ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** AMACC01120
Data Sensitivity: Yes

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Myotis californicus*
COMMON NAME: California Myotis, California Bat
SYNONYMS: None
FAMILY: Vespertilionidae

AUTHOR, PLACE OF PUBLICATION: *Vespertilio californicus* Audubon and Bachman, Journal of Acad. Nat. Sci. Phila. Sec 1, Pt 2. 8:285. 1842. *Myotis californicus* N. Miller, Amer. Fauna, 13: 69. October 16 1897.

TYPE LOCALITY: California. Subsequently restricted to Monterey, Monterey Co., California.

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: Worldwide there are 84 species of *Myotis*. Nowak (1994) reports 97 species and 3 subgenera. Found throughout Western North America, *Myotis californicus* is divided into three subspecies (*M.c. californicus, M.c. caurinus, M.c. stephensi*), not including the one endemic (*M.c. mexicanus*) to central and southern Mexico and Guatemala.

DESCRIPTION: This is the smallest species of *Myotis* in America. They have small feet, small dark ears, short forearm (29-36 mm), and a well developed keeled calcar. The wingspread is 230 mm (9 in), and their total length 70-94 mm (2.8-3.7 in). The small skull, with an elevation from rostrum to braincase, is abrupt. The small thumb (3.5-4.2 mm) color is variable from pale orangish buff to dark brownish black, with variations occurring geographically and locally. The color of the ears is variable, but usually dark rather than light, contrasting with their tawny, dorsal fur. In Arizona the mountain populations are dark-colored and the low elevation populations are pale-colored. Ears extend beyond nostrils 1-4 mm. Weight of the male is about 3.0 g and the female is about 3.25 g. The female has a single pair of mammae arranged subaxillary.

AIDS TO IDENTIFICATION: Easily confused with *M. ciliolabrum*, however, *M. californicus* thumb size is smaller (<4.2 mm for *M. californicus* as opposed to >4.2 mm for *M. ciliolabrum*) and it does not have a black mask. According to Wilson and Ruff (1999), *M. californicus* shares its combination of short ears (<15 mm), relatively short hind feet (<6-9 mm), and an obviously keeled calcar with only two other western *Myotis*, *M. ciliolabrum* and *M. volans*. From *M. volans*, the California myotis is distinguished by shorter forearm (<35 mm), shorter tibia (<15 mm), usually paler pelage, and ventral surface of wing membrane

from elbow to knee not densely furred. *M. californicus* is easily confused with *M. ciliolabrum*, from which it differs in more subtle characters such as: cranium globose with a distinct "forehead," rostrum shorter and more delicate, pelage often tricolored, and overall more delicate form in *M. californicus*.

ILLUSTRATIONS: B&W photos (Barbour and Davis 1969: Pp. 99-101, Fig. 54, 55)
B&W drawing (Hoffmeister 1971: P. 53, Fig. 197)
B&W diagram (Ingles 1954: P. 74. Pl. IV)
Color photo (Wilson 1999)
Color photo (Harvey et al. 1999)
Color photo (Whitaker 1996)
Color photo (*In* http://www.batcon.org/discover/species/mycalif.html)

TOTAL RANGE: Western North America from Alaska to Chiapas, Mexico. Nowak (1994) reports the range as far south as Guatemala.

RANGE WITHIN ARIZONA: Throughout the state but less common from higher mountain ranges. Their winter distribution generally occurs in the southernmost part of the state, south of the Gila River.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Myotis californicus roosts in crevices and cracks in canyon walls, under loose bark or in old snags, sometimes in caves and mine shafts. They are active in the first two hours after sunset and near water. It is possible that they roost during the day in any convenient shelter and do not regularly return to the same place. They occur singly or in small colonies. The hibernation temperature is near that of their surroundings. Individuals have been known to live up to 15 years. This bat's kidneys are adapted for water conservation in its arid environment. They utilize small waterholes to obtain needed moisture.

REPRODUCTION: This species gives birth to one young in late May to mid-June. Although sexes are separate for most of the year, females do form maternity colonies, which are usually less than 100 individuals.

FOOD HABITS: They have a slow, very erratic flight pattern with abrupt changes of direction, both laterally and vertically, usually feeding within about 5-10 feet off the ground. Feed in early evening over desert scrub to oaks and along lower edge of conifers; rarely foraging more than 15 feet above ground. Food items include small moths, flies, beetles, and bugs. When *Myotis californicus* and *Myotis ciliolabrum* are foraging in the same area, it is believed that they partition food resources spatially. *Myotis californicus* forages over water and *Myotis ciliolabrum* forages over rocky areas. The two species may also specialize on different prey in such areas, one eating more moths and the other more beetles.

HABITAT: Western Arizona desert ranges or flatlands. Eastern and northern Arizona, in desertshrub-oak woodlands to ponderosa pine zones.

