

# 1080: THE FACTS

## A JOINT FEDERATED FARMERS - FOREST & BIRD INITIATIVE

Unlike almost all other countries, New Zealand has only one native land mammal (bats). But we introduced **14 highly destructive mammalian pests**, either for sport, fur, to eat other pests or by accident.<sup>1</sup> These pests all spread quickly, thriving and multiplying in our virgin native bush and forests, rapidly destroying vegetation and driving many of our native birds to extinction. Several of these pests also threaten the reputation of New Zealand's primary industries by hosting bovine TB in the wild and spreading it to cattle and deer herds.

## The predators...

The big question: should we allow introduced predators to kill our native species, or should we kill the predators, so that our native species can survive?



**Brushtail possum**

- ▶ Kills birds and chicks, raids nests for eggs, strips the forest canopy<sup>2</sup>
- ▶ Host and carrier of the infectious disease, bovine Tb<sup>3</sup>
- ▶ Estimated possum population in New Zealand: **30 million**<sup>4</sup>



**Stoat**

- ▶ Responsible for up to **60% of kiwi chick deaths**<sup>5</sup>
- ▶ Needs the equivalent of **12.5 fantail chicks** every day, just to stay alive<sup>6</sup>
- ▶ Decimated mainland populations of kākāpō<sup>7</sup> and little spotted kiwi<sup>8</sup>



**Ship rat**

- ▶ Good climber, preys on small birds, chicks, eggs and insects in the forest canopy
- ▶ Can produce **up to 10 offspring every 8 weeks** when food is plentiful<sup>9</sup>

## ...and their victims

Our unique native birds and plants evolved in isolation over 80 million years with no browsing or predatory animals. Many of these birds were flightless ground-nesters and were utterly defenceless against introduced mammalian predators. Many were wiped out completely, and even today, despite huge efforts to control pests, **2,700 species of New Zealand animals and plants are identified as at risk of extinction.**<sup>10</sup>



**Whio**



**Kiwi**



**Mohua**

# Without predator control

New Zealand has one of the highest extinction rates in the world of both animals and plants. An estimated **26.5 million eggs or chicks of native birds are killed** by introduced predators every year.<sup>11</sup>



## 60% of kea nests are attacked by predators<sup>12</sup>

Grisly, prolonged attacks on defenceless kea nests by stoats and possums are common and have devastating results. One filmed stoat attack on two kea chicks lasted 2½ hours. One died and the other lived a further 40 hours with its injuries.<sup>13</sup>



## Forest canopy and native bird habitat is destroyed

Browsing pests wipe out critical food sources for birds and can disrupt whole forest ecosystems. Rata, kamahi, pohutakawa, mistletoe and fuchsia are especially vulnerable to browsing animals such as possums and wallabies.<sup>14</sup>

*Photo: Rangitoto Island 1990*

## Most female kokako are killed while sitting on their nests

Kokako – the only mainland survivor of an ancient bird group – were pushed to the brink of extinction by possums and rats. All unmanaged mainland North Island populations are extinct.<sup>15</sup>

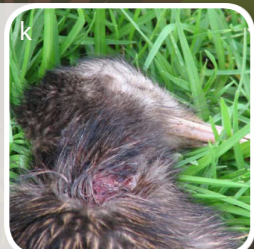


## The mohua population is being decimated

The bird on our \$100 note has disappeared from 75% of its former range. Females – who sit alone for 20 days on the nest in a tree hole with no escape – are easy prey for rats and stoats.<sup>16</sup>



## 9 out of every 10 kiwi chicks that hatch in the wild will die from predation before reaching breeding age (12 mths). All 5 species of kiwi are under threat of extinction.<sup>17</sup>



# What predator control is achieving



After aerial 1080 pest control in 2011 at Okarito, the **kea nesting success rate increased from 51% to 100%**.

