

Should we fuss about magpies?

Magpie impacts on birds in New
Zealand

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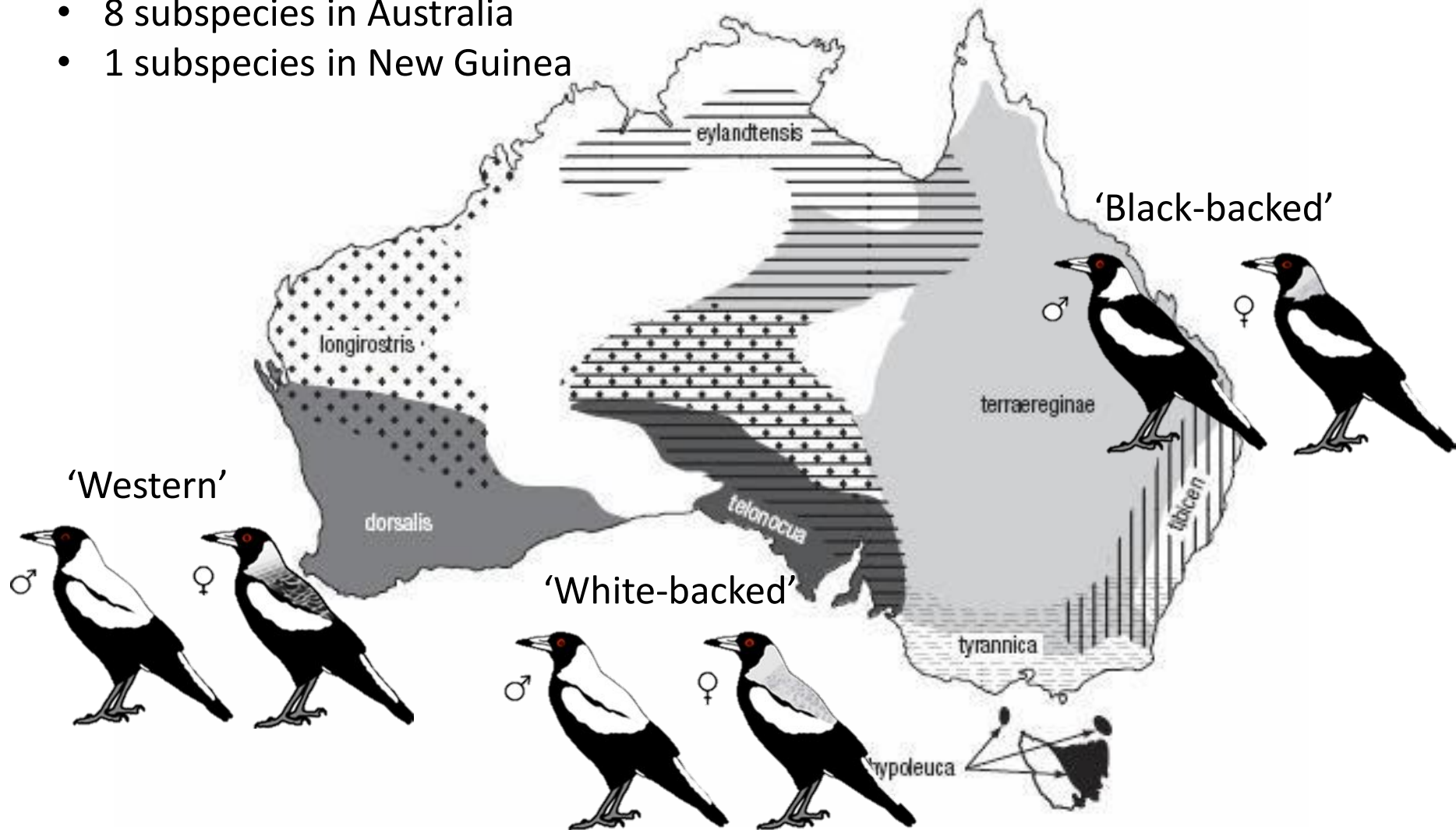
Australian magpie 101

- Crow-sized (c. 41cm; 350g)
- Sexual dimorphism
 - Males larger
 - Differences in plumage
- 'Open country' birds
 - High proportion of low vegetation
- Mainly eat ground-dwelling inverts
- Breeding between June-Nov



