

The background image shows a close-up of a dark, textured surface, likely soil or leaf litter, with some dried leaves and twigs. A blue and white striped caterpillar is visible, crawling across the surface. The caterpillar has a blue body with white stripes and small white spots. It is positioned diagonally across the frame, from the bottom left towards the top right. The text is overlaid on the right side of the image.

In the bag: leaf litter-filled artificial cover objects
reveal urban habitat associations for predatory
invertebrates (Onychophora: *Peripitoides*
novaezealandiae and Araneae: *Uliodon* spp.)

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Invertebrates and ecosanctuaries

- Weak or taxon-specific responses
- Unclear the level to which mammals impact invertebrates

[0]



Velvet worms!!!

- Also called Peripatus, or ngāokeoke
- Form their own phylum (Onychophora)
- Only fully terrestrial animal phylum
- Shoot immobilizing slime at prey
- Surprisingly intricate social behaviour



Dunedin's Onychophorans are weird

- Almost never found in urban areas
- Except for Dunedin?
- Rare, uncommon species
- Except for Dunedin?



Map from Monge-Nájera (2018) showing urban areas with recorded peripatus presence.



Dunedin's Onychophorans

- Found in aggregations reaching up to 2000 individuals in the suburb of Caversham by resident Dave Randle in 1991
- His activism led to law changes in support of velvet worms
- In 2014, he also developed new monitoring methods for velvet worms – black plastic bags filled with leaf litter



Nine years later...

- Two enterprising researchers decided we should give the bag method a go
- And they needed a summer scholar!

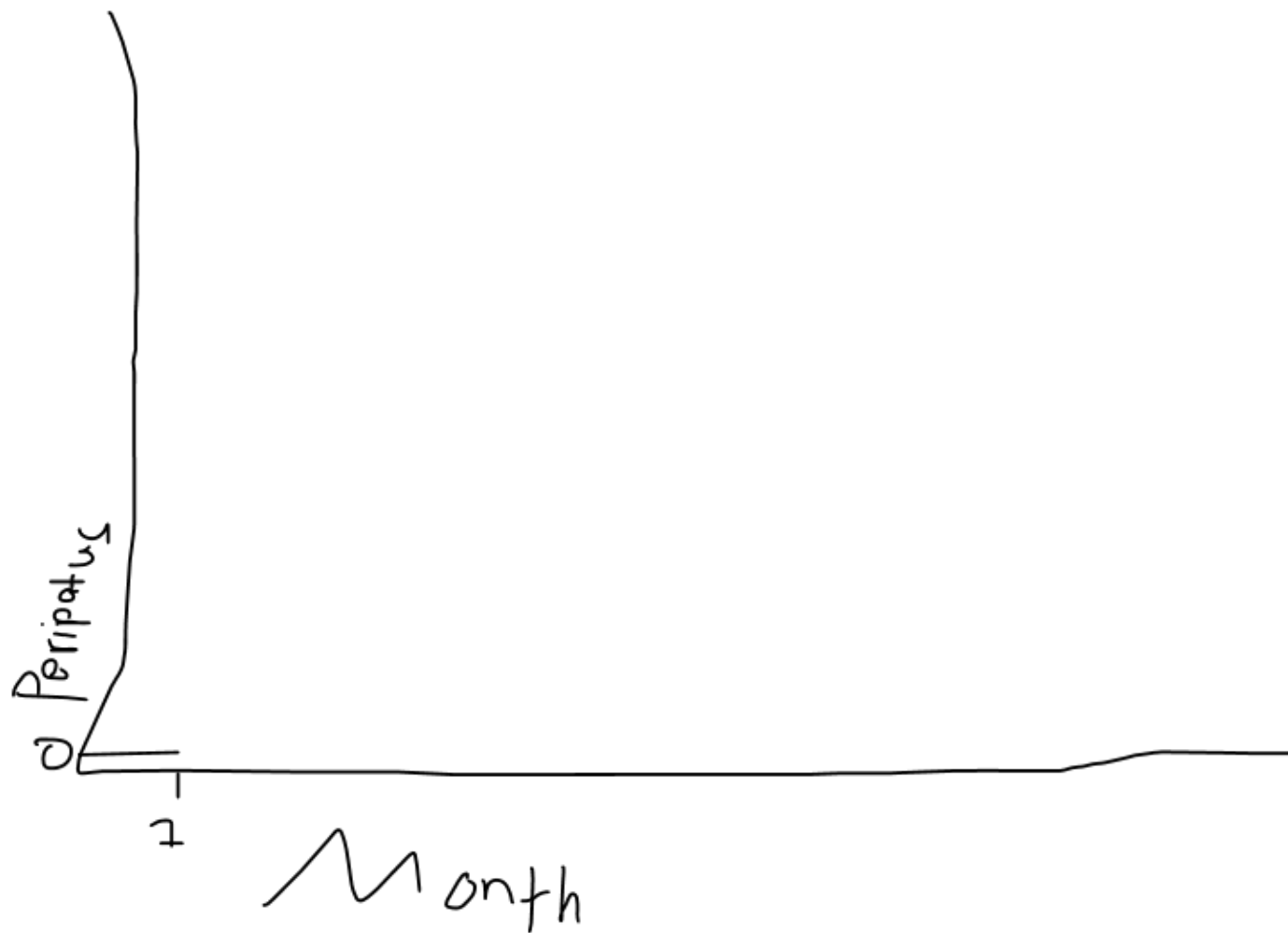
(me)



