

The Potential for Re-Invasion by Pest Mammals at Maungatautari

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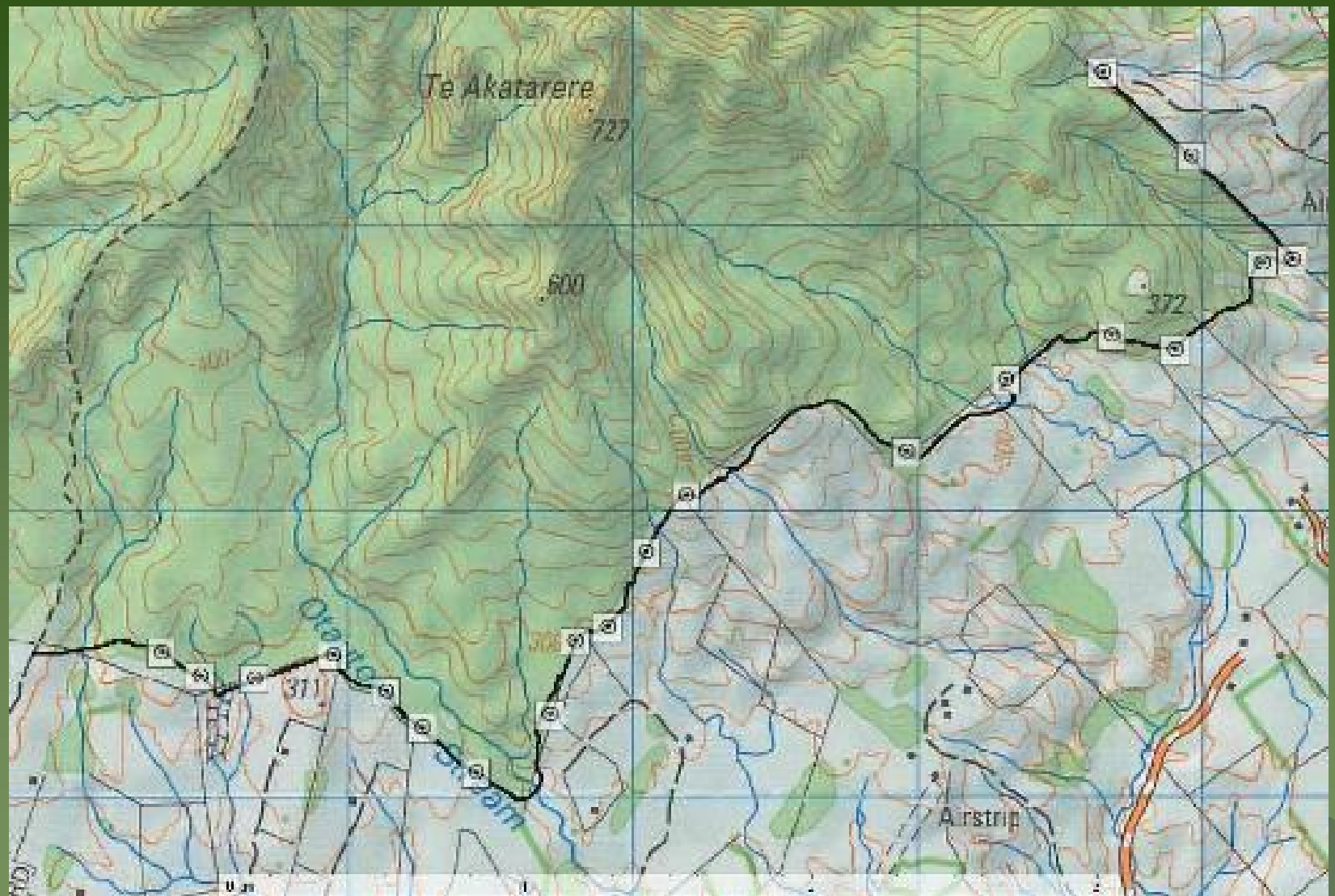
A stylized, dark green silhouette of a mountain range is positioned in the bottom right corner of the slide, partially overlapping the text area.

