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## Ectoparasites of Black-tailed Prairie Dogs (*Cynomys ludovicianus*) from South Dakota

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**ABSTRACT:** During the summers of 1982 and 1983, black-tailed prairie dogs (*Cynomys ludovicianus*) were examined for parasites. Those collected and their respective prevalence included *Linognathoides cynomyis* (46.3%), *Opisocrostitis hirsutus* (53.7%), *Opisocrostitis tuberculatus cynomuris* (2.4%), *Androlaelaps fahrenheitzi* (12.2%), *Ixodes sculptus* (2.4%) and *Dermacentor andersoni* (4.9%). The collection data indicated that *L. cynomyis*, *O. hirsutus* and *A. fahrenheitzi* were at low population densities during this period.

**Key words:** Ectoparasites, South Dakota, black-tailed prairie dog, *Cynomys ludovicianus*, survey.

The black-tailed prairie dog (*Cynomys ludovicianus ludovicianus*) is the object of increased poisoning campaigns throughout the western United States. In the past, prairie dog towns covered large areas, which through the actions of man have been reduced in both size and numbers (Smith, 1958). It was realized that additional information concerning prairie dog parasites in South Dakota was needed before prairie dog numbers further decreased. Prairie dog ectoparasites have been studied extensively, but this is the first comprehensive parasitological study on a single town in South Dakota.

Forty black-tailed prairie dogs (*Cynomys ludovicianus*) were examined for ectoparasites from May through September 1982, with an additional prairie dog obtained in June 1983. Prairie dogs were shot with a small calibre rifle in a town located approximately 3 km east and 1 km south of Box Elder, Pennington County, South Dakota and placed immediately into plastic bags. The prairie dogs were placed on ice until necropsy, at which time all ac-

tively moving ectoparasites were collected and preserved in 70% ethanol. All ectoparasites, except for adult ticks, were cleared in 15% KOH, dehydrated in a graded series of ethanol and placed in xylene prior to mounting in Canada balsam. These animals were examined also for helminths but none were recovered. Voucher specimens (Accession Nos. 79163–79168) were placed in the U.S. National Parasite Collection, Beltsville, Maryland 20705, USA. Specimens of the lice were also placed in the Frost Entomological Museum, The Pennsylvania State University, University Park, Pennsylvania 16802, USA.

Six ectoparasite species were recovered. These included two fleas, two ticks, one mite and one anopluran louse (Table 1).

*Linognathoides cynomyis*, a new species of anopluran louse which was described from this collection by Kim (1986), was the most abundant parasite collected. The majority of lice were recovered from the posterior region of the body near the base of the tail. Other species of lice associated with black-tailed prairie dogs in the northern Great Plains include *Hoplopleura acanthopus* and *Linognathoides marmotae* (McKenna et al., 1977).

*Opisocrostitis hirsutus*, a common prairie dog flea, was collected from 22 of the animals examined. *Opisocrostitis hirsutus* was reported previously from Custer, Pennington, Bennett and Mellette counties in South Dakota (Easton, 1982).

A single female flea identified as *Opisocrostitis tuberculatus cynomuris* was collected. This species is primarily associated with white-tailed prairie dogs, *Cynomys gunnisoni* (Jellison, 1947). There are pre-

TABLE 1. Prevalence and intensity of ectoparasites of black-tailed prairie dogs in Pennington County, South Dakota.

| Parasite                                   | Prevalence        |    | Intensity |       |
|--|-------------------|----|-----------|-------|
|  | Infested/examined | %  | Mean      | Range |
| <i>Linognathoides cynomyis</i>             | 19/41             | 46 | 10.3      | 1-62  |
| <i>Opisocrostis hirsutus</i>               | 22/41             | 54 | 4.6       | 1-18  |
| <i>Opisocrostis tuberculatus cynomuris</i> | 1/41              | 2  | 1.0       | 1     |
| <i>Androlaelaps fahrenheitzi</i>           | 5/41              | 12 | 13.0      | 1-35  |
| <i>Ixodes sculptus</i>                     | 1/41              | 2  | 1.0       | 1     |
| <i>Dermacentor andersoni</i>               | 2/41              | 5  | 1.0       | 1     |

vious reports of this flea from Pennington and Custer counties, South Dakota (Easton, 1982).

*Androlaelaps fahrenheitzi* is a common fur mite of mammals in North America (Whitaker and Wilson, 1974). It was collected from five prairie dogs.

