



Wildlife Field Notes

Identifying Urban Movements of the Lesser Long-nosed Bat

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Introduction

In the greater Tucson area, the population is expected to reach 1.2 million people by the end of the next decade. With this growth comes added pressure on the native species found throughout Northern Pima County. One species that the Arizona Game and Fish Department is working on to minimize human-caused impacts is the federally endangered lesser long-nosed bat (LLNB; *Leptonycteris yerbabuenae*).

The LLNB is a relatively large species of bat that feeds on the nectar of night-blooming desert

plants, such as agaves and saguaros. As pollinators, this species plays an important role in the South-west desert ecosystem. Therefore, its endangered status prompted recent investigations to determine how these bats use their foraging habitats and movement corridors in an urban setting.

Recently, researchers with the Wildlife Contracts Branch conducted a study of movement patterns of LLNB in and around the City of Tucson and the Town of Marana. Identifying LLNB habitat use in an urban context would help inform city and county planners to better protect critical habitat for this endangered species.



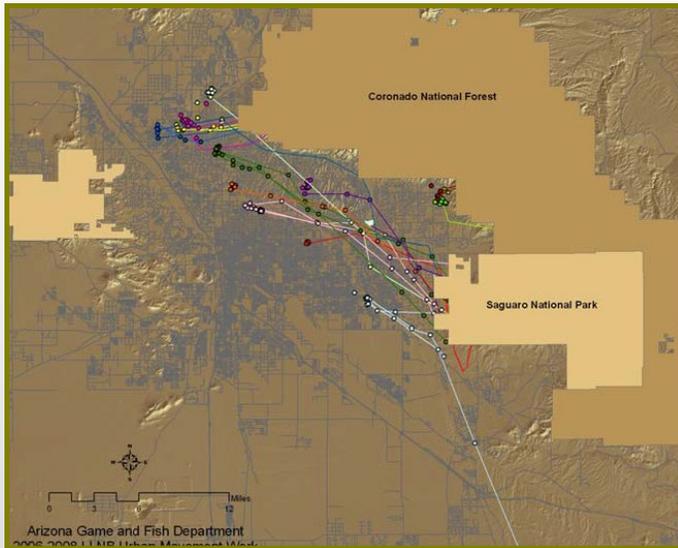
As pollinators, the lesser long-nosed bat is a critical component of the Sonoran Desert ecosystem.

Study Design

To identify LLNB important habitats and travel corridors, Wildlife Contracts Branch biologists first needed to track individual bats. Since LLNB are nocturnal and feed on nectar, a likely place to catch bats to fit with tracking devices would be at local hummingbird feeders. During the day, these feeders attract the many species of hummingbirds that call southern Arizona home. But at night, these same feeders are often drained by the stealthy LLNB.

Wildlife Contracts Branch researchers trapped bats at feeders with known bat activity in or near Tucson and Marana. To trap LLNB, mist nets were erected adjacent to hummingbird feeders at homes

in the area. If an adult bat of sufficient size was captured, it was fitted with a lightweight radio transmitter. The radio-marked bat was then released and immediately tracked using two vehicles outfitted with radio receivers. Tracking continued throughout the night until the bat returned to its day roost, usually in nearby caves or abandoned mines surrounding the Tucson Basin.



Telemetry data revealed common travel corridors used by lesser long-nosed bats while navigating Tucson's urban matrix.

Results

In all, 37 LLNBs were captured during this study. Of these, 18 were followed over 55 tracking days. These data were then used to model the characteristics of LLNB habitat usage. Wildlife Contracts Branch researchers determined that LLNB prefer to move through certain types of habitat rather than fly in a straight line. Their preferred habitat corridors included washes, open spaces, and areas with less artificial lighting.

In addition, four separate day roosting sites were identified in the Santa Catalina, Rincon, and Empire mountains that surround Tucson. Most bats tracked in this study chose to return to the same roost over consecutive days using flight corridors identified through the tracking data.

Management Implications

The findings of this study suggest that future developments in the greater Tucson Basin should be located at least 1000m from large washes and that outdoor lighting should be limited or subdued where possible, since light pollution was found to negatively influence bat presence and habitat use. High density developments should include as much "dark" open space as possible, because these open spaces are crucial, not only for the LLNB, but for many of the other sensitive desert species found in the area.

While it is highly likely that there are more roosting sites in the area, the high number of bats utilizing each consecutive roost identified in this



Lesser long-nosed bats commonly visit hummingbird feeders during their fall migration.

study is a cause for concern. Since this species roosts in large colonies, disease or site disturbance can harm thousands of bats at a single location. Therefore, identification and preservation of suitable roosting sites is of critical importance to LLNB survival. By managing land use appropriately within these expanding urban areas, we can ensure the continued survival of this important desert species.

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