



1080

Facts and Frequently Asked Pātai



**RAUKŪMARA
PAE MAUNGA**

www.raukumara.org.nz/1080

1080 FACTS

1080 is sodium fluoroacetate, the **salt form of a naturally-occurring plant toxin**. 1080 is made by adding salt to fluoroacetate because salt dissolves well in water.

When 1080 meets water (in a river, stream or just on damp ground), the fluoroacetate **leaches out very fast** so **bacteria in the environment can start to break it down** immediately.

Fluoroacetate occurs naturally in tea, puha and around 40 other plants.

Plants produce fluoroacetate to protect themselves from being eaten by animals. **Naturally-occurring fluoroacetate in plants is totally harmless to humans.**

First reported as an effective means of rat control in 1942

Although it was studied as a chemical for years earlier, sodium fluoroacetate was first reported as an effective way to control rats in 1942.

The name '1080' comes from the catalogue number of the chemical.

1080 is now one of **the most well-researched toxins of all time**. First trialed in Aotearoa in 1954, 1080 was in widespread use here by the late 1950s.

1080 is a very effective tool to control land-based predator mammals such as rats, stoats, possums, ferrets, etc. This makes 1080 particularly **well-suited to our conditions** because we are one of the very few countries that have no native land-based mammals (only bats, whales, dolphins, seals and sea lions).





A native tree, killed through being stripped of bark by deer

DAMAGE CAUSED BY INTRODUCED PESTS: DEER

Our ngahere is so over-run with introduced pests, it is now on the brink of ecological collapse.

Deer have done **unprecedented damage to the understory** of te Raukūmara. So much of the understory has been eaten that in many places, **none is left** at all.

Understory that is not eaten is trampled. New understory growth is trampled before it can become established.

Deer are now a victim of their own success. They have destroyed their preferred food source - the understory - to such an extent that many are starving. Hungry deer are turning to eating the bark off trees. Eating bark is not healthy for the deer. Having their bark eaten by deer is a **death sentence for most trees**.

The interior of the ngahere is now filled with **countless dead native trees** that have been skinned alive by starving deer. Our native trees can take centuries to reach full maturity. These **taonga are irreplaceable and their loss is a tragedy**.



A possum scavenges an egg at a kereru nest

(C) Nga Manu images

DAMAGE CAUSED BY INTRODUCED PESTS: POSSUMS

Possoms are destroying the forest canopy. This means sunlight can burn down on and dry out places that have been dark and damp for centuries. It means rainfall is not captured and dispersed at the top of the forest, leading to higher levels of water hitting the forest floor and greater likelihood of floods in places they wouldn't have occurred so often when the canopy was intact.

The lost canopy is drastically and quickly **changing the delicate balance of the ancient ecosystem** of the Raukūmara forest.

Possoms also significantly affect the life-cycle of trees and plants. They often select one tree and systematically strip it of leaves and buds. They feed on new shoots, making it harder for trees to recover from weather and insect damage, and slowing growth. By eating flowers, possums stop seeds from forming. **Many plants fail to regenerate under possum assault.**

Possoms **prey on forest birds** like kiwi, kererū and kōkako, eating eggs and chicks before they can grow. They also eat the high-energy fruit and flowers that nectar-feeding manu like tūī, kākā and bellbirds need, particularly in key seasons like when breeding.

Possoms have been known to take over the dens that kiwi and other ground-dwelling birds live in.

As a direct result of pressure from possums, stoats and rats, **many taonga manu species are now critically endangered or extinct** in parts of the Raukūmara.



Why are we using 1080?

1

The ngahere is on the edge of collapse right now. It may already be too late. Timing is critical, **there is no time to spare.**

2

1080 is **the quickest, most efficient tool** we have available with the greatest likelihood of being able to save the ngahere.

3

Nothing else will work quickly enough, or be as cost-efficient, or has any hope of being as successful.

WHY DON'T WE TRAP IN THE RAUKŪMARA?

