

# Guide for tracking tunnel monitoring in narrow coastal habitats

Moniqua Nelson-Tunley

Coastal Restoration Trust of New Zealand

## Introduction

Tracking tunnels are a frequently used tool for monitoring pest mammals and small native animals in New Zealand.

Pros	Cons
Low disturbance (don't require animal capture) for native animals. Therefore, do not require a Wildlife Act Authority ("permit") to capture and handle protected wildlife.	Don't capture or kill pest animals
Low risk to wildlife.	Cards can be hard to read in areas with high rodent or snail/slug populations
Can record more than the target species	Smudged tracks can be hard to read
Relatively low person-hours required	Cards have limited shelf life
Relatively low cost	Tunnels are usually non-biodegradable
Easy to learn how to set-up monitoring lines and read cards	Difficult to identify species of lizards and insects. Also can't tell sex of most species. May require additional forms of monitoring to discover more information.
Repeatable and comparable if using a standardised method	Not effective for arboreal species and limited effect for flying species.
Effective for monitoring cryptic animals	
Effective at low population densities	

Given this list of pros and cons, tracking tunnels are a suitable method of preliminary fauna monitoring in duneland environments. Detection of lizards might prompt need for an additional form of monitoring, such as passive observation & photography. Any monitoring method for lizards that involves capture or disturbance will require a Wildlife Act Authority ("Permit") from the Department of Conservation.

## Method

- Tracking tunnels are most effective in fine weather, from late spring to early autumn. Plan ahead so when the tracking tunnels are placed, the forecast indicates mostly fine weather for the following week. Also, place all tracking tunnels on the same day and ensure you are able to collect them around the same time the following week.
- Place tracking tunnels 50m apart in a transect along the dune. On dunes wider than 50m, multiple parallel transects can be used. If using a single transect, lay it roughly along the middle of the dune (i.e. half-way between the dune toe and the landward edge of dune vegetation).

- It may be necessary to peg the tracking tunnel down using weed matt staples or similar, especially in high-wind sites.
- Mark the location so it's easier to find for retrieval. Marking options include GPS, flagging tape, or bamboo stakes.
- On the tracking card, fill out all details except date retrieved. Use a pencil. The most important details are location and date placed.
- Place tracking cards within tracking tunnels on the same day, at approximately the same time. Leave tracking tunnels without any form of lure initially.
- After a full week retrieve the first set of tracking cards. Record date retrieved as they are collected. Any cards that have no tracks on them can be reused as long as the ink is still sticky- be sure to record blank cards as well as tracked cards.
- Place a teaspoon-full of crunchy peanut butter in a milk bottle lid and place this in the centre of a new tracking card (i.e. on the inked portion). Slide the new tracking card into the tunnel carefully so the milk bottle lid doesn't shift.
- Leave tracking tunnels and cards in place for a further 24 hours, then retrieve.

## Cautions

- Try to minimise trampling of vegetation while monitoring. If intending to monitor long-term, be aware that repeated walking of the route is likely to create a track. This may encourage pests to follow the track, so your results might end up skewed. This can be mitigated by trapping along track or by reducing track formation (i.e. monitor only once or twice a year or move the monitoring line).
- If your site is open to the public, expect people to be curious. You may have to hide the tunnels, or place signs on the tunnels explaining their purpose. Well-meaning members of the public will sometimes collect up monitoring equipment and place it by the rubbish bins or take it home.
- Wind and water can be an issue with tracking tunnels. Peg down if exposed to the wind and place in the lee side of vegetation when possible. Try to place tunnels flat so they don't channel rainwater.

