

Appendix T: Summary of Submissions

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T1 Summary

This summary presents a selection of extracts from the public submissions. The extracts cover most issues raised in the submissions, but in many instances only one or a few of the submissions that touch on a particular issue are noted in the tables.

Table T1: Environmental aspects

Biodiversity; native flora and fauna Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Following the 1996 1080 operation in the Hokonuis it took 5-8 years for hawks, and moreporks to recover. In 2004 [after another 1080 aerial operation] there was again loss of tuis, pigeons and bellbirds. Within a few days [of the 1080 operation] bird song diminished to almost nothing and has yet to return.	9039	
1080 can be implicated in the continuing collapse of indigenous fauna, especially in the bush. In areas where there has been no 1080 operations there is a rich indigenous biodiversity.	9045	
Long term effects on forests and forest life with enormous risk of destroying ecosystems.	9261	
Bush poisoned more than once by 1080 has remained virtually silent. The morning and dawn chorus has been virtually non-existent.	8963, 8501, 8747	
Poisoning cannot solve the pest problem except on offshore islands and in fenced areas.	9283	
I have been in Stoney Creek valley after a 1080 drop and it like a morgue – deathly silent. In contrast in the morning of the same day, I had been in an adjoining valley which had not had 1080 dropped (The Waitahu) just a few kilometres away – and the bird life was prolific.	9261	
I recently went to Pureora for the first time in 15 years – the bush felt eerie and devoid of life. In fact I saw only three fantails and a couple of blackbirds.	7354	
Areas of bush sown with 1080 poison baits change overnight from a relatively thriving and populated habitat to a silent and uninhabited place.	8666, 8296	

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Repeatedly dropping food laced with 1080 indiscriminately into a forest is an ecosystem level intervention that would be expected to have a wide range of effects on flora and fauna. Yet not one 'Control level 1' or better study has been done at ecosystem level.	9198	
We do not know the degree to which possums negatively impact populations of native floral species, and we do not know if aerial 1080 ameliorates the damage. Possums undoubtedly 'prey' upon native forests, but the net effect of that predation, the degree to which it can and should be reversed, is far from clear. Even the flawed and biased studies present a confused and inconsistent picture.	9198	
Therefore it is impossible to make a rational decision about whether the <i>a priori</i> risks and the empirically proven risks of aerial 1080 are justified by the benefits.		
As a landowner along the Napier-Taupo road I have noticed an almost complete disappearance of all living fauna after each 1080 drop. The possums, rabbits and rats are the first to recover, the birds have still not recovered.	8591	
I have personal experience of endangered species recovery being wholly due to the use of warfarin bait stations maintained at targeted times (nesting season) with regular checking. I refer to the Cook Islands kakeroi which was on the very brink of extinction and is now at some 270 birds with a second population being re-established on another island.	8747	
We are the world's leader in endangered species. Both flora and fauna. If we are to save what precious little we have left, then at this stage 1080 usage is the major component in the fight to save our biota.	8561	
Why is it that in areas where neither DoC nor AHB have done an aerial drop of 1080 there is a greater diversity and what appears to be a greater number of 'endangered species, than in areas that have had an aerial conservation poisoning?	8556	
Aerial broadcasting of 1080 has been carried out for at least 40 years. The cost of which can be measured in the catastrophic depletion of our native bird, insect and freshwater life.	9267	
1080 is non selective. Aerial 1080 falls into waterways and kills non-target species such as native birds, pigs, deer and dogs.	9070, 9261, 9183, 9184, 9109	Te Kuiti Pig Hunting Club
1080 kills practically everything it comes into contact with and it keeps killing down the food chain.	9047, 8697, 8517, 8327, 8277, 9173, 9314, 9309	
Okahu Valley was 1080'd and on returning there nine months later there was no sign of deer, no bird chorus and no kiwis calling in the night.	9046	
Aerial 1080 poses a risk to the environment in its impacts on non-target species, fish, animals, birds (including game birds) as well as posing a risk to humans and domestic animals (dogs and cats).	9283	
Need to investigate possible impact of 1080 on some bacteria in a New Zealand context.	9283	
ERMA should carryout additional research to clarify risk and their effects. What is the effect of 1080 on bacteria?	8648	
Before the use of 1080, the bush behind us would echo to the call of 1080; after 1080 baiting – nil.	8901	
After an aerial drop there is no sign of bird life, and deer dead in the streams. DoC should be fined in the Environment Court as anyone else would for having animals die in this way.	8525	

Biodiversity; native flora and fauna Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Aerial 1080 has adverse impacts on all native and introduced animals, especially ground feeding birds. Consequently there is a by-kill in back country ecosystems, eg insects, carnivorous snails.	9029	Council of Outdoor Recreational Associations
1080 affects the food chain eg insects, worms. The impact of this affects birds and mammals when they eat the bait directly or eat food that has been killed by the poison. If this is continued the build-up effect over time will be irreversible.	8739	
The disappearance of frogs and kiwi calls from areas of the West Coast, as has been noticed by locals and experts, is linked to aerial 1080 poisoning.		
The loss of wood pigeon numbers from the Catlins Forest Park has been acknowledged by DoC. The loss of kea also a reminder of what is happening.		
Introduced pests are a major threat to Northland's biodiversity and many farmers have invested in biodiversity protection of their land – many requests from landowners wanting to us 1080 on their land.	9094	Northland Regional Animal Health Committee
Well-managed use of 1080 is a useful tool in the elimination of browsing and predatory exotic animal pests. Research shows that that nesting success of many native species of birds is greatly enhanced because of the recovery of forest vegetation and increased availability of nectar, berries, and associated insects for food.	8954	Auckland Conservation Board
In the 30 years plus that 1080 has been used in the Waikato region there have been no incidents of risk to human health, no contaminated waterways and no massed killings or localised extinctions of native birds and animals. There have been records of individual bird deaths, both exotic and indigenous but no situations whereby 'silent forests' result. The Hauhungaroa Range has been treated three times with 1080, and the native bird population is now thriving.	9092	Waikato Regional Animal Health Committee
1080 has been shown to be the most effective, efficient and environmentally least damaging poison to achieve the aims of restoring native forest and wildlife. 1080 and other poisons are laid by hand within the Pukaha Mt Bruce Forest. Around Pukaha Mt Bruce Forest 1080 is spread by air. The Tararua Forest Park is near Pukaha Mt Bruce Forest and the only practical option is aerial 1080. If control is not maintained, it provides a reservoir to supply a constant source of pests to reinfest Pukaha Mt Bruce Forest. Without the aerial control by 1080 on the margins of Pukaha Mt Bruce Forest, the task of maintaining very low numbers of pests within Pukaha Mt Bruce Forest would be nearly impossible with the tools we currently have available.	8593	Pukaha Mt Bruce Board
We recognise that birds may be affected when aerial 1080 is spread aurally over large areas. The evidence is that a short term population drop is followed by a sustained increase above previous population levels where pest control is maintained. Local bird populations bounce back quickly because of the reduction in the numbers of possums, mustelids, rats and cats. The evidence from Pukaha Mt Bruce Forest is that no native birds recently restored to Pukaha Mt Bruce Forest or which have been bred in recent years at Pukaha Mt Bruce Forest have been adversely affected by 1080.		
Tb control work has had significant conservation spin-offs. In the Catlins, rare species of mistletoe have reappeared following sustained possum control. Rata, kawahi and totara forests have also benefited greatly, with rata forest in particular now flowering spectacularly through the summer. The improvement in habitat and reduction in predators have also boosted bird populations.	9092	Otago Regional Animal Health Committee

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<p>We have a beef farm in Golden Bay with the Kahurangi National Park behind us. 1080 was laid on the DoC land in 2000 and 2005. Tomtit, fernbird and blue duck responded well to the first drop (we had not seen a fernbird or blue duck for 10 years) and a nearby remnant weka population multiplied rapidly in the predator-free window that 1080 provided. In fact this remnant population of <10 birds may well have died out if there had not been a 1080 drop. Possum and mustelid populations dropped right away and we have implemented a complementary trapping programme to keep them down.</p>	7344	
<p>The Maungatautari Ecological Trust supports the continued use of 1080 for pest control and in particular the ability to apply from the air. The Maungatautari Ecological Trust is a community-based organisation established to eradicate all introduced mammals from 3400ha remnant indigenous forest. Although brodifacoum has been used in the recent past, the use 1080 in the future is a real possibility, and the inability to use it will have a significant negative impact on our goal of complete eradication of all mammals from our area which is surrounded by a pest-proof fence. One of the main reasons for selecting Maungatautari was the relatively good health of the forest environment which was largely due to three aerial applications of 1080 by the AHB over the past 10-15 years.</p>	9079	Maungatautari Ecological Trust
<p>Use of 1080 can be the difference between survival and extinction of some of our most critically endangered species. Since 1981, the number of New Zealand species recorded as threatened with extinction has increased from 92 to 2788. Much of this increase is due to the devastating effects of the suit of exotic predators that exist in New Zealand today. 1080 is the most effective pest/predator control agent against many of these invasive species.</p>	9698 (and many others)	
<p>Hunt's Creek is on conservation land, but it falls just outside the Arthur's Pass National Park boundary. The next valley, because of its higher conservation value, receives aerial applications of 1080 to control possum numbers, thereby limiting the damage caused by browsing. This valley appears to have healthy vegetation; the other is under considerable stress. Aerial application of 1080 is the only way these areas can have their possum populations kept in check and minimising further canopy collapse. The argument that large tracts of New Zealand's forests are silent because 1080 wipes out everything is not true. One of the main reasons that our forests are silent is that clear felling has destroyed extensive tracts of lowland forest that supported larger populations of birds (see <i>Nga Uruora – The Groves Of Life</i> Geoff Park, 1995). Another reason for the lack of birds in many forests is the high degree of predation by carnivorous mammals. Although 1080 may occasionally kill some native species, it also controls many predators. Reduction in deer and pig numbers is a small price to pay compared with preserving those things that are not only unique, but also relatively pristine (eg prevention of erosion and waterway contamination by siltation because of lack of forest cover). There is room for both hunting and aerial application of 1080 to co-exist in the New Zealand wilderness. Just because a chemical can be detected in meat (eg venison) does not mean to say that it is present in lethal or harmful concentrations.</p>	9090	
<p>Many rare and endangered species of plants, birds and other fauna have been able to thrive in what are now pest free areas on the mainland and off-shore islands because of the use of 1080. Its use helps preserve native flora and fauna for now and future generations.</p>	9069	Local Government New Zealand
<p>I have 14ha of native bush which has had 1080 plastered all over it three times, and is full of birds. Before the use of 1080 you would only see pigeons in ones and twos.</p>	8903	

Biodiversity; native flora and fauna Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
1080 increases forest health and bird numbers	8756	Environment Waikato's North and South Biosecurity Advisory subcommittees.
Aerial 1080 operations in forest that surrounds our property has reduced Tb infection in our dairy herd and improved plant and bird life in the forest.	7777	
Use of 1080 bait is essential for the continued preservation of our indigenous flora and fauna.	7517	Pest Control Research Ltd
The AHB have recently undertaken two aerial 1080 pest control operation over our farm. This has dramatically reduced the threat of Tb (in our deer herds). The benefits to the bush and birds from possum control have been enormous. Bird numbers increased and rata flowered for the first time in 25 years.	7325	
Aerial 1080, the only toxin registered for this purpose on the mainland has been shown to be an effective, inexpensive and safe method for control of key pests of mainland forest ecosystems.	9291	Royal Forest and Bird Protection Society
Monitoring undertaken following 1080 control operations repeatedly demonstrated the efficacy of 1080 through significant increase in bird numbers, successful breeding of vulnerable species, canopy regeneration, increased invertebrate biodiversity, and reappearance of palatable species.	9291	Royal Forest and Bird Protection Society
Deaths of individual animals not targeted by control operation can occur during 1080 operations, with insectivorous and scavenging birds being most at risk. At a population level however, the use of 1080 has consistently been shown to result in considerable net gains for native species, owing to their increased reproductive and survival rates in the presence of lower populations of introduced predator and competitor species.	9318	Auckland Regional Council
Both my work and my hobbies (deer stalking and photography) take me into some of New Zealand's great wilderness areas and I have seen for myself the benefits that aerially applied toxins can have for native wildlife and plants.	8726	
My own observations based on many years of formal bird counts, participation in relevant research projects and casual observation are that bird populations almost invariably increase following 1080 operations.	8549	
Recovery of native wildlife after a 1080 operation substantially outweighs any by-kill from the operation and/or the consequence of doing nothing.	7861	
Farmers have commented on the rapid increase in native birds following vector control work. Enclaves of native bush are regenerating, flowering is becoming more prolific.	9213	Wellington Regional Animal Health Committee
New Zealand's natural heritage faces an ecological holocaust caused by introduced animal and plant pests. The use of 1080 is an essential tool in the battle to win our heritage back. This is not a luxury, or something we do for the tourist industry; it is about protecting our unique sense of 'kiwi identity'.	9212	Waipoua Forest Trust Inc

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<p>Most of New Zealand's forests are going backwards; with a steady decline in canopy cover, progressive loss of the most palatable species, and a steady decline in populations of native fauna due to pest species. As aerial 1080 is such a cost effective method of pest control, its use should be extended to provide protection for a much greater area of New Zealand's forests. Only 1080 is able to consistently suppress pest populations to low enough levels to protect sensitive species. For plant species like rata and native mistletoe, it only takes a very small population of resident possums to completely wipe out these highly palatable plants.</p>	9231	Te Puke Forest & Bird
<p>There are millions of hectares of prime heritage land that are totally untreated, often being irreparably degraded by possum, goat and deer impacts. A stark example is the Kaihu ecological reserve.</p>	9212	Waipoua Forest Trust Inc
<p>One 250ha forest area I studied revealed two species browsed out to one remaining individual, no regeneration of some major canopy species for 30 years and virtually all surviving regenerating miro browsed to a stick. After one aerial 1080 operation and many dead deer, the forest floor came alive for the first time in decades. A year later almost no miro browse was discernable.</p>	9212	Waipoua Forest Trust Inc
<p>Research has shown that possums are contributing to the decline of birds such as the North Island kokako, as well as competing with many other native animals for food and habitat. While some significant successes have been achieved – especially offshore – we are losing the war against pests on the mainland. Further extinctions are inevitable.</p>	8549	
<p>It is difficult to foresee a time when we will not be so dependent on 1080 as an important tool in averting further catastrophic declines in biodiversity, and creating opportunities to protect and restore forest communities.</p>		
<p>We see 1080 as the most effective and only way to eradicate these pests and save the decline of the forest. As owners of a charter vessel based in Doubtful Sound, we see the damage these pests are causing every day. Our broadleaf, pseudopanax, hen and chicken fern etc are not regenerating and the forest is becoming very quickly modified.</p>	9132, 9133	Fiordland Ecology Holidays
<p>Inappropriate emotional opposition to effective methods to control introduced pest species should not be allowed to overrule our responsibilities towards the native wildlife of New Zealand. 1080 will give our wildlife a chance to survive even at the 11th hour.</p>	9728	
<p>There is no affordable, practical alternative to 1080. Have the courage to go with the science, which clearly indicates minimal, acceptable by-kill at worst.</p>	9727	
<p>We support the use of 1080 to conserve New Zealand's native forests, plants and animals. The use of 1080 is vital to control rabbits and possums so that the continued regeneration of our native flora and fauna can continue.</p>	8454	Banks Peninsula Pest and Weed Liaison Committee
<p>The aerial application of 1080 should be continued in areas of high conservation value. Removing pests such as possums, deer, ferrets, stoats and rats from conservation areas is important to upholding the integrity of our forests. 1080 is at present the only effective way of doing this. Doing nothing is irresponsible. Using control methods which we know to be ineffective in large conservation areas is as good as doing nothing and is irresponsible.</p>	8451	

Biodiversity; native flora and fauna Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
<p>We hope to encourage DoC to use aerial 1080 to cover the Kaimai-Mamuku Conservation Park. Our experience of ground control is that it is relatively expensive compared to aerial 1080 and with the terrain it is not possible to cover the area adequately. Other alternative toxins have proved less effective at reducing possum numbers.</p>	9349	Agonate Forest Restoration Trust
<p>The forest at Anogatete is in advanced state of collapse. Possums have killed kamahi, kohekohe, rata, fuschia, and raukawa. Continued deer browse has removed seedling regeneration of Asplenium ferns, pate, <i>Coprosma australis</i>, fuschia, broadleaf, raukawa and kamahi. Ship rats, feral cats, stoats and possums are predating invertebrates, reptiles and birds. In the last 50 years the forest has lost kaka, kakariki, kokako and kiwi.</p>		
<p>The years in which we used 1080 resulted in excellent kills on both possums and rats (the primary predators of kokako) while in the years in which alternative pesticides were used results have been variable. At Kahaora we have all witnessed first hand major gains in kokako numbers, as well as other bird species, and a general improvement in the forest condition. It is vital for the trust that access to 1080 is retained.</p>	9150	Kaharoa Kokako Trust
<p>The use of 1080 at the Rotokare Scenic Reserve has lead to a significant improvement in native fauna and flora present, that would otherwise be difficult to achieve by ground based methods.</p>	9254	
<p>The outcome of 1080 use should be judged primarily on the net effect on animal populations. With sensible and proper use, no-target deaths can be kept very low. Both population monitoring studies and the direct observation of tagged individuals show that the benefits of 1080 to non-target species are large. The evidence is clear that the biodiversity benefits of 1080 use significantly exceed the biodiversity costs.</p>	9334	Wellington Conservation Board
<p>Ongoing use of aerial 1080 will prevent the extinction of a wide range of endemic species of animals; for DoC there are simply no other viable alternatives to 1080.</p>	9320	EcoFX Ltd
<p>Without 1080 the New Zealand Biodiversity Strategy would become unobtainable.</p>	9320	EcoFX Ltd
<p>In the last couple of decades 1080 has been the key factor that has allowed New Zealand's forests to come alive. Use of 1080 can be the difference between survival and extinction of some of our most critically endangered species.</p>	8759 (and many others)	
<p>From an environmental perspective it is now amazing to view the mass of rata flowers in the Taupo Lakeshore Reserve, since the major aerial 1080 possum control programmes; although anecdotal, it is testament to the damage possums were incurring in our native bush.</p>	8753	
<p>Aerial application of 1080 is a particularly valuable tool in a Conservancy such as ours, where many rare and endangered species are found in remote, highly dissected terrain. The need to improve compliance by a small number of operators or managers is not a reason why the toxin should be unavailable for widespread use by licensed operators. We do not support the widespread use of repellents in baits - Tb control and conservation gains will be reduced if repellents are used in baits.</p>	9088	Taranaki- Whanganui Conservation Board.

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<p>As a result of the original absence of ground predators, a high 5 of our indigenous birds nest on the ground including kea, falcon, kiwi, waybill, variable oyster catcher and all species of dotterel. To give these birds an opportunity to breed successfully, populations of ground dwelling predators must be reduced. We have a responsibility to retain iconic animals (eg kiwi, kakariki, kakapo, kokako, New Zealand dotterel) for future generations to enjoy. Possum, ship rat, native rat, mustelids, pigs, deer have thrived here but they are not part of the original ecosystem, so considering these animals to be the most important part of the ecosystem is inappropriate.</p> <p>Overseas countries have a much lower use of 1080 because part of their ecosystem is native mammals which would be affected. This is a fact that many New Zealanders do not understand as some assume the low overseas use means 1080 is dangerous. Aerial control must continue as the mountainous terrain limits the effectiveness of ground control.</p>	9027	
<p>As a frequent visitor to Rangitoto I have seen 1080 in action; without its use Rangitoto would not be the beautiful place it now is.</p>	8677	
<p>Our Trust has been formed to restore the bush in Mt Ngongotaha. Although part of the forest has never been logged it has lost species due to possum browsing. The most notable is Northern rata, which used to be a significant feature of the bush. Almost all the rata trees are now either dead stag-heads or rotting logs. In fact we found only one surviving mature tree over 750ha of bush.</p> <p>While the loss of rata is dramatic, the constant browsing on trees, shrubs of leaves and buds could have caused the loss of less prominent species and will prevent some species from regenerating. There are further repercussions from possums browsing fungi, and predating insects and birds.</p> <p>Although we are not planning to use 1080 in the near future we want to keep that option open for the future if required. Deaths of native species from 1080 are regrettable but a number of studies have shown an overall gain for native species.</p> <p>Organisations undertaking pest control operations need to have available every technique known to be effective and to meet safety requirements. In our opinion 1080 is effective and does meet safety requirements.</p>	8748	Mount Ngongotaha Bush Restoration Trust
<p>It is well documented, and I have observed first hand over a period of 20 years the damage wrought on Southern rata in South Westland by uncontrolled grazing by possums and the subsequent decline in birdlife in the region. 1080 is used by DoC in the battle to save native species from extinction. There is overwhelming credible evidence of the benefits to native bird populations and general species diversity when 1080 is applied to reduce both predator and grazing pressure. Any moves to stop or reduce the use of 1080, and particularly the aerial application of 1080, will have a significant impact on the ability of DoC to stop or reverse the slide of important New Zealand species into extinction.</p>	9147	
<p>There were some issues with the accidental poisoning of birds when bait size was not properly screened, but that issue has been well addressed now. We are different from any other country. When man set foot in New Zealand there were no mammals apart from bats. Introduced species have had a disastrous effect on our natural heritage, overgrazing forests and killing birds. There is now a huge amount of empirical evidence supporting the gains that have occurred with 1080 programmes. While I realise that 1080 is not the whole answer it is an important tool.</p>	8533	

