

A pest of plague proportions



Mamaku (black tree fern)
eaten by possums.
(DOC)

Possoms are destroying New Zealand on two fronts. Every night an estimated 70 million of them chew their way through 21 000 tonnes of choice green shoots, fruits, berries and leaves in our native forests (the equivalent of eating 190 million standard hamburgers each night). Possoms are omnivores, and, as well as a wide range of leaves, they eat birds' eggs, chicks and insects. Their voracious appetite threatens the survival of many of our native plants, birds and insects.

Apart from their destruction of our native plants and animals, possums are also a major pest on farmland. They can be a carrier, and transmitter, of the disease Bovine tuberculosis (Tb) in many parts of the country. The presence of that disease threatens New Zealand's reputation as an exporter of world class beef and venison.

HOW AND WHY DID THEY COME?

Possoms were first introduced in 1837 in an attempt to develop a fur industry. They are a native Australian animal and most of New Zealand's stock came from Tasmania. Between 1837 and 1922, over 30 batches were imported, and these possums and their descendants were liberated at about 464 places. Private individuals were responsible for most of the liberations between 1837 and 1861 and Acclimatisation Societies for most of those between 1870 and 1922. Subsequently, although liberations were no longer officially permitted, trappers continued to liberate them illegally until the late 1980s.

It is calculated that possums occupied about 54% of New Zealand in 1948-50, 84% by 1961-63, 90% by 1974, and 91% by 1980.

WHAT MAKES THEM SUCH AN EFFECTIVE PEST?

As possums are versatile feeders, they can exist on a wide variety of animal and vegetable matter. Despite this versatility they can also be thrifty feeders and like many other Australian marsupials can maintain themselves on 30 percent less food than some other, non-marsupial, animals such as rabbits, rats, and sheep.

Hence they are able to establish in many inhospitable parts of the country and survive on poor and irregular food supplies.

This characteristic has paid off to such an extent that possums occupy 90 percent of the mainland and exist on at least 13 offshore islands. Densities are highest where there are abundant food sources and plentiful dry den sites. Measured densities range from 25 animals per hectare on pasture bordering cut-over kamahi forest to 1 per 4 hectares in mountain beech forest.

Medium to high possum densities extend across about 14 percent of New Zealand's surface area. Much of this is on public conservation lands, administered by the Department of Conservation (DOC).

Of the estimated total possum population, about one-third is in the South Island, and two-thirds are in the North Island. The average density in the north is equivalent to four possums per hectare, 2.7 times that in the South Island. This difference reflects the greater availability of prime possum habitat in the North Island, such as scrub gullies bordering farmland as well as a wider variety of forest types. Beech forest and alpine grasslands, common in the south, support a lower density than other forest types.

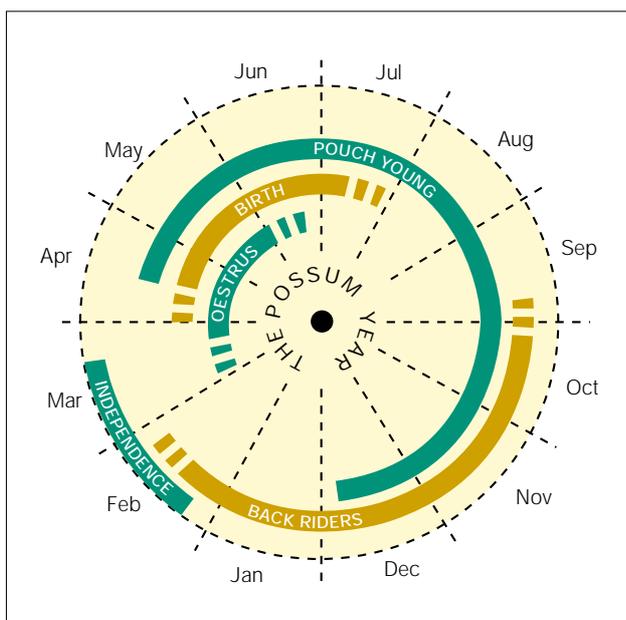
Breeding habits

Possums are largely solitary animals with no strong pair bond or social groupings. They generally have defined home ranges but share part or all of these ranges with other possums. Once established in a home range, adult possums rarely leave that area. Typically, home ranges for males are about 1.9 hectares and for females about 1.3 hectares. Home ranges are greater on farmland or where animals are able to travel to exploit preferred food supplies such as pasture.

Adult possums have a relatively long life expectancy compared with similar sized animals; ages in excess of 9 years for males and 12 years for females are not uncommon. Young possums, however, have a very low survival rate unless food

supplies and den sites are in good supply. In one study, more than 70% of female offspring disappeared before their second birthday.

Most female possums breed from age 1 onwards. They can produce two young a season, but more usually only produce one. Autumn is the peak time for births, but a second offspring may be born in spring if food supplies are adequate. The variable is food: a good supply means lots of young. This ability to produce more than one offspring per year and enhanced survival of juvenile females when conditions are good, allows possum populations to increase rapidly in newly invaded areas or after populations have been reduced by control pressure.



