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Wildlife Research

Supplementary Material

Feral cat control: improving *Eradicat*® bait efficiency and effectiveness for fauna conservation in the Southern Jarrah Forest, Western Australia

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Supplementary material 1. Rationale for the study design to investigate the use of *Eradicat*® baits in the southern jarrah forest.

This study is the first step to investigating the suitability of using *Eradicat*® baits in the SJF. Other research questions being investigated outside of this study but part of the same project relate to, i) bait interactions by non-target species, ii) assessing the risks to native species potentially vulnerable to the toxicity of the baits (e.g. some dasyurids and birds), and iii) factors related to bait longevity and condition. A range of approaches to addressing all these questions were carefully considered and deemed inappropriate for our specific circumstances. These included using baits with biomarkers (e.g. Rhodamine B) (e.g. Johnston et al. 2007) and/or toxic baits in association with radio-telemetry and trapping to determine the survival of individuals (e.g. Algar et al. 2020). Reasons for their rejection included the costs and practical challenges of achieving statistically adequate sample sizes for target (cat and fox) and non-target species (mammals, birds, and reptiles). Capturing sufficient cats and foxes in the area is very difficult given the high densities of non-target species that interfere with cage and leg-hold traps and are subsequently exposed to significant welfare risks. Likely demographic biases in the capture and radio-collaring of cats (e.g. younger cats) and the potential behavioural changes these interventions may have on individuals would also likely lead to a bias in the understanding in the effectiveness of baiting events on the cat populations (e.g. Comer et al. 2018). These approaches would also provide no information about the bait and other animal interactions, thereby limiting the ability to inform how to improve baiting efficiency and effectiveness. Large landscape-scale operational baiting trials would increase the risk to potentially vulnerable non-target species and compromise the ability to determine how, when, and where to use *Eradicat®* baits most effectively and efficiently without violating assumptions of spatial and temporal independence between trials within the region and within a reasonable timeframe.

With *Eradicat®* having never been used in this ecosystem or in the presence of many of the non-target native species that occur in the area, the approach deemed most appropriate for our circumstances was based on conducting bait-uptake trials, whereby remote sensor cameras were used to record the fate of all toxic *Eradicat*® baits that were deployed. Many small, widely separated study sites were used to conduct repeat trials of different deployment methods over space and time using a limited number of baits per site to minimise the risks to potentially vulnerable non-target species. The number and scale of the trial sites were informed by available intelligence to maximise the likelihood of having adequate data to rigorously address the research questions, while remaining logistically feasible. This study, therefore, was not an assessment of an operational-scale deployment of *Eradicat*®. Rather, this was a research program at a precautionary, smaller, and less intensive scale to inform how *Eradicat*® might best be used safely at an operational scale in this ecosystem.

REFERENCES

Algar, D., Johnston, M., Tiller, C., Onus, M., Fletcher, J., Desmond, G., Hamilton, N., and Speldewinde, P. (2020). Feral cat eradication on Dirk Hartog Island, Western Australia. Biological Invasions 22, 1037-1054.

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Johnston, M. J., Shaw, M. J., Robley, A., and Schedvin, N. K. (2007). Bait uptake by feral cats on French Island, Victoria. Australian Mammalogy 29, 77-83.

Supplementary material 2. Summary of *Probait®* deployment operations in the southern jarrah forest in relation to *Eradicat*® bait trials. Yellow highlights indicate *Probait®* deployment concurrent with *Eradicat*® bait trials, i.e. the sites removed from the analyses of fox interactions with *Eradicat*® baits. *Sites not affected by concurrent Probait operations.