Biodiversity; native flora and fauna Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
I support the use of 1080 as a farmer and a hunter. I have shot in areas not poisoned for many years and the damage is always bad for native forests from pests. In the bush there is no birds and lots of damaged trees. The by-kill is acceptable for all the good that is achieved. Tb control by use of 1080 on vectors has been a major success.	8519	
As a hunter and fisherman I have a strong affinity with the New Zealand bush. Due to the extensive area rugged country that requires possum control, the use of aerial 1080 is the most effective and economically viable tool available. Yes, deer will be killed but better than the alternative which would be no kiwi, wood pigeon, or kaka, let alone our more endangered bird species. The secondary poisoning effect of 1080 makes it particularly useful against rats and mustelids. If 1080 use is restricted or stopped we will be resigning ourselves to the loss of most of our precious native wildlife.	8308	
1080 is critically important to protect the country's biodiversity. This is for reasons of national enjoyment and pride, and because we have a duty not to reduce the world's biodiversity. I am not aware of any credible evidence to suggest that methods not including 1080 could match the results being achieved now with 1080. The topography of much of the country does not lend itself to ground based methods of control. Rugged forest areas are the very places that support most native bird life, including acutely threatened species such as mohua and kakariki. Without 1080 the more accessible forest areas would still suffer because the higher cost of solely ground based methods would limit the scope of operations.	7589	
The predation of eggs, chicks and sitting female birds by possums, stoats and rats is a very serious problem. That, together with refinements over the years in DoC's procedures for the use of 1080, makes the small risk of bird kill well worth taking.		
"We have lived in the Mangatarata (on the western edge of the Hauraki Plains) since...1978. At that time it was impossible to have any sort of orchard as the fruit tree blossoms were eaten even before the fruit could set. ... Bird life was very patchy eg we saw tui perhaps twice a year..... trees such as kohekohe did not flower or seed and were extensively browsed.... Some ten years ago a farm a kilometre or so up our road tested positive for Tb and the regional council began a possum control programme using both 1080 and other means of control....The situation is now that the bush in the Matahuru reserve is recovering... We now have countless tuis around..., kaka are frequently seen.When other pests such as goat, pigs and deer are killed by the 1080 drops, people that hunt these pests are disturbed by the lack of game.... They care about their own hunting experiences and little about the bush as an entity".	8862, 8863	
"In the last few years I have been working hard to portray New Zealand's exceptional wildlife heritage in my recently published photo book <i>New Zealand: A Natural World Revealed</i> ... I can attest firsthand to the enormous difference achieved by extensive applications of 1080 to our wilderness areas in forestalling and even reversing the rampart destruction brought about by introduced pest species".	9429	

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<p>Use of 1080 has been central to sustaining Westland's rata/kamahi forests, for example. Given the steep and remote nature of much of the country where 1080 is used, aerial application is the only cost effective method of possum control. Greater use of GPS means that bait is applied more accurately and in more appropriate concentrations than it may have been twenty years ago. Opposition to 1080's re-registration from hunting interests fails to recognise that with the decline of commercial wild animal recovery, deer numbers are increasing as are the impacts of their browsing on the forest under-storey and sub-alpine grasslands. The self-interest of hunters should not compromise the re-registration of 1080 and the wider public interest in safeguarding our indigenous ecosystems, and arresting the decline of species such as mohua which are found nowhere else in the world.</p>	9364	
<p>From my fieldwork in Waikato, it has become clear that it is widely believed in rural communities that 1080 causes native bird populations to decline through its toxicity. This is a serious misunderstanding because all the available evidence shows the opposite – ie that declines of native bird species in New Zealand are mainly due to exotic predators (rats, cats, possums, and mustelids), and that reduction in these predators through application of 1080 can reverse declines of native birds.</p>	9354	
<p>New Zealand uses 90% of the 1080 produced globally, but this is for a sound ecological reason; unlike most other countries we do not have a full suite of native mammals that would suffer from secondary poisoning. There has been public concern that 1080 kills native birds. This is also accurate, it does kill some native birds. However good research shows that the populations of species affected all recover after the poison drop. Without the use 1080 populations of species such as robins, tomtits, yellowhead and kakariki will decline to the point of local extinction.</p>	9353	
<p>Over a period of 55 years of possum control, using all methods traditionally available, nothing approached the effect of one application of 1080 on our forest/garden property. The effect was almost immediate with regrowth of the bush, flowering and fruiting never seen before and an increase in birdlife over the following seasons. No adverse effects whatsoever. The long term good was evident in that a repeat, lower concentration dose was not needed for another 8 years.</p>	7503	Pukeiti Rhododendron Trust Inc
<p>The benefits of the 1080 poisonings done over the past ten years in the Catlins Rain Forest Park are very apparent to me. I use the forest as tour operator and have noted the reappearance of mistletoe as well as the health of the mohua and other bird populations since the poisonings.</p>	7499	
<p>I am a natural history film-maker and writer. At the moment 1080 is the best tool we have for widespread control of problematic introduced mammals such as possums. Although I believe that we should continue to research alternative methods, I realise this is a long term proposition, and in the short to medium term believe that that 1080 offers the most cost-effective solution to ensuring the general health of our forests, and in particular ensuring the survival of some of our threatened species, such as yellowhead.</p>	9269	
<p>MAF recognises the importance of aerial application of 1080 in protecting the 800 000 ha of land administered by DoC from the range of pest species that are damaging native ecosystems or are serious predators of many threatened species. MAF supports the use of 1080 as a major tool in the effort to halt the decline in New Zealand's biodiversity and achieving the goals of the New Zealand Biodiversity Strategy.</p>	9326	MAF
<p>Without 1080 the New Zealand Biodiversity Strategy would become unobtainable.</p>	9320	EcoFX Ltd

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There are a number of significant benefits to the environment from the use of 1080, including increased biota, protection of internationally significant avian fauna species, increased ecosystem health; 1080 does not bioaccumulate, is broken down into simple metabolites quickly, has no documented sub-lethal effects, and is able to be processed by soil microorganisms.	9333	PestNET New Zealand Inc
Recovery of native wildlife after a 1080 operation substantially outweighs any unplanned by-kill from the operation and/or the consequence of doing nothing.	8304	Epro Ltd
1080 enhances the environment and valuable wildlife.	7518	
We believe that 1080 is the most cost-effective tool for managing mammalian pests in rugged, remote country. Indeed, we are fortunate that such a tool exists, one that can be used with minimal risk to our native wildlife. We believe the ecological risk posed to our native fauna and flora from mammalian pests is far greater than any risks of using 1080. We recognise that there is often a significant by-kill of native species arising from 1080 operations, typically around 15%, but understand that these by-kills are more than compensated for by subsequent breeding success.	9770	Federated Mountain Clubs of New Zealand Inc
We have found wonderful results from the 1080 programme – huge populations of quail back again – as it was 30 years ago. Fruit trees now have fruit on them and rose bushes are no longer attacked nightly.	8568	
<p>1080 on a large scale, especially when aerial applied, reduces predation on:</p> <ul style="list-style-type: none"> • Kokako, kaka, kiwi, mohua • Lizards such as the grand and Otago skinks • Rare frog species such as Archey's and Hochstetter's frogs • Rare native snails such as <i>Powelliphanta</i> and kauri snail species • Rare invertebrates such as the moehau and the Te Aroha stag beetle • Short- and long-tailed bats. <p>And reduces browsing by possums on palatable native species of plants.</p> <p>Other benefits include reduced food competition for native fauna from rats, possums and rabbits eg greater availability of flowers, shoots and fruits.</p>	9320	EcoFX Ltd
I am convinced that the continuous use of 1080 is the best possible way of controlling a number of significant pests in New Zealand. When used under appropriate controls and regulations and practice, 1080 is essential for the continued improvement of our environment	9272	

Appendix T: Summary of Submissions

Biodiversity; native flora and fauna Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
<p>It is absolutely essential that we retain the use of 1080 as vertebrate poison to enable us to control animal pests and to prevent degradation of our forest and pasture lands. There are no other toxins that are suitable replacements for 1080.</p> <p>The advantages of 1080 are:</p> <ul style="list-style-type: none"> • Limited life in the environment. • Effective control of vertebrate pests. • Safe for staff to use. • Reasonably cost effective. • No residual or cumulative effects. • Low toxicity to birds and other native animals (reptiles). • Our only native mammals are bats which are not deemed at risk. • Results of water testing after 1080 operations indicate that the risk posed to public water supplies is very low, due to the fast breakdown in the environment. • Aquatic and insect life is not at risk from 1080 operations. • Native bird populations are enhanced due to reduced risk of predation due to lower numbers of possums and the by-kill of rats, ferrets and stoats. 	8536	
Species of birds Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
1080 causes by-kill of native birds: eg kiwi, whio, karearea, kaka , kea, morepork, weka, kokako	9100, 8981, 8973, 8969, 8964, 8955, 8974, 8932, 8515, 8511, 8498, 8324, 9196, 9109	
1080 is toxic to all avian species. The Canadian burrowing owl had a 71% reduction after two consecutive years of poisoning, so what about our morepork, and what about our kiwi?	9279	
If any one of New Zealand's native ground dwelling birds (eg kiwi, kakapo) is put at risk from 1080, that would be enough reason to totally ban the indiscriminate aerial spreading of 1080.	8564	
Direct poisoning of birds by eating 1080.	9100	
1080 is insecticide – infected insects enter food chain of birds.	9100	
<p>What is known about the effect of aerial 1080 on native birds can be reduced to a few statements:</p> <ul style="list-style-type: none"> • The research is of a poor quality and almost always inconclusive. • Native birds of some species are killed in substantial numbers by aerial 1080 poisoning of the forests. • There is no credible evidence of population benefit for any native species of birds. 	9198	
Denying that 1080 airdrops do not kill birds is ridiculous in the eyes of people with even some field experience.	9114	

Species of birds Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Falcons and moreporks, which only eat live prey, are particularly vulnerable as the slow-acting nature of 1080 poison allows rodents to wander about sick and become easier targets. Kea are bold and inquisitive, making them an easy target for the 1080 pellets in the mountains.	9434	
In areas where 1080 has been used heavily you will not find native hawk, owls, moreporks.	8554	
Insectivorous birds are at significant risk of secondary poisoning following 1080 operations. These would include piwakawa, tomtit, mohua, robins, greywarbler, korimako, ruru, and even kiwi.	9045, 8987	
Nectar-feeding birds do well from the poisoning and will show this by an increase in numbers and therefore an increase in bird song, giving the illusion of an effective poison programme. But insects and ground-dwelling birds often succumb to secondary poisoning.	8556	
Native bird deaths have been occurring for 50 years since 1080 was first introduced to New Zealand.	8996	
Secondary deaths of non-targeted species, especially native birds, would be a violation of the law to deliberately cause the death of a protected species and the Director-General of DoC would be liable to prosecution.	8747	
The Club is concerned about the effects of 1080 on birds, specifically the effects on populations of game birds quail, pheasant and chukor. Birds are often poisoned during 1080 operations, especially when cereal baits and unscreened carrot baits are used. The Club requests that controls are imposed on the use of 1080 such that cereal baits are not permitted.	9187	Christchurch Rod and Gun Club
Opponents of 1080 have publicly stated that kiwi are at risk of secondary poisoning from eating invertebrates which have fed from a 1080 poisoned animal. This is extremely unlikely as carrion eating beetles will be a very minor part of kiwi's diet (if eaten at all). Furthermore, 1080 is quickly metabolised within the body of living invertebrates, so the concentration of 1080 carried within their tissues will have significantly reduced by the time they are themselves eaten. A kiwi would need to eat several times its own bodyweight of 1080-contaminated invertebrates at one sitting to be at risk.	9231	Te Puke Forest & Bird
We can be confident that the manner in which we use 1080 has little non-target impact on native birds. While several chaffinches and blackbirds were found dead after the operation, only one parakeet was found (yet to be assayed) – yellow-headed parakeets were by far the most numerous birds at the time. Possum, mustelid and rat reduction [following 1080 application] has allowed stabilisation of the bird populations (including the nationally endangered whio (blue duck)).	9782	Otago Conservation Board
Bird monitoring demonstrates that bird numbers increase dramatically following application of 1080 and then steadily decline again until the next application several years later. The argument that 1080 kills birds is not valid, and the reverse happens with bird populations recovering and benefiting from the use of 1080.	9069	Local Government New Zealand
Studies in Mapana (1989-04) and Pureora Forest (1997) showed significant improvement in survival of chicks following 1080 operations.	9096	Auckland Regional Animal Health Committee
With more sophisticated methods used with 1080 drops in recent years bird poisonings are now few. With the reduction of possums, stoats and rats following a 1080 programme native bird numbers have increased significantly.	9091	Bay of Plenty Regional Animal Health Committee

Appendix T: Summary of Submissions

Species of birds Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
In contrast to early 1080 operations, which used carrot baits, often containing a high proportion of chaff and spread at high application rates, current 1080 operations accurately deliver high quality bait at reduced (2-5kg/ha) at reduced rates. This has greatly reduced indigenous bird mortality associated with early 1080 operations.	9291	Royal Forest and Bird Protection Society
Over decades of use, the formulation of 1080 baits has steadily improved to reduce the risk of non-target animals being killed by 1080. We are confident that these improvements will continue. While non-target species are occasional killed, the number of susceptible species is limited (eg tomtits and robins), and the majority of species are at very low risk of being killed by 1080. In the case of susceptible species, their populations have been proven to bounce back quickly due to the reduction in predation and greater breeding success.	9231	Te Puke Forest & Bird
The insignificant bykill of native birds is more than offset by the increased and successful breeding activity due to more favourable environmental conditions.	9751	
In our area, hawks and other native or introduced birds do not appear to be affected by 1080 operations.	9361	Federated Farmers of New Zealand Mackenzie Branch
Hawks and native falcon actively scavenge on dead rabbits post poison, but are not killed. This is due to their high tolerance for 1080 and the fact that they rarely eat the paunch of dead rabbits, which contains the majority of the poison.	9336	Otago Regional Council
Post-operational monitoring has shown that there has been no significant impact on bird populations in 1080 treated areas. Although they have no empirical evidence, the Trustees and owners have noticed that in the years following 1080 operations bird populations appear to flourish.	9298	Lake Taupo and Lake Rotoaira Forest Trust
We have found wonderful results from the 1080 programme – huge populations of quail back again – as it was 30 years ago. Fruit trees now have fruit on them and rose bushes are no longer attacked nightly.	8568	
Mammals are highly susceptible to 1080, but birds and insects less so. As rough guide a lethal dose for a bird is 10 times greater than that for a mammal, and for invertebrates the lethal dose is approximately 100 times greater. For this reason 1080 can be regarded as a targeted poison, since it is most toxic to mammalian pests. New Zealand’s only native mammals – two species of bats – have been shown to be not at risk from 1080. The higher doses required to kill birds greatly reduces the risk of unintended deaths.	9231	Te Puke Forest & Bird
New Zealand uses 90% of the world’s 1080 and is the only country to apply it aerially for a sound ecological reason – unlike most other countries we do not have a full suite of native terrestrial mammals which would be vulnerable to secondary poisoning (as Australia and the US do). 1080 is an essential tool in the ongoing fight to protect New Zealand’s beleaguered biodiversity.	9683	
Insects, other invertebrates, native amphibia, reptiles and mammals Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Aerial distribution allows 1080 to enter food chain native species (including invertebrates).	9100, 8969,	
1080 was first introduced as an insecticide; it may be killing rare species of insects.	9054, 8933,	

Insects, other invertebrates, native amphibia, reptiles and mammals Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Notman (1989) highlights the risks to invertebrates through direct and secondary poisoning.	9045	
Invertebrates can be poisoned through contact with 1080-laced soil resulting from toxins leached from baits or poisoned animals.	8996, 9061	
Lack of knowledge of short- and long-term effects of 1080 on insects and other invertebrates.	8987, 9369	The Wildfowlers Association of New Zealand Inc Friends of the Earth
1080 kills leaf litter organisms.	9261	
The scientific truth regarding the effect of aerial 1080 on invertebrate populations cannot be known from the Meads and Spurr papers. Both papers lack randomised controls, blinded and unbiased observers, and other design and implementation defects.	9198	
Because of the way the data were analysed and because of the inherent insensitivity of the Spurr research, Spurr has a low probability of seeing the differences detected by Meads (as Spurr admits in his paper). It is quite possible that Spurr's data, analysed with more sophisticated techniques and appropriate tools, would show results similar to Meads.		
The research to establish the truth regarding the effect of aerial 1080 on a broad range of native invertebrates has simply not been done despite almost a decade and a half of ongoing large scale aerial 1080 operations. Footnote says: "...hope that the responsible scientific oversight agency, ERMA, will do the [definitive] study".		
Powlesland et al (2005) study: "Instead of admitting that no conclusion was possible under [the] circumstances [of the study], they then went on erroneously to conclude that 1080 had no detrimental effect on forest invertebrates".	9198	
Potter et al (2006) study on invertebrates states that "This paper presents the results from a 5-year scientific paper investigating the benefits to terrestrial invertebrates of reducing the abundance of mammalian predators..." Note the word 'benefits' in place of the scientifically neutral 'effects'. It is not stated in the report how the intensive rodent control operation is to be conducted nor is it stated what poison is to be used.	9198	
Friends have reported finding large numbers of native snails dead in their shells after 1080 drops.	9114	
How does 1080 affect <i>Peraipatus</i> ?	9306	
There is no mention in the application of the threat to <i>Powelliphanta</i> snails. I am aware of the threat to these fauna near my home is largely from rats, and that 1080 poisoning causes a boom and bust population swing in rats. They breed rapidly after possum competition is removed and soon pose a larger threat to snails than possums ever did.	8302	
Also at risk are our valued invertebrate species, such as weta, native snails, native frogs etc and our valued lizards and bats.	8564	
Lack of in-depth scientific knowledge of the effects of 1080 on insects, bacteria, waterway organisms and other microorganisms.	8747	
Plight of New Zealand's reptiles is understated: they are prey to rats, mice, stoats, weasels, ferrets, hedgehogs, possums, and cats, whether feral stray, wandering or domestic.	8985	

Appendix T: Summary of Submissions

Aquatic environments and aquatic organisms Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Aerial distribution indiscriminate, untargeted; contamination cannot be prevented even by use of GPS.	9100	
Alternatives eg Ferotox; trapping, safer [than 1080] along riparian margins of lakes and streams.	9100	
By-kill of long-finned eel.	9100	
Why does the koru (freshwater crayfish) seem to disappear from creeks and streams after an aerial 1080 drop? Why do eel become less frequent after an aerial 1080 drop?	8592	
When the first aerial application of 1080 hit the Ward area, even trout died in the local streams.	8996	
It is extremely concerning that the Blue Mountain Duck (whiowhio) which is a filter feeder. is getting very endangered when aerial 1080 operations are still being conducted in their mountain stream habitats.	8996	
My concern with aerial distribution of 1080 is that we will see problems in the future with contamination of water supplies and destruction of water based creatures.	8300	
Positive results for 1080 have been recorded in water samples are at 5% (ERMA report).	8746	
As the industrial grade 1080 imported is gauged to be extremely toxic in the aquatic environment its being spread in all our rural water systems could be potentially disastrous.	8527	
If 1080 is dropped everywhere it will end up in our waterways in the bush; this could make our waterways full of toxins and destroy much of the animal and plant life that live in waterways. So not only will our hunting stocks be depleted but so will our river life. It will have such a huge impact on our hunting and fishing stocks that our right to hunt and fish will be gone because there will be nothing left to hunt and fish.	7449	
There is evidence that 1080 is extremely stable in water; in fact it is mixed with water to make baits.	9279	
Because 1080 is a toxic poison that has no odour or taste and dissolves easily in water, it should be banned in New Zealand,	9274	
Sub-lethal effect of 1080 on mallard ducks,	9261	
Unable to guarantee that aerial 1080 does not contaminate waterways either directly or by carcasses washing down streams.	8196	New Zealand Deerstalkers Association, North Auckland Branch
For minor creeks and stream etc, all studies have shown that 1080 is quickly diluted by water, has no effect on aquatic invertebrate or fish communities, or on humans or animals using water downstream.		Auckland Regional Animal Health Committee
In the 30 years plus that 1080 has been used in the Waikato region there have been no incidents of risk to human health, no contaminated waterways and no masses killings or localised extinctions of native birds and animals.	9092	Waikato Regional Animal Health Committee
1080-free areas are maintained adjacent to major waterways during 1080 operations.	9092	Waikato Regional Animal Health Committee
Another objection [to 1080] is that it is thought to have an adverse effect on waterways. This is a myth in that soil microorganisms and rain break down 1080 rapidly to salt and vinegar	9136	
1080 has no significant effect on our waterways as opposed to other toxins.	8312	
1080 is water soluble and micoorganisms present in New Zealand soils and waters break down 1080 rapidly compared with other commonly used toxins.	9218	Auckland Regional Council

Environmental persistence and degradation Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
1080 remained active in carcasses well beyond time area deemed safe.	9100	
Resistance of 1080 to breakdown makes harvesting of eels or game animals extremely hazardous.	9100	
Because 1080 breaks down quickly in warm water, data from samples not frozen immediately may be inaccurate.	9099	
1080 does not break down unless microorganisms are present and the temperature is above 11°C. This is particularly applicable to ground water which is often cold and sterile.	9075, 8996	
When 1080 does breaks down in the environment it will lead to increased concentrations of fluoride ions, which, when accumulated, can lead to skeletal deformations, bone degeneration, dental caries, and death.	9075	
Baits and poisoned carcasses remain lethal for very long periods when in dry positions	9054	
1080 is a stable compound, long-lasting except when killing life forms and results in landscapes remaining toxic indefinitely. The is an unsustainable and unacceptable abuse of New Zealand's ecosystems.	9310	
The exact persistence of 1080 is a matter of dispute in New Zealand. It depends dramatically on circumstances and varies widely but an average is about 50% loss in 24 days in baits. Weaver concludes that there is evidence that since degradation rates vary dramatically with temperature, in some circumstances it may persist for a very long time. This has not been adequately investigated.	9198	
1080 is said to be safe due to its rapid break-down in the environment. However most people's conception of 'rapid' and safe would not apply to 1080 if they were aware of the fact in mild conditions breakdown may take 1-2 weeks, and more in extreme environments 1080 "residues might persist in baits or in soil for several months".	9104	
1080 is preferable to brodifacoum as it is far less persistent in the environment.	9434	
1080 does stay in some organisms (eg snails) so that the chance of 1080 building up in the food chain through repeated sub-lethal doses could potentially pass through to humans over a period of time.	8527	
Develop alternative 'bio-degradable' solutions that are more environmentally and user friendly.	9043	
The claims of no significant adverse effects on the environment must be strenuously and independently tested.	8527	
1080 in cereal baits can be rapidly leached by rainfall, is rapidly broken down in the soil, is highly water soluble and has negligible effects on native fauna.	7517	Pest Control Research Ltd
Extensive research conclusively shows that 1080 has very low environmental persistence.	9291 9307 8454	Royal Forest and Bird Protection Society New Zealand Conservation Authority Banks Peninsula Pest and Weed Liaison Committee
1080 is biodegradable so does not persist in the environment, despite some peoples' fears.	8574	
1080 readily breaks down in water so is short-lived as a poison in the environment.	8304	Epro Ltd
1080 in cereal baits can be rapidly leached by rainfall, is rapidly broken down in the soil, is highly water soluble and has negligible effects on native fauna.	7517	Pest Control Research Ltd

