

The Smithsonian Book of
**North American
Mammals**



EDITED BY DON E. WILSON AND SUE RUFF

Panamint kangaroo rat | *Dipodomys panamintinus*

Dipodomys panamintinus occurs at elevations from about 1,100 to 2,700 meters in eastern California and western Nevada. No fossils are known.

The Panamint kangaroo rat is a nocturnal, seed-eating rodent that lives on metabolic water. It is active throughout the year, except when there is more than 40 percent snow cover, but its tracks have been found in the snow. Each night, the periods of greatest activity are about 2 hours after sunset and about 6–9 hours after sunset; it is inactive, or its activity level is low, toward sunrise.

This species is solitary except during estrus. Fights occur when two or more animals are closely confined. Fighting is not continuous, but consists of brief, vigorous skirmishes interrupted by periods of withdrawal. The results of aggressive behavior often are fatal. Responses between males and females change cyclically as the female passes through estrus. Males are more involved in sandbathing, digging, and kicking sand on the days preceding or following estrus than on the actual day of estrus. Nonvocal communication includes tooth-chattering and foot-drumming. Vocalizations include low-pitched growls.

When moving slowly, *D. panamintinus* travels by quadrupedal hopping, bipedal hopping, or bipedal walking. When moving rapidly, it uses bipedal hopping; the length of the hop is about the length of the body. When it is frightened, the hopping becomes modified into a series of erratic bipedal leaps. *D. panamintinus* employs sudden and unpredictable alterations in the direction of movement when it is attempting to escape predators, not because of loss of balance and control, but because of



Dipodomys panamintinus

its remarkable ability to maintain equilibrium at all times. Panamint kangaroo rats rarely climb vegetation, and they are excellent swimmers. Their large hind feet give them considerable agility in the water.

In early winter, the external, fur-lined cheek pouches often contain many green shoots of grass and only a few seeds, but during drier months, seeds are gathered more often. When foraging, each food item is handled with the forepaws. All han-



dling of objects is done beneath the head, well out of view of the dorsally-positioned eyes. Neither visual nor olfactory cues appear to be of major importance in distinguishing between food or nonfood objects. No objects, including those located directly beneath the nose, are rejected prior to being touched or manipulated. Seeds are hulled prior to being placed into cheek pouches, resulting in a 40 percent more efficient use of the pouches. About nine seeds can be pouched per second.

The Panamint kangaroo rat is medium-sized for the genus. Each of the large hind feet has five toes. The tail is heavily crested and is 1.4 times the length of the head and body. The upperparts are pale brownish and underparts are white. Facial crescents and the end of the nose are blackish, as are the eyelids and the anterior part of the ears; the posterior part of the ears is whitish. The tail has a ventral stripe that may extend to the end of the vertebrae. There is one molt per year, which usually occurs in June or July.

The peak of the breeding season is February or March. The gestation period is 29–30 days, litter size is 3–4, and mass of newborns is 4.5 grams. The young are born in a nest. They are fully furred at 10–14 days of age, their ears open at 12–14 days,

and their eyes open at 17–18 days. The toes are separate at birth, but the cheek pouches are only slight indentations on the lower side of the jaw. They rapidly indent to become functional in about 2–3 weeks. Active grooming begins at 24 days, weaning begins at 27–29 days, the young leave the burrow at 28 days, and sexual activity begins at 24–56 days. Juveniles molt from March through October. Young in juvenile pelage look like adults, but are paler and have shorter hair at the end of the tail.

Panamint kangaroo rats occur in areas where Joshua trees, juniper trees, creosotebushes, yuccas, cacti, and catclaws are common and widely scattered. The soil occupied may be coarse sand, gravelly desert flats, alkaline, or the surface may be impregnated with salts and have a crust. These kangaroo rats avoid cliffs and areas with desert pavement. They occupy holes in small mounds of sand that have accumulated around clumps of brush. One animal may occupy a burrow that has 12 or more tunnels, the mouths of which are connected on the surface by well-defined runways.

There is great variability in size of home range throughout the year; the average is 0.43 hectares. Peaks in size of home range are in February (1.2 hectares) and July (1.0 hectares). Home ranges usually are elliptical in shape, and there is no difference between sexes in size of home ranges. However, in some parts of the range, males may occupy home ranges that have significantly more pinyon pines than do the home ranges occupied by females.

Other mammals associated with Panamint kangaroo rats include white-tailed antelope squirrels, Mohave ground squirrels, pocket mice, kangaroo mice, chisel-toothed, Ord's, and Merriam's kangaroo rats, deer mice, grasshopper mice, harvest mice, and desert woodrats. Internal parasites include protozoans, nematodes, and cestodes. Ectoparasites include chiggers, ticks, and fleas. *T. L. Best*

Size

Males are slightly larger than females.
Total length: 292 mm (males); 288 mm (females)
Length of tail: 172 mm (males); 170 mm (females)
Weight: 72 g

Identification

Several other species of kangaroo rats occur within or near the range of *D. panamintinus*. Compared with *D. merriami*, which has four toes on each hind foot, *D. panamintinus* is larger and has five toes on each hind foot. *D. microps* has flattened incisors that are wider than those of *D. panamintinus*. *D. ordii* is smaller, its tail is 110–130 percent of the length

of head and body (compared with 140–150 percent for *D. panamintinus*), the white stripe on the tail is as wide as or wider than the ventral dark tail stripe, and the ventral tail stripe never reaches the end of the vertebrae.

Recent Synonyms

Perodipus leucogenys
Perodipus mohavensis
Perodipus panamintinus

Other Common Names

Mojave kangaroo rat

Status

Common

Subspecies

Dipodomys panamintinus argusensis, Argus Mountains, California
Dipodomys panamintinus caudatus, southern Nevada and eastern California
Dipodomys panamintinus leucogenys, western Nevada and eastern California
Dipodomys panamintinus mohavensis, south-central California
Dipodomys panamintinus panamintinus, Panamint Mountains, California

References

Mammalian Species 354; Hall, 1946