

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

Animal Abstract

Element Code: AMAFB07060

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Sciurus arizonensis* Coues

COMMON NAME: Arizona Gray Squirrel

SYNONYMS:

FAMILY: Sciuridae

AUTHOR, PLACE OF PUBLICATION: Coues, 1867. Amer. Nat., 1: 357.

Subspecies *catalinae*: Douth, J.K. 1931. Ann. Carnegie Mus. 20:271-273.

TYPE LOCALITY:

S. a. arizonensis: "Fort Whipple," Yavapai Co., Arizona, USA.

S. a. catalinae: Soldier Camp, 8000 ft., Santa Catalina Mts., Pima Co., Arizona.

S. a. huachuca: Huachuca Mts., Cochise Co., Arizona.

TYPE SPECIMEN: USNM-37607/8475, skin, skull

TAXONOMIC UNIQUENESS: Three subspecies of *Sciurus arizonensis* have been recognized: *huachuca*, *arizonensis* and *catalinae* (Hoffmeister 1986, and Wilson and Reeder 2005 – who lists them in bold under the synonym section [read their section on synonyms for explanation]). Hoffmeister (1986:210) "...regard[s] all populations as part of a single, somewhat variable, unit. Thus, *S. arizonensis* is regarded as monotypic." However, discriminant function and principle components analysis separates the Santa Catalina and Rincon mountains population from all others (Hoffmeister 1986:207-210). Brown (1984:41) discusses the possibility of regarding *S. arizonensis* and *S. nayaritensis* as a subspecies of *S. niger* (eastern fox squirrel), and Hoffmeister (1986:214) notes that the skulls of *S. arizonensis* and *S. nayaritensis* are nearly indistinguishable. Wilson and Reader (2005) consider these two squirrels separate.

DESCRIPTION: Tree squirrel with full, bushy tail, fringed in white with gray inner hairs and a black border between. Dorsal pelage is steel-gray in color with russet on the central back and rump (the rump of *huachuca* is mouse-gray; in *arizonensis* the rufus coloration extends from the head to the base of the tail). Underparts white; ears short and rounded, and without tufts; white eye-ring. No black lateral line separating the dorsal and ventral pelage. Head and body measure 10-11 in. (25-28 cm); tail 10-12 in. (25-30 cm); wt. 1.33-1.66 lb. (605-756 g).

AIDS TO IDENTIFICATION: Lighter dorsal pelage, ears without tufts, lack of black lateral line, and gray flecked feet each separate *S. arizonensis* from *S. aberti* (Abert's squirrel). Distinguished from *S. nayaritensis* (Mexican fox squirrel) by white rather than reddish underparts, gray feet, tail bordered with white and more grayish on the back; these squirrels are not sympatric.

ILLUSTRATIONS:

Color photo of juvenile (Brown 1984:42, undetermined subspecies)

Black and white photo (Hoffmeister 1986:211, undetermined subspecies)

Color photo (http://www.mnh2.si.edu/education/mna/image_info.cfm?species_id=304)

Color photo (<http://enature.com/> ©Richard Forbes)

TOTAL RANGE: The species ranges across central Arizona along the Mogollon Rim into western New Mexico, along with several mountain populations in southern Arizona south just into Sonora, Mexico.

RANGE WITHIN ARIZONA: The range of subspecies *S. a. arizonensis* includes the Mogollon Rim, Bradshaw Mts., White Mts., Mazatzal Mts., and Sierra Ancha Mts. *S. a. catalinae* can be found in the Santa Catalina and Rincon mountains of south-central Arizona. The subspecies *S. a. huachuca* can be found in the Huachuca Mts., Santa Rita Mts., Patagonia Mts., and Pajarito Mts.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Often rather secretive; “freezes” when threatened; comparatively silent. When the squirrels are vocal, they are invariably in a tree and responding to some human or animal intruder. Alarm barks vary, but generally are more “raspy” and gruff than the “quirk” calls of the Abert's squirrel and may be followed by a “whirring” screech or scream. Observed predators include Goshawks and Red-tailed hawks, however, far more squirrels have been observed as road-kills. Species will habituate to humans in areas where humans feed squirrels regularly.

REPRODUCTION: Mating chases have been observed on April 8, 1943 at Summerhaven in the Catalina Mountains, and February 7, April 25, and May 13, 1976, in the Catalina Mountains. The onset of breeding activity was correlated with flower emergence and flower parts in the diet (Brown 1984); there is no evidence of fall litters. Examination of reproductive organs showed the period of sexual activity to be from January through June. No evidence was found of any female having more than one litter per year. Dome-shaped nests are built high (usually 35-60 feet) in trees for nesting if a den tree is not available. Nests are normally a foot across and 2 feet tall.

