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BODY SIZE DYNAMICS OF COUGARS (*FELIS CONCOLOR*) IN OREGON

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We investigated body size dynamics of 1076 harvested male and female cougars in Oregon from 1987 through 1997. Cougars were checked, weighed, and measured by Oregon Department of Fish and Wildlife biologists within 48 h of harvest. One or 2 upper premolars were removed and age was determined by cementum annuli at Matson's Lab (Milltown, MT). Precision of age determination was estimated from 864 "blind tests" of pairs of premolars for which the identity of the individual cougar was not known to the analyzing laboratory personnel. Ages assigned to each of the 2 premolars agreed exactly or varied by 1 yr in 93% of the <4-yr-old cougars, while 54% of the premolar pairs of older cougars were the same age or differed by 1 yr.

Body length (BL, nose-to-tip-of-tail) and body mass (BM) were significantly correlated for both sexes (males: BL = 145.67 + 1.073BM, $n = 645$, $F = 1123.7$, $P < 0.0001$, $R^2 = 0.63$; females: BL = 123.66 + 1.68BM, $n = 431$, $F = 596.4$, $P < 0.0001$, $R^2 = 0.58$). Mean body mass of male cougars was, on average, 50.8% (±14.2%) greater than that of females. This difference was statistically significant for all age classes except kittens (Table 1) and supports results from earlier studies

TABLE 1. Mean body mass (kg), standard error, and sample size of harvested male and female cougars in Oregon, 1987–1997. Asterisks indicate significant differences in body mass between the sexes ($P < 0.05$). Significant differences among seasonal mass within age groups are represented by different superscript letters (Tukey test, $P < 0.05$).

Sex	Age	Jun–Aug ($\bar{x} \pm s_{\bar{x}}, n$)	Sep–Nov ($\bar{x} \pm s_{\bar{x}}, n$)	Dec–Feb ($\bar{x} \pm s_{\bar{x}}, n$)	Mar–May ($\bar{x} \pm s_{\bar{x}}, n$)	Total ($\bar{x} \pm s_{\bar{x}}, n$)
Male	0	20.0 ± 4.4, 6	17.1 ± 3.8, 7	22.6 ± 1.5, 18	15.0 ± 1.4, 8	19.7 ± 1.3, 39
	1	37.3 ± 2.0, 18	43.4 ± 1.8, 18	43.8 ± 1.8, 32	44.0 ± 3.0, 8	42.2 ± 1.1, 76*
	2	38.1 ± 3.2, 8[a]	49.0 ± 1.3, 40[b]	50.6 ± 0.8, 83[b]	46.0 ± 2.4, 9[a]	49.1 ± 0.7, 140*
	3	52.1 ± 2.3, 6[a,b]	56.8 ± 1.5, 21[a,b]	57.2 ± 1.0, 71[a]	49.6 ± 3.2, 11[b]	56.1 ± 0.8, 109*
	4	55.3 ± 3.2, 7	58.8 ± 1.3, 18	59.6 ± 1.0, 54	57.9 ± 2.8, 11	58.9 ± 0.8, 90*
	5	55.0 ± 3.3, 4	59.4 ± 1.6, 16	60.3 ± 1.1, 46	56.8 ± 2.3, 2	59.7 ± 0.9, 68*
	6	57.3 ± 6.0, 4	60.0 ± 1.8, 16	62.2 ± 1.1, 54	53.8 ± 2.0, 3	61.2 ± 0.9, 77*
	7	54.5 ± 0, 1	61.4 ± 3.0, 6	65.5 ± 1.5, 25	63.6 ± 0, 1	64.4 ± 1.3, 33*
	8	61.6 ± 1.6, 2	73.6 ± 5.9, 3	63.6 ± 1.9, 16	63.6 ± 0, 1	64.8 ± 1.7, 22*
	9	63.1 ± 8.8, 4	65.5 ± 2.6, 4	64.2 ± 3.1, 9	68.0 ± 2.6, 3	64.8 ± 2.2, 20*
	10 +	71.8 ± 0, 1	71.2 ± 2.0, 3	66.7 ± 1.8, 23	61.4 ± 0, 1	67.2 ± 1.6, 28*
Female	0	14.3 ± 1.9, 4	15.7 ± 2.1, 11	18.0 ± 1.7, 16	18.7 ± 2.1, 11	17.2 ± 1.0, 42
	1	28.4 ± 3.1, 7[a,b]	33.6 ± 1.1, 21[a]	31.9 ± 1.1, 28[a,b]	27.7 ± 1.4, 13[b]	31.3 ± 0.7, 69*
	2	31.5 ± 3.4, 3[a,b]	36.1 ± 0.7, 26[a,b]	36.9 ± 0.6, 65[a]	32.5 ± 2.0, 12[b]	36.0 ± 0.5, 106*
	3	31.8 ± 0, 1	38.1 ± 1.3, 18	37.2 ± 0.9, 41	34.4 ± 2.4, 3	37.2 ± 0.7, 63*
	4	—	38.4 ± 2.2, 10	39.1 ± 0.7, 34	38.9 ± 1.9, 6	39.0 ± 0.7, 50*
	5	29.1 ± 0, 1	40.4 ± 2.2, 7	39.9 ± 0.7, 32	31.8 ± 9.1, 2	39.3 ± 0.8, 42*
	6	40.9 ± 0, 1	42.8 ± 1.3, 8	39.0 ± 0.8, 20	35.5 ± 0, 1	40.0 ± 0.7, 30*
	7	35.0 ± 0, 1	43.5 ± 2.5, 5	41.8 ± 1.0, 11	45.0 ± 0, 1	42.0 ± 1.0, 18*
	8	—	47.7 ± 0, 2	40.9 ± 1.5, 10	—	42.0 ± 1.5, 12*
	9	—	48.2 ± 0, 1	41.5 ± 1.1, 11	35.9 ± 0, 1	41.6 ± 1.2, 13*
	10 +	35.9 ± 7.3, 2	43.6 ± 0.5, 2	40.9 ± 1.1, 16	45.0 ± 0, 2	41.1 ± 1.0, 22*

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(Anderson 1983). Body mass of subadult cougars increased rapidly until 4 yr of age, after which annual weight gain increments were less than 1% (Table 1).

Body mass of harvested cougars varied among seasons (Table 1), but significant seasonal mass changes occurred only in subadults. Young cougars experienced significant weight losses in spring and summer of their 2nd yr. Hornocker (1970) suggested that young cougars at the time of dispersal are vulnerable to starvation and accidental mortalities. We conclude that cougars in Oregon are highly sexually dimorphic and speculate that significant weight changes in subadults are a result of food deprivation during dispersal.

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