



Landcare Research
Manaaki Whenua

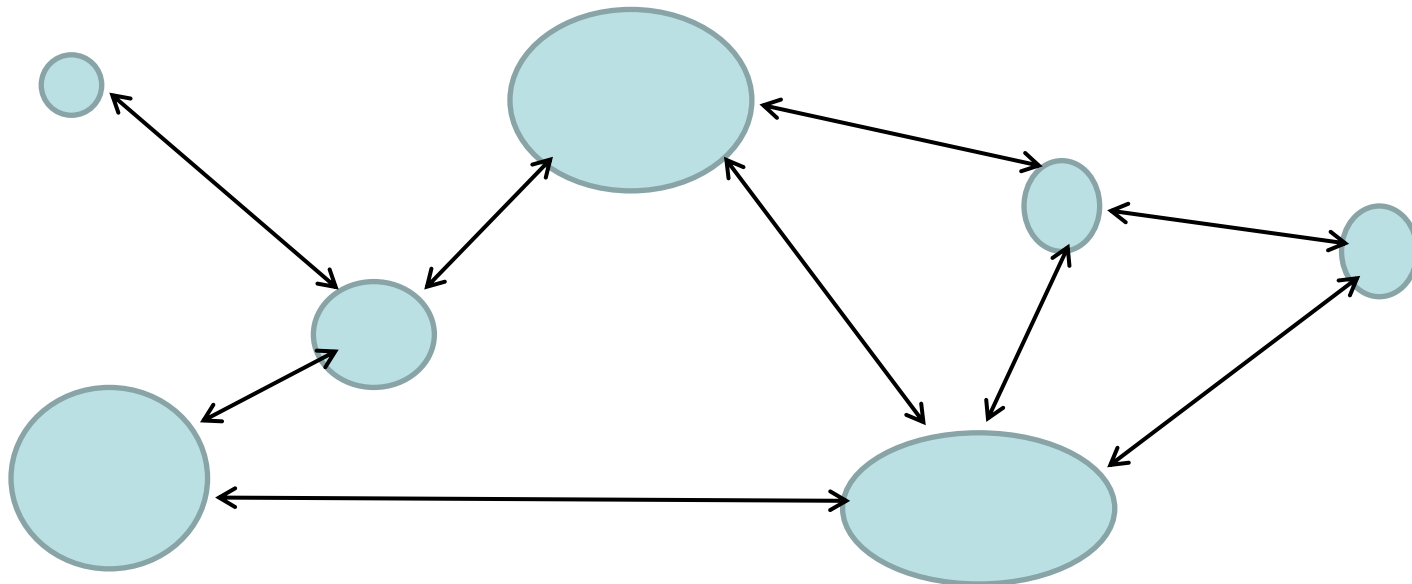
Landscape-scale conservation: where do sanctuaries fit in?

Al Glen, Roger Pech & Andrea Byrom





- Pest control rarely at a landscape scale
- Protected patches often isolated
- How can we re-connect them?



