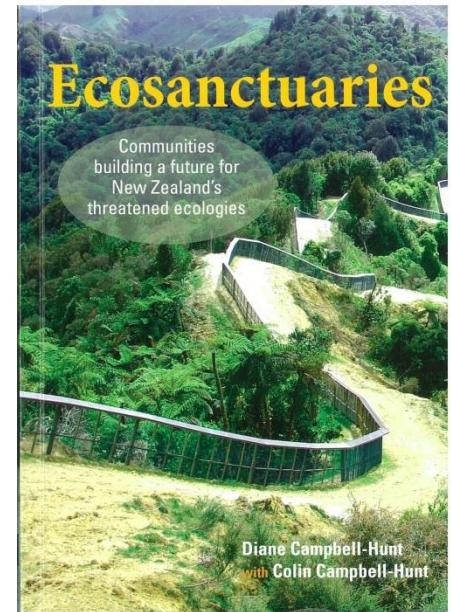


12th Sanctuary Workshop: Ark in the Park



John Innes
Landcare Research
HAMILTON



Tues. 15 September 2015

Previous workshops

- 2004 Maungatautari
- 2005 Tawharanui
- 2006 Te Kauri
- 2007 Silverstream (Zealandia)
- 2008 Wanganui (Bushy Park)
- 2009 Havelock North (Kidnappers)
- 2010 Great Barrier Island (Glenfern, Windy Hill)
- 2011 Nelson (Rotoiti, Brook)
- 2012 Taranaki (Rotokare)
- 2013 Shakespear
- 2014 Dunedin (Orokonui)
- 2015 Auckland (Ark in the Park)



2009

Regime	Outcome objective	Sites	Mammals targeted	Mammal control objective	Control method	Agency
1	Ecosystem restoration – maximise indigenous dominance	Marine and lacustrine islands, ring-fenced sanctuaries	All (up to 14 species)	Eradicate all species	Aerial or ground application of brodifacoum, plus follow-up trapping, hunting, poisoning.	DOC, community groups
2	Ecosystem restoration – increase indigenous dominance	Peninsula-fenced sanctuaries, mainland islands	Typically possums, stoats, ship rats plus some of cats, ferrets, weasels, Norway rats, and hedgehogs	Sustained (sometimes seasonal) control of several key pest species	Initial or repeated (2-3 years) aerial poisoning with 1080, and/or sustained (usually annual) ground poisoning and trapping	DOC, community groups, regional, district and city councils
3	Threatened and valued indigenous species recovery	Forests, shrublands, tussocklands	One or several of: stoats, possums, ship rats, cats, ferrets, hedgehogs, Norway rats and mice	Sustained (sometimes seasonal) or pulsed low numbers of target taxa	Aerial 1080 poisoning in most years (beech) or each 2-3 years (non-beech), and/or sustained (usually annual) ground poisoning and trapping	DOC, community groups, regional, district and city councils
4	Maintain or improve canopy health, pasture growth and other biodiversity values	Forest and pastoral landscapes	Possums, sometimes also ship rats and stoats	Sustained or pulsed low numbers of target taxa	Aerial 1080 poisoning each 5-7 years, plus diverse ground poisoning and trapping	DOC, regional councils
5	Tb vector control	Forest and pastoral landscapes	Possums, ferrets, deer	Sustained or pulsed low numbers of target taxa	Aerial 1080 poisoning each 4-5 years, plus diverse ground poisoning and trapping	Tb Free NZ
6	Increase grassland production	Private farms	Rabbits	Sustained low rabbit numbers	Aerial 1080 poisoning and shooting	Farmers