ELEVATION: Sea level to 8,700 ft. (0-2,651 m).

PLANT COMMUNITY: Desert communities and coniferous associates.

POPULATION TRENDS: Stable

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: None
OTHER STATUS: None

MANAGEMENT FACTORS: This species may be affected by recreational caving and by some timber harvest practices, particularly the removal of large diameter snags. And like all bats it also could be subject to contaminant poisoning.

PROTECTIVE MEASURES TAKEN: There are no conservation strategies or other management documents that specifically address this species. The Virgin River-Pakoon Basin and the Paria-Kanab Creek Habitat Management Plans provide general objectives for bat management, though neither specifically addresses this species.

SUGGESTED PROJECTS: There is not any information known on population trends and the acceptance of bat gates. More information is needed on roosting and foraging requirements. There is also a need for a revisionary study.

LAND MANAGEMENT/OWNERSHIP: BLM - Havasu, Kingman, Phoenix and Yuma Field Offices; FWS – Bill Williams, Havasu, Imperial, and Kofa, National Wildlife Refuges; NPS - Fort Bowie National Historic Site, and Chiricahua, Organ Pipe Cactus, Pipe Springs, and Tonto National Monuments; USFS – Coconino, Coronado, and Kaibab National Forests; State Land Department; AMNH Southwestern Research Station; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Audubon and Bachman. 1842. Journal of Acad. Nat. Sci. Phila. Sec 1, Pt 2. 8: 285.

Barbour, R.W. and W.H. Davis. 1969. Bats of America. The University Press of Kentucky. Pp. 99-102.

BCI. Available: http://www.batcon.org/discover/species/mycalif.html.

Burt, W.H. 1976. A field guide to the mammals. Third edition. Houghton Mifflin Co. Boston, Ma. Pp. 31-32.

Findley, J.S. 1975. Mammals of New Mexico. University of New Mexico Press. Pp. 43-44.

Hall, E.R. 1981. The mammals of North America. Second edition. Volume I. John Wiley and Sons. New York. Pp. 185-187.

Hall, E.R. and K.R. Kelson. 1959. The mammals of North America. Volume I. The Ronald Press Company. New York. Pp. 173-174.

Harvey, M.J. et al. 1999. Bats of the United States. Arkansas Game and Fish Commission. P. 38.

Hoffmeister, D.F. 1986. Mammals of Arizona. University of Arizona Press. Tucson, AZ. Pp. 84-86.

Hoffmeister, D.F. 1971. Mammals of the Grand Canyon. University of Illinois Press. Pp. 53.

Http://www.batworkinggroups.org/states/nevada.htm.

Ingles, L.G. 1954. Mammals of California and its coastal waters. Stanford University Press. Stanford, California. Pp. 74-75.

Miller, N. 1897. Amer. Fauna, 13: 69.

NatureServe. 2003. NatureServe Explorer: An online encyclopedia of life [web application]. Version 1.8. Arlington, Virginia, USA: NatureServe. Available: http://www.natureserve.org/explorer. (Accessed: February 04, 2004).

Nowak, R.M. 1994. Walker's Bats of the World. Introduction by Thomas H. Kunz and Elizabeth D. Pierson. The John Hopkins University Press. Baltimore, MD. Pp. 186-190.

Podolsky, L. 2002. "*Myotis californicus*" (On-line), Animal Diversity Web. Accessed February 26, 2004 at http://animaldiversity.ummz.umich.edu/site/accounts/information/Myotis_californicus.html.

Texas Parks and Wildlife. Available: http://www.tpwd.state.tx.us/nature/wild/mammals/bats/species/cal-myotis.htm.

The Mammals of Texas. Available: http://www.nsrl.ttu.edu/tmot1/myotcali.htm

Whitaker, J.O. Jr. 1996. National Audubon Society Field Guide to North American Mammals. Alfred A. Knopf. New York, New York. Pp: 326, Pl.29.

Wilson, D.E. and D.M. 1993. Mammal Species of the World. Second edition. Reeder. Smithsonian Institution Press. Washington, D.C. Pp. 207-216.

Wilson, D.E. & S. Ruff. 1999. The Smithsonian Book of North American Mammals. Smithsonian Institution Press, Washington D.C. Pp: 85-86.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

D. F. Hoffmeister - University of Illinois

ADDITIONAL INFORMATION:

"Perhaps more than any other species, this bat uses manmade structures as night roosts" (Barbour and Davis, 1969).

Revised: 1992-01-07 (JSP)
1994-03-29 (DBI)
1994-04-07 (DCN)
2004-03-05 (AMS)
2004-03-23 (SMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX **(= year of last revision as indicated at end of abstract)**. X...X **(= taxon of animal or plant)**. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.