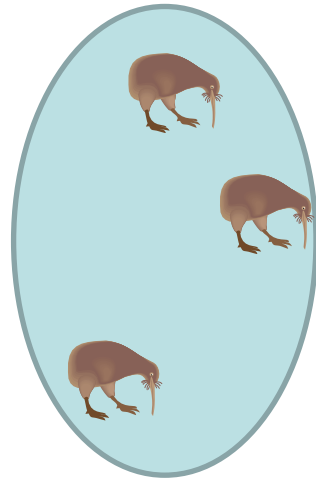
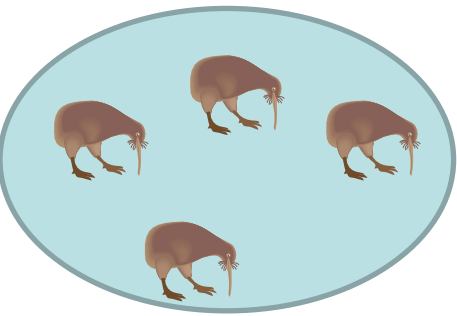
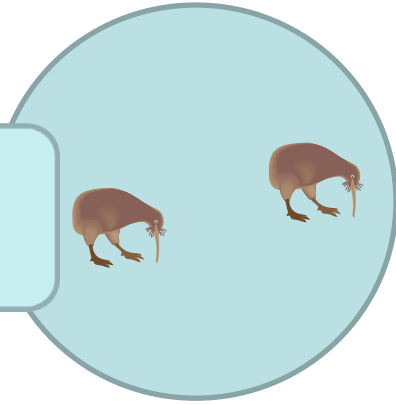
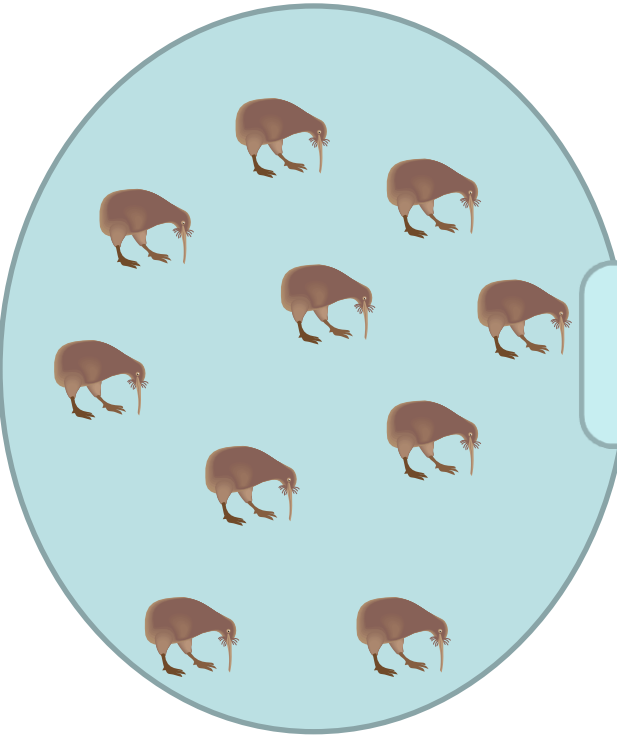
How can pest control help connectivity?



- *‘The degree to which the landscape facilitates or impedes movement among resource patches’ **
- Structural features, e.g. habitat type
- Invasive predators / competitors can also reduce connectivity
- Pest control may create safe routes or ‘stepping stones’



*(Taylor *et al.* 1993 *Oikos*)



