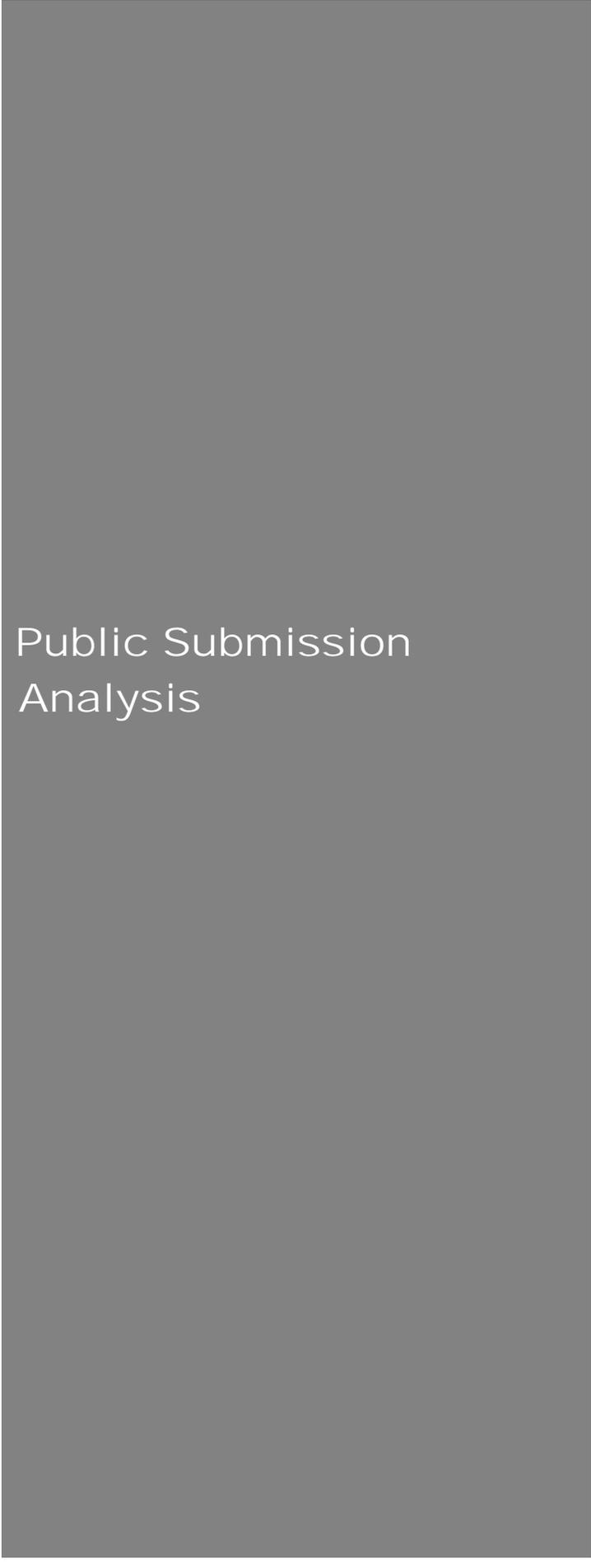


## Appendix D

## Public Submission Analysis



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# 1. Introduction

## 1.1 Consultation Process

To gather information on the views of New Zealanders on the use of 1080, AHB and DOC undertook a public consultation programme in 2004. The programme was based on a Discussion Document "The use of 1080 for pest control", which described the reassessment process, how and why 1080 is used, and the outcomes of 1080 use. A copy of the Discussion Document is contained in Appendix A of this Application. A Response Form was contained in the document, and readers were invited to make submissions on their views of 1080 use.

The Discussion Document was sent to over 90 stakeholder organisations including game and agricultural organisations, territorial authorities, public health boards, and conservation or environmental groups in July 2004. At the same time the document was also made available to the public through the DOC and AHB websites and from DOC conservancy offices.

In parallel with the public consultation, a programme of consultation with Maori was undertaken, facilitated by DOC's conservancy network. This is described in more detail in Section 4.3 of the Application.

Submissions from all groups were accepted until the end of October 2004 (a three month period). Submissions were made through:

- A website (administered by DOC).
- Postal submissions (received by AHB).
- Email submissions (received by DOC).

Most of the postal and website submissions used the Response Form contained in the Discussion Document.

## 1.2 Analysis of Submissions

URS New Zealand Ltd was contracted by AHB and DOC to prepare the assessment of the risks, costs and benefits of the use of 1080. URS also undertook the analysis of public submissions arising from the consultation programme, as information from the submissions has informed the assessment of risks, costs and benefits.

This Appendix contains the analysis of submissions received from public consultation on the use of 1080. (The analysis of submissions received from Maori was undertaken separately by Tuputupuwhenua Research and forms Section 4.3 of the Application).