Site No.	**Treatment**	**Session**	**First day of *Eradicat*® trial**	**Last day of *Eradicat*® trial**	**Trial duration (Days)**	**Aerial Probaiting date prior to *Eradicat*® trial start**	**Subsequent Aerial Probaiting date after *Eradicat*® trial start**	**Aerial *Probait®* in relation to *Eradicat*® trial start (Days)**	**Subsequent Aerial *Probait®* in relation to *Eradicat*® trial start (Days)**	**Subsequent Aerial *Probait®* in relation to *Eradicat*® trial end (Days)**	**Ground Probaiting date prior to *Eradicat*® trial start**	**Subsequent Ground Probaiting date after *Eradicat*® trial start**	**Ground *Probait®* in relation to *Eradicat*® trial start (Days)**	**Subsequent Ground *Probait®* in relation to *Eradicat*® trial end (Days)**
6	Ground	1	18/10/2016	15/11/2016	28	23/09/2016	21/12/2016	-25	64	36	16/06/2016	16/03/2017	-124	121
8	Ground	1	18/10/2016	15/11/2016	28	23/09/2016	21/12/2016	-25	64	36	16/06/2016	16/03/2017	-124	121
23	Aerial	1	20/10/2016	8/11/2016	19	20/09/2016	20/12/2016	-30	61	42				
39	Aerial	1	19/10/2016	8/11/2016	20	4/10/2016	29/12/2016	-15	71	51				
9	Ground	2	21/11/2016	20/12/2016	29	23/09/2016	21/12/2016	-59	30	1	17/11/2016	13/12/2016	-4	-7
19	Ground	2	22/11/2016	20/12/2016	28	23/09/2016	21/12/2016	-60	29	1	21/06/2016	13/03/2017	-154	83
11	Aerial	2	24/11/2016	19/12/2016	25	20/09/2016	19/12/2016	-65	25	0				
16	Aerial	2	23/11/2016	19/12/2016	26	23/09/2016	21/12/2016	-61	28	2				
17	Ground	3	4/01/2017	1/02/2017	28	21/12/2016	20/04/2017	-14	106	78				
20	Ground	3	3/01/2017	1/02/2017	29	21/12/2016	20/04/2017	-13	107	78	21/06/2016	13/03/2017	-196	40
4	Aerial	3	6/01/2017	30/01/2017	24	19/12/2016	18/04/2017	-18	102	78				
29	Aerial	3	5/01/2017	30/01/2017	25	23/12/2016	22/04/2017	-13	107	82				
38	Aerial	4	16/02/2017	13/03/2017	25	29/12/2016	27/03/2017	-49	39	14				
10	Aerial	4	15/02/2017	14/03/2017	27	19/12/2016	18/04/2017	-58	62	35				
12	Ground	4	14/02/2017	14/03/2017	28	21/12/2016	20/04/2017	-55	65	37	16/06/2016	16/03/2017	-243	2
31	Ground	4	17/02/2017	13/03/2017	24	29/12/2016	27/03/2017	-50	38	14				
40	Ground	5	28/03/2017	26/04/2017	29	27/03/2017	31/10/2017	-1	217	188				
5	Ground	5	27/03/2017	27/04/2017	31	19/12/2016	18/04/2017	-98	22	-9				
21	Aerial	5	30/03/2017	24/04/2017	25	19/12/2016	18/04/2017	-101	19	-6				
26	Aerial	5	29/03/2017	26/04/2017	28	23/12/2016	22/04/2017	-96	24	-4				
37	Ground	6	10/05/2017	7/06/2017	28	22/04/2017	30/10/2017	-18	173	145				
24	Ground	6	9/05/2017	7/06/2017	29	22/04/2017	30/10/2017	-17	174	145				
33	Aerial	6	11/05/2017	6/06/2017	26	22/04/2017	30/10/2017	-19	172	146				
7	Aerial	6	12/05/2017	6/06/2017	25	20/04/2017	13/06/2017	-22	32	7	20/03/2017	4/07/2017	-31	21
18	Aerial	7	23/06/2017	17/07/2017	24	13/06/2017	15/09/2017	-10	84	60				
32	Aerial	7	21/06/2017	17/07/2017	26	27/03/2017	31/10/2017	-86	132	106				
36	Ground	7	20/06/2017	18/07/2017	28	27/03/2017	31/10/2017	-85	133	105				
2	Ground	7	19/06/2017	18/07/2017	29	18/04/2017	14/09/2017	-62	87	58				
14*	Aerial	8	4/08/2017	29/08/2017	25	13/06/2017	15/09/2017	-52	42	17	21/07/2017	16/08/2017	-14	-13
28	Aerial	8	3/08/2017	29/08/2017	26	22/04/2017	30/10/2017	-103	88	62				
1	Ground	8	2/08/2017	30/08/2017	28	18/04/2017	14/09/2017	-106	43	15				
22	Ground	8	1/08/2017	30/08/2017	29	13/06/2017	15/09/2017	-49	45	16				
15*	Aerial	9	13/09/2017	10/10/2017	27	15/09/2017	13/12/2017	2	91	64	19/09/2017	17/10/2017	6	7
35	Aerial	9	14/09/2017	10/10/2017	26	27/03/2017	31/10/2017	-171	47	21				
25	Ground	9	12/09/2017	11/10/2017	29	22/04/2017	30/10/2017	-143	48	19				
27	Ground	9	11/09/2017	11/10/2017	30	22/04/2017	30/10/2017	-142	49	19				
3	Aerial	10	27/10/2017	27/11/2017	31	14/09/2017	20/03/2018	-43	144	113				
30	Aerial	10	25/10/2017	27/11/2017	33	22/04/2017	30/10/2017	-186	5	-28				
13	Ground	10	23/10/2017	22/11/2017	30	15/09/2017	13/12/2017	-38	51	21	11/09/2017	16/01/2018	-42	55
34	Ground	10	24/10/2017	22/11/2017	29	31/10/2017	22/01/2018	7	90	61				