Appendix T: Summary of Submissions

Environmental persistence and degradation Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
The low residual environmental effects of 1080 compare favourably with those of other toxins currently used for similar purposes.	9326	MAF
1080 rapidly breaks down in soil and water, and can be used in a wide range of applications.	8571	
1080 does not have any significant adverse effects on the environment or human health. It degrades completely in the environment and does not bio-accumulate in food chains.	9069	Local Government New Zealand
When used according to the regulations, 1080 is a safe toxin, and degrades in both water and soil to harmless product.	9128	

Climate and erosion Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
If aerial application of 1080 was not possible in more rugged and isolated areas, it is likely that pest control would not occur in those areas. This would lead to large areas of forest defoliation which would release vast amounts of greenhouse gases into the atmospheres and have adverse impacts for climate change.	9069	Local Government New Zealand
One of the consequences of the forest decline in the Tararua Range is flooding in Wairarapa, Kapiti, and Horowhenua. Inadequate control of numbers of browsing animals such as deer, goats, rabbits and possums increases the erosion threat, particularly as they prevent the re-vegetation of land already scared by erosion. Rigorous evaluation by DoC has shown that possum control using aerial 1080 is helping the recovery of indigenous ecosystems in the Tararua Range. Aerial application of poison baits is the only effective way to control introduced pest animals in the ranges, and thus halt and reverse forest decline, and 1080 is the only acceptable poison presently available for this work.	9199	Wellington Botanical Society
Dr Patrick Grant pinpointed the major cause of forest damage as climatic. The periods of dry, windy weather were traced back to the 16 th century.	9261	
Climate change is a matter of significance that should be considered in the registration of 1080.	9349	Agonate Forest Restoration Trust
It is clear that at Aongatete (in the Kaimai), as it is in the Southern Ruahine and Kaweka ranges among others, that the lack of browser control is destroying catchment protection properties. This is serious economic issue affecting flooding in storms, and low river flows when abstraction needs are highest. This issue will become even more important with climate change added to the assessment. 1080 is the only tool available to protect the carbon sequestration role of native forest.	9787	Royal Forest and Bird Protection Society Tauranga Branch
Improved protection of forests from introduced animal pests that can be achieved through 1080 also contributes towards more effective watershed protection and may in some circumstances reduce the impacts of flooding in stream and rivers.	8734	
In my own area it is critical that 1080 is used to try to halt erosion of the land in remote areas like the upper Wanganui, Waitaha and Mikonui Valleys. In these remote areas, possums especially have wreaked havoc with our native flora and caused massive erosion problems. Aerial 1080 drops are vital, and one of the few economical ways to halt the degradation in many of our West Coast valleys that are under DoC stewardship, but outside the national park system.	8563	

Climate and erosion Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Riney showed there is little or no relationship between areas of erosion-prone country and the areas of highest deer numbers.	9261	
Possums, rats, cats and mustelids Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Possums at an estimate reached their peak 20 years ago and have been in gradual decline for the last decade or more. I have observed a noticeable decline in road kill of possums, and in non-1080 areas. Fifteen years ago possums (dead or alive) were common on highways; today very few area seen.	9261	
Mustelids and cats don't eat carrot or pollard bait, so when rodents are killed [by 1080] mustelids and cats prey on birds.	9099	
How does 1080 kill stoats, as in my experience stoats prefer freshly killed prey, with a preference for food along waterways?	8592	
Stoats invade a 1080-treated area within four months, and when their primary source of food (rats) are removed, they kill birds,	8955	
Within the Wellington region it is stoats not possums that are the major threat, and 1080 does little to control these predators.	9257	
Ferrets have been proven to be a major vector for Tb in New Zealand.	9295	Hokonui's Action Group
I live on the boundary of the Kahurangi National Park and have been present for eight aerial drops over the past 12 years. I have noticed effects contrary to those that have been stated. I have noticed rodent explosions months after aerial drops. Are we breeding rodents that are 1080 resistant though repeated sub-lethal doses?	8257	
There is insufficient data to conclude that effects of aerial 1080 on rat and mustelid population dynamics is positive or negative to the environment.	9369	Friends of the Earth
Most toxins used in New Zealand, other than 1080, are more target specific and not have any significant kill on predator species such as mustelids or feral cats.	9320	EcoFX Ltd
The by-kill of pest animals such as stoats is an additional benefit for conservation and biodiversity protection in the use of 1080.	9307	New Zealand Conservation Authority
Aerial 1080 can result in a high by-kill of rats and stoats, both of which are significant predators of native birds, reptiles and invertebrates.	9189	AgiQuality Ltd
1080 has benefits on controlling ferrets, stoats and wild cats, which are unique to our environment, thus having a huge effect on preserving our native flora and fauna.	8571	
The ongoing development of fish-based deer repellent baits has resulted in these being shown to be an attractant to mustelids which are a major disease vector risk vector to farmed deer in some areas.	9071	New Zealand Deer Framers Association Inc

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Deer Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Risk of by-kill of non-target species such as deer, pigs, cattle, dogs, native falcons and blue ducks.	9278	
Once deer – and other wild animals - were established, it is probable the vegetation and bush became more like its original state of the moa era, because browsing restored the ecosystem.	9261	
Deer by-kills from aerial 1080 can be as high as possum kills.	9029	Council of Outdoor Recreational Associations)
Deer and pigs are badly affected by aerial 1080 and rendered non-useable.	8196	New Zealand Deerstalkers Association, North Auckland Branch
A recent survey by Landcare Research showed that an overwhelming majority of New Zealanders were favourably disposed to the presence of wild deer in our forest and mountains.	9434	
Wild deer populations do not recover quickly after 1080 operations, as DoC claims.	9434	
Prohibit the deliberate targeting of deer, chamois and thar with 1080.	9434	
Riney examined an 'undisturbed' deer population in Fiordland and found that, left alone, deer numbers stabilised at a low level and did not explode out of control.	9261	
Deer abundance has increased dramatically in many areas following decreased commercial deer hunting and deer recovery. This has been welcomed by some recreational hunters who see benefits from increased hunting opportunities. High deer numbers are associated with significant decreases in abundance and distribution of palatable shrubs and seedling canopy species. In turn these obvious impacts are associated with more subtle and less apparent effects, such as reductions in canopy regeneration, invertebrate habitat, soil stability and water retention. Cumulatively these factors undermine our forest ecosystems that are widely valued by New Zealanders, such as for high quality recreational opportunities, tourism resources and erosion control and flood protection.	9291	Royal Forest and Bird Protection Society
Aerial application is known to result in by-kill of deer, pigs, goats and other species valued by hunters. This has prompted calls to ban the use of 1080, and advocacy for the use of deer repellents on 1080 baits. Forest and Bird believes that it is in the greater public interest to implement deer control in areas where they are causing significant impacts on the ecology of forest communities. In these areas, there is a strong case to expend the registration of 1080 to allow aerial control of deer. For this reason we also strongly oppose the use of deer repellent in areas where deer have significant impacts on biological communities.		
As the only registered toxin for the control of deer and wallabies, 1080 also provides an important management option for areas where recreational hunting fails to control these animals to levels where they cause no significant harm to New Zealand's biodiversity.		
FMC recognises that deer can form part of the by-kill of 1080 poisoning. While hunting in public conservation lands is recognised as a legitimate sport and one that is undertaken by many of our members, we are very concerned about the increase in deer populations since the significant reduction in aerial deer recovery activity. It is possible that, perhaps in some of the remoter areas of the country, deer may indeed become the primary target for 1080 poisoning operations.	9770	Federated Mountain Clubs of New Zealand Inc

Deer Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Deer are increasing to problem levels in some areas and 1080 offers a practical solution to their control. I ask that the guidelines and recommendations do not preclude the use of 1080 for their control. There are areas where deer are not going to be controlled by recreational hunters.	9747	
DoC needs to be upfront in identifying deer as a target species for control by 1080. Even low populations of deer have a huge ecological impact on ecosystems by depleting canopy regeneration and sensitive species.	9212	Waipoua Forest Trust Inc
Deer are a threat to the integrity of indigenous ecosystems, and any by-kill of deer is a benefit to conservation.	9219	Canterbury Aoraki Conservation Board
As for by-kill of deer by 1080 – what a good thing as they are major conservation pests, they eat out the understorey of forests.	9136	
I am not concerned about deer deaths. Deer are pest species in the bush so it is beneficial if some are killed.	8473	
The fact that 1080 kills some deer represents a public benefit when this occurs in a national park, since national parks contain the highest value native species, ie the nearest to pre-human condition. The evidence from DoC and the AHB is that deer numbers quickly recover from 1080 impact. Therefore the impact of 1080 on deer populations is negligible and not a valid argument against 1080 use.	9258	
1080 should be used to kill deer, goats and pigs, especially in areas where hunters cannot keep the animal population down. These larger mammals are just as destructive to the New Zealand environment and economy as possums are. The main reason why these larger pests don't seem to be targeted is because of the vociferous opposition of hunting groups.	7851	
Loss of access to deer through 1080 is deplored by hunters but welcomed by recreational forest users who wish to minimise damage to forests by deer and other species, and to protect forest habitat for indigenous biodiversity.	7589	
Concern about the effects of 1080 on deer herds is an unsustainable objection. This is an argument made by people who want to kill deer, which are pest animals, for their own sporting purposes. Their concern is that 1080 may itself kill deer, and therefore, for some period, reduce the ease of them being able to do it themselves	9334	Wellington Conservation Board
By-kill effects on deer populations are generally of short term (3-4 years) and reversible. There has been a reduction in deer by-kill in most areas as a result of reduced sowing rates.	9320	EcoFX Ltd
Any impact on non-target species such as deer should not be seen as barriers to the use of 1080 as all exotic species have some detrimental impact on bush.	8748	Mount Ngongotaha Bush Restoration Trust

Farm stock Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Accidental poisoning with drops on borders of farm – intermingling of pasture and bush.	9100	
In the 30 years plus that 1080 has been used in the Waikato region there have been no incidents of risk to human health, no contaminated waterways and no masses killings or localised extinctions of native birds and animals. There have been a few accidental deaths of cattle, dogs sheep and deer generally as a result of poor communication, ignorance or stupidity.	9092	Waikato Regional Animal Health Committee

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We are aware of the risks to our stock and dogs and have managed that risk appropriately. The result is that we have not lost any stock or dogs.	9128	
Farm stock, which have been inadvertently exposed to 1080, only need a week's withholding period for any 1080 to be completely excreted from their bodies. Routinely used agrochemicals are more likely to accidentally appear in meat products than 1080.	9321	Te Puke Forest & Bird
Advances in GPS technology and management of 1080 operations can enable reductions of risks to domestic stock to negligible levels in well-managed operations.	9218	Auckland Regional Council

Table T2: Human health and safety aspects

Water quality Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Aerial distribution allows 1080 to enter waterways; given high toxicity of 1080 it is not possible to judge how long after 1080 drops water is safe to drink.	9100, 8981, 9195,	
Recreational hunters regularly need to drink water from stream in forests. There is no guarantee that this water does not contain harmful traces of 1080 after an aerial operation.	9253	
1080 has already been shown to be creeping into some of our water supplies. If the use of this poison continues, this will only increase.	8687	
Rotting carcasses in watersheds could lead to an increase in <i>Giardia</i> in streams.	9100	
Degradation of 1080 was significantly slower at cooler temperatures, and there was little breakdown in deionised water. Water in Wairarapa passes through cool, anaerobic aquifers, perfect conditions for zero degradation of 1080 and transfer to human food chains. Current contamination of watersheds with 1080 may not be apparent for some time.	9045	
Water monitoring protocols are inadequate.	8930, 9277	
In areas where the general population collect their water, there should be no aerial dispersal of 1080.	9280	
It is fairly clear from the literature that aerial 1080 in the concentrations in which it is usually applied, does not constitute a major risk from water contamination, providing it is applied as it is supposed to be.	9198	
A neighbouring community complained about an outbreak of boils after an aerial 1080 drop in the vicinity of the community water source catchment.	9125	Taheke Hapu Resource Management Roopu
Any household water supplies should be excluded from aerial 1080 operations or an alternative drinking water supply provided. How will the applicant ensure that they have identified the original sources of household water supplies?	9433	EV & AFC Noble Family Trust
Concern expressed about the operation of a water testing standard for 1080 residues by Landcare Research. Concerns relate to the transport and storage of water samples.	9322	New Zealand Deerstalkers' Association Inc
Aerial 1080 dispersal presents dire consequences to lifestyle block residents who consume water from mountain streams.	9313	New Zealand Deerstalkers' Association, Hutt Valley Branch
Any contamination (no matter how small) of our water or drinking water supplies is totally unacceptable.	8564	
Not only is there an excessive by-kill of non-targeted species, but the waterways of many small towns and cities are also contaminated as well. There is too much danger to the long term health of humans.	9264	
Unmanaged animal pests, in particular possums because of their sheer number, are important contributors to pathogens, such as <i>Campylobacter</i> , <i>Giardia</i> , and <i>Cryptosporidium</i> being present in water supply catchment areas. We have given approval to several extensive 1080 operations targeting water supply catchments in the Wellington area.	9249	Regional Public Health, Hutt Valley District Health Board
Either non-detectable or very low levels (<3.5ppb) of [1080] contamination with clearance within days.	9098	NZ Society of Medical Officers of Health
Water sampling (between 50 and 100 samples sourced from 1080-treated catchments since 1998), carried out by the Public Health Service has shown that 1080 has been detected on only a very few occasions and even then, well beneath the guideline concentration for drinking water of 2ppb.	9335	Nelson Marlborough District Health Board Public Health Service

Appendix T: Summary of Submissions

Water quality Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
For minor creeks and stream etc, all studies have shown that 1080 is quickly diluted by water and has no effect on aquatic invertebrate or fish communities or on humans or animals using water downstream.	9096	Auckland Regional Animal Health Committee
Research shows that 1080 has very little risk to water quality compared to other substances.	9069	
PestNET NZ does not believe there are significant adverse effects on human health and safety from the use of 1080 in New Zealand. Monitoring of drinking water has now been undertaken at approximately 1600 sites where water is drawn for human consumption and 1080 has never been detected in potable reticulated water in New Zealand.	9333	PestNET New Zealand Inc
1080 rapidly dissolves in water, it cannot poison water, nor anything else once it gets wet.	9102	
Between 1993 and 2006, 141 water samples from public water supply catchments in the Wellington region were tested for 1080 residuals, and a further 30 tests from private water supplies. No trace of 1080 was detected in any of the tests.	9135	Greater Wellington Regional Council
	9334	Wellington Conservation Board
Water sampling in areas where 1080 control has taken place has found no traces of 1080 in major water courses, or in reticulated town water supplies. In small water courses 1080 has been detected in areas where intact baits are still present in the watercourses. Of the samples taken where 1080 was detected, the highest concentration was found in one of 1649 samples to be four parts per billion. At this concentration, a 60kg adult would need to consume between 20 000 and 30 000 litres of water in one sitting to ingest a fatal dose.	9218	Auckland Regional Council
New information on 1080 Provisional Maximum Acceptable Value in water will soon be available; defer decision to avoid having to re-visit the 1080 protocols.	9129	MoH
There is no evidence of detectable 1080 entering reticulated water supplies, and most surface water contamination is temporary (hours) and confined to operational areas.	9320	EcoFX Ltd

Food Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Aerial distribution allows 1080 to enter food chain of humans.	9100	
A hunter may not be aware that 1080 has been dropped in vicinity or of knowing that an animal is contaminated [with 1080].	9100	
Fish eat mice – fish don't die, but may enter the human food chain.	9099	
The thought and no doubt accidental practice of placing wild pork on the family dinner table that has residual amounts of 1080 in it, regardless of concentration, is abhorrent.	9070	Te Kuiti Pig Hunting Club
There must be less toxic poisons available that do not have such widespread secondary poisoning or contaminate the food chain.	9059	
Humans get secondary poisoning from animals harvested while having a significant amount of 1080 in their system.	9029	Council of Outdoor Recreational Associations
Some young New Zealand rural children, especially those of Polynesian and Maori ethnicity, may be at increased long term health risks due to dietary factors not yet investigated, such as the consumption of possible water-contaminated watercress where 1080 values have not yet been considered.	9301	

My family and I take approximately 50% of the red meat we eat from deer and pigs harvested from areas that are cyclically poisoned with 1080. I am concerned at the risk to myself or family suffering secondary poisoning through 1080 use.	8747, 8553
There is a real risk to the public of consuming wild game meat harvested from our back country of being contaminated with 1080.	8564
The maths indicate that it is unlikely that one could consume enough meat from a poisoned animal to be affected; the problem is a public relations, not a health issue.	7851
There are no verifiable cases of humans catching Tb from eating meat or drinking (pasteurised) milk. All exported New Zealand meat and pasteurized milk is tested and certified as Tb free.	9104

Occupational health Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
History and research has shown that 1080 when adequately handles has little risk to human health. If we haven't had any problem in the past it is unlikely that we will have a problem in the future	9059	
I personally know of two employees of the local Pest Board who used to hand mix 1080 with carrot baits; one died at 38 of a brain tumour, and the other developed serious cancer.	8996	
The greatest risk of human 1080 contamination is to those involved in the manufacture and distribution of the bait. From 1999 to 2006, 41 urine samples and 32 blood samples were collected from staff and contractors working with 1080. No 1080 was detected in blood samples and none of the urine samples exceeded the BEI of 15ug/l	9135	Greater Wellington Regional Council
As covered in the application, the amount of 1080 contaminated meat a person would need to eat to be poisoned is Herculean and therefore does not pose a credible risk to human health	9231	Te Puke Forest& Bird

Toxicological and pathological effects of 1080 Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Don't know enough of what long-term [sub-lethal] effects might be eg on heart reproductive system; effects of medication	9100, 8997	
No reproductive toxicity studies have been done on the functional consequences of sub-lethal doses of 1080, especially on oocytes and the possible transmission to future children of mitochondrial DNA related disease. Multiple generations could be affected.	9301	
According to DoC's/AHB's own information, there is a high risk of birth defects from using 1080.	8556	
When 1080 does break down in the environment it will lead to increase concentrations of fluoride ions, which, when accumulated, can lead to skeletal deformations, bone degeneration, dental caries, and death.	9075	
1080 is a major danger to non-target species, including humans and the general environment.	9074	
I have friend who is one of the victims of chronic 1080 poisoning in this country. There are safer alternatives which would do away with all the associated health risks.	9066	
There are too many unanswered questions regarding the chronic toxicity of sub-lethal 1080.	9045, 8325, 9287,	

Appendix T: Summary of Submissions

Toxicological and pathological effects of 1080 Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Our deep concern of 1080 causing cancer in so many people throughout New Zealand – we know of several.	9011, 9012	
1080 is a proven cause of abortion in sheep so why not the human species?	8996	
Quote from Ministerial Inquiry into the National Pest Management Strategy: “there is no recorded case of any person who has eaten cooked meat from an animal with bovine Tb contracting Tb and New Zealand’s pasteurised diary products do not pose any risk of Tb for consumers”.	8996	
1080 kills and has killed people.	8953	
Potential endocrine –disrupting effects of 1080.	8930, 9287, 9283, 9280, 9261, 9209	
Further research is warranted to address the endocrine disrupting potential of 1080. Research needs to be targeted at fluoroacetate induced mitochondrial dysfunction associated with aconitase inhibition and alteration in mitochondrial transmembrane protein function.	9301	
Animal studies show repeated exposure to 1080 can affect heart and testes.	9283	
1080 is extremely toxic.	9183, 9184	
1080 has no known antidote. If a lethal dose is encountered the only result is death.	9120	
There is an increase of immune system illnesses in this country and the indiscriminate use of any poison cannot be held blameless.	9117	
What will be the effect of low doses of 1080 on someone with a predisposed medical ailment such as a heart condition or problems with some other bodily function? How will small amounts of 1080 affect medication for such ailments?	9109	
What damage may result to a person’s DNA or immune system from even a low dose of 1080?	9109	
What is the evidence to support the claim that there is no risk to human health provided appropriate mitigation measures are followed?	9433	EV & AFC Noble Family Trust
The fact that 1080 builds up in the testes and heart of humans should be enough to severely restrict the use of this poison.	8527	
There are no medical tests capable of detecting this super poison in the body, and 1080 is so toxic that skin contact, inhalation, contact with the eyeball, or ingesting as little as 6/100 of a metric gram, said to be the size of a full-stop, means certain death. 1080 cannot be diluted – its level of toxicity remains the same regardless of what it mixed with.	7859	
We recommend that in making its decisions, ERMA de-emphasise the importance of bovine Tb. From a health perspective, environmental degradation is far more important.	9249	Regional Public Health, Hutt Valley District Health Board
Non-lethal doses of 1080 are metabolised and excreted in a few days.	9102	
1080 is not an endocrine disruptor.	9320	EcoFX Ltd
No record of any negative impact on public health from 1080 in New Zealand.	9098, 9751, 8309	
In the 30 years plus that 1080 has been used in the Waikato region there have been no incidents of risk to human health, no contaminated waterways and no masses killings or localised extinctions of native birds and animals.	9092	Waikato Regional Animal Health Committee
1080 does not have any significant adverse effects on the environment or human health. It degrades completely in the environment and does not bio- accumulate in food chains.	9069	Local Government New Zealand