The submissions were analysed for content within the key categories of assessment required by ERMA, which have been used in the assessment of risks, costs and benefits:

- Effects on Human and Public Health
- Effects on Natural Environment (soil, air and water)

- Effects on Animals and Plants
- Effects on Economy
- Effects on Social and Community
- Other effects.

## 2. Submission Analysis

### 2.1 Submissions Received

There were 537 submissions received in total from individual members of the public, territorial authority representatives and different interest groups. Of these, 30 were identified as Maori individuals by self-proclamation on the submission form or were separate submissions from organisations representing iwi.

Individual members of the public accounted for 360 submissions with 147 from groups or organisations with an interest in 1080 use in New Zealand.

Submissions were received from the following categories of groups/organizations:

- Agricultural groups including Federated Farmers Central and Regional groups, industry groups, and farming collectives (22 submissions).
- Environment and conservation organisations including the New Zealand Conservation Authority, Royal Forest and Bird Protection Society (F&B) Central and Regional branches, Landcare Trust groups (partnerships where farmers work together to take action on local environmental issues), and ecological restoration and reserve protection groups (35 submissions).
- Pest control groups including Locally Initiated Programme Group's (LIP's), National Possum Control Agencies, pest control contractors, and other pest management associations (24 submissions).
- Hunting groups including the New Zealand Deerstalkers Association, Fish and Game New Zealand, hunting clubs, fur industry groups and other associations (17 submissions).
- Animal health and welfare organisations including Regional Animal Health Committees (RAHC), veterinary associations, the Society for Prevention of Cruelty to Animals (SPCA) (13 submissions).
- Territorial local authorities including regional, district and city councils (20 submissions).
- Forestry groups including industry and owners (5 submissions).
- Outdoor recreation and tourism groups including tramping clubs and bush tour companies (7 submissions).
- District Health Boards (2 submissions).

- Other groups including a family group and the National Council of Women in New Zealand (2 submissions).

There were 137 individual submitters who claimed membership of the groups listed above.

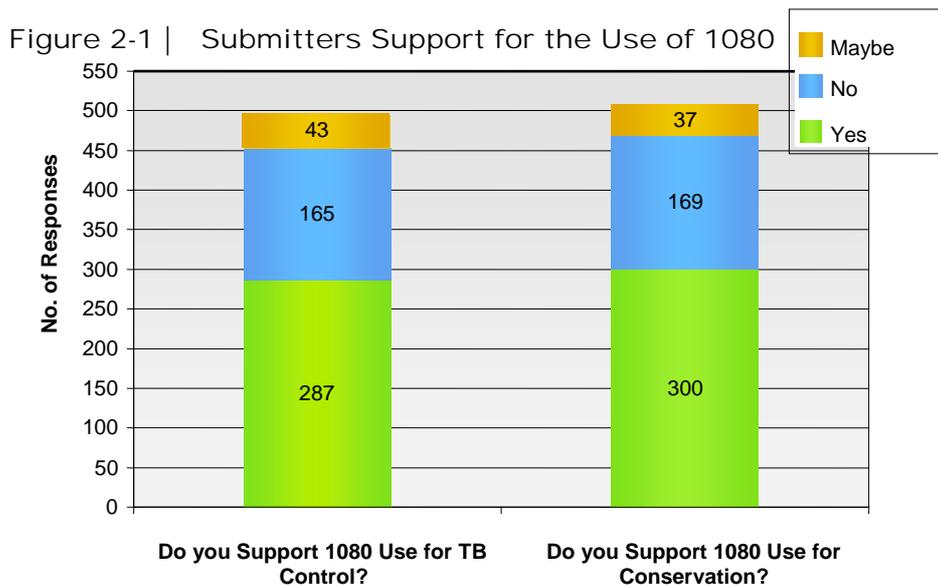
## 2.2 Support for the Use of 1080

### 2.2.1 Responses

Submitters were asked:

1. Do you support the use of 1080 to control bovine tuberculosis?
2. Do you support the use of 1080 to conserve New Zealand's native forests, plants and animals?

The number of submitters that answered “yes” to question 1 or to question 2 was greater than the number of submitters that answered “no” or “maybe”. Figure 2-1 illustrates the total number of submitters that registered that they did support, did not support or might support the use of 1080 for control of bovine Tb or conservation purposes. Note that some submitters only responded to one question therefore these figures do not add up to the total number of submissions received.



### 2.2.2 Group and Individual Characteristics

There was a discernible difference in levels of support between submissions from groups or organisations with an interest in the use of 1080 and individuals. Individual submitters are more evenly divided between supporting or not supporting the use of 1080, while the majority of groups/organisations that made submissions were likely to support the use of 1080. Table 2-1 demonstrates the support submitted by groups in comparison with individuals. Note that some submitters only responded to one question therefore these figures do not necessarily add up to the total number of submissions received.

