FORMAK Pest Animal Transect
Whakawhaaititanga Kararehe Orota
Planning Instruction

Overview

Why do it?

- To allow trends in relative numbers of a variety of animal pests to be tracked over time.
- To help identify the relative abundance of pest animals under current management, and trends in relative abundance with changes in management or changes in environmental conditions.

What's involved?

- Establishing permanently marked animal pest transect (s) on the site.
- Making and laying out wax blocks on the site and leaving them for 2 nights.
- Identifying the presence of animal faecal pellets in plots around wax blocks.
- Identifying numbers of wax blocks chewed by different animals.

How long?

- One hour to make blocks
- Four – six hours to set them out, depending on the site.
- Three – five hours to pick up blocks.

How often?

- Transect should be done at least once a year in March. This is when rodents are likely to be at their peak.
- Ideally the transect should also be repeated in September. This is when rodents are likely to be at their lowest, and gives an indication of the base number likely to be present at the time of bird breeding.

Equipment Checklist

- ☐ FORMAK Field Instruction
- ☐ FORMAK Visual Guide
- ☐ FORMAK Header Guide
- ☐ FORMAK Pest Animal Transect Form
- ☐ 50 wax blocks (see Appendix – Making Wax Blocks).
- ☐ GPS (optional – but use it if you have one)
- ☐ NZMS 260 series map of the area.
- ☐ Aerial Photograph – if available
- ☐ Clipboard
- ☐ Measuring pole (or 1m measuring stick)
- ☐ Pencils
- ☐ Rubber
- ☐ Compass
- ☐ Location markers
- ☐ Flagging Tape
- ☐ Permanent marker pen
- ☐ Hammer
- ☐ Nails (60mm galvanised flat head)

Skills

- Basic skills in identification of teeth marks and animal faecal pellets. Guidance for identification of these is provided in the FORMAK Visual Guide.

How many people?

- Can be comfortably done with a one person.

- Two people makes the job slightly easier as one person can record while the other is laying out blocks and assessing for faecal pellets.

Measure / Re-measure

- Measurements are undertaken at least once a year (in March), but commonly twice a year (in March and September).
- If this is a new measurement, you will need to work through all the steps below.
- If it is a re-measurement, steps around defining the sample size and location of the pest transect will already be determined.

Planning - Before you go out into the field

Sampling

- This kit is designed to look at general trends from ongoing regular measurements. It is not generally intended to provide precise estimates of relative pest numbers to look at differences between two measurements.
- The pest assessment is undertaken on a transect, with wax blocks at approximately 20m spacing along this transect. A total of 50 wax blocks are laid out in this way. This gives a total transect length of approximately 1km.
- The layout of the transect will depend on the size and shape of the site being assessed.
- On a large site, a single continuous transect may be possible.
- On smaller sites it will not be possible to fit the full length of the transect in a forest area. On some of these sites, the transect may be broken into a number of shorter lengths that can fit across the site. These individual transects across the site should be kept a minimum of 100m apart. On very small sites it will not be possible to fit the full 50 blocks within the site. In these cases, the maximum possible at 100m spacing between transects and 20m spacing between blocks is used (see case studies).

Transect location

- Transects should be located where they are representative of the site, but also easy to access and re-locate.
- Transects are generally on a fixed compass bearing across the site. If this is not possible due to difficult access some other form of location may be required. This can include locating blocks adjacent to an access track or on an easily accessed spur. However, in these situations the transect may not be representative of the site. The same location is used for re-measurements. Trends identified may not necessarily be representative of the site as a whole.
- A good option, if possible, is to combine the transect locations with vegetation plot locations and/or to have bird count stations. This option has the advantage of simplifying location and marking and also potentially providing a greater ability to relate the results of different FORMAK modules at one site.
- If pest animal transects are in the same location as vegetation plots, make sure you keep out of the area of the vegetation plot. This is important to avoid trampling or other damage to the understorey affecting vegetation plot results.