Toxicological and pathological effects of 1080 Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
1080 is quickly broken down and excreted by animals that have received a sub-lethal dose. Consequently it can be safely used for sustained pest control on the mainland without problems of environmental accumulation, contamination of potable water, or significant risks to human health through consumption of wild meat.	9291	Royal Forest and Bird Protection Society
The risks to humans of 1080 is not particularly high, particularly when compared with those associated with cyanide.	9135	Greater Wellington Regional Council
No tramper has ever been affected by the poison. Our members often visit areas shortly after (or even during) drops.	9770	Federated Mountain Clubs of New Zealand Inc
1080 is the safest toxin we use from a human health point of view, and does not bio-accumulate.	8314	
A lethal dose of 1080 cereal bait is approximately seven pellets and any human consumption of a lethal dose would have to be regarded as intentional. The only real risk of intentional human consumption would be by young children.	9231	Te Puke Forest & Bird

Table T3: Relationship of Māori with the environment, Treaty of Waitangi

Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
The AHB and the Otago Runanga O Ngai Tahu have an agreed consultation process, managed by the Otago vector control programme managers.	9092	Otago Regional Animal Health Committee
Trust not invited by DoC to Dunedin hui; DoC has Treaty obligation to consult Māori landowners (not just Te Runanga o Ngai Tahu).	9211	Tautuku Block X Section 3C Trust
Concerns about impacts of 1080 on Māori values and in particular Kaitakitanga, Tino Rangatiratanga and Tikanga.	9217	Te Whakaorangi o Karioi Society Inc
Concerns about impacts of 1080 on taonga species.	9217	Te Whakaorangi o Karioi Society Inc
There is a need for sustained investment in community-lead restoration projects, especially with rurally-base hapu/iwi. This is the best and most pragmatic way to encourage a pragmatic approach to 1080 and other toxin use. If it is their forest they are caring for, the people will more readily accept the use of toxins to save their heritage.	9212	Waipoua Forest Trust Inc
There exists a deep seated feeling that aerial application of any kind of poison affects mauri. Community acceptance of 1080 must be matched by a clear understanding and belief that it is necessary and part of a robust sustained plan to protect assets.	9212	Waipoua Forest Trust Inc
It is the majority view of tangata whenua within our rohe, that where mammalian pests are resident on Māori-owned land, then the landowners, in this case Māori, should have a major say in the control methods to be used. The use of 1080 on Māori owned land should involve Māori.	9134	Ngati Kahungunu Iwi Inc
The consultation process carried out by DoC and AHB was deficient in that it was more information release than consultation.	9134	Ngati Kahungunu Iwi Inc
There needs to be an increased engagement of Māori on the operational side of pest control operations.	9134	Ngati Kahungunu Iwi Inc
	9103	Te Runanga O Kaikoura
Assessment to take place of likely effects on tangata whenua relationships with environment where 1080 is to be used.	9134	Ngati Kahungunu Iwi Inc
Consideration be given to Māori participation in assessments and monitoring of 1080 use. This will alleviate misunderstandings with regard to cultural, traditional and spiritual Māori perspectives.	9125	Taheke Hapu Resource Management Roopu
Allow our organisation the right to exercise Kaitiakitanga e Tino Rangitiratanga as set out under Te Tirti O Waitangi by exempting our rohe [area] from continued 1080 operations.	9125	Taheke Hapu Resource Management Roopu
Recognition of equitable partnership of Iwi/ Māori in decision-making.	9131	Te Atiawa
A requirement for vector control agencies and contractors who manage and administer 1080, to interact with iwi and hapu, and for Cultural Impact Assessments to aid in determining best practices to minimise adverse effects on tangata whenua and their values.	9134 9103	Ngati Kahungunu Iwi Inc Te Runanga O Kaikoura
Need to take into account the principles of the Treaty of Waitangi and the spiritual values of the tangata whenua in local decision-making processes.	9134	Ngati Kahungunu Iwi Inc
Serious concerns about effects of 1080 on rongā (traditional Māori medicine and kai) ie piko-piko, tuna (eel), inanga (white bait).	9113	

Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
At some local meetings hapu and iwi have indicated that they consider that the mauri of the forest has got stronger post 1080 programmes because the bush (the whole ecosystem) is in a better state of health.	9320	EcoFX Ltd
Māori will be unable to be confident [with 1080] that the ronga medicines they gather are untainted or unaffected. Māori will be unable to meet their kaitaki responsibilities to the environment.	9316	
Aerial 1080 is the only way to control possums and rabbits efficiently and reliably prior to replanting [of exotic forests].	9298	Lake Taupo and Lake Rotoaira Forest Trust
On each occasion that the AHB have made an application to use 1080 on the Trust's lands, the Trust has taken a close interest in the details of the application, and at times have influenced various aspects of the operation.	9298	Lake Taupo and Lake Rotoaira Forest Trust
The Trust has noted that through the consultation procedures undertaken over recent years, many of the concerns that some owners held about aerial 1080 use have been allayed. This consultation process has been vital in educating both 'sides' of the debate on the real impacts of 1080 on the environment and waterways, and educating managers about some of the owners' concerns over various aspects relating to land use, customary rights, tikanga and manawhenua.	9298	Lake Taupo and Lake Rotoaira Forest Trust
Introduced pests such as possums, stoats and cats have had an overwhelmingly negative impact on native birds and fauna and the mauri of our native forests. 1080 may be an appropriate part of pest control in some forests, and aerial drops may be the most practical method in some back country areas	9296	Te Mana Taiao Charitable Trust
The applicants have not shown sufficient understanding of the tangata whenua relationships with their forests, native birds and fisheries and other taonga.	9296	Te Mana Taiao Charitable Trust
What is required is that the applicants consult with the tangata whenua of the particular rohe in which they propose to apply 1080. This is to ensure that their values and culture, and their relationship with their taonga are understood and provided for.	9296	Te Mana Taiao Charitable Trust

Table T4: Society and community aspects

Recreational hunting Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Recreational hunting... has been subjected to only limited valuation efforts [in the application]. No provision is made for compensation or offer of alternative recreational hunting opportunity, perhaps because of the limited efforts made to value the recreational hunting resource. Closure of extensive areas of land to hunters (often by more than six months) effectively removes hunting opportunities from the public.	9078	
Landcare Research found that between two-thirds and three-quarters of deer present in the Blue Mountains in Otago were killed by an aerial 1080 operation. The social cost of this operation outweighed any Tb or conservation benefits.	9253	
Aerial 1080 operations in the Tararua Ranges nearly always include the front country areas, which are easily accessible to recreational hunters. 1080 use in these accessible areas should be restricted to bait stations and burrows only. This would minimise the social cost, but also have benefits for conservation and Tb control. It would reduce the risk to other wildlife from the indiscriminate nature of an aerial 1080 operation. Aerial 1080 should be banned in areas regularly use by recreational hunters.	9253	
Current 1080 use poses unacceptable restrictions on hunters' use of significant areas of wild lands, which are subjected to 1080 operations. 1080 use on public lands inhibits hunters' ability to take safe, readily consumable wild meat for their families.	9322	New Zealand Deerstalkers' Association Inc
I have 40 years of hunting experience. The deer kill with 1080 is not <30% (as stated in the application) but closer to 80 or 90%.	9050	
Adverse impacts on small rural communities of failure to use deer repellents and hence adverse impacts on deer hunting.	8955	
Areas contaminated with 1080 are effectively locked off from hunting.	9283	
The pigs we hunt are not only a sport but an important source of food for many of us.	9229	Whitianga Pig Hunting Cluc
Big game (deer, pigs, chamois, thar, goats) is an important part of New Zealand life (50 000 active in 1998). There is a real prospect of recreational hunting on public land being eliminated over significant areas of the public conservation estate over the next 20 years	9029	Council of Outdoor Recreational Associations)
Of particular concern to me is the kill of feral deer as I am a keen hunter. Hunting is part of our culture.	9140	
As a hunter of 40 years experience I wish to oppose all aerial 1080 poisoning. I consider myself a recreational harvester as I eat everything I shoot or kill. Most of my hunting areas in the Kahurangi National Park and the West Coast have aeri ally poisoned. This has effectively ruined my sport.	8303	
I value deerstalking/hunting as a very important recreation and do not want future 1080 poisoning of my hunting areas.	8569	
I do not support aerial drops of 1080 in our National Parks. Being a hunter, seeing dead deer lying everywhere is sickening, as well as severely depleting bird/wildlife populations.	8507	
Hunting has been a way of life for many New Zealanders and indeed is part of our heritage. Hunting puts food on the table of some communities. As a hunter gatherer I can't imagine what New Zealand would be like without any game birds to shoot, or big game animals to hunt. Consider the jobs that have been created by the million dollar industry. Properly managed our big game animals can be an asset for all New Zealanders to enjoy.	8572	

Recreational hunting Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Aerial 1080 in cereal bait was applied to parts of the Blue Mountains Recreational Hunting Area for possum control in 2001. This area was very popular for hunting. Possum control in the past was carried out using ground control methods by fur hunters. A good number of deer were present prior to this operation. The herd suffered tremendous loss and in some parts totally disappeared. Now after six years, the numbers within the poisoned area are still struggling to recover with hunters reporting low numbers. The herd was and is an important part of our history. It plays an important part of outdoor recreation for our young people and other hunters.	8730	
The fallow deer being territorial have not restocked to the poison area. Distribution by aerial means affects untargeted species and should be banned. Damage should be rectified by restocking this area with new stock.		
There is an increasing restriction on hunting areas reducing opportunity for food gathering.	9117	
Only 4% of New Zealanders considered deer as pests, compared with 71-94% considered smaller animals (rats, mice, mustelids, possums) as pest.	9104	
Large aerial distribution of 1080 on the public conservation estate will very likely destroy recreational hunting for deer and pigs etc if it is allowed to go ahead.	8548, 8531	
The aerial use of 1080 should be strictly limited to areas that are genuinely inaccessible and that are not used by recreational hunters. In all other situations, 1080 should be restricted to use in secure bait stations and burrows.	9253	
Game animals are an important recreational, social and economic resource.	9293	Game and Forest Foundation
If 1080 is reclassified it will cheat our future generations out of being able to go hunting because there will be nothing left to hunt.	7449	
Hunters are the biggest users of the bush and venture far deeper and further into places never visited by other users, and have as much right as others to have a say on how the future management should be structured,	9250	
The application does not Identify the steps needed to be taken to minimise the risk of Tb vectors using immigration pathways to maintain Tb in a controlled area.	9156	
Discuss the problems associated with long-term use of 1080 for possum control;		
Display an understanding of the need to monitor Tb vector populations at low densities.		
The social cost of Tb eradication is too high. A very large number of New Zealanders are hunters. 1080 poison campaigns for possums target wild deer and pigs and remove a highly regarded recreational resource from our wild places. Recreational hunters are carrying the brunt of the 1080 onslaught.		
I spend a lot of time hunting in the New Zealand back country; hunting is the primary reason for venturing onto public conservation land. Without the animals I would not go. As a hunter I value these organisms enormously and regard the wholesale poisoning of these game animals as a tremendous loss of an asset.	9124	
Many hunters did themselves a disservice by not addressing their true concerns being the availability of game but instead came out with all sorts of environmental clap trap.	9751	

Appendix T: Summary of Submissions

Recreational hunting Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Concerns about the effects of 1080 on deer herds is an unsustainable objection. This is an argument made by people who want to kill deer, which are pest animals, for their own sporting purposes. Their concern is that 1080 may itself kill deer, and therefore, for some period, reduce the ease of them being able to do it themselves.	9334	Wellington Conservation Board
I do not believe that recreational hunting is the answer as hunters always ensure a healthy population remains. The same applies to professional hunters.	8632	
Hunting is restricted following 1080 operations so a hunter would need to be hunting illegally to be at risk of harvesting contaminated game. The animals would need to be shot within a week of ingesting 1080 for there to be any detectable residue.	9321	Te Puke Forest & Bird
Breeding sows and boars are generally unaffected by 1080 operations and the population returns to pre-control levels within a relatively short time.	9320	EcoFX Ltd
We acknowledge that that the use of 1080 can have a by-kill on deer and that this is of concern to hunters. However many areas are too remote to ever receive enough hunting pressure to keep deer populations at a level where the damage they do is environmentally acceptable. In other situations the environmental values of an area are so high that it is important to have high level of pest control, including deer control, for which the use of 1080 is needed. The concerns of hunters are not sufficient justification for discontinuing the use of 1080.	9069	Local Government New Zealand
Much of the opposition to 1080 originates in the hunting fraternity. There is no doubt that 1080 kills deer. I look forward to deer repellent being used where there is a conflict between possum control and hunting.	9059	
Hunting is an important part of New Zealand culture and identity, but its importance cannot override our responsibilities as kaitiaki of the land and all its native inhabitants.	9683	
As the only registered toxin for the control of deer and wallabies, 1080 also provides an important management option for areas where recreational hunting fails to control these animals to levels where they cause no significant harm to New Zealand's biodiversity.	9291	Royal Forest and Bird Protection Society
Both my work and my hobbies (deer stalking and photography) take me into some of New Zealand's great wilderness areas and I have seen for myself the benefits that aerially applied toxins can have for native wildlife and plants.	8726	
Most hunters are at least as concerned that deer and pig populations will be reduced as a consequence of 1080 operations, thereby reducing the number of animals to be hunted, as they are about other environmental affects of 1080. This latter concern is not easily resolved as the essential conflict is about different goals – protecting and restoring native biodiversity or maintaining a game animal resource for hunting. This conflict is not essentially about 1080.	8549	
I support the use of 1080 as a farmer and a hunter. I have shot in areas not poisoned for many years and the damage is always bad for native forests from pests. In the bush there is no birds and lots of damaged trees. The by-kill is acceptable for all the good that is achieved. Tb control by use of 1080 on vectors has been a major success.	8519	
I believe that the benefits to the entire community which are to be gained from 1080 outweigh the relatively short-term effects on pigs/deer/goats about which the hunting community are so vocal.	8502	

Recreational hunting Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
The main opposition to the continuing use of 1080 in Otago is almost solely hunters who are only concerned about the kill of other noxious animals namely deer and pigs.	8474	Southern Pest Man
There are areas of the country that deerstalkers do not have any impact on, for example the remote eastern Urewera country where massive deer browse has recently been noticed by biologists.	9252	
Enjoyment of the bush Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
1080 use and its long time for decay of toxicity of up to six months restricts public enjoyment of public lands.	8933	
As a New Zealander (born and bred) I want to be able to shoot a deer and eat the venison, drink from the stream and boil my billy in the bush and by the creek, sit back resting with my cup of tea and listen to the bellbird and watch the inquisitive robins and bush wren arrive and hop on the toe of my boot to check me out. I want to see the fantail land on an outstretched finger or on a rifle barrel. But I fear that this will become a memory if the indiscriminate spread of 1080 or its equivalent is not stopped.	9338	
Just as some people get pleasure from seeing healthy forest and hearing native birds, they also get pleasure from seeing valued introduced big game animals.	9324	
My enjoyment of the outdoors (a key intrinsic value) has been reduced dramatically over the years as 1080 has been used over larger and larger areas.	8747	
The loss of enjoyment of 1080'd forests is a very significant adverse effect. After 1080 has been aerially spread the bush is quiet and feels depredated. If a person is a regular visitor to that particular area the feeling of lost enjoyment and the spiritual joy of being there is lost for many years. It never really feels the same again.	8564	
Most people go onto public land for the views, or recreational challenge of going there and hunting, climbing, trampling, cycling etc. Bird song is appreciated, but ranks after most of the others I have mentioned.	8548	
Hunters value all animals (bar the possum, unless for fur) to eat: rabbits, hares, all deer, chamois, thar, wild goats and pigs. The contamination of big game animals, particularly deer, by 1080 leads to a loss of enjoyment and frustration for those hunting in the areas poisoned.	9248	
Seeing an intact forest of rata is one of the joys of the New Zealand bush – and only possible with the use of poison baits. Thin grey forest, devoid of native birds is usually the consequence of not baiting in areas of high possum numbers. 1080 is an essential tool to maintain the health of out forest	9356	
Recreation is positively enhanced through 1080. There is more native bird life in areas treated with 1080. This is a significant benefit for recreational experience. The presence of the natural range of plant species is also more enjoyable than bush areas depleted of plant species that are palatable to pest animals	9334	Wellington Conservation Board

Appendix T: Summary of Submissions

Trust and engagement of communities Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
<p>The public of New Zealand has no reason to believe that 1080 is as safe as authorities are telling us. Past experience has shown that the authorities can get it horribly wrong, as the Ivan Watkins Dow experience will attest.</p>	8572	
<p>Past history shows use of poisons in our environment often have negative outcomes to human and animal health sometimes many years after the event. For example, Agent Orange in Vietnam and the use of 245-T and DDT in our agriculture industry here in New Zealand. All these poisons were touted as being safe to use at the time, only to be recognised now as being very toxic to humans and the environment. 1080 is no different.</p>	9264	
<p>The application is full of half truths, innuendoes, unsubstantiated claims and purposely omitted agendas and facts. AHB and DoC have an arrogance towards the public of New Zealand.</p>	8564	
<p>Aerial application be significantly down scaled. As convincing as the information is on the safety that the applicants have supplied, the public view it with scepticism and mistrust. In the application, the 'level of benefit' for those visiting the forest parks and experiencing warm fuzzies warrants a higher 'level of benefit' than those whom live in rural communities in the vicinity of the parks and the other main users ie hunters, trappers etc. In my experience, many of these people are unable or unfamiliar with a process such as submitting on issues like this, and often carry mistrust of the whole process. They don't believe that their opinions are ever considered. These are the people most affected.</p>	9871	
<p>Growing public concern about the broadcast of toxins such as DDT, and attempts by some central and regional government officials to minimise the ecological costs of 1080 operations – in grasslands in the South Island (for rabbit control) as well as in forests (for possum control). A level of distrust was created among interest groups. This distrust persists to this day and many survey and research reports are routinely challenged by these groups regardless of the scientific information they contain or the integrity of the researchers. For example despite extensive research showing very small risk of water contamination, strong concerns continue to be expressed and objections lodged on the basis that 1080 baits in waterways constitute a significant risk to public health. Similarly some hunters continue to assert that many birds have been killed during recent 1080 operations. They maintain the forests are silent because all the birds have been killed by the toxin. Research and many surveys all contradict these observations. My own observations based on many years of formal bird counts, participation in relevant research projects and casual observation are that bird populations almost invariably increase following 1080 operations. While further research into the environmental fate of 1080 may be useful, there is probably greater merit in better understanding the philosophies behind these on-going concerns.</p>	8549	
<p>From 1995 onwards changes were made in the application and approval process. Pest control agencies became much more proficient at how they communicated and engaged with communities and in doing so were able to bring about in communities a greater sense of trust. This higher sense of trust helped communities keep in perspective the views promulgated by the lobby group against 1080.</p>	9249	Regional Public Health, Hutt Valley District Health Board
<p>The reassessment of 1080 is an opportunity for dialogue to occur between different groups. This will help build mutual trust and engender the confidence of the general public. We strongly recommend that the document relating to ERMA's decision ensure that the key issues are clearly identified and addressed in a sensitive, empathetic manner.</p>		

Trust and engagement of communities Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Some people are very suspicious of 'big government'. The lack of trust in government is not unique to the topic of 1080, nor is it unique to New Zealand. There are numerous examples such as dioxin and BSE. We find that the lobby group against 1080 can be very effective at sowing seed of distrust and doubt. The reassessment of 1080 is an opportunity for dialogue to occur between different groups. This will help build mutual trust and engender the confidence of the general public. We strongly recommend that the document relating to ERMA's decision ensure that the key issues are clearly identified and addressed in a sensitive, empathetic manner.	9249	Regional Public Health, Hutt Valley District Health Board
The 5-page summary pamphlet of the application shows that AHB and DoC discount many of the concerns recreational hunters and other have about human safety and 1080. Bias also shows markedly in the benefits and costs analysis.	8548	
When was 1080 poison fully scientifically researched in New Zealand (under New Zealand conditions) by an independent body outside of the realms of the New Zealand Government?	8528	
I propose a questionnaire/referendum be put out to interested New Zealanders to decide what animals should live and die on DoC land.	7779	
Instead of using 1080, spend the money through an updated web site on where problem animals are that you want hunters to eradicate.	779	
There is disruption and division in rural communities when 1080 is about to be dropped over water supplies	9369	Friends of the Earth
In areas where hunting is particularly important to local communities, operators have liaised with community leaders to achieve mutually beneficial outcomes eg in the Ruatahuna area during the Urewera operation.	9096	Auckland Regional Animal Health Committee
We have experienced good public support for the use of 1080 largely due to an inclusive consultation process. This process worked very well for the 2004 Hokonui Hills operation with support throughout the community far outweighing opposition.	9076	Southland Regional Animal Health Committee
Difficulties in getting DoC and contractors to observe consent restrictions, eg regarding unauthorised entry to land; application methods.	9211	Tautuku Block X Section 3C Trust
To protect our heritage, including using 1080, will require handing more responsibility, control and resources to competent community groups or iwi to implement.	9212	Waipoua Forest Trust Inc
DoC developed a pest management strategy for Stewart Island/Rakiura that lead to the formation of the "Stewart Island Pest Liaison Committee". All interested groups and people worked with DoC staff to control possums and other pest species. The results of this approach have been an outstanding success because:	9139	Southland Conservation Board
it gives the community buy-in to the programme;		
only ground operations are undertaken;		
community and recreation groups work closely with DoC.		
DoC and AHB have poor consultation with rural communities and often take heavy handed approach. Most problems seem to be about aerial drops, not ground bait stations programmes.	7502	
The contractors did an excellent job in communicating with those unhappy at the use of 1080. I believe public opposition to it has dropped to a very low level (where previously it was high with one local being convicted of sabotaging a drop).	7344	

