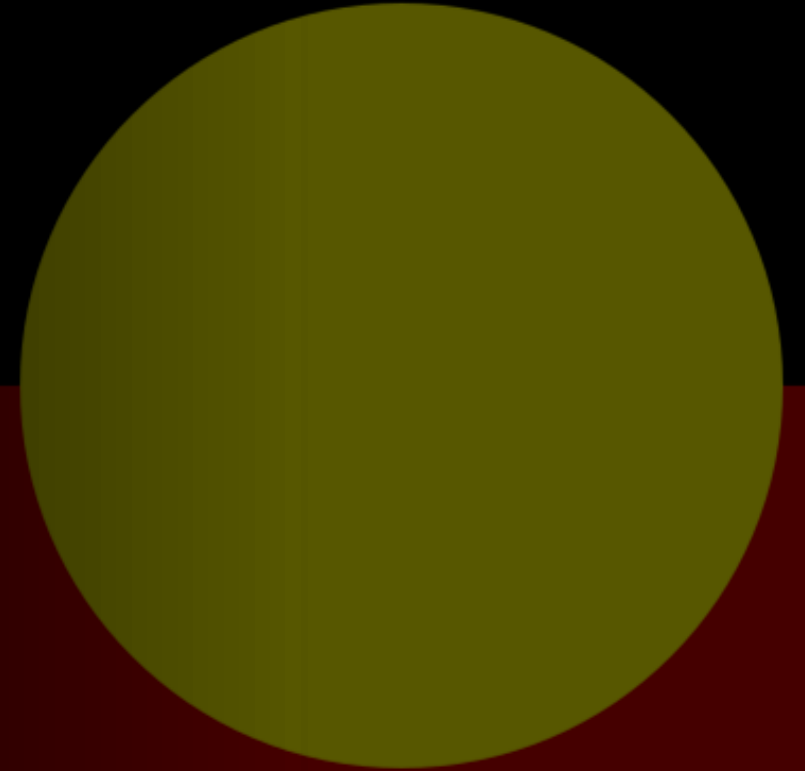# The use of artificial refuges by small vertebrates after prescribed fire
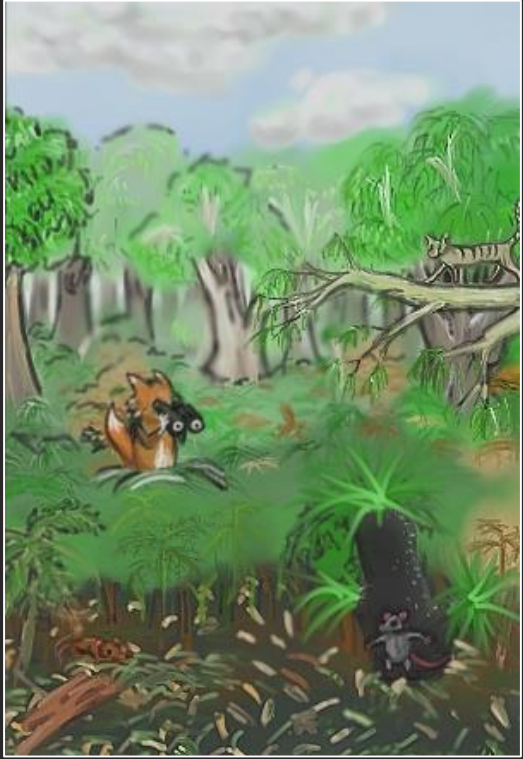
Darcy Watchorn, Barbara Wilson, Mark Garkaklis, Don Driscoll, Tim Doherty