The possum breeding year.
DOC. National Possum Control Plan 1993-2002.

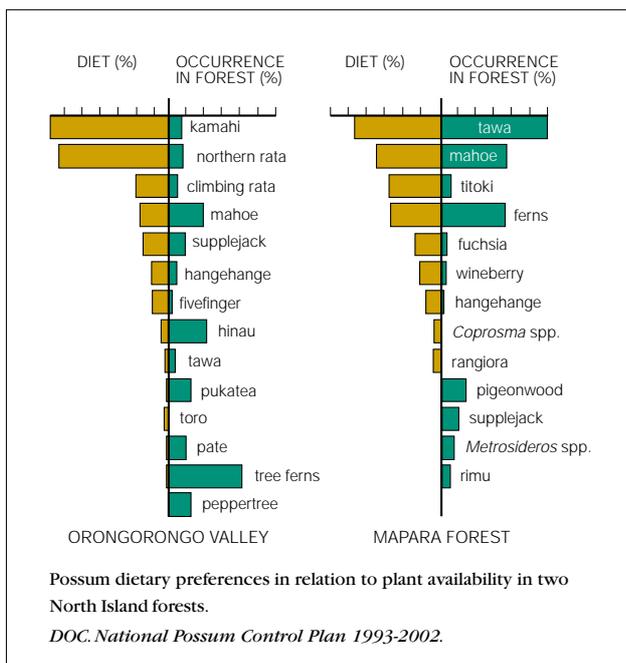
Possoms are marsupials. The young spend the first part of their life in their mother's pouch, feeding on rich milk. Young possums are dependent on their mothers for 5-8 months before weaning. After weaning, young females tend to remain close to their mother's home range while young males disperse randomly in a search of receptive females. Males have been recorded migrating between 0.5 and 20 kilometres.

Migration

Possum populations expand their range by the gradual spread of female offspring on the edge of occupied home ranges. This continuous expansion of home ranges, coupled with illegal liberations by humans, has allowed possums to establish rapidly throughout the country. Northland provides a graphic example of the rapidity with which some parts of the country have been colonised. Possums were virtually unheard of there in the 1960s, but by the mid-1990s the area had an estimated population of 10-15 million possums. While food supplies and nest sites remain readily available, the population will continue to expand and increase rapidly. This rapid expansion also occurs in areas where control has been carried out, so control must be ongoing or repeated.

WHAT DO THEY EAT?

The main source of food for possums is plant matter. In any one night a possum eats two to eight different types of plant foods - they have been described as smorgasbord eaters! The choice of foods is affected by availability and varies from one vegetation type to another and from season to season. The possum's diet can include ferns, leaf stems, fruit and seeds, bark, buds and flowers as well as leaves. Possums have favourite foods and will often feed on these until they have reduced them to a minor component of the vegetation. Species such as northern rata, mistletoe and titoki have been reduced greatly by the possum's selective feeding.



Browsing high in the canopy on fruits and flowers, possums are also in direct competition with nectar feeders such as tui, kaka and bellbirds. As well as competing directly with native birds for food, possums have been observed preying on eggs and nestlings. For example, the use of infra-red camera equipment has revealed possums eating chicks and eggs of the kokako.

On the ground, they compete with kiwi for dens and have been recorded as eating kiwi eggs.

Invertebrates such as weta and snails are also regular components of their diet. In a study of possum diet in the Orongorongo Valley (east of Wellington), over 47 percent of collected possum faeces contained invertebrates.

HOW MUCH DAMAGE DO THEY REALLY CAUSE?

In the forest...

Although they eat a variety of foods, possums frequently will also browse on a particular tree, systematically stripping it for several nights in succession before moving on. Die-back of favoured food trees is rapid. Rata trees in the Orongorongo Valley were dead after three years of intensive browsing by possums. Despite this onslaught, some individual trees survive and despite local extinctions of some species such as some mistletoes in particular areas, they survive elsewhere in the presence of possums.



Possum browse on kohekohe.
(DOC)

About an hour before sunset, possums awaken and ready themselves for a feed. Instead of moving around and grazing on a different tree each night, possums will return night after night to the same tree, systematically stripping it before moving on to another one of the same species. With this kind of treatment, it is little wonder that the tree, and sometimes whole forests, die so quickly.

The latest review of the status of possums in New Zealand

found that the broadleaved hardwood forests, particularly those with the canopy dominated by kamahi and/or rata and/or pohutukawa, are under threat of major mortality and, in some cases, widespread devastation. The most conspicuous possum-induced damage to the northern kauri/podocarp/hardwood forests is the severe defoliation and death of emergent northern rata and kohekohe. In some areas shrubs such as five-finger, fuchsia and pate and the tree fern were also reported to be severely defoliated and killed.

Particularly high levels of damage appear to result from above-average possum numbers attacking vegetation that is already under stress, for example from drought. Moreover, the toll that possums exact on many forest areas is aggravated by other introduced browsers. Goats, deer and pigs mow the forest clean of new shoots, saplings and seedlings. Rats and mice remove a large portion of the seed.

It is difficult to set a monetary value on possum damage to native conservation resources, but by any standard, the animals have already caused drastic changes to native vegetation and wildlife.