Table 2-1 | **Group and Individual Submitters Support for 1080**

	1080 use for Tb control	1080 use for conservation
<b>Individuals</b>		
Yes	169	181
No	146	152
Maybe	35	27
<b>Groups</b>		
Yes	118	119
No	20	17
Maybe	8	10

Annex A provides a detailed breakdown of the responses from different groups and individuals by gender, ethnicity and urban/rural submitters (note that some submitters only responded to one question and did not always provide ethnicity, gender or residence details). The most common profile for a submitter was a rural male identifying himself as New Zealand European.

Several lengthy and considered submissions that provided recommendations for the 1080 reassessment process and the use of 1080 were received from territorial local authorities. Many groups and individuals who answered yes, no or maybe stated they would support the use of 1080 for either bovine Tb control or conservation provided certain conditions were met. These conditions and the key reasons provided by submitters for their support or opposition to the use of 1080 are summarised in Section 3.

### 3. Submission Content Analysis

#### 3.1 Reasons for Support or Opposition

The analysis in the following tables is based on comments made on the response form under the heading "Other Comments". These are included in this section as they raise specific issues for support or opposition to the use of 1080, or opinions on the improvement of pest control and application of 1080 in New Zealand.

The key themes evident in the reasons provided by submitters for their support or opposition to the use of 1080 for the control of Bovine Tb are summarised in this section. To avoid repetition, the submissions regarding the use of 1080 for Tb control and for conservation are summarised together, as are the reasons for answering no or maybe.

The key themes are URS' interpretation of the themes commonly identified by submitters while the specific issues are a summary of submitter's issues.

**Table 3-1 | Reasons for Support or Opposition to the use of 1080**

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
<b>Human and Public Health</b>			
Low risk to human health	<p>Little risk to human health from 1080 use</p> <p>1080 is less toxic than alternatives such as cyanide</p>	Contamination of 1080 in the food chain	<p>Humans may receive a sub-lethal dose of 1080 by eating contaminated stock/wild animal meat. One submitter felt that "No animal that forms part of the human diet should be targeted" [by 1080]</p> <p>Humans may receive a sub-lethal dose of 1080 through direct exposure to 1080</p> <p>Potential ability of 1080 to act as an endocrine disruptor – this may result in long term impacts on human health with effects manifesting in current or future generations after monitoring for effects has finished</p> <p>Presence of fluoride in 1080 and resulting detrimental effects on human health</p>
The need to eradicate bovine Tb for human health	The eradication of bovine Tb is of great importance to human health	Lack of research into effects on human health	<p>There has been little research undertaken on the short or long term implications of 1080 use on human health from any form of exposure – specific concerns include:</p> <ul style="list-style-type: none"> <li>- Impacts of 1080 as an endocrine disruptor</li> <li>- Impact of contaminants (1080 not named specifically) on the immune system</li> </ul> <p>Concerns with future unforeseen problems arising from continued use</p>
<b>Natural Environment (Soil, Air and Water)</b>			
Low risk to environmental health	<p>1080 is a relatively benign and naturally occurring substance</p> <p>Low risk of contamination of water supplies and waterways</p> <ul style="list-style-type: none"> <li>- Water sampling has proven that any measurable quantity of 1080 is extremely rare</li> </ul> <p>No long term, low level contamination of the environment</p> <ul style="list-style-type: none"> <li>- 1080 breaks down rapidly in the environment</li> <li>- Alternatives are a greater risk – e.g. Brodifacoum is environmentally persistent and produces serious residue risks</li> </ul>	General environmental contamination	<p>There is a lack of knowledge of the long-term implications of 1080 use and the possibility of long-term contamination</p> <p>Contamination of waterways and/or water supplies</p> <ul style="list-style-type: none"> <li>- Possibility of catchment wide effects from 1080 contaminating one waterway in a catchment and flowing downstream</li> </ul> <p>Concerns with future problems arising from continued use</p>