Extra details for highlighted /asterix sites

Sites potentially most affected by *Probait®* operations.

Site 9: Ground deployment of *Probait®* occurred 4 days before first *Eradicat®* bait deployment and again 2 days before the fifth *Eradicat®* bait deployment. The fourth baiting event was not affected as there were no *Eradicat®* baits remaining on the day of Probaiting. One fox was sighted twice prior to the Probaiting and one fox after (no baits available at any visit).

Site 40: Aerial deployment of *Probait®* occurred 1 day prior to the *Eradicat®* bait trial beginning; No foxes were detected at this site.

Site 30: Aerial deployment of *Probait®* occurred 5 days after the *Eradicat®* baits were deployed; All *Eradicat®* baits were present at the time and only 17 / 50 were removed at the completion of the *Eradicat®* trial; No foxes were sighted before Probaiting and 2 were detected after (both baits were available but not removed).

Site 34: Aerial deployment of *Probait®* occurred 7 days after the *Eradicat®* baits were deployed, coinciding with the second *Eradicat®* bait deployment; The only fox detected at this site was after the third *Eradicat®* bait deployment (bait was available but not removed).

Sites potentially moderately affected by *Probait®* operations.

Site 5: Aerial deployment of *Probait®* occurred on the day of the fourth *Eradicat®* bait deployment, 9 days before completion of the *Eradicat®* trial; 3 foxes were sighted before Probaiting (1 bait was available) and 1 fox one day after (bait was available).

Site 21: Aerial deployment of *Probait®* occurred 19 days after the *Eradicat®* baits were deployed; 23 baits were removed before the Probaiting and 3 over the last 6 days; 1 individual fox sighted on 4 cameras on the morning of the Probaiting (2 baits were available), no sightings after.

Site 26: Aerial deployment of *Probait®* occurred 24 days after the *Eradicat®* baits were deployed; 9 *Eradicat®* baits were removed within the first 24 days, 20 baits were removed within the 4 days to the end of the *Eradicat®* trial; One individual fox was sighted 4 times before Probaiting (3 baits were available, it appears that the same fox removed 2 of these baits 6 days apart); one individual sighted 3 times post Probaiting (all baits were available, none removed).

Sites where *Eradicat®* bait opportunities were not affected by concurrent *Probait®* operations (i.e. all *Eradicat®* baits already removed).

Site 14: Ground deployment of *Probait®* occurred 14 days after the commencement of the *Eradicat®* bait trial began, in which all *Eradicat®* baits were removed within 3 days from the start of the trial.

Site 15: Aerial and ground deployment of *Probait®* occurred 2 days and 6 days after *Eradicat®* bait deployment, of which all *Eradicat®* baits were removed within 1.3 days of the start of the trial.

Supplementary material 3. Summary of introduced predator visitation and bait removal rates at each site for the two replicates of each the two bait deployment treatments (ground transect and simulated aerial cluster) per session (1-10), for the *Eradicat*® bait uptake trials in the southern jarrah forest, Western Australia.

