

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

Animal Abstract

Element Code: AMAFB05092

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Spermophilus tridecemlineatus monticola* (A.H. Howell, 1928)

COMMON NAME: White Mountains Ground Squirrel

SYNONYMS: *Citellus tridecemlineatus monticola*

FAMILY: Sciuridae

AUTHOR, PLACE OF PUBLICATION: *Citellus tridecemlineatus monticola* A. H. Howell, Proc. Biol. Soc. Wash., 41:214, 1928. *Spermophilus tridecemlineatus monticola* Hall and Kelson, Mamm. N. Amer., 1959. First use of *S. tridecemlineatus* was by Audubon and Bachman in 1849:294.

TYPE LOCALITY: Marsh Lake, 9000 ft., White Mountains, Arizona. (Apache County).

TYPE SPECIMEN: E. A. Goldman 1915, U. S. National Museum (209255, original # 22616).

TAXONOMIC UNIQUENESS: *Spermophilus tridecemlineatus* is 1 of 21 species in the genus *Spermophilus* in North America, and 1 of 5 in Arizona. There is 9-10 subspecies recognized, but only the subspecies *monticola* is found in Arizona. Streubel and Fitzgerald (1978) recognize 9 subspecies in the species *S. tridecemlineatus*, while Wilson and Reeder (2005) recognize 10.

DESCRIPTION: Thirteen-lined ground squirrel are a slender small to medium-sized squirrel, that often sits erect with the head pointed up. As the name implies, they have thirteen alternate longitudinal stripes of dark brown and tan, extending from the nape to the base of the tail. The dark brown stripes are broader than the tan lines and have whitish rectangular spots along the midline. The thirteen lines consist of either seven broad dark brown stripes alternating with six thin tan bands or seven yellow stripes alternating with six broader dark brown stripes. The tail color is mixed brown and white, similar in color to the back. No significant sexual dimorphism exists. The total length is 17.0-31.0 cm (6.69-12.20 in), length of tail 6.0-13.2 cm (2.36-5.20 in), hind foot 2.7-4.1 cm (1.06-1.61 in), and weight from 110-140 g (3.88-4.94 oz) in June, nearly twice that in fall prior to hibernation (Wilson and Ruff, 1999). The ears are short, and the tail is thin and sparingly bushy. Their long, narrow skull is lightly built in comparison to *S. townsendii*; the molariform tooth rows only slight convergent posteriorly (Streubel and Fitzgerald, 1978).

AIDS TO IDENTIFICATION: *Spermophilus tridecemlineatus monticola* is a subspecies of small size but not the smallest. They are also larger and darker than *S. t. parvus* with buffier underparts. *S. t. monticola* differs from *S. t. hollisteri* in dorsum paler, lighter dorsal stripes more whitish, underside of tail more buffy or reddish, nasals shorter.

ILLUSTRATIONS:

Color photo of species (Whitaker 1996: 177)

Color photo of species (In <http://animaldiversity.ummz.umich.edu/media/phil/g2.jpg>)

Color photo of species (Bob Gress, in Wilson and Ruff 1999: p. 437)

TOTAL RANGE: White Mountains, Arizona into New Mexico. Although according to Wilson and Ruff (1999), the range is west-central New Mexico and east-central Arizona.

RANGE WITHIN ARIZONA: The White Mountains of east-central Apache County.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: White Mountains ground squirrel is a burrowing animal as the common name might indicate. The home range of the species may be as large as 5 hectares for the male, but much smaller for the female. They have two types of burrows, nesting and hiding. In late summer to early fall the squirrels start to store food and increase in weight for their upcoming hibernation. By late November, they are hibernating in their burrows. They lay in a coiled up position where their body temperature drops 3°C from their normal 37°C body temperature. During this period, the heartbeat slows from 200 to 350 beats per minute, to a mere five. Their oxygen consumption is only 7 percent of the amount used by active squirrels. The best temperature in a den for safe hibernation is 41-54 degrees Fahrenheit. A fall to 5 or 6 degrees below freezing usually rouses the squirrel, whose body temperature then rises. If it does not awaken it will freeze to death.

Potential predators for the White Mountains ground squirrel are coyotes, long-tailed weasels, snakes, badgers, red-tailed hawks and prairie falcons. The warning call they emit is a relatively soft, trilled whistle. At birth the young can produce audible sounds. The mother and the young use several different types of sound for alarm signals, distress signals, or keeping the family together. This species is among the least social of their genus. They use oral glands as scent markers to mark objects, as a way of communication to other squirrels. The species, as with other ground squirrels, is diurnal and most active at midday and on warm sunny days. They molt twice yearly.

REPRODUCTION: The breeding season for *S. t. monticola* is early June to early August. For the species, males are capable of reproduction when they emerge from hibernation, however females take a little longer mating within 5 days of spring emergence from hibernation. Copulation stimulates ovulation within 1-2 days, and once pregnant, gestation lasts 28 days. Females have one annual litter, of 8-10 young. Young are born blind, hairless, and toothless, weighing 4 g. They gain 1.3g/day, open their eyes at day 13, leave their burrow for the first time at 28-35 days, and are full grown in 90 days. At six weeks, offspring dig their own burrow, usually within 100m of where they were born. Up to 90% of newborns die from predation before hibernation begins in the fall.

