

Innes et al.: Magpie impacts in New Zealand

Appendix 1. Percentage land cover in treatment (T, magpies removed) and non-treatment (NT, no magpies removed) blocks, arranged north to south.

Region (Site)	Pasture	Native forest	Exotic forest	Shrub	Tussock	Water/bare ground	Other vegetation
Northland							
Waipu Caves (T)	50.0	20.0	10.0	20.0	-	-	-
Circle L (NT)	53.0	21.5	25.5	-	-	-	-
Waikato							
Pirongia (T)	83.0	16.2	-	0.8	-	-	-
Maungatautari (NT)	88.4	9.6	-	2.0	-	-	-
Bay of Plenty							
Te Matai (T)	60.0	12.7	21.2	6.1	-	-	-
Matahi (NT)	72.0	22.3	4.5	1.0	-	-	-
Wellington							
Woodside (T)	78.5	1.3	0.9	0.3	-	9.8	9.2
Waiorongomai (NT)	78.5	6.6	0.1	2.4	-	2.7	9.7
Southland							
Mt Linton (T)	78.0	-	5.0	1.0	5.0	1.0	10.0
Warwick Downs (NT)	72.0	-	-	5.0	20.0	1.0	2.0

Appendix 2. Methods of magpie control, and numbers removed from in and around treatment blocks, arranged north to south.

Region (Site)	Year	Magpie control methods in core 900 ha			No. magpies removed from core ca 900 ha	No. magpies removed from buffer
		Traps	Shooting	Poisoning		
Northland						
(Waipu Caves)	2000	√	√		166	Nil
	2001	√	√		166	Nil
	2002	√	√		279	Nil
					TOTAL	611
Waikato						
(Pirongia)	2000	√	√	√	712	Nil
	2001	√	√	√	901	Nil
	2002	√	√	√	810	Nil
					TOTAL	2423
Bay of Plenty						
(Te Matai)	2000	√			1150	Nil
	2001	√			350	1000+
	2002	√			ca 500	ca 750
					TOTAL	ca 2000
Wellington						
(Woodside)	2000	√	√		1355	Nil
	2001	√	√		652	Nil
	2002	√	√		590	Nil
					TOTAL	2597
Southland						
(Mt Linton)	2000	√		√	380	620
	2001	√			140	2400+
	2002	√			83	500+
					TOTAL	603

Appendix 3. Control of mammal pests in and around treatment (T) and non-treatment (NT) blocks in the magpie project, arranged north to south (RTC = residual trap catch, calculated as percentage occupancy of leghold traps set according to standard procedure; Warburton 1996).

Region (Site)	Pest control	Possum RTC
Northland		
Waipu Caves (T)	Farmer killed possums by shooting and trapping	'Moderate'
Circle L (NT)	Farmer killed possums by shooting and trapping	'Moderate'
Waikato		
Pirongia (T)	Aerial 1080 poison for possum control in adjacent Forest Park in Sep 2002	2.3 % (Sep 2002)
Maungatautari (NT)	Aerial 1080 poison for possum control in adjacent Scenic Reserve in July–Aug 2002	1.0 % (Oct 2002)
Bay of Plenty		
Te Matai (T)	Possum and rabbit control with night shooting, cyanide and traps	28.8% (Feb 2002)
Matahi (NT)	Possum and rabbit control with night shooting and some trapping	33.7% (Feb 2002)
Wellington		
Woodside (T)	Repeated possum control using 1080 and/or brodifacoum since 1994 for bovine Tb. Maintenance possum control with 1080 in 1999–2000. Ca 30 ferrets taken from Woodside area in summer 1999–2000	0.9% (Jan 1999) 1.8% (Sep 2002)
Waiorongomai (NT)	Repeated possum control using 1080 and/or brodifacoum since 1994 for bovine Tb. Maintenance possum control with 1080 in 1999–2000. 24 ferrets taken off block Feb–May 2002	2.2% (Oct 2000) 0.3% (Jan 2002)
Southland		
Mt Linton (T)	Environment Southland contractor killed possums and ferrets for bovine Tb, with traps and/or 1080 (pellets) and/or brodifacoum (pellets) and/or Feratox (capsules) for possum control (1999–2003), and traps for ferrets (1999–2003). Rabbit control on Mt Linton, with 1080 carrot	0.5% (Jun 2002)
Warwick Downs (NT)	Environment Southland contractor killed possums and ferrets for bovine Tb, with traps and/or 1080 (pellets) and/or brodifacoum (pellets) and/or Feratox (capsules) for possum control (1999–2003)	1.4% (Jan 2002) 0.2% (Feb 2002)

Appendix 4. Bird species detected in 5-minute counts in the magpie project, in checklist order (OSNZ 2010).