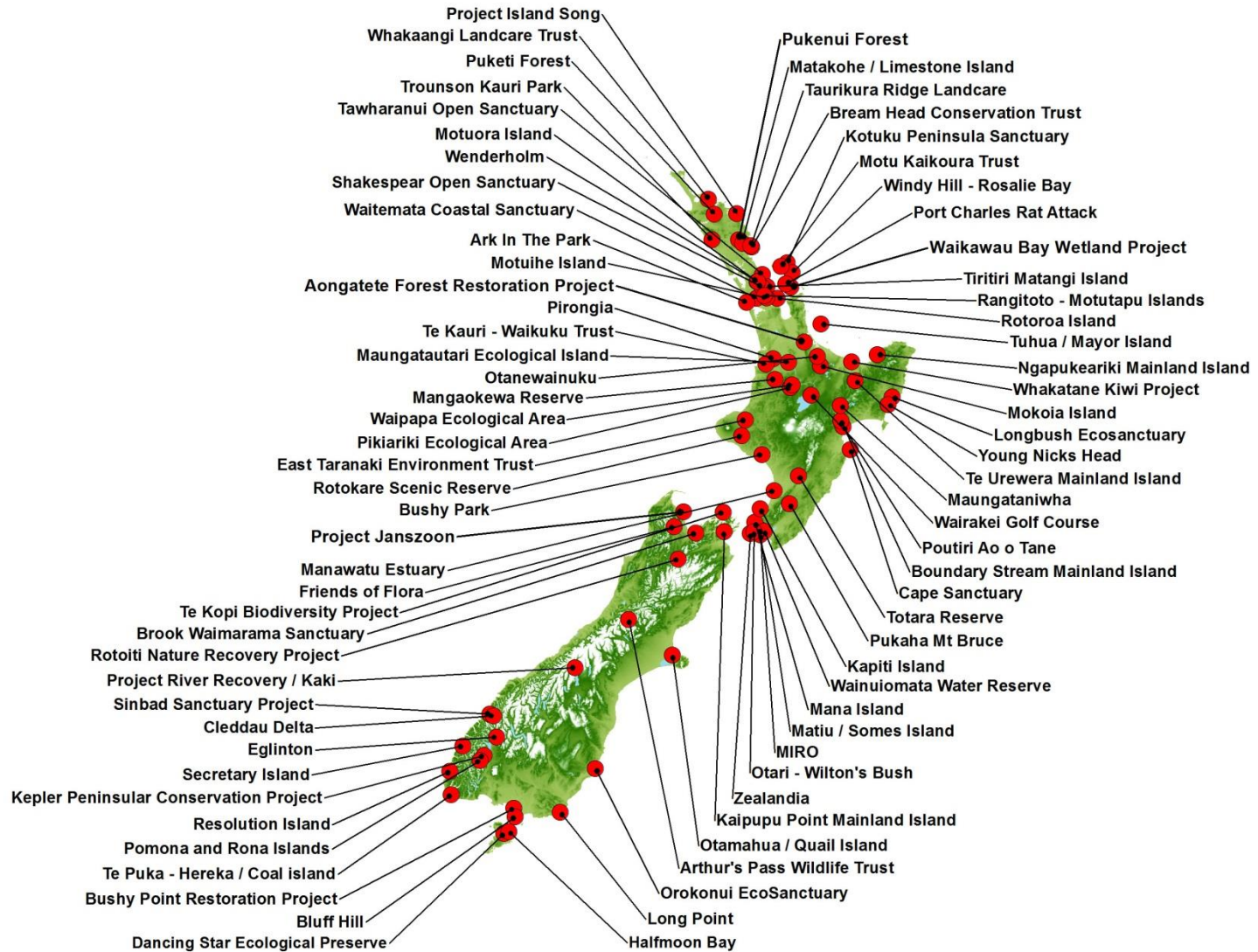
What are 'biodiversity sanctuaries'?

Sites that:

- experimentally restore NZ ecosystems to indigenous dominance and full species complement
-
- control or eradicate a broad suite of pests with best practice techniques
 - reintroduce missing species
 - manage a permanent and substantial risk of pest reinvasion
 - inspire and galvanise communities to local conservation

We identified 73 such projects on or near the
NZ mainland

SANCTUARIES



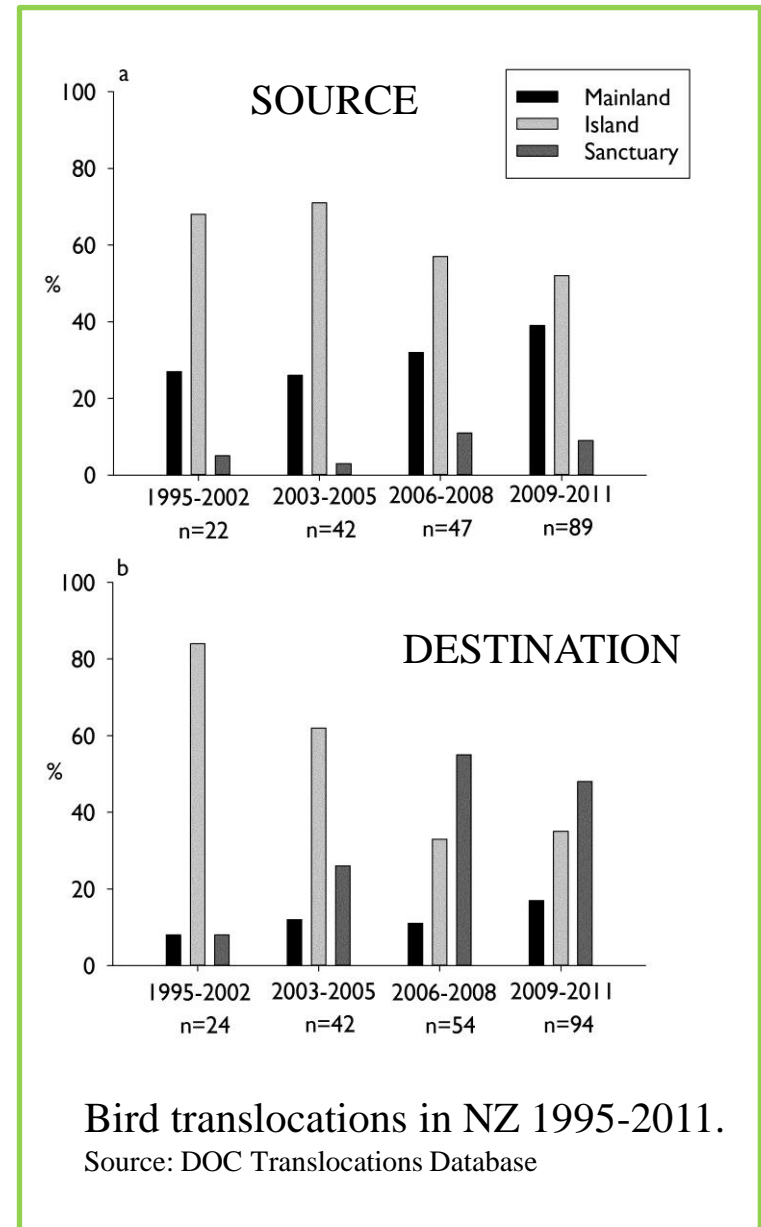
In 73 sanctuaries...

