## **Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)**

Status

Endangered (53 FR 38456; September 30, 1988) without critical habitat

Species Summary Table

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|  | Feeding | Breeding | Sheltering |
| Juvenile | Adult | Adult | Juvenile | Adult |
| Habitat | Maternity roost, poorly ventilated and warm caves or mines  | Sonoran desertscrub and Semi desert grassland | Winter range in Mexico and Central America | Maternity roost (caves or mines) | Day roost in caves, mines, abandoned buildings or bridges. Night roost in rock crevices, trees or shrubs. |
| Prey | N/A | Agave and columnar cacti nectar, pollen, and fruit | Nectar and pollen from flowering plants in winter range | N/A | NA |
| Perches | N/A | N/A | N/A | N/A | N/A |
| Cover | Complete cover  | Open in desertscrub  | Open in desertscrub to some cover in pine-oak | Complete cover  | Complete cover  |
| Temperature | Very warm caves or mines | N/A | N/A | Very warm caves or mines | N/A |
| Lighting | Very low light to dark within caves and mines | Nocturnal feeding | During night time hours | Very low light to dark within caves and mines | Low light to dark depending on day or night roost |
| Moisture | High humidity, poorly ventilated caves or mines | N/A | N/A | High humidity, poorly ventilated caves or mines | N/A |
| Sound | Sensitive to noise | Sensitive to noise | Sensitive to noise | Sensitive to noise | Sensitive to noise |
| Water | Not needed (acquired from milk) | Not needed (acquired from nectar) | N/A | N/A | N/A |
| Dispersal | N/A | Up to 30km  | Migrate to Mexico and Central America | N/A | N/A |
| Seasonal Activity | Nursing during May in maternity roost  | Agave and columnar cacti nectar and fruit in summer rang; adds plant pollen to diet in winter range. | Migrate to Mexico and further south in September to October and breed while in winter range. | Achieve flight and leave maternity roost in June | April to late July pregnant females congregate in maternity roosts. Males and non-pregnant females arrive in July and form separate smaller colonies in non-maternity roosts. Bats may temporarily roost in bridges and culverts during migration from April to July and September-October. |

Life History

*Species Description and Ecology*

The lesser long-nosed bat (LLNB) is a medium-sized bat reaching a total body length of 2.95-3.35 inches with a wingspan of 14-16 inches. These bats possess an elongated snout and a triangular nose-leaf (an erect triangular flap of skin at the tip of the snout). LLNBs lack a tail and the interfemoral membrane is reduced to a narrow band along each hind leg. In comparison to other bat species, LLNBs have large eyes and relatively small ears. They have short, dense fur ranging from yellowish-brown to pale-brown above and cinnamon brown below. Immature bats are dark grayish on the forehead and back whereas adults are browner.

LLNBs forage at night and have a long tongue tipped with brush-like papillae that assist them in feeding. In their summer range, LLNB primarily feed on nectar and pollen from agave and columnar cacti flowers, and may also incorporate ripe cactus fruit into their diet at the end of the flowering season. Flowering plant species in the genus *Ceiba, Bombax,* and *Ipomoea* support the majority of the LLNB diet in their winter range (AGFD 2011). Due to their feeding habits, LLNB are important pollinators for a variety of agave species, columnar cacti, and flowing plant species Mexico and Central America.

*Reproduction*

LLNBs do not hibernate. They migrate in September through October to Mexico and further south to breed and spend the winter. Pregnant females will arrive in Arizona early as the second week of April to congregate with other females and form maternity colonies. Maternity colonies are comprised of hundreds to thousands of bats, and in some larger colonies, they can number in the tens of thousands. LLNBs bear one young per year. Young are born during May and achieve flight by the end of June (AGFD 2011).

*Suitable Habitat*

LLNBs primarily occupy desertscrub and desert grassland habitat in the U.S. portion of its range at elevations between 1,190 to 7,320 feet. Day roost sites are located at the base of mountains within reasonable foraging distances of required food plants such as agave, saguaro, and organ pipe cactus (USFWS 2001). As previously stated, pregnant females will arrive in Arizona in April and May to congregate in large numbers and occupy maternity roosts. Maternity roosts are typically located in caves and abandoned mines that are generally very warm and poorly ventilated. Males and non-pregnant females do not arrive to their roosts until July. Males will form separate smaller colonies in non-maternity roosts which may be well ventilated and display a variety of microclimates. The LLNB will also stopover at night roosts to digest while foraging in evening and night time hours. When night roosting and during migration in April – July and September – October, bats may utilize their day roost site or stop-over at a variety of locations including rock crevices, trees and shrubs, under bridges or in culverts, and occasionally abandoned buildings (USFWS 1994).