Those of us who know, walk and love te Raukūmara know the majority of the terrain is incredibly steep, remote and dangerous.

Most of our ngahere is well-known for being **difficult** or even **impossible to access**, even for the most experienced bush men and women.

While trapping can and is done in some places, it would be **impossible to control pests in te Raukūmara using traps alone.**

Even if we could access all or even most of the Raukūmara, we would need an **unimaginable amount of people and traps.** Trapping is the **most expensive** form of pest control, and a **very slow** process.

Even if te Raukūmara was flat and we had thousands of trappers setting millions of traps, the process would take too long to have any hope of saving our ngahere.

1080 DECISION-MAKING PROCESS

Since at least 2018, the Raukūmara Pae Maunga team have been working across the Te Whānau-a-Apanui and Ngati Porou rohe to **help whānau**, hapū and iwi understand, ask pātai, wānanga the pros and cons, kōrero, discuss and **be part of the decision-making process** about whether to use 1080 on our land.

Countless hui, workshops, roadshows, presentations and other events have occurred, providing **multiple opportunities** for members of our communities with an interest in te Raukūmara to be involved in the decision-making process. These community engagement events are **ongoing and will remain a core element of our mahi** throughout the project.

Many of the Raukūmara Pae Maunga team started our journey skeptical about 1080, and some of us were strongly opposed. However as we have come to understand the urgency of the situation of our ngahere being on the brink of collapse, and question the accuracy and sources of what we now know is misinformation or disinformation about 1080, we have gained confidence in the safety of this tool. We have realized that **1080 is our only hope for a return of the mana and mauri of our ngahere**, to an abundance that hasn't been seen in te Raukūmara for generations.

This has been a process that has included **years of collaboration** with Te Papa Atawhai (the Department of Conservation), mahi with regional and local councils, expert independent and non-government organisations as well as countless well-informed individuals who have helped us to **consider the science, facts and evidence**.

Of course, we haven't just believed what we've been told. We have visited places where 1080 has been used because we wanted to **see for ourselves**.

Seeing the results of a 1080 application and talking directly to people in those communities helped us to be sure: **we want the return of an abundance of native birds and healthy forest** for te Raukūmara.



WHAT HAPPENS BEFORE 1080 OPERATIONS?

Once we decide to use 1080, plans for how to do so with **minimal impact on the community** and in a way that makes the operation as **safe and effective** as possible are put into place.

Plans are worked out with hunting clubs, land block owners and other stakeholders to **retain safe access to the ngahere** wherever possible through 1080 operations period.

All of those who rely on, use or need to access the area are informed. **Signs are put up** in the places the drop will occur, and **notification given** across a range of platforms including local newspapers.

Before the 1080 operation starts, a **huge amount of monitoring** and measurements are taken, so we can track progress. We test and record the quality of water in streams and rivers. The types, number and range of pest animals are estimated. We monitor and track the types, number and range of native species using a variety of tracking methods.

With the support of experts, most of this **mahi is done by our whānau**, not just those of us who are lucky and privileged to be kaimahi on this kaupapa, but anyone who is interested to learn, volunteer, upskill and support this **essential mahi for te taiao**.



WHAT HAPPENS DURING 1080 OPERATIONS?

A rāhui will be placed around the operations area and sometimes also in a buffer zone surrounding the area. The **rāhui will prohibit the hunting in and taking of meat** from the operations site.

Kurī must not be allowed into the operations area or buffer zone., as **carcasses pose extremely high risk** to kurī.

Immediately after the application, the quality of water in streams and rivers will be measured, including **repeated testing for 1080**. Notification of these results will be posted publicly.

The point of applying 1080 is to kill the largest amount of target predator animals as quickly and effectively as possible. This means **there will be a lot of carcasses** in the application area. Carcasses can be confronting so it is important to remember this is a **normal sign of a successful operation**.