Appendix T: Summary of Submissions

Trust and engagement of communities Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
The Trust has noted that through the consultation procedures undertaken over recent years, many of the concerns that some owners held about aerial 1080 use have been allayed. This consultation process has been vital in educating both 'sides' of the debate on the real impacts of 1080 on the environment and waterways, and educating managers about some of the owners' concerns over various aspects relating to land use, customary rights, tikanga and manawhenua.	9298	Lake Taupo and Lake Rotoaira Forest Trust
1080 has brought into being an astonishing plethora of highly effective, local, native flora and fauna protection groups and the recruitment of a large volunteer workforce, eg Ark in the Park.	8760	
Promoting a wider understanding of the facts surrounding the use of 1080 and more effective communication systems will clearly be important. Transparent systems and science-based decisions will not necessarily address peoples' philosophical concerns. Some people do not consider any environmental cost is acceptable, and consider that the aerial application of toxins as ethically abhorrent. Others in the Animal Rights movement believe that all animals have right to exist and do not accept that any should be killed for conservation purposes. The current reassessment may provide an opportunity to separate these wider concerns and perhaps suggest a process through which they may be addressed.	8549	
I would like to see an information campaign done as part of the ongoing poison work.	7851	
Increased public education about 1080 may be necessary.	7589	

Animal welfare Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
<p>The SPCA is opposed to the use of any poison which causes pain, suffering and distress. Currently the SPCA is not satisfied that 1080 poison is humane in respect of carnivores, omnivores, birds and many herbivores. While the SPCA maintains its general opposition to the use of 1080, that opposition is moderated to some degree where the target species is rabbits or possums. This moderation results from recognition of:</p> <ul style="list-style-type: none"> • The improvement in delivery systems for 1080; • The improved training of ground personnel; • The use of GPS navigation systems to ensure accurate delivery; • The decreased quantities of 1080 baits being delivered per hectare; • The results of recent research into the environmental effects of 1080, including the effects on bird life and other species; • The results of recent research into the humaneness of 1080 for possums, the main target species, which show that suffering appears to be 'relatively' moderate. <p>The SPCA maintains strenuous opposition to the use of 1080 in situations where non-target species, such as dogs, cats, deer and bird life, may be either directly or indirectly affected; and also to use of 1080 for species, such as feral cats and mustelids, where either there has been no independent research or there has been insufficient research into the effects, in terms of humaneness, on these animals.</p>	9286	Royal New Zealand Society for the Prevention of Cruelty to Animals Inc

Animal welfare Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
More humane alternative methods [than 1080] available for possum control.	9100, 8881	
The form of death [from 1080] is unacceptable.	9054	
1080 is a slow killer unlike cyanide – it takes 24-48 hours to kill and is extremely cruel.	8996, 8932, 9261	
The use of 1080 is offensive to the ethics which govern the killing of all animals. Death by 1080 is neither swift nor humane.	8987	The Wildfowlers Association of New Zealand Inc
1080 kills in a cruel manner and is extremely inhumane.	8969, 8964, 8834, 8325, 8277, 9196, 9186, 9140	
Animals poisoned with 1080 scream, vomit, defecate, and suffer violent seizures. EEGs on poisoned animals have produced results consistent with intense pain and distress.	8573	
The cruel symptoms of 1080 poisoning are: anxiety, excitation/depression, salivation, nausea & vomiting, convulsions, respiratory problems, central nervous system disturbances, organ congestion, incontinence, cardiac irregularities, cardiac arrest, intense cerebral damage, coma, death. Dogs may convulse and haemorrhage blood from ears, nose and mouth, respiratory muscles fail and they suffocate. Animals may take from 20 minutes to several hours to die. No living creature deserves this disgusting treatment!	8322	
1080 causes an extremely inhumane death to possums, and severe suffering to non-target species such as dogs. 1080 should only be used when more humane types of control are not practicable.	8841	
The effects of 1080 on the behaviour of brush-tail possums have been described by Litten (2004; op.cit.). 1080-poisoned possums experience 9.5 hours sickness, during which time they show mild to moderate retching, incoordination and mild to moderate tremors, spasms or seizures. Comparing these effects with other poisons: O'Connor et al (2003: <i>Relative humaneness assessment of possum poisons</i> . Landcare Research contract report LC0203/158 for MAF Policy). To our knowledge there has been work on the animal welfare impacts of 1080 on stoats (Potter et al, 2006; op.cit.) and possums, but there have been no specific studies on the welfare of other animals in New Zealand that would allow an accurate assessment of risks to other target or non-target animals.	9342	National Animal Welfare Advisory Committee
1080's action on its victims is inhumane; and more inhumane than cyanide.	9104	
Targeting large game animals with a slow acting toxin is socially irresponsible.	9343	
After a 1080 drop, I can only describe it as being very still in the bush, no birds, nothing. What a horrible and inhumane way to kill anything. I shoot and kill animals, usually one shot = dead animal. 1080 suffering is a slow painful death, no animal deserves that.	8506	
1080 affects the nervous system and heart, resulting in convulsions and finally heart failure. This is a slow, painful, distressing death over anything from 2 – 20 hours. This is a totally inhumane method of killing any animal.	9314	
The cruelty of poisoning with 1080 is not comparable with the values of a civilised nation.	8747	
1080 is a slow acting poison and cause a slow lingering painful death. In sub-lethal doses, this suffering can only be accentuated. Why is this tolerated in wild animals when any such suffering would not be tolerated in domestic stock? 1080 is inhumane!	8528	

Appendix T: Summary of Submissions

Animal welfare Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
I can't find reference to animal welfare at all in the application, except on page 8 where we are told the 1080 has 'moderately rapid effects' (4 -12 hours) as opposed to the 'rapid action' of cyanide (10 – 20 minutes). On these figures isn't 1080 about 100 times slower than cyanide? And since less than half of the deer exposed to 1080 actually die, it's likely that more than half a re sub-lethally poisoned. Might that be considered a risk? It is to the deer.	8302	
1080 is a humane way to kill mammalian pests as it causes herbivores to die of heart failure.	9136	
1080 kills relative quickly compared with other readily available vertebrate toxins.	7829	
Scientific evidence suggests that because of the mode of action of 1080 in carnivores, ie its affects on both the nervous system as well as the circulatory system, that an affected dog is unaware of its surroundings and in an hallucinogenic state.	9320	EcoFX Ltd

Dogs Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Secondary poisoning of dog, 18 hours to succumb.	9100	
I feel very strongly about the toxic nature of 1080. My particular worry is for pets, especially dogs. Many dogs each year are succumbing to 1080.	8544.	
The deaths that innocent dogs have to go through is criminal.	8543	
There are other options for possum control.	8542	
Should 1080 continue to be used, there needs to be a better system in place to monitor is effects on dogs, including a register of 1080 fatalities, improved communication to pet owners and vets about 1080 poisoning, and a subsidised and improved service for testing for 1080.	8580	
There is a very high risk of dog deaths with [use of 1080]. These problems would be avoided by reverting to more traditional and safer methods of control.	9022, 7850	
Game bird hunting relies on the use specially bred and trained dogs, which cannot do their task if muzzled. Many valuable dogs have been poisoned by 1080. 1080 operations generally coincide with the game bird season. 1080 may take up to six months to degrade, the net result is that access to normally hunted areas is restricted.	8987	The Wildfowlers Association of New Zealand Inc
Six of my pig dogs were poisoned when they went into a neighbouring block of bush. The warning signs had incorrect dates.	8962	
My beautiful 8 month boxer was killed by 1080 in a forest; my other dog was killed 5 months after the drop. Such a lethal poison should not be used in our forests – the signs are only left up for three months.	8559	
I have lost two working dogs because of use of 1080 in Waiwepa range.	8330.	
I have lost five hunting dogs in the last four years.	8746	
Dog owners are already heavily restricted in where they can exercise their dogs. Nearly all dog exercise areas in Wellington have possum poison in very close proximity, posing a great risk to dogs.	9253	

Dogs Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
I recently went hunting in a 1080 poisoned block. On the way back I spotted two stags not two weeks dead. Bird life was non-existent apart from the odd pair of ducks. Once home dogs were put away. Let dogs out in the afternoon for a run, one dog started to howl, looked extremely distressed. The dog went into an epileptic shock before dying. The vet said that the symptoms pointed clearly to 1080 poisoning. It was the most horrifying event I have witnessed in my life. All animals including deer must experience this most horrific of deaths. It is no excuse that these animals are not native, they are not experiencing humane deaths.	7338	
Dogs are a significant part of New Zealand life and the number of dogs affected by 1080 is likely to be under-reported.	8605	
Reliable data on 1080 poisoning of dogs is currently not available and without such data the risks to dogs cannot be accurately assessed.	8580	
Dogs are very susceptible to secondary poisoning from 1080. 1080 accumulates in carcasses which cause secondary poisoning of dogs.	9029	Council of Outdoor Recreational Associations
I go to great lengths to ensure my dog is safe to take into the bush to add to the hunting experience. In May 2006, we had pre-feed dropped on us while hunting on public land and despite my efforts to stop the dog eating any baits, she managed to chew one before I could stop her. I had no idea whether this was a live bait or pre-feed, as there were no warning signs in the area and the hunting permit we were issued with did not have a pesticides summary attached to it. It highlights to me the poor and inconsistent nature of the notification process.	9124	
Dogs have been killed up to 8km away from 1080 drops because possums have travelled before dying, often under woolsheds.	9201	
We have a farm bordering a 1080 drop zone. We were told we have to muzzle our dogs, commit cruelty – in the rugged hill country when a dog's cooling system is panting.	9181	
More controls/rules are needed for where 1080 can be laid near peoples' homes, especially in regard to dogs. We have dogs which are under good control and don't wander, but we could not allow them out of their kennels for months because of the risk. We feel this is wrong in this age of consultation and not making an impact on neighbours.	8575	
Accept that dogs are very vulnerable to 1080. Wide publicity is distributed where there is to be a 1080 drop. Warning signs are displayed during the toxic life of the poison. Responsible dog owners will take precautions to ensure their dogs' safety. Animal owners are responsible for the safety of their domestic animals.	9096	Auckland Regional Animal Health Committee
Most dog poisoning incidents arise because dogs are allowed to stray into (usually publicly owned) land being treated. It is rare that dogs belonging to responsible owners are affected.	9218	Auckland Regional Council
Dogs are extremely susceptible to 1080, and this is one of the big motivators of public concern over 1080.	9231	Te Puke Forest & Bird
Most dog deaths from 1080 are a direct consequence of the dog owner's negligence. We regularly observed dog owners taking their dogs into the Otanewainuku forest reserve, past signs that warned of the 1080 operation underway. Any dog which is illegally in a conservation area should automatically be regarded as pest.		

Appendix T: Summary of Submissions

Dogs Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
It seems that concerns about the effects of the poison in relation to non-target species often relate to the effects on dogs. Dogs are recognised as significant predators of native avifauna, notably kiwi in some parts of the country. Dogs at loose in these areas are a much greater hazard to kiwi that poisons will ever be.	9770	Federated Mountain Clubs of New Zealand Inc
“1080 is a very potent poison, and although I acknowledge that it is indispensable at this time, I believe that everything should be done to prevent it harming non-target species... A readily accessible antidote is an urgent priority. As a veterinarian in an endemic possum Tb area, I have been called on to treat about 6 dogs and a cat showing symptoms of 1080 poisoning. There is officially no antidote, so the majority of animals presented to vets are euthanised. However John McClaren wrote up an effective protocol prescription in Vetscript. He uses 15mg acetamide crystals dissolved per litre of Hartman’s and 5% dextrose intravenously administered over several days. Flooding the system with acetamide keeps the dog alive (usually anaesthetised) until the animal can metabolise the 1080. Since implementing this protocol I have lost one dog because I ceased treatment too soon. The other four recovered and are healthy, although I have not investigated their fertility. It is an expensive and time consuming treatment, but it works. While New Zealand is too small a market to commercially release a 1080 antidote, I believe that it is unethical to spread the stuff without the government investing in developing an antidote...”. Appended is a letter by Rammell et al published in the NZVJ 33: 149 -150 1985: Treatment of 1080 poisoning in dogs with glycerol monoacetate. “..We recommend that poisoned dogs be dosed intramuscularly with glycerol monoacetate at a rate of 0.5ml/kg on presentation and thereafter 0.2mg/kg every 30 minutes for five hours....”	9347	
Vets do see occasional cases of accidental or secondary poisoning in dogs that scavenge on carcasses of poisoned pest animals. This risk can be kept to a minimum by strict adherence to buffer zones and public notification of areas of treatment, and by owners keeping dogs under control.	8537	New Zealand Veterinary Association
In the 30 years plus that 1080 has been used in the Waikato region there have been no incidents of risk to human health, no contaminated waterways and no masses killings or localised extinctions of native birds and animals. There have been a few accidental deaths of cattle, dogs, sheep and deer generally as a result of poor communication, ignorance or stupidity.	9092	Waikato Regional Animal Health Committee
We acknowledge the potential for accidental ingestion of 1080 by dogs. However we consider that these risks can be adequately managed by appropriate controls around the use of 1080.	9069	Local Government New Zealand
Secondary poisoning of dogs with 1080 after a control operation is the worst downside. This can be alleviated with adequate public notification and signage – this has been successful in the Peninsula area of Lake Wanaka where many dogs are taken with families boating. To my knowledge no dog deaths have occurred although many possum carcasses would still be toxic.	9059	
Pig dog deaths are dependent on the ignorance of some hunters rather than 1080 itself.	8310	
The risk to pet dogs has not been well-controlled in the past. Now that ACVM requires the public to be advised that dogs should be kept out of the operational areas and signage reinforcing this message placed at entry points, we are much more comfortable.	9249	Regional Public Health, Hutt Valley District Health Board

Dogs Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
We acknowledge that a major risk during 1080 operations is to our dogs. Our experience is that strict knowledge of all dog movements, frequent restraining when not working and the use of muzzles can prevent losses.	9213	Wellington Regional Animal Health Committee
Dogs can be poisoned by eating carcasses but we think that it would benefit the forests if all dogs going into forests were muzzled which would stop them nosing out vulnerable kiwi.	9136	
Concerns about dogs are real. However it is a matter of good dog control or suffer the consequences.	9751	
Livestock farmers strongly advocate the use of 1080 despite the fact that our valuable working dogs are in the front line when it comes to risk. They recognise that the loss of a dog through negligence or just plain ill fortune is insignificant when it comes to the benefits from controlling these very serious pests.	9256	
Provided every effort is made to warn owners of the risk to animals in areas where 1080 has been applied, vigilance by owners is the best safeguard.	7589	
While there is the occasional dog death this should be rare as the poisoning is well notified. As a society we can accept the occasional dog death for the umpteen birds and insects saved, the umpteen hectares of bush in better condition, many rata trees saved etc.	8473	
As a vet I have seen several cases of 1080 poisoned dogs. All but one have been due to the owners ignoring warning signs and letting dogs off the lead in baited areas. The one 'accidental' poisoning was from a possum washed down a river and subsequently eaten by a dog, but these occasional secondary poisonings are a small price to pay for retaining our native birds, rata trees, lizards and other unique flora and fauna.	9356	
Pet owners have a responsibility to keep their pets safe by keeping them under control. From a conservation point of view it would be preferable if there were no incursions of pets particularly cats, but also dogs in areas inhabited by ground dwelling birds and other vulnerable species.	9334	Wellington Conservation Board
Over the past 20 years dog deaths due to 1080 have reduced considerably, generally through better education and reduced use of 1080 in open farm land.	9320	EcoFX Ltd
Scientific evidence suggests that because of the mode of action of 1080 in carnivores, ie its affects on both the nervous system as well as the circulatory system, that an affected dog is unaware of its surroundings and in an hallucinogenic state.	9320	EcoFX Ltd
Most veterinary centres have acetamide glucose or glycerol monoacetate (GMA) on site which has been used successfully to save dogs' lives in a number of cases where 1080 carcass ingestion occurred.	9320	EcoFX Ltd

Values and ethical considerations Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Hunters value all animals (bar the possum, unless for fur) to eat: rabbits, hares, all deer, chamois, thar, wild goats and pigs. The contamination of big game animals, particularly deer by 1080 leads to a loss of enjoyment and frustration for those hunting in the areas poisoned.	9248	
No number of native or for that fact, so called introduced species, killed by indiscriminate aerial broadcasting is acceptable.	9267	

Appendix T: Summary of Submissions

Values and ethical considerations	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Issues		
DoC's obsession with preserving native plant and animal species at all costs, with no regard or objective comparison with the relative benefit of introduced species is contrary to the general public and the objectives of the RMA.	8548	
Most people go onto public land for the views, or recreational challenge of going there and hunting, climbing, trampling, cycling etc. Bird song is appreciated, but ranks after most of the others I have mentioned.	8548	
Recreational hunters do not see wild deer and pigs as pests, rather as a very valuable resource.	8528	
I am an avid hunter and have spent many thousands of hours over 40 years enjoying Pureora Forest Park. It is here that I was with my son when he shot his first deer and I hope it is here that my grandsons shoot their first.	9156	
As a New Zealander I feel ashamed that 1080 is used in our beautiful, unique country. I have been in areas that have been poisoned – not a tweet of a bird; total silence.	8299	
In this age of environmental awareness it is an anachronism to be aerially applying a toxin to the environment under the guise of 'protecting the environment'. The aerial application of large quantities of 1080 to our landscape does not have a good fit with 21 st century ideals and attitudes.	9271	
Most hunters are at least as concerned that deer and pig populations will be reduced as a consequence of 1080 operations, thereby reducing the number of animals to be hunted, as they are about other environmental affects of 1080 This latter concern is not easily resolved as the essential conflict is about different goals – protecting and restoring native biodiversity or maintaining a game animal resource for hunting. This conflict is not essentially about 1080.	8549	
Because so many of our national icons are endemic (eg kiwi, tuatara, kakapo, kokako) it is matter of global importance to preserve them. They are our unique responsibility.	9449 9307	New Zealand Conservation Authority
Some people do not consider any environmental cost is acceptable, and consider that the aerial application of toxins as ethically abhorrent. Others in the Animal Rights movement believe that all animals have right to exist and do not accept that any should be killed for conservation purposes. The current reassessment may provide an opportunity to separate these wider concerns and perhaps suggest a process through which they may be addressed.	8549	
Using control methods which we know to be ineffective in large conservation areas is as good as doing nothing and is irresponsible.	8451	
I am ethically against aerial distribution of 1080 and ethically against the indiscriminate killing of non-target animals.	8298	
No animal should be poisoned to death simply because it was born as an unpopular life form. Killing an animal that <i>might</i> carry Tb because it could endanger an animal we want to kill late is as insane as it sounds.	7350	
Terrorism		
Issues		
If terrorists got hold of this chemical there would certainly be a ban. Who knows what they would do with it?	7354	
There is a risk of 1080 being used illegally eg for terrorism.	9283	

The USA have recently considered discontinuing the production of 1080 due to the perceived risk of terrorist use of the poison, possibly in domestic water supplies.	9214, 8592, 7859
In some countries 1080 is classified as a terrorist weapon.	9274

Table T5: Market economy aspects

Bovine Tb Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Main Tb threat to region comes from farmed cattle and deer being transported into region. Illegal release of wild deer and pigs is a major concern.	9096	Auckland Regional Animal Health Committee
Northland is bovine Tb free. Introduction of Tb would threaten the rural economy and every technique possible would be used to eradicate Tb. The use of 1080 is an essential element of the contingency plan.	9094	Northland Regional Animal Health Committee
As a farmer I have personal experience of the financial implications of the outbreak of Tb on our farm. It is essential that we continue to use 1080 to control and eradicate possums. Without 1080 we would not have reduced the possum population in our area.	9093	
Tb freedom is an international status where no more than 0.2% of herds are infected with Tb in a given twelve month period. There is nothing on the horizon that would come close to the effectiveness of 1080 in difficult and remote terrain. The incidence of bovine Tb has been reduced by 90% over the last ten years. For economic and pragmatic reasons the easier and more productive country has been targeted in the earlier stages. In order to fully eradicate Tb there will be a need to treat some of the remotest country where Tb vectors reside and continually move out from. No other method comes close to 1080 in its ability for effective control.	9751	
Tb infected herds in New Zealand have dropped from 1385 in 1996 to 153 in 2006. Much of this decrease has been the result of extensive vector control, with the use of 1080 playing a vital role. Without the use of 1080 it is likely that the number of infected herds would be significantly higher.	9189	AgriQuality Ltd
Aerial 1080 application consistently results in the low and even possum kills that are required to halt possum and bovine Tb spread. With GPS, bait can be applied accurately and with complete coverage. In contrast, ground control can be uneven and patchy, allowing Tb hotspots to remain.		
Tb in the Waikato has been reduced from 180 infected herds in 1992/93 to eight in 2006. Without [aerial] 1080 it would be difficult to control possums in the rugged and less accessible parts of the region.	9092	Waikato Regional Animal Health Committee
Without the use of 1080 there would be a generalised failure of the Tb control programme, with Tb-infected wildlife spreading further via forested areas to currently disease-free areas. This would have significant effects on the local and national economy.	9188	Tararua District Council
When we first arrived on our dry stock sheep and cattle farm alongside the Hauhangaroa Range we were on movement control and tested our cattle for Tb approximately every 60 days. After two years this process seemed futile due to the lack of progress in reducing re-infection from the considerable number of possum vectors. Our property includes 45 ha of soil conservation area which is a reservoir for possums. We are capable of keeping these areas under control but only if reinfestation does not occur from the neighbouring Crown estate. The only method which has been successful in our case is the use of aerial 1080 over large areas of the estate, not just the bush at the pasture margin.	8753	
Our gross income today, as a dry stock unit, would be in the vicinity \$200 000 pa. We now have a dairy unit with 700 cows with a gross income exceeding \$1.1 million pa. It is not hard to see the economic results of dairying as a result of complete control of possums through aerial treatment of the Hauhangaroa Range.		