Possums are also a significant pest in New Zealand's production forests, predominantly young pine plantations, in which they browse the main shoots and strip bark, killing up to half the trees at some sites.

Down on the farm...

Possums are a serious problem for the farming industry, both because they eat pasture plants and other crops and because they carry and spread Tb. Damage to horticulture is also widespread, though patchy, and numerous types of fruit and vegetables are affected. Shelterbelts may also be severely damaged.

They have a strong preference for pasture plants such as clover and herbs in their diet, and will travel large distances to feed on pastures and some of the crops grown for stock feed or human food. Although not very well quantified, it



Stock grazing bush margins.
(DOC)

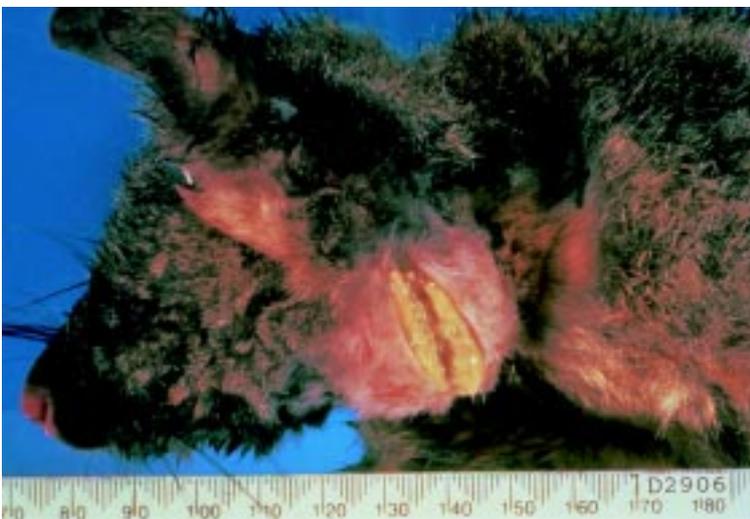
has been estimated that several million dollars worth of pasture are consumed annually.

The possum is the main wildlife reservoir of Tb for farmed cattle and deer in New Zealand.

Bovine Tb is one of farming's main animal health problems and is transmissible to humans. In order to compete successfully on international export markets, we must satisfy our major trading partners that we have high quality standards of Tb inspection and certification; and a control

programme must be in place. Failure to provide these would see non-tariff trade barriers or embargoes on New Zealand exports of meat products.

Possums are Tb vectors. A vector is a carrier of a disease or infection from one organism to another. Possums are highly susceptible to bovine Tb, and the disease in possum populations is self-sustaining. This means that mothers can pass it to joeys, fighting males can pass it on, as can mating animals and animals



Possum with Tb lesion.
(DOC)

that share the same den site. Once a possum develops Tb it can become highly infective, and other animals that come in contact with it may also develop the disease. Scientists believe, however, that the disease will die out in the possum population if their numbers are kept very low.

It is believed that the main way in which possums spread Tb infections is by direct contact. Possoms with advanced stages of the disease are lethargic and often out in the open. The curiosity of a cow is its downfall: researchers believe that Tb is

spread when possums with weeping lesions (open sores that contain Tb bacteria) are licked or sniffed by cattle.

Possoms have been known to travel up to 1.5 kilometres nightly through forest to feed on pasture. They have a particular liking for grassland and arable crops such as grains and vegetables. The loss in agricultural production from pasture eaten by possums is estimated at over \$35 million dollars annually.

“Hit them hard and bit them well.”

WHAT’S THE SOLUTION?

Because we cannot get rid of possums entirely, we must try to control their numbers to levels where the damage they do is acceptable and/or there are not enough of them to sustain Tb. To do this throughout the country would require more resources than are available currently, so control efforts need to be selective.

Priority areas for possum control have been chosen. These are either areas where Tb needs to be eradicated or stopped from spreading, or where important conservation values (e.g. rare plants) are under threat. Not all areas are able to be treated.

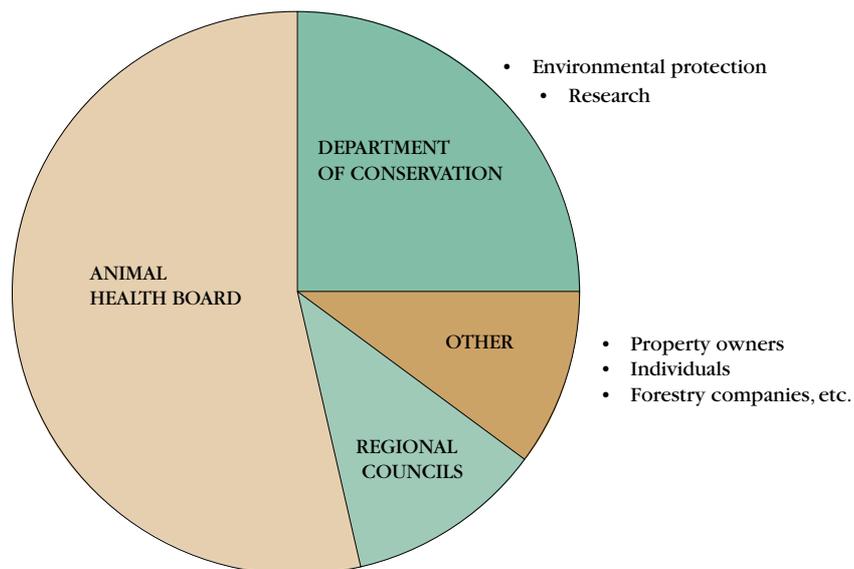
In areas where possum control is undertaken, the most efficient and effective tools available, that are appropriate for the site and the control objectives, are used.