Session	Description	Ground 1	Ground 2	Aerial 1	Aerial 2
1	Cat visitation rate (trap nights)	0.010 (1309)	0.002 (1319)	0.000 (931)	0.000 (962)
	Cat bait efficiency (baits deployed)	0.010 (206)	0.000 (246)	0.000 (50)	0.000 (50)
	Fox visitation rate (trap nights)	0.015 (1309)	0.002 (1319)	0.000 (931)	0.000 (962)
	Fox bait efficiency (baits deployed)	0.010 (206)	0.000 (246)	0.000 (50)	0.000 (50)
2	Cat visitation rate (trap nights)	0.001 (1417)	0.001 (1383)	0.002 (1250)	0.001 (1278)
	Cat bait efficiency (baits deployed)	0.000 (250)	0.000 (240)	0.000 (50)	0.000 (50)
	Fox visitation rate (trap nights)	0.002 (1417)	0.001 (1383)	0.000 (1250)	0.005 (1278)
	Fox bait efficiency (baits deployed)	0.000 (250)	0.000 (240)	0.000 (50)	0.000 (50)
3	Cat visitation rate (trap nights)	0.001 (1334)	0.001 (1348)	0.003 (1183)	0.000 (1250)
	Cat bait efficiency (baits deployed)	0.000 (218)	0.000 (214)	0.000 (50)	0.000 (50)
	Fox visitation rate (trap nights)	0.013 (1334)	0.010 (1348)	0.002 (1183)	0.000 (1250)
	Fox bait efficiency (baits deployed)	0.023 (218)	0.009 (214)	0.000 (50)	0.000 (50)
4	Cat visitation rate (trap nights)	0.004 (1400)	0.003 (1176)	0.008 (1250)	0.000 (1350)
	Cat bait efficiency (baits deployed)	0.005 (222)	0.005 (196)	0.000 (50)	0.000 (50)
	Fox visitation rate (trap nights)	0.004 (1400)	0.003 (1176)	0.000 (1250)	0.000 (1350)
	Fox bait efficiency (baits deployed)	0.005 (222)	0.000 (196)	0.000 (50)	0.000 (50)
5	Cat visitation rate (trap nights)	0.007 (1450)	0.003 (1529)	0.000 (1250)	0.001 (1400)
	Cat bait efficiency (baits deployed)	0.000 (235)	0.005 (208)	0.000 (50)	0.020 (50)
	Fox visitation rate (trap nights)	0.000 (1450)	0.003 (1529)	0.003 (1250)	0.005 (1400)
	Fox bait efficiency (baits deployed)	0.000 (235)	0.000 (208)	0.000 (50)	0.040 (50)
6	Cat visitation rate (trap nights)	0.001 (1400)	0.000 (1442)	0.002 (1300)	0.002 (1250)
	Cat bait efficiency (baits deployed)	0.000 (240)	0.000 (250)	0.000 (50)	0.000 (50)
	Fox visitation rate (trap nights)	0.000 (1400)	0.002 (1442)	0.002 (1300)	0.008 (1250)
	Fox bait efficiency (baits deployed)	0.000 (240)	0.000 (250)	0.000 (50)	0.020 (50)
7	Cat visitation rate (trap nights)	0.003 (1386)	0.000 (1443)	0.000 (1176)	0.001 (1274)
	Cat bait efficiency (baits deployed)	0.000 (187)	0.000 (248)	0.000 (50)	0.000 (49)
	Fox visitation rate (trap nights)	0.004 (1386)	0.001 (1443)	0.003 (1176)	0.000 (1274)
	Fox bait efficiency (baits deployed)	0.016 (187)	0.000 (248)	0.000 (50)	0.000 (49)
	Cat visitation rate (trap nights)	0.004 (1400)	0.002 (1450)	0.000 (1250)	0.002 (1300)
8	Cat bait efficiency (baits deployed)	0.000 (250)	0.000 (250)	0.000 (50)	0.000 (50)
	Fox visitation rate (trap nights)	0.004 (1400)	0.004 (1450)	0.000 (1250)	0.000 (1300)
	Fox bait efficiency (baits deployed)	0.000 (250)	0.000 (250)	0.000 (50)	0.000 (50)
9	Cat visitation rate (trap nights)	0.002 (1450)	0.003 (1500)	0.000 (1350)	0.002 (1280)
	Cat bait efficiency (baits deployed)	0.000 (250)	0.000 (250)	0.000 (50)	0.000 (50)
	Fox visitation rate (trap nights)	0.006 (1450)	0.000 (1500)	0.004 (1350)	0.003 (1280)
	Fox bait efficiency (baits deployed)	0.000 (250)	0.000 (250)	0.000 (50)	0.000 (50)
10	Cat visitation rate (trap nights)	0.000 (1500)	0.003 (1434)	0.000 (1519)	0.000 (1650)
	Cat bait efficiency (baits deployed)	0.000 (250)	0.000 (250)	0.000 (49)	0.000 (50)
	Fox visitation rate (trap nights)	0.001 (1500)	0.002 (1434)	0.000 (1519)	0.001 (1650)
	Fox bait efficiency (baits deployed)	0.000 (250)	0.000 (250)	0.000 (49)	0.000 (50)