Carcasses can appear in places outside the operations area if they are washed into waterways. It is important to stay vigilant for and to report carcasses if you see them. Carcasses will be monitored until scientists confirm they no longer pose any risk to kurī and the rāhui will be lifted.

RAHUI

Kua rahuitia te ngahere o te Raukūmara i te whakatakatoranga o te 1080. He tino morearea te 1080 ki nga kuri. Ki te pa atu, ka hemo. Kia haumarū ai o mokai, kōua e mauria atu ki ro ngahere kia hiki rano te rāhui.
Toitu te whenua, toitu te tangata!
Kia ora ai te Raukūmara, ka ora ai te iwi.

Rāhui is a kaiti commonly applied to restore, protect or conserve a particular species that people frequently utilise as a food resource.

For the safety of your whānau and pāke: **Hunting for meat to eat is prohibited.**

- Do not take dogs into the operations zone, or anywhere carcasses might end up.
- The rāhui will be lifted when it is safe to return.

Healthy land, healthy people.
When the Raukūmara thrives, we as a people will thrive.

CALL US Carcass Hotline

1080 has been applied within Raukūmara Block Two to manage invasive pests and restore the mauri of Raukūmara. A rāhui is now in place for at least four months. If you see carcasses anywhere, please call us so we can come and pick them up AGAP.

Ngati Porou: 027 370 8516
Te Whānau ā Apanui: 027 370 4356

Keep your kuri safe

Dogs that come into contact with 1080 may die. Please keep yourself and your dogs safe by adhering to the regulations of this rāhui. If your dog ingests 1080 pellets or a carcass eat fast - dogs can die within two hours:

- Symptoms are disorientation, restlessness, hyperactivity, aggression, running in circles, barking or howling for no reason, and sensitivity to touch.
- Get your kuri to a vet AGAP
- Make your dog vomit:
 - Put one or two crystals of laundry, dish washing powder or drops of liquid sodium carbonate down the dog's throat.
 - You can also use dog emetic pills or a teaspoon of table salt.

For more information visit:
www.raukumara.org.nz/1080

WHAT HAPPENS AFTER 1080 OPERATIONS?

- 1** The quality of water in streams and rivers is measured, including testing for 1080.
- 2** The types, number and range of pest animal carcasses is recorded.
- 3** The types, number and range of surviving pest animals is measured.
- 4** The types, number and range of native species is measured.



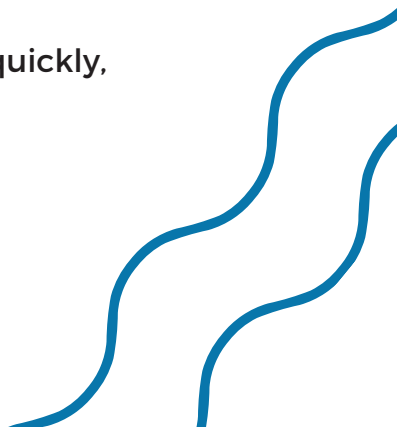



GENERAL PĀTAI

Why can't we use something more humane than 1080?

- 1080 kills introduced pests quickly and efficiently.
- Some consider 1080 more humane than trapping.
- Introduced pests like possums are slowly but effectively killing and replacing our native species. There is nothing “humane” about leaving our native taonga species to become extinct, to be simply prey for introduced predators. Instead of 'humane' considerations for introduced pests, we need to think of the ancient tōtara of the forest, being skinned alive by deer. Of the last eastern brown kiwi, calling for a mate who will never arrive. The huia and kōkākō, who no longer call in our rohe. And for our mokopuna who will never know the native species of our ngahere, only the introduced predators who have replaced them.

Why don't you consider alternatives to 1080?