- Mean no. partners excluding funders is 3 (range 0-13)
 - DOC is partner in at least 52 (71%)
 - Mean area ship rat control is 945 ha cf stoats 2811 ha, possums 1883 ha
 - Using ship rat area as measure, total area is 50,137 ha (0.2% NZ area)
 - DOC uses aerial 1080; Community groups using pest-proof fencing
 - Eight are ring-fenced and five are peninsula-fenced; total 9832 ha
 - Mean pests targeted in ring-fenced = 12.9, cf peninsula 10.6, unfenced 5.4
 - Mean rat indices in unfenced: Pirongia 2007-13 = 1.3% post cf 67.8% pre
Ark 2005-14 = 4.6% T cf 53.5% nT
 - Ring-fenced sites: Rotokare – 2 stoats, 4 ship rats since 2008
 Maungatautari – 2 cats, 2 stoats, 6 weasels, 19 ship rats since 2006
 - Peninsula fences: Cape Sanctuary, 2008-2013 – 2 possums, 6 ferrets, 37 stoats, 125 weasels, 614 hedgehogs, 964 cats, 1973 rats.
- But annual catches of hedgehogs and rats have declined greatly in this time;
mean rat tracking 1.9% (range 0-8, n= 19).

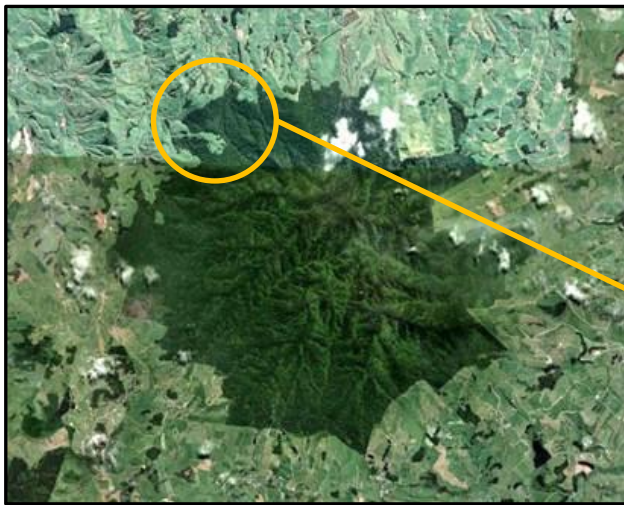
Translocations

- 61% sanctuaries have translocations
- Sites with most are islands (Mana 18 spp., Tiri 16) or fenced (Zealandia 17 spp., Kidnappers 15, M'tautari 10)
- 198 translocations, 61 spp.:
37 birds, 10 reptiles, 9 inverts, 2 plants,
1 bat, 1 fish, 1 frog
- Need pest-free??