Objectives

- When the inevitable breach occurs –
 - How long before a breach is likely to be encountered by a pest mammal?
 - What pests are likely to encounter it?
 - Activity periods
 - Behaviour
 - Are results influenced by –
 - Season (summer/winter)
 - Exterior habitat type (forest/pasture)
 - Breach type (tree-fall/flood-scour)

Methods

- 20 holes along ~7km fenceline
 - Mean 350m distance between holes
 - Mean 850m between cameras
- Each filmed twice
 - 1 week ('flood-scour')
 - 24 hours ('tree-fall')
 - 160 nights total per season



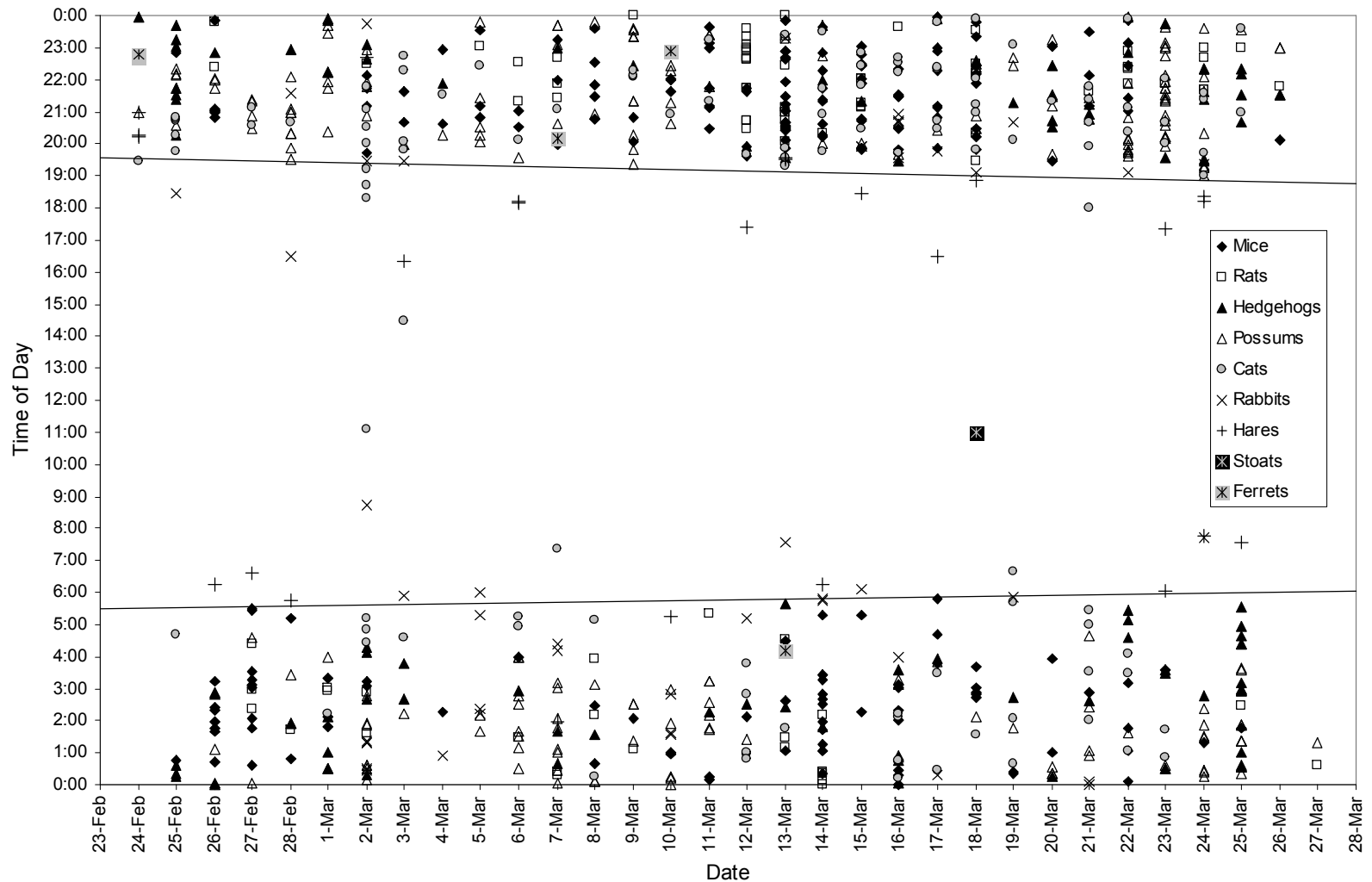




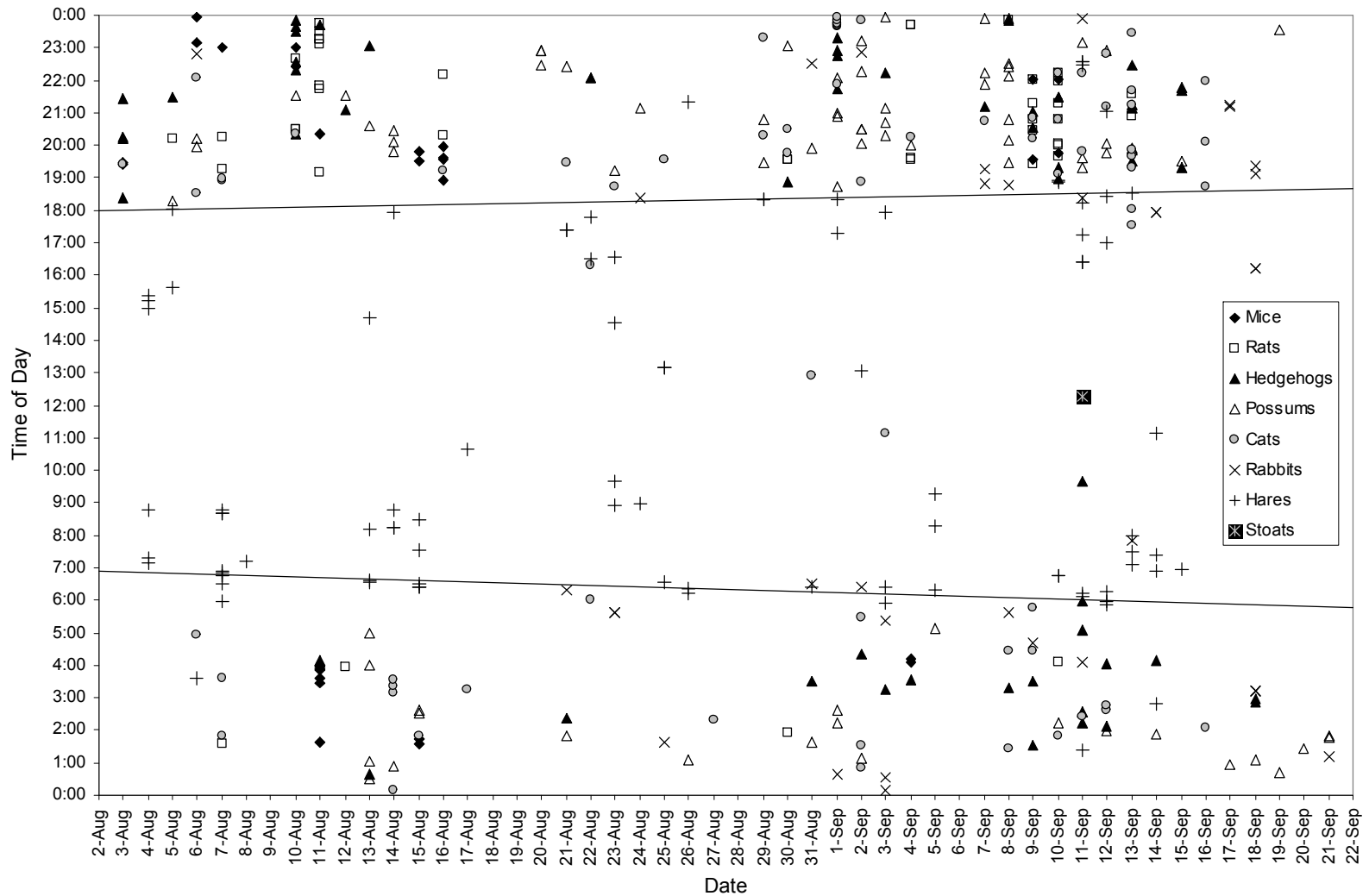
Total Encounters

Species	Number of Sightings		Sightings per 100 HN (\pm SEM)	
	Summer	Winter	Summer	Winter
Mouse	201	30	128 ± 14.0	19 ± 5.4
Ship Rat	83	42	51 ± 10.3	26 ± 6.4
Hedgehog	99	63	62 ± 8.2	39 ± 6.9
Possum	212	86	134 ± 13.2	54 ± 7.4
Rabbit	46	37	28 ± 5.9	23 ± 5.4
Hare	25	89	13 ± 3.4	55 ± 8.3
Cat	116	80	73 ± 7.5	50 ± 8.0
Ferret	5	-	3 ± 1.4	-
Stoat	1	1	0.6 ± 0.6	0.6 ± 0.6
TOTAL	788	428	493 ± 65.1	267 ± 48.9

When Encountered (Summer)



When Encountered (Winter)



The First 24 Hours

- Summer

- Encounters: 95% of holes
- Interest: 85%
- Entry: 72.5%
- Mean 2.8 spp. sighted per hole

- Winter

- Encounters: 92.5% of holes
- Interest: 47.5%
- Entry: 27.5%
- Mean 1.4 spp. per hole



