Spatial and temporal patterns of human avoidance by brown bears in a reintroduced population

Hystrix

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Supplementary Data S2

A. Summary of model-averaged posterior estimates from the single-species occupancy model fitted to the detection/non-detection data of the brown bear in the central Italian Alps. Psi_mean and p_mean are the derived mean occupancy and detection probability for the brown bear in each year. N_occ is the estimated number of sites used by bears in each sampling season. Yeareff.psi.prob and Yeareff.p.prob are the fixed year effects (on the probability scale) on occupancy and detectability, respectively. Year.eff.psi and year.eff.p are the year-specific estimates for the fixed year-effect on occupancy and detectability, respectively (on the logit scale). $\alpha 0$ and $\beta 0$ are the intercept for occupancy and detectability, on the logit scale. $\alpha 1$-4 are the effects of pedestrian passage rate, vehicle passage rate, distance to settlements and terrain slope on occurrence probability, respectively. $\beta 1$-2 are the effects of pedestrian passage rate and type of track (road=0, trail=1) on detection probability. $\omega[1$-6] are the posterior variable inclusion probability for each variable.

Parameter	Mean	SD	2.5%	50%	97.5%
psi_mean [1]	0.235	0.098	0.099	0.216	0.479
psi_mean [2]	0.533	0.131	0.317	0.517	0.834

psi_mean [3]	0.505	0.159	0.255	0.481	0.866
psi_mean [4]	0.184	0.060	0.088	0.177	0.322
p_mean [1]	0.141	0.056	0.051	0.135	0.267
p_mean [2]	0.105	0.029	0.056	0.102	0.169
p_mean [3]	0.088	0.032	0.039	0.083	0.162
p_mean [4]	0.247	0.064	0.132	0.245	0.380
n_occ [1]	13.366	5.362	7.000	12.000	28.000
n_occ [2]	31.983	7.177	21.000	31.000	50.000
n_occ [3]	30.348	9.037	17.000	29.000	52.000
n_occ [4]	11.047	2.332	9.000	10.000	17.000
Yeareff.psi.prob_y1	0.181	0.107	0.055	0.156	0.466
Yeareff.psi.prob_y2	0.529	0.162	0.261	0.511	0.890
Yeareff.psi.prob_y3	0.493	0.194	0.196	0.461	0.921
Yeareff.psi.prob_y4	0.136	0.061	0.050	0.126	0.283
Yeareff.p.prob_y1	0.127	0.058	0.039	0.119	0.260
Yeareff.p.prob_y2	0.094	0.032	0.040	0.091	0.165
Yeareff.p.prob_y3	0.077	0.030	0.032	0.073	0.148
Yeareff.p.prob_y4	0.228	0.077	0.088	0.228	0.379
year.eff.psi[2]	1.798	1.000	-0.076	1.750	4.007
year.eff.psi[3]	1.655	1.152	-0.406	1.553	4.307
year.eff.psi[4]	-0.298	0.809	-2.059	-0.248	1.154
year.eff.p[2]	-0.289	0.580	-1.389	-0.304	0.884
year.eff.p[3]	-0.517	0.629	-1.707	-0.534	0.760
year.eff.p[4]	0.758	0.588	-0.350	0.742	1.959
$\alpha 0$	-1.641	0.681	-2.841	-1.691	-0.135
$\alpha 1$	-0.507	0.404	-1.280	-0.510	0.327
$\alpha 2$	-0.844	0.424	-1.744	-0.819	-0.065
$\alpha 3$	0.916	0.298	0.377	0.901	1.556
$\alpha 4$	-0.008	0.246	-0.501	-0.009	0.470
$\beta 0$	-2.036	0.554	-3.210	-2.002	-1.047
$\beta 1$	-0.339	0.258	-0.849	-0.342	0.178
$\beta 2$	0.460	0.345	-0.199	0.453	1.150
$\omega[1]$	0.488	0.500	0.000	0.000	1.000
$\omega[2]$	0.764	0.424	0.000	1.000	1.000

ω[3]	0.989	0.105	1.000	1.000	1.000
ω[4]	0.178	0.383	0.000	0.000	1.000
ω[5]	0.369	0.482	0.000	0.000	1.000
ω[6]	0.422	0.494	0.000	0.000	1.000

B. Naïve occupancy of the brown bear in the 4-year period (2015-2018) across the study area, central Italian Alps, overall and for crepuscular hours only (5:00-10:00 am and pm), respectively.

Naïve occupancy	2015	2016	2017	2018
Overall	0.33	0.37	0.39	0.25
Crepuscular	0.12	0.30	0.24	0.15