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## Appendix 1

Table A1. Scores for the five environmental axes with eigenvalues > 1.00.

Variable	Axis 1 EV = 1.852		Axis 2 EV = 1.220		Axis 3 EV = 1.141		Axis 4 EV = 1.014		Axis 5 EV = 1.002	
	r <sup>2</sup> /cr	score	r <sup>2</sup> /cr	score	r <sup>2</sup> /cr	score	r <sup>2</sup> /cr	score	r <sup>2</sup> /cr	score
Distance to roads	0.535	-0.732	0.008	-0.090	0.004	0.061	0.008	0.087	0.001	0.037
Elevation	0.667	-0.817	0.001	-0.037	0.002	0.045	<0.001	0.003	0.001	-0.036
Slope	0.089	-0.297	0.356	-0.597	0.228	-0.477	<0.001	0.018	<0.001	-0.004
Aspect (N/S)	0.004	-0.061	0.363	-0.602	0.224	0.473	0.006	-0.080	<0.001	-0.002
Aspect (E/W)	0.120	0.347	0.101	-0.318	0.079	0.282	0.086	0.293	0.001	-0.033
Habitat types	0.428		0.387		0.597		0.914		0.997	
High coniferous		0.659		-0.660		0.012		-0.142		0.074
Medium coniferous		-0.229		0.334		-0.552		0.040		0.219
Low coniferous		-1.186		0.210		1.035		0.005		-0.712
Mixed deciduous		1.709		1.705		1.303		-0.414		-11.026
Grazing land		-0.013		1.588		2.673		7.786		2.307
Bogs		-0.030		2.370		4.370		-4.884		3.612
Other area		0.713		1.934		-0.871		0.780		-0.881

## Appendix 2

### Species-specific temporal pattern in habitat utilisation

Table A2. AICc-based ranking of models explaining temporal patterns in habitat use by moose, sheep and cattle. Sp = species (moose, sheep, cattle), PP = photoperiod (Day, Twilight, Night), Temp = daily mean temperature, and Prec = daily precipitation. Only the five highest ranked models for each habitat variable are shown. The highest ranked model for each habitat variable is shown in Fig. 3 in the main document.

Habitat variable	Sp	PP	Temp	Prec	Sp×PP	Sp×Temp	Sp×Prec	PP×Temp	PP×Prec	Sp×PP×Temp	Sp×PP×Prec	ΔAICc	AICc-w
Elevation	X	X	X	X	X	X		X		X		0.00	0.374
	X	X	X	X	X	X		X	X	X		0.27	0.327
	X	X	X	X	X	X	X	X		X		2.33	0.117
	X	X	X	X	X	X	X	X	X	X		2.69	0.097
	X	X	X	X	X	X	X	X	X	X	X	5.14	0.029
Slope	X	X	X		X			X				0.00	0.283
	X	X	X		X							0.28	0.245
	X	X	X	X	X			X				1.68	0.122
	X	X	X	X	X							1.99	0.105
	X	X	X		X	X		X				3.61	0.047
Distance to roads	X	X	X	X	X	X	X	X		X		0.00	0.539
	X	X	X	X	X	X	X	X				1.85	0.213
	X	X	X	X	X	X	X	X	X	X		3.20	0.109
	X	X	X	X	X	X	X					4.65	0.053
	X	X	X	X	X	X	X	X	X			5.02	0.044
North-south	X	X	X	X	X	X	X	X		X		0.00	0.350
	X	X	X		X	X		X		X		0.68	0.250
	X	X	X	X	X	X	X	X	X	X		1.25	0.188
	X	X	X	X	X	X		X		X		2.58	0.097
	X	X	X	X	X	X		X	X	X		4.20	0.043
East-west	X	X	X		X	X		X		X		0.00	0.333
	X	X	X	X	X	X		X		X		0.56	0.252
	X	X	X		X	X		X				2.66	0.088
	X	X	X	X	X	X		X	X	X		2.82	0.082
	X	X	X	X	X	X		X				3.17	0.068
High conifer	X	X	X	X	X	X	X	X	X	X	X	0.00	0.784
	X	X	X	X	X	X	X	X	X	X		3.37	0.145
	X	X	X	X	X	X	X	X	X		X	5.26	0.056
	X	X	X	X	X	X	X	X	X			8.78	0.010
	X	X	X	X	X	X		X	X	X		10.62	0.004
Medium conifer	X	X	X	X	X	X	X	X		X		0.00	0.483
	X	X	X	X	X	X	X	X	X			1.42	0.237
	X	X	X	X	X	X	X	X	X	X	X	3.78	0.073
	X	X	X	X	X	X		X		X		3.87	0.070
	X	X	X	X	X	X		X	X			5.06	0.038
Low conifer	X	X	X	X	X	X		X				0.00	0.202
	X	X	X	X	X	X	X					0.13	0.190
	X	X	X		X	X						1.10	0.116
	X	X	X	X	X	X						1.87	0.080
	X	X	X	X	X	X	X	X	X			2.26	0.065