Subspecies distribution in Australia

- 8 subspecies in Australia
- 1 subspecies in New Guinea



Adapted from Kaplan (2004)

New Zealand distribution over time



McCaskill 1945

McIlroy 1968

Bull *et al.* 1985

Robertson *et al.* 2005

Highly complex social systems

1. Territorial groups

- Breeding occurs
- 2-26 birds per group
 - Up to 10/group in NZ
- Variable territory size
 - 1.5-22 ha
- Defend year-round territories



Highly complex social systems

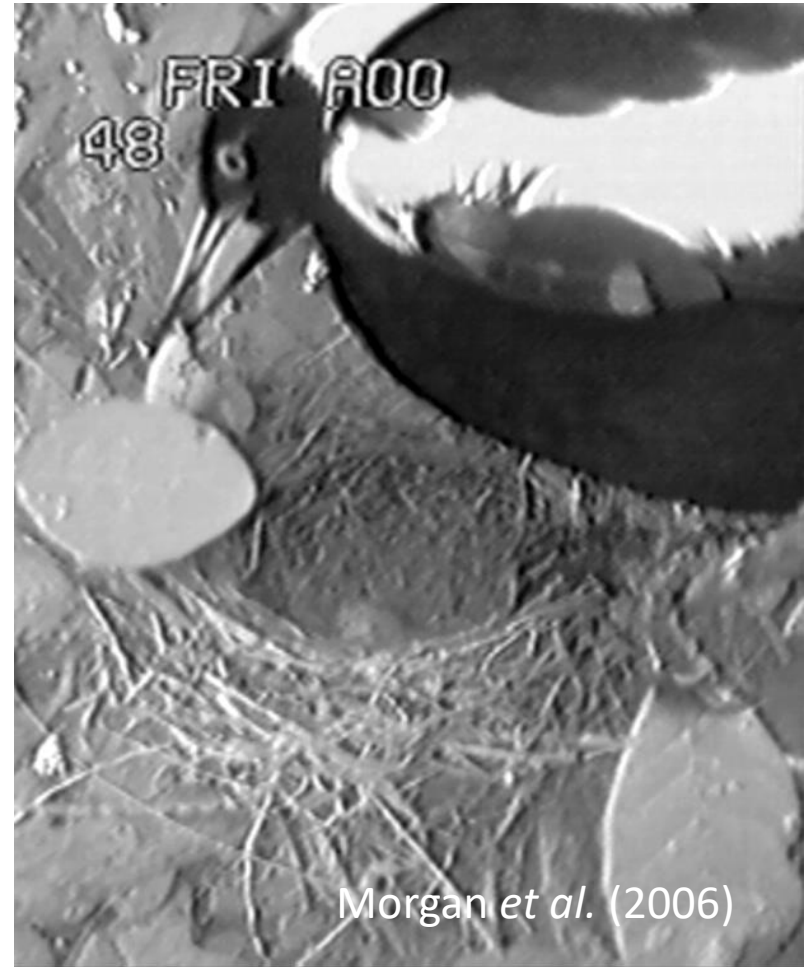
2. Non-territorial flocks

- Up to 80 birds
- Birds of any demographic...
 - ...mostly immature birds
- No breeding occurs



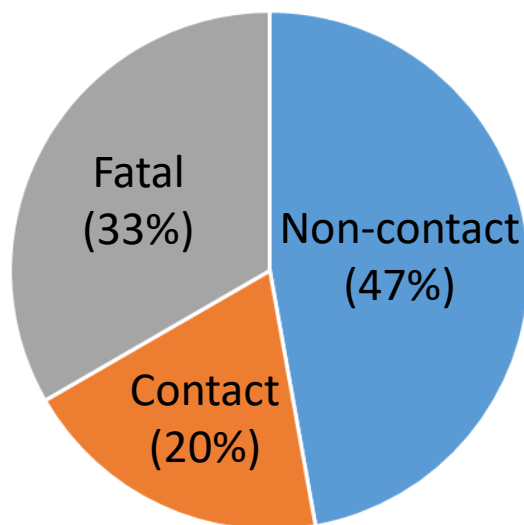
How 'bad' are magpies?