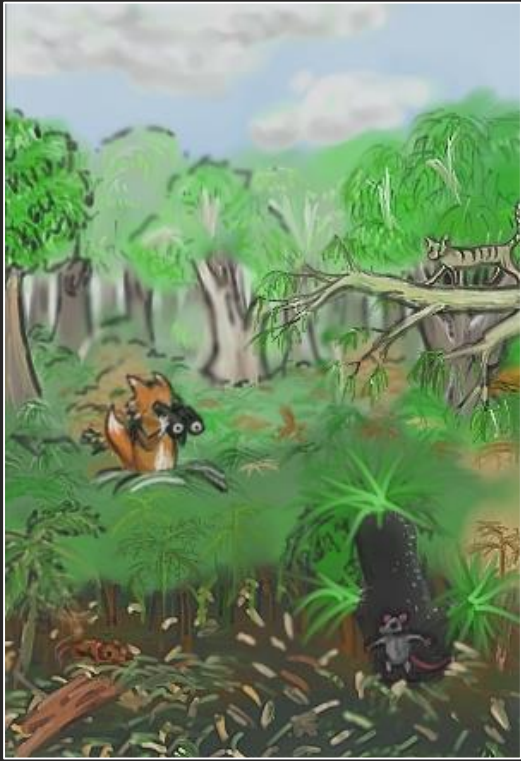
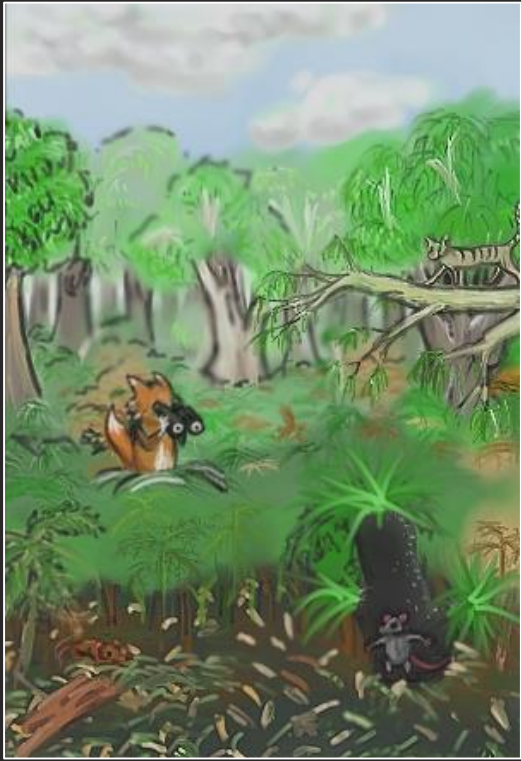This work was conducted on the unceded lands of the Wathaurong and Eastern Maar People
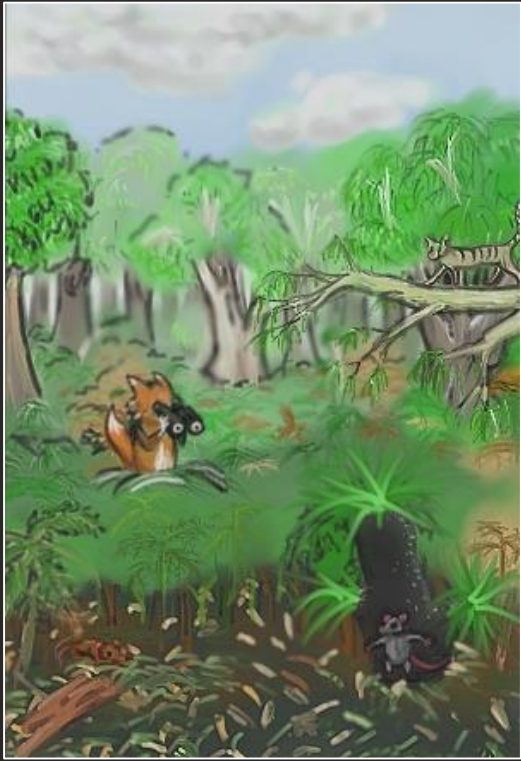
# Cats, foxes, and fire

