Supplementary Material:

Incidentally gathered natural history information on Bullsnakes (*Pituophis catenifer sayi*) in southeastern Alberta

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All statistical analyses of morphological and environmental variables described here were conducted using PAST (Hammer *et al*. 2001).

Hammer, Ø., D.A.T. Harper, and P.D. Ryan. 2001. PAST: Paleontological statistics software package for education and data analysis. Palaeontologia Electronica 4: 1–9.

Section S1. Size of Bullsnakes (*Pituophis catenifer sayi*).

We compared adult male and female masses and SVLs by means of *t*-tests, first testing for equality of variances by means of an *F*-statistic.

There was no significant difference in SVL between adult male and female Bullsnakes (test for equality of variances: $F_{1,24}$ = 1.2084, P = 0.72; t_{24} = 0.43011, P = 0.67). Similarly, there is no significant sexual dimorphism in mass (test for equality of variances: $F_{1,24}$ = 1.2436, P = 0.68; t_{24} = 0.10521, P = 0.92).

Table S1. Summary of the lengths and masses of all captured Bullsnakes (*Pituophis catenifer sayi*).

		Males (n = 16)	Females (n = 9)	Juveniles (n = 6)
SVL (cm)	Range	59–134	49–121	30–52
	Mean ± SD	103.19 ± 24.66	98.61 ± 27.11	36.00 ± 8.00
Mass (g)	Range	70–705	48–625	12.0–18.5
	Mean ± SD	403.44 ± 214.01	393.67 ± 238.66	16.75 ± 2.40

Note: SVL = snout-to-vent length.

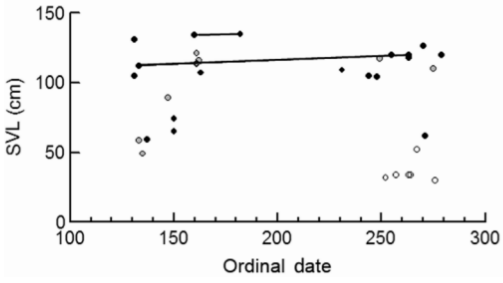

Figure S1. Distribution of snout-to-vent lengths (SVL) of Bullsnakes (*Pituophis catenifer sayi*) captured over the study period, 11 May (day 131) to 10 October (day 283) 1997. Black circles = males, grey circles = females, unfilled circles = juveniles. Circles joined by lines indicate captured and recaptured individuals.

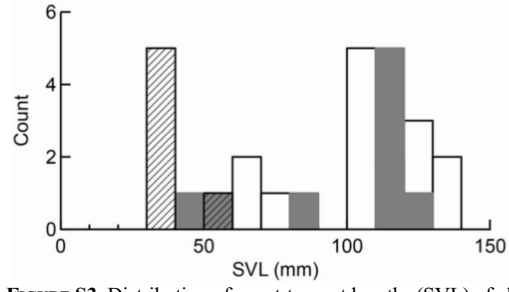

Figure S3. Distribution of snout-to-vent lengths (SVL) of all Bullsnakes (*Pituophis catenifer sayi*) captured over the study period, 11 May to 10 October 1997. White bars = males, grey bars = females, diagonal hatching = juveniles. For example, there is one female and one juvenile in the 50–60 mm range.

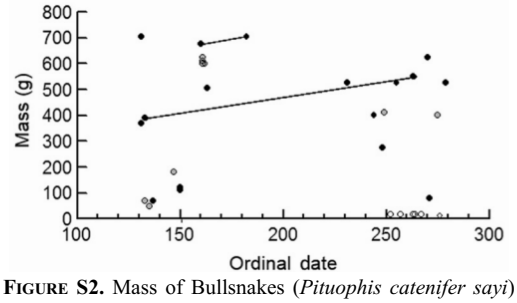

Figure S2. Mass of Bullsnakes (*Pituophis catenifer sayi*) captured over the study period, 11 May (day 131) to 10 October (day 283) 1997. Black circles = males, grey circles = females, unfilled circles = juveniles. Circles joined by lines indicate captured and recaptured individuals.

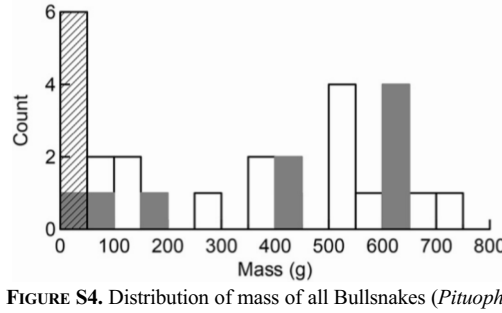

Figure S4. Distribution of mass of all Bullsnakes (*Pituophis catenifer sayi*) captured over the study period, 11 May to 10 October 1997. White bars = males, grey bars = females, diagonal hatching = juveniles.

Section S2. Snout-to-vent length and mass of recaptured Bullsnakes (*Pituophis catenifer sayi*).

TABLE S2. Growth and movement data for the two Bullsnakes (*Pituophis catenifer sayi*) recaptured after an interval >3 weeks.