Events After 7 Days

- Summer

- Encounters: mean 33
- Interest: mean 18
- Entry: mean 13

- Winter

- Encounters: mean 19
- Interest: mean 4
- Entry: mean 2



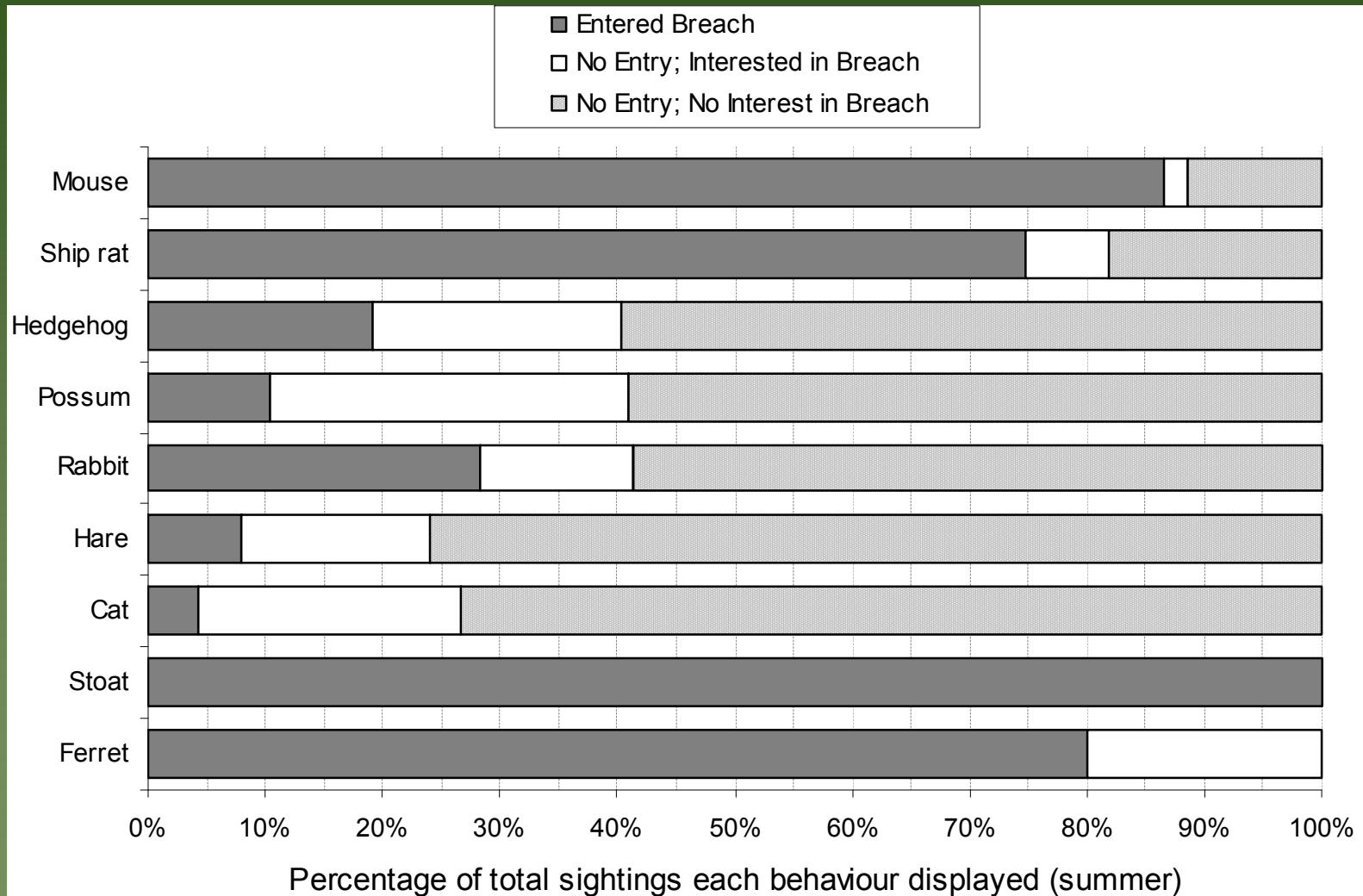
Significance of Season, Habitat, Breach type (GLMM)

	p-value		
	Season	Habitat type	Breach type
Mouse	<0.001	0.94	0.40
Ship Rat	0.004	0.88	0.06
Hedgehog	0.43	0.98	0.28
Possum	0.006	0.78	0.90
Rabbit	<0.001	<0.001	0.43
Hare	0.06	0.77	0.13
Cat	0.05	0.39	0.49
Ferret	n/a	n/a	n/a
Stoat	n/a	n/a	n/a