The simple answer is a reduction of possum numbers to levels where both damage to native forests and the Tb threat are minimised. The need is so great that we must be selective, by identifying priority areas for both eradication of Tb and for protecting areas where rare species are endangered. This means that some places will receive no attention at present.

WHO IS RESPONSIBLE FOR POSSUM CONTROL?

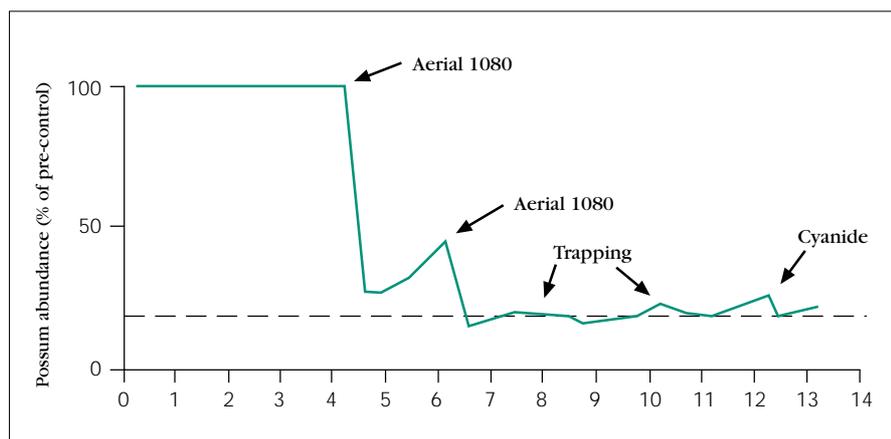
Many agencies and individuals undertake possum control for their own objectives. Control on public conservation land is undertaken usually by DOC for conservation reasons, although a considerable amount of control on public conservation land is also done by regional councils. Control of possums for Tb control is undertaken by regional councils and private contractors, much of the work being paid for by the Animal Health Board. Private individuals, companies, and some regional councils undertake possum control on private land for conservation and/or protection of farm or forestry production.

The collective effort to control possums



WHAT'S THE GOAL OF POSSUM CONTROL?

The goal is to reduce or eliminate the problems possums cause. On offshore islands we can, with concerted effort, eradicate possums and be confident they will not re-invade across the large stretches of water that often separate them and the mainland. On the mainland, however, we try to reduce the possum population to a level that reduces or eliminates the problems they cause. Because this type of control must be kept up, or else the problems will return, it is called sustained control. The amount and frequency of sustained control is usually determined by the problem. More important than the numbers killed is the number left surviving from which numbers may build up again.



For Tb control, the possum population must be knocked down to very low levels and not allowed to build up again until the disease has been eradicated. For the protection of some rare plants or vulnerable forests, the population must be knocked down for ever, if these plants or forests are to survive. Other plants and forests can cope

A possible strategy for holding a possum population close to its target density.

DOC. Possums as Conservation Pests. 1994.

with some possum browse, so the intensity of control can be reduced. Periodic knockdowns (every few years) are often sufficient to protect these forests.

Initial control is usually done by spreading poisoned baits by aeroplane or helicopter, or by concentrated trapping and hand poisoning. Ongoing (or maintenance) control is carried out on an annual basis or less frequently, and trapping and hand poisoning are the most commonly used techniques.

WHAT CONTROL METHODS ARE USED?

Several methods have been developed to control possums in New Zealand. Some have been tried, tested and refined over many years, and others are new and experimental. Detailed planning of operations allows control agencies to apply the best and safest combinations for use in each control operation. Invariably, effective possum control operations rely on a combination of several methods.

Fences

Cape Brett Peninsula in Northland, and Cape Lambert in the Marlborough Sounds have had specially designed possum-proof fences installed, and at Karori Wildlife Sanctuary in Wellington a fence specially designed to keep out all pests, including possums, has been installed. Possums can be eradicated from inside the fence and the fence will reduce opportunities for natural re-invasion. The installation of these fences is very expensive.

Hunting and trapping

The main control techniques used are hunting, trapping and poisoning. Skilled operators employ a range of methods depending on the behaviour and numbers of the possums in the area and the type of country.

Before the commercial value of possum skins plummeted in the late 1980s, many people trapped possums for a living. It was a profitable business, a first-grade skin bringing in about \$14 in 1987. A recent upturn in the possum skin market may indicate a return to commercial trapping by individuals.