- Many anecdotal reports of magpies attacking birds
- Pressure on Regional Councils to class as pests
- Reluctance to classify as an important pest without scientific evidence
- Research to quantify impacts and identify mechanisms



Impacts on native birds..?

- Anecdotaly, magpies seem pretty bad!



Fates of birds
attacked by magpies
(*n*=195)

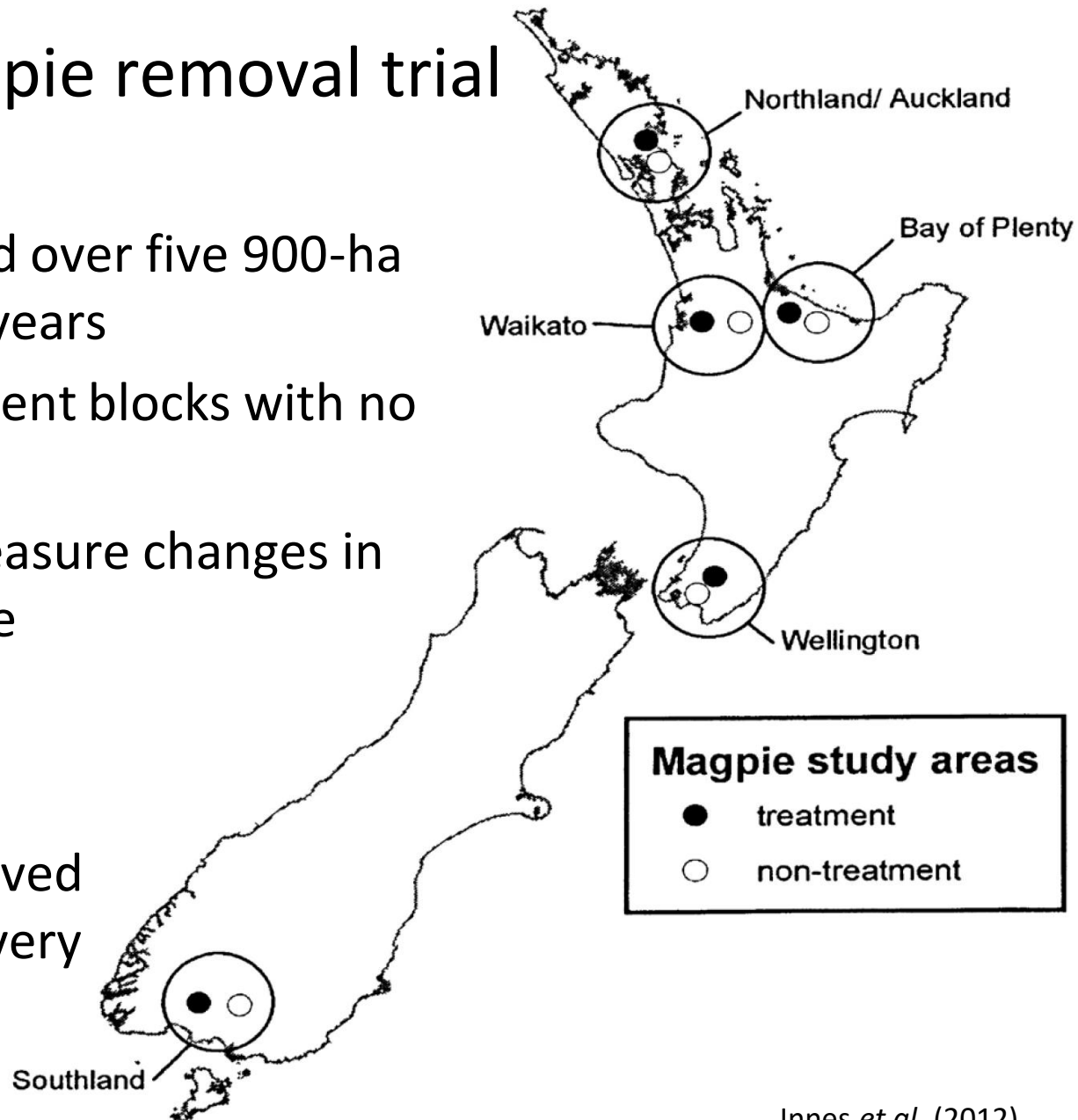
- However, attacks are very rare
 - Terr birds: 39% harriers, 8% other birds
 - Flocks: 17% harriers