Threats

Primary threats to the species include roost site disturbance due to human activity from illegal border activities, recreation, and vandalism; and roost site loss from permanent closures of caves and abandoned mines from public agencies. Additionally, establishment of invasive plant species such as buffelgrass (*Pennisetum ciliare*) and Sahara mustard (*Brassica tournefortii*) changes fire regimes by providing fuel; thus, increasing the frequency and intensity of fires within the Sonoran Desert. These changes negatively affect non-fire adapted columnar cacti which are food plants for the LLNB. Furthermore, areas dominated by invasive plant species prevent germination and establishment of the columnar cacti used by the LLNB (USFWS 2016). Other factors such as livestock grazing, excess harvest of agave by the tequila industry, and prescribed fire are no longer as severe as once thought (USFWS 2017).

Range and Survey History

The species occurs in southern Arizona from the Picacho Mountains southwesterly to the Agua Dulce Mountains and southeasterly to the Galiuro and Chiricahua Mountains and then southerly into Mexico and beyond (AGFD 2011). These bats are only seasonal residents of Arizona and occur in southeastern Arizona, and possibly extreme western Arizona between the months of April and September (USFWS 2001).

Surveys focusing on known roost sites for the species have been conducted in Arizona and Mexico from the mid-1970s through 1985 by various biologists. Surveyed roost sites in Arizona included Bluebird Mine, Copper Mountain Mine, Old Mammon Mine, Hilltop Mines, Patagonia Bat Cave, Manila Mine, State of Texas Mine, Box Canyon Crevice, and Cave of the Bells. These surveys indicated significant declines of populations in southern Arizona at the time and low population numbers throughout their range (USFWS 1994) In 2002, a *Leptonycteris curasoae* Recovery Cooperative (LcRC) was formed which led to the implementation of annual simultaneous maternity and late summer roost surveys, and thus all roost sites identified in the LLNB recovery plan have had some degree of monitoring over the past 15 years (USFWS 2016). Since, the implementation of the recovery plan, monitoring efforts have led to an increase in the number of known roosts throughout its range. The number of known roosts has increased from 14 at the time of listing to currently 75 known roosts. Over the past 20 years most roost sites have documented positive trends and an increase in LLNB numbers (USFWS 2017).

Include information in this section to establish an environmental baseline (i.e. survey data, local status, etc) for LLNB within your projects vicinity. The following references and resources may assist in establish an environmental baseline. Always obtain permission from the ADOT biologist prior to contacting outside agencies about an ADOT project.

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| US Fish and Wildlife Service |
| Scott Richardson | Species Lead | (520)670-6144 | Scott\_Richardson@fws.gov |

Notes: 1Consultants are NOT to discuss potential effect findings with outside agencies.

2Red text is to be removed prior to placing this evaluation into a Biological Evaluation.

References

Arizona Game and Fish Department (AGFD). 2011. *Leptonycteris curasoae yerbabuenae.* Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix. 9 pp.

U.S. Fish and Wildlife Service (USFWS). 2017. “Endangered and Threatened Wildlife and Plants; 12-month Finding and Proposed Rule to Remove the Lesser Long-nosed Bat from the List of Endangered and Threatened Wildlife”. *Federal Register* 82(4): 1665-1676.

USFWS. 2016. Species Status Assessment for the Lesser Long-nosed Bat (*Leptonycteris yerbabuenae*). U.S. Fish and Wildlife Service, Albuquerque, New Mexico. Ecological Service Field Office. Phoenix, Arizona. 84 pp.

USFWS. 2001. Lesser long-nosed bat. Unpublished species abstracts compiled and edited by the Arizona Ecological Service Field Office. Phoenix, Arizona.

USFWS. 1994. Lesser Long-nosed Bat Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 45 pp.

USFWS. 1988. “Endangered and Threatened Wildlife and Plants: Determination of Endangered Status of Two Long-nosed Bats”. *Federal Register* 53(190):38456-38460.