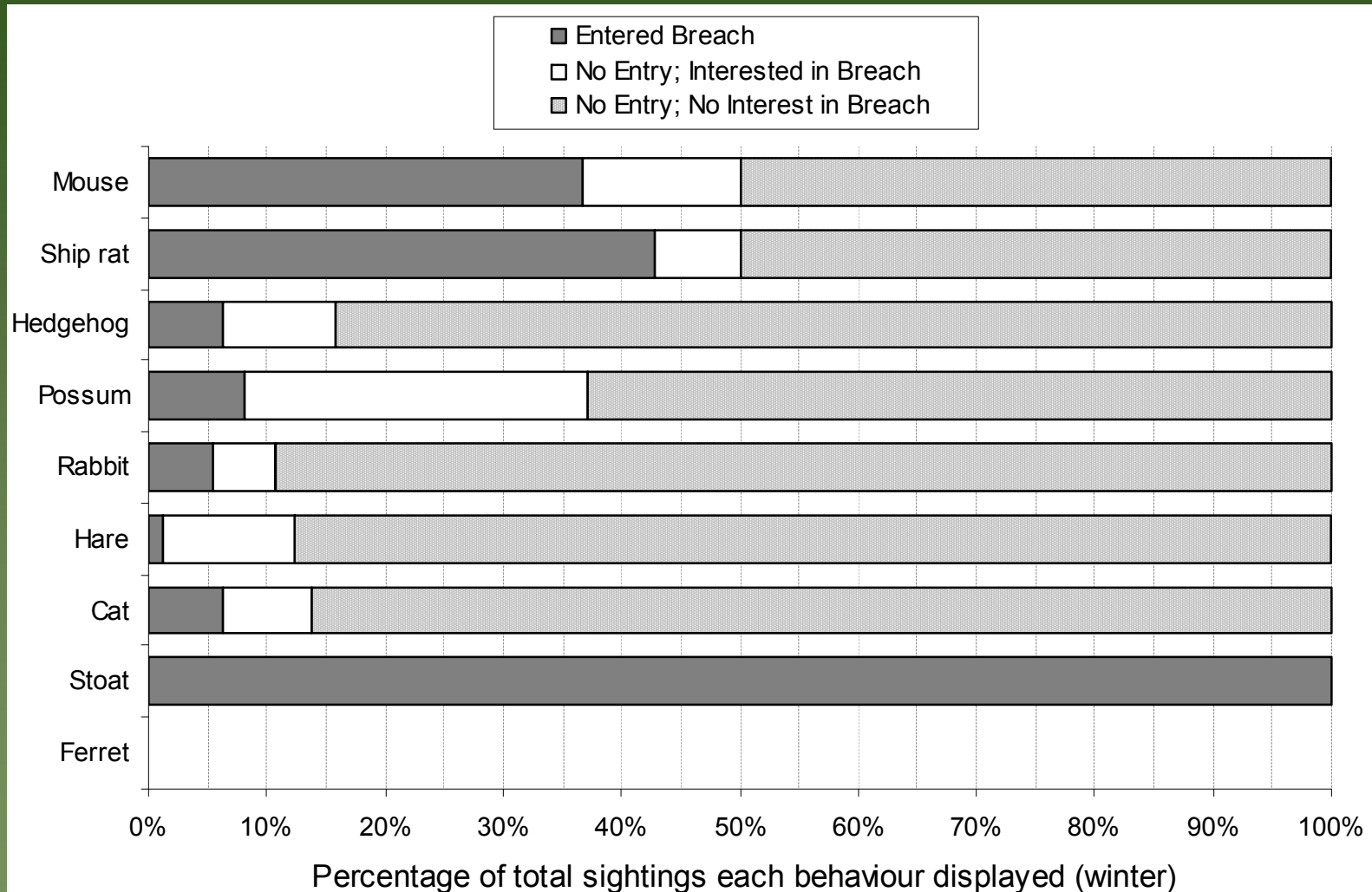
Pest Sightings

- ◆ Pest/s sighted –
 - 149/157 summer nights (95%)
 - 141/160 winter nights (88%)
- ◆ Most sightings at one hole on one night: 15
- ◆ Most species sighted at one hole on one night: 5 (on five occasions)