FOOD HABITS: The Arizona gray squirrel is a forager, neither caching food nor burying nuts. However it has been observed that they buried individual acorns in leaf. Walnuts, acorns, juniper berries, hackberries and pine seeds are taken throughout the year and comprises 67% of the squirrel's total diet. Fungi were noted to be important year-long. Flower parts were seasonally important and coincided with the breeding season. (Brown 1984:45). Douthett (from Hoffmeister 1986:210) states that in the Santa Catalina Mountains, "squirrels were feeding on the seeds of the White Pine cones." Douthett watched one squirrel "...go out to the end of the branch and gnaw off a cone. Instead of letting the cone fall to the ground and going there to eat it, he carried it part way back along the branch and there, balancing himself on his hind feet, he held the cone between his front feet and the branch. As he ate the seeds he turned the cone around on the branch with much dexterity."

HABITAT: The species is typically found in dense, mixed broad-leaf forested canyon bottoms and drainage ways within large stature conifer or evergreen forests. Associated with large oaks, sycamores, big tooth maple, walnut, box elder, ash and alder intermixed with pines.

ELEVATION: 3,500 to 7,500 feet (1,068 - 2,288 m); somewhat higher in southern Arizona to about 8,500 feet (2,593 m). It favors riparian habitats of alder, ash, cottonwood, sycamore, and walnut at elevations of 5,000 to 6,500 feet (1,525 - 1,983 m).

BIOTIC COMMUNITY: Mixed broadleaf deciduous woodland/montane forest.

POPULATION TRENDS: Unknown. The species often seems to fluctuate from year to year; most investigators believe this fluctuation is due to available food supplies, which varies each year. There may have been a decrease in some areas, such as in the Huachuca and Atascosa mountains.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None

STATE STATUS: None

OTHER STATUS: None

MANAGEMENT FACTORS: Dependence on mast-producing trees; difficulty of accurate surveys.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Studies are needed to determine population status, ecological requirements, limiting factors, and life history. Evaluation of effects of harvest by hunting should also be may also be needed.

LAND MANAGEMENT/OWNERSHIP: BIA; USFS – Apache-Sitgreaves, Coconino, and Coronado National Forests; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Anderson, S. 1972. Mammals of Chihuahua, taxonomy and distribution. Bulletin of the American Museum of Natural History. 148: 2. p. 282. New York.
- Arizona Game and Fish Department. 1994. August issue of the Wildlife Views. Arizona Game and Fish Publication. Phoenix, Arizona. P. 20.
- Biota Information System of New Mexico. 2005. BISON Species Account 050780: Arizona gray squirrel (*Sciurus arizonensis*). New Mexico Game & Fish. http://fwie.fw.vt.edu/states/nmex_main/species/050780.htm.
- Brown, D.E. 1984. Arizona's tree squirrels. Arizona Game and Fish Department Publication. Phoenix, Arizona. pp. 39-61.
- Burt, W.H. and R.P. Grossenheider. 1976. A field guide to the mammals of America north of Mexico. Houghton Mifflin Company. Boston, Massachusetts. p. 118.
- Cockrum, E.L. 1960. The recent mammals of Arizona: their taxonomy and distribution. The University of Arizona Press. Tucson, Arizona. pp. 101-103.
- Enature: An online field guide [web application]. 2005. San Francisco, CA. USA: National Wildlife Federation. Available: <http://enature.com/home>.
- Doutt, J.K. 1931. A new subspecies of the Arizona gray squirrel (*Sciurus arizonensis* Coues). Annals Carnegie Museum 20: 271-273.
- Hall, E.R., and K.R. Kelson. 1959. The mammals of North America. Volume I. John Wiley & Sons. New York. Pp. 393-394.
- Hall, E.R. 1981. The mammals of North America. Volume I. John Wiley & Sons. New York. Pp. 432-433.
- Hoffmeister, D.F. 1986. Mammals of Arizona. The University of Arizona Press. Arizona Fish and Game Dept. Tucson, Arizona. pp. 206-213.
- NatureServe: An online encyclopedia of life [web application]. 2005. Version 4.3. Arlington, Virginia. USA: Association for Biodiversity Information. Available: <http://www.natureserve.org/>.
- Smithsonian: Mammals of North America [web application]. 2005. Washington, D.C. USA: National Museum of Natural History. Available: http://www.mnh2.si.edu/education/mna/image_info.cfm?species_id=304
- Theobald, D.P. 1983. Studies on the biology and habitat of the Arizona gray squirrel. Unpublished thesis. Arizona State University.
- Wilson, D.E., and S. Ruft. 1993. The Smithsonian book of North American mammals. Smithsonian Press. Washington, DC. pp. 450-451.
- Wilson, D.E., and D.M. Reeder, Eds. 2005. Mammal Species of the World: A Taxonomic and Geographic Reference. Third edition, volume 2. The John Hopkins University Press. Baltimore, Maryland. P. 759.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

D.E. Brown - Phoenix, Arizona.

D.F. Hoffmeister – Professor Emeritis, University of Illinois, Urbana.

ADDITIONAL INFORMATION:

Revised: 1991-12-27 (DBI)
1992-05-09 (BKP)
1998-01-20 (SMS)
2005-10-06 (AFE)
2008-12-18 (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.