Hunter training dogs.
(DOC)

Trappers employed today are generally working for DOC, regional councils, or for specialist pest control companies; they are in the business of killing possums to reduce their numbers, rather than selling skins. (However, the interest in harvesting possums to sell the fur only—off the skin—is increasing. Mixed with merino fibre, it produces a high-quality yarn.)

A trapper will lay a line of traps along possum runs and check them nightly. Most traps now have smooth-jaw rubber

mouths that hold the animal firmly, unlike old ones which could cause pain and suffering if the animal struggled.

Some hunters use spotlights to pick up animals feeding at night and then shoot them with either a shotgun or a .22 rifle. Some use specially trained dogs which pick up the possum scent and flush them out of their dens—to be shot or dispensed with by a sharp blow to the head.

Ground poisoning

Hunters also use a range of poisons. Some, like cyanide, require operators to hold poison licences and follow strict protocols when laying the poison. Warning signs accompany poisons such as cyanide and 1080. They are for your safety, so take the precautions. Beware of the risks: don't disturb baits, and don't let children or pets touch them!



In order to attract possums to the poison, strong-smelling concentrated curry, clove, cinnamon and various fruit-based lures are often used. In some circumstances, possums are pre-fed with these non-toxic baits in order to overcome their suspicion. Once the possums have started to come to the feeding or bait stations, the hunter will replace the non-toxic bait with poison bait. Poison may be applied as a bait or as a paste.

Trapper setting a trap line.
(DOC)

Aerial poisoning

Helicopter and 1080 baiting bucket.
(Skywork Helicopters)

Large and generally inaccessible areas are treated usually with aerial applications of baits laced with 1080. Baits may be either manufactured cereal pellets with the poison incorporated into them or diced carrots with the poison coated on the outside.

Baits are spread by helicopter or aeroplane, and complete coverage of the area with bait is the aim, so that all possums are put at risk.

Modern technology and research have greatly improved the aerial application of bait. Helicopter buckets and aircraft hoppers are specially calibrated to apply bait evenly. Baits are usually about 6–8 g in weight and spread at two to five kilograms per hectare. Latest research suggests that possum populations can be controlled effectively with as little as one kilogram of bait per hectare. This is almost a 90% reduction in the amount of bait that was used in the 1970s.



The development and use of airborne navigation systems such as differential global positioning systems (DGPS) along with better knowledge about the actual amount of bait required to kill one animal have resulted in bait delivery with a high degree of accuracy so that much lower application rates are now used than ever before.

Prior to an operation, information including local weather and ground conditions, treatment area boundaries, bait application rates and no-drop areas (e.g. water courses, houses) are programmed into the aircraft's navigational computer. The DGPS system is linked to a directional guidance system for the pilot. That system is usually controlled by an on-board computer which records the process of the bait spreading. Any areas missed can be picked up immediately and re-flown. The use of DGPS by skilled operators eliminates any risk of bait being dropped outside the target area.

Aerial 1080 drops have provided us with a vital breakthrough. They allow us to achieve that all-important initial knockdown cost-effectively. This is especially so in extensive remote areas where it is too expensive to do all the work by ground control. With trials and actual operations achieving between 85 and 95 percent possum kill rates, aerial application of 1080 is both cost- and result-effective.

What about a bounty?

There was a bounty on possums from 1951 to 1961. It failed to achieve effective possum control because most possum skins were taken from easily accessible areas. In rugged back-country and large native forests, possum populations were unaffected.

Bounties don't allow us to set priorities or target control efforts. A lot of possums might get killed but not enough would be killed in the right places. The history of pest control around the world is littered with failed bounty schemes—possums are no exception.

Some people have argued that bounties on possums would create employment. This may be so, but it's more likely that it would simply add to the cost of possum control without achieving any additional conservation protection or Tb control.

Creating employment

We do provide opportunities for unemployed people, but it's not that simple.

A substantial investment must be made in training, equipment and supervision if useful results are to be achieved.

Hunters must be able to handle traps, poisons and firearms safely and responsibly. They must be willing to kill possums and work long, hard hours in often demanding and unforgiving country. They need bush skills, stamina and a good understanding of the target animal. Possums occur in many rugged and remote areas humans can't or don't want to get into. Health and safety requirements must be considered, too.

Because we have to make the best possible use of money we have to decide whether to use ground-based possum control in an area or to pay for controlling 10 times the area using aerial poison drops.

Where effective and where good results can be achieved by workers on the ground, a number of hunters continue to be employed.

Existing possum control operations are already good employers: over 75 percent is done using ground crews.

POISONS USED FOR POSSUM CONTROL

1080

Sodium monofluoroacetate, or compound 1080, is the most commonly used means of possum control by official control agencies in New Zealand. It is an odourless, non-volatile and virtually tasteless fine white powder which absorbs water from the atmosphere and becomes sticky. It breaks the respiration process or the energy pathway in the body, causing possums to die humanely from rapid cardiac or respiratory failure.

The poison occurs naturally in a few South African and Australian plant species. The concentration of fluoroacetate in the leaves and seeds from some plants in the wild is greater than the concentrations used in baits for possums. 1080 is found in low concentrations in tea.

