

Supporting Information

Table S1. *A priori* selection of environmental covariates for elk (*Cervus canadensis manitobensis*) to derive resource selection function models and selection ratios at the scale of the quarter section ($n = 20,970$) during the hunting season (Sep-Feb) in southwestern Manitoba, Canada.

Covariate	Mean \pm S.E.	Description of covariate
Park	1.67 ± 0.01	Minimum distance to protected area or refuge (RMNP and DMPP&F; km)
Forestbuff	0.20 ± 0.01	Proportion of deciduous forest cover within a 5 km buffer around quarter section
Town	9.08 ± 0.12	Minimum distance to town (km)
Highway	2.32 ± 0.03	Minimum distance to highway (km)
Forest	$0.18 \pm <0.001$	Proportion of deciduous forest cover within the quarter section
Road	$0.01 \pm <0.001$	Density of roads (km ²)
Crop	0.44 ± 0.01	Proportion of annual cereal/oilseed
Stream	0.79 ± 0.01	Minimum distance to stream (km)
Water	$0.03 \pm <0.001$	Proportion of water cover including lakes and rivers
Forage	$0.04 \pm <0.001$	Proportion of perennial forage crops
Wetland	$0.02 \pm <0.001$	Proportion of marsh and fen
Grassland	$0.25 \pm <0.001$	Proportion of grassland

Table S2. Standardized parameter estimates from logistic regression resource selection function models for collared and hunter-killed adult females and juvenile males during the hunting season (September–March; 2002–2012) in southwestern Manitoba, Canada. Model-averaged β coefficient for each predictor covariate derived from an average of all possible models with a change in Akaike value < 2 (Δ AIC, 2.0). Covariates are described in Supporting Information, Table S1.

	Collared Females	Collared Males	Hunter-killed Females	Hunter-killed Males
Covariate	β Coefficient	β Coefficient	β Coefficient	β Coefficient
Park (km)	-1.35	-2.70	-0.74	-0.68
Forest (%)	0.49	0.87	0.78	0.35
Forestbuff (%)	-0.61	-0.87	0.73	0.67
Highway (km)	1.39	--	0.33	0.50
Road (km ²)	-0.03	-0.22	-0.73	-0.74
Town (km)	0.91	0.77	0.99	1.44
Grassland (%)	--	--	-0.39	-0.13
Forage (%)	--	--	--	--
Crop (%)	-0.09	0.60	--	--
Water (%)	-0.04	-0.13	-2.13	-1.96
Wetland (%)	--	--	-0.55	-0.47
Stream (km)	--	--	1.44	1.49

Figure S1. Overall schematic outline of the analyses to map disease risk management areas.