- 1080 is an imperfect solution. As with all toxins, there is risk, especially to dogs. We are always looking for solutions, but there is nothing else available right now.
 - There are other options, such as Para-aminopropiophenone (aka PAPP) but this is not designed to replace 1080, just to compliment it, for example in urban areas where 1080 can't be used. PAPP is still under review as recent tests have found it more toxic to birds than first thought.
 - Mātauranga-based solutions are starting to emerge, such as the use of tutu. These are exciting and we support these developments in any way we can, however years of development are still required.
 - Biological controls are possible but not popular due to concerns about the ethics of genetically engineered viruses and/or bacteria.
 - 1080 is currently the best option to control introduced pests quickly, efficiently and at the scale required.
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1080 and water

- 1080 quickly becomes harmless in water.
- 1080 that falls into water is wasted, so aerial operations try to avoid this wherever possible.
- The salt in 1080 makes the toxin dissolve and break down very quickly in water. Three things happen:
 1. The 1080 dissolves quickly and is washed out of the pellet (even before the pellet breaks apart).
 2. The 1080 that washes out of the pellet becomes so diluted it is no longer toxic.
 3. Microorganisms and plants break down the diluted 1080 into non-toxic compounds.
- After 24 hours in water, 1080 is almost always undetectable.
- The Ministry of Health only allows 1080 in water at 2 parts per billion (approx. 3 pin heads of 1080 on an area the size of a football field - less than what would be found naturally in plants).

1080 and native fish and invertebrates

- Different studies looked at 1080 in invertebrates (caddisflies, mayflies, midges etc). All found that 1080 had no detectable impact on insects or aquatic invertebrates.
- Studies have confirmed 1080 in water does not affect native fish, eels or kōura. Not even if they are exposed to ten times the likely concentration rate after a 1080 drop. Not even after kōura have eaten 1080 pellets.
- The risk to humans from eating kōura that had consumed 1080 is almost non-existent. An average sized person would need to eat more than 40kg of tail flesh in one sitting to be harmed by any 1080 residue.



1080 and trout

- Fish have a different metabolism to rats, mice and possums. They are not affected by the same or even higher doses of 1080 than what would kill rats and possums.
- Researchers have tested the effect of 1080 on trout in both laboratories and in natural waterways and no effect on either the trout or the ecology of the test area was found. This research confirmed trout were safe to eat seven days after a 1080 operation.
- Trout are not attracted to 1080 pellets and there are no direct or anecdotal reports of trout being caught with 1080 in their gut. Trout swallow food whole, so would be unlikely to swallow a fresh, hard 1080 bait.
- Trout may eat mice or other rodents poisoned by 1080. Studies tested what might happen in this situation and used much higher levels of 1080 than would occur in any real life operation. The fish in the study did not display any changes in their behaviour and none died as a result. These trout did take up small amounts of 1080 in their flesh, which reduced over time as the 1080 broke down.
- MPI recommend not to eat trout caught in from waterways in a 1080 operation area for seven days after the application.



1080 and animal carcasses in water

Animals that are killed by 1080 poisoning and end up in water do not pose a threat to the quality of that water. As 1080 breaks down very fast in water, any 1080 in the dead animal will biodegrade very fast.

1080 and kuri

1080 is very dangerous for kuri.

- Kuri are unlikely to eat 1080 directly, but very likely to eat carcasses of animals killed by 1080.
- Kuri must be kept out of 1080 operations areas, buffer zones and away from any areas where carcasses of pest animals killed by 1080 might end up.
- If carcasses end up in waterways, they can move quite long distances from 1080 operations areas. Do not let dogs scavenge anywhere a carcass could end up.
- The rāhui will be lifted when the scientists monitoring decomposing carcasses confirm that there is no longer any risk to dogs in the area. This will be a minimum of four months but may take up to a year.



Keep your kuri safe

Keep dogs under control. Do not let kuri scavenge.
Keep kuri out of 1080 operations areas until the rāhui is lifted.

Check out maps on www.raukaumara.org.nz/1080



If you suspect 1080 poisoning:

Symptoms:

- disorientation
- restlessness
- hyperactivity
- aggression
- running in circles
- barking or howling for no reason
- sensitivity to touch.