## Track identification

There are several good online resources for identifying pest mammal tracks;

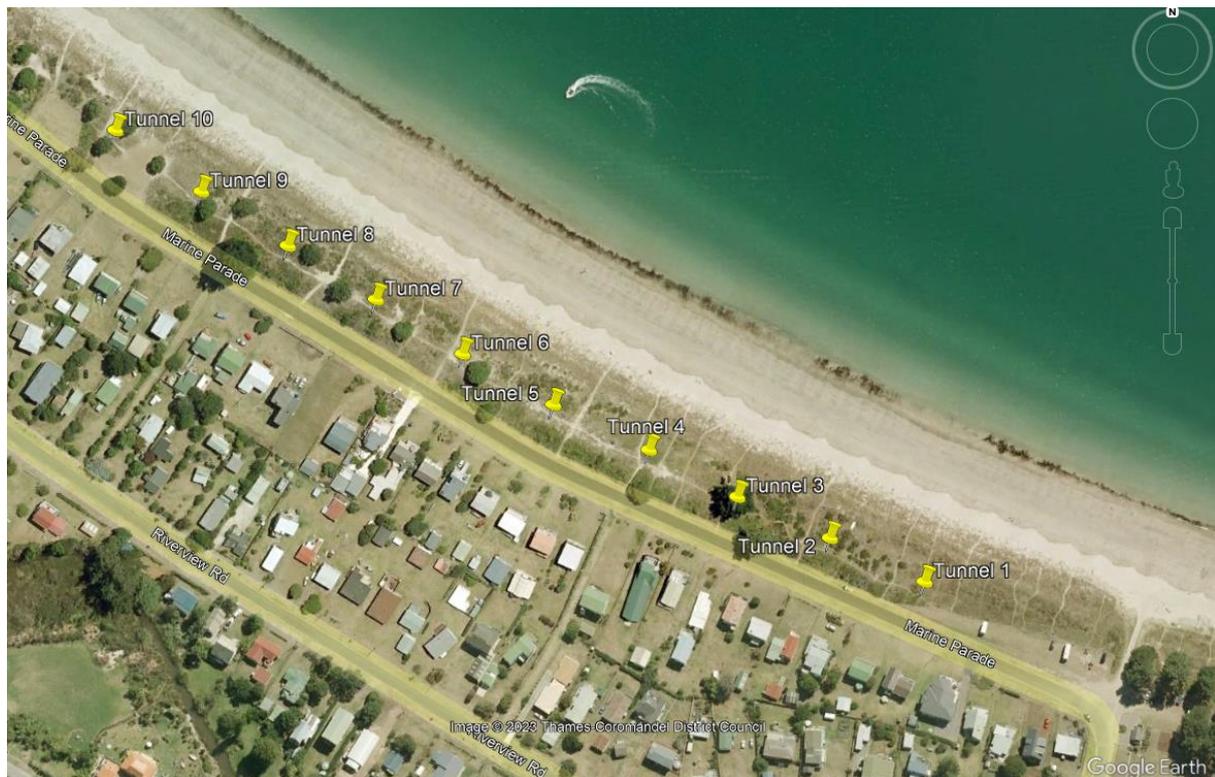
- <https://www.doc.govt.nz/globalassets/documents/our-work/predator-free-2050/a-short-guide-to-identifying-footprints-on-tracking-tunnel-papers.pdf>
- <https://www.pestdetective.org.nz/clues/footprints-and-tracks/>
- <https://www.nztracker.org/>

## Materials sources

- <https://gotchatraps.co.nz/orders/>
- <https://www.traps.co.nz/tracking-tunnel-with-card>
- <https://shop.predatorfreenz.org/products/10-black-trakka-tunnels-10-inked-cards>
- <https://keyindustries.co.nz/View-A-Product/ID/353#ProductRange>

## Further reading

- <https://srarnz.com/lizards-conservation-toolkit/>
- <https://newzealandecology.org/nzje/3478.pdf>
- <https://www.doc.govt.nz/Documents/science-and-technical/inventory-monitoring/im-toolbox-animal-pests-using-tracking-tunnels-to-monitor-rodents-and-mustelids.pdf>
- <https://predatorfreenz.org/toolkits/is-your-predator-control-working/how-to-monitor-lizards-frogs-and-tuatara/>
- <https://predatorfreenz.org/toolkits/know-your-target-predators/tracking-cards-and-tunnels/>
- <https://www.doc.govt.nz/our-work/biodiversity-inventory-and-monitoring/herpetofauna/>



Tracking tunnel layout example