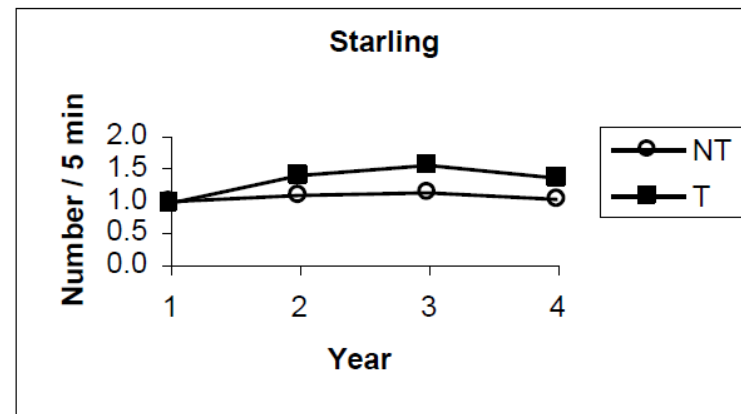
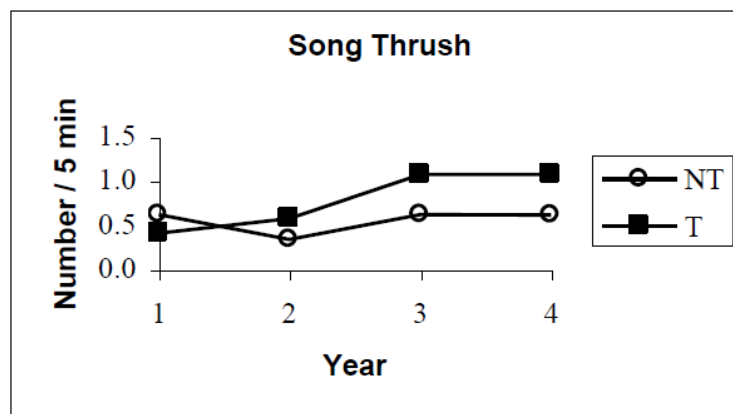
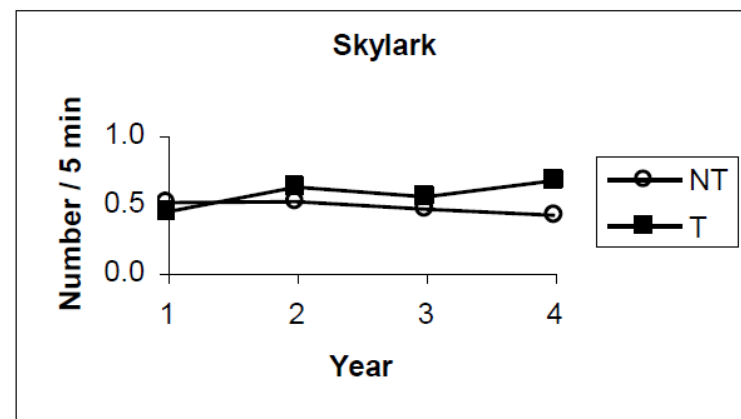
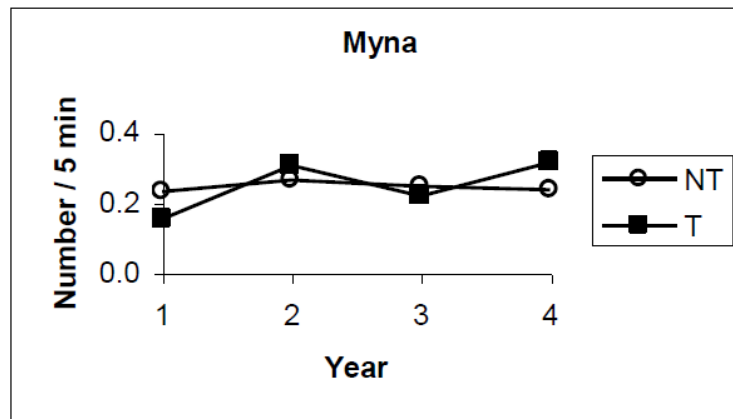
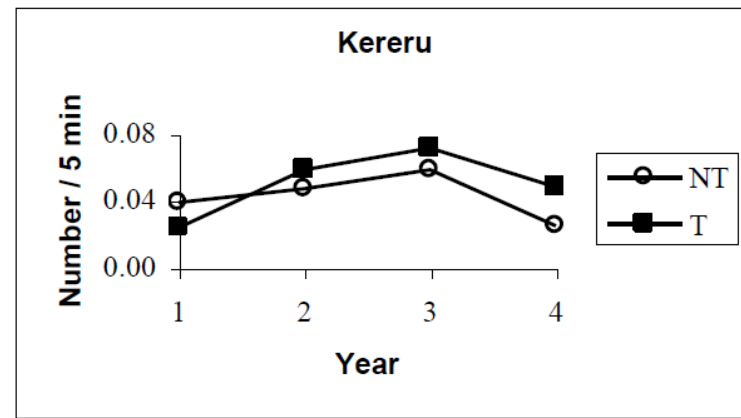
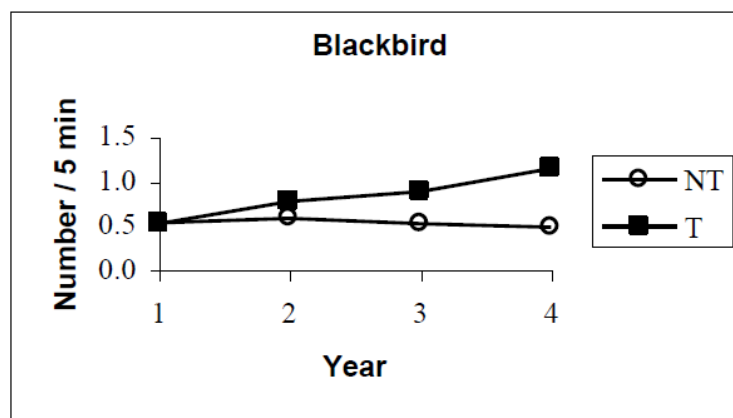
Bird species (*n*=45) reported
being attacked by magpies

