Ecography

E4397
Sunde, P. and Redpath, S. M. 2006. Combining information from range use and habitat selection: sex-specified spatial responses to habitat fragmentation in tawny owls *Strix aluco*. – Ecography 29: 152–158.

Appendix 1. Raw data on availability (area within 100% minimum convex polygon) and use (number of telemetry fixes) of the two main habitat types, woodland (trees) and open farmland (comprised of buildings, pastures and arable land). Two owls with a home range entirely made up by woodland (no option for habitat selection, but intensity of use of woodland being the reciprocal value of the total range size) are marked (*).

Owl	Sex	Area covered by 100% Minimum Convex polygon (ha)					Number of telemetry fixes				
		$A_{(w)i}$	$A_{(o)i}$			A_i	$n_{(w)i}$	$n_{(o)i}$			n_i
		trees	buildings	pastures	arable	total	trees	buildings	pastures	arable	total
206	F	15.10	0.00	3.50	0.00	18.60	49	0	0	0	49
208	M	0.90	0.42	4.40	70.00	75.72	16	5	17	1	39
221	M	1.98	0.96	14.13	309.00	326.07	14	6	14	5	39
226	M	4.38	0.96	10.70	205.00	221.04	21	7	7	9	44
234	M	25.60	0.00	1.50	1.00	28.10	49	0	0	0	49
245	M	7.08	0.42	16.24	252.76	276.50	16	14	3	4	37
246	M	3.10	0.06	3.01	33.81	39.98	32	10	0	4	46
256	F	0.84	0.36	6.32	31.57	39.09	43	0	6	1	50
270	F	2.34	0.36	1.70	49.59	53.99	34	2	1	1	38
275	M	1.50	0.66	6.98	169.76	178.90	6	10	16	14	46
279	F	2.42	0.24	6.11	143.73	152.50	32	8	1	4	45
283	M	20.00	1.00	5.00	22.00	48.00	95	1	4	0	100
287	F	0.90	0.24	1.87	16.38	19.39	27	2	3	1	33
295	F	2.88	0.66	2.93	53.26	59.73	22	9	14	3	48
300*	M	22.10	0.00	0.00	0.00	22.10	49	0	0	0	49
308	M	4.68	0.96	8.19	175.47	189.30	31	6	9	3	49
318	M	3.06	0.72	5.58	135.74	145.10	27	10	7	24	68
337	F	1.62	0.60	7.26	76.88	86.36	43	7	19	7	76
384	F	0.66	0.18	1.17	31.05	33.06	63	0	0	6	69
407	M	33.30	0.50	3.50	0.00	37.30	99	0	0	0	99
418	F	4.02	1.08	5.73	107.07	117.90	58	6	4	7	75
426	M	14.20	0.00	1.50	0.00	15.70	99	1	0	0	100
437*	F	38.90	0.00	0.00	0.00	38.90	49	0	0	0	49
2362	F	2.64	0.78	9.78	205.90	219.10	34	8	2	6	50

Appendix 2. Using intensity of use as a measure in statistical analysis is problematic, as a negative autoregression exists between $D_{(w)}$ ($D_{(w)} = p_{(u)}/A_{(w)}$) and $A_{(w)}$ if $A_{(w)i}$ is associated with sampling error. In our analysis, this problem was circumvented by comparing groups of individuals sampled in two distinct types of habitats (continuous versus fragmented woodland). In situations where a continuous gradient of decreasing proportional availability of a focal habitat exists, a way to estimate $D_{(w)}$ without autoregression bias would be first to model $p_{(u)}$ as function of $A_{(w)}$ and $A_{(o)}$ (as well predictor variables, such as gender or other relevant habitat features) by means of logistic regression (or related statistical methods) and then derive $D_{(w)}$ as $p_{(u)}/A_{(w)}$. In the same way, confidence zones around $A_{(w)}$ can be derived from the confidence zones around $p_{(u)}$. Applying this method to the present data (Appendix 1) yielded similar estimated differences in $D_{(w)}$ as a function of $A_{(w)}$ although the significance of the variation in $D_{(w)}$ as a function of variation in $A_{(w)}$ could only be assessed indirectly from variation in the confidence zones of $D_{(w)}$ within the observed variation of $A_{(w)}$. Randomisation procedures might be an alternative approach to test the significance of variation in $D_{(w)}$ as a function of $A_{(w)}$.