Dipodomys phillipsii. By J. Knox Jones, Jr., and Hugh H. Genoways
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Dipodomys phillipsii Gray, 1841
Southern Banner-tailed Kangaroo Rat
Dipodomys ornatus Merriam, 1894:110. Type locality Berriozábal, Zacatecas.
Dipodomys perotensis Merriam, 1894:111. Type locality Perote, Veracruz.

CONTEXT AND CONTENT. Order Rodentia, Family Heteromyidae, Subfamily Dipodomynidae. The species contains four subspecies (Genoways and Jones, 1971) as follows:
D. p. phillipsii Gray (1841:522), see above.
D. p. ornatus Merriam (1894:110), see above.
D. p. perotensis Merriam (1894:111), see above.
D. p. oaxacae Hooper (1947:48). Type locality Teotitlán, 950 m, Oaxaca.

DIAGNOSIS. Kangaroo rat of moderate size; four toes on hind foot; tail relatively long, its dark stripes uniting in distal third, and usually tipped with white; cranium (figure 1) flattened, postrostral region nearly quadrate owing to relatively great breadth across orbital portion of maxillae coupled with relatively small mastoidal bullae; maxillary plate projecting posteriorly to level of second or third molar; rostrum narrow and parallel-sided; dental formula, as in all other heteromyids, 1/1, c 0/0, p 1/1, m 3/3, a total of 20; incisors slender and slightly built in relation to other species in the genus.

GENERAL CHARACTERS. Dorsal color ranging from ochraceous through cinnamon to brownish, admixed with black hairs; average middorsal reflectance readings (as a percentage of pure white) from 15 samples from throughout the geographic distribution of the species ranged from 12.1 to 10.2 for red, 6.6 to 10.3 for green, and 5.9 to 8.8 for blue (Genoways and Jones, 1971:273); arietiform facial markings blackish and extensive. Juvenile pelage is less luxuriant, gray, and darker dorsally than that of adults, and the individual hairs are finer.

Externally, D. phillipsii is characterized by a small body and long, slender, "banner," tail. There is little secondary sexual differentiation among adults. Means for total length (in millimeters) of adults from 15 samples from throughout the range of the southern banner-tailed kangaroo rat (Genoways and Jones, 1971:272) ranged from 244.3 to 279.7, length of tail from 155.0 to 176.7, and length of hind foot from 34.0 to 41.8. Ranges of means of cranial dimensions for rats from the same 15 samples were: greatest length of skull, 34.3 to 42.0; maxillary breadth, 18.8 to 22.5; mastoid breadth, 21.3 to 23.4; interorbital constriction, 11.2 to 14.1; depth of cranium, 12.5 to 13.8; length of maxillary toothrow, 4.4 to 5.3.

Geographic variation is marked within the known range of the species. Rats of northern populations (D. p. ornatus) are medium to large in size, relatively pale in color, and have a medium to broad cranium. D. p. phillipsii of the Valle de México and adjacent areas is of medium size, dark in color, and has a broad interorbital region. D. p. perotensis of Tlaxcala, Puebla, and Veracruz is large in size, intermediate between ornatus and phillipsii in color, and has a broad mastoid region and relatively narrow interorbital and maxillary regions, whereas the southern D. p. oaxacae is characterized by being much smaller and paler than other races.

DISTRIBUTION. The species is known from the Mexican Plateau and adjacent areas from central Durango to northern Oaxaca. Distribution of the four subspecies is shown in Figure 2. Known altitudinal distribution is from slightly more than 3000 ft (950 m) in Oaxaca up to more than 9000 ft (2850 m) in Veracruz. No fossils of D. phillipsii are known.

FORM AND FUNCTION. Little has been published on form in this species save for information on external and cranial features mentioned above. Merriam (1893:96) recorded the number of caudal vertebrae as 32 and Davis (1942) described some details in comparing phillipsii with the Texas kangaroo rat, D. elator. Similarly, no physiological or anatomical data are available on function.

The baculum (figure 3) has been described and figured by Lidicker (1960), Burt (1960), Genoways and Jones (1971), and Best and Schnell (1974). The basal area is nearly round in cross section and may have irregular tuberosities on its surface. The shaft tapers gradually and terminates in an up-
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and some catsclaw amid low hills and outcrops of dark lava rock.” Rats from the lava area were somewhat darker than those from elsewhere in Durango (Baker, 1960: 316).

Little has been recorded on foods of *D. philippisi*. E. W. Nelson (Merriam, 1893: 88) found the cheek pouches of captured individuals to contain “seeds and small green leaves or young plants” in the Distrito Federal. Hall and Dalquest (1963: 282) reported finding dandelion leaves in a burrow. They indicated this rat refused baits such as rolled oats, banana, walnuts, peanuts, and peanut butter. They finally captured several specimens in traps baited with seeds from native weeds and also trapped individuals by concealing trap entrances to burrows. Other investigators have not always reported similar difficulties in trapping these rats, although there may well be seasonal differences in bait acceptance. Hunting this nocturnal rodent at night has also been successfully employed as a means of collecting.

Merriam (1993) reported that Nelson found burrow systems with but a single entrance that was dug in bare, open fields. He noted that burrows entered the ground at a slight angle through a trough-like depression, and that well-marked trails led away from each burrow. Nelson found that rats were active on calm nights even when the temperature was below freezing but that they did not forage during severe storms. Rarely, snow covers burrows as far south as central México. At Tlaipam, Distrito Federal, Nelson suggested that *D. philippisi* shared its burrows with *Peromyscus flavus*. Hall and Dalquest (1963), however, reported that in Veracruz two to five entrances were found a few feet apart for each burrow system, the entrances about 3 inches (75 mm) in diameter. “The tunnels from these entrances joined within a meter, where the burrow was about two inches in diameter.” Burrows were not plugged. A burrow excavated in September was a foot below the surface. “The main entrance was marked by a small mound of fresh soil. The main burrow was a slightly curved tube, four feet in length, and ending in a swollen chamber. . . . Approximately two feet from the end of the main burrow it branched, one part consisting of a two-foot long tube . . . that opened on the surface where the tail of sand. The kangaroo rat escaped through this entrance when we opened its burrow.” No nest was found in this burrow system.

We know of no parasites recorded from the southern banner-tailed kangaroo rat.

GENETICS. Stock (1974) described the karyotype of this species under the name *D. ornatus*. He found a diploid number of 72 chromosomes and a fundamental number of 138. There were 12 pairs of submetacentric chromosomes in the autosomal complement, 22 pairs of subtelocentrics, and one telocentric pair. The X chromosome was submetacentric and the Y was telocentric. No other genetic data are available for the species.

REMARKS. *Dipodomys philippisi* is the type species of the genus *Dipodomys* (Gray, 1841: 322). The species was revised systematically by Genoways and Jones (1971), whose account included both univariate and multivariate analyses of external and cranial dimensions and of color.

According to Merriam (1893), *Macrocollus haiticus* Wagner, 1846, with type locality at an unknown site in México, is a synonym of *D. philippisi*, but this has not been mentioned by recent authors.

ETYMOLOGY. The generic name *Dipodomys* is a combination of two Greek words, *diposos* (two-footed) and *mous*, referring to the bipedal mode of locomotion of this rodent. The specific name *philippisi* gives patronymic recognition to John Phillips, who collected the holotype. The subspecific names *ornatus*, *peroneti*, and *oxacaecus*, refer to ornate color, Perote (Veracruz), and the state of Oaxaca, respectively.

LITERATURE CITED


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