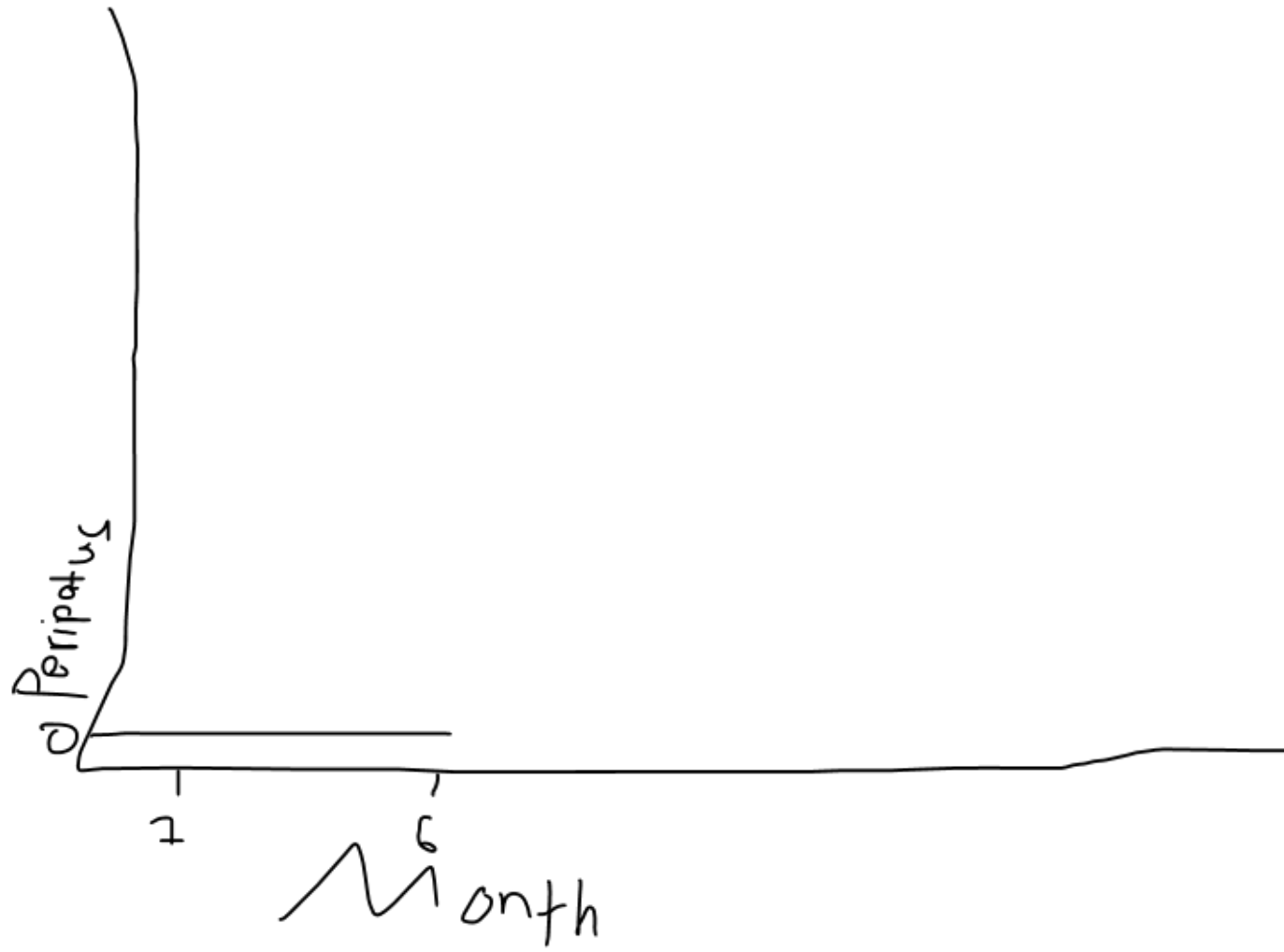
So, what did we do?

