect them; Flanders was a featured speaker. This workshop drew a range

of participants: conservation groups, private landowners, and larger corporations. Flanders spoke of the importance in conserving habitats, using *Leptonycteris yerbabuenae* as an example - after decades of work by conservation organizations, academia, and larger land owners, the species is now no longer considered endangered in the United States and Mexico.

“The population was down to just few thousand individuals, and now is over 200,000 individuals. It’s a great success story because it shows protecting bats from extinction is achievable and well worth the time and money we’re investing in them,” remarked Flanders.

Through the sharing of research, partnerships between organizations, and generous funding, the protection and conservation of bat species and their ecosystems can become a reality.



Courtesy of Jon Flanders/BCI

