

Variable intraspecific space use supports optimality in an apex predator

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Supplementary material

Table S1. Parameter estimates from annual and seasonal resource selection functions for female collared elk (*Cervus canadensis roosevelti*), Afognak Island, Alaska, USA, June–August 2017–2020.

Season	Year	Variables	Estimate	Std. error	p-value
Annual	2017	Intercept	-2.94	0.12	<2e-16
		Scale elevation	0.05	0.00	<2e-16
		Dwarf-shrub	1.42	0.11	<2e-16
		Forest	1.06	0.11	<2e-16
		Grassland	1.94	0.11	<2e-16
		Non-veg other	0.04	0.12	0.689
		Shrub	1.47	0.12	<2e-16
		Wetland	1.21	0.12	<2e-16
		2018	Intercept	-2.15	0.10
	Scale elevation		0.00	0.00	0.026
	Dwarf-shrub		0.87	0.10	<2e-16
	Forest		0.20	0.10	0.029
	Grassland		1.28	0.10	<2e-16
	Non-veg other		-0.61	0.10	4.20e-10
	Shrub		0.73	0.10	1.53e-14
	Wetland		0.81	0.10	<2e-16
	2019		Intercept	-1.85	0.13
		Scale elevation	-0.19	0.00	<2e-16
		Dwarf-shrub	0.72	0.13	9.03e-09
Forest		-0.20	0.12	0.105	
Grassland		1.04	0.12	<2e-16	

Calving	2020	Non-veg other	-1.03	0.13	3.60e-16
		Shrub	0.44	0.12	<0.001
		Wetland	0.62	0.13	9.47e-07
		Intercept	-3.17	0.46	8.31e-12
		Scale elevation	0.01	0.01	0.623
		Dwarf-shrub	2.08	0.46	5.93e-06
		Forest	0.85	0.46	0.063
		Grassland	2.30	0.46	4.90e-07
		Non-veg other	0.22	0.46	0.635
	2017	Shrub	1.77	0.46	<0.001
		Wetland	1.93	0.46	2.78e-05
		Intercept	-1.97	0.46	1.77e-05
		Scale elevation	0.48	0.04	< 2e-16
		Dwarf-shrub	0.48	0.42	0.256
		Forest	-0.63	0.42	0.136
		Grassland	1.30	0.42	<0.001
		Non-veg other	-1.37	0.46	0.003
		Shrub	0.54	0.42	0.197
	2018	Wetland	1.19	0.45	0.008
		Intercept	-3.12	0.47	5.13e-11
		Scale elevation	-0.50	0.01	< 2e-16
		Dwarf-shrub	1.77	0.48	<0.001
		Forest	0.93	0.47	0.051
		Grassland	2.46	0.47	2.11e-07
Non-veg other		0.36	0.48	0.450	
Shrub		1.66	0.47	<0.001	
Wetland		1.97	0.48	3.44e-05	
2019	Intercept	-2.34	0.33	2.04e-12	
	Scale elevation	-0.35	0.01	< 2e-16	
	Dwarf-shrub	1.48	0.33	8.41e-06	
	Forest	0.05	0.33	0.884	
	Grassland	1.63	0.33	8.28e-07	
	Non-veg other	-0.42	0.33	0.211	
	Shrub	1.00	0.33	0.003	
	Wetland	1.09	0.33	0.001	
	2020	Intercept	-4.29	0.98	1.13e-05
Scale elevation		0.32	0.02	< 2e-16	
Dwarf-shrub		2.60	0.97	0.007	
Forest		1.35	0.97	0.162	
Grassland		3.12	0.97	0.001	
Non-veg other		1.39	0.97	0.153	
Shrub		3.02	0.97	0.002	
Wetland		2.91	0.97	0.003	
Summer		2017	Intercept	-2.77	0.15
	Scale elevation		0.30	0.01	< 2e-16
	Dwarf-shrub		1.42	0.14	< 2e-16

Hunting	2018	Forest	1.00	0.14	1.74e-13
		Grassland	1.67	0.14	< 2e-16
		Non-veg other	-0.07	0.14	0.637
		Shrub	1.14	0.14	< 2e-16
		Wetland	1.24	0.14	< 2e-16
		Intercept	-1.80	0.16	< 2e-16
		Scale elevation	0.40	0.01	< 2e-16
		Dwarf-shrub	0.64	0.14	5.09e-06
	2019	Forest	-0.10	0.14	0.48
		Grassland	0.73	0.14	2.32e-07
		Non-veg other	-1.37	0.15	< 2e-16
		Shrub	0.25	0.14	0.0754
		Wetland	0.46	0.15	0.0016
		Intercept	-1.72	0.17	< 2e-16
		Scale elevation	0.24	0.01	< 2e-16
		Dwarf-shrub	0.56	0.16	0.00059
	2020	Forest	-0.05	0.16	0.74877
		Grassland	0.67	0.16	3.05e-05
		Non-veg other	-1.67	0.17	< 2e-16
		Shrub	0.13	0.16	0.42235
		Wetland	0.46	0.17	0.00517
		Intercept	-2.75	0.54	3.24e-07
		Scale elevation	0.28	0.02	< 2e-16
		Dwarf-shrub	1.86	0.53	0.000416
	2017	Forest	0.27	0.53	0.612455
		Grassland	2.09	0.53	6.93e-05
		Non-veg other	0.25	0.53	0.63945
		Shrub	1.15	0.53	0.028884
		Wetland	2.23	0.53	2.91e-05
		Intercept	-3.76	0.37	< 2e-16
		Scale elevation	-0.16	0.01	< 2e-16
		Dwarf-shrub	1.76	0.37	2.58e-06
2018	Forest	1.87	0.37	5.17e-07	
	Grassland	2.73	0.37	2.13e-13	
	Non-veg other	0.73	0.38	0.0523	
	Shrub	2.38	0.37	1.68e-10	
	Wetland	1.76	0.38	3.06e-06	
	Intercept	-3.32	0.30	< 2e-16	
	Scale elevation	0.48	0.01	< 2e-16	
	Dwarf-shrub	1.08	0.29	<0.001	
2018	Forest	1.29	0.29	7.31e-06	
	Grassland	2.30	0.29	1.16e-15	
	Non-veg other	0.67	0.29	0.020432	
	Shrub	1.95	0.29	9.97e-12	
	Wetland	1.09	0.30	0.000213	