

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

**Animal Abstract**

**Element**

**Code:**

AMAFF11022

**Data**

**Sensitivity:**     No    

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Microtus montanus arizonensis*

**COMMON NAME:** Arizona Montane vole, Arizona Montane mouse, Mountain vole, Montane vole,

**SYNONYMS:**

**FAMILY:** Cricetidae

**AUTHOR, PLACE OF PUBLICATION:** V. Baily, 1898, Proc. Biol. Soc. Washington, 12:87.

**TYPE LOCALITY:** Springerville, Apache Co. Arizona, 1980.

**TYPE SPECIMEN:** USNM (24778/32179)

**TAXONOMIC UNIQUENESS:** One of 17 species in the genus *Microtus* found in North America. Two other *Microtus* occur in Arizona, *M. longicaudus* (Longtailed vole) and *M. mexicanus* (Mexican vole), although there has been research to suggest that *M. mexicanus* in Arizona, is a subspecies of *M. mogollonensis*. There are 15 subspecies of *M. montanus* distributed throughout North America. Only *M.m. arizonensis* is found in Arizona.

**DESCRIPTION:** A medium sized vole with four pairs of mammae, two pairs inguinal and two pairs pectoral. Tail length 24-64 mm (1-2.5 in) , which is less than 1/3 of the head and body length. Total length is 140-220 mm (5.5-8.6 in) and total weight is 18-90 g (1-5.5 oz). Color is grizzled brown to blackish above, often with buff tint, the black hairs of venter tipped with white; white to gray below. Incisive foramina tapered or constricted posteriorly; temporal ridges well developed and coalescing, or nearly so in adults. Auditory bullae small; prelamdoidal breadth usually 9.3 mm or less. Most adult males have oily skin glands on their hips.

**AIDS TO IDENTIFICATION:** *Microtus montanus* differs from *M. longicaudus* in its relatively short tail (29-39% of body and head length, rather than 40% or more), and narrower skull. Differs from *M. mexicanus* in having a longer tail (greater than 29% of head and body length rather than less than 29%) and having four pairs of mammae rather than two. In some ways is more like *M.m. amosus* and *M.m. ruvularis* in south-central Utah nearly 300 miles to the northwest.

**ILLUSTRATIONS:**

Color photo of species (Wilson and Ruff, 1999)

Color photo of species (Whitaker, Jr. 1996: plate 127)

**TOTAL RANGE:** The montane vole (*M. montanus*) is distributed throughout North America, occurring from British Columbia and Montana southward to east-central California, Arizona and New Mexico. Sub-species *M.m. arizonensis* occurs in central-eastern Arizona and adjacent New Mexico.

**RANGE WITHIN ARIZONA:** East-central Arizona in the White Mountains and Blue Range in Apache and Greenlee counties.

### **SPECIES BIOLOGY AND POPULATION TRENDS**

**BIOLOGY:** Montane voles live in burrows and runways in tall dense grass. They tend to be diurnally active throughout the year. Typical of microtines, populations tend to fluctuate dramatically exhibiting a 3-4 year cycle. Males and females both maintain territories although male territories are larger and while completely excluding other males, include several females. Females have smaller territories but will drive away only other females and only during estrus. When population numbers are low, the female will voluntarily move to a new territory after weaning her young. When numbers are high though, she will force the young out. This usually results in high mortality for the inexperienced young. Predators include owls, hawks, weasels, snakes, coyotes, and bobcats.

**REPRODUCTION:** Primary breeding season in Arizona is March to early September, but breeding can happen all year-round depending on population density. A nest of dried grasses is constructed within a burrow excavated in moist soil. Females are sexually mature at about 3 weeks and can breed shortly after giving birth to a litter. Gestation period is about 21 days. Average litter size is about 6, ranges 1-10. Young wean at 3 weeks. They average 2 to 3 litters a year. First litter can reproduce that year. Green vegetation stimulates reproduction, while dead vegetation inhibits it.

**FOOD HABITS:** These voles mainly eat grasses, sedges, leaves and plant stems, but occasionally take insects.

**HABITAT:** In Arizona they seem to prefer dense damp to wet grassy areas at high (alpine like) elevations. They make runways through the tall grass. Often found in marshy areas or near streams. For the species, as its name implies, it is found primarily in the mountains, and its elevational distribution extends above timberline.