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
Reduced risk of polluted water supplies	Control of pests reduces the risk to water supplies from pests e.g. water pollution from high levels of faecal coliforms	Disposal of waste and surplus	Contamination of areas from disposal of waste 1080 from manufacture or surplus
Animals and Plants			
Conservation objectives are aided by 1080 use for bovine Tb	Benefits to native biodiversity from possum control for bovine Tb	Conservation objectives are threatened by 1080 use for bovine Tb control	Personal negative experience of forest after 1080 application – “Silence” Negative impacts on native biodiversity especially native wildlife.
Non-target species killed by secondary poisoning is mitigated by administration and affect mostly pests	<p>Impacts on native ecosystems by stoats, rats, rabbits, feral cats and other vertebrate pests also reduced by 1080 application</p> <p>Birds killed by 1080 are often non-native species</p> <p>Alternative control toxins present a considerably higher risk to wildlife than 1080 e.g. cyanide is hazardous to ground birds such as weka and kiwi</p> <p>Recent technological improvements in 1080 application (to address community concerns) have mitigated non-target poisoning</p> <ul style="list-style-type: none"> <li>- GPS systems in aerial distribution</li> <li>- Improvement in bait quality targeting species</li> <li>- Lower rate of per hectare application</li> </ul>	Risk of lethal or sub-lethal dose to non-Target species	<p>Aerial application is completely indiscriminate in species targeting</p> <p>Inefficient or poor application methods put many non-target animals at risk – anecdotal evidence suggests leftover baits are sometimes disposed of in an indiscriminate manner resulting in unnecessary deaths</p> <p>Stock loss, domestic animals (particularly dogs), wild animals that are hunted (deer, pigs and birds), eels (eels are considered particularly sensitive to 1080) and possibly bees</p> <p>Negative impacts on native biodiversity (especially native wildlife) – specific concerns for individuals and populations of:</p> <ul style="list-style-type: none"> <li>- Birds and particularly iconic species such as kiwis</li> <li>- Lizards and/or geckos</li> <li>- Eels</li> <li>- Insects and worms e.g. cicada who spend part of their lifecycle underground</li> <li>- Decreased genetic diversity with from death rare species members within smaller populations</li> <li>- Loss of even 1 or 2 members of a rare species breeding population can have devastating effects</li> <li>- Flouroacetate has the potential to affect all living organisms including fungi and flora</li> </ul>

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
Animal welfare - reduced animal suffering compared to other poisons	Research indicates 1080 is relatively humane in the case of rabbits and possums	Animal welfare – suffering of poisoned animals	1080 is too cruel to target species. There is a lack of research into the suffering of targeted and non-targeted species from sub-lethal or lethal doses Dogs suffer horrendously from 1080 poisoning
1080 is an effective animal pest control tool	<p>Most efficient and effective method for inaccessible backcountry/difficult terrain</p> <ul style="list-style-type: none"> <li>- 1080 is the only poison that can be distributed aerially (on the mainland)</li> <li>- Without aerial 1080 applications, possums and other pests would be impossible to control in some areas</li> </ul> <p>Most efficient and effective method for large scale animal pest control</p> <ul style="list-style-type: none"> <li>- Trapping is too time consuming and expensive</li> </ul> <p>Benefits of secondary poisoning of non-targeted pest species</p> <p>Possums are less likely to become bait shy</p>	Lack of integrated pest control	A sustained approach would integrate pest control operations to target rats and stoats which can bounce back quickly from 1080 operations and fill the niche left by possums
Effectiveness of 1080 in helping achieve conservation objectives for native animals and plants	<p>Improved condition of native biodiversity and habitat after 1080 application including:</p> <ul style="list-style-type: none"> <li>- Increases in bird life</li> <li>- Personal experience and monitoring of native wildlife has shown increased native wildlife and improved forest health</li> <li>- Viewing of before and after (application of 1080) photographs of NZ forest show significant improvements in health</li> <li>- Most efficient and effective method for inaccessible backcountry/difficult terrain</li> <li>- Most efficient and effective method for large scale animal pest control</li> <li>- Mainland conservation would be seriously threatened without 1080 - result would be loss of</li> </ul>	Lack of knowledge on the effects of 1080	<p>Lack of knowledge regarding risk to native wildlife</p> <p>Lack of knowledge regarding risk to fungi and flora or nutrient cycling within forest ecosystems</p> <p>Lack of knowledge on impacts of 1080 at an ecosystem level</p> <p>Sub lethal doses – potential ability for 1080 to act as an endocrine disruptors</p> <ul style="list-style-type: none"> <li>- Endocrine disruptors can have long term impacts on wildlife populations with effects manifesting in current or future generations after monitoring for effects has ended - very low concentrations may cause permanent damage to wildlife with the most vulnerable part of the life cycle gestation and juvenile stages</li> <li>- Lack of knowledge regarding the potential of 1080 as an endocrine disruptor</li> </ul>

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
	<p>contact by public with native biodiversity and resulting loss of financial support</p> <ul style="list-style-type: none"> <li>- Ability to control more than one pest species at a time</li> </ul> <p>Worse decline of native species without 1080</p> <p>1080 is a well researched substance with the majority of evidence concluding that 1080 is well suited to its use in New Zealand for pest control</p>		
Importance of conserving New Zealand's native forests and wildlife	<p>Possoms impact through predation, competition for food and resources is one of the biggest threats there is to native NZ ecosystems</p> <p>Difficulty of pest control without 1080 - "It is difficult to see how further extinctions of NZ native bird species can be avoided if use of 1080, including aerial use, does not continue"</p> <p>Concerns for specific locations e.g. Te Urewera National Park, Fiordland, Mt Somers Conservation Area</p>		
Economic			
Importance of eradicating bovine Tb for New Zealand's image	Bovine Tb negatively impacts on New Zealand's "clean, green" image	Contradicts New Zealand's "clean green" image	Subsequent threats to tourism and primary products industry
Benefits to agricultural industry	<p>Cost effective tool for rabbit control as well as other vertebrate pests with a negative impact in agriculture. 1080 is the most effective toxin for rabbit control</p> <p>Benefits for some crops from control of vertebrate pests</p> <p>Little risk to horticultural activities</p>	Risk to the agricultural industry	<p>Risk of 1080 contaminated meat and subsequent impact on agricultural industry including stock, deer, eels</p> <p>Risk of mistakes such as dust drip and inaccurate drop areas poses a risk to farms and farming exports</p> <p>Perception of 1080 use by overseas markets for agricultural products, including all stock, eels and meat from wild animals</p> <p>Lack of research into residue levels of 1080 in stock e.g. of residuals in bone marrow or liver tissue</p> <p>Lack of robust monitoring of stock loss and other by-kill</p>