The nesting success rate in a nearby area with no 1080 control was 38%.<sup>18</sup>



**Many native trees and plant species show significantly better growth** and survival after an aerial 1080 operation.

After a 1990 pest eradication programme using aerial 1080, Rangitoto Island is today free of possums and wallabies and in summer is ablaze with healthy pohutakawa.<sup>19</sup>

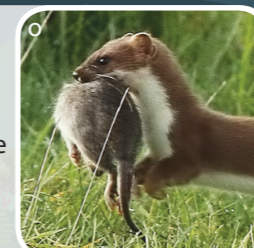
*Photo: Rangitoto Island 2000*

Over an 8 year period, aerial 1080 effectively 'rescued' kokako. Predation was knocked back enough to enable 50% of nests to produce young. In the Mangatutu Ecological Area, over four 1080 drops since 1989, **the kokako population grew by 700%**.<sup>20</sup>

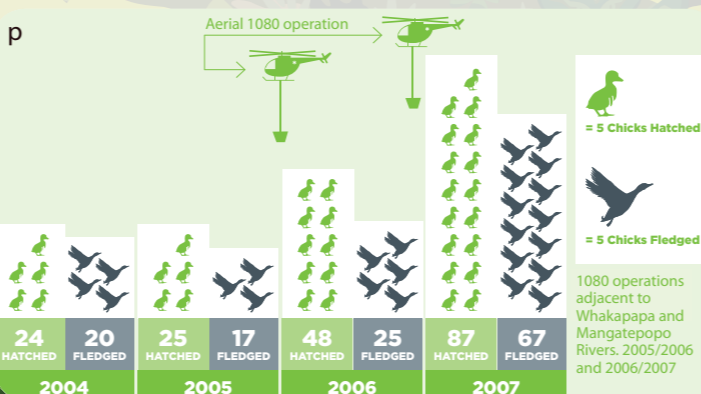


## Triple predator hit

Aerial 1080 operations (including pre-feeding with non-toxic bait) kill possums and rats, and also stoats where they eat the poisoned rats.<sup>21</sup> This triple hit provides a breeding window that is crucial to increasing chick survival.



**Whio (blue duck) breeding success increased dramatically** in the central North Island following 1080 operations.<sup>22</sup>



Many other native bird species, including **tomtits, whio, kakariki and mohua** have been protected and their populations increased following 1080 operations.<sup>23</sup>

Following a 1080 operation in the Tongariro Forest in 2006, **kiwi chick survival more than doubled**.

Field trials have shown aerial 1080 is far more effective in protecting kiwi than the labour-intensive process of hand rearing.<sup>24</sup>



# Eradicating bovine TB

Possums, along with ferrets, are the host and carrier of bovine tuberculosis (TB) and are responsible for **64%** of new infection in cattle and dairy herds in at-risk areas.<sup>25</sup> Bovine TB is a chronic infectious disease and needs to be eradicated if New Zealand is to maintain its

**\$14 billion** premium beef, deer and dairy export industries.<sup>26</sup>

All cattle and farmed deer must be regularly tested, and any animal diagnosed as infected is slaughtered immediately and herd movement is controlled. The impact of having an infected herd is devastating and costly for farmers.

**1,700**

TB infected herds in 1994<sup>28</sup>

TB infected wild animals, mainly possums, have been found in **35%**

of New Zealand<sup>27</sup> (8.5 million ha)

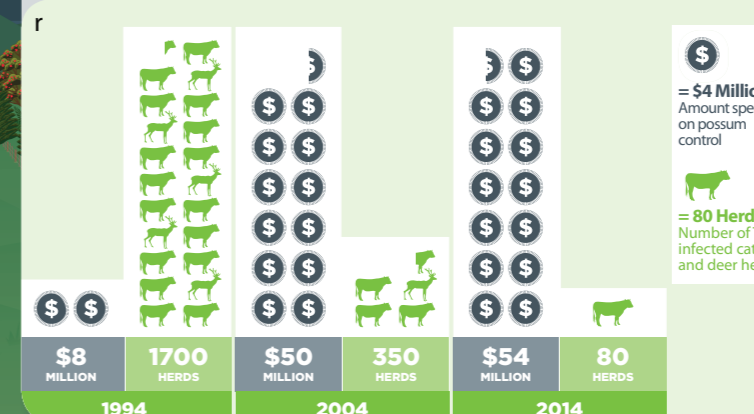
What has been achieved over the past 20 years with aerial 1080 coupled with ground control methods?

