ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** AMACC05060
Data Sensitivity: Yes

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Lasiurus blossevillii*
COMMON NAME: Western Red Bat, Desert Red Bat
SYNONYMS: *Nycteris borealis; Lasiurus borealis*
FAMILY: Vespertilionidae

AUTHOR, PLACE OF PUBLICATION: Lesson and Garnot, 1826

TYPE LOCALITY:

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: New World *Lasiurus* were placed in the genus *Nycteris* by Hall (1981), who based the change on nomenclatural (rather than biological) concerns; few if any other authors have followed this change.

Lasiurus blossevillii formerly was included in *Lasiurus borealis*, with which it may interbreed in northeastern Mexico (see Schmidly 1991, in NatureServe 2003). Baker et al. (1988, in NatureServe 2003) divided *L. borealis* into multiple species: *L. borealis* (corresponding with subspecies *borealis*), *L. blossevillii* (combining former *L. borealis* subspecies *teliotus* and *frantzii*; western U.S., Mexico, Central America, and South America), *L. degelidus* (Jamaica), and others on Caribbean islands (additional study needed). Jones et al. (1992, NatureServe 2003) recognized *L. blossevillii* as a distinct species, but Koopman (in Wilson and Reeder 1993 in NartureServe 2003) and Koopman and McCracken (1998, in NatureServe 2003) retained it in *L. borealis* until taxonomic relationships are better resolved. MtDNA data support the recognition of *L. borealis* and *L. blossevillii* as distinct species (Morales and Bickham 1995, in NatureServe 2003). MtDNA data also indicate no distinction between *L. blossevillii frantzii* from Central America and *L. blossevillii teliotus* from Mexico and the western U.S.; Morales and Bickham (1995, in NatureServe 2003) therefore synonymized *teliotus* with *frantzii*. Further study is needed to determine whether *L. b. blossevillii* and *L. b. frantzii* are separate species (Morales and Bickham 1995, in NatureServe 2003).

DESCRIPTION: A medium-sized bat, forearm 3.8-4.3 cm (1.5-1.7 in), weight 7-15 g (0.25-0.5 oz); wings long, narrow and pointed, wingspan 29.0-33.2 cm (11.4-13.0 in); ears short and rounded, 11-13 mm in length; interfemoral membrane (uropatagium) completely furred on the dorsal surface. Color ranges from bright orange to yellow-brown with white-tipped hairs; whitish patches near the shoulder; wing membranes black. Males are usually more brightly colored than females. Distinct white bib under neck is in spectacular contrast to jet-black wing membrane.

AIDS TO IDENTIFICATION: Lasiurine bats are distinguished from other bats in Arizona, except *Lasionycteris noctivagans*, by their short, round ears and their long tail membrane with at least the anterior portion well furred. *L. blossevillii* is distinguished from *Lasionycteris* by hair color, which in *Lasionycteris* is black with silver tips. The hair of *Lasiurus* is never black, although some hairs may be silver-tipped. Compared to *L. blossevillii*, *L. cinereus* is larger (forearm 5.0-5.4 cm [2.0-2.13 in]); has an edging of black fur around the ears; and is grayish in color. *L. xanthinus* is larger (forearm 4.5-5.0 cm [1.8-2.0]); yellowish in color; and only the anterior half of the uropatagium is furred.

ILLUSTRATIONS: Black and white photo (Barbour and Davis 1969: 131, 134, 135)
Color photo (Barbour and Davis 1969: plate XIV)
Black and white photo (Hoffmeister 1986: 100)
Color photo (Whitaker 1980: plate 157)
Color photo (*In* http://www.batcon.org/discover/species/lblosse.html)
Color photo (Harvey 1999)

TOTAL RANGE: Extreme southern Canada through the western United States south to Panama and South America. Routine monthly sampling in the upper Moapa Valley, southern Nevada, since May 1999 has produced six captures, all from July to September (Williams, 2001). Intensive acoustic sampling in the region identifies slightly longer seasonal presence, but in low abundance.

RANGE WITHIN ARIZONA: Thirty records (as of 2001) scattered throughout the state, except in desert areas. Summer resident only, records from June 12 to August 21 (Hoffmeister 1986). E.L. Cockrum (pers comm 1992) has recently reviewed records for Arizona and found a total of 61 from May 30 to September 30.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Generally solitary though seems to migrate in groups and forage in close association with others. Males and females migrate at different times and have different summer ranges. Migrates to southern part of range and/or hibernates in winter, sometimes emerging to feed on warm days (air temperatures 55°-65° F). Winter roost sites in dense foliage.

Responds to subfreezing temperatures by raising metabolism to maintain body temperature above critical low limit of -5° C. The interfemoral membrane is wrapped over the body to provide 15% additional insulation. Migratory and winter status in Arizona unknown. In the southern part of their range they are thought to migrate altitudinally (E.L. Cockrum pers comm 1992).

Day roosts are among dense foliage, the hanging bat resembling a dead leaf. Roost sites are from a few feet to more than 40 feet high; and heavily shaded from above but open below to allow the bat to drop into flight.

Predators include birds of prey and opossums. Humans and human construction have also taken their toll on red bats in general. There have been documented cases of these bats being impaled by barbed wire, entrapped on road surface oil, flying into lighthouses and the radiator grills of automobiles (Myers, undated).