FOOD HABITS: White Mountain ground squirrel is omnivorous. The staples of their diet include: insects (generally larvae in the spring), seed heads and flowers from grasses and forbs in the summer, and meat from predation on other small animals including the occasional bird, bird egg, snake, lizard or small mammal. This squirrel hoards seeds in the burrow, transporting it in cheek pouches, probably to be used in early spring and during bad weather in the summer.

HABITAT: The habitat for *Spermophilus tridecemlineatus monticola* is open short grass subalpine fields to open grass-sedge meadows. The highest number of burrows and squirrels, were found to be in areas with few rocks and deep soil. Short grass is preferred, but patches of taller grass have been used. As the preferred natural short grass habitat disappeared, the species adapted by expanding into mowed lawns, golf courses, cemeteries, well-grazed pastures, parks and roadsides.

ELEVATION: In Arizona, elevation ranges from 2,600-2,900 m (8,500-9,500 ft).

PLANT COMMUNITY: Subalpine grasslands.

POPULATION TRENDS: In 1982, it was recommended that *Spermophilus tridecemlineatus monticola* not be accorded federal status. At the time, these recommendations were based on the results of a study by the Arizona Game and Fish Heritage program. They determined that due to the large amount of burrows and available habitat, the population of *S. t. monticola* was viable and not being threatened. The current population status of *S. t. monticola* is unknown.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:

None (USDI, FWS 1991)
[C3 USDI, FWS 1985, 1989]

STATE STATUS:

None

OTHER STATUS:

Forest Service Sensitive (USDA, FS Region 3
1999, 2007)

MANAGEMENT FACTORS:

Recreation is the main factor that needs to be considered for this species.

PROTECTIVE MEASURES TAKEN: Unknown

SUGGESTED PROJECTS:

Surveys are needed to determine the population status in Arizona, along with population trends, threats, and possible future management considerations.

LAND MANAGEMENT/OWNERSHIP: BIA - Fort Apache Indian Reservation (White Mountain Apache Tribe); USFS Apache-Sitgreaves National Forest.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- BISON. Available: http://www.cmiweb.org/states/nmex_main/species/050801.htm.
- Cahalane, V.H. 1961. Mammals of North America. The Macmillian company, New York, p. 348-355.
- Cockrum, E.L. 1960. The Recent Mammals of Arizona: Their Taxonomy and Distribution. The University of Arizona Press, Tucson AZ. Pp: 78.
- Hall, E.R. 1981. The Mammals of North America. John Wiley & Sons, New York. Pp: 391-394.
- Hall, E.R. & K.R. Kelson. 1959. The Mammals of North America. The Ronald Press Company, New York. Pp: 546.
- Hoffmeister, D.F. 1986. Mammals of Arizona. The University of Arizona Press, pp. 173-192.
- Howell, A.H. 1928. Proc. Biol. Soc. Wash., 41:214.
- [http://animaldiversity.ummz.umich.edu/accounts/spermophilus/s._tridecemlineatus\\$narrative](http://animaldiversity.ummz.umich.edu/accounts/spermophilus/s._tridecemlineatus$narrative)
- Mills, G.S. et al. 1982. Status Report: *Spermophilus tridecemlineatus monticola* (A.H. Howell). Unpublished report. Arizona Natural Heritage Program.
- NatureServe. 2003. NatureServe Explorer: An online encyclopedia of life [web application]. Version 1.8. NatureServe, Arlington, Virginia. Available: <http://www.natureserve.org/explorer>. (Accessed: January 8, 2004).
- Streubel, D.P., and J.P. Fitzgerald. *Spermophilus tridecemlineatus*. Mammalian Species No. 103, pp. 1-5, 2 figs. By the American Society of Mammalogists.
- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
- USDA, Forest Service Region 3. 2007. 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):37965.
- USDI, Fish and Wildlife Service. 1989. Endangered and Threatened Wildlife and Plants; Animal Notice of Review. Federal Register 54(4):562.
- USDI, Fish and Wildlife Service. 1991. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species; Proposed Rule. Federal Register 56(225).
- Whitaker, J.O. 1996. National Audubon Society Field Guide to North American Mammals. Alfred A. Knopf, New York, p. 177, 472.
- Wilson, D. E. and D. M. Reeder, eds. 2005. Mammal species of the World: A taxonomic and Geographic Reference, Third edition, Volume 1. The Johns Hopkins University Press, Baltimore, Maryland. 812.
- Wilson, D.E. & S. Ruff. 1999. The Smithsonian Book of North American Mammals. Smithsonian Institution Press, Washington. Pp: 436-438.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

2004-01-24 (AMS)

2011-02-24 SMS

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