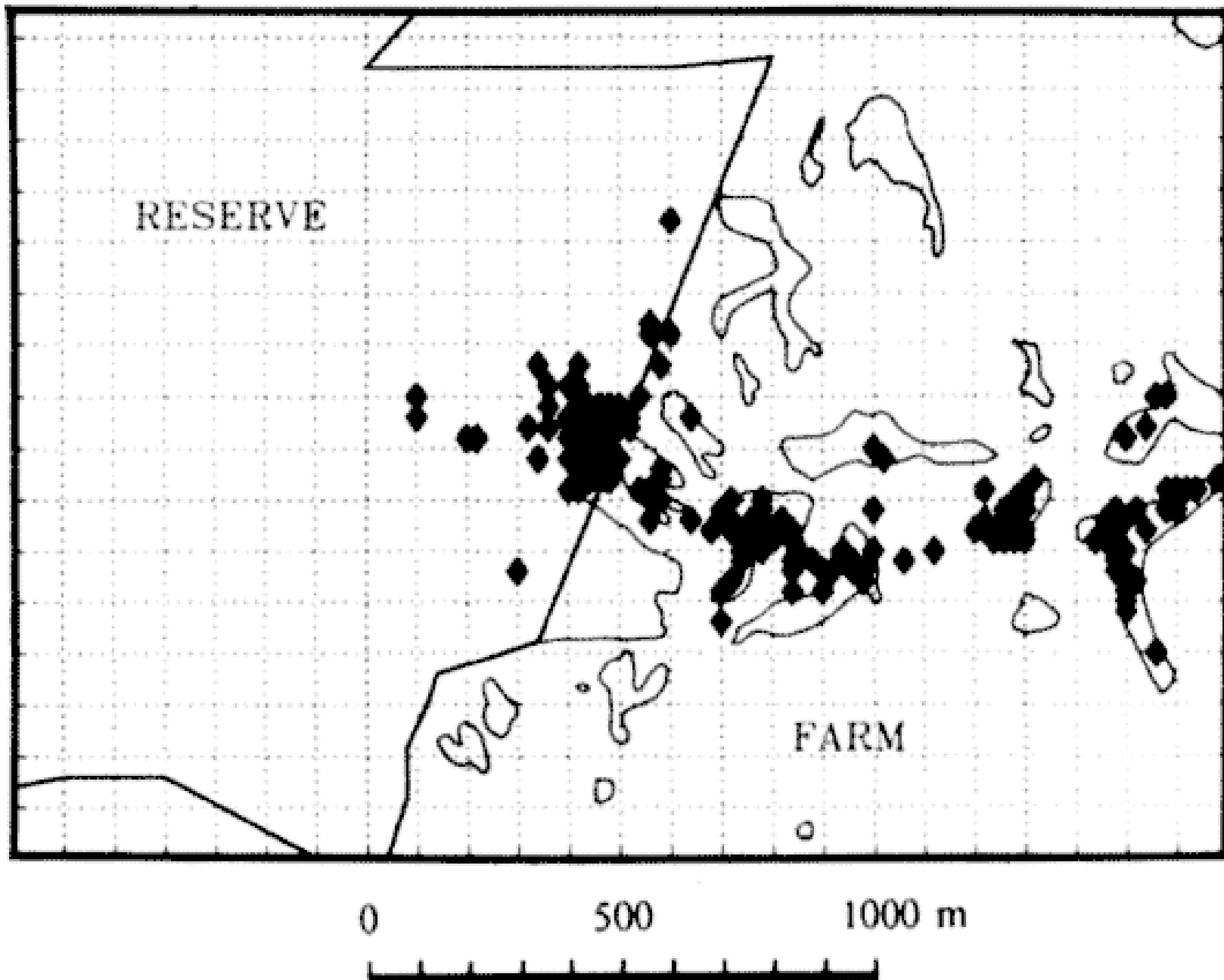


Figure from Potter (1990) *NZ J Ecol*

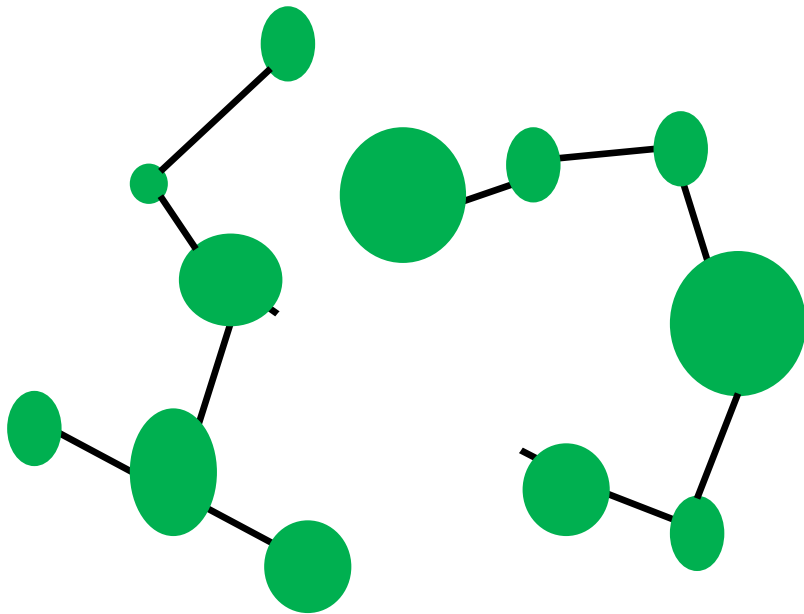


Prioritising pest control

- Often target individual priority sites/species
- Conservation planning software can consider multiple sites/species
- Optimal set of areas and species for management within a given budget