Note: The naive occupancy of the SJF sites by cat and fox was 68% each, based on detection events. Twenty (50%) sites detected both cat and fox. Thirty-four (85%) sites detected one or both introduced predators (i.e. seven sites detected only cat, another seven sites only detected fox, six sites detected neither).

Supplementary material 4. A simple occupancy model to estimate occupancy rates of cats and foxes at the study sites

Background

Occupancy modelling was conducted at the site level to estimate the proportion of study sites where cats and foxes were present at the 40 study sites during the trials (see MacKenzie et al. 2018). This is particularly relevant when considering baiting efficiency (e.g., the number of baits taken by cats is dependent in part on cats being present to take baits). Occupancy modelling was not used to investigate ecological or biological factors explaining the patterns of species occupancy.

Methods

Single season (static) occupancy modelling was conducted using RPresence. For each site, the detection histories for cats and foxes were characterised as to whether there was at least one detection for each survey day (midday – midday) from any of the 50 remote sensor camera traps combined. The data from the first 25 days of monitoring at each site were discretised into 5-day intervals to minimise serial dependence and having explored the detection histories and models with 1-, 2- and 5- day intervals. Discretising the detection history (continuous time series) data involves recording whether or not a cat/fox was detected on any of the 50 cameras from a given site within a given 5-day interval, and was recorded as "1" detected or "0" not detected.

The modelled estimates of species occupancy and detection probabilities were related to the factors used in the experimental design of these trials: treatment (i.e. transect or cluster bait deployment method), time (trial sessions 1-10) and space (i.e. ecosystem types based on Landscape Conservation Units, LCUs). This is because we wanted occupancy estimates that explicitly accounted for these experimental factors. Occupancy would be expected to vary according to the treatment because the size and shape of the treatment areas differ (40 x 200m clusters and 5km transects) and the proximity of these treatments to roads differ (clusters were > 100m and transects were 5-20m from unsealed roads). Site occupancy might also vary over time (e.g., seasonal differences) and LCUs (i.e., habitat differences). Detection probabilities may also be expected to vary according to these factors for similar reasons (e.g., detection probabilities are expected to be greater on transects because of their proximity to vehicle tracks that may be preferentially used by cats and foxes and because the shape of transects means they are likely to intersect a larger number of animal territories than clusters). Therefore, a total of 33 models were created for both introduced predators, based on eight permutations for detection probability (p: constant; treatment; session; LCU; treatment + session; treatment + LCU; treatment * session; and treatment * LCU; whereby '*' indicates an interaction between terms), combined with four permutations for occupancy (psi: constant; treatment; session; and LCU). The global model included was psi~ treatment + session + LCU, p~ treatment + session + LCU. The best occupancy models for cats and foxes were identified using the information theoretic approach and Akaike's Information Criterion (AIC). Goodness of fit tests on the global model for each species were conducted following the method of MacKenzie and Bailey (2004) in Program R using the occ.mod with modfitboot = 10,000 (bootstrapping).

We believe the assumption of closure (i.e. that the occupancy status at the species level and at each site does not change over the survey period; MacKenzie et al. 2018) was upheld in these models. This is because i) the survey period at each site was brief (20-25 days), ii) the loss of individuals (e.g. due to baiting) does not necessarily violate the assumptions of closure at the species level and, iii) because the target species were recorded on all sites after all bait removal events except for one case each for cat and fox. The only detection of a cat at site 26 involved the consumption of the bait on day 12. No foxes were detected at site 36 after two baits were removed on day 20 (i.e. near the end of the survey period). Furthermore, the potential cull rates from the *Eradicat*® baits were so low (10-12% and 8-20% of detected cat and fox individuals, respectively, representing an even smaller but unknown proportions of the population), and the treatment areas were so small, that animals from the unbaited surrounding areas would easily continue to move through the baited areas during the trials.

