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Wildlife Research

Supplementary Material

Enhancing strategic deployment of baiting transects for invasive species control – a case study for feral pig baiting in north-eastern Australia

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Table S1: Total length of baiting strategy transects, mean transect length (km) and mean transect proportion of total length within Arcadia pigs' home and core ranges. Standard error (SE) in parentheses.

Site	Distribution		Baiting Strategy		Total transect length (km)	Mean transect length within individual home range	Mean transect percent within individual home range	Mean transect length within individual core range	Mean transect percent within individual core range	Percent of all home ranges crossed	Percent of all core ranges crossed
	Method	Mechanism	Placement	Spacing							
Arcadia	Aerial	Fixed-wing	Systematic-spaced	500 m	1416 km	22.6 (3.9) km	1.6 (0.3) %	2 (0.5) km	0.1 (0) %	100 %	90.3 %
				1 km	708 km	11.3 (2) km	1.6 (0.3) %	1 (0.3) km	0.1 (0) %	100 %	87.1 %
				2 km	354 km	5.4 (0.9) km	1.5 (0.3) %	0.5 (0.2) km	0.1 (0) %	100 %	67.7 %
				3 km	240 km	4 (0.7) km	1.7 (0.3) %	0.3 (0.1) km	0.1 (0) %	96.8 %	48.4 %
				4 km	183 km	3 (0.6) km	1.6 (0.3) %	0.3 (0.1) km	0.2 (0.1) %	90.3 %	58.1 %
				5 km	148 km	2.3 (0.5) km	1.5 (0.3) %	0.2 (0.1) km	0.1 (0) %	90.3 %	41.9 %
				10 km	72 km	0.9 (0.3) km	1.3 (0.4) %	0.1 (0) km	0.1 (0.1) %	64.5 %	19.4 %
			Watercourses		212 km	4.7 (0.8) km	2.2 (0.4) %	0.4 (0.1) km	0.2 (0) %	96.8 %	67.7 %
		Rotary	Systematic-spaced	500 m	1671 km	26.9 (4.5) km	1.6 (0.3) %	2.3 (0.5) km	0.1 (0) %	100 %	93.5 %
				1 km	831 km	13.3 (2.2) km	1.6 (0.3) %	1.1 (0.3) km	0.1 (0) %	100 %	90.3 %
				2 km	412 km	6.4 (1.1) km	1.6 (0.3) %	0.5 (0.2) km	0.1 (0) %	100 %	67.7 %
				3 km	281 km	4.6 (0.7) km	1.7 (0.3) %	0.3 (0.1) km	0.1 (0) %	96.8 %	54.8 %
				4 km	208 km	3.4 (0.6) km	1.7 (0.3) %	0.3 (0.1) km	0.2 (0) %	96.8 %	58.1 %
				5 km	170 km	2.7 (0.6) km	1.6 (0.3) %	0.2 (0.1) km	0.1 (0) %	93.5 %	41.9 %
				10 km	83 km	1.2 (0.3) km	1.4 (0.4) %	0.1 (0) km	0.1 (0) %	67.7 %	19.4 %
			Watercourses		250 km	5.5 (0.9) km	2.2 (0.3) %	0.5 (0.1) km	0.2 (0) %	96.8 %	74.2 %
	Ground		Farm tracks		395 km	8.1 (1.7) km	2 (0.4) %	0.7 (0.2) km	0.2 (0) %	80.6 %	58.1 %
			Property boundaries		279 km	3.8 (0.9) km	1.4 (0.3) %	0.3 (0.1) km	0.1 (0) %	80.6 %	41.9 %

Table S2: Total length of baiting strategy transects, mean transect length (km) and mean transect proportion of total length within Downfall pigs' home and core ranges. Standard error (SE) in parentheses.

Site	Distribution		Baiting Strategy		Total transect length	Mean transect length within home range	Mean transect percent within home	Mean transect length within core range	Mean transect percent within core	Percent of home ranges crossed	Percent of core ranges crossed
	Method	Mechanism	Placement	Spacing							
Downfall	Aerial	Fixed-wing	Systematic-spaced	500 m	1152 km	20.2 (3.6) km	1.8 (0.3) %	2 (0.5) km	0.2 (0) %	100 %	100 %
				1 km	573 km	9.8 (1.8) km	1.7 (0.3) %	1 (0.2) km	0.2 (0) %	100 %	100 %
				2 km	282 km	4.3 (1) km	1.5 (0.3) %	0.4 (0.2) km	0.1 (0.1) %	100 %	72.7 %
				3 km	196 km	3.6 (0.7) km	1.9 (0.3) %	0.2 (0.1) km	0.1 (0) %	90.9 %	90.9 %
				4 km	144 km	2.1 (0.5) km	1.4 (0.4) %	0.2 (0.1) km	0.1 (0) %	100 %	72.7 %
				5 km	114 km	2.3 (0.3) km	2 (0.3) %	0.2 (0.1) km	0.2 (0.1) %	100 %	90.9 %
				10 km	57 km	1.1 (0.3) km	2 (0.5) %	0.1 (0.1) km	0.2 (0.1) %	72.7 %	54.5 %
			Watercourses		165 km	4.7 (1.4) km	2.8 (0.8) %	0.9 (0.4) km	0.5 (0.2) %	90.9 %	81.8 %
		Rotary	Systematic-spaced	500 m	1295 km	22.3 (3.8) km	1.7 (0.3) %	2.2 (0.5) km	0.2 (0) %	100 %	100 %
				1 km	646 km	10.9 (1.9) km	1.7 (0.3) %	1.1 (0.2) km	0.2 (0) %	100 %	100 %
				2 km	321 km	5 (1) km	1.6 (0.3) %	0.4 (0.2) km	0.1 (0.1) %	100 %	72.7 %
				3 km	219 km	4 (0.7) km	1.9 (0.3) %	0.3 (0.1) km	0.1 (0) %	90.9 %	90.9 %
				4 km	162 km	2.3 (0.6) km	1.4 (0.3) %	0.2 (0.1) km	0.1 (0) %	100 %	72.7 %
				5 km	127 km	2.5 (0.4) km	2 (0.3) %	0.3 (0.1) km	0.2 (0.1) %	100 %	90.9 %
				10 km	62 km	1.2 (0.3) km	2 (0.5) %	0.2 (0.1) km	0.3 (0.1) %	81.8 %	54.5 %
			Watercourses		200 km	5.6 (1.4) km	2.8 (0.7) %	1.1 (0.4) km	0.5 (0.2) %	90.9 %	90.9 %
	Ground		Farm tracks		204 km	2.2 (0.8) km	1.1 (0.4) %	0.1 (0.1) km	0.1 (0) %	100 %	45.5 %
			Property boundaries		403 km	5.9 (1.5) km	1.5 (0.4) %	1 (0.5) km	0.3 (0.1) %	90.9 %	63.6 %