# Cats, foxes, and fire

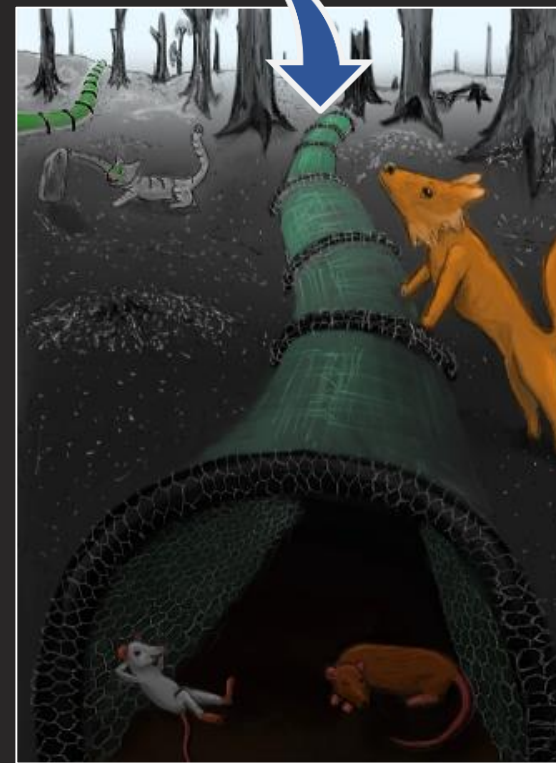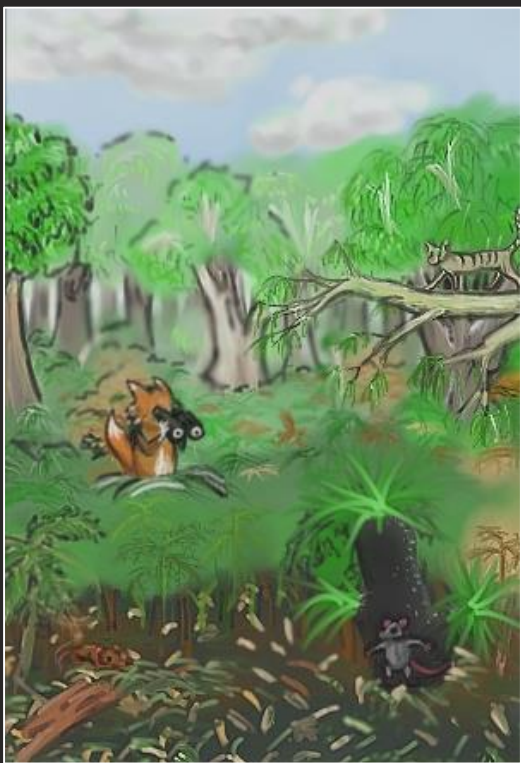# Cats, foxes, and fire

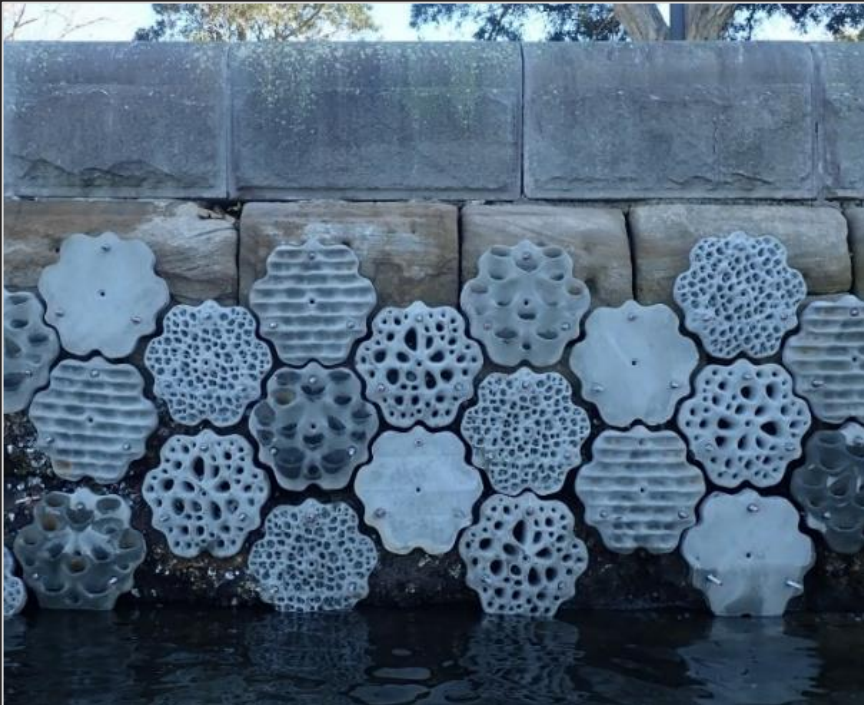# Cats, foxes, and fire



**Management options**

- Lethal control

- Preservation of natural refuges

# Cats, foxes, and fire



Artwork by: Demeke Durant, Sidney Byron Kerr, Molli McGaw, Danish Zulishman, Mitchell Kornberg (2020), SLE200-Comminicating Science Idea at Deakin University