harrier hawk <i>Circus approximans</i>	37
blackbird <i>Turdus merula</i>	15
song thrush <i>Turdus philomelos</i>	14
kereru <i>Hemiphaga novaeseelandiae</i>	11
house sparrow <i>Passer domesticus</i>	11
white-faced heron <i>Ardea novaehollandiae</i>	9
bellbird <i>Anthornis melanura</i>	6
skylark <i>Alauda arvensis</i>	6
chicken <i>Gallus gallus domesticus</i>	5
kingfisher <i>Halcyon sancta</i>	5
pipit <i>Anthus novaeseelandiae</i>	5
tui <i>Prosthemadera novaeseelandiae</i>	5
black-backed gull <i>Larus dominicanus</i>	4
goldfinch <i>Carduelis carduelis</i>	4
pheasant <i>Phasianus colchicus</i>	4
pukeko <i>Porphyrio porphyrio</i>	4
rock pigeon <i>Columba livia</i>	4
silveryeye <i>Zosteropus lateralis</i>	4
starling <i>Sturnus vulgaris</i>	4
paradise shelduck <i>Tadorna variegata</i>	3
spur-winged plover <i>Vanellus miles</i>	3
black shag <i>Phalacrocorax carbo</i>	2
chaffinch <i>Fringilla coelebs</i>	2
fantail <i>Rhipidura fuliginosa</i>	2
little owl <i>Athene noctua</i>	2
grey warbler <i>Greygone igata</i>	2
mallard <i>Anas platyrhynchos</i>	2
morepork <i>Ninox novaeseelandiae</i>	2
yellowhammer <i>Emberiza citrinella</i>	2
banded dotterel <i>Charadrius bicinctus</i>	1
black-fronted tern <i>Sterna albobriata</i>	1
canary <i>Serinus canaria</i>	1
cattle egret <i>Bubulcus ibis</i>	1
Indian myna <i>Acridotheres tristis</i>	1
kaka <i>Nestor meridionalis</i>	1
kea <i>Nestor notabilis</i>	1
kokako <i>Callaeas cinerea</i>	1
long-tailed cuckoo <i>Eudynamys taitensis</i>	1
New Zealand dotterel <i>Charadrius obscurus aquilonius</i>	1
New Zealand falcon <i>Falco novaeseelandiae</i>	1
California quail <i>Callipepla californica</i>	1
red-billed gull <i>Larus novaeseelandiae</i>	1
eastern rosella <i>Platycercus eximius</i>	1
spotted turtle-dove <i>Streptopelia chinensis</i>	1
tomtit <i>Petroica macrocephala</i>	1