	Male 1	Male 2
Dates captured/recaptured	9 June 1997/2 July 1997	13 May 1997/20 Sept. 1997
Recapture interval (days)	22	130
Initial weight (g)	675	390
Recaptured weight (g)	705	550
Average increase/day (g)	1.37	1.23
Initial SVL (cm)	134	112
Recaptured SVL (cm)	135	120
Average increase/day (cm)	0.05	0.06
Distance moved (m)	96.0	375.5
Bearing	N 1.8°E	S 56°W

Note: SVL = snout-to-vent length.

Section S3. Capture situation and insolation during capture of Bullsnakes (*Pituophis catenifer sayi*).

The greatest number of hand captures, in the widest range of situations, were made on sunny days or days with mixed sun and cloud. We tabulated the insolation and capture situation data (Table S3) and calculated a Pearson's χ^2 to test for a random association between them. We rejected the hypothesis of no association; hand captures tended to be made on sunny days (Pearson's $\chi^2_{10} = 19.23$, $P = 0.04$). Of the hand captures, the majority were either associated with a hole or burrow, or with sage cover. Relatively few captures were of actively moving Bullsnakes. Two snakes were captured on unimproved roads.

TABLE S3. Cross-tabulation of situation at capture with insolation for all hand-captured Bullsnakes (*Pituophis catenifer sayi*).

	Sitting in open	Sitting near hole	Sitting or moving under sage	Moving through grass	Under cover	On road or track	Total
Overcast	0	2	0	0	1	0	3
Sunny	2	4	8	2	0	1	17
Mixed sun and cloud	3	0	2	2	0	1	8
Total	5	6	10	4	1	2	28

Section S4. Environmental temperature measured during hand capture of Bullsnakes (*Pituophis catenifer sayi*).

Mean ground temperatures for hand captured Bullsnake (*Pituophis catenifer sayi*) males (25.4°C), females (26.7°C), and juveniles (23.6°C) were compared by ANOVA; there was no significant difference among them ($F_{2,22} = 0.8337$; $P = 0.4477$). Ground temperatures for all Bullsnake captures were 15–33°C (Figure S5a), with a broad overlap in the distributions among males, females, and juveniles (Figure S5a). The combined distribution of ground temperatures did not differ significantly from normality (Shapiro-Wilk W = 0.941; $P = 0.1562$). Mean air temperatures for males (22.0°C), females (23.0°C), and juveniles (23.5°C) were likewise compared by means of an ANOVA. There was no significant difference among these means ($F_{2,22} = 0.4762$; $P = 0.6274$). The distributions of the three groups overlapped broadly (Figure S5b), and the combined distribution of air temperatures did not differ significantly from normality (Shapiro-Wilk W = 0.9531; $P = 0.294$).

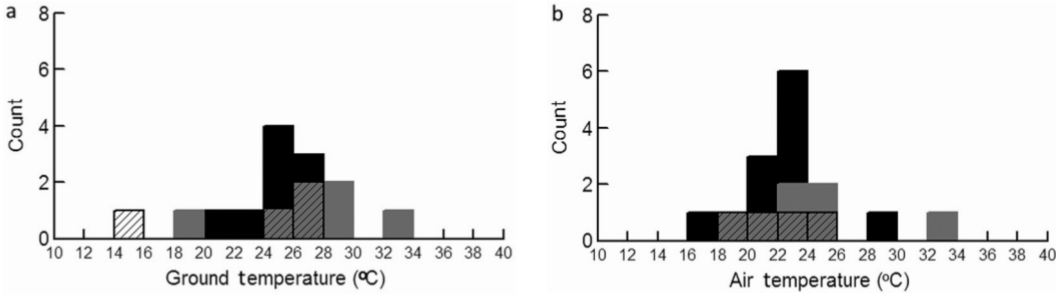

FIGURE S5. Ground (a) and air (b) temperatures for all hand captures of Bullsnakes (*Pituophis catenifer sayi*). Black = males, grey = females, diagonal hatched = juveniles.

Section S5. Site types of hand captures of Bullsnakes (*Pituophis catenifer sayi*).

Site types of hand captures of Bullsnakes during the 1997 field season were assigned according to the categories defined in: Classifications and descriptions from Alberta Sustainable Resource Development (2010a,b).

TABLE S4. Number of Bullsnakes (*Pituophis catenifer sayi*) hand captured in each site type (Alberta Sustainable Resource Development 2010a,b) in the 1997 field season.

Site type	Characteristics	No. Bullsnake captures
Thin breaks	Partly vegetated transition between limy and bedrock substrates, consisting of moderate to steep slopes, possibly featuring slumps, bearing thin soil	14
Overflow	Experiences a flood frequency of less than once per decade, is subject to slope wash, and bears thicker vegetation	3
Limy	Upper and crest portions of moderate to steep coulee or valley sides and eroded side slopes, developed on glacial till	6
Tame pasture	Planted to grasses, legumes, or grass-legume mixtures for livestock grazing or production of seed or hay crops	2
Crop	Non-irrigated agricultural land	2

Alberta Sustainable Resource Development. 2010a. Grassland vegetation inventory [shapefile]. Spatial & Numeric Data Services, University of Calgary (distributor), Calgary, Alberta, Canada.

Alberta Sustainable Resource Development. 2010b. Grassland vegetation inventory (GVI) specifications. 5th edition. Government of Alberta, Edmonton, Alberta, Canada.