The product was first produced synthetically in 1896 and its toxicity to insects and rodents was recognised in the 1920s. Its name comes from the laboratory

acquisition number given when it was first tested as a rat poison at the Patuxent Wildlife Centre in the United States.

Compound 1080 was first tested in New Zealand in 1954 and since then has been used extensively to control rabbits and possums. It is highly effective and humane. Its success is due largely to the amount of research and development that has been done on baits and their application.

1080 is used in aerial applications as well as in bait stations. Baits may be either cereal-based pellets or cubes of carrot with between 0.08 and 0.15 percent of poison in each bait, that is 8 to 15 grams of poison for every 10 kilograms of bait. If the bait is sown at a rate of five kilograms for every hectare, there will be 4 to 7.5 grams of poison—about one teaspoonful—per hectare of forest.

1080 is a controlled substance and can be used only by approved operators.

Cholecalciferol

Also known under various trade names, this cereal-based bait has been developed as an alternative to 1080 in some situations, for example where secondary poisoning of dogs or of wildlife might be of concern. It acts by raising the calcium levels of the blood and takes advantage of the peculiar sensitivity of possums to such a calcium imbalance. It is humane, poses low risk of poisoning birds, and is safe for unlicensed operators to use in bait stations.

Cyanide



Laying a cyanide line.
(DOC)

Cyanide is an acute poison. A potent and rapid-acting asphyxiant, it works by causing a rapid decrease in the amount of oxygen and a rapid increase in the amount of carbon dioxide, leading to loss of consciousness or death. Cyanide causes adverse reactions within seconds and the animal is dead within minutes.

Cyanide is applied as either a paste or a pellet and is often laid at the base of feed or play trees or along known possum runs. Both forms are

usually disguised with an attractant such as flour plus sugar or peanut butter.

Due to its toxicity, cyanide can be used only by approved operators.

Brodifacoum

Brodifacoum is a synthetic compound developed around 20 years ago. It is an anticoagulant and works by reducing the clotting ability of the blood, causing

internal haemorrhaging. In New Zealand, it has been used successfully in a wide range of offshore rodent and possum eradication programmes to protect populations of endangered indigenous birds. On the mainland, it has been used successfully in bait stations to control rabbits, wallabies and possums in key conservation areas throughout the country. However, owing to some more recent concerns about its persistence in the food chain and the risk of secondary poisoning of wildlife and dogs, its use on public conservation land is strictly limited.

Pindone

Pindone was developed as a pesticide in the 1940s. An anticoagulant like brodifacoum, it works in the same manner, causing the animal to die of a heart attack. It has been used worldwide to control rodents. In New Zealand it has been most successful for rabbit control and, although currently registered for the control of possums as well as rabbits, it is less effective than brodifacoum for possum control.

Pindone is widely available for use in bait stations and is safe to handle provided you follow the label instructions.

WHAT ABOUT THE RISKS WITH SOME CONTROL METHODS?

Yes, there are some risks—but these need to be weighed against the actual threat that possums pose to our native forests and farming industry.

All of the control agencies and most private operators recognise these risks. They are involved in ongoing training to ensure they are conversant with the most appropriate methods as well as new technologies as these develop. Control agencies operate under strict procedures and must abide by the Resource Management Act and other legislation, such as the Pesticides Act, and the Animal Welfare Act. Severe penalties exist to deter those acting unlawfully.

Risks to other animals

- Improperly or irregularly set traps can kill and injure other animals. The careful placement of traps, the use of soft-catch traps and properly planned operations with trained personnel reduce this risk.
- Poisons can kill animals other than possums. Humans, too, can be poisoned. None of the poisons used for possum control is specific for the possum, and they can all potentially kill a wide range of other animals, including birds and invertebrates, although cholecalciferol appears to present a relatively low risk.
- Because toxins such as 1080 and brodifacoum remain active in the carcasses of poisoned possums, there is a risk of secondary poisoning of dogs and other animals should they eat those carcasses. Brodifacoum is a persistent toxin, and residues have been detected in game species that might be eaten by humans.

Careful attention to the type of bait the poison is used with, how it is placed, and where and when it is used can minimise the risks. Timing is important in minimising effects on non-target species, as possum aerial control drops are



1080 pellets.
(DOC)

generally done in winter when possums are most hungry and wetter conditions make bait break down quickly.

Green and blue have been found to be unattractive to birds, and therefore most poison baits are dyed with these colours. Quality control to reduce the distribution of bait fragments reduces the risk to many birds.

Risks to humans, farm animals and dogs are managed by careful placement of baits and strict application of the guidelines that control agencies must follow when planning and implementing control operations. These may include community consultation, erection of signs, provision of muzzles for dogs, antidotes, as well as detailed pre- and post-monitoring programmes.

