Tamias durangae. By Troy L. Best, Stephanie L. Burt, and Jarel L. Bartig

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Tamias durangae (J. A. Allen, 1903)  
Durango Chipmunk

_Eutamias durangae_ J. A. Allen, 1903:594. Type locality “Arroyo de Bacy [in the Sierra del Candella, at an altitude of about 7500 feet—Allen, 1903:595], northwestern Durango, Mexico.”

_Tamias_ nexus Elliot, 1905:233. Type locality “Coyotes, Durango, Mexico.”


CONTEXT AND CONTENT. Order Rodentia, Suborder Sciuromorpha, Family Sciuridae. The genus _Tamias_ contains ca. 24 species (Honacki et al., 1982). _T. durangae_ (Fig. 1) is in the subgenus _Neotamias_ and the _amoenus_ species group (Levenson et al., 1985).

Two subspecies of _T. durangae_ are recognized (Callahan, 1980):

T. d. durangae (J. A. Allen, 1903:594), see above (nexus Elliot is a synonym).

T. d. solivagus (A. H. Howell, 1922:179). Type locality “Sierra Guadalupe, Coahuila, Mexico.”

DIAGNOSIS. Differences are not extreme among _T. balleri_ and _T. solivagus_ (Baker, 1956). The upper parts of _T. durangae_ and _T. solivagus_ are suffused with cinnamon, and the underside of the tail, except in a few _T. durangae_ taken outside the range of _T. balleri_, is dark reddish-brown. By contrast, _T. balleri_ consistently lacks the cinnamon dorsal coloration and the underside of the tail is pale yellowish-tan (Callahan, 1980). The shaft of the baculum (Fig. 2) of _T. d. durangae_ is longer, the angle is greater, and the height of the keel is less than in _T. balleri_ (Fleharty, 1960).

Compared with _T. durangae_, _T. canipes_ from the Sacramento Mountains, New Mexico, does not differ significantly in most cranial and external measurements. _T. canipes_ from the Guadalupe Mountains, New Mexico and Texas, are smaller than _T. durangae_ in both cranial and external measurements (Fleharty, 1960). Compared with _T. canipes_, _T. d. solivagus_ has a more blackish outer pair of dorsal stripes, darker sides and rump, less distinct postauricular patches, more buffy (less grayish) feet, a tail that is darker beneath and edged with a darker shade of buff (Howell, 1929).

The skull (Fig. 3) of _T. d. durangae_ is significantly larger on average than that of _T. dorsalis_ in all measurements, except breadth of braincase; length of maxillary toothrow shows less overlap than other measurements (Anderson, 1972). _T. d. solivagus_ differs little from _T. cinereicollis_ from New Mexico (Baker, 1956). However, when length of basiulum is plotted against greatest length of skull, _T. d. durangae_ differs significantly from _T. canipes_, _T. cinereicollis_, and _T. quadriovittatus_ (Patterson and Thaeler, 1982).

GENERAL CHARACTERS. _Tamias durangae_ has nine distinct dorsal stripes, alternating dark and pale (Anderson, 1972). In summer pelage (July), the top of the head of _T. d. durangae_ is mixed sayal brown and grayish white, bordered on each side with fuscous. The ocular stripe is black and mixed with verona brown between the eye and ear. The submalar is verona brown. The ears are fuscous anteriorly with the posterior one-third grayish or buffy white, this color forming a band ca. 4 mm wide. The postauricular spots are larger and grayish white. Shoulders have a distinct grayish wash. The median dorsal stripe is black, bordered with mikado brown, becoming paler and less distinct on the nape and occiput. The outer dorsal stripes are broad and mikado brown; the lateral stripes are of the same color and width as the inner pair. The pale dorsal stripes are dull buffy white, mixed with cinnamon. Sides are dull cinnamon or cinnamon buff, shaded with smoke gray on the shoulders. Rump and thighs are cinnamon buff mixed with smoke gray. Feet are pinkish buff. Dorsally, the tail is fuscous (bases of hairs are pinkish cinnamon) overlaid with pale-pinkish buff. Ventrally, the tail is dark tawny or russet, bordered with fuscous and tipped with pale-pinkish buff. Underparts are creamy white tinged with pale buff. In winter, the pelage of _T. d. durangae_ is similar to the summer pelage, but upper parts are less strongly suffused with brownish and the outer pair of dorsal stripes is more blackish (color nomenclature follows Ridgway, 1912—Howell, 1929).