- Six 36L black nursery planter bags placed in 21 sites in Wellington
- Filled with 2L of leaf litter from the site
- Sites a mixture of ecosanctuary (Zealandia), remnant (Ōtari) and secondary forest (multiple)
- Bags checked after 1, 6, 11, and 19 months (Wellington only)

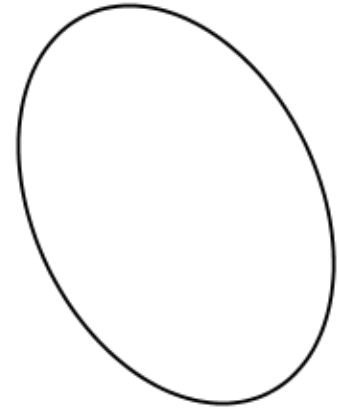
Results

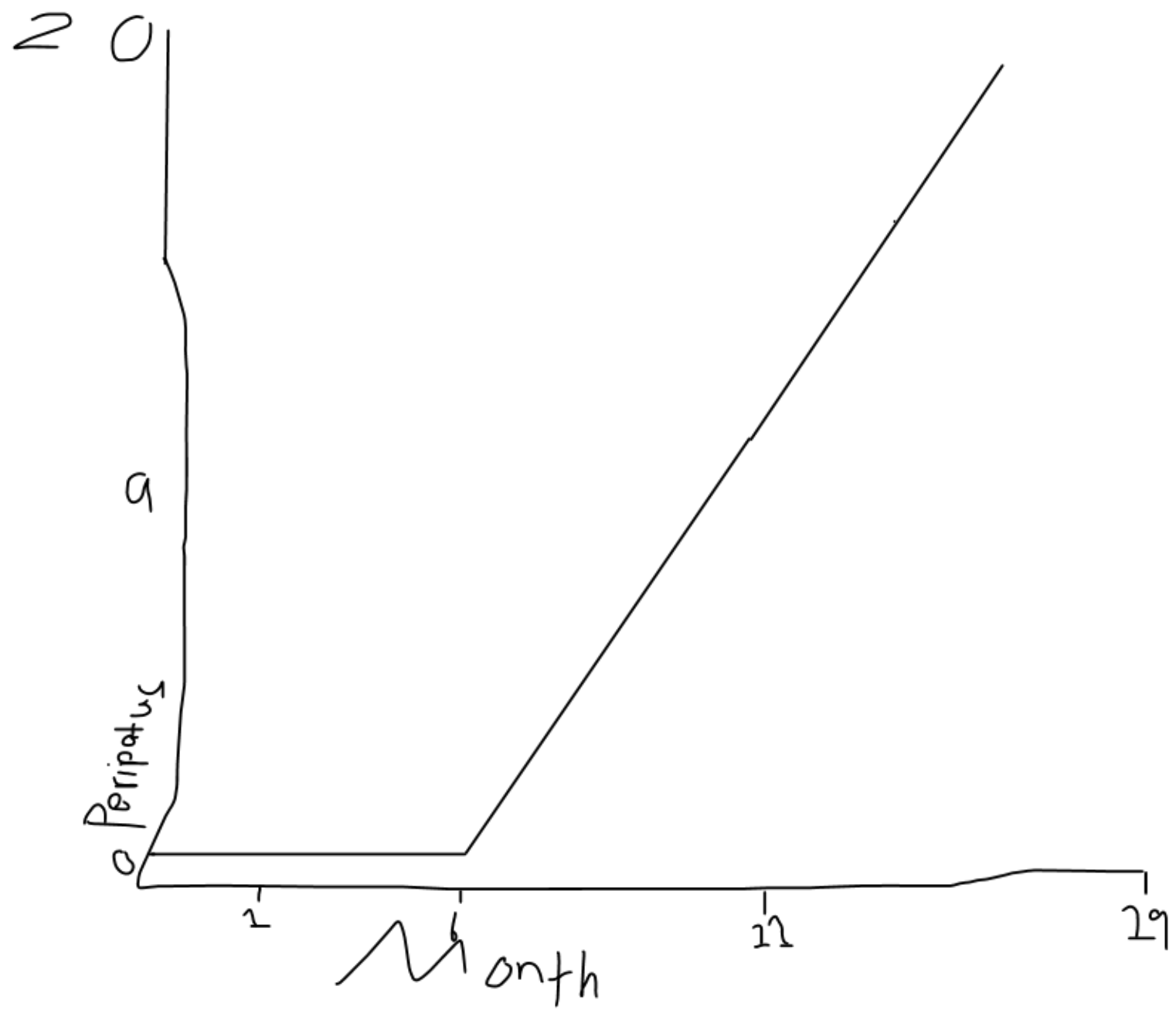


Results



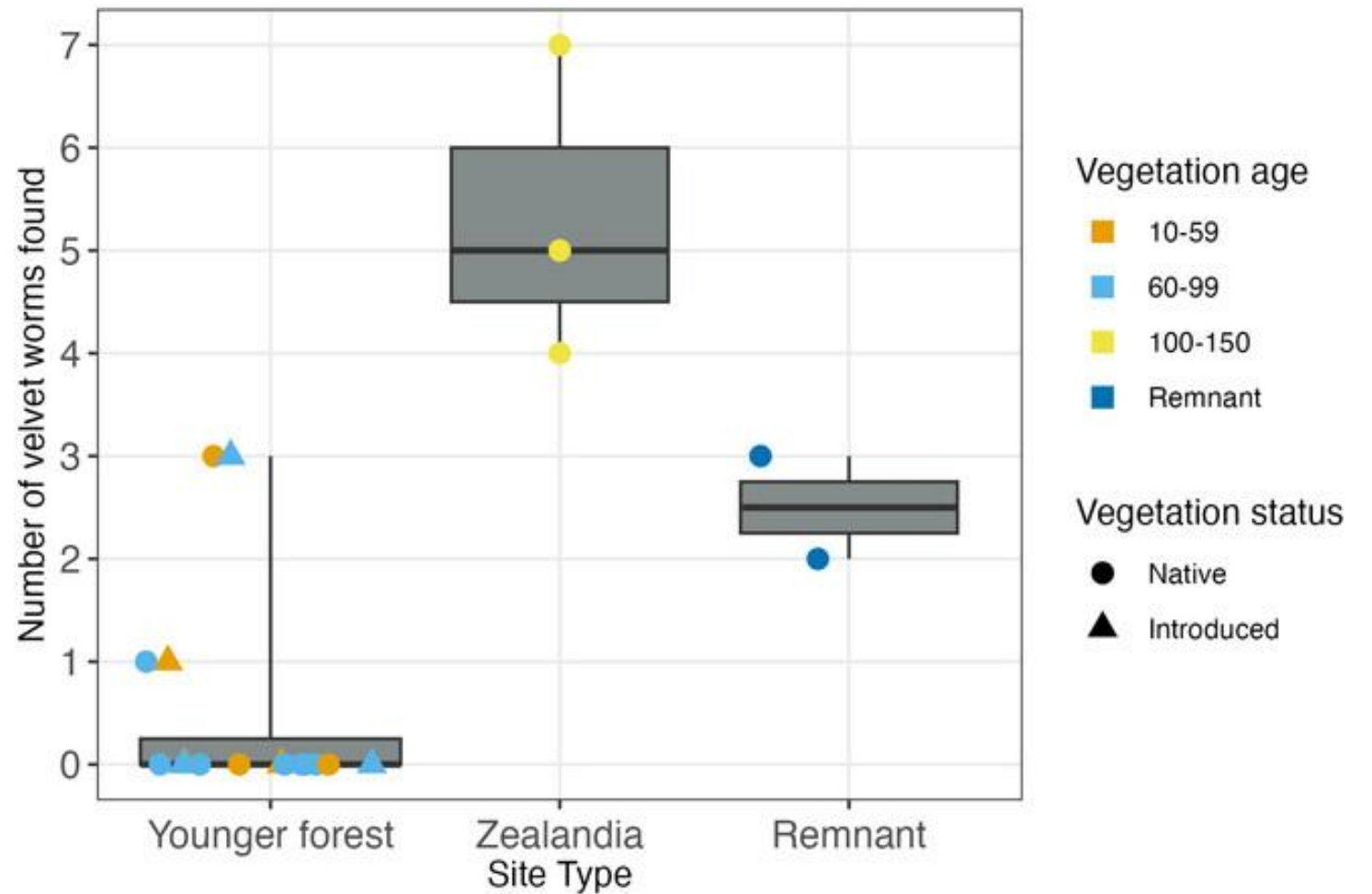
Dunedin Velvet worms
(check at 8 months):

