

GOODNATURE A24 MECHANICAL RELIABILITY PROJECT REPORT



Project Summary

The mechanical reliability project was established within the Harts Hill rat control project with the objective to measure the gas use and mechanical reliability of the Goodnature A24 self-resetting trap during operational use over the 6 month period between CO₂ replacements.

In November 2014 a network of 467 Goodnature A24 rat traps was established over 200 hectares of beech forest at Harts Hill, Kepler Track, Fiordland National Park to control rats during the widely publicised beech mast/rat plague event. The A24 traps successfully reduced the rat population from a pre-treatment rat index of 68% to 0% within twelve weeks and then sustained this at 0% for the remainder of the project. 52 of these traps were allocated to this detailed mechanical reliability assessment. The gas use of each trap was accurately measured at the recommended 6 month CO₂ canister replacement round. All traps were functioning and had an average of 9.49 grams CO₂ remaining. All traps were test fired after CO₂ replacement with 100% success across all 52 traps.

The A24 traps were measured to be mechanically reliable. All traps had CO₂ remaining at the 6 month gas use assessment.

Project Objective

This project was set up to evaluate the CO₂ use and mechanical reliability of the Goodnature A24 self-resetting trap in an operational setting over the 6 month period between CO₂ canister replacements.

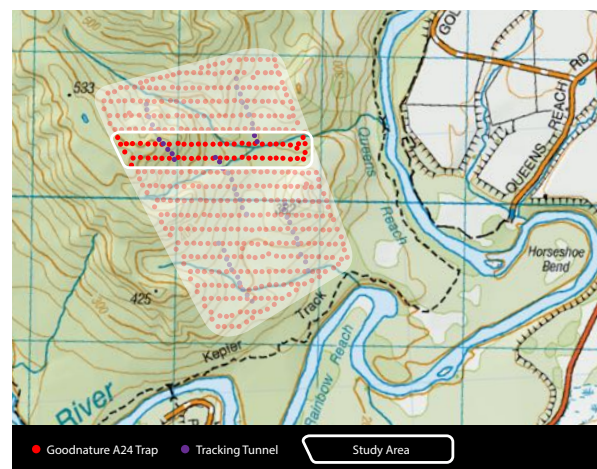
Project Design

The network at Harts Hill was established using DOC current best practice guidelines for ground-based rat control with trap lines 100m apart with traps at 50m intervals on the lines.

Two trap lines (M and N) consisting of 52 traps out of 467 were allocated to this reliability study.

All traps were maintained to manufacturers recommendations - lure refreshed every 4 weeks and CO₂ replaced every 6 months.

Each trap was test-fired during each 4 weekly lure refreshment to identify any traps that had used all available CO₂. None were identified during the 6 month project.



Harts Hill, Kepler Track

-45.48, 167.67

Dates: November 2014 - ongoing

Traps: 52 (of 467 network) Goodnature A24 rat & stoat traps

Maintenance Schedule: Lure refreshed every 4 weeks, CO₂ replaced every 6 months. Traps fired once at each 4 weekly lure refreshment round.

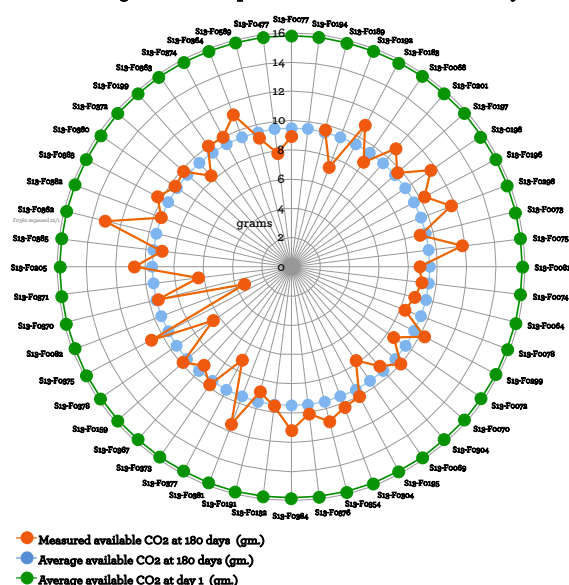
Monitoring Events: Once at 6 months.

Monitoring Method: Every trap was weighed to 1/100 of a gram to establish the remaining CO₂.

Each trap was test-fired and observed after installing new CO₂ canister.

Results

Harts Hill gas use sample data: Lines M and N. May 2015



Objective achieved: Yes

Average available CO₂ on establishment:

Nov 2014 **15.9 grams**

Average CO₂ remaining at 6 months:

May 2015 **9.49 grams**

Max/min CO₂ remaining at 6 months:

Min **3.4 grams**

Max **11.8 grams**

NB. A24 average CO₂ use per kill 0.52 grams

Percentage A24s used all available CO₂:

May 2015 **0%**

Percentage A24s which successfully re-gassed

May 2015 **100%**

Highlights/Learnings

The CO₂ available in the A24 traps at this trap layout density was enough to reduce a beech mast/plague event population of rats from 68% pre-treatment to 0% and sustain it at 0% out to the 6 month CO₂ replacement.

As well as reducing the rat population within the project area, other pests including stoats and mice were observed killed by the A24s without exhausting the available CO₂.

The project was established and managed by a range of operators, including volunteers, confirming the ability for volunteers to establish a mechanically reliable and effective network using the A24s in accordance with the manufacturer's recommendations.

References



www.goodnature.co.nz

Goodnature A24 rat & stoat trap

Acknowledgements

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