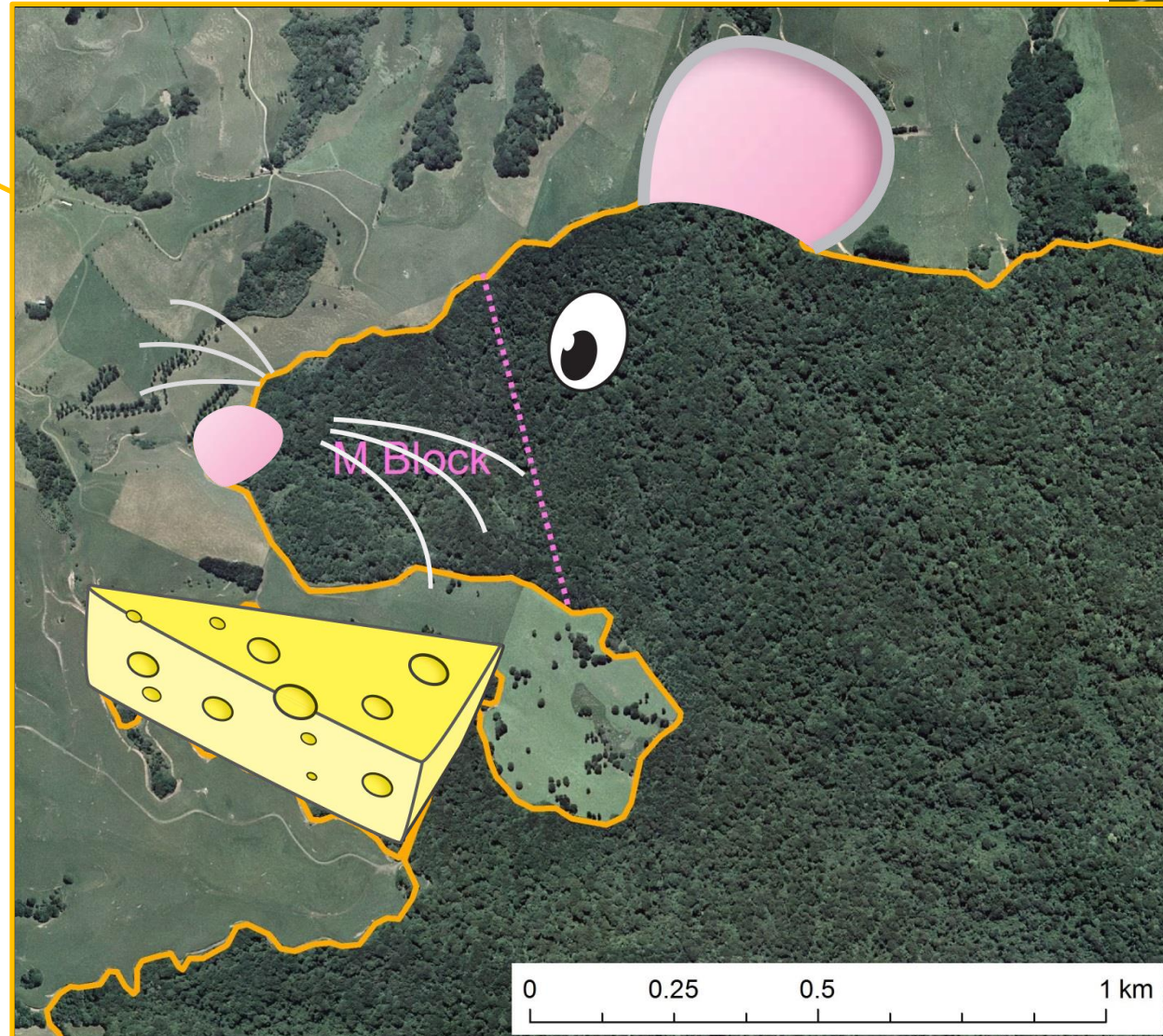
Hihi, tieke, takahe, shore plover, Cook St giant weta, wetapunga, tuatara, little spotted kiwi, Maud Is. frog, [Duvaucel gecko]