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
			Economic costs from loss of stock and farm dogs to 1080 poisoning
Effectiveness of 1080 in achieving bovine Tb control objectives	<p>Current bovine Tb pest management strategy relies on the availability of 1080 to the AHB to undertake cost effective Tb control</p> <p>Marked reduction in infected cattle and deer herds:</p> <ul style="list-style-type: none"> <li>- Personal experience of farmers witnessing effectiveness in controlling Tb - "Tb spreads at an increasing rate without possum control"</li> <li>- Decline in stock movement control requirements is partly a result of 1080 use</li> <li>- Personal experience - improved health of feral animals such as wild pigs and deer</li> </ul>	Preference for alternative Tb controls	<p>Other forms of Tb control should be implemented e.g.</p> <ul style="list-style-type: none"> <li>- Increased control of stock movement</li> <li>- Applying the precautionary approach to previously contaminated farm</li> <li>- Making it illegal to keep wild pigs</li> <li>- Control of lifestyle block farmers</li> <li>- Control of farmed deer as releasing deer can result in deer returning to farms contaminated</li> <li>- Awareness that people may think an area safe from Tb with 1080 use for conservation</li> <li>- "The Government should pay the total costs of 1080 application not farmers"</li> </ul>
Ineffectiveness of alternatives	A possum recovery programme (bounty) would not meet the low density pest numbers targeted by DOC/AHB pest management strategies	Opportunity for Local Employment	Possoms and other feral animals could be controlled by a bounty or similar system creating more local employment for small/rural communities – 1080 use reduces this opportunity
Cost effective tool for general pest control	<p>Aerial application is an efficient and cost effective option and is sometimes the only cost effective tool available for a large proportion of the bovine Tb vector control operations</p> <p>Aerial 1080 also results in the reduced need for frequency of repeated control work</p> <p>Ability to control more than one pest species at a time e.g. rabbits are also effectively controlled by 1080</p> <p>Interruption in 1080 application now would waste the money and effort spent to now on pest control using 1080</p>	1080 is only used because it is cost effective and /or easy	<p>The cheapest option is not necessarily the best</p> <p>The easiest option is not necessarily the best</p>
Importance of eradicating bovine Tb for the agricultural industry	<p>Eradication of bovine Tb will protect New Zealand's pastoral export base and economy</p> <p>Well established link between Tb infected possums and Tb infected</p>	Loss of wild meat export industry	Contamination of wild venison has resulted in loss of wild venison export

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
	<p>bovines – “90% of herd infections are caused by contact with infected wildlife vectors, mainly possums, and 77% of dairy herds infected with Tb were in vector risk areas”</p> <p>Impact on export market</p> <p>Economic cost of no vector control would be significant</p> <p>1080 also helps to control other Tb vectors e.g. ferrets, pigs, deer</p> <p>Low risk to horticultural activities</p>		
Social and Community			
Benefits to recreational activities - Hunting	<p>Recreational hunting will be improved in the long term by eradicating Tb from wildlife over large areas</p> <p>1080 helps to prevent Tb from becoming widespread in deer populations</p>	Threat to recreational activities - Hunting	<p>The by-kill of wild animals is unacceptable</p> <p>“Indiscriminate poisoning of wild animals, and hunting dogs is occurring up to 2 years after a 1080 drop”</p> <p>Lack of research into the impact of 1080 on wild birds that are hunted</p> <p>Contamination of wild venison rendering it inedible</p> <p>Loss of activities for young people who may resort to more unproductive or detrimental activities</p>
Reduces distress and/or stress over decline in native biodiversity	<p>Distress at degradation of forests and especially local extinction of native species</p>	Spiritual concerns	<p>The spiritual concerns of Maori are not addressed in the application of 1080 – particularly when it is applied aerially</p> <p>1080 use threatens the inherent spiritual benefits obtained from visiting the bush</p>
		Concern of the impact of 1080 on future generations	<p>Through loss of native biodiversity</p> <p>Through the accumulated contamination of the natural environment</p>
		Personal negative experience of 1080 or anecdotal evidence	<p>1080 aerial drops in particular have resulted in bad experiences such as being in the drop zone during application</p> <p>Lack of appropriate warning for dog owners</p> <p>Loss of stock</p> <p>Witnessing the death of animals from 1080 poisoning especially dogs</p> <p>Anecdotal evidence of lethal or sub-lethal doses of non-target species – e.g. loss of stock or other domesticated animals</p>