In summer pelage, the top of the head of _T. d. solivagus_ is fuscous and is overlaid with grayish white, shaded on the front of the face with snuff brown, and bordered on the sides of the crown with fuscous. Sides of the nose are cinnamon buff. Ocular stripe is fuscous black, shaded posteriorly with verona brown. Submalar stripe is fuscous, mixed with verona brown. Ears are fuscous, margined posteriorly with grayish white, and washed on the anterior margin with mikado brown. Postauricular patches are small, indistinct, and buffy white. Shoulders are faintly and indistinctly washed with smoke gray mixed with dull cinnamon buff. Dorsal stripes are rather broad, black, and margined with mikado brown. The pale dorsal stripes are dull white and the median pair is more grayish. The lateral stripes are bister, broad, and not sharply defined. Sides are cinnamon and

![Fig. 1. Tamias durangae durangae near El Salto, Durango, Mexico. Photograph by T. L. Best.](image)

![Fig. 2. Right lateral view of male (above) and female (below) osa genitalia of (a) Tamias durangae durangae and (b) T. d. solivagus (modified from Callahan, 1980).](image)
sayal brown washed on the shoulders with smoke gray and cinnamon buff. Rump and thighs are smoke gray shaded with cinnamon buff. Feet are pinkish buff, shaded with grayish. Dorsally, the tail is fuscous (bases of hairs are pinkish cinnamon) and overlaid with pinkish buff. Ventrally, the tail is ochraceous tawny, bordered with fuscous and tipped with pinkish buff. Underparts are creamy white. In winter, the pelage of T. d. solivagous is similar to fresh summer pelage, but the dorsal stripes are suffused brown and faintly shaded with fuscose black. The median stripe often is black on the posterior back (color nomenclature follows Ridgway, 1912—Howell, 1929).

Average and range of measurements (in mm) of male and female T. d. durangae, respectively, are: length of head and body, 137 (125—156), 138 (131—150); length of tail vertebrae, 91 (80—100), 98 (87—110); length of hind foot, 35 (31—37), 36 (34—38); greatest length of skull, 37.4 (36.0—38.9), 38.0 (36.9—39.5); length of rostrum, 14.2 (13.6—15.1), 14.4 (13.5—15.8); length of braincase, 23.2 (22.0—24.2), 23.5 (23.1—24.0); length of maxillary tooth-row, 6.2 (5.8—6.4), 6.3 (6.0—6.6); length of nasals, 11.7 (10.2—12.6), 12.1 (11.2—13.3); syzygomatic breadth, 20.2 (19.9—21.2), 20.6 (19.5—21.3); depth of cranium, 15.2 (14.8—16.0), 15.2 (14.7—15.7); least interorbital breadth, 8.5 (7.5—9.3), 8.4 (7.9—9.1); breadth of cranium, 17.7 (17.0—18.2), 17.7 (17.2—18.5); breadth of rostrum, 9.2 (8.3—9.9), 9.3 (8.4—10.3); width of nasals, 2.9 (2.5—3.6), 2.9 (2.4—3.4) (Callahan, 1980).

Average and range of measurements (in mm) of male and female T. d. solivagous, respectively, are: length of head and body, 129 (121—137), 129 (119—144); length of tail vertebrae, 96 (85—112), 103 (86—112); length of hind foot, 34 (30—34), 34 (31—36); greatest length of skull, 36.4 (35.7—38.2), 36.3 (35.4—37.2); length of rostrum, 13.2 (12.7—13.9), 13.2 (12.8—13.8); length of braincase, 23.2 (22.7—24.3), 23.1 (22.3—23.9); length of maxillary tooth-row, 5.7 (5.3—6.0), 5.8 (5.4—6.3); length of nasals, 11.2 (10.0—11.9), 11.2 (10.2—12.1); syzygomatic breadth, 19.4 (18.7—20.1), 19.6 (19.2—20.5); depth of cranium, 14.6 (14.3—14.8), 14.5 (14.0—14.9); least interorbital breadth, 8.0 (7.7—8.3), 8.1 (7.7—8.6); breadth of cranium, 17.2 (16.7—17.8), 17.2 (16.8—17.6); breadth of rostrum, 8.3 (7.6—9.1), 8.3 (7.8—9.1); width of nasals, 2.8 (2.4—3.2), 2.7 (2.1—3.2) (Callahan, 1980); body mass of two adult males was 70.0 and 68.4 g and of two adult, non-pregnant females was 88.0 and 79.5 g (Baker, 1956).