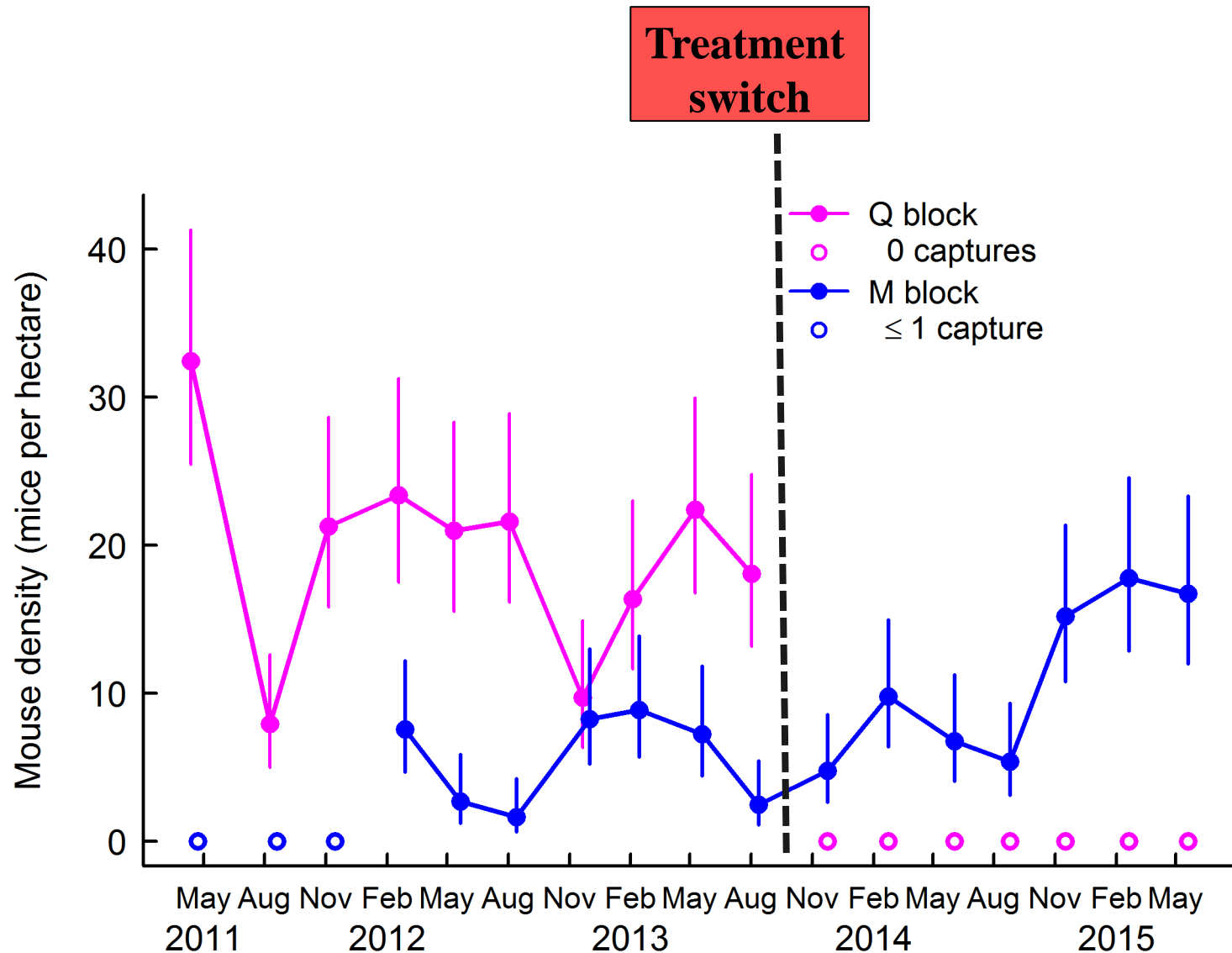
Mice alone at Maungatautari

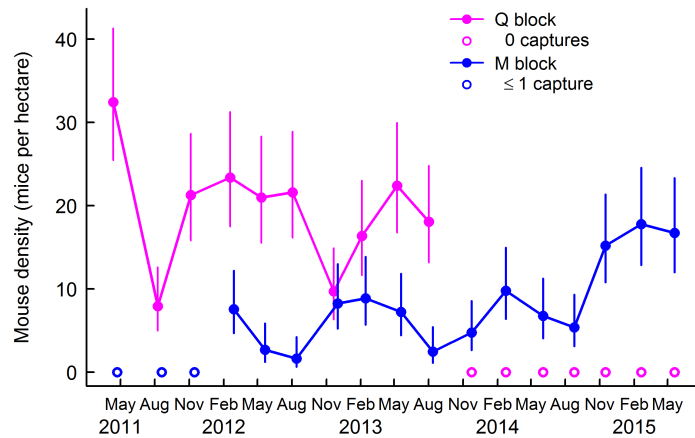


3400 ha

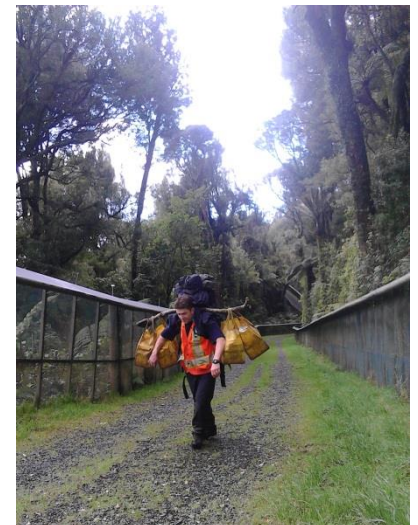
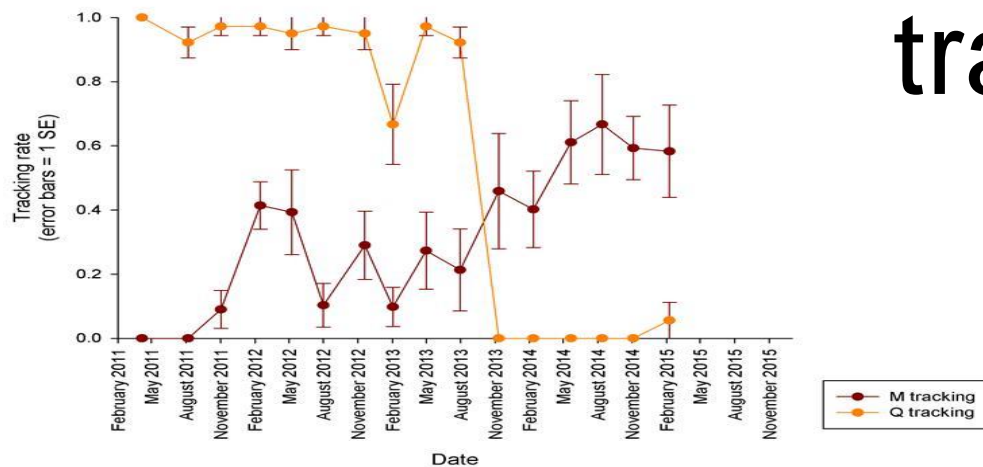


