

Steyaert, S. M. J. G., Zedrosser, A., Elfström, M., Ordiz, A., Leclerc, M., Frank, S. C., Kindberg, J., Støen, O.-G., Brunberg, S. and Swenson, J. E. 2016. Ecological implications from spatial patterns in human-caused brown bear mortality. – Wildlife Biology doi: 10.2981/wlb.00165

## Appendix 1

Table A1. Model selection diagnostics to evaluate spatial patterns in human-caused brown bear mortality in relation to sex, age, cause of death (management removal versus hunting), and ban on baiting (before versus after 2001) in south–central Sweden (1982–2012).  $\Delta$ AICc and AICcw indicate the second-order bias-corrected Akaike’s information criteria difference values, respectively. no. indicated the model rank. Absence of a model in the table indicates that a specific model did not converge.

Hypotheses	Sex			Ageclass			Subadults males			Cause of death			Ban on bait		
	no.	$\Delta$ AICc	AICcw	no.	$\Delta$ AICc	AICcw	no.	$\Delta$ AICc	AICcw	no.	$\Delta$ AICc	AICcw	no.	$\Delta$ AICc	AICcw
Null	1	0	0.697	1	0	0.558	1	0	0.544	3	7.93	0.014	1	0.00	0.78
Expert	2	3.13	0.146	3	2.98	0.126	3	3.58	0.091	1	0	0.755	3	4.56	0.08
Landcover	3	3.65	0.113	2	2.02	0.204	2	1.36	0.275	4	8.1	0.013	2	4.00	0.11
Terrain	4	6.82	0.023	5	5.19	0.042	4	4.83	0.049	5	10.37	0.004	4	7.09	0.02
Human	5	6.93	0.022	4	4.13	0.071	5	5.16	0.041	2	2.52	0.214	5	9.47	0.01
Full	6	16.47	0	6	21.86	0	6	27.28	0	-	-	-	-	-	-

Table A2. Model averaged results (i.e. the weighted null, expert, and land cover model) to evaluate spatial patterns in human-caused mortality between female (0) and male (1) bears in south–central Sweden (1982–2012).  $\beta$ 's indicate parameter estimates,  $\sigma$  = standard error, LL = lower limit of the 95% confidence interval, UL = upper limit of the 95% confidence interval. The '-' imply exclusion from the model because of singularities.

Model term	$\beta$	Adjusted $\sigma$	LL	UL
Intercept	-0.08457	0.30620	-0.684722000	0.515582000
Distance to the nearest road	-0.00005	0.00016	-0.000356680	0.000260720
Distance to the nearest village	-0.00001	0.00003	-0.000059523	0.000044905
Terrain ruggedness - landscape scale	-0.14190	3.39400	-6.794140000	6.510340000
Forest versus Not forest	-0.04456	0.24500	-0.524760000	0.435640000
Bog versus Not bog	-0.03271	0.27240	-0.566614000	0.501194000
Pasture versus Not pasture	-	-	-	-

Table A3. Model-averaged results (i.e. the weighted null, expert, and land cover model) to evaluate spatial patterns in human-caused brown bear mortality in relation to age class (subadult (0) versus adult bears (1)) in south–central Sweden (1982–2012).  $\beta$ 's indicate parameter estimates,  $\sigma$  = standard error, LL = lower limit of the 95% confidence interval, UL = upper limit of the 95% confidence interval. The '-' imply exclusion from the model because of singularities.

Model term	$\beta$	Adjusted $\sigma$	LL	UL
Intercept	-0.06991	0.48350	-1.017570000	0.877750000
Forest versus Not forest	-0.18900	0.46250	-1.095500000	0.717500000
Bog versus Not bog	-0.23980	0.57490	-1.366604000	0.887004000
Pasture versus Not pasture	-	-	-	-
Distance to the nearest road	-0.00003	0.00012	-0.000271692	0.000213212
Distance to the nearest village	0.00001	0.00003	-0.000056732	0.000080272
Terrain ruggedness – landscape scale	-0.71340	3.73200	-8.028120000	6.601320000

Table A4. Model averaged results (i.e. the weighted null, expert and land cover model) to evaluate spatial patterns inhuman-caused brown bear mortality in relation to subadult males (0) and other age and sex classes (1) in south–central Sweden (1982–2012).  $\beta$ 's indicate parameter estimates,  $\sigma$  = standard error, LL = lower limit of the 95% confidence interval, UL = upper limit of the 95% confidence interval. The '-' imply exclusion from the model because of singularities.

Model term	$\beta$	Adjusted $\sigma$	LL	UL
Intercept	-1.36100	0.86170	-3.049932000	0.327932000
Forest versus Not forest	0.41310	0.85640	-1.265444000	2.091644000
Bog versus Not bog	0.48690	0.97310	-1.420376000	2.394176000
Pasture versus Not pasture	-	-	-	-
Distance to the nearest road	0.00000	0.00010	-0.000189723	0.000189537
Distance to the nearest village	-0.00001	0.00003	-0.000064806	0.000050010
Terrain ruggedness – landscape scale	0.80710	3.81300	-6.666380000	8.280580000

Table A5. Model-averaged results (i.e. the weighted null, expert and land cover model) to evaluate spatial patterns in human-caused brown bear mortality in relation to age class (subadult bears including cubs-of-the-year (0) versus adult bears (1)) in south–central Sweden (1982–2012).  $\beta$ 's indicate parameter estimates,  $\sigma$  = standard error, LL = lower limit of the 95% confidence interval, UL = upper limit of the 95% confidence interval. The '-' imply exclusion from the model because of singularities.

Model term	$\beta$	Adjusted $\sigma$	LL	UL
Intercept	-0.08284	0.51910	-1.10028	0.93460
Forest versus Not forest	-0.22620	0.50130	-1.20875	0.75635
Bog versus Not bog	-0.29090	0.62780	-1.52139	0.93959
Pasture versus Not pasture	-	-	-	-
Distance to the nearest road	-0.00002	0.00011	-0.00025	0.00020
Distance to the nearest village	0.00001	0.00003	-0.00005	0.00007
Terrain ruggedness – landscape scale	-0.52270	3.36500	-7.11810	6.07270

Table A6. Model averaged results (i.e. the expert and human model) to evaluate spatial patterns in human-caused brown bear mortality in relation to the cause of death (legal hunt (0) versus management removal (1)) in south–central Sweden (1982–2012).  $\beta$ 's indicate parameter estimates,  $\sigma$  = standard error, LL = lower limit of the 95% confidence interval, UL = upper limit of the 95% confidence interval.

Model term	$\beta$	Adjusted $\sigma$	LL	UL
Intercept	-1.62300	0.77680	-3.145528000	-0.100472000
Distance to the nearest road	-0.00231	0.00134	-0.004936480	0.000308480
Distance to the nearest village	-0.00043	0.00021	-0.000839576	-0.000023824
Terrain ruggedness - landscape scale	6.86000	17.46000	-27.361600000	41.081600000
Distance to the nearest trail	-0.00010	0.00036	-0.000805750	0.000613290
Bog versus Not bog	0.00008	0.00022	-0.000341262	0.000504282
Pasture versus Not pasture	0.12430	0.48490	-0.826104000	1.074704000