What to do

1

Make the dog vomit by putting one or two crystals of laundry or dish washing powder or drops of liquid (sodium carbonate) down the dog's throat. You can also use dog emetic pills or a teaspoon of table salt.

2

Quickly get the dog to a vet. Treatment may be possible if you can get the dog to a vet very quickly. Call ahead to let them know you are on the way and let them know that you think your dog has 1080 poisoning.

1080 and deer

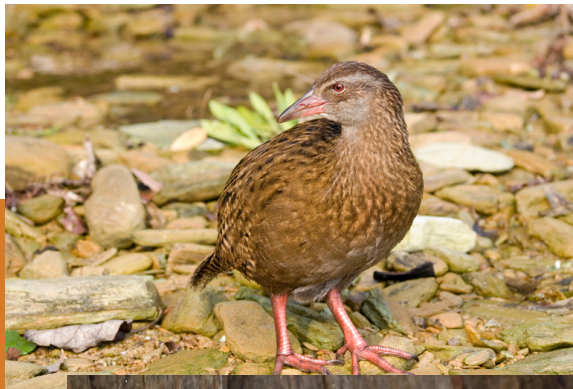
Deer caught within 1080 treatment sites or buffer zones within the rāhui period should not be eaten.

- Deer may be susceptible to 1080 poisoning, and there can be significant numbers of by-kill. It depends on the size of the conditions and operation, species, size and health of the animal, and whether the 1080 includes deer repellent, or not.
- Deer that are hungry due to having already destroyed their food sources such as the understory and young trees may be more likely to eat 1080 pellets. Deer may also be more likely to eat 1080 pellets where the understory has been destroyed, as the 1080 is easier for them to find.
- Usually, deer that eat 1080 pellets don't eat enough of it for it to harm them. Most 1080 will move through the deer's system very quickly and be excreted.
- Deer that wander out of a 1080 application area and/or buffer zone should not be hunted for meat while the rāhui is in place.
- Deer that eat 1080 pellets, wander out of an application area and buffer zone and into an unrestricted hunting area should not be eaten either. NB: it is unlikely any deer that does this has eaten enough 1080 to make the venison toxic. Deer that have eaten enough 1080 to die from it are likely to die very quickly and before they have the chance to travel long distances.
- Very low, non-toxic levels of 1080 have been found in some studies of deer bone marrow.



1080 and native birds

- Cinnamon flavour is used in 1080 to attract rats and possums who love the flavour, but repel birds, who hate it.
- 1080 is far less toxic to birds than mammals.
- Some native birds are susceptible (weka, robins, tomtits, kea, etc) to 1080 poisoning. Some native manu have been killed in previous 1080 operations.
- The very small number of individual native birds who might perish from 1080 poisoning is outweighed by the massive drop in predator numbers that has been proven effective in helping overall native bird populations flourish.
- Constant research goes into making 1080 less harmful to birds, such as reducing toxicity and looking for other ways to protect birds in 1080 treatment zones.



In places where 1080 has been applied, numbers of rare and endangered birds have been boosted, including mohua (yellowhead), whio (blue duck), kea, kaka, rock wren, South Island robin, ruru/morepork, grey warbler, karearea and kiwi.

1080 and traditional kai

The Raukūmara has been the food source of Te Whānau-a-Apanui and Ngati Porou since our tīpuna arrived. Traditional kai includes seeds, fruit and berries, kaimoana, fish, birds and other native flora and fauna. Much of this is now lost to us, or on the verge of extinction, or very hard to get. Many Māori from this area have never tasted the real traditional kai that was prevalent in the days of our great-grandparents.



- Deer, goats and pigs are not traditional kai sources. Deer have only been present in the Raukūmara since the 1950s. Many of our grandparents and great-grandparents would not have tasted venison until later in life.
- Many Māori rely on hunting in te Raukūmara for access to venison and pork for whānau and hapū or iwi-based catering. Hunted venison and pork has become an important source of protein, particularly as the protein we used to rely on in the form of native birds have become extinct and kaimoana and fish have become harder to access. When prices at the supermarket are too high for many whānau hunting has become even more important.