Mouse density

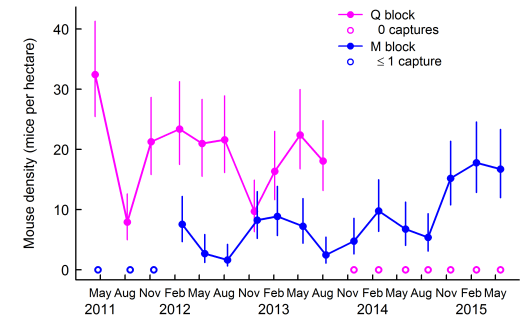
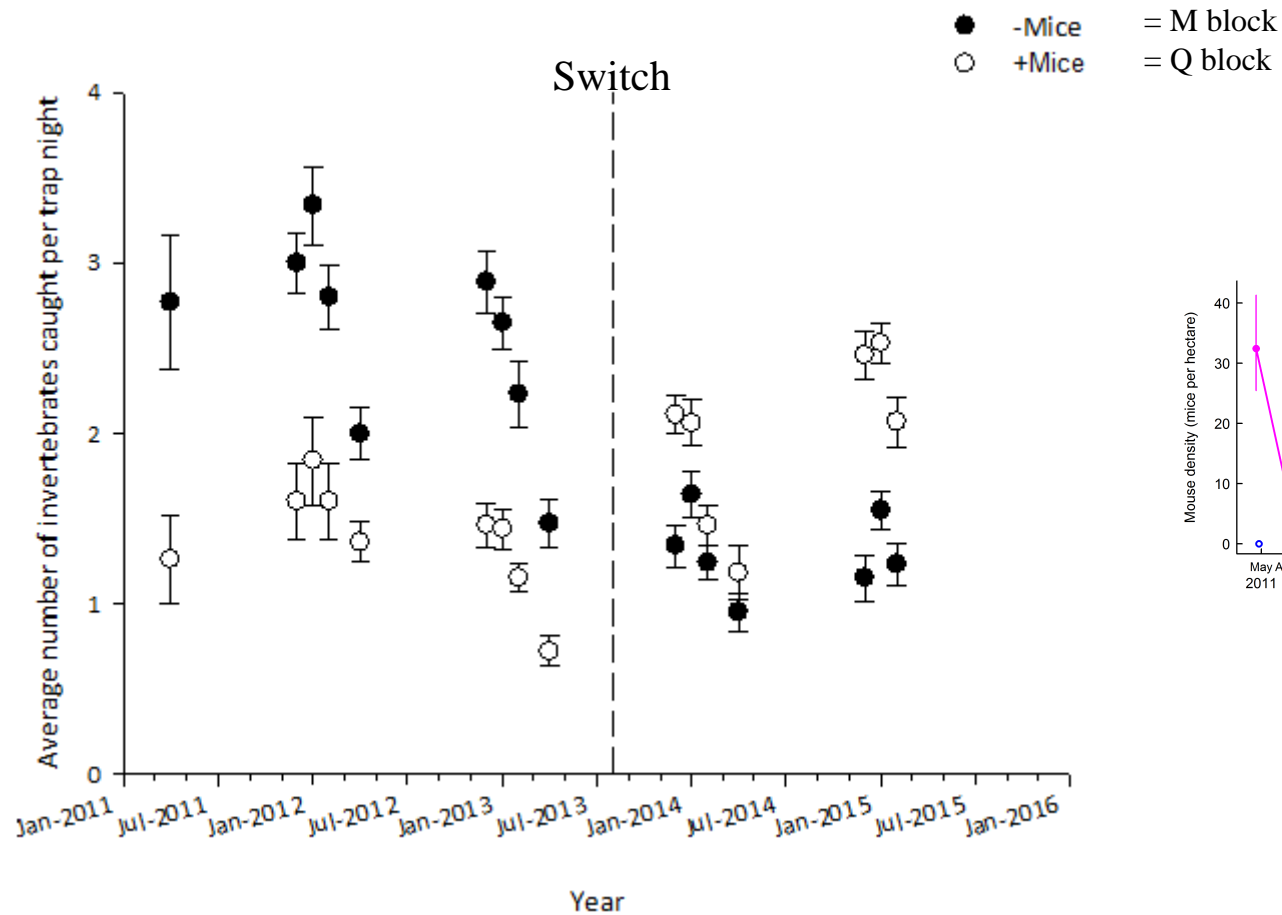




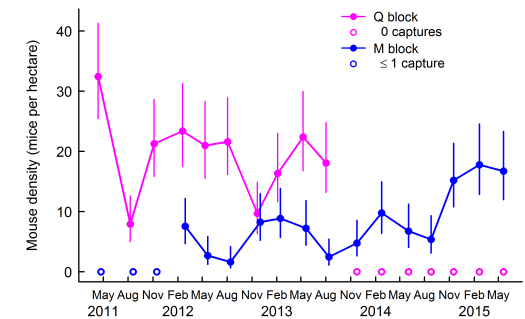
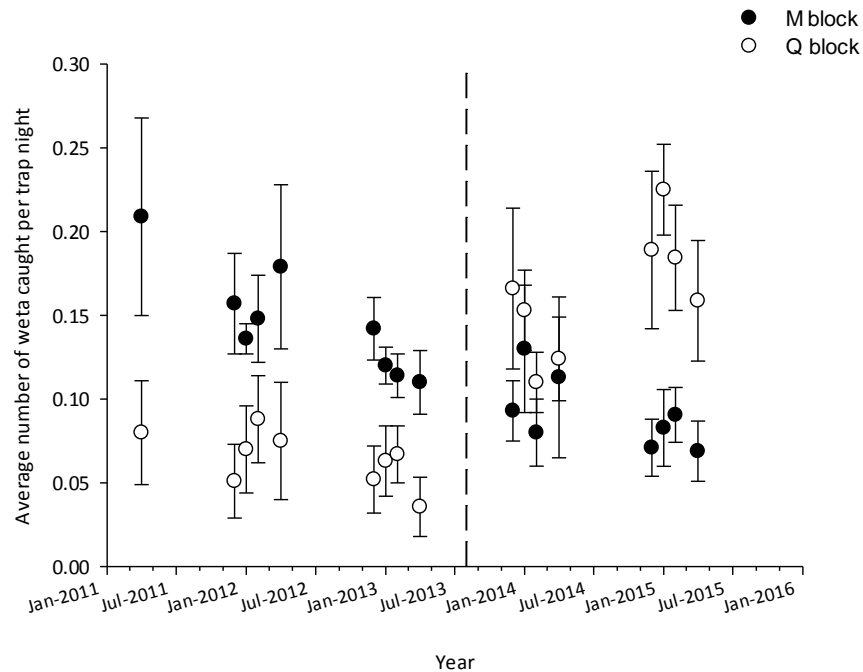
Trapping vs tracking



