



Hard C

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A stormy dawn reaches the summit of Mt. Taranaki, Egmont National Park. A dormant volcano, Mt. Taranaki was born roughly 120,000 years ago, and slowly grew to a height of more than 2,700m. However, subsequent eruptions collapsed the summit and the cone nowadays measures 2,518m. Three aerial 1080 operations have been carried out over the park, and monitoring is showing the slow recovery of its montane forests.



Mt. Taranaki from a spur on Mt. Ruapehu at sunset.

Bill Fleury started out as a foot soldier in some of the earliest battles with pests. Nearly 30 years later, as Technical Support Manager at DOC's Wanganui Conservancy, he's still taking the fight to the possums. In that time, he says, only some things have become easier.

It's hard work on the front lines. That's how Bill Fleury remembers it. Freezing pre-dawn starts. Lots of mud. And green dye. Broken gear. Rotting vegetables. Picking stones out of carrot baits.

Fleury was there when it all began, in the mid-70s, as a Forest Service Ranger monitoring 1080 operations for what in those days went by the title of the Pest Destruction Council.

Wellington Conservancy oversaw some of the earliest aerial 1080 operations in the Haumakaroa Ranges in the central North Island, along the southern Wairarapa coast, and over the Haurangi Range.

"Operations back then were pretty well all carrot drops," he recalls. In those days, the work began

nearly a year out from the drop. "It was all very labour intensive, with lots of people involved; cutting and preparing the carrots and loading the helicopter.

"I remember they were very messy operations. Typically, there would have been two or three pre-feeds of non-toxic baits flown on before a massive drop of carrots at perhaps 20kgs to the hectare; more than four times what we'd use now."

In those days, he says, the rationale for possum control was purely economic. The animals had been proven to carry bovine tuberculosis, and the Pest Destruction Council was

determined to stop it spreading.

But Fleury was concerned about another cost. A series of photographs on his Wanganui office wall of the Pongatahi River in the southern Ruahine Range, taken between 1950 and 1974. The earliest photo shows a thick canopy of kamahi and rata then holes appear, until by 1960 it's looking decidedly threadbare. By the mid-70s, in the final photo, the forest is gone. The photo shows only greywacke terraces crumbling into the muddy river.

"We had something like 96 per cent forest collapse over the southern Ruahine range in less than 30 years," says Fleury.

Possums were let loose throughout Wanganui and Taranaki in the 1950s, more than 30 years after the Ruahine releases, but they peaked much sooner, thriving on the

region's rich diet of kamahi forest.

Fleury knew trouble was coming. Today he says, parts of Egmont National Park have completely lost their kamahi cover. "Now all we've got is tawa and rata; in fact a lot of

the rata have gone as well.

"That's why we identified Egmont as a priority area for possum control; to try and turn that around."

But it proved to be one of his toughest campaigns. The people of Taranaki didn't share Fleury's faith in 1080. They wrote letters to the editor, made threats, waved placards, damaged vehicles and mounted vigils outside the DOC office.

"It wasn't a very pleasant place to be," he recalls.

Nevertheless, in 1993 the drop went ahead; the first in a revolving cycle of operations now covering some 190,000ha

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of forest.

Fleury says public acceptance has increased with each subsequent operation, once they'd seen the results and accepted that a lot of the horror stories they'd heard about 1080 weren't going to eventuate.

He says it's crucial to make sure people have good information at their fingertips; to "Let them know what data we have about the impact on the forests of both the pests and the treatment."

Monitoring techniques such as the Foliar Browse Model have been refined, standardised and made more statistically robust to give an accurate picture of canopy health. Streams were tested, and the results were sent out in a flyer to every household.

"We've got a huge amount of good data on water monitoring," he says. "It's precise science. You can measure it down to 0.3 parts per billion – the equivalent of one second in a 100 years. Either 1080's there or it's not, and if you say that there's no 1080 in the water then it's very hard to argue that there is."

But Fleury says if it's certainty people want, he can't give it to them. "Because it's a biological system. It's never going to respond in the way that you want it to."

Regardless, he says, the forest around Egmont is now in much better condition, particularly possum favourites like mountain totara and mountain cedar.

It's one big cost-benefit exercise, a complex tension between urgency and expedience.

"We're always trying to maximise value from the funding," says Fleury. It's about knowing how long you can afford to leave the forest without protection, without letting the pests resurge to the point where you lose everything you've achieved.

To help him make such decisions, Fleury relies heavily on decades of research. "We knew from studies in the Orongorongo catchment near Wellington that once a possum population hits peak density, it's about another three years before serious forest damage occurs.

"We know it takes about five or six years for the possum population here to come back from an initial knockdown, so that gives us a three or four-year buffer before we need to re-treat."

Conservation dollars are hard fought and won, so Fleury economises wherever he can, like finding an optimum bait

sowing rate; the lowest possible to still get the job done.

To that end, he's brought densities down from five to three kilograms a hectare, and taken advantage of global positioning satellite technology to place those baits more accurately.

"If you can get complete coverage, you're putting a bait in front of every possum," he says. But Wanganui's deeply riven topography means that even aerial coverage is still not 100 per cent. "The terrain isn't a flat table. That's why some possums survive."

But he's encouraged by the data that's starting to come through.

"Something that's become evident over the last few years is the benefit to bird populations," he says. "We're not just taking out possums; we're taking out rats and stoats and that can be planned for."

It's all in the timing. If an airdrop coincides with the breeding season of birds like kiwi, tui, bellbird, kereru, robin and rifleman, they can safely raise two or even three broods in the respite bought for them by 1080.

"Normally, robins lose virtually all their chicks to rats," says Fleury. "If we can take the rats out of the equation, they can quickly produce a lot of new chicks to rebuild the population. You're also reducing the chances of females being killed on the nest."

Fleury's comfortable with using 1080 around small birds, and questions claims that it depletes species like robins and tomtits. He accepts that some early operations had atypically high impacts on some species, especially when carrot baits with raspberry lures were used. "But in terms of run-of-the-mill operations, the losses are very low.

"When we monitor the bigger, radio-tracked birds like kiwi and kaka, the losses are absolutely minor. The methods that we have for monitoring populations of tomtits and robins – distance sampling and territory mapping – show that losses are no more than what we'd expect in a normal season anyway."

But in the end, he says, it's important not to oversell 1080's ability to turn the tide. While we're able to halt - and in some cases reverse – forest destruction by possums, it will never be a permanent solution. "We're in a holding pattern. All that's happening is that we're not losing species.

"We can take the browsers and predators out for a season, but next year they're back – with a vengeance."



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