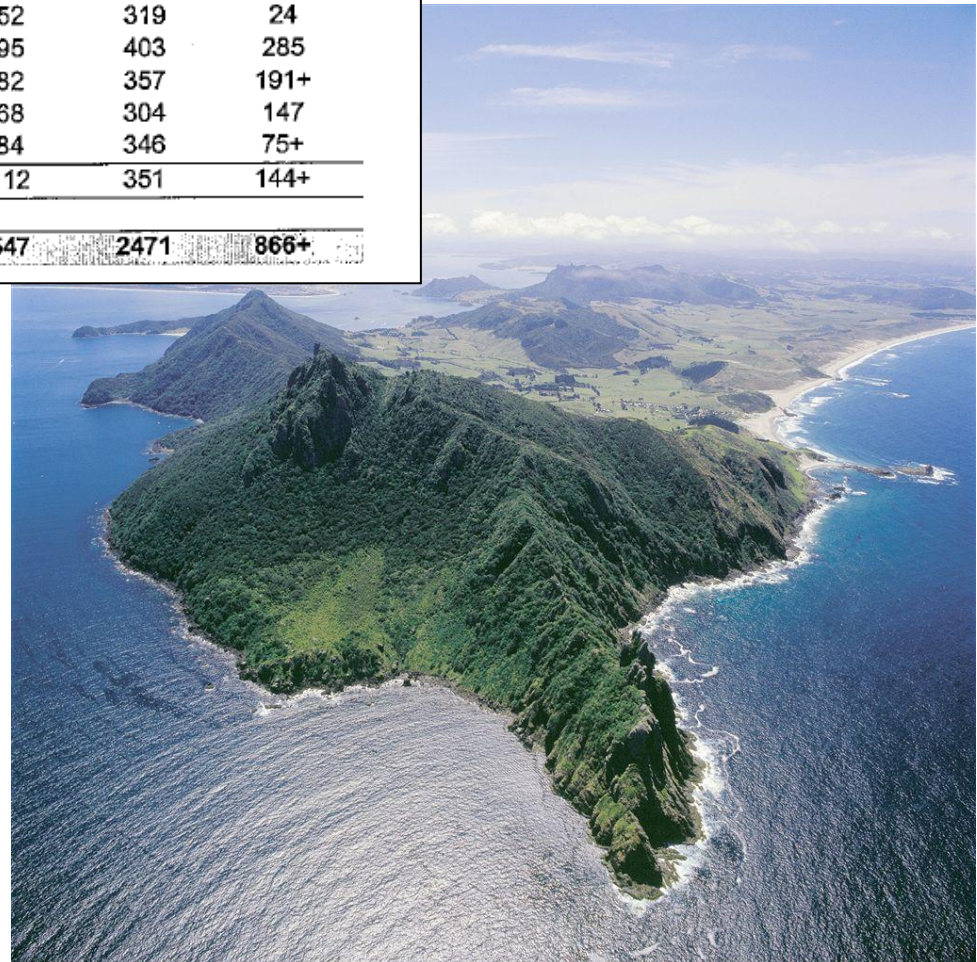
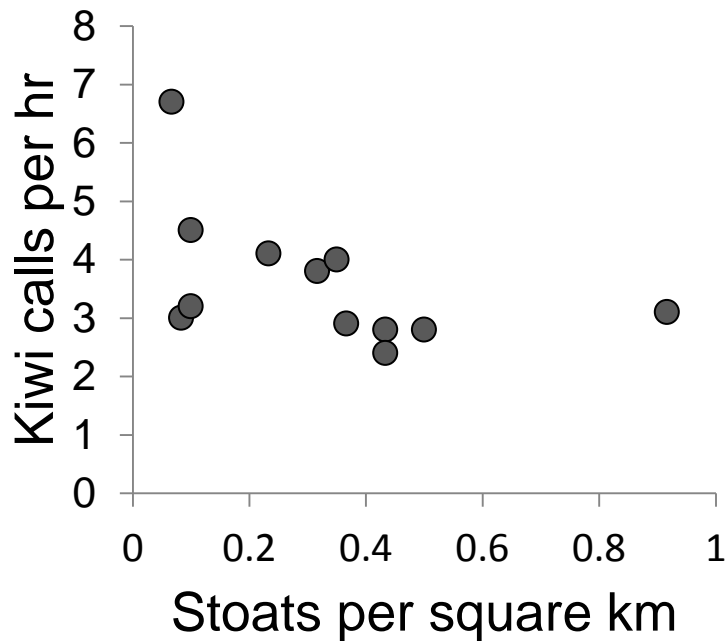
Identifying priority patches