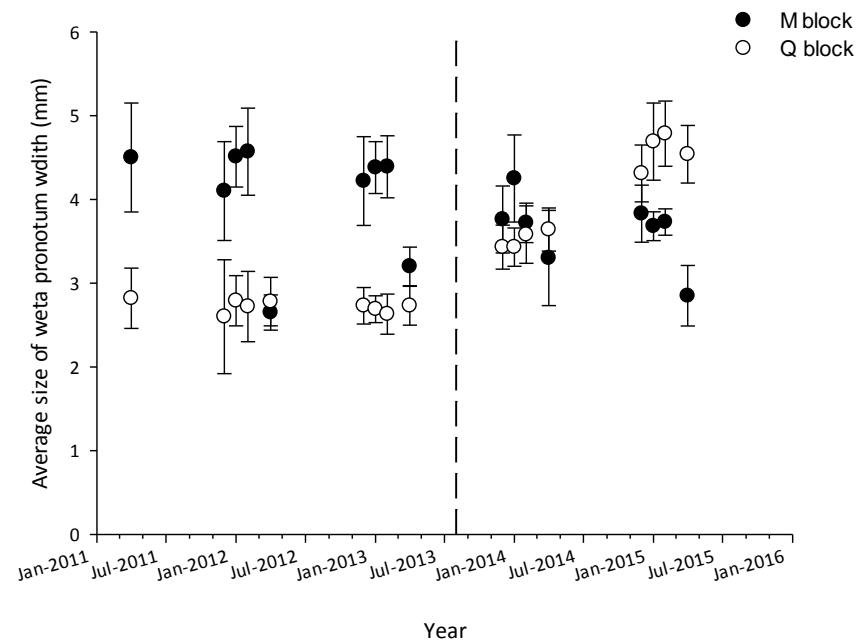
Invertebrate response to mouse removal



Mean no. weta per trap night



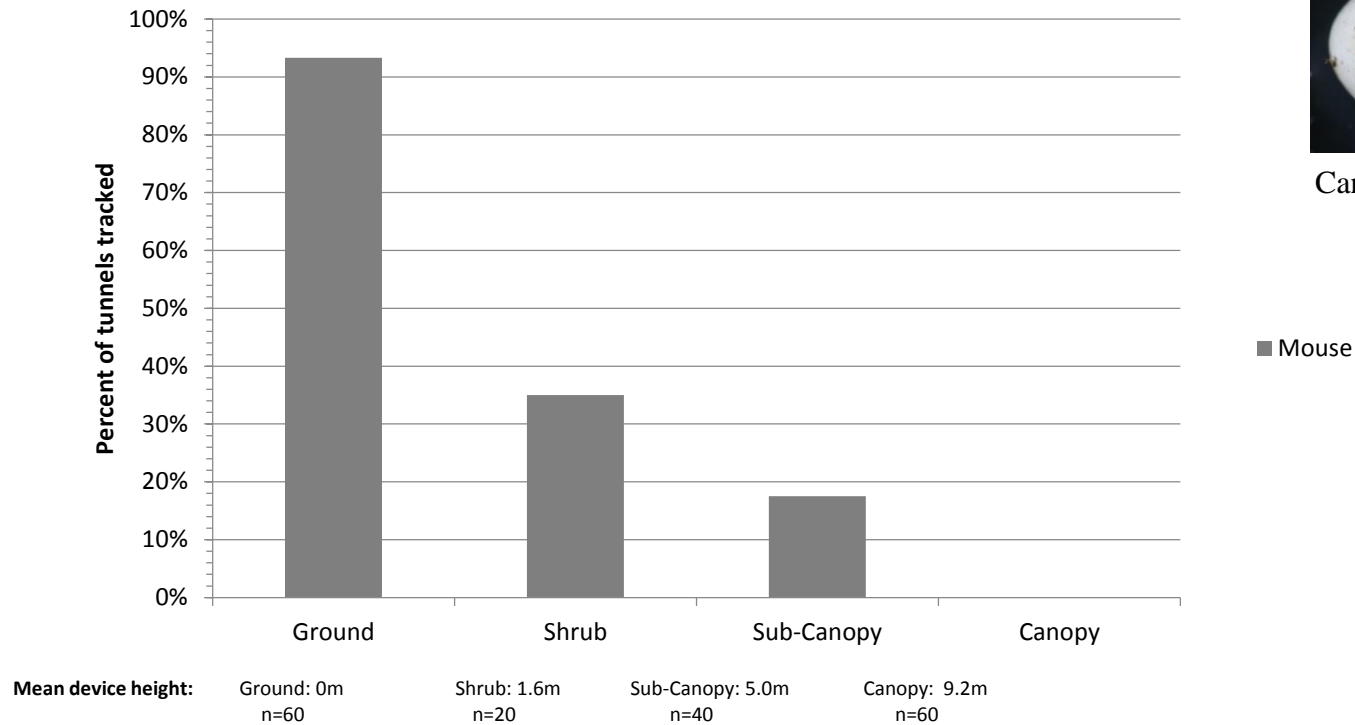
Mean weta size



Introducing.... The best-ever, all round, small mammal detection device!



Mammal presence up trees at Maungatautari



Quail 30x24 mm

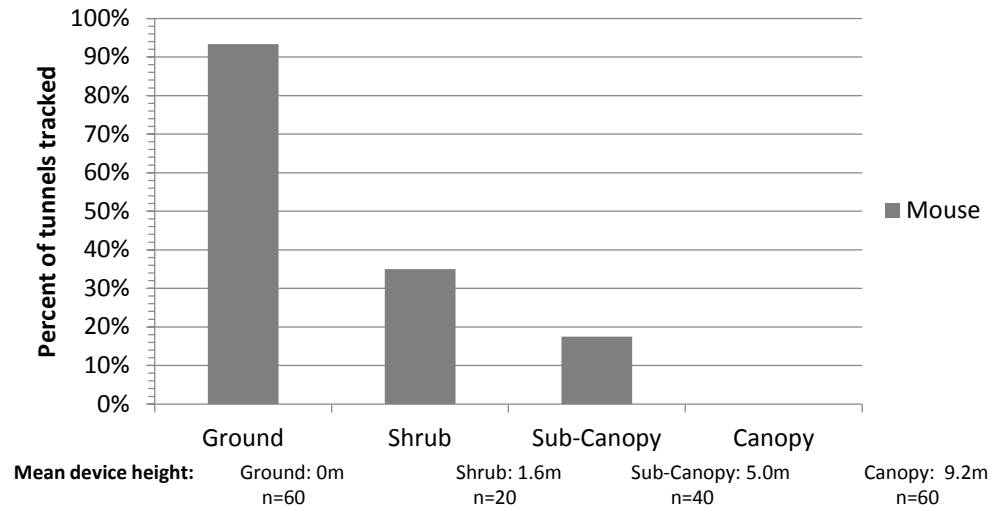


Canary 16x11 mm

