

Coccidia from California Kangaroo Rats (*Dipodomys* spp.)

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Doran (1953, University of California Publications in Zoology **59**: 31-60) surveyed several species of kangaroo rats (*Dipodomys* spp.) from California for Coccidia. Stout and Duszynski (1983, Journal of Parasitology **69**: 209-214) recently summarized what is known of the coccidian parasites of kangaroo rats and presented data for 8 host species. This report presents additional data for 5 species of *Dipodomys*, the first data for 3 species, and provides some additional insight into infection of sympatrically occurring kangaroo rats.

Kangaroo rats were trapped in California during June 1984 in the following counties: *Dipodomys californicus*, Tehama Co.; *Dipodomys deserti*, Riverside Co.; *Dipodomys elephantinus*, San Benito Co.; *Dipodomys heermanni*, San Benito Co., Fresno Co.; *Dipodomys microps*, San Bernardino Co.; *Dipodomys nitratooides*, Kern Co.; *Dipodomys panamintinus*, Inyo Co.; and *Dipod-*

omys venustus, Monterey Co., Santa Cruz Co. Processing of oocysts for examination was described by Stout and Duszynski (1983, loc. cit.) and Duszynski et al. (1982, Journal of Parasitology **68**: 1146-1148).

The results are presented in Table I. The occurrence of *Eimeria utahensis* in *D. californicus* is a new host record and is the first protozoan parasite reported for this kangaroo rat. The occurrence of oocysts in *D. elephantinus*, *D. heermanni*, and *D. venustus* also represent the first records of Coccidia from these species. The infected specimen of *D. heermanni* was from San Benito Co. and the infected *D. venustus* was from Santa Cruz Co. No coccidians were present in *D. deserti*, *D. microps*, *D. nitratooides*, or *D. panamintinus*. However, *E. utahensis* has been previously reported from *D. microps* collected in Box Elder Co., Utah (Doran, 1953, loc. cit.), and *E. mohavensis* has been reported from *D. pan-*

amintinus collected in Los Angeles Co., California (Doran and Jahn, 1952, Transactions of the American Microscopical Society 71: 93-101).

The incidence of infection for *Dipodomys* in our survey was quite low, only 8 of 102 (8%) of the kangaroo rats examined were infected. Vance and Duszynski (1985, Journal of Parasitology, in press) suggest that the incidence of coccidian infections may be in part dependent on the environment in which the hosts are found. In the present study, all of the *Dipodomys* species infected with *Coccidia* were captured in a relatively hydric environment. Those kangaroo rat species that were uninfected were from more xeric environments, indicating agreement with Vance and Duszynski's suggestion.

Of the 8 species of kangaroo rats examined, 2 were collected in sympatry; *D. elephantinus* and *D. heermanni* from San Benito Co. Since both species contained only unsporulated oocysts it was not possible to determine if their coccidian parasites were the same. However, there was only 1 oocyst morpho-type found in the 2 species. These oocysts were ellipsoid in shape and contained a single-layered wall (1.0 μ m). The mean oocyst dimensions were 26.7 $\times$ 18.2 μ m. Based on these data and on photographs, the unsporulated oocysts resembled *Eimeria mohavensis*,

TABLE I. *Coccidians recovered from 8 species of kangaroo rats (Dipodomys) from California.*

<i>Dipodomys</i> spp.	No. examined/ no. infected (%)	Eimerians found	
		This study	Previous studies
<i>californicus</i>	18/4 (22)	<i>utahensis</i>	none
<i>deserti</i>	1/0 (0)	—	none
<i>elephantinus</i>	15/2 (13)	sp.*	none
<i>heermanni</i>	2/1 (50)	sp.*	none
<i>microps</i>	16/0 (0)	—	<i>utahensis</i>
<i>nitratoides</i>	29/0 (0)	—	none
<i>panamintinus</i>	11/0 (0)	—	<i>mohavensis</i>
<i>venustus</i>	10/1 (10)	sp.	none
Totals	102/8 (8)		2

* Oocysts were unsporulated, but size, outer wall, and shape suggest these may be *E. mohavensis*.

originally described from *D. panamintinus* (Doran and Jahn, 1952, loc. cit.). Both species were collected in the same trapline, but *D. elephantinus* was always in very dense growths of chaparral, where *D. heermanni* often occurred in more open habitat.

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