Bovine Tb Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Having 1080 is very important in protecting farmers' livelihoods by not having Tb in our stock. It is especially important for sharemilkers because of their equity in the stock.	8520	Tirohanga Lips - Okama
I support the use of 1080 as a farmer and a hunter. I have shot in areas not poisoned for many years and the damage is always bad for native forests from pests. In the bush there is no birds and lots of damaged trees. The by-kill is acceptable for all the good that is achieved. Tb control by use of 1080 on vectors has been a major success.	8519	
We do not believe the aims of Tb eradication can be achieved without the continuing use of 1080 especially by aerial application.	8474	Southern Pest Man. Otago
I currently own a property that with boundaries with the Kahurangi National Park. The use of 1080 in the surrounding bush to my property has reduced possum populations to nearly nil. It has been to reduce vector populations and the threat of Tb to our stock. It has given us a sense of security. I would like the option of 1080 use to be available when vector populations rise again in the future.	9755	
The overall benefits achieved by the use of 1080 are both aerially and by ground application for the control of possums are enormous. 1080 is the single most effective toxin for controlling g possums in rugged, inaccessible hill country. There has been a marked reduction of [Tb] infected cattle and deer herds throughout Marlborough as a result of the vector control using both ground and aerial 1080	9769	Marlborough District Council
Since 1997 an extensive AHB vector control programme has reduced infected herds in Otago from a peak of 296 to 30. We are now carrying out more targeted vector control where there are known possum populations and problems with Tb, and the use of 1080 will be crucial to the success of this strategy. In Otago, possums are the main vectors of Tb and contact with possums is the major cause of infection in deer and cattle. The amount of 1080 used is minimal but crucial; most of it is applied by air.	9077	Otago Regional Animal Health Committee
In the Catlins, prior to aerial 1080 control, Tb infection was the norm with almost every farm having some infection. Tb control proved too costly for many cattle and deer farmers and some were forced to sell their land, at much reduced prices, to forestry companies.	9092	Otago Regional Health Committee
The use of aerial 1080 is crucial to helping us eradicate bovine Tb from Southland. To achieve eradication we need to stop the disease cycling in the wildlife living in Southland's Tb hot spots. The most effective way of achieving this is with aerial 1080.	9076	Southland Regional Animal Health Committee
Feral deer can be Tb vectors, which threatens our farm exports, whose economic value is much greater than that of recreational hunting near farmland. Therefore the greater public good is served by their numbers being reduced near farmland, than the public good they provide as a recreational hunting resource.	9258	
The use of 1080 is necessary to control possums, rabbits and other pests in rough gorse and scrub covered country and forests where access is difficult.	9339	Nelson Province of Federated Farmers NZ
Research has shown that rabbits are an important component in the fight against bovine Tb. High rabbit numbers support high ferret numbers which in turn increase the risk of Tb spread as ferrets are known carriers of Tb. Without the use of 1080, the Tb control programme would be severely curtailed.	9336	Otago Regional Council
Without 1080 the AHB could not achieve their Tb freedom targets. There is simply not enough suitable manpower in New Zealand to carry out possum control over large areas of rugged and inaccessible bush land.	9320	EcoFX Ltd

Appendix T: Summary of Submissions

Bovine Tb Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Tb control is a critical issue to all deer farmers for the continued viability of our industry. It is well established that the risk of vector spread of Tb by possums is a serious causative link to the spread of Tb in farmed deer. In many parts of New Zealand aerial application of 1080 is the only practical and cost effective way of reducing possum numbers to very low densities and maintaining the for a prolonged period. The disease has the potential to be barrier to our exports of beef and venison.	9071	New Zealand Deer Farmers Association Inc
Detection and assurance of Tb freedom in exported venison is the major driver of the expensive (~\$9.00/head) carcass inspection services conducted by the NZFSA at the industry's deer slaughter plants	9071	New Zealand Deer Farmers Association Inc
New Zealand cannot slow efforts to eradicate bovine Tb. While progress has been made in disease control, the vector risk area remains large and requires an acceleration of vector control, not a deceleration. We support use of 1080 as the 'principle technology' available to control bovine Tb, principally to ensure industry productivity, deer health and market access.	9162	Deer Industry New Zealand
The ongoing development of fish-based deer repellent baits has resulted in these being shown to be an attractant to mustelids which area major disease vector risk vector to farmed deer in some areas.	9071	New Zealand Deer Framers Association Inc
Having had Tb in our herd we know the cost of clearing this disease and the waste associated with it. The aerial portion of the vector control operation is in extremely steep and rugged terrain. We are now at less risk of Tb because of this.	9059	
In the Taupo area 1080 operations have achieved major reductions in Tb vectors and herds on movement control. This has worked because of multiple species have been targeted directly or through secondary effects over large areas where cost, terrain and vegetation makes it impracticable to treat using other methods.	8311	
Having a cost effective pesticide such as 1080 remains a key to achieving the goals of the regional pest management strategy, and it will continue into the future to be the control agent of choice.	8756	Environment Waikato's North and South Biosecurity Advisory subcommittees
Positive effects of 1080 Tb vector control operations include by-kill of rats, mice, stoats, ferrets and feral cats.	8458	
Aerial 1080 operations in forest that surrounds our property has reduced Tb infection in our dairy herd and improved plant and bird life in the forest. Our income has been affected by the Tb outbreak.	7777	
The AHB have recently undertaken two aerial 1080 pest control operation over our farm. This has dramatically reduced the threat of Tb (in our deer herds). The benefits to the bush and birds from possum control have been enormous. Bird numbers increased and rata flowered for the first time in 25 years.	7325	
Tb, as measured by infected herd numbers peaked in the mid 1990s at 331 for the Wellington region. The economic cost to infected herd owners was considerable, and as the rules governing stock movements became more severe, these cost were increasing. Large-scale vector control in the region has resulted in infected herd numbers reducing to 15 in 2006. 1080 has been a vital tool in this vector control work, and control would be severely curtailed if 1080 were not available.	9213, 9135	Wellington Regional Animal Health Committee; Wellington Regional Council

Bovine Tb Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
In my 34 years experience in tuberculin testing cattle and deer in the Wellington and Horowhenua areas where 1080 has been used to control possum populations, I have noticed a significant reduction in the incidence of bovine Tb. There was conclusive proof from surveys undertaken by MAF in these areas that possums were a vector for Tb, and that infected possums were spreading bovine Tb to cattle and deer. Reactor rates did not reduce until control using ground and aerial 1080 was undertaken.	9232	
Every indication suggests it is possible to fully eradicate bovine Tb in New Zealand provided 1080 or a tool equally effective is available	9175	
Aerial 1080 is the only practical mean of dealing with possums as Tb vectors in remote areas eg Kahurangi National Park; no other method comes close to aerial 1080 for effective control.	9175	
I have witnessed the trauma that some farming families have gone through when their herds have contracted bovine Tb. There is not only the financial imposition but a tragedy causing major emotional strain	9175	
The key to the AHB programme is the ability to control pest in the forestry and scrub land that borders farms. Aerial 1080 is the only way to achieve effective control	9128	
The New Zealand dairy industry is committed to a control and eradication programme of bovine Tb in New Zealand. The viability of the Tb Pest Management Strategy relies on the availability of 1080 to undertake cost effective vector control. On the West Coast there were 52 infected herds in 2006 compared with 250 infected herds 10 years earlier. Aerial application is the only effective and economic method for reducing infected possum populations in inaccessible rugged and mountainous country. Without 1080, the current pest management programme and the aim for a Tb free dairy industry would be put in jeopardy.	9127	Westland Milk Products
We have broken the TB cycle on our 800ha farm with 1080 by reducing possum and ferret numbers, and the positive effects on bird life is beyond belief.	9053, 9051,	
The viability of the current bovine Tb pest management strategy under the National Pest Management Strategy relies on the availability and considered use of 1080 for cost effective bovine Tb vector control including aerial and ground application. The recent success: ~ 31 Tb infected deer herds in June 2006, down from 73 in 2004 and a peak of 167 in 1996.	9757	South Canterbury Branch, New Zealand Deer Farmers Assn Inc
Control of stock movements in New Zealand is lax; this may explain many sudden and unexpected outbreaks of bovine Tb.	8987, 8932, 7343, 7342, 9283, 9261, 9142,	The Wildfowlers Association of New Zealand Inc
Other countries manage bovine Tb satisfactorily by stock control measures, without use of 1080.	8933	
The main reason for the reduction in Tb infections is in livestock movement controls. They are doing a sterling job. It is not 1080 that has or will cause reductions, but movement controls. The vast majority of Tb infections in farmed animals was caused by the flourishing deer farming industry and the uncontrolled movement of Tb infected deer from one end of New Zealand to the other. This uncontrolled movement probably caused quite a few new infections of wild animal populations.	8564	

Appendix T: Summary of Submissions

Bovine Tb Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Although possums are known to be carriers of Tb it is an open question whether they are the cause of Tb in dairy herds. Improved farming practices may be more influential in the elimination of Tb than chemical control. Anecdotal evidence suggests that poor animal husbandry (poor birthing conditions, overcrowding, lack of proper food or shelter) and slack practices (like the movement of cattle without proper Tb clearance) may be the real culprit.	9148	
There are serious alternatives to possum control for the purpose of eradicating bovine Tb. Some of these may be less costly and more effective than the current practice of periodically blanketing the our forest environment with a universal poison.	9198	
Vaccines should be developed to protect cattle and deer herds from Tb, as was earlier proposed and supported by the AHB.	9295	Hokonui's Action Group
Tb could be curbed by ensuring that all stock have a negative Tb test before any stock movement takes place, and by de-stocking infected animals from Tb infected farms.	9295	Hokonui's Action Group
Long term, no matter what is done, the possum is with us. Throwing 1080 at the problem indefinitely is not a long-term option.	9045	
Compared with other agriculturally based economies, the New Zealand incidence of bovine Tb is extremely low – 0.5% compared Ireland 3.82%, Great Britain 0.63%, Portugal 4.42%.	8996, 9261	
More vectors than possums for bovine Tb, including sheep.	8987, 9142,	The Wildfowlers Association of New Zealand Inc
Culling 'at risk' animals and only breeding from those that exhibit resistance to Tb, has proven that Tb free herds using genetics is possible.	9295	Hokonui's Action Group
Is Tb such a great threat knowing that cooking meat is enough to destroy Tb bacteria?	9055	
Deer (like cattle) have Tb-resistant gene, which is relevant to control of deer as possible Tb vectors.	9261	
Mustelids are vectors for Tb as well as possums.	8900	
That possums are the main vectors for Tb transfer may be somewhat of a myth.	9075	
Evidence that ferrets are important vectors for bovine Tb.	9142	Environmentally Safe Pest Control
Hunters and AHB agree that neither deer nor wild pigs are major carriers of Tb.	8603	
Tb infected ferrets acquire infection from Tb carrion/prey or by cannibalism.	9138	
A trapper in our area has found no lesions on any possums he has trapped. Other species than possums can spread Tb, and our numbers of pigs with Tb are increasing.	8997	
Ferrets, wild cats, hedgehogs and stock movements are the main Tb vectors.	8996, 9261,	
Tb infection in my experience is found in wild animals close to farming areas and not in remote forests.	9359	
Tb virtually never exists other than on farm fringe country or in other isolated hot spots.	9313	New Zealand Deerstalkers' Association, Hutt Valley Branch

Bovine Tb Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Results of studies indicate strongly that the focus of possum control should be at the forest pasture margins, with supplemental coverage of a buffer zone outside these margins. This would target the biggest reservoirs of infected possums and would control movement in and out of the region.	9198	
Such pasture margins controls should not require aerial application of 1080 since these margins are not inaccessible. We acknowledge that AHB does carry out active possum control at margins, but continuing and intensifying this effort could be more likely to bring about the control over cattle bovine Tb than the broader blanket approach.		
By leaving trapped and poisoned carcasses where the animal dies, the opportunity for other animals to scavenge the remains is extremely high, and can involve cats, ferrets, stoats, dogs, pigs and possibly other animals.	9295	Hokonui's Action Group
Bovine Tb is mainly found in farmland and not found in the bush. In 31 years of harvesting for the kitchen I have never found Tb in animals harvested from public land.	9279	
In over 40 years of recreational hunting, over many parts of New Zealand, I have never found evidence of bovine Tb in wild animal carcasses.	9078, 9283, 8553	
I always check animals taken for symptoms of Tb and have yet [in 30 years hunting] have yet to find an infected animal. If Tb turns up in farmlands, I question the reasoning for such large campaigns in forest areas miles from farmlands.	8603	
Most countries we export meat to have a Tb problem of their own and live with it.	9055	
The cost vs the benefit of a TB-clear country needs to be evaluated. A Treasury paper indicated the cost to be higher than any possible gains or loss through the shipment of contaminated meat.	9055, 9261	
The application does not identify the steps needed to be taken to minimise the risk of Tb vectors using immigration pathways to maintain Tb in a controlled area.	9156	
Discuss the problems associated with long-term use of 1080 for possum control.		
Display an understanding of the need to monitor Tb vector populations at low densities.		
The social cost of Tb eradication is too high. A very large number of New Zealanders are hunters. 1080 poison campaigns for possums target wild deer and pigs and remove a highly regarded recreational resource from our wild places. Recreational hunters are carrying the brunt of the 1080 onslaught.		
Treasury Working Paper raises serious doubts as to the relative benefits v costs of the National Pest Management Strategy.	9104	
Potential overseas clients are far less concerned about the presence of bovine Tb than about the contamination of primary produce with poison residues.	9078	

Appendix T: Summary of Submissions

Pest control costs Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Application uses too narrow a band of criteria; does not factor in environmental costs, uncontaminated clean water, counter-balancing revenue from alternative control technologies; costs of demise of wild venison industry and potentially from possum meat industry in Asia.	9100	
Why don't AHB and DoC produce figures for each possum killed and its individual cost? One could presume these figures are not available because they don't want the public to know the true cost? Perhaps a bounty may be a cheaper and safer option, even at \$100 per head.	8592	
Cost saving is not a good reason to continue to use 1080 when there are safer options available.	8611	
Over 1 million New Zealanders hunt or fish for sport or food; the wholesale and retail sports goods industry represents an investment of many millions of dollars. Sports hunters of game birds pay annual licence fees to Fish and Game to support the costs of their sport and habitat management; ironically taxation forces us to finance 1080 policies despite our opposition.	8987	The Wildfowlers Association of New Zealand Inc
The AHB and DoC (New Zealand Government) have a very strong need to carry on using 1080 for financial reasons, if nothing else. Indeed to use alternative methods of animal control could cost more than DoC's preferred 1080 poison. But that does not itself make the choice right.	8528	
Bias in the application shows markedly in the benefits and costs analysis. Costs exclude consideration of recreational or commercial harvesting of deer and pigs as being insignificant. Yet the recreational 'benefit' of enjoying a 'healthy' forest heavily contaminated with 1080 is considered major. There is for example, the considerable cost to big game hunters and food gatherers. This cost includes the by-kill of deer, pigs and goats etc and the stand down time, often six months or more. The application claims reduced costs to farmers by reduced constraints on sale and movement of stock. In fact farmers have had considerable extra cost put upon them by ear tagging and more documentation of livestock movements. There is considerable cost to farmers directly and indirectly through aerial spreading, including withholding periods and de-stocking areas, including in some cases whole farms with no compensation.	9143	
Continued use of 1080 will reduce costs to the agriculture sector for Tb vector control, the sale and movement of stock and through reduced competition for grazing from rabbits, possums and wallabies.	9326	MAF
As a general example the cost of aerial control using 1080 is usually in the range of \$25-30 per hectare. While the costs of ground control in very difficult terrain can vary widely but are usually in the vicinity of \$40-80 per hectare. In some instances ground control is extremely dangerous and council would be negligent even initiating such programmes in such areas.	9303	Hawke's Bay Regional Council
The success of the Tb programme gives farmers land use option that were not there when Tb was rampant; there is now a very low risk that their business will incur disruption and the financial costs that a Tb herd infection brings.	9128	
With 1080 aerial technology vast tracts of inaccessible land (in excess of 50 000ha) can be treated in a period of days. It would take months, if not years to treat the same area by other methods, and at best achieve compromised results.	9320	EcoFX Ltd
If 1080 was removed and funding increased and funding increased to compensate for more labour intensive methods, such as ground control and trapping, there would not be a suitable labour pool available at the large scale required to undertake the additional work. Quite simply the work would not be done.	9320	EcoFX Ltd

Pest control costs Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
New Zealand cannot reasonably afford the high cost of alternative control methods for pests that can be most efficiently managed with 1080.	8304	Epro Ltd
I have been involved in many different pest control programmes using different methods, and it is apparent that the difference in cost-per-hectare between ground-based non-1080 methods, and aerial 1080 mean that the total conservation budget in New Zealand will protect a much larger area if aerial 1080 is more commonly used.	9255	
It is crucial that contractors have the option of using 1080 where other methods are not viable. 1080 is very cost efficient and because it comes in pellet or paste form methods can be alternated from year to year. 1080 can be applied on the ground or in bait bags or bait stations making it a very versatile toxin. In areas where ground birds are present it is the only toxin that can be safely used on the ground in areas of dense bush and forestry plantations.	7519	Vector Control Contractors Association
The cost of having an animal infected with Tb has a major impact on the individual farmer and on the wider community. The farmer is required to undertake additional testing of the herd and, perhaps more significantly both the farmers with the infected herd and neighbouring farmers would have restrictions placed on the movement of their animals. The present strict specifications, permit system and requirement for use only by licensed operators is sufficient for the safe and effective use of 1080.	9095	Taranaki Regional Animal Health Committee
The New Zealand cattle and deer industries, in partnership with Government, have invested approximately \$588 million in the bovine Tb National Pest Management Strategy since 1997/98. If changes to the use controls for 1080 were such that the long term objective of the bovine Tb NPMS was no longer achievable, this significant investment would be wasted.	9757	South Canterbury Branch, New Zealand Deer Farmers Assn Inc
Introduced pests are a major threat to Northland's biodiversity and many farmers have invested in biodiversity protection of their land – many requests from landowners wanting to use 1080 on their land	9094	Northland Regional Animal Health Committee
Recreational hunting... has been subjected to only limited valuation efforts [in the application]. No provision is made for compensation or offer of alternative recreational hunting opportunity, perhaps because of the limited efforts made to value the recreational hunting resource.	9078	
No provision is made [in the application] for compensation of recreational hunters because alternative hunting opportunity is considered to exist. Closer examination of the material [cited in the application] finds hunting undervalued to a third of its value. The spending by recreational hunters was estimated by Nugent (1988) to be approximately \$850 annually per hunter. With 120 000 hunters in New Zealand, this equates to \$100 million annually.	9078	
I have lost my contract possum block and my livelihood as a result of a massive 1080 drop in Carter Holt Harvey Kinleith Forest.	7347	
I seek an end to the use of 1080 as it affects my livelihood as possum skin hunter and also because I only eat meat that I have hunted.	7356	

Appendix T: Summary of Submissions

Rabbits and wallabies Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
The growing immunity among rabbits to RCV means that if 1080 was not available many landowners would be severely constrained in their ability to deal with this problem and many regions would suffer substantial economic and environmental harm.	9069	Local Government New Zealand
Wallabies in high densities have significant adverse environmental effects, including the depletion of forest understorey, preventing the regeneration of native bush and increasing the risk soil erosion because of damage to tall tussock grasslands. 1080 is the only toxin suitable for the control of wallabies.	9069	Local Government New Zealand
Farming in the Hunter Hills, South Canterbury, is only possible because 1080 baits is the only way to control wallaby numbers (no other poison to kill wallabies).	7360	
1080 is the only suitable cost effective and efficient tool to control rabbits in large remote areas.	9769	Marlborough District Council
1080 has been used on our property when rabbit numbers have been uncontrollable by any other means; this includes areas uncontrollable by shooting because of holes and vegetative cover. One of these areas would be suitable for ground poisoning, but the other, because of the vegetation, it is necessary to apply 1080 aerially. 1080 is the only option in this situation.	9059	
I am director of a pastoral company with land in Central Otago. Without the future use of 1080 the viability of the property will be jeopardised when rabbits cannot be controlled by other matters. History has shown that rabbits cannot be controlled by shooting/trapping alone. In past plagues farmers have walked off the land bankrupt and left that land bare and denuded.	8743	
Any further restriction on the use of 1080 will strongly impact on farmers and the environment. Its use is vital in the battle against rabbits, possums and wallabies. There is no other method as cost effective, and if we lose the ability to use 1080 then some farms will be rendered uneconomic and severe environmental damage will occur.	8607	
Feral rabbit population had been devastating fragile alpine soils aerial 1080 poisoning, over 45 000 ha in conjunction with neighbours with a possum – Tb problems has been resoundingly successful. There is no other way this outcome could have been achieved economically, and no alternative poison could have been used instead.	8349, 9336	Muller Station Ltd
No other toxins are as cost effective, efficient and environmentally friendly I large scale control of rabbits. Aerial application of 1080 is the only practical and effective control method when rabbit populations reach high levels in rugged and inaccessible terrain. Without 1080, farming on rabbit infested land would become uneconomic.	9270	Maniototo Pest Management Ltd
Should 1080 not be available then rabbit impacts on pastoral land throughout New Zealand will be significant. Not only will rabbits compete for livestock, there will be severe erosion risk, and modification of plant communities. Research has also shown that high rabbit numbers help maintain predator populations, particularly of mustelids and feral cats. These predators have negative impacts on our indigenous fauna.	9320	EcoFX Ltd
Rabbits are by far the greatest threat in terms of weeds and pests and have the potential to remove all the vegetation in the drier areas within a decade. If 1080 use to control rabbits is stopped, farming will become extremely difficult in at least half the Mackenzie basin and the tussock grasslands which are valued so highly would disappear.	9135	Greater Wellington Regional Council
Rabbits are by far the greatest threat in terms of weeds and pests and have the potential to remove all the vegetation in the drier areas within a decade. If 1080 use to control rabbits is stopped, farming will become extremely difficult in at least half the Mackenzie basin and the tussock grasslands which are valued so highly would disappear.	9361	Federated Farmers of New Zealand Mackenzie Branch