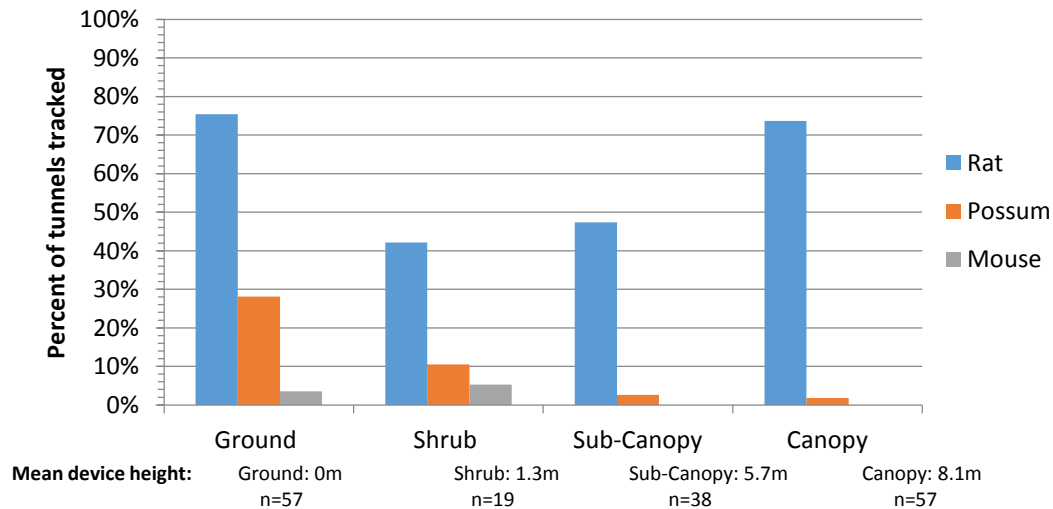
Cat Kelly, University Waikato
Morgan Warnock, UQ
John Innes

Mammal presence up trees in and out of Maungatautari

Maungatautari



Te Tapui



Will request database update, and biodiversity data from sanctuaries.

Explain SONZI vs Landcare Research

We will run a questionnaire after this workshop asking what people want.