

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

Element Code: AMACD04020

Data Sensitivity: Yes

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Nyctinomops macrotis*

COMMON NAME: Big Free-tailed Bat

SYNONYMS: *Tadarida molossa*, *Tadarida macrotis*

FAMILY: Molossidae

AUTHOR, PLACE OF PUBLICATION: Gray. 1839. Ann. Nat. Hist. 4:5.

TYPE LOCALITY: Interior of Cuba.

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: One of five species of this genus found in North America. One of three in Arizona. Monotypic species, not endemic to Arizona.

DESCRIPTION: Rather large bat, total length 130.0 mm (5.2 in.), forearm length 58.0-64.0 mm (2.32-2.56 in.), wingspread 417.0-436.0 mm (16.68-17.44 in.), tail 54.0 mm (2.16 in.), hind foot 12.0 mm (0.48 in.), ear 28.0 mm (1.12 in.). Weight 22-30 g. Tail extends for 10.0-15.0 mm (0.4-0.6 in.) beyond the interfemoral membrane. Ears joined basally in midline; large, extending well beyond end of rostrum when laid forward. Ears have wart-like bodies on anterior edges (Ingles 1954). Their fur is glossy with the dorsal pelage ranging from pale reddish-brown to darkish brown and blackish. Its' ventral pelage is similarly colored but paler. Each hair is bicolored with basal portion being white. The upper lip is deeply furrowed by vertical wrinkles and the muzzle is slender.

AIDS TO IDENTIFICATION: *T. brasiliensis* is smaller and ears not joined. *N. femorosaccus* is smaller; generally the size of *Tadarida brasiliensis*. *Eumops perotis* and *Eumops underwoodi* are both larger. *N. macrotis* most similar to *Eumops glaucinus*, but in U.S., *E. glaucinus* restricted to southern Florida whereas *N. macrotis* found only in the west.

ILLUSTRATIONS: B&W photo (Barbour and Davis 1969:216)
B&W drawings (Hall 1981. I:245)
B&W diagram (Ingles 1954:66)
Color photo (Wilson 1999)
Color photo (Harvey 1999)
Color photo (Tuttle *in*
<http://www.enatur.../showSpeciesGS.asp?curGroupID=5&curPageNum=54&recnum=MA033>)
Color photo (BCI <http://www.batcon.org/discover/species/nmacrot.html>)

TOTAL RANGE: From northern South America and the Caribbean Islands northward into the western United States. Local but common as a breeding bat in New Mexico, Arizona, Texas, southern California, southeastern Nevada and Utah. Big free-tailed bats reported as far away from brood sites as Iowa and British Columbia. Throughout September and October of 2000 and 2001, *N. macrotis* was a common migrant along the Muddy River in southern Nevada (Williams, 2001). Northern limits of winter range have yet to be determined.

RANGE WITHIN ARIZONA: Widely spread throughout the state, but probably absent from coniferous Mogollon Plateau; in winter, in southern Arizona. According to AGFD HDMS unpublished records, it has been documented in Mohave, Coconino, Yavapai, Gila and Cochise counties.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Apparently spends the day in crevices in rock cliffs, however, only one day roost was known as of 1969. Although this observation could be a result of poor sampling strategies. In spite of local abundance, overall abundance is unpredictable; mainly because it is not found in many places where habitat seems suitable. Emerges for feeding relatively late, leaving the roost in small groups, about 40 minutes after the pipistrelles. The Big Free-tailed bat is unable to hibernate, therefore the northern populations are believed to be migratory. This species is readily captured in mist nets. They apparently commonly impale themselves on cactus while in pursuit of insects. Owls appear to be the only documented predator.

REPRODUCTION: They give birth to one young in late spring or early summer. They form maternity colonies and separate themselves from the males during the summer while the young are being raised. Juveniles begin flying in late August.

FOOD HABITS: Feed almost exclusively on large moths but occasionally crickets, long horned grasshoppers, flying ants, stinkbugs, froghoppers and leafhoppers are taken. They pursue and capture their prey using echolocation. Most of their echolocation emissions are of frequencies below 20 kHz, and are therefore audible to humans, often sounding like loud clicks.

HABITAT: Primarily inhabitant of rugged, rocky country and riparian areas. One description of a probable maternal roost site is a crevice "about 20 feet long and 6 inches wide on the side of a cliff some 40 feet above a talus slope" (Barbour and Davis 1969). They roost in buildings, caves and occasionally in holes in trees.

ELEVATION: 1,810 - 8,475 ft. (552 - 2,585 m).