Rabbits and wallabies Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
<p>1080 is an essential component in the management of semi-arid lands in New Zealand, and in particular Central Otago, where rabbit populations continue to pose a major risk to the region's environment, biodiversity, social and economic values.</p> <p>All rabbit control operations in Otago are 'user pays' with the cost to landowners of \$40 - \$100+ per hectare. Operations commonly exceed 500ha, making cost effectiveness a critical factor for landowners.</p>	933c	Otago Regional Council
<p>Aerial 1080 allows RHD virus to be effective again in the control of rabbits. This occurs through 1080 removing almost all the rabbits, including a high percentage of the RHDV-resistant rabbits, with the majority of the young born post-poison later succumbing to the virus. 1080 plays an important role in achieving the greatest benefits available from the virus.</p>	9336	Otago Regional Council
<p>The RHD disease in rabbits is becoming increasingly ineffective in rabbit populations and numbers are increasing to the point where large scale poisoning is now required. 1080 is the only cost effective poison available for this use. Apart from its toxicity to dogs it is a relatively safe poison to use as long as strict guidelines are adhered to. 1080 aerial poisoning is the main method to cover large blocks and inaccessible areas for both rabbit and possum control. The continued use of 1080 for animal pest control is an absolute must for the future security of New Zealand agriculture unless new poisons or different control methods are developed.</p>	7369	Kurow Pest Liaison Committee
<p>In addition to their denudation, rabbit burrows contribute to soil instability, which can lead to accelerated soil loss. Water holding capacity loss and the effect of dust whipped up by NW winds are the by-product of inadequate rabbit control.</p>	9310	South Island High Country Federated Farmers
<p>Possums, wallabies, hares and rabbits have the potential to denude large tracts of high country flora, thereby facilitating the spread of invasive plant species such as hieracium.</p>	9310	South Island High Country Federated Farmers
<p>The use of aerially applied 1080 baiting is an important tool in undertaking animal pest control across large areas of terrain that have remote access, or are very difficult to control with ground based techniques. This aerial control work has principally been to treat large areas of native bush on conservation or private land on behalf of the AHB. Should 1080 not be available...the ability of the Council to achieve its strategy objectives would be severely compromised. 1080 has been an important tool for control of rabbits within the region. No other poison or method is available which would enable effective control of a major rabbit infestation.</p>	9303	Hawke's Bay Regional Council
<p>Our family has farmed in the Cromwell area since the early 1920s rabbits have always been a considerable burden on our fragile high country properties and to the performance of our stock. Over this 80 year period there has never been a method as good and cost effective as the use of 1080 on carrot. I believe without the use of 1080 many areas will be left to the rabbit.</p>	8943	
<p>"1080 poison has been successfully used on my property to control rabbits and other pests including hares and possums. Being responsible for 13, 500 hectares (much of it steep and rugged terrain) means that aerial control is necessary. Presently there is no viable, practical alternative poison available for effective aerial use. ...So for me 1080 is more than just a poison. It is an environmental tool that enables me to be compliant with the terms of my perpetually renewable pastoral lease. And apparently that includes amenity values. So society benefits from a landscape that is protected from the degrading effects of pests. A scenic environment – not a ravaged environment. The effect of not having 1080 available, as a poison on my property, would simply mean that sooner or later farming here as I know it, would fail".</p>	9468	

Appendix T: Summary of Submissions

Rabbits and wallabies Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
<p>The application includes rabbits and wallabies in the animal species that require control by 1080. This is nonsense!! From my personal experience over 30+ years as a recreational hunter is that the only thing stopping rabbits from being controlled is:</p> <p>The reluctance of property owners to let hunters on to their property to gain access to adjoining conservation land.</p> <p>The lack of communication between controlling authorities and recreational hunters as to the whereabouts of hunting opportunities.</p> <p>A lack of access opportunities being provided by DoC onto conservation land acquired under the Tenure Review process.</p> <p>There are 70 000+ recreational hunters in New Zealand – why not try using them (free to the taxpayer) to control animals before dumping poison all over our country?</p>	8528	
<p>I have witnessed the bounce back of wallaby numbers even after extensive 1080 application in the Waimate area; and during the 1990's saw how hunting pressure - plus an anti-coagulant poison – completely reduced rabbit numbers on a Lake Pukaki farm</p>	8299	

Agricultural exports Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
<p>Aerial distribution of 1080 tarnishes New Zealand's international clean green image.</p>	9100, 9369	
<p>1080 is a greater risk to our exports than Tb.</p>	9177, 9104	
<p>1080 use is a threat to reputation as supplier of high quality agricultural products.</p>	9100, 8969, 8932, 7343, 7342, 9261	
<p>Risk of contamination of domestic and export meat.</p>	9100, 9054, 8932, 8982, 8963, 8900,	
<p>If any 1080 was found by our export customers, particularly in Europe, where awareness of contamination is of widespread public concern, the consequences for our export markets could be dire.</p>	9078	
<p>The reality is that many of our export markets have bovine Tb but they do not have widespread 1080 use. It is more likely that we will have trade barriers erected because of our use of environmental toxin than because of Tb. We have already seen 'dirty dairying' and 'food miles' arguments gaining traction in Europe. My concern is that 1080 can be used as a powerful argument against our agricultural produce.</p>	9271	
<p>Is our country's economic growth and financial viability worth the continued use of 1080?</p>	9262	
<p>Continuing the current trend towards Tb-free status with the use of 1080 is very important for the market perception of our \$8 billion dairy, beef and deer meat product exports</p>	9326	MAF
<p>Bovine Tb has potential to seriously threaten New Zealand's export trade in meat and dairy products, live animals and semen.</p>	9092	Auckland Regional Animal Health Committee
<p>The perceived contamination risk from an increasingly chemo-phobic European and American public will create a risk to sales.</p>	9313	New Zealand Deerstalkers' Association, Hutt Valley Branch

Agricultural exports Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
The ongoing use of 1080 is a major risk to our agriculture industry through meat and milk contamination.	9066, 8955,	
1080 contamination of honey in late 19080s and early 1990s all but destroyed New Zealand's exports of honey to Japan.	9211	Tautuku Block X Section 3C Trust
Tb infected cattle and deer threaten our \$8 billion beef, venison and dairy export industries.	9076	Southland Regional Health Committee
New Zealand's access to its beef, venison and dairy export markets is currently restricted by the presence of Tb infection in our cattle and deer herds. These current restrictions are likely to continue into the future and may threaten our access to markets in the long term. Without the use of 1080, and particularly the aerial application of 1080, or with significant restrictions placed on its use, it is unlikely the AHB will achieve its goal of 'Official Freedom' from bovine Tb by 2012/13 and this will potentially have a significant effect for trade of New Zealand's beef, venison and dairy products into our high value EU and US markets. This will impact on the whole of the New Zealand economy.	9147	
1080 is an essential component of the Tb eradication programme, which is essential for the long term viability of the New Zealand dairy industry	7849	Dairy Companies Association of New Zealand
1080 breaks down quickly in animals that receive a sub-lethal dose, thus the risk to our export markets is almost nil.	9128	
New Zealand does have a very highly rated country image in relation to food safety and food quality.	9104	
All exported New Zealand meat and pasteurized milk is tested and certified as Tb free.	9104	

Tourism Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Effective pest control, including the use of 1080, is important to ensure the quality of recreational and visitor experience in New Zealand's parks and forests. Dying or damaged forest would not be good for New Zealand's 'clean green' image, although we acknowledge that the use of large quantities of toxins also has the potential to damage that image.	9069	Local Government New Zealand
The ongoing use of 1080 is a major risk to our tourism industry and our so called 'clean green' image.	9100, 9066	
The removal of whitetail deer from Stewart Island will have disastrous long term environmental and economic effects on our region. Hunters now visit New Zealand from all over the globe and we must ensure that as many people as possible are encouraged to visit the region.	7850	
The growing awareness and images of helicopters dumping poison cannot be attractive to overseas tourists.	9433	
Without intensive large scale pest control programmes using 1080 the wide scale degradation of our unique ecology could lead to New Zealand becoming a less attractive destination.	9320	EcoFX Ltd
The Ministry for the Environment in 2001 assessed as over \$500 million the loss of our 'clean green' image	9313	New Zealand Deerstalkers' Association, Hutt Valley Branch

Appendix T: Summary of Submissions

Feral venison and other game meat Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Reported poison residues brought about the temporary end of multi-million dollar commercial wild animal meat recovery industry in 2002. The recent increase in venison prices have encouraged some feral wild animal recovery for export.	9078	
The damage to the feral venison market because of 1080 has been a major cost to the country.	9055, 8932, 8329, 9434	
The wild venison industry had three real benefits to New Zealand, being the earning of overseas dollars, creating employment, and as a by-product the controlling of wild deer, at no cost to the taxpayer. If the use of 1080 were to stop, the wild venison industry would quickly recover, a significant benefit.	8564	
1080 contributed to the closure of New Zealand's game export markets.	9054	
Regulation by government and fear of contamination by 1080 has put pay to the export market for game meat although there is still a demand.	8987	The Wildfowlers Association of New Zealand Inc
[There are] ongoing costs of dealing with environmental disasters and 'incidents' with pest control poisons and the associated risks to human health by water contamination, and the poisoning of game animal species.	9066	
Loss of our wild venison export market, currently worth \$300 million pa. This monetary loss far outweighs projected savings [in application] of \$50 - \$100 million over 10 years.	8955	
A \$80 million pa export trade was stopped due to traces of 1080 found in feral venison that was exported.	8746	
Poisoning possums, deer and rabbits is completely unnecessary as these animals are a resource that could be sold for export. There is an enormous market in China for such an export.	7859	
Recovery of the wild venison market is 'likely'. Consequently the commercial deer recovery industry is also likely to need protection from the high deer by-kills if it is to achieve its commercial export potential.	9324	
Shot wild game is significant in both export statistics and domestic consumption.	9293	Game and Forest Foundation
The game estate industry has earnings of approximately \$15 million annually and has considerable potential for expansion. New Zealand is considered to be the world's premier destination for hunted red deer stags and Himalayan thar.	9293	Game and Forest Foundation
New Zealand expenditure on recreational hunting has recently been calculated to be in the order of \$170 million dollars annually	9293	Game and Forest Foundation
Hunting puts food on the table of some communities. As a hunter gatherer I can't imagine what New Zealand would be like without any game birds to shoot, or big game animals to hunt. Consider the jobs that have been created by the million dollar industry.	8572	
Feral deer, if not controlled, will be a concern also if the feral deer industry does not redevelop. The industry with recreational hunters is the primary means of deer control at no cost to the taxpayer. The industry could very quickly collapse if exported venison is found with 1080 or considered to come from a poison area.	9139	Southland Conservation Board

Possum products Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Export of possum meat [for human consumption] is never going to be a viable proposition because of 1080 contamination.	9100	
Strong markets for possum fur and leather.	9100	
Markets for possum fur are good at present and some effort should be made by government and others to explore and develop this potential.	9055	
Possum pet food meat exported to Japan rejected because of unfavourable publicity re New Zealand's 1080 programme.	9261	
If 1080 were banned, a lucrative possum fur trade and pet food manufacture industry could have great potential.	9261	
Another significant adverse effect [of 1080] is the loss of possum fur and by-products industries which could potentially earn millions of overseas dollars and create hundred of jobs for this country.	8564	
The most neglected approach to possum control is to support the possum product business and thus encourage a market for possum pelts. The 1.3 million possum pelts harvested today have a market value of \$18 million.	9198	
It is difficult to imagine that some combination of incentives and regulation would not be effective. The question is how to make the industry's goal of profits coincide with the national goal of controlling possum numbers.		
Pest control has been most successful in New Zealand when it became commercially viable eg possum skins in the 1960s – at \$4-\$5 per possum - \$20 million would mean 4 million dead possums.	9140	
The possum fur industry is a significant income generator for many back country folk who supply many tonnes of plucked fur to the garment industry annually. A trapper now has to work much harder for possums because of the kill-rates from 1080 operations, with a consequent reduction in income.	8869	
1080 is not the only means of controlling possums and other means of control should be employed. For example we believe that active measures to develop a possum fur, yarn and pelt industry should be employed, such as those that were introduced for venison and other deer products. We believe that the argument that the commercialisation of possums would result in an increase in the number of possums is unsound, just as it was with respect to the venison industry.	7330	Noble Lowndes Corporation Ltd
One of the most promising initiatives in recent years has been the development of possum wool, a blend of possum and merino fibres. This has resulted in a world-class fibre which is in the same league as cashmere. Garments produced from possum wool demand premium prices, and they are sought from around the world.		

Table T6: Alternatives

Other toxins Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Other toxins (eg Feratox) safer [for the environment] than 1080.	9100	
Cyanide and state of the art traps has to be better method than 1080 pellets littered all over the forest floors. Cyanide can be used easily in above the ground niches to prevent weka and kiwi kill.	9075, 9261	
Advocate further use of cyanide.	9114	
I am totally opposed to bulk sowing of 1080 from the air and consider that, where necessary because of difficult terrain, a cyanide pellet should be developed. It would appear that after ten years and many tonnes of 1080 very little progress has been made in the overall reduction of possums.	8666	
Effective control of pest species can be achieved with more environmentally friendly methods (such as Feratox in bait stations).	9110	
Cyanide and phosphorus are both hazardous to users.	9096	Auckland Regional Animal Health Committee
Other methods of control can and are used in easily accessible areas, but it is essential to retain use of 1080 for those regions for which traps and cyanide are impractical.	9096	Auckland Regional Animal Health Committee
Without 1080 control of mammalian pests would be less efficient and less effective.	9094	Northland Regional Animal Health Committee
The future use of 1080 [in Otago] may increase as possums are becoming bait shy to the more commonly used Feratox. Rats are also known to interfere with Feratox capsules and render them ineffective for possum control.	9092	Otago Regional Health Committee
DoC has forbidden the use of ground control traps in kiwi and weka habitats, and some forms of cyanide are also forbidden in those areas; the result being that we are more reliant on 1080 in those cases.	9751	
Cyanide can give good kill rates, but due to the rapid onset of poisoning (within seconds of cyanide being consumed) there is a high chance that a possum will consume a sub-lethal dose and become bait shy. Over the long term a ground control operation using cyanide and leg-hold traps will struggle to achieve adequate control of possums. A serious downside of using cyanide and trapping is that it only targets a single pest. In addition to possums, aerial 1080 will kill most mustelids, rats, cats, and dogs present in the control area. By using only cyanide and trapping, we may well preserve the main forest canopy, but in the meantime lose bird species and highly palatable plant species.	9231	Te Puke Forest & Bird
Aerial application of 1080 has proved to be the only effective possum control method for the more rugged and densely vegetated areas of Otago.	9092	Otago Regional Animal Health Committee
The use of 1080 aerially in 54 000 hectares (54 sq km) of the Dart/Caples valley reduced rats to 6.0% trapping compared with 60% in the non-treatment area two weeks after the drop. This was after ground based brodifacoum failed to control the rats from June to October 2006. This was to protect nesting and resting mohua.	9782	Otago Conservation Board
1080 is far safer than many of the alternatives. Toxins such as brodifacoum, cyanide, cholecalciferol all have downsides in terms of cost, efficiency and bait aversion, as well as greater human health risks, environmental risks and animal welfare issues. There are no alternatives for aerial application, which is a primary reason why the use of 1080 is vital to pest management.	9069	Local Government New Zealand

Other toxins Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
We have in the past tried ground toxins other than 1080 and have found them to be less effective and have also noticed a large number of dead birds near the poison operation.	9059	
Other possum control tools are available but each of these has disadvantages compared with 1080. These include cost, which is a key factor, environmental persistence, safety and effectiveness.	8756	Environment Waikato's North and South Biosecurity Advisory subcommittees
Aerial application of 1080 bait is very cost effective and currently there is no alternative poison that can be applied aerially. This method is essential for widespread possum control especially in areas of difficult access, dense vegetation and rugged terrain.	7517	Pest Control Research Ltd
1080 poses less of a risk to humans than cyanide, which has high toxicity to humans. And brodifacoum, which is amplified through the food chain, can accumulate in hunted animals.	9291	Royal Forest and Bird Protection Society
Need to develop addition options to 1080 for aerial application, particularly looking for natural toxins that originate in New Zealand native forest. We have tried tutu – possums love it, and it may have application for deer, but unfortunately it kills horses.	9212	Waipoua Forest Trust Inc
In the case of rabbits there is no alternative poison available. The only current alternative is pindone which is nowhere near as effective and affects more non-target species.	9361,	Federated Farmers of New Zealand Mackenzie Branch
The use of cyanide by contractors in the 1980s yielded poor quality skins, dissatisfied contractors and no noticeable reduction in infestation levels.	8753	Otago Regional Council
I would love not to have to use poison, but at this point in time see it as the best option available.	8574	
Alternative treatments tend to be ineffective and expensive and the long-term effects of alternative pesticides are not as well known as 1080: 1080 is highly effective for possum control; Effective in knocking down rat numbers; Sub-lethal doses do not accumulate in mammals (as is the case with brodifacoum); Degrades in water; In contrast to some alternative pesticides there is large body of toxicological information on 1080; 1080 is cost effective.	8534	
It is crucial that contractors have the option of using 1080 where other methods are not viable. 1080 is very cost efficient and because it comes in pellet or paste form methods can be alternated from year to year. 1080 can be applied on the ground or in bait bags or bait stations making it a very versatile toxin. In areas where ground birds are present it is the only toxin that can be safely used on the ground in areas of dense bush and forestry plantations.	7519	Vector Control Contractors Association

Appendix T: Summary of Submissions

Biological control Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Because 1080 has been seen as cheap and effective, there has been only limited investigation of alternatives such as biological control.	9045	
It would be good to see some of the millions of dollars spent on 1080 poisoning every year go towards finding a biological control as soon as possible.	9134	
Biological controls are an answer that should be seriously considered.	9191	
Research on biological control of possums is well underway.	8900	
Biological control is unlikely to be commercially available for at least 10 years, possibly much longer.		
ECO's policy is to keep the conservation state free of GM organisms or material and set in place systems designed to prevent genetic modification of New Zealand's indigenous flora and fauna.	9343	ECO
Aerial 1080 allows RHD virus to be effective again in the control of rabbits. This occurs through 1080 removing almost all the rabbits, including a high percentage of the RHDV-resistant rabbits, with the majority of the young born post poison later succumbing to the virus. 1080 plays an important role in achieving the greatest benefits available from the virus.	9336	Otago Regional Council
Biological control will probably not be a key tool for most animal pests in the foreseeable future.	8549	

Trapping Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Trapping safer than 1080.	9100, 9114	
Improved trap designs available.	9100	
A variety of new possum kill traps have recently come on the market. I have personally tested two of these and found they had high escape rates – up to 25% - and would quickly result in trap-shy possums. They have extremely powerful springs and pose a significant danger to the public.	9231	Te Puke Forest & Bird
With hand methods the environment, birdlife, invertebrates and vertebrates do not suffer so why use 1080?	8996	
Hunters and trappers should give areas a 'going over' and reap commercial rewards before aerial operations begin.	7820	
The idea of self-funded commercial trapping being able to control possums is silly. Commercial possum trappers only harvest the 'cream' from possum populations in easily accessible forest, and even then, they do not lower possum populations enough to significantly benefit forest ecosystems.		
A combination of trapping, poisoning and shooting were the only effective ways to reduce possum numbers in a given area. Timing at which this was done was also important, as possums tended to move at certain times of the year into new areas, making control measures appear endless. So why do DOC and AHB have such a non-strategic approach?	8556	
They apply poison from the air but do not have follow up programmes on the ground.		
Poison is dropped in spring, when there is an abundance of fresh growth within the forest, which draws possums away from poison.		