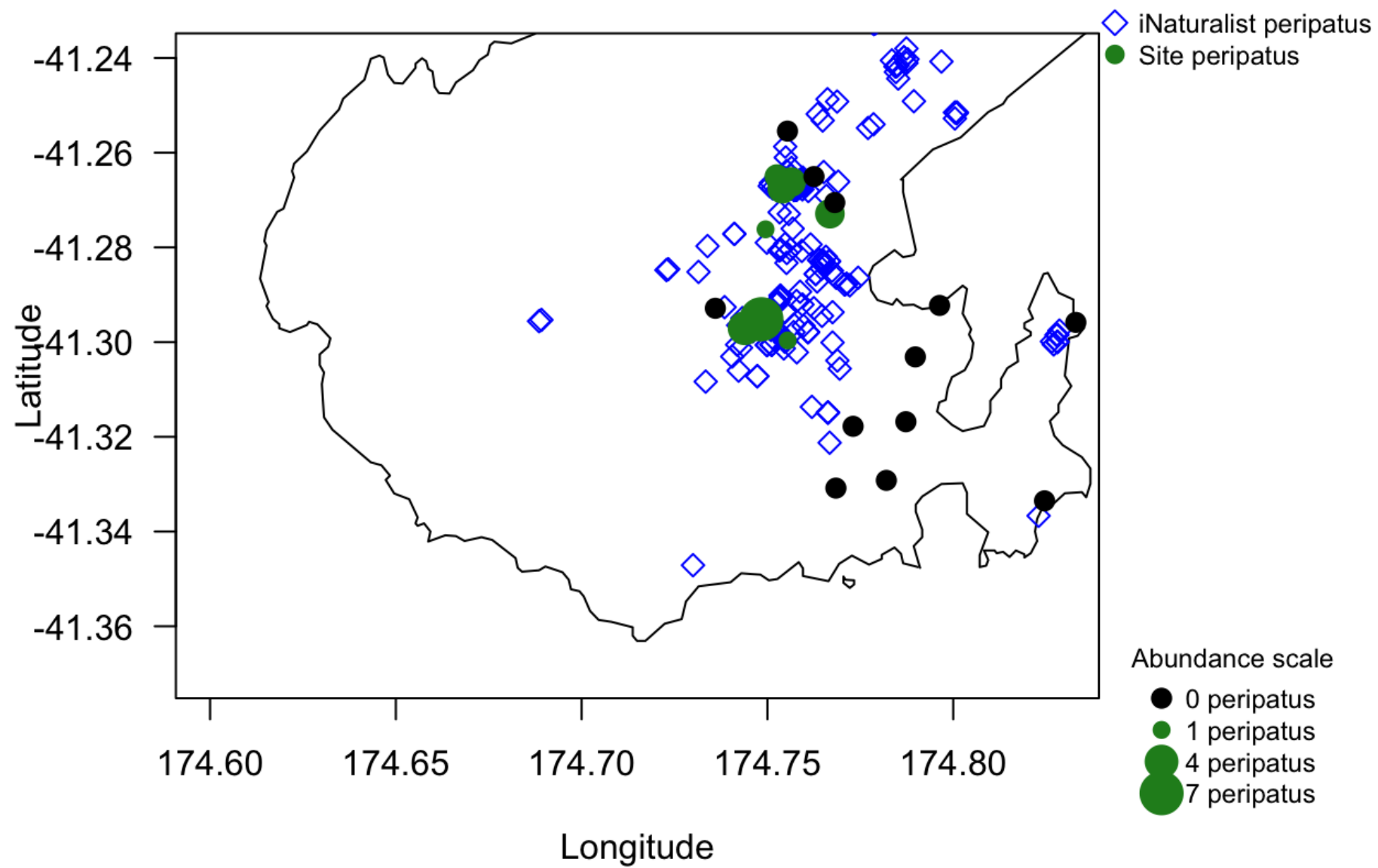




Where?

- Significant majority of velvet worms (16) found in Zealandia
- 5 in Ōtari
- 8 in secondary regrowth (Waimapihi, Karori Cemetery, Te Ahumairangi, and non-remnant Ōtari)