DISTRIBUTION. Tamias d. durangae occurs in the Sierra Madre of Mexico from southern Durango northward to southern Chihuahua in the transition zone at elevations of 1,950—2,550 m. T. d. solivagous occurs on Sierra Guadalope, Coahuila, in the transition zone at elevations of 2,550—2,850 m (Fig. 4; Callahan, 1980; Hall, 1981; Miller and Kellogg, 1953). No fossils of T. durangae are known.

FORM AND FUNCTION. On 1—3 May, six of 15 T. d. solivagous were in faded winter pelage, while the remainder were in fresh summer pelage. Molt apparently begins on the posterior back and sides and spreads in both directions (Howell, 1929).

Average and range of measurements (in mm) of bacula of five specimens from Durango (either T. bulleri or T. durangae) are:
length, 5.3 (5.1–5.7); thickness of tip, 2.1 (2.0–2.2); width of tip, 0.7 (0.5–0.8); height of base, 0.9 (0.8–1.1); width of base, 1.4 (1.2–1.5) — Bart, 1960).

**Ontogeny and Reproduction.** In Chihuahua, the sex ratio was 8 males: 19 females. No embryos were present in a female *T. d. durangae* on 30 June (Anderson, 1972). In Durango, a female (either *T. bulleri* or *T. durangae*) had two embryos on 18 July and another had three embryos on 26 June. Lactating females were observed 27 June to 20 July (Baker and Greer, 1962). West of El Salto, Durango, one female had four embryos in May; two-thirds grown juveniles also were present (J. R. Callahan, in litt.). In Coahuila, lactating females occurred on 28 July and 3 August (Baker, 1956). Two non-adults were among 13 *T. durangae* observed in Durango on 22–30 May (Allan, 1903).

Specimens of *T. d. durangae* may be separated into three age classes on the basis of the third upper molar. Animals are considered as adults if the molar is so worn that dentine can be seen, as subadults if the molar is fully erupted and dentine is not visible, and as juveniles if the molar is not fully erupted (Fleharty, 1960; Patterson, 1980).

**Ecology.** *Tamias* *d. durangae* occupies the Sierra Madre Occidental biotic province, located in western Mexico. General conditions are fairly uniform throughout this area, which takes the form of a rolling plateau at 2,100–2,400 m altitude; the western side is deeply cut by canyons bearing drainage out to the Pacific Ocean. The climate is rather dry, although heavy rains are frequent during summer and some snow falls on upper slopes in winter and as late as May. Upper slopes of the mountains primarily are covered with forests of pine (Pinus) and oak (Quercus) with scattered pineate (*Abies religiosa*), Douglas fir (*Pseudotsuga menziesii*), and quaking aspen (*Populus tremuloides*). At lower elevations in the upper Sonoran zone, oaks, many shrubs (including manzanita, *Arctostaphylos pungens*), several species of mountain mahogany (*Cercocarpus*), and *Ceanothus* become dominant (Goldman, 1951). In Durango, *T. d. durangae* occupies pine–oak forests of the Sierra Madre Occidental. It is common in mesic pine–oak woodlands >2,250 m in elevation. The Durango chipmunk frequently is seen along the Mazatlán–Durango highway in the vicinity of La Ciudad, where it uses rotting piles of wood as nesting sites. As home sites, it seems less abundant in drier woodlands (Baker and Greer, 1962).