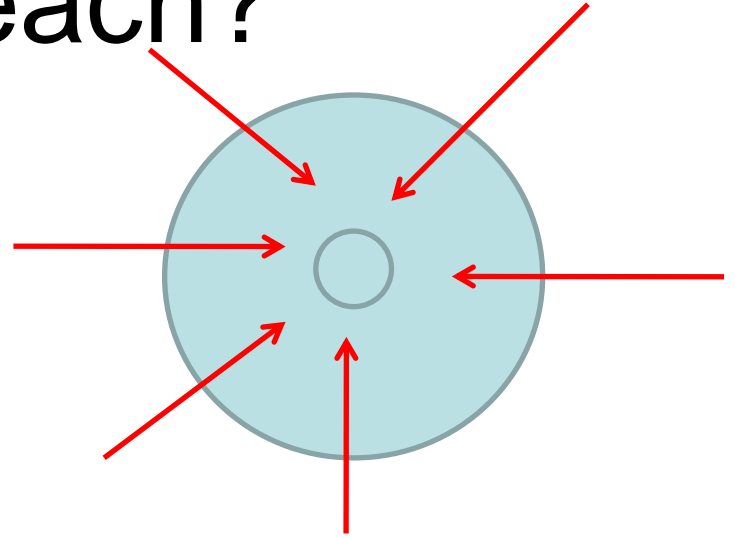
Todd Hamilton

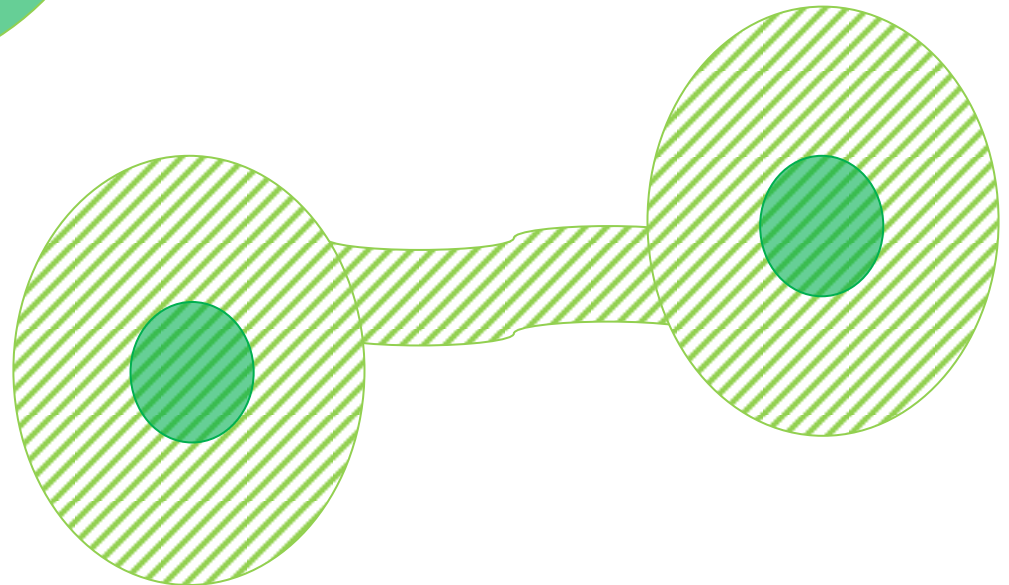
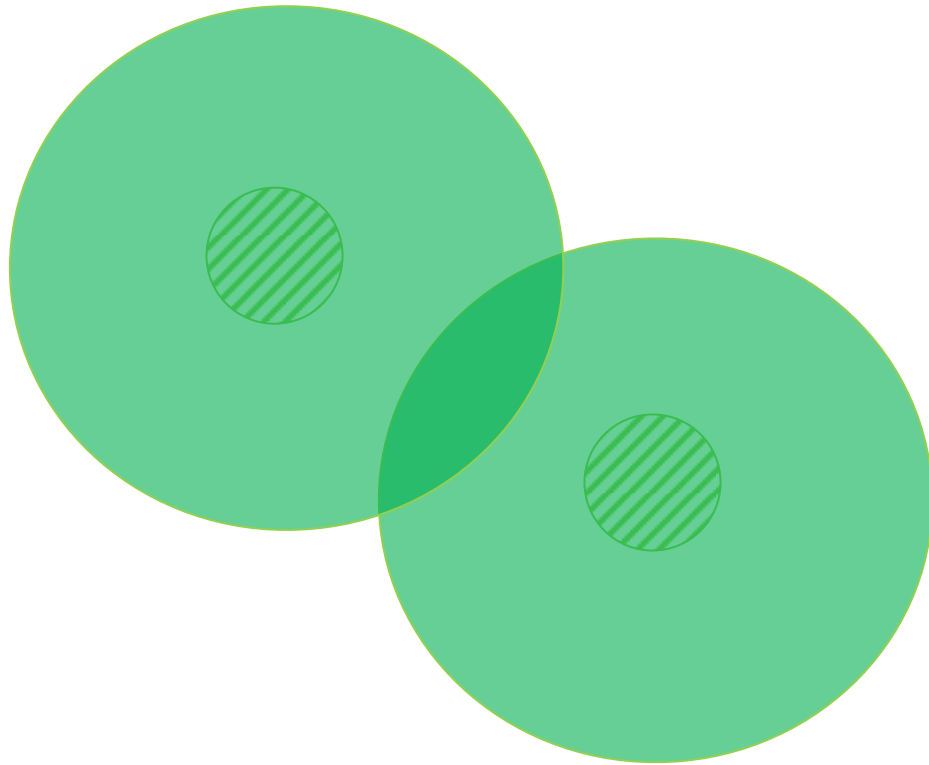
Total captures (October to September each year)							
	Ferret	Stoat	Weasel	Cat	Hedgehog	Rat	Possum
2002/2003	1	55 ✓	46	18	65	391	Not recorded
2003/2004	4	22 ✓	21	22	52	319	24
2004/ 2005	1	30 ✓	17	38	95	403	285
2005/2006	0	26 ✓	13	29	82	357	191+
2006/2007	0	26 ✓	8	17	68	304	147
2007/2008	0	19 ✓	22	18	84	346	75+
2008/2009	0	21 ✓	25	12	112	351	144+
2009/2010*	0*	14* ✓	8*	11*			
Total	6	213	160	165	547	2471	866+



How far do the benefits of pest management reach?

- Reinvasion: 'Core Effect'
- Benefits beyond boundaries: 'Halo Effect'





Summary



- Pest control can:
 1. Enhance landscape connectivity for native biodiversity
 2. Minimise connectivity for invasive species
- Planning software and landscape connectivity models can help target effort efficiently
- Sanctuaries can contribute to landscape-scale pest control, and *vice versa*