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
Big Picture			
Currently there is no viable alternative	1080 is "the best option until something better is developed"	Other viable alternatives exist	Alternative options have not been fully explored
Support is conditional	<p>1080 use is only supported where:</p> <ul style="list-style-type: none"> <li>- There is a proven Tb problem originating from possums</li> <li>- There are stringent controls in place to ensure secondary effects of 1080 use are minimised</li> <li>- Use of 1080 is minimised</li> <li>- Aerial application of 1080 is minimised</li> </ul>	Concerns over DOC/AHB /territorial authorities agenda and attitude	<p>Concerns about DOC and AHB reasons for possum control</p> <p>Doubts regarding accuracy of information</p> <p>Feeling that DOC/AHB are certain that 1080 has no detrimental affects on New Zealand's ecosystems</p> <p>Concerns over reporting of 1080 traces in export lamb and beef</p> <p>Deployment of 1080 on farms by some territorial authorities alienates farmers through their communication approach – "like it or pay for it yourself some other way"</p> <p>Conservation goals of DOC are unrealistic and unachievable – questions over "what we preserve and why?"</p>
Effective application	1080 operators are skilled and qualified to to use 1080 safely and effectively	Mistakes by Operators and AHB/DOC	There are too many mistakes being made – inaccurate drop areas, contamination of water supplies, stock loss and more
Benefits of 1080 use for Bovine Tb control outweigh the costs	Personal benefit – e.g. as a deer/dairy/beef farmer	Concerns over current Tb control management (also refer Economic - preference for alternative Tb controls)	<p>Spread of Tb is exacerbated by untested stock/animal movement</p> <p>Other viable options for Tb control exist</p> <p>1080 has not achieved the objectives of Tb control</p>
Status of the activity to discharge 1080 from air onto land	Current non-notified status of consents is supported	Concerns over current administration of 1080	<p>The status of 1080 application under the Resource Management Act is perceived as inappropriate; it should be more precautionary</p> <p>Current methods of deployment do not take into account commercial or recreational hunting considerations</p> <p>Aerial operation classification of waterways for buffering – 3m flow width. The flow rate not the stream width should be the determinant as many narrower streams are at threat</p>

SUBMISSIONS THAT SUPPORT THE USE OF 1080		SUBMISSIONS THAT DO NOT SUPPORT, OR MAY SUPPORT THE USE OF 1080	
Key Theme	Specific Issue	Key Theme	Specific Issue
Benefits to conservation outweigh the costs	<p>Loss of a few dogs and cats is offset by conservation gains to birds and forest habitats</p> <p>Loss of some individuals from native wildlife species is outweighed by the benefits to conservation overall</p> <p>“There is no poison that has all the desirable characteristics without disadvantages...so some compromise must always be made.”</p>	Costs of 1080 use for bovine Tb control outweigh the benefits	<p>Comparisons made to DDT, Agent Orange 2.4.5.T etc - “1080 is too dangerous”</p> <p>Possible connections to NZ increases in heart disease, cancer, chronic fatigue syndrome</p> <p>Hard to detect the presence of 1080</p>
Unique situation in New Zealand requires 1080	New Zealand has a unique ecology requiring unique solutions to its pest control problems	1080 is banned in other countries	Other countries do not use 1080, and New Zealand is the only place where it is aerielly applied – why is New Zealand using a poison a majority of countries consider too unsafe to use themselves

## 3.2 Modification for Acceptable Use

Submitters who gave their support for the use of 1080 for either or both bovine Tb control and conservation, as well as those who did not support the use of 1080 without modifications, made submissions on how 1080 could be modified to make its use more acceptable. A summary of the key issues is provided here.

### 3.2.1 Application – Supporters

The following suggestions were made by supporters to reduce the risk of the use of 1080.

#### ***Consider the timing of applications***

- Spring/early summer applications preferred to give maximum carcass and residual breakdown.

#### ***Control systems***

- Operators/contractors should be licensed to kill all Tb vectors and conservation pests and appropriately trained to mitigate impact on non-target species and the environment.
- Equipment and systems must minimise unwanted impacts.
- Independent auditing of operators should be considered.
- A set of clear and enforced guidelines for the application of 1080 to ensure maximum effect dependent on breeding cycles, weather and pest conditions and exclusion periods for domestic animals are required.
- The DOC and AHB standard operating procedures and DOC approval processes must be maintained.

#### ***Concerns over aerial application of 1080***

- Aerial applications should only be used when strictly necessary and under the following conditions:
- minimise the rate of 1080 per hectare applied
- use of GPS navigational systems to confirm any point of take for water supplies
- Species targeted by ground bait application only especially where dogs may be at risk
- An alternative to aerial applications could include the use of volunteers to hand broadcast and fill bait stations on islands - resulting in educational and public relations benefits by exposing large numbers of people to 1080 use.

