

- MILLER, G. S., JR. 1899. A new fossil bear from Ohio. *Proc. Biol. Soc. Washington*, 13:53-56.
- PETERSON, R. L. 1965. A well-preserved grizzly bear skull recovered from a late glacial deposit near Lake Simcoe, Ontario. *Nature*, 208:1233-1234.
- TOVELL, W. M. AND R. E. DEANE. 1966. Grizzly bear skull: site of a find near Lake Simcoe. *Science*, 154:158.
- WETMORE, A. 1962. Notes on fossil and subfossil birds. *Smithsonian Misc. Coll.*, 145:1-17.
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### Copulatory Behavior in the White-tailed Prairie Dog

**ABSTRACT:** Field observations in a *Cynomys leucurus* colony indicated that copulatory behavior occurred near the burrow and was accompanied by vigorous male-directed female aggression. Copulation was observed by other prairie dogs in the vicinity and was interrupted on one occasion when the male partner drove off a third individual.

Recent field investigations of behavior and ecology of prairie dogs (*Cynomys*) include those of King (1955) on *C. ludovicianus*, Bakko and Brown (1967) on *C. leucurus*, and Tileston and Lechleitner (1966) on both species. Copulatory behavior of prairie dogs was not reported in these studies. Stockard (1927), however, noted an instance of copulation in *C. leucurus* and presented a brief account of his observation. This note reports an additional series of field observations of copulatory activity recorded on the afternoon of 26 March 1966 at a *C. leucurus* colony about 15 mi SW of Laramie, Wyoming. Observations were made through a 15× spotting scope at a distance of about 80 m. Many individuals were active in the area during the observation period but only one pair was seen copulating.

Nine mounts were noted between 1530 and 1615 hours. Prior to most mounts, the male approached the female from the rear and placed one foreleg on each side of the female's abdomen. Before two mounts, the male vigorously thrust his snout into the genito-anal region of the female after lifting her tail with his head. The female assumed a position of lordosis when mounted.

After mounting, the male positioned his pelvic region by moving from side to side. During most mounts, the male intensely stroked or palpated the sides of the female's abdomen with alternating movements of his forelegs. It was not possible to determine whether or not intromission and/or ejaculation occurred. Duration of mounts varied from a few seconds to two minutes. At least four mounts were terminated when the female rolled over after being mounted, dislodging the male and apparently attacking him. Male-directed female aggression was also observed between several mounts. Much of this aggression was obscured by dust but the female appeared to push at the male with her forelegs (in a manner similar to aggressiveness reported in *C. ludovicianus* by King, *op. cit.*) and apparently bit him during four of these aggressive encounters. The male, in contrast, did not direct aggression toward the female but on one occasion dismounted and drove a third prairie dog from the vicinity. Three mounts were terminated when the male simply backed off; two such dismounts being made after chattering by the male. Pelvic thrusting was observed during one mount. After positioning his lower body, as described above, the male gave five or six evenly paced thrusts. Thrusting lasted about three seconds, after which the male dismounted and chattered.

At 1605 hours, before cessation of copulation by this pair, a third prairie dog appeared in the vicinity of the burrow. One of the three animals then present trotted out of the area. Two mounts were observed between 1609 and 1612 hours; these probably involved the animals under consideration previously. At 1615 hours, no animals were visible near the burrow. At 1620 hours, two prairie dogs emerged from the hole and moved closer to the observer. All previous activity had occurred within 5 m of the burrow. The male (presumably the one which had been copulating) was collected. His inguinal region was encrusted with mud. The epididymis of the left testis was distended and the penis was ensheathed.

Significant points noted in these observations would appear to be the following: (1) copulatory behavior occurred within 5 m of the burrow, (2) copulation was accompanied by vigorous male-directed female aggression (which may account for some of the wounds observed on male *C. leucurus*), (3) these behaviors were apparently observed by other animals in the vicinity, and (4) aggressive behavior toward other individuals by the male interrupted copulation.

#### REFERENCES

- BAKKO, E. B. AND L. N. BROWN. 1967. Breeding biology of the white-tailed prairie dog, *Cynomys leucurus*, in Wyoming. *J. Mammal.*, 48:100-112.
- KING, J. A. 1955. Social behavior, social organization, and population dynamics in a black-tailed prairie dog town in the Black Hills of South Dakota. *Univ. Michigan Contrib. Lab. Vert. Biol.*, No. 67. 124 p.
- STOCKARD, A. H. 1927. Reproduction and development of the white-tailed prairie dog, *Cynomys leucurus*. M. A. Thesis. Univ. Wyoming. Laramie. 75 p.
- TILESTON, J. V. AND R. R. LECHLEITNER. 1966. Some comparisons of the black-tailed and white-tailed prairie dogs in North Central Colorado. *Amer. Midl. Natur.*, 75:292-316.
- MICHAEL J. ERPINO, Department of Zoology and Physiology, University of Wyoming, Laramie 82070. Submitted 5 December 1966; accepted 23 December 1966.

### *Carnus hemapterus* Nitzsch (Diptera: Milichiidae) from Starlings in Indiana

**ABSTRACT:** The fly, *Carnus hemapterus*, is reported from fledgling starlings (*Sturnus vulgaris*) in Indiana.

Bequaert (1942) summarized the status of *Carnus hemapterus* Nitzsch and listed the first records for North America, from New York and Florida. Later he added Arizona, California and British Columbia (Bequaert, 1951) and recently, Lloyd and Philip (1966) recorded it from Utah. Sabrosky (1965) listed all of these places except British Columbia and added New Brunswick and Baja California. All localities are in eastern or western North America. Recently, I have identified five dealated males with the following data: ex fledgling *Sturnus vulgaris*, Centerville, Wayne Co., Indiana, 5 July 1961, G. L. Ward. These are the first specimens recorded from the Midwest and from the starling in North America. They are deposited in Joseph Moore Museum, Earlham College, Richmond, Indiana (4) and U. S. National Museum, Washington, D. C. (1, confirmed by C. W. Sabrosky).

L. J. Wilson, 1968

## REFERENCES

- BEQUAERT, J. 1942. *Carnus hemapterus* Nitzsch, an ectoparasitic fly of birds, new to America (Diptera). *Bull. Brooklyn Entomol. Soc.*, 37:140-149.
- . 1951. *Carnus hemapterus* Nitzsch on a screech owl in Arizona. *Psyche*, 58:157.
- LLOYD, G. D. AND C. B. PHILIP. 1966. The "wingless" fly, *Carnus hemapterus* Nitzsch (Milichiidae), on hawk fledglings in northern Utah. *J. Parasitol.*, 52:414.
- SABROSKY, C. W. 1965. Family Milichiidae (Phyllomyzidae, Carnidae), p. 728-733. In A. Stone, C. W. Sabrosky, W. W. Wirth, R. H. Foote and J. R. Coulson (eds.), *A Catalog of the Diptera of America North of Mexico*. U. S. Government Printing Office, Washington, D. C. 1696 p.

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