*Tamias* *d. solivagus* occupies the Sierra Madre Oriental Biotic Province. This region receives a moderate amount of rainfall. Occasional winter storms leave some snow for a short time on upper slopes of the mountains (Goldman, 1951). In these montane mesic forests of the Sierra de Guadalupe and the Sierra Madre Oriental of southeastern Coahuila, *T. d. solivagus* occurs in stands of pine (*Pinus*), fir (*Abies*), and aspen (*Populus*), at elevations ≥2,700 m. In April, it was observed under moss-covered rock ledges along a small mountain stream under a dense canopy of coniferous trees. In late July and early August, it was more abundant in this area (Baker, 1956).

There is a paucity of information regarding foods consumed by *T. durangae*. However, four *T. d. durangae* from three localities in Durango had cheek pouches stuffed with corn and acorns (Goodwin, 1954). In early May, this species was observed feeding on pine nuts and on a large, green oak gall west of El Salto, Durango (J. R. Callahan, in litt.).

It has been stated that the deeply entrenched canyon of the Rio Mierazú–Río San Pedro, which cuts entirely through the Sierra Madre Occidental to drain parts of the open lands to the eastward, presents a barrier separating *T. bulleri* and *T. durangae* (Baker and Greer, 1962). As predicted, *T. d. durangae* occurs north of the canyon; however, *T. bulleri* occurs on both sides of this deep canyon (Callahan, 1980).

In Durango, *T. d. durangae*, which occurs in more mesic habitat, is not sympatric with *T. dorsalis* (Baker, 1966). However, in southern Chihuahua, *T. d. durangae* and *T. dorsalis* are sympatric. To the north of this region, only *T. dorsalis* occurs; to the south and in adjacent parts of Durango, only *T. d. durangae* occurs (Anderson, 1972).

Mammals occurring in the same biotic province as *T. durangae* include *Sorex vagrans*, *Ursus americanus*, *Procyon lotor*, *Spilogale gracilis*, *Mephitis mephitis*, *Urocyon cinereoargenteus*, *Canis latrans*, *C. lupus*, *Felis pardinus*, *Spermophilus variegatus*, *S. madrensis*, *Tamias dorsalis*, *Sciurus aberti*, *S. apache*, *Glaucomys volans*, *Thomomys umbrius*, *Peromyscus melancotis*, *P. boylii*, *P. truei*, *P. difficilis*, *Sigmodon hispidus*, *Neotoma albigula*, *N. mexicana*, *Nelsonia neotomoides*, *Microtus mexicanus*, *Sylvilagus floridanus*, *Odocoileus virginianus*, *Corynorhinus phylloides*, *Idio- nytteris mexicanus*, *Conepatus pedunculatus*, and *interruptus castanops* (Goldman, 1951). No parasites are known.

**Behavior.** The Durango chipmunk often is secretive and difficult to see in its habitat among the rocks, logs, and litter on the forest of pines and oak. One was observed at a cavity, apparently its den, in a rock outcrop. Another was in a forest of Douglas fir and pine (Hooper, 1955). This species gives both the "chuck" and "trill" vocalizations (Callahan, 1980).

**Genetics.** This species has karyotype A of *Tamias* (Fig. 5—Callahan, 1975). The diploid karyotype contains 38 chromosomes including three pair of large metacentric, six pair of large submetacentric, four pair of large acrocentric, one pair of small acrocentric, and four pair of small acrocentric chromosomes. The *X* chromosome is submetacentric and the *Y* is acrocentric (Sutton and Nadler, 1969).

**Remarks.** Based upon phenetic analyses of morphologic data, *T. durangae* is similar to *T. bulleri*, *T. canipes*, *T. cinereicolis*, *T. dorsalis*, and *T. obscurus*. *T. durangae* is placed in the same species group as *T. amoenus*, *T. canipes*, *T. cinereicolis*, *T. palmeri*, and *T. umbrius* (Levenson et al., 1985; Nadler et al., 1985). The osa genitalia of *T. d. durangae* and *T. d. solivagus* resemble those of the *T. canipes*—*T. cinereicolis* group. Both subspecies of *T. durangae* may be conspecific with *T. canipes* (Callahan, 1980).

*Tamias* is from the Greek *tamias* meaning a storier or distributor (Jaeger, 1955). The specific epithet *durangae* refers to the Mexican state of Durango, site of the type locality. Another common name is Coahuila chipmunk (Howell, 1929).

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