#### ***Application of wildlife management science***

- The correct wildlife management approach should be adopted at all times.

- Pest control must address pest control only e.g. not local unemployment problems as well.

***Minimise risks from 1080 use***

- Construction of baits to reduce fine dust and shavings, bait quality control, baits green and pre-feed non-target species at risk.
- Avoid use of aerial drops especially near farmland.
- Better management of stock to avoid stock mortality, by moving them off properties and areas where 1080 drops are targeted.
- Operational areas well signed and comprehensive warnings to stock and dog owners.
- A nationally consistent approach to 1080 should be adopted – potentially develop a national policy/framework/guidelines/protocol.
- Unused baits collected and disposed of elsewhere.

***Use of 1080 needs to be expanded***

- Authorise community groups to use 1080.
- Given the likelihood of declining rabbit haemorrhagic disease (RHD) effectiveness
  - 1080 is the most effective toxin for rabbit control
  - the future use of 1080 for rabbit control by aerial application may be needed
- Register 1080 for use against all pests and use it to target other pest species (apart from possums) - including mustelids, deer, rats and mice, pigs.

***Lack of knowledge on animal suffering***

- The substance 1080 should not be used to target species where insufficient research has been undertaken into the humaneness of its application. Possums and rabbits may be an exclusion to this.

3.2.2 Application - No Support or Maybe

***1080 is unacceptable in any form or application***

There are alternatives available that should be used instead of 1080.

***Continuous applications are unsustainable***

1080 should not be considered an ongoing option.

***Concerns over aerial application of 1080***

Species targeted by ground bait application only to avoid the risk to non-target species and the contamination of waterways. No aerial application should be permitted because:

- It releases harmful chemicals into waterways.
- It does not break down in water but fixes to algae or other substances in the water (undetectable).
- It releases harmful chemicals into soil and/or vegetation.
- Sub-lethal or lethal doses impact non-target species.
- Uncertainty around impacts on native wildlife e.g. lizards.

If aerial applications are used then all applications should use GPS technology to ensure accuracy.

***Controls on Operators/Contractors***

- Operators need to be scrupulous with protocols, handling and dispersing 1080.
- Operators should be responsible and accountable for ensuring impact of 1080, particularly the contamination of waterways and the mitigation of risk to dogs.

***Clean up areas after 1080 application***

Carcasses should be removed and disposed of appropriately, and any remaining bait removed.

***Mitigate impacts on recreational and/or commercial hunting***

- Use of deer repellent would reduce the level of opposition to aerial 1080 use.
- Regional consultation during the planning of aerial applications e.g. to mitigate impact on specific hunting seasons and likely levels of use of an area.
- No justification for the use of 1080 to control wild animals that may be hunted.

3.2.3 Communication

Improving communication on 1080 issues was a subject broached almost exclusively by those who were generally in support of the use of 1080 for either or both bovine Tb control and conservation purposes. Specific recommendations were made regarding the need to improve levels of communication and education for the general public and specific user groups around the need for, and use of, 1080. A summary of key suggestions are listed below:

- Effective risk communication is the key to the community accepting the continued use of 1080. More people need to have access to information and the rationale, methodology and effects of 1080.
  - 1080 users need to genuinely work with and seek to understand opposition to 1080
  - making adverse comments about brodifacoum, to promote the acceptance of 1080 is a risk

- recognise the position of other affected stakeholders such as the hunting community
  - negative experiences are often reported due to a lack of communication between affected parties and operators/DOC/AHB/Regional Council about timing and areas of application
  - develop a constructive relationship with the hunting industry – hunter observations will help provide information about the presence of Tb in wildlife, help mitigate the risk of animal releases introducing Tb into possum populations, and assist long term benefits for hunters by maintaining a healthy wild animal population and reducing the risk of disease to hunters
- Education for dog owners about responsible dog ownership in conjunction with 1080 operations.
  - Those using 1080 need to establish closer links with each other to effect better co-ordination of efforts.
  - Awareness needs to be raised by DOC of the need for effective possum and other pest control.
  - Complete honesty regarding possible by-kill is needed from DOC/AHB/territorial authorities.
  - Comprehensive signage and warnings for stock and dog control to avoid exposure.
  - Communities and affected stakeholders have expressed a desire to have knowledge and some input into the types of conditions that might be imposed on the proposed operations.

#### 3.2.4 Research Needs and Other Options

Many submitters, whether they supported or opposed the use of 1080, did recognise that there is a need for effective bovine Tb and conservation pest control. Many of these submitters also felt that concerns over the continued use of 1080 are valid and advocate strongly for a focus on the search for viable alternatives. Comments made around the need to explore alternative options to 1080 are summarised below.