Bovine TB has been eradicated from more than **1 million ha**<sup>29</sup>

An estimated **18 million** possums have been killed<sup>30</sup>

The number of TB infected herds has been reduced<sup>31</sup> to fewer than **80**

When possum control funding is increased, bovine TB infection rates fall dramatically<sup>32</sup>



## 1080 is highly toxic to dogs

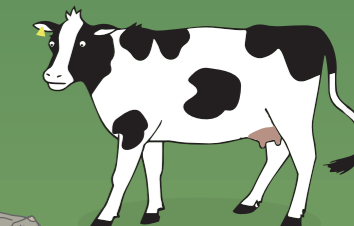
Dogs should be muzzled in any area where there is any possible risk of their eating baits or poisoned carcasses.

## Possums pass TB to cattle and deer

Large pus sacks (lesions) can make up as much as a third of the bodyweight of a near-death, TB-infected possum.



As the TB advances, the infected animal begins to starve and becomes lethargic and disoriented, often stumbling out onto open farmland, tipping over and rolling around as if intoxicated. As the possum lies dying or dead, **cows will often pick up the disease by sniffing or licking the lesions** on the animal.<sup>33</sup>



# Controlling predators with 1080



**1080 is a simple toxic compound** found in several plants around the world including New Zealand's native puha,<sup>34</sup> developed by the plant as a natural defence against browsing mammals. The poison is used in the manufacture of baits that are toxic to mammalian pests.



1080 bait for aerial use is made of **0.15% raw compound 1080**, with the remaining 99.85% of the bait being made up of cereal, glucose and a gluing agent to bind it together. Cinnamon and green dye are also added to discourage birds from eating it. In some cases deer repellent is also added.

**Aerial application** is the only way to treat areas that are inaccessible or too dangerous for ground control, and is the most effective and affordable method of protecting the vast areas that need predator control.

A standard aerial operation uses between **1.5 and 3kg of 1080 bait per hectare**. That's around 4 to 6 baits in an area the size of a tennis court.

**1080 does not accumulate** or leave permanent residues in soil, plants, water or animals.<sup>35</sup>

**Ground-based operations also play a key role in pest control.** Bait stations and trapping lines are important tools, but on their own are not a practical solution for the vast areas that need treatment, nor are they effective at rapidly knocking back predator populations.



**1080 does not harm or kill fish,** and humans are at **extremely low risk** of 1080 poisoning from eating fish that have eaten 1080 bait.<sup>36</sup>

**1080 is highly water soluble** and breaks down rapidly in the environment into harmless substances.<sup>37</sup>

**1080 has never been found in human drinking water supplies** above the Ministry of Health tolerance level of 2 parts per billion.<sup>38</sup>



# Supporting organisations



Department of Conservation  
Te Papa Atawhai



KEA  
CONSERVATION  
TRUST



## Take a closer look

All research and resources used to produce this factsheet are freely available on our website [www.1080facts.co.nz](http://www.1080facts.co.nz) for you to view and download. If you would like further information, or would like to support the Trust, contact:

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- Parliamentary Commissioner for the Environment (2011) See ref. 2, p44

## Images

- Possum eating chick - Nga Manu Images
- A chick is this stoat's next meal - David Hallet
- Ship rat bites into a fantail - Nga Manu Images
- Whio (blue duck) ducklings - Ruedi Mosimann
- Kiwi chick and mother kiwi in burrow - Nga Manu Images
- Mohua adult - ©JamesReardon.org
- Kea chicks, How's nest, Hawdon Valley - Matt Goodman
- Bare pohutukawa trees, Rangitoto Island 1990 - DOC
- Kokako sitting on nest - Dick Veitch, DOC
- Banded mohua at entrance of nest in a beech tree - Michael Eckstaedt [www.naturephoto.co.nz](http://www.naturephoto.co.nz)
- Kiwi chick killed by a stoat - Whakaangi Landcare Trust
- Kea at Arthur's Pass National Park - Andrew Walmsley
- Pohutukawa in blossom, Rangitoto Island, 2000 - DOC
- Kokako adult pair - Richard Joseph
- Stoat catches a rat - Carole Fox
- Whio breeding success - OSPRI New Zealand
- Little brown kiwi chick - Nga Manu Images
- Tb infection rate vs possum control spending - OSPRI New Zealand.
- Dogs on a farm nearby a recent 1080 operation - Pest Control Education Trust
- Possum with a Tb infected lymph node - OSPRI New Zealand
- Cow in contact with a dead possum - Graham Nugent
- Standard RS5 1080 cereal baits - Pest Control Education Trust
- Bait station attached to a tree stump - ©JamesReardon.org