A NEW AUTOMATED BAIT DELIVERY SYSTEM FOR WILDLIFE CONSERVATION MANAGEMENT

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THE PROBLEM

In New Zealand, native birds are easy prey for introduced ferrets, weasels, rats and particularly stoats.

Present methods of reducing numbers of stoats require frequent (weekly to monthly) and labour-intensive checking and resetting of traps or restocking of bait stations.

Conservation management would benefit greatly from a device that could deliver poisons or other bio-control agents for years at a time without requiring replenishment or maintenance, especially in remote areas.

THE SCENTINEL ®

The Scentinel® is an automated bait delivery system for mammalian pests. The version tested in this trial was designed for stoats and ferrets.

The Scentinel emits a scent lure at pre-programmed intervals (e.g. daily). When an animal of appropriate size enters the device, it silently dispenses a metered dose of fresh liquid or paste bait (typically 1 ml for stoats) from a sealed container.

Repeat visits by the same animal are discouraged by use of a time delay between dispensing events (30 minutes in this trial).

An integral data logger system records all Scentinel activity, and optionally can be linked to a radio transmitter for remote monitoring.

For protected species, vaccines or bio-markers can be delivered without intrusive handling.

The Scentinel (trial version pictured here) is safe to use in areas occupied by ground-feeding birds.

PRELIMINARY CONCLUSIONS

In a trial in southern New Zealand, Scentinels delivered on average 1.1 doses of non-toxic bait per trap night (total 261 per 240 trap-nights). Fenn tunnels, re-baited with eggs every 6 days, delivered only 0.08 baits (non-toxic eggs) per trap-night (Fig.1).

The experiment involved 20 Scentinels and 20 Philproof® Fenn tunnels of the same shape, placed in pairs at 1 km intervals (Fig. 2). Dispensing events recorded on the Scentinel loggers were accepted as valid only if daily inspection of footprint tracking papers showed a stoat had visited the device. Infrared video observations and radio-collar locations were also used to confirm the use of the Scentinels by stoats.

Scentinels failed to detect the stoat and deliver bait on only 5% (5 of 97) of those occasions on which tracking papers showed that a stoat had visited the device. In contrast, on 68% (38 of 56) of occasions on which a stoat visited Fenn tunnels, the bait had already been taken.

If Scentinels achieve their five year design life, the operating cost of stoat control programmes using Scentinels loaded with toxins should be less than 20% of the cost of conventional trapping and poisoning programmes.

Fig. 1. A: Mean number of Scentinels and Fenns visited per trap-night ($p<0.05$). **B**: Mean number of baits taken per trap-night ($p<0.01$). Error bars are SEM.

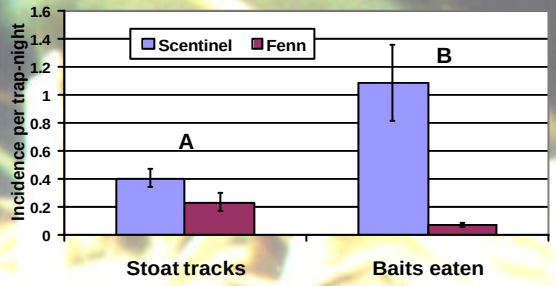
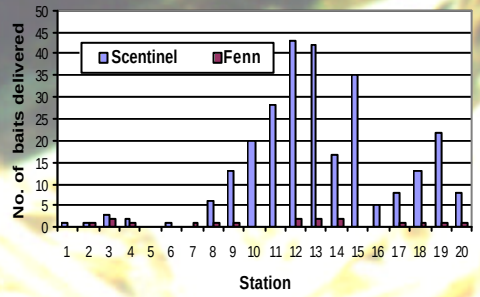


Fig. 2. Distribution of baits taken over 12 nights at Scentinel-Fenn paired stations 1km apart.



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