One goal of returning the mana and mauri of te Raukūmara is for it to become a source of traditional kai once again, from maunga to moana.

- We should know how to find, gather, hunt, cook and enjoy pūhā, korengo, pikopiko, kākā, tūi, and other kai our great-grandparents grew up with.
- We hope to return to a time when flocks of kererū fly overhead in their hundreds, darkening the sky, plenty to catch for the pot and share with whānau and manuhiri, as they did in the days of our tīpuna.

1080 and the food chain

- 1080 is biodegradable. It breaks down quickly and naturally into basic, safe elements that go back into the earth and don't harm the environment.
- Unlike other pesticides, 1080 doesn't accumulate in the environment or build up in the food chain because it's so easily diluted in water and detoxified naturally.
- The time 1080 takes to break down depends on the weather:
 - At temperatures between 10-20 degrees celcius, 1080 breaks down within two weeks.
 - At between 5 and 10 degree celcius, it takes a little longer.
 - In very cold and very dry conditions, 1080 may take a few months to completely biodegrade. These kind of conditions are very unusual in places like Raukūmara.

Rongoā Māori and 1080

1080 is a copy of fluoroacetate, a naturally-occurring compound found in plants. Some plants produce it to deter animals from eating them. This means plants don't easily take up 1080, and that 1080 doesn't build up inside plants. Research shows the longest time elements of 1080 can stay in a plant is around 38 days.

Studies into the impact of 1080 on taonga plant species important in rongoā Māori show 1080 does not damage the health-giving properties of plants or forests.

Tests on pikopiko showed it didn't take up any 1080, karamuramu took miniscule amounts, and watercress took a small amount. All traces of 1080 were gone within ten days. Puha naturally contains fluoroacetate.



Plight of the ngahere

Kia ora ai te Raukūmara, ka ora te iwi. Kia ora ai te iwi, ka ora te Raukūmara.

- The Raukūmara forest is on the brink of ecological collapse right now.
- The use of 1080 may be the last hope of saving not just the taonga species within the forest, but the entire forest itself.
- Nothing else will work fast enough, or be as effective as 1080.
- Introduced pests like rats, possums and stoats are an infection on our whenua, eating away at it, slowly but surely killing our forest. We will lose our ngahere species by species until there is nothing unique left, until it is a shell of the ngahere our tīpuna knew.
- 1080 can act like an antibiotic that expels the infection from our whenua for long enough to allow healing from the infection to begin.

Silent forest

- The edges of te Raukūmara look relatively healthy, although the sound and sight of many native birds is long gone.
- Our forest used to be constantly full of noise and activity. It was legendary for the unique 'dawn chorus' that made te Raukūmara a place it was impossible to get a sleep in.
- Now, silence dominates. The dawn chorus is lost. Some birds remain, but few natives. Many taonga species are gone forever from our rohe.
- The silence of the interior of te Raukūmara is our forest crying out for help.
- The silence is a signal of our dying forest.
- Many of us don't know anything different. What we see and (don't) hear now is considered normal.
- Those of us who are a bit older may remember, or remember stories of something very, very different.
- This loss has occurred in very recent memory. We must act fast to prevent future loss for the next generations.



Who are our experts?

We have so many experts in this kaupapa who are here to share, help, educate, discuss, debate, research, support.

We must call on them to show the wide range of support there is for this kaupapa: so many different people from so many different background, but all united in their support for the use of 1080 in te Raukūmara.

We might not have the exact answers to every pātai or comment, but we will go with you to help the find answers.

INGOA	AREA	WAEA	IMERA



Contact Us

We want to hear from you. Please
get in touch with our team.
info@raukumara.org.nz



Carcass Recovery Hotlines

Ngāti Porou:
027 370 8518

Te Whānau ā Apanui:
027 370 4356



www.raukumara.org.nz



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