# What are artificial refuges?



Artificial rocky crevices for marine fauna

Artificial rocks for reptiles

Artificial tree hollows for possums

# What are artificial refuges?

# What do my artificial refuges look like?

# Cats, foxes, and fire
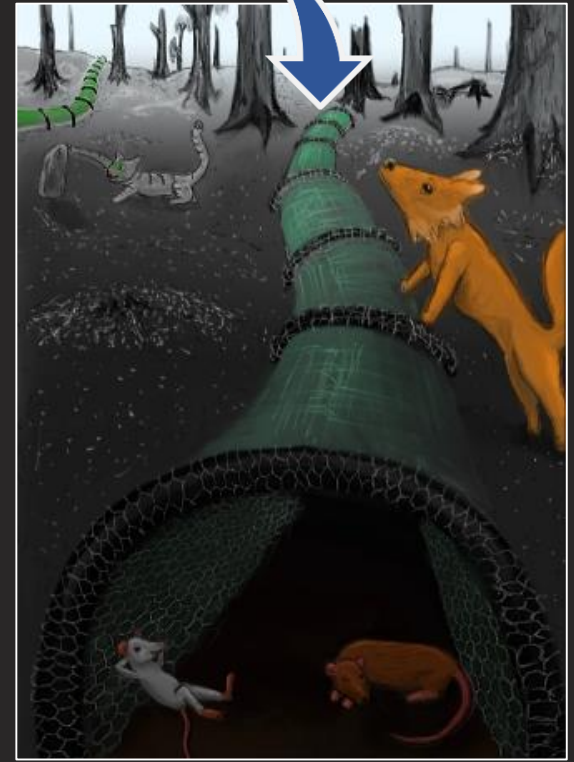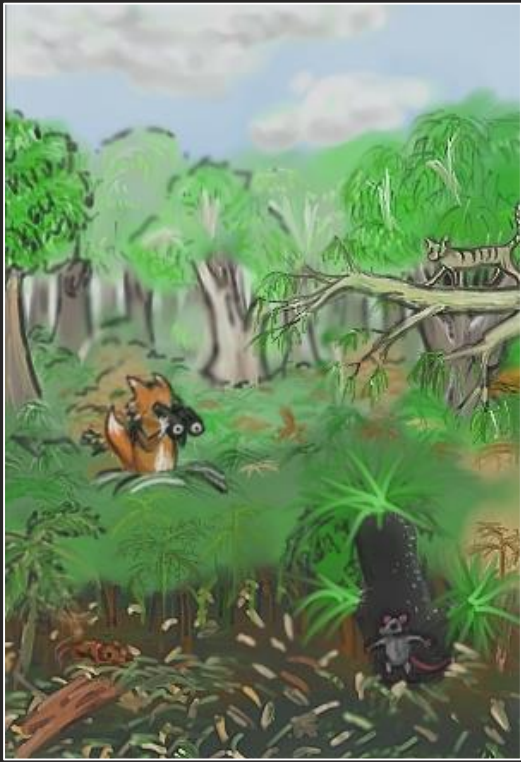
Artificial refuge



Artwork by: Demeke Durant, Sidney Byron Kerr, Molli McGaw, Danish Zulishman, Mitchell Kornberg (2020), SLE200-Comminicating Science Idea at Deakin University

Which small vertebrates use the artificial refuges?