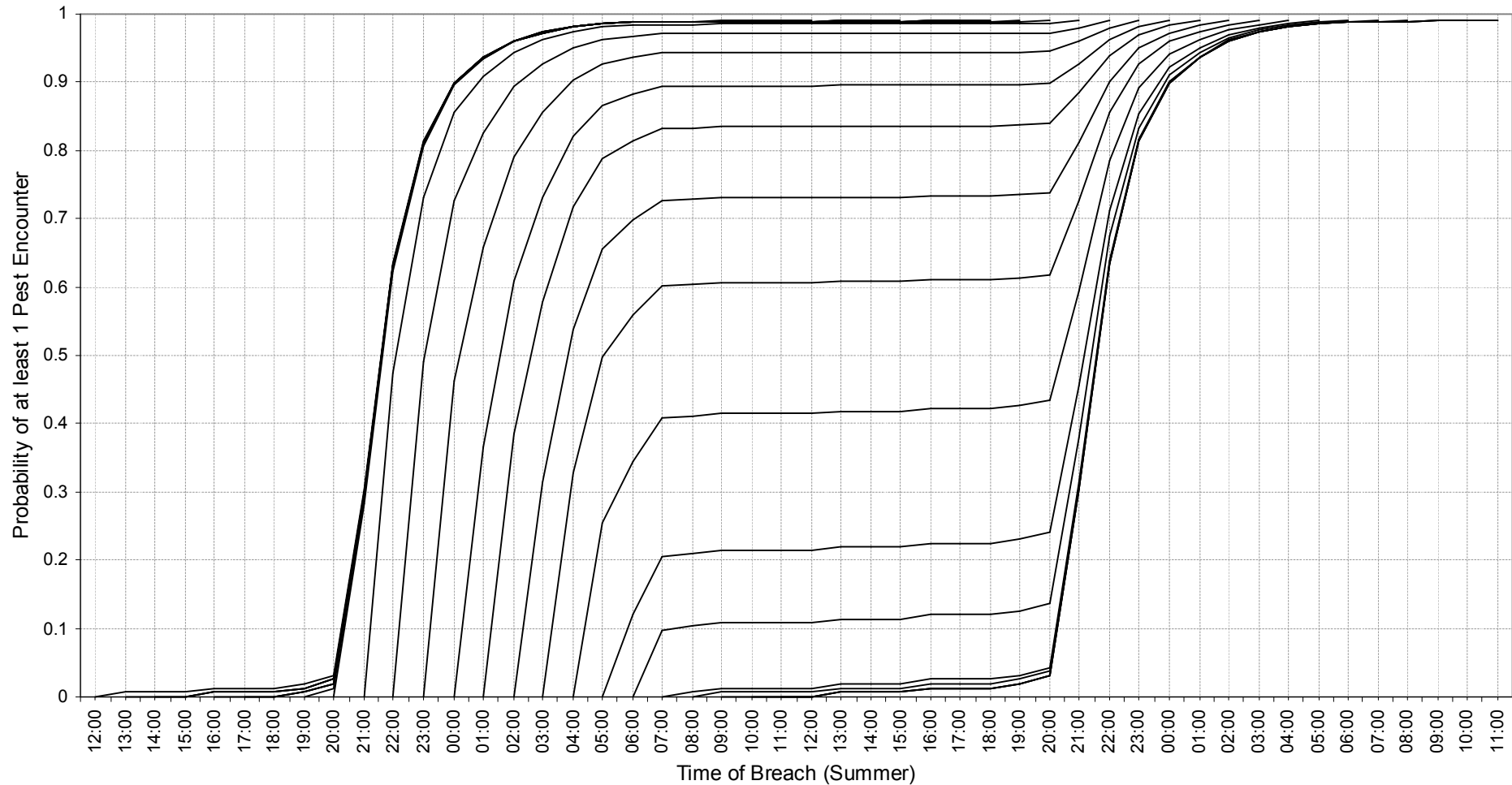
Behaviour: Summer



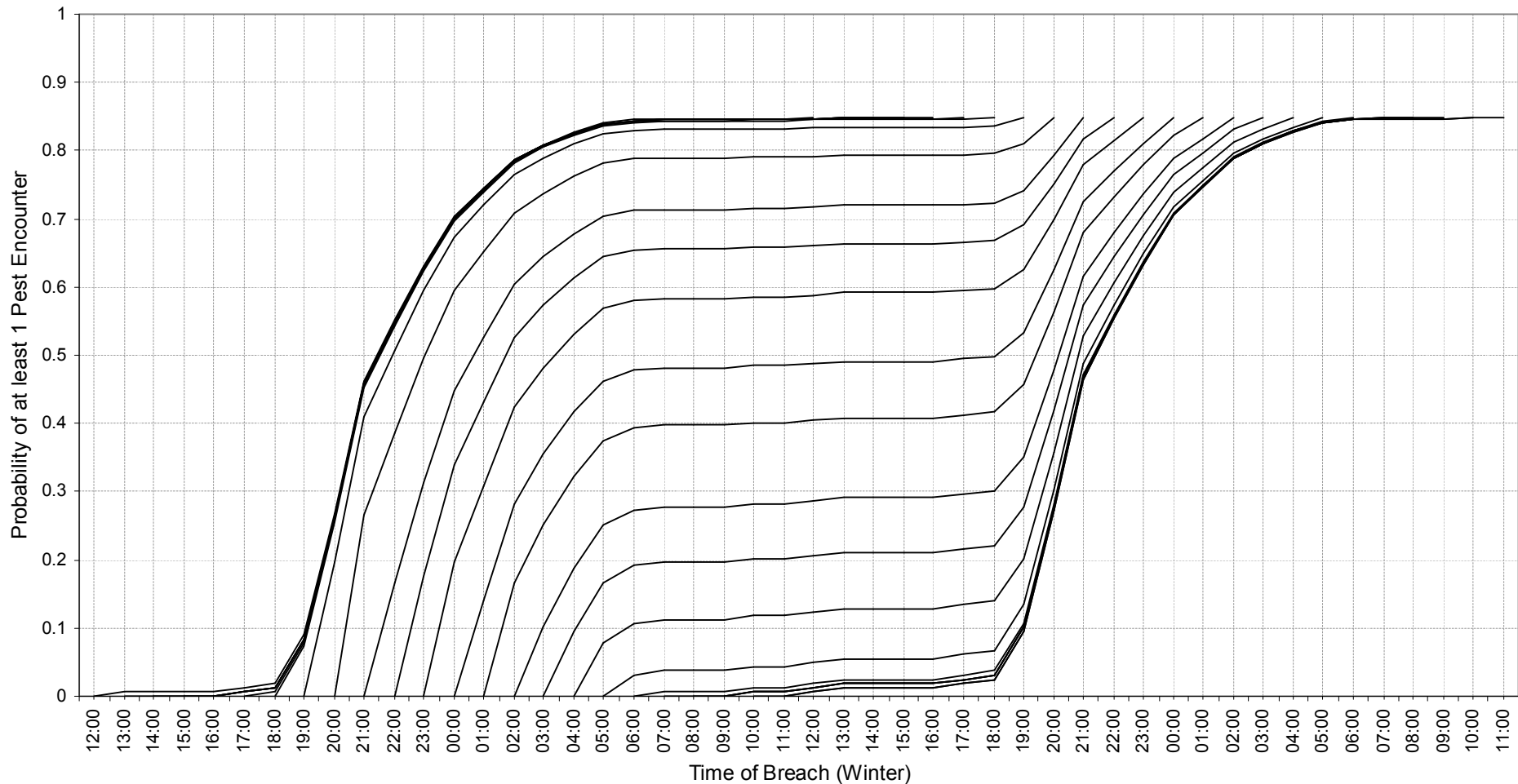
Behaviour: Winter



Cumulative probability of pest encounter (Summer)



Cumulative probability of pest encounter (Winter)




Fence Hood Observations

- 20 nights of video Dec/Jan '08
 - 3 hole sites
 - 1 camera within hood, another facing the hole
- Ship rats:
 - 1 ground sighting
 - 187 Hood sightings

Limitations

- Small field of view
- IR/cameras, cages, scent
- Repeat sightings/entries
- Real breaches (e.g. large rimu) very different to simulated breaches

Conclusions

- Pests commonly present
 - Strong likelihood of encounter/interest/entry
 - Most likely invaders: rodents, nocturnally, in the summer
 - Post-breach: *Always* a risk, *always* increasing with time
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Recommendations

- Remote monitoring & physical inspection
- Fast response vital
- Invader response regime
- Further research –
 - Behaviour of pests once inside
 - Behaviour of pests at real breaches

Acknowledgements

- Dr Carolyn King, Dr Tim Day
 - MEIT
 - Xcluder Pest Proof Fencing
 - AmBreed NZ Ltd
 - University of Waikato
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