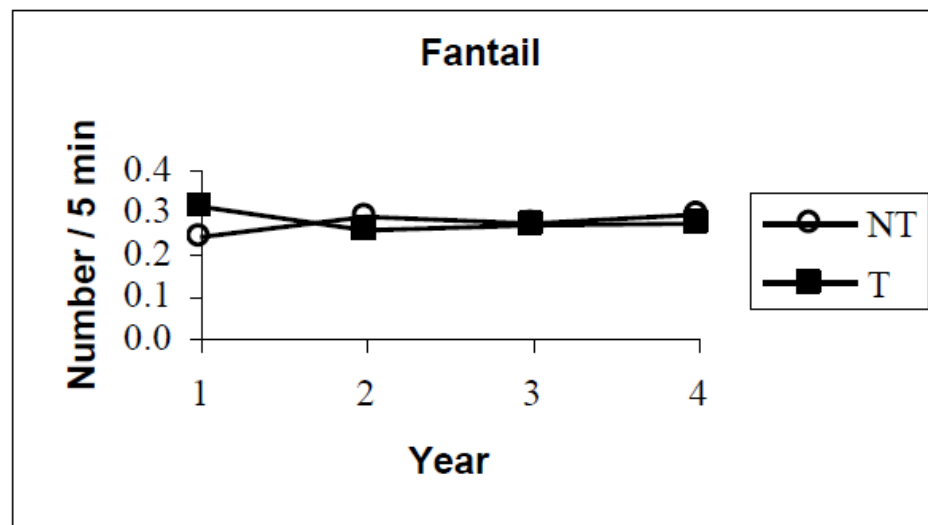
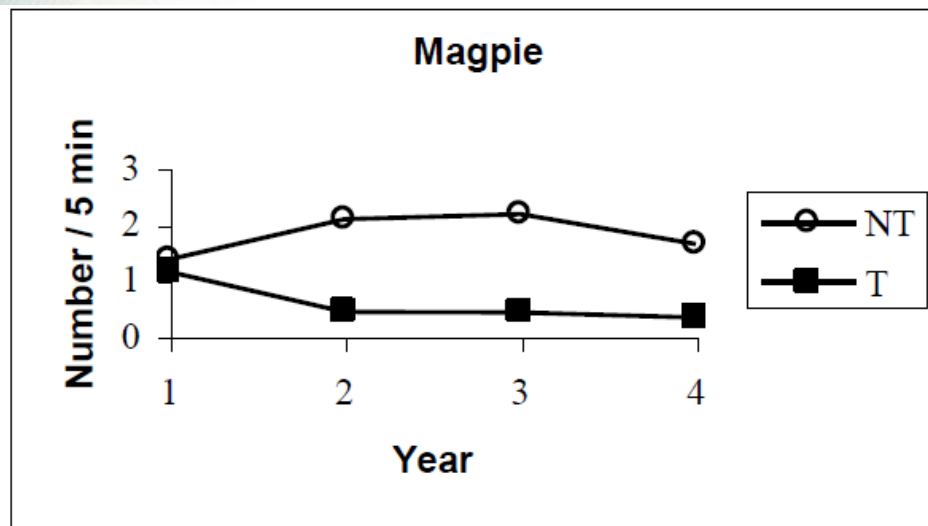
Large-scale magpie removal trial

- Magpies controlled over five 900-ha blocks over three years
- Paired non-treatment blocks with no magpie removal
- 5MBCs used to measure changes in relative abundance
- 548 magpies removed from each block every year





Species that **increased** after magpie control



Species that **decreased** after
magpie control

Small-scale magpie removal trial

Are native birds excluded from 'high-value' resources?