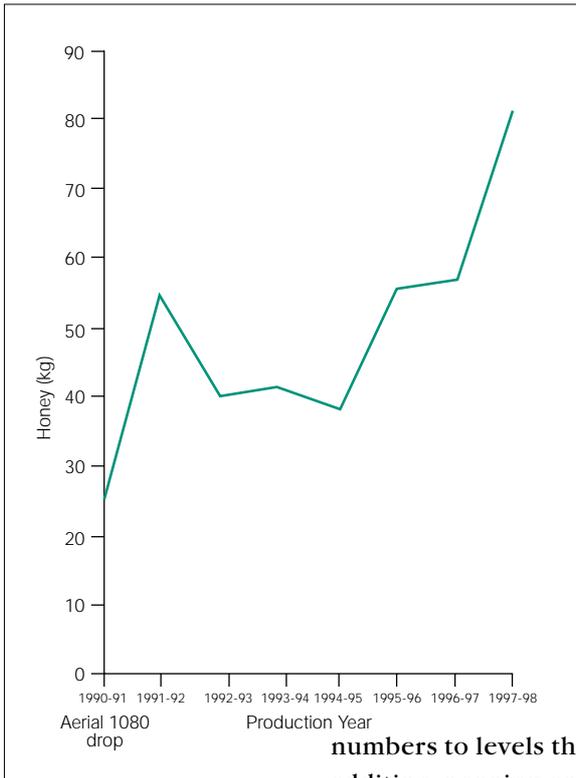
The use of 1080 as a control agent has been the source of much controversy. Most of the debate has been over claims that it does not break down in the environment. Similarly, the use of brodifacoum and pindone for widespread field control has been questioned.

1080 is biodegradable and is leached by rain out of uneaten baits into the soil, where it is broken down by bacteria into carbon dioxide, water and fluoride. However, in cold, dry conditions, it may persist for several weeks. Brodifacoum may persist in the liver of poisoned animals for more than a year.

Large-scale aerial spreading of 1080 often covers areas with waterways, and bait could drop into them. However, the use of systems like DGPS described above in aerial operations warns the pilot to stop flow when these areas and their buffers are reached. Recently over a six-year period, Landcare scientists found that almost all water samples analysed from over 40 aerial 1080 baiting sites contained no detectable 1080, and the few that showed residues were well below both the World Health Organisation's 1995 maximum acceptable value (m.a.v.) of 5 ppb for 1080 in household drinking water, and the m.a.v. of 2 ppb that the New Zealand Ministry of Health usually applies.

WHAT SORT OF SUCCESS RATES HAVE WE HAD?

Risks to the environment



Changes in honey production at Rangitoto Island after possum eradication. Waitemata Honey Company.

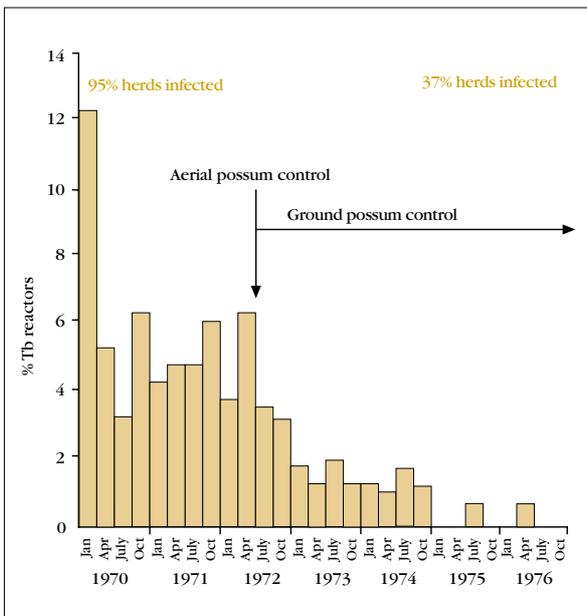
numbers to levels that can be tolerated for particular conservation objectives. In addition, ongoing control programmes have also seen dramatic reductions in the incidence of Tb outbreaks.

- Intense possum control (>95% reduction) west of Lake Taupo resulted in the recovery of key species eaten by possums, such as Hall's totara and a rare mistletoe, after only one year. The mistletoe had not been detected prior to control, as possums had removed virtually all its foliage.
- The number of endangered *Powelliphanta* land snails at Charming Creek near Westport had declined from about 2000 per hectare in the mid-1980s to about 120 per hectare in 1992. Ongoing possum control began in 1992 and has reduced the possum population by about 80%. Numbers of the rare snail have since increased about six-fold.
- Numbers of the endangered Chatham Island pigeon have increased from 45 to 150 and nests of taiko (the rarest petrel in the world) have increased from 1 to 6 in areas of the Chathams subjected to possum and predator control since 1989.

There are many other examples of large and small-scale operations that have successfully reduced possum

WHAT OF THE FUTURE?