Results

<u>Occupancy and detection probabilities of introduced predators:</u>

Occupancy modelling predicted that a minimum of 92% (SE = 9.4%) and 84% (SE = 8.8%) of the SJF sites were occupied by cat and fox, respectively. The best cat occupancy model did not include treatment, session or LCU as explanatory variables, whereas LCU was important for explaining fox occupancy (Table SM4.1). Fox occupancy was greatest (100%) in YWP and SEU and least (50%) in SHT (Table SM4.2).

Detection probabilities for both cat and fox were best explained by treatment alone (Table SM4.1). The detection probability (within any given 5-day period) was 40% (SE = 6.0%) at ground transects and 13% (SE = 3.9%) at aerial clusters for cat, and 55% (SE = 5.4%) at ground transects and 21% (SE = 5.8%) at aerial clusters for fox. The diagnostic test for the global model for cat and fox indicated these models were an adequate description of the data with the overdispersion parameter (c-hat) having values of 1.07 and 0.79, respectively (values close to or below 1 indicate an appropriate model specification and no overdispersion). The p-values for the goodness of fit Pearson chi-square statistic were 0.34 and 0.80, for cat and fox respectively (values >0.1 suggest that the model has a good fit).

Table SM4.1. Summary of the 10 best occupancy models for feral cats and foxes at the 40 sites across the southern jarrah forest, including potential explanatory variables; treatment (bait deployment method), session (1-10) and Landscape Conservation Unit (LCU or ecosystem type), or no explanatory variables '(.)' (i.e. constant); whereby 'psi' = occupancy estimate, 'p' = detection probability.

Feral Cat Model	DeltaAIC	Weight	# Parameters	-2Log Likelihood
psi(.), p(Treatment)	0	0.5148	3	204.27
psi(Treatment), p(Treatment)	1.95	0.1941	4	204.22
psi(.), p(Treatment + LCU)	3.17	0.1054	7	199.44
psi(Treatment), p(Treatment + LCU)	4.58	0.0521	8	198.85
psi(LCU), p(Treatment + LCU)	5.3	0.0364	11	193.57
psi(LCU), p(Treatment)	5.75	0.0291	7	202.02
psi(Treatment), p(.)	6.13	0.024	3	210.4
psi(Treat+Sess+LCU),p(Treat+Sess+LCU)	7.76	0.0106	30	158.03
psi(.), p(Treatment + Session)	8.5	0.0074	12	194.77
psi(.), p(Treatment * LCU)	8.86	0.0061	11	197.13
psi(Treatment), p(LCU)	9.05	0.5148	7	205.32
Fox Model	**DeltaAIC**	**Weight**	**# Parameters**	**-2Log Likelihood**
psi(LCU), p(Treatment)	0	0.2822	7	211.8
psi(.), p(Treatment)	0.23	0.2515	3	220.03
psi(.), p(Treatment + LCU)	1.07	0.1652	7	212.87
psi(Treatment), p(Treatment)	1.55	0.1303	4	219.34
psi(Treatment), p(Treatment + LCU)	2.75	0.0713	8	212.55
psi(LCU), p(Treatment + LCU)	3.86	0.041	11	207.66
psi(.), p(Treatment * LCU)	4.72	0.0266	11	208.52
psi(Treatment), p(Treatment * LCU)	6.33	0.0119	12	208.13
psi(LCU), p(Treatment * LCU)	7.56	0.0064	15	203.36
psi(Treatment), p(.)	8.71	0.0036	3	228.51

Table SM4.2. Summary of fox occupancy according to ecosystem types (i.e. Landscape Conservation Units (LCU)) in the southern jarrah forest.

LCU	Occupancy	SE	Lower 0.95 CI	Upper 0.95 CI
NK	0.808	0.276	0.114	0.993
YWP	1.0			
SCJ	0.616	0.247	0.172	0.926
SEU	1.0			
SHT	0.502	0.217	0.156	0.846

Discussion

A minimum of 92% and 84% of the sites were predicted occupied by cat and fox, respectively at the time of the trials by the occupancy modelling. As expected, this is higher than the observed naïve occupancy rates (68% for both species; Supplementary material 3), because of the low probabilities of detection.

Our predicted occupancy rates of cats and foxes are consistent with our expectations given our experience in the area and the demonstration that cats were found to occur across >99.8% of Australia's land area (Legge et al. 2017).

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