*Ixodes sculptus* and *Dermacentor andersoni* were the only ticks found on black-tailed prairie dogs. A single adult female

*I. sculptus* and two larval *D. andersoni* were collected from different animals. Ticks of the genus *Ixodes* on prairie dogs were first reported in the state by King (1955).

Figure 1 illustrates the relationship of the summer abundance of *L. cynomyis* with the abundances of *O. hirsutus* and *A. fahrenheitzi*. Lice associated with livestock in confinement are known to increase in

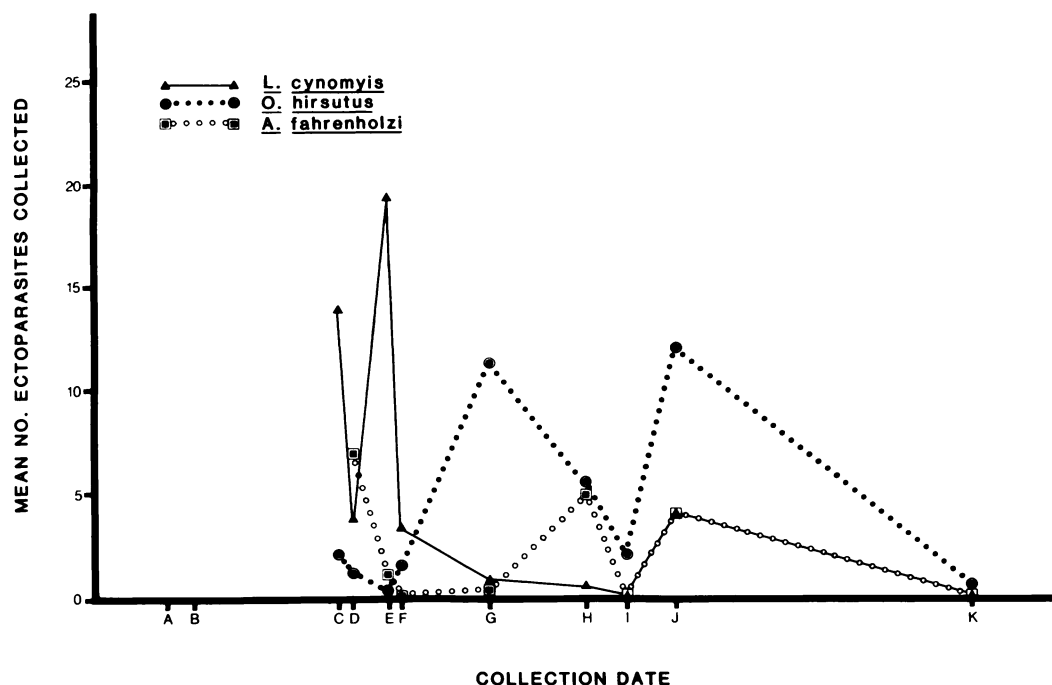


FIGURE 1. Abundances of three ectoparasite species collected from black-tailed prairie dogs in Pennington County, South Dakota. Letters A, B, C, D, E, F, G, H, I, J and K on the X-axis correspond to collection dates 25 May, 29 May, 18 June, 20 June, 25 June, 27 June, 10 July, 24 July, 30 July, 6 August and 18 September, respectively.

numbers during the winter months (Peterson and Bushland, 1956). However, it is not known if this cycle occurs with *L. cynomyis*. *Linognathoides cynomyis* occurred at lowest intensities in late July and mid September, while *O. hirsutus* reached its lowest intensity in late June. *Androlaelaps fahrenheitsi* was not found during certain collection periods (Fig. 1). Relative humidity and temperature can affect the numbers of ectoparasites on a host during any given period (Soulsby, 1982). My collection data may have been influenced by these phenomena.

The ectoparasites collected are common associates of black-tailed prairie dogs, with the exception of *L. cynomyis*. This species is reported for the first time from this host. My data indicates that *L. cynomyis*, *O. hirsutus* and *A. fahrenheitsi* were at low population densities during the summer. Although a population study on the ectoparasites of black-tailed prairie dogs performed over a longer time period is desirable, it may not be possible at this location. Following my collections, the study site was poisoned. To date, prairie dogs have failed to return to the colony.

The author thanks Mr. Pat Trucano for allowing me to collect prairie dogs on his property and for delaying his prairie dog control program until completion of this study. Gratitude is also extended to Dr. K. C. Kim for identifying *L. cynomyis* and to Dr. B. McDaniel for identifying the mites and ticks.

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