- Magpies continuously removed for 6 weeks at 11 sites
- 11 non-treatment sites (no magpie removal)
- Five focal species monitored weekly (plus a 3-week pre-trapping monitoring period)

Pirongia, Waikato



Small-scale magpie removal trial

Magpies populations were significantly reduced

- 174 removed ($\bar{x}=16/\text{site}$)
- 52% reduction

No changes in the relative abundance of any native species

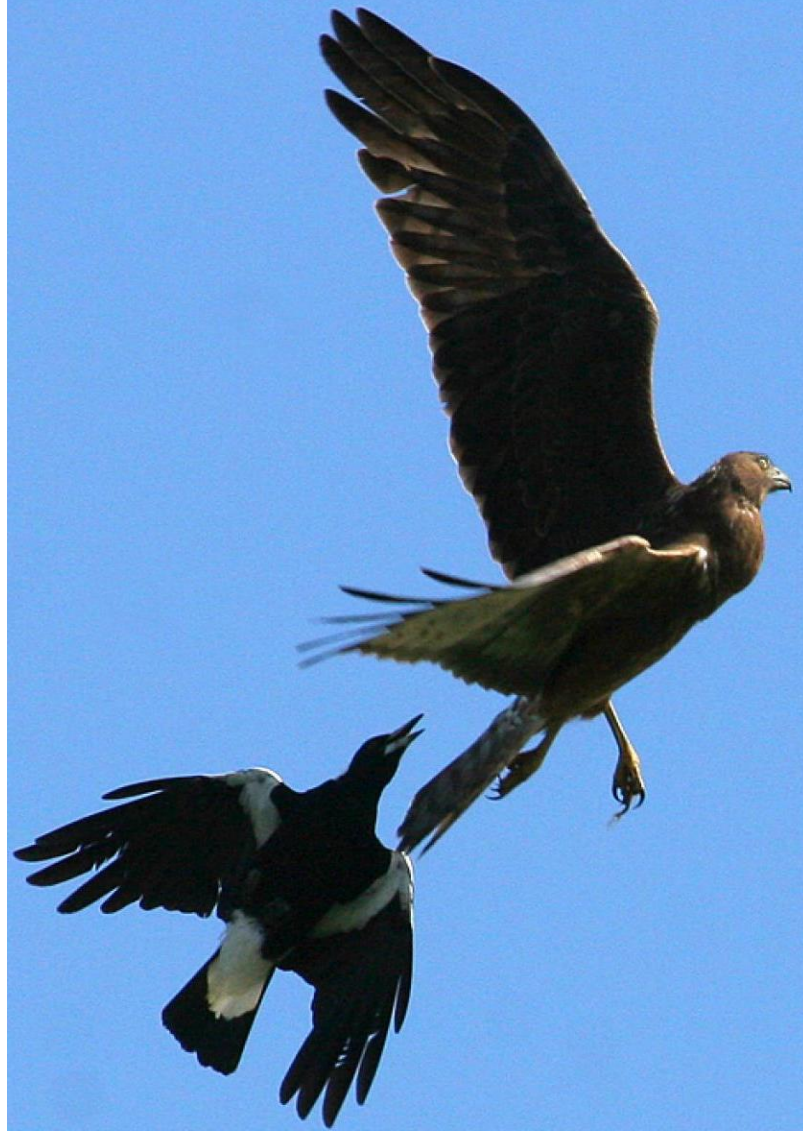
- (...except tui, but due to confounding factors)

Magpies had little impact on the 'focal' birds at a local-scale



Synthesis

- Unusually aggressive, but attacks are rare
- Primarily associated with territoriality
- Potential displacement at a local-scale
- Removal magpies across different spatial scales did not have large impacts on other birds
- However, were residual magpie populations small enough..?



Management recommendations

Regional Councils should not control magpies for native species recovery

- Expensive
- Little impact on bird populations

However...

- Large amount of variation in magpie behaviour
- Removal of *known* aggressive birds may benefit other birds





Acknowledgements

- All landowners who allowed us access to study magpies
- Northland, Auckland, Waikato, Bay of Plenty, Hawke's Bay, Wellington, Marlborough, Canterbury, and Southland Regional Councils
- FoRST contracts CO9X0503, UOWX0501
- UoW Ph.D. Fund
- NorthTec Research Fund