REPRODUCTION: Copulates between August and October. General observations suggest that copulation may be initiated in flight. Female stores sperm until spring when fertilization occurs. Females give birth to one litter of twins each year. Gestation period 60-70 days. Litter of 1-5 (average 2.3; higher than any other bat), born late May to Mid-June. Lactation lasts about 38 days (5-6 weeks). Like other species of *Lasiurus,* females of this species have two pairs of mammae instead of the single pair found in most other species of bats. One lactating female was netted in the Santa Rita Mountains on August 3. It is estimated that young fledge between their third and fourth week.

FOOD HABITS: Emerges to forage 1 to 2 hours after dark and may forage well into the morning. May hunt 600-1000 yards from its roosting site. Foraging flight pattern begins with slow, fluttering, erratic flight high in the air. After 15 to 30 minutes they may begin flying in straight lines or wide circles over the same ground between tree top level and a few feet above ground level.

It is unclear whether they feed mainly on certain groups of insects or on any insect within a certain size class. Moths seem to be one of the more important prey items; they also take flies, bugs, beetles, cicadas, ground dwelling crickets and hymenopterans. They are commonly drawn to feed around city streetlights and floodlights on barns. Catches insects using wing membranes, less often in interfemoral membrane. Occasionally will land on vegetation to capture prey. There is a distinct body and head posturing change in this bat when in pursuit of prey. It has been said that if you observe a rural street light and see a bat dipping and diving, that you are most likely viewing a red bat. Red bats use echolocation to locate prey. They use both broadband and narrow band calls. Search phases of calls use long calls with low pulse repetition of narrow band frequencies. Red bats make one pass through a concentration of potential prey, fixing on a target within 5 to 10 m. They attack insects on average, every thirty seconds and are successful forty percent of the time. If a bat is stalking a moth using echolocation the moth can hear this and will try to flee the attack by diving. The bat will follow the moth into a steep dive and often pull away within inches of the ground. Humans observing the predator-prey interaction only see a bat and not the fleeing moth and may believe that the bat is acting aggressively towards them.

HABITAT: Riparian and other wooded areas. Roosts by day in trees. Summer roosts usually in tree foliage, sometimes in leafy shrubs or herbs. Often found in trees of fruit orchards. May also roost in saguaro boots and occasionally in cave-like situations (E.L.

Cockrum pers. comm. 1992) although they generally avoid caves and buildings during both summer/winter. Solitary female roosts with young in tree foliage.

Many biologists who study this species feel that it is much less common in the southwest in recent decades. This species primarily roosts in cottonwood trees, and it's notable decline in abundance is suspected to be attributable to the 70-98% loss of cottonwood habitat in North America. The Western Bat Working Group released a resolution in 2002 stating the concern of cottonwood loss and the perceived related decrease in abundance of *L. blossevillii*. Restoration in riparian corridors where cottonwoods historically existed is thought to be necessary for the continued existence of this species. Cottonwood distribution throughout the range of this species is thought to determine this species ability to complete it's annual migration.

ELEVATION: 1,900 - 7,200 ft. (580 - 2,196 m).

PLANT COMMUNITY: Broad-leaf deciduous riparian forests and woodlands.

POPULATION TRENDS: Unknown in Arizona.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: WSC (AGFD, WSCA in prep)
[State Candidate AGFD, TNW 1988]
OTHER STATUS: None (USDA, FS Region 3, 1999)
[Forest Service Sensitive USDA, FS Region 3, 1988]

MANAGEMENT FACTORS: Low numbers. The current loss of dense, mature cottonwood tree habitat throughout the western United States is believed to be a key factor in the seemingly declining abundance of *L. blossevillii* across its range. In September 2001, the Western Bat Working Group produced a Cottonwood/Sycamore Resolution identifying this concern.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Status surveys; life history information, especially roost site selection. Development of efficient survey methods.

LAND MANAGEMENT/OWNERSHIP: BLM - Phoenix, Safford and Tucson Field Offices; DOD - Fort Huachuca Military Reservation; FWS - Buenos Aires National Wildlife Refuge; NPS - Grand Canyon National Park, and Montezuma Castle National Monument; USFS - Coronado National Forest; BIA - Hualapai Reservation; State Land Department; AMNH

Southwestern Research Station; Johnson Historical Museum; TNC - Aravaipa Canyon Preserve, and Ramsey Canyon; Private.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

E.L. Cockrum - University of Arizona, Tucson.
D.F. Hoffmeister - University of Illinois, Urbana.

ADDITIONAL INFORMATION:

Has been timed in flight at 40 mph.

Ronnie Sidner has netted a juvenile in the Buenos Aires Wildlife Refuge, and several others in the Huachuca Mountains; mainly in Riparian Broad-Leaf habitat (AGFD 1996).

The scientific name is derived from the Greek *lasios* meaning shaggy and *oura* meaning having a tail. Derivation of the Latin specific epithet is unclear.

Revised: 1991-08-09 (RBS)
1992-05-02 (BKP)
1992-09-30 (RBS)
1994-03-25 (DCN)
1995-06-08 (DBI)
1996-06-19 (SMS)
2002-06-10 (JAW)
2002-11-15 (AMS)
2003-01-19 (AMS)

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