FACTSHEET

1080
killing pests and saving forests

FOREST & BIRD

Damage to native fuchsia caused by possum browsing.

PHOTO: Manawatu Wanganui Regional Council

9 weeks of vegetation recovery after a successful 1080 aerial operation.

Allowing native birds and forests to flourish once more

Introduced pests such as possums, deer, stoats and rats pose the single biggest threat to our native forests and wildlife, many of which are literally being eaten to extinction. Forest and Bird supports the continued use of 1080 in New Zealand's forests as it is currently the best available tool for significantly reducing pest numbers and allowing native forests, birds, and invertebrates to thrive once more.

Until equally effective pest control methods are found, using a poison that breaks down readily in the environment is a small price to pay for ensuring the survival of our precious native flora and fauna. Myths about the use of 1080 and its effects on native birds and the environment are jeopardising the Department of Conservation and regional councils' ability to keep using this poison. This fact sheet explains the impacts of 1080 and why it is important for conservation in New Zealand.

What is 1080?

1080 (sodium monofluoroacetate) is a pesticide that is used in New Zealand to kill possums and reduce the devastating impacts these pests have on native forests and wildlife. 1080 occurs naturally as a toxin called fluoroacetate found in plants in South Africa, South America and Australia – it is thought to have evolved as a deterrent to browsing animals.[1] 1080 is manufactured synthetically and has been the key means of controlling mammal pests in New Zealand since the late 1950s. Soil micro-organisms and water break 1080 down harmlessly into salt and vinegar. When used properly, 1080 is a safe and humane way to reduce pest animal numbers and protect our native forests and birds.

Why 1080 is so important for pest management in New Zealand

New Zealand is in a unique position. Our flora and fauna evolved for 80 million years with no browsing or predatory mammals at all, so they have not developed any natural defence mechanisms against these animals. This has made our natural environment easy 'prey' for possums, deer, goats, rats and mustelids such as stoats and ferrets. New Zealand has a high number of species, particularly birds, that are found nowhere else in the world, giving us an international responsibility to prevent their extinction.

Only 2% of vegetated areas of mainland New Zealand are possum-free.[2] New Zealand has tens of millions of brushtail possums, which eat in excess of seven million tonnes of vegetation each year, causing major damage to the forest canopy. Rata, kamahi, pohutukawa, mistletoe and fuchsia are particularly badly affected. Being omnivores, possums also eat birds, chicks, birds' eggs, and insects such as *Powelliphanta* (giant land snails), as well as consuming berries and other native bird food sources. Possums have been reported killing adult birds such as kokako, kukupa, and kaka. They also eat large amounts of pasture grass and are carriers of bovine Tb, which infects livestock and is a major concern for farmers.

[1] See http://www.doc.govt.nz/Conservation/002~Animal-Pests/Possums/Possum-Control-(Facts-About-1080).asp.
[2] See http://www.doc.govt.nz/Conservation/Biosecurity/Devastating-Immigrants.asp.

1080 and the environment

1080 is biodegradeable, so it does not remain in the soil or waterways. Most 1080 operations are done in winter and spring – seasons in which wet conditions help the poison to break down. Areas within 50 metres of a waterway are not allowed to be treated with 1080. Water monitoring programmes have shown that 1080 cannot be found at detectable levels in nearby streams and rivers.[3] The Wellington Regional Council regularly monitors water samples after 1080 operations and has never found any traces of the poison.

Research has shown that there is no danger to people drinking water in areas treated with 1080 – an average-sized person could drink tens of litres of heavily contaminated water with no ill effects.[4] However, 1080 drops are done under strict conditions from the Ministry of Health to protect public safety. Pollard 1080 baits are coloured green so they are easily recognisable and signage is used to warn people about areas that have been treated.

The effects of 1080 on native birds

Because 1080 operations dramatically reduce possum numbers and often kill stoats, rats and deer, they allow native bird populations to recover and then thrive. Research has shown that the nesting success of kereru, tomtits and robins improves considerably following aerial 1080 operations. For example, after 1080 treatment in Pureora Forest, twice as many robins nested successfully as those outside the affected area. Within a year the robin population had increased by 37%, compared to only a 16% increase in the untreated area. Thus, despite some individual birds being killed, the increase in breeding success allows bird populations to bounce back and increase rapidly. The recovery of forest vegetation after possums are killed means nectar, berries and other food sources increase, benefiting bird life.

Some native birds have occasionally been found dead after 1080 operations, including weka, rifleman, whitehead, and grey warbler. Far fewer native birds are killed than in the past because the 1080 baits have been improved. Pollard baits are designed not to break down into small particles that birds are more likely to eat. They are also flavoured with cinnamon and coloured green, which makes them less attractive to birds and more enticing for possums. No kiwi, kakariki or falcons have been found dead after 1080 operations. Far more native birds are killed by possums, rats and stoats than by 1080.

How 1080 affects other animals

1080 poisoning is a humane way to kill mammalian pests – it causes herbivores to die quietly from heart failure. It is particularly toxic for dogs and cats, which suffer from convulsions before dying. Dogs can also be poisoned if they eat the carcass of a dead animal (such as a possum or rabbit) that has been killed by 1080. Local vets are advised before 1080 drops are carried out and dog owners are warned to stay away from treated areas, or to muzzle their pet.

Sometimes feral deer are killed by 1080 operations. Deer are a major conservation pest in New Zealand. They eat out the under-storey of forests preventing regrowth and sometimes, in combination with possums, cause whole forests to collapse. More needs to be done to reduce deer numbers in our native forests – techniques can be used to increase the number of deer killed by 1080 operations. Stoats, the main predators of kiwi and kaka, are also killed by 1080 through secondary poisoning (for example, from eating poisoned rats).[5]

How 1080 compares with other pest control methods

1080 is currently the safest, most cost-efficient and effective way to reduce possum numbers. It is the least toxic bait method, kills the smallest number of native birds and allows pest control to be done over large areas of rugged terrain that is otherwise inaccessible. Aerial drops of 1080 from helicopters are done with GPS navigational computers which ensure that the correct areas are targeted. Research into the effectiveness of 1080 and the development of more accurate aerial dispersal systems, mean that nearly 90% less 1080 is dropped now than in the 1970s.

Cyanide kills possums but is highly toxic and has killed a significant number of kiwi, as well as people. Brodifacoum (Talon) causes internal bleeding in mammals and death within 24 hours, but it is not water-soluble and can take three months to break down. Trapping has killed or injured large numbers of weka and kiwi, even in Timms traps – this risk can be avoided by placing traps above the ground.

Bounties and markets for possum products do not provide an incentive for killing possums in large enough numbers to have significant conservation benefits. Commercial hunters focus on easily accessible areas where there are high densities of possums, usually reducing the population by less than 50% before moving on to other areas where possums are plentiful. This level of control is not sufficient to achieve conservation and Tb eradication goals.

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[3] 'Effects on water quality of a possum (*Trichosurus vulpecula*) poisoning operation using 1080 (sodium monofluoroacetate)', by Diederik Meenken and Charles T. Eason, in *New Zealand Journal of Marine and Freshwater Research*, 1995; Vol. 29, 25-28.

[4] See http://www.wrc.govt.nz/lm/poison.htm.

[5] 'Secondary poisoning of stoats after an aerial 1080 poison operation in Pureora Forest, New Zealand', in *New Zealand Journal of Ecology*, Vol. 23, No. 2, 1999, pp.175-182.

For more information

Contact your local regional council or the Department of Conservation if you would like to know more about the use of 1080.

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