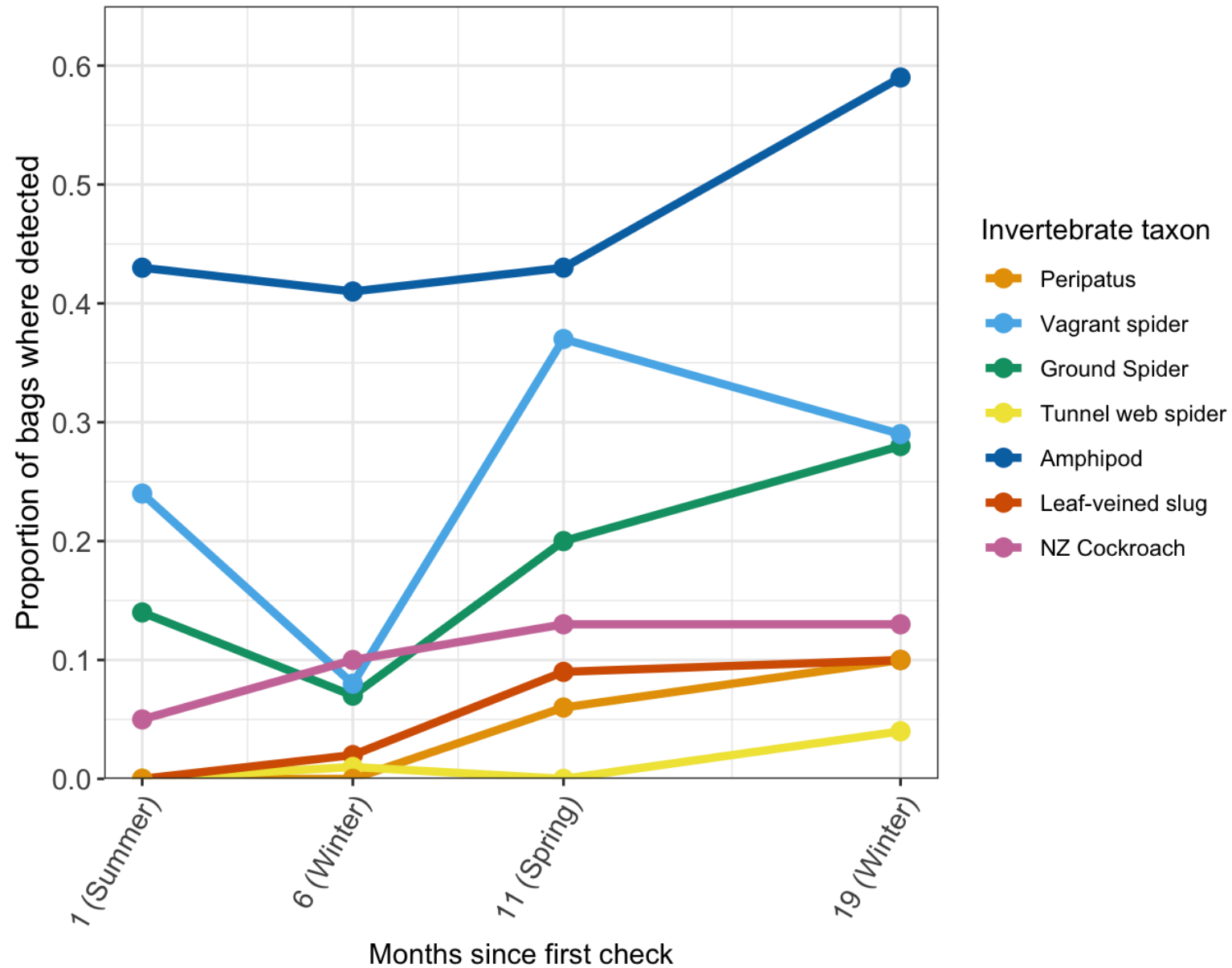


Some other results

- Most (26) found in the bags, but 3 found under them
- Usually just one individual in a bag, but four bags had two and one bag had five!!!



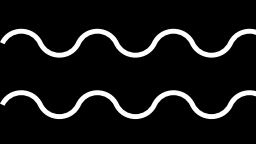
Many other
things found
in the bags
too!



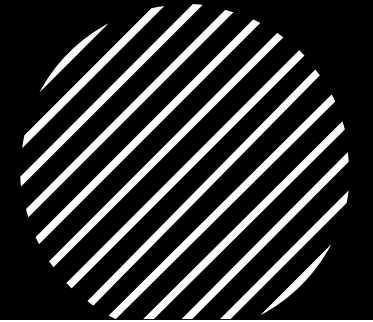
So... What?

- Velvet worms displayed significant preference for Zealandia over both the old-growth at Ōtari and the secondary regrowth
- Contradicts other literature
- Effect of pest mammals?





Bags!



01

Showed great
promise as
monitoring method

02

Non-lethal

03

The basis of my
thesis!

Thank you!!!!

- PCAN (\$\$\$)
- Dave Randle for the concept of the bags
- Staff of Karori Cemetery, Ōtari Wilton's Zealandia, WCC
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- Feedback: Jayden Alexander, Tim Lunt, Charlie Tustin, Diana Methner, Tirth Vaishnav, Tamara Becker, and Fiona Balfour
- **Ruben Mita, Joanna Carpenter, James Arbuckle**
- **STEPHEN HARTLEY!**

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