**ELEVATION:** 6,900-9,500 ft (2103-2896 m), mostly above 7,500 ft. Based on records in the Heritage Data Management System, elevation in Arizona ranges from 6,950-11,300 ft (2118-3444 m) (AGFD, unpublished data accessed 2004).

**PLANT COMMUNITY:** Moist grassy habitats in montane coniferous forests. However, it is most common in open mesic grassland.

**POPULATION TRENDS:** Unknown

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None (USDI, FWS 1991)  
[3C USDI, FWS 1985, 1989]

**STATE STATUS:** 1B (AGFD SWAP 2012)

**OTHER STATUS:** Endangered (NMGF, 1996)  
Forest Service Sensitive (USDA, FS Region 3 2007, 2013)  
None (USDA, FS Region 3, 1999)  
[Forest Service Sensitive USDA, FS Region 3 1988]

**MANAGEMENT FACTORS:** Alteration of water courses and over grazing can have negative effects on vole populations.

**PROTECTIVE MEASURES TAKEN:** Unknown

**SUGGESTED PROJECTS:** Surveys need to be performed to determine the status of this subspecies as well as life history.

**LAND MANAGEMENT/OWNERSHIP:** BIA – Fort Apache Reservation; USFS – Apache-Sitgreaves National Forest; Private.

## **SOURCES OF FURTHER INFORMATION**

### **REFERENCES:**

- Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan 2012-2022. Phoenix, AZ.
- BISON-M, Biota Information System of New Mexico, web site.  
<http://nmnhp.unm.edu/bisonm/bisonquery.php>
- California Department of Fish & Game, web site; <Http://www.dfg.ca.gov/whdab/M133.html>.
- Cockrum, E.L., 1960. The Recent Mammals of Arizona: Their Taxonomy and Distribution. University of Arizona Press, Tucson.p205.
- Hall, E.R, 1981. The Mammals of North America Vol II. 2<sup>nd</sup> Ed. John Wiley & Sons, New York.pp797-799.
- Hoffmeister, D.F., 1986. Mammals of Arizona. University of Arizona Press and Arizona

- Game and Fish Department. pp 435-436.  
 Idaho Museum of Natural History website,  
<http://inmn.isu.edu/digitalatlas/bio/mammal/Rod/Mice/movo.htm>
- Ingles, L.G., 1954. Mammals of California and its Coastal waters. Stanford University Press, pp 249-253.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2001. Version 1.6 .  
 Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>.  
 (Accessed: November 27, 2002)
- USDA, Forest Service Region 3. 1988. Regional Forrester's Sensitive Species List.  
 USDA, Forest Service Region 3. 1999. Regional Forrester's Sensitive Species List.  
 USDA, Forest Service Region 3. 2007. Regional Forrester's List of Sensitive Animals.  
 USDA, Forest Service Region 3. 2013. Regional Forester's List of Sensitive Animals.
- USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants;  
 Review of Vertebrate Wildlife; Notice of Review. Federal Register 50(181):37966.
- USDI, Fish and Wildlife Service. 1989. Endangered and Threatened Wildlife and Plants;  
 Animal Notice of Review. Federal Register 54(4):563.
- USDI, Fish and Wildlife Service. 1991. Endangered and Threatened Wildlife and Plants;  
 Animal Candidate Review for Listing as Endangered or Threatened Species; Notice of  
 Review; Proposed Rule. Federal Register 56(225):58804-58836.
- Whitaker, Jr., J.O. 1996. National Audubon Society Field Guide to North American  
 Mammals. Revised Edition. Alfred A. Knopf, New York. Pp. 636-637.
- Wilson, D.E. and S. Ruff, eds. 1999. The Smithsonian Book of North American Mammals.  
 Smithsonian Institution Press, Washington and London in association with the American  
 Society of Mammalogists. Pp 635-636.

#### MAJOR KNOWLEDGEABLE INDIVIDUALS:

#### ADDITIONAL INFORMATION:

Among the diseases carried by the montane vole are tularemia and girardia. *Microtus montanus* has been used extensively in laboratories as an experimental model for the study of human disease, especially African trypanosomiasis.

**Revised:** 2002-12-03 (RHB)  
 2004-01-09 (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. 4 pp.