- Identify the planned location of transects on a map and aerial photo prior to fieldwork (see case studies). In some cases this locations may have to be adjusted in the field to allow more practical access.
- Wax blocks are at 20m intervals, paced out along the transect.
- A location marker is nailed to the nearest sound tree, at least every 5th block (100m) to aid re-location of the transect.

Read field instruction

- Read the field instruction for pest animal transects and make sure you are familiar with and understand the requirements.

Check background information

This will include:

- Previous Pest Animal Transect Forms
- Information from talking to previous assessors about the site.
- Information from talking to owners / managers if separate from measurer. This may provide information on key issues or changes (e.g. changes in management, casual observations of changes in pest sign etc).

Weather

- Check the weather forecast to make sure there is settled weather that will give two fine nights for running the transect.

Bush Safety

- Refer to the NZ Mountain Safety Council (NZMC) leaflet "Going Bush" and check you are prepared at a level appropriate for the monitoring trip.
- Make sure you leave details of where you are going, and when you will be back with a responsible person (see the NZMC Help Form).

Case Study 1 - A small forest remnant

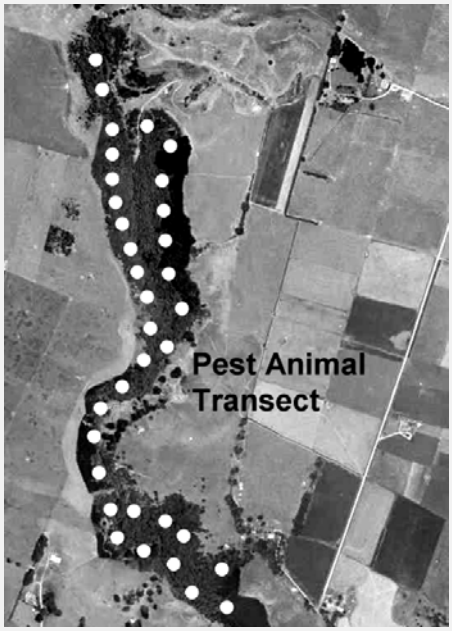
A landowner is fencing a small forest remnant of approximately 2 hectares in a rough gully on the property. They will also be undertaking knock down control of possums using traps, followed by the use of bait stations to maintain low possum levels. They understand the bait stations will also reduce rat numbers. They are interested in setting up a FORMAK Pest Animal Transect to look at broad trends over time in possum and rat populations in the remnant. They have completed a FORMAK Site Assessment of the area and are now ready to plan their pest animal transect.

The area is small and is a narrow, broken gully, so laying out wax blocks on a fixed bearing line will not be practical. Because the area is small, it will may not be possible to fit the entire 50 blocks into the site. They decide that the most practical way to lay out the blocks will be to start on the boundary at the gate nearest to the house. They will walk along the boundary. Every 20 paces, they will walk into the site 20 paces at right angles to the boundary fence. There are a couple of points where steep cliffs come close to the boundary fence. At these points, they will have to either put the wax block closer to the boundary fence, or one side or other of the cliff. They will make this decision in the field, and clearly note it on the field form.

So the site will have wax blocks approximately ever 20m, located 20m in from the boundary fence. This block layout will be repeated every time the pest animal transect is re-measured. They decide

that it will be best to run out the pest animal transect twice a year, in March and in September.

When the first assessment comes around in March, they keep a watch on the weather forecast. When a patch of fine weather that will give at least two fine nights comes along, they get the equipment ready to lay out the pest animal transect. They lay out the transect the next afternoon.



Case Study 2 – A FORMAK Site in a Large Forest Area

A community group is interested in undertaking some intensive control of possums and mustelids (stoats, ferrets and weasels) on some easier, more accessible faces of a larger native forest block.

They wish to get an indication of the current condition of the area and begin to monitor broad trends on the site over a number of years as they continue with the control.