The continuing success of the possum control programme is reliant on public support. New Zealand's \$5 billion export meat and dairy trade, and our native forests and animals, are still under serious threat from possums. We need to



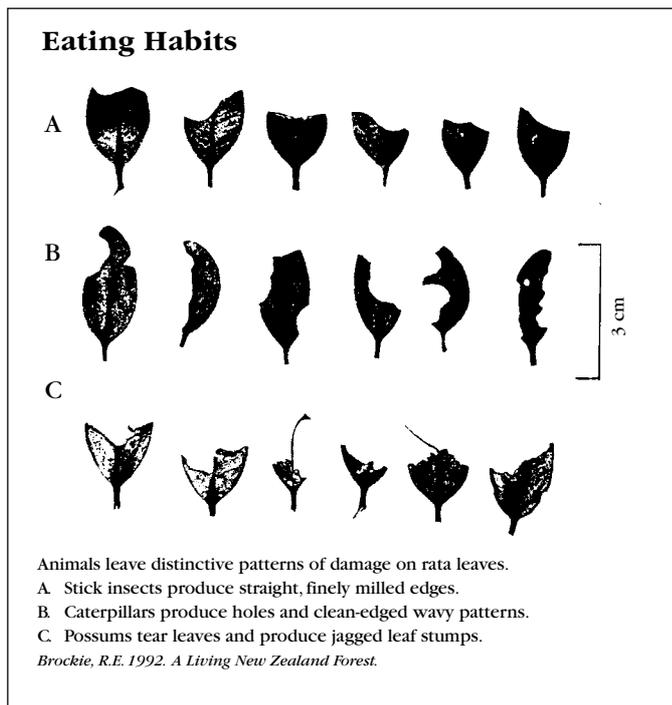
continue to work together. All landowners can help to ensure that pests such as possums are destroyed. Control agencies will continue to undertake small and large-scale operations. Sophisticated management systems are being developed, based on the resources affected rather than possum density. The possibility of using emerging biological control techniques such as immunocontraception and immunotoxins, which are target-specific, is being investigated but requires caution and public consultation. Long-term commercial use of possum products could play a part.

Effects of possum control on cattle bovine Tb reactor rate in Buller South, 1970-82. DOC. *Possum Management in New Zealand, 1994.*

HOW EASY IS IT TO SPOT POSSUM PRESENCE?

It is very easy to find out if there are possums on your property.

Look for the possum pad, or regular trail to the crop.

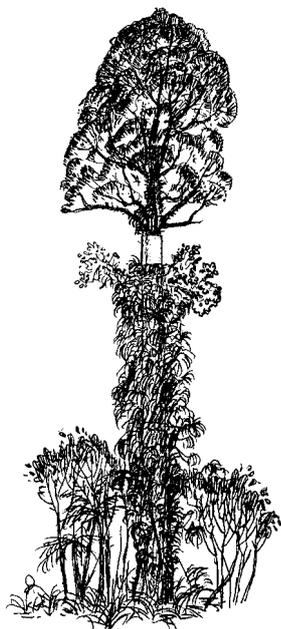


- Possums are creatures of habit, preferring to use the same tracks or runs to get to food. In paddocks, look for narrow tracks of flattened grass leading from one piece of bush to another or from the bush to your garden. In bush, look for narrow trails off ridges.
- Tree species favoured by possums may have the bark worn smooth, and you will often find claw marks around the base or on the trunk.
- In pine plantations, when the catkins turn yellow, look for yellow possum droppings (about the size of jellybeans) and for signs of gnawed bark on trunks or branches.
- In the garden, newly formed buds will be bitten off fruit trees in spring, as will new growth on roses. Lemons have their peel eaten, and vegetables are usually completely eaten. Leaves will be torn, half to three-quarters eaten in an

uneven fashion from the top down, and you'll find jagged leaf stumps.

SOME EASY CONTROL TIPS

- Eliminate potential nesting sites. Possums look for dark, dry sites for their nests and there are lots of these around most farms and even in small gardens (e.g. sheds, under the compost bin).
- It is possible to protect specimen trees by putting a metal bracelet around the trunk. Or surround the base of the tree with a barrier such as a 20- to 200-litre container or a corrugated iron fence. Bracelets work only around trees whose canopies are not linked with those of other trees.
- Trapping/killing possums. Talk to your local or regional council about the best technique. Live traps are good only if you are prepared to kill the possum.



Metal bands protect rata trees from possum damage.

Brockie, R.E. 1992. *A Living New Zealand Forest.*

this, particularly in rugged country or country that would take a long time to get supplies

IF WE ARE TO KNOCK DOWN THE POSSUM POPULATION AND KEEP IT DOWN, YOUR HELP AND SUPPORT ARE VITAL.

BE PROACTIVE.

HELP TO MINIMISE THE POSSUM THREAT TO OUR FORESTS AND FARMLANDS.



Timms traps kill the possum instantly by breaking its neck.

- Set some bait stations. You can buy these, the bait and a range of traps from most agricultural suppliers.
- If you are a cattle or deer farmer, make sure you buy your stock from areas that are Tb-free or that have been recently tested for Tb. If you suspect Tb in your stock, get hold of the local vet as soon as possible. If you are asked to Tb-test your stock, do so without delay.
- If you are interested in becoming a licensed operator, talk to control agencies about how to go about it.

FOR MORE INFORMATION ON:

- Possum and noxious plant and animal control operations on public conservation land—contact your nearest DOC office.
- How to trap and kill possums—contact your local or regional council office.
- Education and information material—contact your regional council, DOC or the Animal Health Board.
- Tb movement control and testing programmes—contact AgriQuality New Zealand or your veterinarian.

Fence construction at Cape Lambert.
(DOC)

