

ACTIVITY PATTERN OF THE PADRE ISLAND KANGAROO RAT, *DIPODOMYS COMPACTUS* TRUE.—The Padre Island kangaroo rat, *Dipodomys compactus*, has been the subject of few investigations (see Johnson and Selander, Syst. Zool., 20: 377–405, 1971), and no information is available on the daily activity pattern of this species or the closely related form, *D. ordii*. The data presented below indicate a distinct day-night activity cycle as shown under laboratory conditions.

Two males and one female *D. compactus* were trapped on 5 September 1971, west of the campground at Malaquite Beach, Padre Island National Seashore, Kleberg Co., Texas, and transported to the Animal Behavior Laboratory of the Department of Zoology at the University of Oklahoma. Each was housed in a 12 × 7 × 6 in. cage, and placed into a Controlled Environments Model C-610 environmental room. A metal nest can was included in each cage; water and rolled oats were given ad libitum. Animals moving in or out of the nest activated a treadle with a mercury switch connected to one channel of a 10-channel Simpson Model 2755 Event Recorder and Rustrak Model 921 power unit. When the kangaroo rat crossed the treadle, completing the circuit, the event was recorded on Simpson 22380 chart paper moving at 120 mm per hour. We recorded the time each animal spent in (inactive) and out (active) of its nest. Undoubtedly some activity in the nest and some inactivity out of the nest occurred, but our observations indicate this was at a minimum.

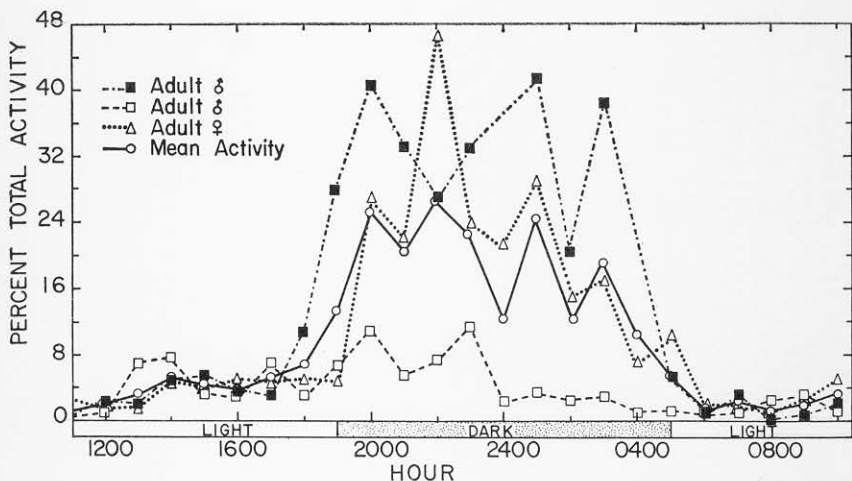


Fig. 1. Activity patterns of two males and one female kangaroo rat (*Dipodomys compactus*).

The study was conducted from 9 to 30 October 1971. Animals were placed in the environmental chamber for 14 days (9 to 23 October) for habituation to the treadle and photoperiod. Lights were on from 0500 to 1900 CST, providing 14 hours of light and 10 hours of dark with no twilight period. Temperature was set at 24°C and the relative humidity was approximately 75%. The percent activity during each hour of the day (i.e., the percent of each hour spent out of the nest) was determined for each animal from 24 to 30 October.

The animals showed relatively high activity through the night (Fig. 1), with activity tapering off slightly before dawn. Within 30 minutes after dawn activity was very reduced. The infrequent periods spent out of the nest during daylight hours usually represented an animal feeding or drinking and seldom lasted more than a few minutes.

The strongly nocturnal activity of *D. compactus* probably is correlated with the characteristics of its habitat. The species is associated with xeric, open habitat of sand dunes and sparse vegetation in which daylight activity would seem to involve higher risk of predation, greater heat stress and water loss. Layne (Oecologia, 7: 223-241, 1971) recently postulated a similar correlation for *Peromyscus floridanus*. We feel further investigations into the activity patterns of other species of *Dipodomys* would yield similar results, although a few species, such as *D. agilis*, that occupy areas of relatively dense vegetation might not show such a strong nocturnal activity.

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