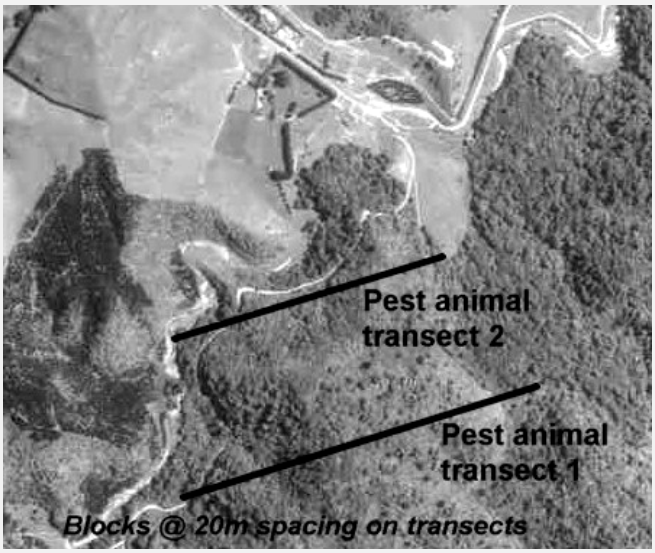
They have identified a FORMAK site and undertaken a site assessment. They have also established vegetation plots and bird counts on bearing lines that run across the site (see FORMAK Vegetation Plot & FORMAK Bird Count – Planning Instructions (case studies)). The site is approximately 25 hectares. They are all volunteers and don't have much time for monitoring on top of all the effort that they are putting into animal control. They decide that they would like to do the a FORMAK Pest Animal Transect on the site twice a year, in March and September.

For ease of access and location, and so the transect is potentially more directly comparable with other data they are collecting, they decide to locate the transect on the same lines they have used for vegetation plots and bird counts.

In accordance with the Planning Instruction, wax blocks will be laid out a 20m intervals along these lines. Using both bearing lines that have been established across the site, the entire 50 blocks will be laid out.

There first measurement time comes around in March. They keep a watch on the weather forecast. When a patch of fine weather that will give at least two fine nights comes along, they get

the equipment ready to lay out the pest animal transect. After the usual bush safety checks, and leaving a help form with a partner, they lay out the transect the next afternoon, and collect up the wax blocks 2 days later.



APPENDIX: Making Wax Blocks

You will need:

- □ An old pot that holds at least 2 litres
- □ A pouring jug that will hold around 500ml – 1 litre.
- □ Parafin wax. Aproximately 0.75 kg of wax is required to make 50 wax blocks.
- □ Wooden ice block sticks
- □ Plastic ice block trays
- □ Wax dye (hot pink or orange) – approximately 1 flat teaspoon per 500m of wax.
- □ Aniseed oil – approximately 1 teaspoon per 500ml of wax.

Note: Parafin wax and wax dye can be obtained in bulk from:
National Candles
PO Box 6024, Wellington
Ph 04 384 6806

An alternative for smaller quantities is to use household candles and colour the melted wax with wax crayons.

Warning:
Be very careful in handling hot wax, in particular:

- Melt it on a low heat – and watch to ensure it does not overheat.
- Keep small children away.
- Always pour away from yourself.

Note: keep wax away from your sink - never put surplus melted wax down the drain – it sets and blocks the drain!

Instructions

1. Melt wax in an old pot on a low heat. Approximately 750ml of wax is required to produce 50 wax blocks.
2. Add wax dye and stir
3. Once colour is well mixed, tip the wax into the pouring jug.
4. Add Aniseed oil
5. Stir well
6. Poor the wax into the ice block trays so that each compartment is almost full, but the wax does not flow across between compartments.
7. Leave the wax to cool at room temperature for approximately 30 minutes.
8. Insert an ice block stick upright in each block.
9. The surface of the wax should have solidified enough to hold the stick upright, but there should be a small spurt of molten wax from inside the block when you insert the stick.
10. Leave over night to fully set.
11. Run hot water over the back of the trays to make removal easier.
12. Push the blocks out of the trays by pushing directly downward on each block with your thumbs. *Don't bend the trays to get the blocks out* – this tends to crack the edges of the blocks and can make identification of teeth marks more difficult.