Evidence of a Second Litter in Northern Pocket Gophers, *Thomomys talpoides*

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In June 1995, we captured 12 and14 female adult Northern Pocket Gophers (*Thomomys talpoides*) in an alfalfa (*Medicago* spp.) and a pea (*Lathyrus* spp.) field, respectively, in central Alberta. Mean litter size was significantly higher in the alfalfa population (6.7 ± 1.4 young) than in the pea population (4.5 ± 1.9 young). Females from the alfalfa field produced only one litter. However, two females from the pea field bore a second litter. This is the first confirmed report of two litters produced during a single growing season by female Northern Pocket Gophers in western Canada.

Key Words: Alberta, alfalfa, embryo, *Lathyrus* spp, litter size, *Medicago* spp., Northern Pocket Gopher, pea, placental scars, reproduction, *Thomomys talpoides*.

In northern regions, the Northern Pocket Gopher (*Thomomys talpoides*) has only one breeding period (Tryon 1947; Hansen 1960), which generally lasts from March to June (Runnells 1988; Proulx 2002). Females have only one litter, which ranges in size from 3 to 5 young in native rangelands (Hansen 1960) to more than 6 in alfalfa fields (Runnells 1988; Proulx 2002).

From 12 to 18 June 1995 during an evaluation of the capture efficiency of various killing traps, we collected several Northern Pocket Gopher adult females in a pea (*Lathyrus* spp.) crop and an alfalfa (*Medicago* spp.) field near Vegreville, approximately 100 km east of Edmonton, Alberta. Reproducing females were recognized by the presence of an open pubic symphysis (Hisaw 1924, 1925). They were autopsied *in situ*, and the number of young per litter was determined by counting the number of embryos or placental scars. The mean crown-rump length of embryos was measured with a dial caliper. Comparison between mean litter sizes was done with a Student *t*-test (Dixon and Massey 1969).

We captured 12 females in the alfalfa field. They only had one litter ranging from 5 to 10 young, and averaging 6.7 (standard deviation = 1.4) young. We captured 14 females in the pea field. Ten of them had given birth, and the number of placental scars ranged from 1 to 7, and averaged 4.5 (± 1.9) young. This average was significantly smaller than that of females captured in the alfalfa field ($t = 3.310$, $P < 0.05$). The four other females from the pea field were pregnant. Two of them had 5 and 10 embryos, measuring 22 and 16 cm, respectively. Two other females bore 7 and 4 embryos, but also had 5 and 1 placental scars, respectively. Since the two females had well-developed nipples and appeared to have lactated, it is not believed that these placental scars were the result of a partial litter resorption. A decline in the number of viable embryos usually occurs in the later stages of gestation, when embryos measure ≥ 21 mm (Loeb and Schwab 1987; Proulx 2002). In this case, embryos measured 8–12 mm and were at mid-term (Loeb and Schwab 1987).

Finding a second litter in the pea field population was a surprise because Proulx (2002), after examining 426 females in highly productive alfalfa fields, reported only one litter per female. Previous studies have reported only a single litter a year for the Northern Pocket Gopher (Chase et al. 1982) although it has been suggested that the species could produce more than one litter a year in mild climates (Cahalane 1947; Bonar 1995). To our knowledge, this is the first confirmed case of a second litter in Northern Pocket Gophers. The production of two litters by pocket gophers in Alberta is not in agreement with the general life history of the species. In northern latitudes, most breeding activities are complete in June (Runnells 1988; Proulx 2002), and young do not leave the maternal burrow before mid-summer (Proulx 1997). Pocket gophers conceived in mid-summer would therefore leave the maternal burrow in late summer-early fall, when the quality and quantity of green vegetation are reduced (Proulx 1998). The survival rate of these late dispersers would likely be lower than that of juveniles born earlier in the year. The reasons for a second litter in a pea field population are unknown.

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