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Landcare Research

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Short webinars for environmental policy-makers and practitioners

Mice squeak through eradication attempt on Gough Island: what can we learn?

The following questions were asked during our live webinar with Araceli Samaniego but due to time restrictions, we were unable to answer these in the session.

For future aerial control operations, have you considered follow up with detector dogs - thinking about the million dollar mouse project on the Antipodes Islands. Perhaps too remote?

No, we haven't. Rodent eradications are different from eradications of larger mammals (cats, goats, pigs), which typically consist of a series of (baiting/hunting) events. Mopping up survivors is just not practical nor cost-effective for rodents. They breed too quickly. Rodent eradications need to be short, well defined, intensive operations. Best practice states there are only 2 potential results: success or failure. Dogs on Antipodes and other islands have been used to confirm eradication ~2 year post operation, not to mop up survivors. If a mouse had been detected by a dog, it would have indicated failure and a whole second attempt would have been organised.

Thanks Araceli. I may have missed it but did you do pre-feeding? If not, why not?

No, we didn't. We never do pre-feeding when we use brodifacoum (100's of projects). It is not necessary. For large projects it would create much extra work.

Will another eradication attempt on Gough be made? Is there a standdown period because of the bioaccumulation risk of brodifacoum?

Yes, RSPB plans to try again, but it will take time to raise funds again. No, there is no standdown period after a short period of brodifacoum use.

How many birds were you able to capture and protect in the aviculture areas, and do you know what % of each species' population that was? Also why were only those 2 species selected?

The avi team caught 84 moorhens (of a population of ~3000) and 100 buntings (of 1500). These species were the only ones considered at risk of primary poisoning (by eating bait) and/or secondary poisoning (by eating mice or invertebrates with toxin). The rest are seabirds that feed in the ocean, not on land.

Are they native slugs and millepedes?

No, they are introduced species. There are at least 3 species of introduced slugs on Gough.

Slugs significant issue in urban mouse projects also and would a prefeed contribute to success?

Yes, slugs can be an issue when bait stations are used. It was an issue during the Lord Howe Island rodent (mouse and rat) eradication. I was there. I don't see how prefeed would help - it would only create extra work. Availability, not palatability, is the problem.

Did you investigate any potential non-target rodenticide bait impacts to the nearshore, intertidal, and general nearby marine community?

No, but other projects have. The amount of bait that enters the marine environment is small. Brodifacoum is not soluble in water. After hundreds of projects with aerial brodifacoum all around the globe, there are no reports of significant impacts at the population level.

Did you determine if slugs were impacted by the toxin?

Invertebrates in general are not susceptible to anticoagulants because they don't have blood. Some species have been assessed -no negative impacts. On Gough, if anything, we created more slugs. They responded to the abundant food (rodent bait) and slug eggs were everywhere! Slugs in the lab showed no signs of negative impacts. Details in the paper, which is open access.

What is the conservation status of the slugs, and other invertebrates that might eat the toxin? Is there any option to include a non bio-magnifying slug repellent or slug toxin with a future attempt?

All the inverts that were evidently eating bait are introduced. Slug repellents are a tempting option but we need to make sure that that does not decrease bait palatability for mice. It's a good research topic.

Were bait availability studies run prior to the application of toxic bait - if so, was there any indication slugs were a potential non-target consumer?

Yes, bait availability trials were conducted. However, bait consumption was attributed to mice. Wanless et al. 2008 (Wildlife Research) concluded *'mice were responsible for eating the majority of bait, with loss to consumption by non-target species being relatively minor'*. As we explain in detail in the paper, one of the reasons for overlooking slug activity is that slugs are nocturnal.

To what degree did the terrestrial birds decline due to the op? Was aviculture necessary in hindsight?

Landbird populations declined during bait drop, moorhens by >90%, buntings by ~50%.