

The Smithsonian Book of
**North American
Mammals**



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Nelson's antelope squirrel | *Ammospermophilus nelsoni*

Nelson's antelope squirrel occurs in the San Joaquin Valley of California, and on the slopes and ridgetops in the foothills along the western edge of the valley, in the Cuyama and Panoche valleys, and on the Carrizo and Elkhorn plains. The elevational range is about 50–1,100 meters. Post-Pleistocene fossils resembling *A. nelsoni* have been found near McKittrick, Kern County, California.

These antelope squirrels are active early or late in the day and are not early risers, rarely being found aboveground until well after sun-up. During cold periods, mid-day is used for aboveground activities, and during warm periods the early morning and late afternoon hours are used. The squirrels are cautious about coming out of their burrows; they never come out hastily. When they move, their actions are abrupt, as though they have suddenly decided what to do. Their quiet calls are short trills, more noticeable to human observers by the associated convulsive movement of the body than by the sound itself. When foraging, they move close to the ground, often stopping in the shelter of a bush or pausing in the open to search quietly, with body extended, for food. They show great agility in climbing and catch grasshoppers by leaping with the insect until both come down at the same place at the same time. Often they stretch out to their full length and roll over and wallow in the fine powdery dust along the washes. They are social.

The ears are short and broad, the tail is 25–33 percent of the total length, and the legs are relatively long. There is a whitish stripe on each side reaching from behind the shoulder to the rump. The underparts, feet, and eyelids are whitish. The upperparts are dull yellowish-brown, as are the outer surfaces of the legs. Geographic variation is primarily in color and size. Populations in the southern San Joaquin Valley are smaller and less yellowish, with a gradual increase in size to the largest, more yellow northern populations.

The breeding period is late winter through early spring; gestation is 26 days. Six to 11 young (average is nine) usually are born in March and are first seen aboveground about the first week in April. This is the only breeding season, and it coincides with the one period of the year when green vegetation is present. Neonates weigh about 5 grams, average 58 millimeters long, and are hairless, quite active, and able to make mewing sounds. At about 30 days, when the eyes open, the young are well furred and begin to appear aboveground. Weaning may be started or completed before the young come aboveground. During weaning, the female forages alone and leaves any young that approach her. She keeps contact by occasional visits or by using the calls by which family groups communicate. She does not allow the young to nurse even though they nuzzle her from time to time. Change from juvenile to adult pelage



Ammospermophilus nelsoni

begins about the time the young become independent, and usually by mid-May the adult summer coat is present. After the first year, it is difficult to tell age groups apart. The usual life span is less than a year, but some individuals live 5–6 years.

Nelson's antelope squirrels usually inhabit open, rolling land and gentle slopes with shrubs. During the breeding season, burrows most often used by adult females and their young are under shrubs such as ephedra or saltbush. *A. nelsoni* seldom excavates burrows: it utilizes burrows dug by kangaroo rats. The burrows are somewhat complicated, with two or three pas-

sageways converging at a depth of 30 centimeters or more. The entrances are 4–20 centimeters in diameter.

Nelson's antelope squirrels are omnivorous and consume vegetable and animal food of many types, including rodents, lizards, and their own kind (probably as carrion). The cheek pouches of one squirrel contained 744 seeds, but these squirrels do not store food in their burrows. Insects make up about 90 percent of the diet from mid-April to December. Seeds usually comprise about 10 percent of the diet, except from March to May and in December and January, when they may reach 20 percent of the diet. Both green vegetation and insects are selected more often than seeds, possibly due to their water content.

Six or eight individuals constitute a colony of average size. However, antelope squirrels are not distributed evenly over their geographic range. There may be more than 10 per hectare

in some areas, but generally the density is lower than one per hectare. The home range of both sexes is about 4.4 hectares, with areas of concentration within this range. Only 50 percent or less of the home range is covered each day. *A. nelsoni* occurs in the same habitat as cottontails, black-tailed jackrabbits, pocket gophers, Heermann's, Fresno, and giant kangaroo rats, pocket mice, deer mice, woodrats, long-tailed weasels, badgers, bobcats, coyotes, and kit foxes. Predators include red-tailed hawks, great-horned owls, barn owls, prairie falcons, badgers, coyotes, and kit foxes. Parasites include cestodes, nematodes, acanthocephalans, ticks, and fleas.

Human activity is the greatest threat to *A. nelsoni*. Because of intense agricultural development of the San Joaquin Valley, its habitat has been subjected to extreme destruction. *T. L. Best*

Size

Males are slightly larger than females.

Total length: 234–267 (249) mm (males);

230–256 (238) mm (females)

Length of tail: 66–78 (73) mm (males); 67–78

(72) mm (females)

Weight: 142–179 (155) g

Identification

Ammospermophilus nelsoni is the only species of its genus present in the San Joaquin and adja-

cent valleys, California. The whitish stripes on the sides and the tail carried forward over the back are conspicuous features. When the animal is running, the tail is displayed so that at a distance it looks like a bit of thistledown blowing along the ground.

Recent Synonyms

Spermophilus nelsoni

Other Common Names

San Joaquin antelope squirrel, Nelson's spermophile, antelope chipmunk

Status

Uncommon

References

Mammalian Species 367; Grinnell and Dixon, 1918