# Study design



Otway Ranges, Victoria

10-15 m
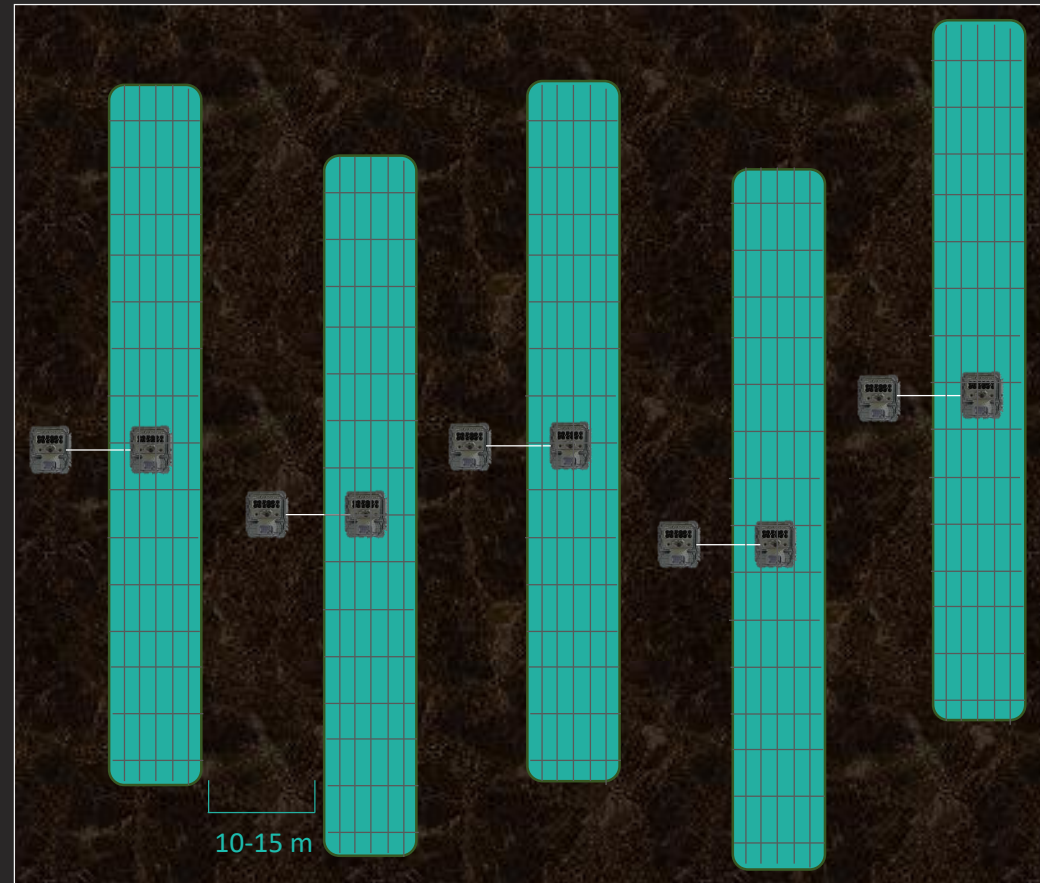
Example study site - five refuge tunnels per site

Cameras deployed for 12 months

# Study design



Pre-fire       2 weeks post-fire       6 months post-fire       12 months post-fire

