

## Western Bat Working Group

<http://www.wbwg.org>

### Species Accounts

Developed For the 1998 Reno Biennial Meeting

Updated at the 2005 Portland Biennial Meeting

#### *Nyctinomops macrotis*

#### **BIG FREE-TAILED BAT**

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I. **DISTRIBUTION:** *Nyctinomops macrotis*, a member of the Family Molossidae, ranges from most of South America northward to include Mexico, Arizona, New Mexico, southern and western Texas, southern California and southeastern Nevada, southern Utah, and north to central Colorado. The species is migratory, and there are some extralimital records from British Columbia, Iowa, Kansas, and South Carolina. The known elevational range is from near sea level to about 8,500 ft (2,600 meters).

II. **STATUS:** Global Rank - G5. State Ranks: AZ - S2S3; CA - S2; CO - S1?; NM - S2; NV - S?; TX - S3; UT - S2. The Big-free-tailed bat was proposed as a federal candidate C2 species in 1994. This species is currently on the BLM's special status species list for Utah and Colorado. It is considered a Species of Special Concern by the states of California and Utah.

III. **IDENTIFYING CHARACTERISTICS AND LIFE HISTORY:** *N. macrotis* can be distinguished from other molossids (= free-tailed bats) based on size. With an adult forearm of 58-64 mm it is larger than *T. brasiliensis* or *N. femorosaccus*, and smaller than either *Eumops* species. Also, it has vertical grooves or wrinkles on the upper lip, which are lacking in *Eumops*. *N. macrotis* appears to be mainly an inhabitant of rugged, rocky habitats in arid landscapes. It has been found in a variety of plant associations, including desert shrub, woodlands, and evergreen forests. It appears to be associated with lowlands, but has been documented at around 8,000 ft in New Mexico. This species is a seasonal migrant, and a powerful flyer. It roosts mainly in the crevices of rocks in cliff situations, although there is some documentation of roosting in buildings, caves, and tree cavities. The species forms maternity colonies, and females bear one young in late spring or early summer. Lactating females have been taken in July, August and September, and volant juveniles recorded on 8 and 27 August. Maternity roosts have been documented in rock crevices, with evidence of long term use of the crevices reported. It appears that the return to the roost site by this bat involves ritualized behavior, including a general reconnaissance of the site and several landing trials before entry. *N. macrotis* forages almost entirely on large moths, but some data exists to document occasional foraging on other insects, including grasshoppers, beetles, crickets, leafhoppers and flying ants. Owls appear to be the only documented predator of this species. *N. macrotis* has an audible echolocation call, which is characterized as loud and with a frequency range of 17-30 kHz. Surveys based on echolocation calls for this species may be possible, as captures appear to be uncommon (outside of Big Bend National Park, where the most animals in North America have been documented). Easterla, however, reports that the populations at the Park fluctuate greatly from year to year. Little is known about the species population dynamics and ecology.

IV. **THREATS:** No known threats to the species have been identified to date. However, some of the general threats to bats could apply to *N. macrotis*. These could include impacts to foraging areas from grazing, riparian management, the use of pesticides, and in some places disturbance to the roost site (e.g., blasting of cliffs or water impoundments).

V. **GAPS IN KNOWLEDGE:** Information is needed on *N. macrotis* regarding roosting ecology, seasonal movement patterns, and breeding colony distribution. Current evidence suggests that the species breeds farther north than previously thought, including southern Utah and Colorado. Vocalization recordings are

needed to help train researchers and managers that may attempt to survey for the species based on audible call detections. Reference calls need to be established and geographically verified, and made available at a depository, and/or establish a site where recordings can be sent for verification. It will be important for bat biologists to be able to distinguish between the different audible bats in the southwest.

VI. SELECTED LITERATURE:

Di Salvo, A. F., H. N. Newhauser and R. E. Mancke. 1992. *Nyctinomops macrotis* in South Carolina. Bat Research News, 33(2&3):21-22.

Milner, J., C. Jones and J. K. Jones, Jr. 1990. *Nyctinomops macrotis*. American Society of Mammalogists, Mammalian Species, 355:1-4.

Nagorsen, D. W. and R. M. Brigham. 1993. Bats of British Columbia. University of British Columbia Press, Vancouver, BC. 164 pp.

Schmidly, D. J. 1991. The bats of Texas. University of Texas Press, Austin, TX. 189 pp.

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