PLANT COMMUNITY: Creosote bush (*Larrea tridentata*), blackbrush (*Coleogyne ramosissima*), sand sage (*Artemisia filifolia*), snakeweed (*Gutierrezia*), saltcedar (*Tamarix*

pentandra), water willow (*Baccharis glutinosa*), mesquite (*Prosopis*), and rabbitbrush (*Chrysothamnus*).

POPULATION TRENDS: Appears to be stable although not common except sometimes locally, even then, not consistently.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[C2 USDI, FWS 1994]

STATE STATUS: None

OTHER STATUS: [Bureau of Land Management Sensitive
(USDI, BLM AZ 2000, 2005)]

MANAGEMENT FACTORS:

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Information is needed on roosting ecology, seasonal movement patterns, and breeding colony distribution. Also, vocalization recordings are needed to help train researchers and managers that may attempt to survey for this species.

LAND MANAGEMENT/OWNERSHIP: BLM - Arizona Strip Field Office; NPS - Glen Canyon National Recreation Area; USFS - Coconino, Coronado Tonto and Kaibab National Forests; AMNH Southwestern Research Station; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Barbour, R.W. and W.H. Davis. 1969. Bats of America. The University Press of Kentucky. pp. 215-218.
- BCI. 2002. Available: <http://www.batcon.org/discover/species/nmacrot.html>.
- Durant, S.D. 1952. Mammals of Utah. University of Kansas Publication. pp.63.
- Hall, E.R. 1981 Second edition. I:245-246. John Wiley and Sons, New York.
- Harvey, M. J. et al. 1999. Bats of the United States. Arkansas Game and Fish Commission, p 61.
- Hasenyager R.N. 1980. Bats of Utah. State of Utah Dept. of Nat. Res. Pub. #80-15. pp.94-96.
- Hoffmeister, D.F. 1986. Mammals of Arizona. University of Arizona Press. pp. 120-121.
- [Http://animaldiversity.ummz.umich.edu/accounts/nyctinomops/n_macrotis\\$narrative.html](http://animaldiversity.ummz.umich.edu/accounts/nyctinomops/n_macrotis$narrative.html).
- [Http://talpa.unm.edu/batcall/accounts/accountsbase/nycmac.html](http://talpa.unm.edu/batcall/accounts/accountsbase/nycmac.html).
- [Http://www.funet.fi/pub/sci/bio/life/mammalia/chiropter/molossidae/nyctinomops/](http://www.funet.fi/pub/sci/bio/life/mammalia/chiropter/molossidae/nyctinomops/).
- Ingles, L.G. 1954. Mammals of California and its coastal waters. Stanford University Press, Stanford, California. pp. 66-67.

- NatureServe Explorer: An online encyclopedia of life [web application]. 2001. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: March 6, 2003).
- Schmidly, D.J. 1977. The Mammals of Trans-Pecos Texas. Texas A&M University Press. College Station, Texas. pp. 54-55.
- Tuttle, M. ENature. Available: <http://www.enatur.../showSpeciesGS.asp?curGroupID=5&curPageNum=54&recnum=MA033>.
- USDI, Bureau of Land Management. 2000. Arizona BLM Sensitive Species List. Instruction Memorandum No. AZ-2000-018.
- USDI, Bureau of Land Management. 2005. Arizona BLM Sensitive Species List.
- USDI, Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species; Proposed Rule. Federal Register 59(219):58987.
- USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants: Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species. Federal Register 61(40):7596-7613.
- Williams, J. A. 2001. Community structure and habitat use by bats in the upper Moapa Valley, Clark County, Nevada. Unpublished M.A.S. thesis. University of Nevada, Las Vegas.
- Wilson D.E. et al. 1999. The Smithsonian Book of North American Mammals. Smithsonian Institution Press, Washington, in association with the American Society of Mammalogists, pp 130-131.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

- R. Barbour - University of Kentucky
W. Davis - University of Kentucky
D. Hoffmeister - University of Illinois. Urbana, Illinois

ADDITIONAL INFORMATION:

When foraging, *N. macrotis* emits a loud piercing chatter that can be heard without amplification. They are easy to handle and are not particularly vicious. However, some investigators have found that temperament of individual bats can vary considerably.

The genus name *Nyctinomops*, is compounded from Greek words that mean, “resembling a night feeder”. The species name *macrotis*, is from the Greek *macros* and *otos*, or “long ear”.

Revised: 1992-02-14 (JSP)
1994-04-01 (DBI)
1994-04-07 (DCN)
1997-03-04 (SMS)
2002-06-10 (JAW)

2003-03-08 (AMS)

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.