Agile antechinus


White-footed dunnart


White-browed scrubwren


Superb fairywren


Painted buttonquail

# Preliminary results

Agile antechinus


White-footed dunnart


White-browed scrubwren


Superb fairywren


Painted buttonquail

# Preliminary results

**Detections inside**

- Mammals = 367, 7 species

- Birds = 929, 13 species

- Reptiles = 49, 4 species

- Total detections = **1,345** **(66%)**

**Detections outside**

- Mammals = 268, 5 species

- Birds = 387, 13 species

- Reptiles = 7, 2 species

- Total detections = **662** **(33%)**
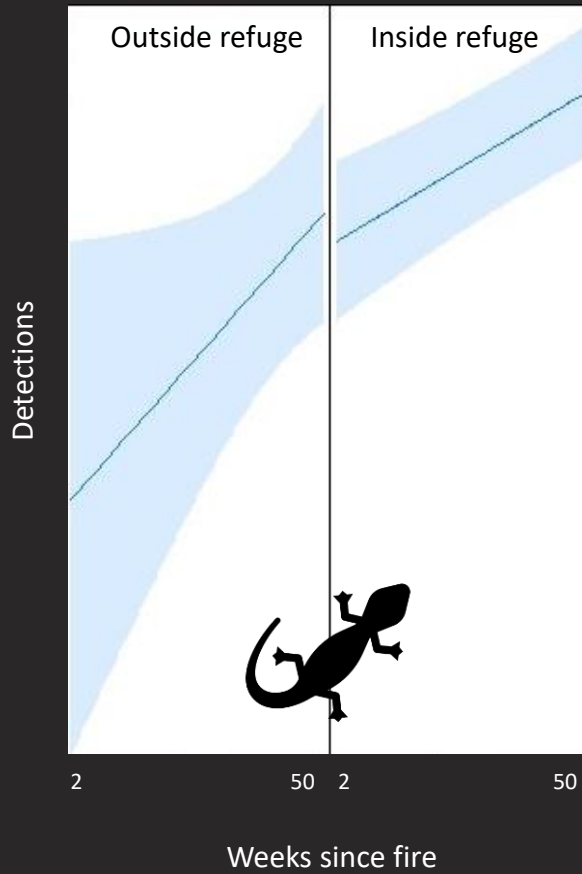
| | All reptiles | White-browed scrubwren | All small mammals |
|---|---|---|---|
| Time since fire | P = 0.04 | P = <0.001 | P = <0.001 |
| Cam placement (inside/outside) | P = 0.01 | P = <0.001 | P = 0.432 |
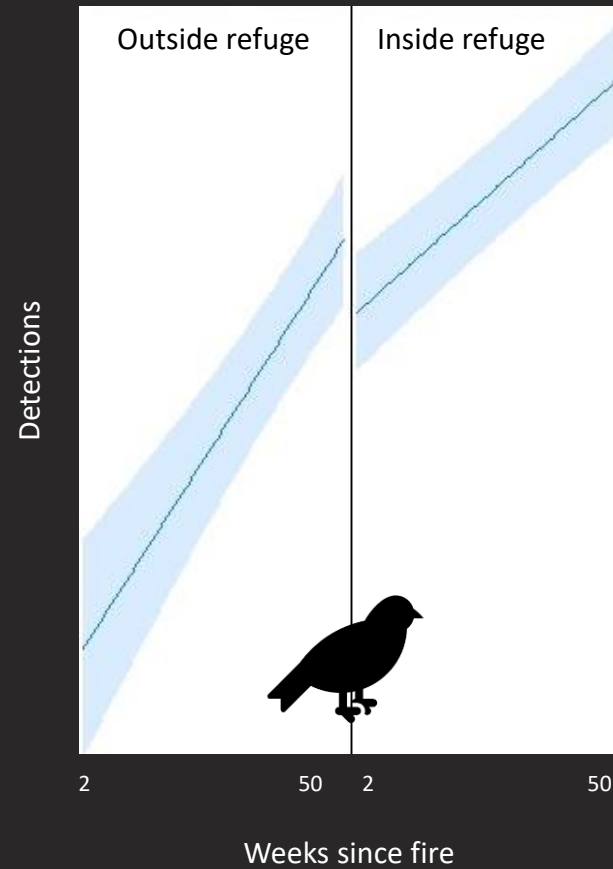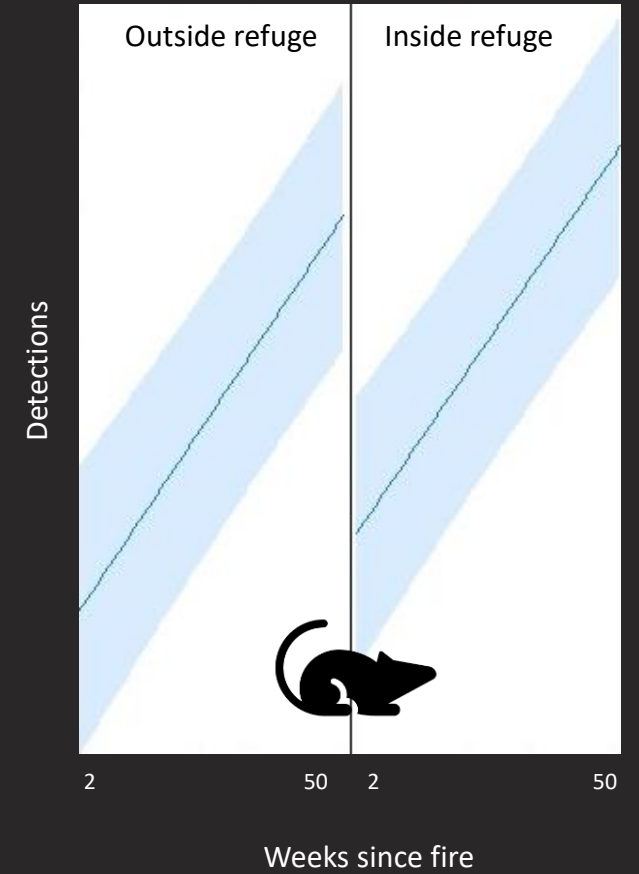
# Summary

Used preferentially by:
1. skinks
2. white-browed scrubwrens
3. fairy wrens
4. buttonquails

Not preferred by mammals

# Summary

Used preferentially by:
1. skinks
2. white-browed scrubwrens
3. fairy wrens
4. buttonquails

Not preferred by mammals

But, did the refuges **improve the persistence** of small mammals?

# Summary

Used preferentially by:
1. skinks
2. white-browed scrubwrens
3. fairy wrens
4. buttonquails

Not preferred by mammals

But, did the refuges **improve the persistence** of small mammals?

Doesn't look like it at this stage

# Summary

Used preferentially by:
1. skinks
2. white-browed scrubwrens
3. fairy wrens
4. buttonquails

Not preferred by mammals

But, did the refuges **improve the persistence** of small mammals?

Doesn't look like it at this stage

# Project contributors