Mixed deciduous	X	X								0.00	0.239
	X	X		X						1.33	0.123
	X	X	X							1.91	0.092
	X	X			X					2.01	0.088
	X	X	X		X	X		X	X	2.99	0.054
Grazing land	X	X	X	X	X	X	X	X		0.00	0.198
	X	X	X	X	X	X		X		1.29	0.104
	X	X	X	X	X	X	X	X	X	1.61	0.088
	X	X	X		X	X		X		1.69	0.085
	X	X	X	X	X	X	X			2.66	0.052
Bogs	X	X	X	X	X		X	X		0.00	0.345
	X	X	X	X	X		X			1.22	0.187
	X	X	X		X			X		2.26	0.111
	X	X	X		X					3.45	0.061
	X	X	X	X	X	X	X	X		3.72	0.054
Other area	X	X	X		X	X				0.00	0.372
	X	X	X	X	X	X				2.02	0.134
	X	X	X		X	X		X		2.56	0.103
	X	X	X	X	X	X	X			3.03	0.082
	X	X	X		X	X		X	X	4.07	0.049

Table A3. Parameter estimates [95% credible intervals] from the two highest ranked models (Table 1, main document) explaining the variation in niche distance between moose and livestock,  $\delta_{Moose-Livestock}$ . Credible intervals are based on the 2.5% and 97.5% percentiles from bootstrapping (n = 10000) of the models. LS = livestock species (Sheep, Cattle), PP = photoperiod (Day, Twilight, Night), Temp = daily mean temperature, and Prec = daily precipitation

Parameter	Model 1	Model 2
Intercept (Sheep, Daytime)	0.800 [0.411; 1.184]	0.550 [0.226; 0.884]
LS <sub>Cattle</sub>	-0.465 [-0.939; -0.004]	0.036 [-0.266; 0.444]
PP <sub>Night</sub>	-1.128 [-1.613; -0.637]	-0.628 [-0.992; -0.271]
PP <sub>Twilight</sub>	-0.421 [-0.906; 0.068]	-0.131 [-0.499; 0.235]
LS <sub>Cattle</sub> ×PP <sub>Night</sub>	1.058 [0.348; 1.772]	-
LS <sub>Cattle</sub> ×PP <sub>Twilight</sub>	0.616 [-0.124; 1.353]	-
Temp	-0.051 [-0.074; -0.027]	-0.034 [-0.054; -0.015]
Prec	-0.008 [-0.014; -0.003]	-0.008 [-0.014; -0.003]
LS <sub>Cattle</sub> ×Temp	0.053 [0.022; 0.084]	0.020 [0.0001; 0.041]
PP <sub>Night</sub> ×Temp	0.078 [0.046; 0.111]	0.046 [0.022; 0.070]
PP <sub>Twilight</sub> ×Temp	0.052 [0.020; 0.085]	0.033 [0.009; 0.058]
PP <sub>Night</sub> ×Prec	0.008 [0.0001; 0.017]	0.008 [-0.0003; 0.016]
PP <sub>Twilight</sub> ×Prec	0.008 [-0.0003; 0.017]	0.008 [-0.0003; 0.017]
LS <sub>Cattle</sub> ×PP <sub>Night</sub> ×Temp	-0.069 [-0.117; -0.021]	-
LS <sub>Cattle</sub> ×PP <sub>Twilight</sub> ×Temp	-0.039 [-0.089; 0.010]	-

Table A4. Parameter estimates [95% credible intervals] from the two highest ranked models (Table 2, main document) explaining the variation in moose niche width,  $\sigma_{Moose}$ . Credible intervals are based on the 2.5% and 97.5% percentiles from bootstrapping (n = 10000) of the models. PP = photoperiod (Day, Twilight, Night), Temp = daily mean temperature, and Prec = daily precipitation,  $\delta_{Moose-Sheep}$  and  $\delta_{Moose-Cattle}$  are the niche distance between moose and sheep, and moose and cattle, respectively.

Parameter	Model 1	Model 2
Intercept (Daytime)	1.242 [0.148; 2.350]	1.305 [0.317; 2.289]
PP <sub>Night</sub>	-0.968 [-2.166; 0.237]	-0.782 [-1.907; 0.312]
PP <sub>Twilight</sub>	0.629 [-0.620; 1.878]	1.346 [0.091; 2.632]
$\delta_{Moose-Sheep}$	0.113 [-0.141; 0.367]	0.083 [-0.149; 0.307]
$\delta_{Moose-Cattle}$	-	-0.038 [-0.119; 0.042]
Temp	0.040 [-0.014; 0.091]	0.042 [-0.002; 0.085]
PP <sub>Night</sub> × $\delta_{Moose-Sheep}$	0.910 [0.568; 1.249]	0.698 [0.039; 1.014]
PP <sub>Twilight</sub> × $\delta_{Moose-Sheep}$	0.207 [-0.123; 0.535]	0.082 [-0.231; 0.403]
PP <sub>Night</sub> ×Temp	-0.012 [-0.085; 0.063]	-0.008 [-0.076; 0.612]
PP <sub>Twilight</sub> ×Temp	-0.073 [-0.148; 0.002]	-0.106 [-0.181; -0.305]