Trapping Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
We would like to voice our disapproval of poisons in all forms that promote animal suffering and do not enable anything to be harvested from the animals killed (eg fur and meat). We see this as a cruel waste of a resource available to New Zealand. We have proven that by encouraging coordinated and targeted trapping that possums (and rats as a by-product) numbers can be controlled to low numbers (using humane and kill traps) and harvesting a valuable resource.	7358	Naenae Possum Busters
Ban 1080 where trapping and elevated bait stations are possible.	9251	Toxins Action Group
[Trapping] has the advantage of avoiding any stand down time because of the possibility of meat contamination, and risk of secondary poisoning. There is also possible income from harvesting recovery eg possums.		
Using only cyanide bait and traps would allow for further possum spread of Tb, as well as being a major contributor to future New Zealand native flora and fauna extinctions. It does not make any sense to stop using 1080 now, or at least until there are more effective possum and pest control methods. The socio-economic costs of continuing to use 1080 today will be minimal compared with tomorrow's costs from stopping using it.	9344	
Hunting and trapping have not been shown to be economically viable options capable of doing an effective job.	8574	
It is a myth that hunting and trapping can adequately control mammalian pests.	9252	
1080 can be used relatively safely in areas where threatened ground-dwelling birds, such as kiwi and <input type="checkbox"/> eak are commonly killed or maimed by traps.	9291	Royal Forest and Bird Protection Society
Allowing purchase and use of 1080 by trappers will increase the risk of safety measures being compromise as they will not be subject to appropriate levels of supervision and monitoring.	9232	
Bounty Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
A bounty on possums may make their control [by hunters and trappers] financially viable.	9047	
A bounty of say \$2 guarantees 500 000 dead possums for every \$1 million otherwise spent on 1080 drops, and taking account of buffer zones costing \$10.2 million, 5.1 possum could be killed for the same money.	8801	
Put a bounty on possums; the only way it could fail was if the bounty was stupidly low. The bounty would need to be around \$8.00.	8515	
Some sort of bounty could be paid out for killing possums.	9141	
The bounty system was once successful in New Zealand and many would find this an employment opportunity.	9117, 9114	
There is no mystery to effective possum control. A combination of professional performance-based contracts in high value conservation areas and a bounty to mobilise community action is needed. A petition for a bounty at \$50 per possum is being initiated by a Taranaki farmers group.	9471	

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Bounty Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
A modern bounty system, managed properly by regional councils and paying a fair value, of say \$3 per set of attached ears (this is so the pelt or fur can be harvested for extra income), will work. A bounty will control vast areas and the first thing it will do is to create buffer zones along the farm and forest margins and stop Tb infections from livestock. As possum populations decrease and the catch rate gets less the bounty value can be increased. This will maintain interest in catching possums and encourage hunters to get into less accessible areas. This would be a lot more cost effective (a significant benefit) than the AHB/DoC system which costs then between \$15 and \$25 per single possum and which is not measurable. A bounty system would create employment and earn overseas dollars (further benefits). The system could be extended to other species such as mustelids, rodents, wallabies, but the bounty for each pest would have to be set at a fair level to generate results.	8564	
I realise that possums are a real pest, but putting a bounty on each tail or pelt would be much safer and better for the environment than 1080.	8547	
A more effective role would be to re-hash the old pest management system to pay a bounty on animals or supply hunters with ammunition or systems conveyance into affected areas. This would be far cheaper.	8539	
Surely with the cost of a helicopter for X days to drop this poison, I would appreciate some of the cost along with a bounty for the possum. I would toss in my job now and do that with an absolute joy.	8506	
Even if considerable monetary bounties were placed on pests to encourage their eradication as opposed to poisoning them, it is unlikely that this would be sufficient to lure people in significant numbers into the thicker vegetation to hunt them. This would only result in the erratic reduction of reduction of pests – high in areas easy to get to, and non-existent in areas that would require considerable effort, gear and self-reliance.	9090	

Ground control Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Targeted ground control methods safer than aerial 1080.	9100, 8963,	
Phase out aerial 1080 in favour of ground control.	9100	
The chances of poisoning non-target species are far greater when aerial means of poison bait distribution are used.	9078, 9053	
While more sanctuaries and more ground control would be more expensive, they are more effective and more sustainable.	8302	
It is not true that ground control methods are not suitable for remote areas as the everyday use of helicopters means that remote areas are no longer inaccessible. Recreational hunters regularly fly into some of the most remote areas in New Zealand for weeks at a time to hunt wild game.	9314	
1080's future use should, wherever possible, be confined to ground-based operations, where bait can be enclosed in species-specific baiting containers that pose fewer risks to non-target species and humans.	9322	New Zealand Deerstalkers' Association Inc
Ground bait stations for possums, wild cats and mustelids should be the only way used for the distribution of this deadly poison.	9267	

Ground control Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
As with aerial application of 1080, ground based 1080 applications has advantages over other toxins and methods because it is less expensive, has lower environmental persistence and can control multiple species through direct and secondary poisoning.	9291	Royal Forest and Bird Protection Society
Aerial 1080 is at least half the cost of ground control methods. Ground based control is very labour intensive and for this reason costs are unlikely to decrease in the foreseeable future.	9231	Te Puke Forest & Bird
At Waipoua (typical of Northland) our observation is that ground control does not protect forest canopy health and does not compare with the success of 1080 aerial drops.	9212	Waipoua Forest Trust Inc
It is well documented at Karamea and Taramakau Settlement that the incidence of Tb reduces substantially following aerial 1080 every three or four years, only to deteriorate again despite intensive on farm ground annual operations using traps, cyanide and other methods. But it pays to vary the approach from year to year to avoid bait shyness.	9751	
There is a lack of effective alternatives to aerial 1080 in areas where inaccessibility makes ground control methods impossible.	7849	Dairy Companies Association of New Zealand
If 1080 was removed and funding increased to compensate for more labour intensive methods, such as ground control and trapping, there would not be a suitable labour pool available at the are scale required to undertake the additional work. Quite simply the work would not be done.	9320	EcoFX Ltd
I support the use of 1080 for possum control by ground application but not aerially because of its effects on wildlife (deer, birds). Having 1080 is very important in protecting farmers' livelihoods by not having Tb in our stock. It is especially important for sharemilkers because of their equity in the stock.	8520	
A new ground-based technology is emerging that promises to provide much lower costs in difficult to access areas, while providing even better non-target discrimination than conventional traps and bait stations, while matching the lower costs of aerial spreading. This technology preferentially uses 1080, but in quantities orders of magnitude less than aerial broadcasting.	9060	
Ground control operatives using 1080 need a better training system and code of conduct.	7821	Scope Hunting Ltd
A series of ground control operations in the Hokonuis from the mid-90's until 2003 proved ineffective in reducing possum numbers and controlling Tb. After consultation with landowners, a ground and aerial operation was carried out over 12 500ha. The success of the operation was reflected in infected herds dropping from 30 to two in under two years.	9076	Southland Regional Animal Health Committee
In some instances ground control is extremely dangerous and council would be negligent even initiating such programmes in such areas. The other matter of concern to the Council is the severe shortage of people who are prepared to take on performance-based contracts in difficult terrain due to the isolation and difficulty in meeting contract specifications. If aerially applied 1080 baiting was removed as a control tool, Council does not believe there would be contracting capacity to cover the area required to be controlled.	9303	Hawke's Bay Regional Council
Our experience of ground control...is that it is relatively expensive and does not reach all areas due to difficult terrain. Alternatives (cholecalciferol and diphacinone) have also proved less effective [than 1080] at reducing possum and rat numbers efficiently. 1080 is very effective at killing deer, wallabies, goats and possums... the range of browsers must be tackled as a suite.	9787	Royal Forest and Bird Protection Society Tauranga Branch

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Baits and bait stations Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
If necessary only use 1080 by hand and in secure methods.	9044	
Aerial 1080 should be abandoned and it should be restricted to use in targeted and well monitored bait stations. This would give a lower by-kill.	7343, 9223, 8569	
If 1080 were used in secure bait stations, deer (and other unfortunate animals) would not be victims of by-kill.	9117, 9434	
The Club is concerned about the effects of 1080 on birds, specifically the effects on populations of game birds quail, pheasant and chukor. Birds are often poisoned during 1080 operations, especially when cereal baits and unscreened carrot baits are used. The Club requests that controls are imposed on the use of 1080 such that cereal baits are not permitted.	9187	Christchurch Rod and Gun Club
The setting up of GPS mapped permanent weatherproof bait stations has been found to be an effective alternative. The use of bait stations on the Coast meant that weather was not a problem any more and poisoning could continue in all conditions. The baits were off the ground and not accessible to bird life.	7352	
[There are] risks to dogs and carrion eating native birds such as falcons, and to humans from 1080, and urge that there be requirements for careful placement of baits, rather than random distribution methods.	8954	Auckland Conservation Board
Favour aerial application of cereal pellet formulations in forest ecosystems over carrot baits as research has shown cereal pellets provide effective possum and rat control, and have lower mortality rates on non-target species.	9291	Royal Forest and Bird Protection Society of New Zealand
Strongly support registration of formulation K for deer and wallaby control in areas where these species pose a significant risk to ecosystems.	9291	Royal Forest and Bird Protection Society of New Zealand
We strongly support continued use of unscreened 1080 carrot baits in areas with no native birds or other issues. The cost of screening is an extra burden on land owners.	9270	Maniototo Pest Management Ltd
Need to develop additional bait preparations, particularly for ungulates in normal healthy forest; gel on leaves is only good for already depleted forests.	9212	Waipoua Forest Trust Inc
Carrot baits are around 5g, an ideal size for rabbits but not attractive to birds. The toxin is sprayed on to the bait post screening. This has eliminated most bird deaths but a few blackbirds and thrushes are killed by carrot baits.	9336	Otago Regional Council
On the occasions where summer poisoning is necessary oats are used as bait because rabbits accept it above most other bait options. A small number of grain-feeding birds, such as chaffinches and sparrows, are affected by 1080 oat operations.	9336	Otago Regional Council
There is a trend towards cereal baits because they are safer and more flexible in use. ERMA might consider whether it thinks the trend to use cereal baits should be accelerated.	9334	Wellington Conservation Board
The use of bait stations and trapping (with 1080 for vector control) has huge benefits in protecting other wildlife.	8523	
The effectiveness of bait station networks can be limited by mistakes in layout and difficult terrain, making it a struggle to get possum numbers down to low RTCs. Even a well laid out bait station grid will fail to kill as many possums as an aerial 1080 operation. A 100 metre grid is too large for rats, and a 1080 bait station operation will kill fewer rats than will an aerial operation.	9231	Te Puke Forest and Bird

Table T7: Controls and other matters

Deer repellent Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
In areas where there are feral deer, deer repellent should be used at all time.	8508	
No further aerial spread of 1080 pellets without deer repellent.	8528	
Unless deer repellent is incorporated in baits, the by-kill [of deer] can be as high as 90%.	8869	
The use of 1080 is now far too widespread. It was originally intended only to be used in extremely rugged and virtually inaccessible areas where ground control would be too difficult.	9066	
Use deer repellent in all 1080 bait in all areas where deer are because they are an important source of food for so many New Zealanders.	9042	
Repellent has the disadvantage that 1080 is still applied indiscriminately, so there is a stand down period, dogs are still at risk, and there is no target pest body count.	9029	Council of Outdoor Recreational Associations
A deer repellent should be used if 1080 is aerially applied. EPRO's repellent reduces native bird by-kill and makes baits more directly attractive to mustelids.	9434	
Deer repellent bait more appealing to rats.	8761	
Most of the people who are against 1080 are worried about no-target deaths of feral deer and pigs. The deer problem could be solved by more use of deer repellent.	8310	
The introduction of deer repellent baits has proved very useful in increasing owner acceptance of aerial 1080 application on Trust lands.	9298	Lake Taupo and Lake Rotoaira Forest Trust
There are some minor adverse effects that arise from the use of primarily aerial 1080. These include a by-kill of feral deer. The new deer repellent developed by Epro Ltd will reduce deer by-kills and minimise hunter resistance to the use of 1080. We recommend its nationwide adoption for the use with aerial 1080 methodologies in areas where deer are considered a resource ie Recreational Hunting Areas.	9333	PestNET New Zealand Inc
We support current research on deer repellent bait that would greatly assist acceptance by the hunting fraternity of aerial 1080 as a vector control option.	9213	Wellington Regional Animal Health Committee
There may be areas where hunting pressure can manage deer populations to an acceptable level and the use of 1080 could occur but with the inclusion of substances that deter or repel deer from eating pellets.	9069	Local Government New Zealand
Aerial application is known to result in by-kill of deer, pigs, goats and other species valued by hunters. This has prompted calls to ban the use of 1080, and advocacy for the use of deer repellents on 1080 baits. Forest and Bird believes that it is in the greater public interest to implement deer control in areas where they are causing significant impacts on the ecology of forest communities. In these areas, there is a strong case to expend the registration of 1080 to allow aerial control of deer. For this reason we also strongly oppose the use of deer repellent in areas where deer have or might caused damage to forest ecosystems.	9291	Royal Forest and Bird Protection Society of New Zealand

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Buffer zones Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
1080 should not be used within 500m of an adjoining property without the owner's consent.	9211	Tautuku Block X Section 3C Trust
Controls relating to use in or near waterways, puna and water supply areas be extended to allow for a wider buffer margin.	9217	Te Whakaorangi o Karioi Society Inc
A 50m buffer zone around lakes, dams, rivers for aerial applications of 1080.	9134	Ngati Kahungunu Iwi Inc
Put more restrictions on use of 1080 near houses.	7821	Scope Hunting Ltd
Monitoring of operations Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Despite the stringent regulations laid down in consents and reassurances by AHB and DoC, aerial distributions of 1080 are very frequently landing outside the consent area. Upland game birds often find good habitat on fringe areas between farms and bush along large and small waterways and in exotic forests. It is common to find such areas contaminated with 1080 baits. Game birds are killed by 1080.	8987	The Wildfowlers Association of New Zealand Inc
The consent rules were broken in every way with countless hundreds of toxic baits on tracks and in waterways.	7498	
There appears to be a lack of independent monitoring reports following 1080 drops.	9125	Taheke Hapu Resource Management Roopu
There is no on-the-job monitoring of performance in aerial operations or quality assurance checking. Protocols are not followed, minimum standards are not met, health and safety minimums are not met.	9156	
The SPCA believes it is necessary for a robust quality assurance system to be introduced for the purposes of supervising and more closely controlling licensed operators involved in the application of 1080; and that all systems relating to the operational, delivery and control of 1080 be made subject to independent audit.	9286	Royal New Zealand Society for the Prevention of Cruelty to Animals
Monitor native fauna both prior to and after 1080 operations.	9134	Ngati Kahungunu Iwi Inc
There is insufficient monitoring of the existing use of 1080. We seek conditions requiring the applicants to rigorously review their operations each year, and there should be greater monitoring by ERMA of the outcomes of 1080 drops.	9296	Te Mana Taiao Charitable Trust
I support the use of 1080 but application methods need to be closely monitored; willy-nilly applications are not beneficial to Tb control or our clean green image.	8522	
Need better monitoring of aerial drops; aerial drop personnel are often inexperienced in using 1080. Aerial drops not on target, spillage over farm land, leaking from hoppers.	7702	
Should 1080 continue to be used, there needs to be a better system in place to monitor its effects on dogs, including a register of 1080 fatalities, improved communication to pet owners and vets about 1080 poisoning, and a subsidised and improved service for testing for 1080.	8580	

Miscellaneous controls Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Ground control operatives using 1080 need a better training system and code of conduct.	7821	Scope Hunting Ltd
There have been occasions where aerial 1080 operations resulted in contamination of a water supply, 1080 being applied outside of the planned treatment area, with deaths of livestock. This indicates that the consequences of error can be significant. These events highlight the need for strict controls and adequate checks and balances to be applied during any operation. A working party established by the Council looked at management options for addressing accidents it found that the most helpful tool to prevent errors to be the use of GPS. Pre-application boundary flight checks as well as confirmation of area treated and use of GPS to confirm any point of take for water supplies were key methods. It is also considered essential to use properly trained and qualified personnel, especially during aerial operations. The Council advocates controls requiring adoption of these procedures.	9177	Tasman District Council
Current controls are sufficient to manage risk and protect the general public and the environment.	9320	EcoFX Ltd
Current controls on the use of 1080 are not adequate. For example, warning signs are not left up long enough given the poison can stay active for many months inside carcasses.	8611	
Warning signs also do little to protect dogs when other animals ingest the poison and travel a considerable distance from where the 1080 was dropped.		
We support full prohibition of public access of children to loading sites and sites of ground based use of 1080.	9249	Regional Public Health, Hutt Valley District Health Board
Consideration should be given to incorporating into controls for 1080 more aspects related to risk communication and engagement with communities. This is particularly important for the aerial application of 1080. It may also be useful to consider incorporating a competency around communication skills into the requirements for Approved Handlers.	9249	Regional Public Health, Hutt Valley District Health Board
More controls/rules are needed for where 1080 can be laid near peoples' homes, especially in regard to dogs. We have dogs which are under good control and don't wander, but we could not allow them out of their kennels for months because of the risk. We feel this is wrong in this age of consultation and not making an impact on neighbours.	8575	
The SPCA advocates that 1080 poison be not laid within 1000m of the boundaries of properties where dogs are domiciled, and that notification procedures for people in or near such areas be strengthened and included in an operators QA system.	9286	Royal New Zealand Society for the Prevention of Cruelty to Animals
The Club is concerned about the effects of 1080 on birds, specifically the effects on populations of game birds quail, pheasant and chukor. Birds are often poisoned during 1080 operations, especially when cereal baits and unscreened carrot baits are used. The Club requests that controls are imposed on the use of 1080 such that cereal baits are not permitted.	9187	Christchurch Rod and Gun Club
Appropriate bait systems should be registered for use against the following pest species: cats, rats, dogs, wallabies, ungulates (goats and deer), mustelids, and hedgehogs.	8321	Te Puke Forest & Bird
Any aerial application of 1080 should be carried out in compliance with the Code of Practice for the Aerial Application of Vertebrate Toxic Agents	7341	New Zealand Agricultural Aviation Association
Aerial application of 1080 be restricted to 3 months each year, this period to be defined after consultation with iwi/hapu authorities	9134	Ngati Kahungunu Iwi Inc

Appendix T: Summary of Submissions

Miscellaneous controls Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Protocols should specify remedial action to be taken if aircrafts' course deviates from specified flight path.	9129	Ministry of Health
Co-ordination of management controls by ERMA and ACVM need reviewing to ensure there is no duplication.	9135	Greater Wellington Regional Council
Support current use of senior public health officials in assessing local applications; and in setting conditions regarding use .	9098	NZ Society of Medical Officers of Health
We support the existing involvement of Medical Officers of Health to manage public risk for proposed applications.	9135	Greater Wellington Regional Council
The current purchasing requirements need to be tightened so that only specially licensed purchasers such as Regional Councils, DoC and large contracting firms, can acquire 1080. The relaxation of purchasing requirements has increased the risk of 1080 being used incorrectly or worse, accessed for illegal uses.	9135	Greater Wellington Regional Council
Changes be made to the Controlled Substances Licence limiting who can purchase 1080 concentrate. Under the previous system 1080 concentrate could only be sold to an organisation and some individuals and there was some kind of system to assess this. I would like something similar to be considered	8541	
If there were one further control, it would be the splitting of the Controlled Substances Licence into two categories: one for ground application and a special aerial application licence for those with demonstrated systems, SOPs and procedures.	9320	EcoFX Ltd
Only authorised / qualified contractors be permitted to handle 1080.	8954	Auckland Conservation Board
Stringent management controls (regulations and operating procedures) are currently imposed on the use of 1080, including health and resource consent procedures.	9362	MAF
Adopt the same standards for restricted use of 1080 that the rest of the civilised world adopts ie keep it out of waterways, use only in secure bait stations and burrows in the ground. The precautionary principle demands no less.	8603	
Aerial applications are very effective done in fine weather, in the middle of winter, or after a wet, cold season. An aerial operation that is not effective (eg it rains on the first night) will lead to persistent possum shyness for many years. All operations should be pre-feed with a non-toxic agent such as a cereal pellet to maximise the attraction to animals or reduce shyness in areas that have been previously treated.	7821	Scope Hunting Ltd
Any gradual reduction of 1080 use should be implemented with the support of specific controls to reduce the quantities of 1080 sown.	9322	New Zealand Deerstalkers' Association Inc
Responsible institutions like the Waipoua Forest Trust should be able to purchase 1080 for use on their own land.	9212	Waipoua Forest Trust Inc
My concern is that if the concrete mixer used to mix 1080 concentrate with baits (carrots, oats) is not dedicated to the task or kept very clean, other contaminants could go through with the bait and cause a bait aversion problem.	8541	
The right to purchase 1080 be held solely by Regional Councils and DoC.	8536	
If we are to retain the use of 1080, it must be seen to be used in a responsible manner. There are a number of private individuals who hold 1080 licenses and therefore have the right to purchase and use 1080 without knowledge of any authority. They are supposed to apply to the Medical Officer of Health before such use, but this is not monitored. It would only take one bad instance of irresponsible use of 1080 to put its future under threat.		

Miscellaneous controls Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
The current sections of the HSNO Act relating to permissions required is badly written and ambiguous. I would like to see this clarified with a view to 1080 operations being carried out in areas not classified as restricted. Due to the way the current legislation is written, it is arguable that all 1080 operations require permission from the Medical Officer of Health. This has proved to be unwieldy, time-consuming, costly for the client in the current user-pays environment, and largely irrelevant in my current situation of multiple 1080 operations for rabbit control on blocks ranging from 10 – 2000 ha on private pasture land in Central Otago.	8536	
Consideration processes Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
Staging aerial 1080 operations requires costly consultation, public notification, and preparation of Assessment of Environmental Effects reports and RMA applications, the extent of which may not be justified by the actual level of risk to the environment or public safety. If so, this unnecessarily raises the cost of 1080 operations. The only risk from 1080 which should demand any greater level of public consultation is the risk to dogs and for this reason we encourage consultation with landowners whose properties are on the boundaries of 1080 control areas.	9231	Te Puke Forest & Bird
Require independent public hearings to which recreational hunters and the public can make written or oral submissions, for vector control with indiscriminate application of 1080.	9029	Council of Outdoor Recreational Associations)
At the very least, any use of 1080 should be publicly notifiable and requiring resource consent under the RMA..	8564, 8553,	
The Regional Council decides who is 'deemed to be an affected party' and thus allowed to make a submission to a Resource Consent Hearing. We were deemed not to be an affected party because our land did not border the zone drop, despite the fact that we drink the town water supply which did border the zone.	9193, 9194	
The aerial application of 1080 should not be allowed to be a permitted activity under regional plans but should be required to go through a notified consent process.	9275	
Make proven deer by-kill reduction, and reduced stand down times a requirement for possum, rat or rabbit vector control, in areas of significant value for recreational big game harvesting.	9029	Council of Outdoor Recreational Associations)
Aerial 1080 operations approved only after fur industry workers and the public have been well notified by newspaper advertisements, and other methods of control shown to be impracticable.	7820	

Appendix T: Summary of Submissions

Other matters Issues	Submission	Organisation (submissions from named organisations; other submissions are personal submissions)
1080 would be vital for all exotic disease responses where wild animals are a reservoir of infection, or a means of spreading the disease, such as the case with Foot and Mouth disease (FMD). If FMD were to occur in an area with wild animals such as pigs, the eradication plan would require the killing of all wild animals in the infected area. The use of 1080 would be essential in these circumstances.	9326	MAF
Continue to investigate to find alternatives to 1080.	9103	Te Rununga O Kiakoura
ERMA should carryout additional research to clarify risks and their effects.	8648	
Surely our scientific ability to study and research poisons has increased so rapidly in the last decade that any studies prior to 2000 would now be outdated? Why cannot 1080 be put through a rigorous modern scientific study?	8528	
A balance needs to be maintained to suit all interested parties including farmers, hunters, Forest & Bird, and the general public.	8581	
As a compromise a few more accessible areas in the country could be reserved for recreational hunters.	9252	
Other countries, like the USA, Canada, and Australia do not permit aerial distribution of 1080.	8747 and others	
The application presents a distorted view of alternative: gives only two alternatives – one the status quo (ie relative widespread use of 1080) and one with no 1080.	8580	
Monitoring after operations indicates effective initial control of pests, which means a longer Period during which low densities can be maintained before re-treatment is necessary.	9326	MAF
The agency must be able to show that all alternatives to aerial 1080 have been considered and adopted where practicable.	8553	
Some landholders prefer the use of aerially applied 1080 on their properties as it limits their OSH liabilities.	8314	Southern Pest Management - Tasman
Need for a long term national policy on 1080.	9283, 9251	
The current and proposed use of 1080 is unsustainable. The use of pest-proof fences is a long-term alternatives	9280	ECO
Little justification for aerial application of 1080 in areas that have vehicle access.	8611	
The most important and significant benefit of 1080 to health is that it combats the serious and widespread environmental degradation caused by unmanaged animal pests. This is not well addressed in the application.	9249	Regional Public Health, Hutt Valley District Health Board