Common name	Scientific name	No. of study areas present	Average count
California quail	<i>Callipepla californica</i>	2	0.01
Feral chicken	<i>Gallus gallus</i>	4	<0.01
Common pheasant	<i>Phasianus colchicus</i>	3	0.05
Peafowl	<i>Pavo cristatus</i>	3	0.01
Wild turkey	<i>Meleagris gallopavo</i>	4	0.11
Greylag goose	<i>Anser anser</i>	1	<0.01
Paradise shelduck	<i>Tadorna variegata</i>	5	0.18
Mallard	<i>Anas platyrhynchos</i>	5	0.04
Grey duck	<i>Anas superciliosa</i>	2	<0.01
Little shag	<i>Phalacrocorax melanoleucos</i>	2	<0.01
Australasian shoveler	<i>Anas rhynchos</i>	1	<0.01
Black shag	<i>Phalacrocorax carbo</i>	2	<0.01
Pied shag	<i>Phalacrocorax varius</i>	1	<0.01
White-faced heron	<i>Egretta novaehollandiae</i>	5	<0.01
Swamp harrier	<i>Circus approximans</i>	5	0.06
Pukeko	<i>Porphyrio porphyrio melanotus</i>	4	0.02
South Is. pied oystercatcher	<i>Haematopus finschi</i>	1	0.06
Pied stilt	<i>Himantopus himantopus</i>	1	<0.01
Spur-winged plover	<i>Vanellus miles novaehollandiae</i>	5	0.14
Southern black-backed gull	<i>Larus dominicanus</i>	3	0.02
Black-billed gull	<i>Larus bulleri</i>	1	<0.01
Black-fronted tern	<i>Sterna albobriata</i>	1	<0.01
Rock pigeon	<i>Columba livia</i>	2	<0.01
N.Z. pigeon (kereru)	<i>Hemiphaga novaeseelandiae</i>	5	0.05
Sulphur-crested cockatoo	<i>Cacatua galerita</i>	1	<0.01
Eastern rosella	<i>Platycercus eximius</i>	4	0.16
Shining cuckoo	<i>Chrysococcyx lucidus</i>	5	0.03
Long-tailed cuckoo	<i>Eudynamys taitensis</i>	2	<0.01
Little owl	<i>Athene noctua</i>	1	<0.01
New Zealand kingfisher	<i>Todiramphus sanctus vagans</i>	4	0.10
Grey warbler	<i>Gerygone igata</i>	5	0.37
Bellbird	<i>Anthornis melanura</i>	3	0.03
Tui	<i>Prothemadera novaeseelandiae</i>	5	0.09
Whitehead	<i>Mohoua albicilla</i>	1	<0.01
Brown creeper	<i>Mohoua novaeseelandiae</i>	1	<0.01
Australian magpie	<i>Gymnorhina tibicen</i>	5	1.19
New Zealand fantail	<i>Rhipidura fuliginosa</i>	5	0.27
Tomtit	<i>Petroica macrocephala</i>	3	<0.01
North Island robin	<i>Petroica longipes</i>	1	<0.01
Eurasian skylark	<i>Alauda arvensis</i>	5	0.52
Silvereye	<i>Zosterops lateralis</i>	5	0.35
Welcome swallow	<i>Hirundo tahitica</i>	5	0.37
Eurasian blackbird	<i>Turdus merula</i>	5	0.68
Song thrush	<i>Turdus philomelos</i>	5	0.66
Common starling	<i>Sturnus vulgaris</i>	5	1.04

Common myna	<i>Acridotheres tristis</i>	3	0.25
House sparrow	<i>Passer domesticus</i>	5	0.64
New Zealand pipit	<i>Anthus novaeseelandiae</i>	3	<0.01
Dunnock	<i>Prunella modularis</i>	5	0.03
Chaffinch	<i>Fringilla coelebs</i>	5	0.69
European greenfinch	<i>Carduelis chloris</i>	5	0.67
European goldfinch	<i>Carduelis carduelis</i>	5	0.95
Common redpoll	<i>Carduelis flammea</i>	4	0.59
Yellowhammer	<i>Emberiza citrinella</i>	5	0.76

Notes:

Turkey detected only in two treatment areas

Redpoll detected only in one area consistently

Magpie average count includes treatment area after magpies killed