Table S3: Estimated cost of various baiting strategies, incorporating the cost of bait (meat and 1080), and the cost of bait dispersal (vehicle expenses and labour to disperse baits). Note: labour expense may appear low, as time to prepare baits, along with ferrying to transects and between transects was omitted. Labour expense displayed here is relative to vehicle speed, total transect length and minimum wage of a single operator at $21.38 hr^{-1} (Fair Work Ombudsman 2023). Cessna 206 (C206); Cessna 182 (C182); Bell Jet Ranger (Jet Ranger); Robinson R44 (R44).

Distribution		Baiting Strategy		Total transect length (km)	Est. no. of baits	Bait $	Cost of dispersal		Total
Method	Vehicle	Placement	Spacing				Vehicle	Labour	
Aerial	C206	Systematic-spaced	500 m	1347.2	13,472	$52,406	$4,693	$135	$57,235
			1 km	672.6	6,726	$26,164	$2,343	$68	$28,575
			2 km	335.0	3,350	$13,032	$1,167	$34	$14,233
			3 km	228.1	2,281	$8,872	$795	$23	$9,690
			4 km	173.3	1,733	$6,740	$604	$17	$7,361
			5 km	139.1	1,391	$5,410	$484	$14	$5,909
			10 km	68.2	682	$2,654	$238	$7	$2,898
		Watercourses		199.6	1,996	$7,766	$695	$20	$8,481
	C182	Systematic-spaced	500 m	1347.2	13,472	$52,406	$4,596	$141	$57,144
			1 km	672.6	6,726	$26,164	$2,295	$70	$28,529
			2 km	335.0	3,350	$13,032	$1,143	$35	$14,210
			3 km	228.1	2,281	$8,872	$778	$24	$9,674
			4 km	173.3	1,733	$6,740	$591	$18	$7,349
			5 km	139.1	1,391	$5,410	$475	$15	$5,899
			10 km	68.2	682	$2,654	$233	$7	$2,894
		Watercourses		199.6	1,996	$7,766	$681	$21	$8,468
	Jet Ranger	Systematic-spaced	500 m	1572.1	15,721	$61,155	$29,477	$420	$91,052
			1 km	782.8	7,828	$30,452	$14,678	$209	$45,339
			2 km	388.3	3,883	$15,104	$7,280	$104	$22,489
			3 km	264.4	2,644	$10,284	$4,957	$71	$15,312
			4 km	195.8	1,958	$7,615	$3,671	$52	$11,338
			5 km	158.8	1,588	$6,175	$2,977	$42	$9,194
			10 km	77.3	773	$3,007	$1,450	$21	$4,478
		Watercourses		237.3	2,373	$9,230	$4,449	$63	$13,742
	R44	Systematic-	500 m	1572.1	15,721	$61,155	$21,715	$420	$83,289

		spaced	1 km	782.8	7,828	$30,452	$10,813	$209	$41,474
			2 km	388.3	3,883	$15,104	$5,363	$104	$20,572
			3 km	264.4	2,644	$10,284	$3,652	$71	$14,007
			4 km	195.8	1,958	$7,615	$2,704	$52	$10,372
			5 km	158.8	1,588	$6,175	$2,193	$42	$8,411
			10 km	77.3	773	$3,007	$1,068	$21	$4,096
		Watercourses		237.3	2,373	$9,230	$3,277	$63	$12,571
Ground	Car / Ute	Farm tracks		344.8	3,448	$13,413	$269	$491	$14,173
		Property boundaries		311.7	3,117	$12,126	$243	$444	$12,813

References

Fair Work Ombudsman (2023) Minimum wages. https://www.fairwork.gov.au/tools-and-resources/fact-sheets/minimum-workplace-entitlements/minimum-wages [Accessed 6th June 2022]