##### ***Support for research***

- To avoid the use of poison.
- An equally effective but more targeted possum control method to reduce ongoing reliance on 1080.
- Effecting a long term solution to pest control, especially the use of reproductive intervention to effect fertility – there should be a public debate about using a genetically modified organism if reproductive intervention is explored.
- Paying a bounty could provide local employment and be effective at reducing pest numbers.

- Understanding the dynamics of interactions of pests.
- The creation of an antidote (especially for dogs).
- The impacts on wildlife and human exposure to 1080
  - to understand fully the impacts of 1080 use on native wildlife and target species
  - assess 1080 in terms of its endocrine disrupting capacity for humans and wildlife (research should be carried out on living animals in simulation as close to real world exposure as possible). This should be part of the ERMA review process.

***Encourage alternative options***

- A fur trade/harvest as a means of controlling possums.
- Greater control of farmers illegally moving stock (Tb).
- Alternatives to 1080 use need to be considered in the process of reassessment of 1080.
- A bounty for pests .

3.3 Other Comments

A summary of other comments made by submitters is included here:

***Achieving conservation objectives***

DOC policy and approach to conservation is “cosmetic” and needs upgrading to be effective at achieving conservation objectives

***Arguments against the use of 1080***

Many supporters of 1080 have the following comments to make about arguments against the use of 1080:

- Spirituality based arguments which attack science are not valid
- Arguments against 1080 are based on:
  - ignorance or a short term focus
  - emotive reasons not based on facts or figures
  - recreational - benefits of hunting
  - express no viable alternatives and are of green or organic origin.
- Too much notice is taken of a vocal minority.

***Philosophy and science of pest control***

- Left Wing political correctness reasons for conservation – “why not practicality and sensibility.”

- More science and less idealism.
- Concern over the manipulation of science to justify 1080 use.

#### ***The Reassessment process***

- Judgements need to come from a thorough understanding of relevant research.
- The reassessment process should register 1080 for control of all possible pest species and should not preclude a new technology e.g. dose, application method, form.

#### ***Submission document***

- The document is balanced and comprehensive.
- The document is subjective and biased.
- The document is misleading on some issues e.g. '1.5 teaspoons' sounds innocuous but may not be.
- The document fails to address the targeting of feral deer or other uses of 1080 e.g. rabbit control.
- The document does not explore the relationship between increased productivity of native species following application of 1080 and the cycle of treatment.

## **4. Summary**

The majority of submissions received by the applicants supported the use of 1080. However, many of those who are in support of 1080 recognise the negative aspects of 1080 use and advocate a strong research focus for less toxic, or more humane methods of vertebrate pest control. The reasons given for either support or opposition were polarised, with many reasons for opposition to 1080 use refuted by an argument from those in support of 1080, or vice versa.

Many submitters felt that negative perceptions of 1080 may have been exacerbated by incidents where controls have not been adequately implemented.

Suggestions were made by submitters to further mitigate the risks associated with 1080 and improve pest control effectiveness. Three of the most commonly occurring themes were the need for consistent operational protocols or guidelines, monitoring of the effects of a 1080 operation, and the expanded use of 1080 for other pests.

## Annex A Group or Organisation Submissions

### Submissions from groups/organisations with an interest in the use of 1080

Group Represented	1080 Use for Tb Control	1080 Use for Conservation
<b>Agriculture</b>		
Support 1080 use	21	21
Oppose 1080 use	1	0
Maybe	0	0
<b>Animal Health &amp; Welfare</b>		
Support 1080 use	12	12
Oppose 1080 use	0	0
Maybe	1	1
<b>Territorial Local Authorities</b>		
Support 1080 use	20	20
Oppose 1080 use	0	0
Maybe	0	0
<b>Environment/Conservation</b>		
Support 1080 use	30	31
Oppose 1080 use	2	2
Maybe	2	2
<b>Forestry</b>		
Support 1080 use	5	5
Oppose 1080 use	0	0
Maybe	0	0
<b>Hunting</b>		
Support 1080 use	2	2
Oppose 1080 use	13	12
Maybe	2	3
<b>Pest Control</b>		
Support 1080 use	20	20
Oppose 1080 use	2	1
Maybe	0	1
<b>Outdoor Recreation &amp; Tourism</b>		
Support 1080 use	5	5

Group Represented	1080 Use for Tb Control	1080 Use for Conservation
Oppose 1080 use	0	0
Maybe	2	2
<b>Public Health</b>		
Support 1080 use	1	1
Oppose 1080 use	0	0
Maybe	1	1
<b>Other</b>		
Support 1080 use	1	1
Oppose 1080 use	1	1
Maybe	0	0

**Submissions from individuals who are members of groups/organisations with an interest in the use of 1080**

Individual Submitters Group Affiliation	1080 Use for Tb Control	1080 Use for Conservation
<b>Agriculture</b>		
Support 1080 use	14	14
Oppose 1080 use	8	8
Maybe	3	3
<b>Animal Health &amp; Welfare</b>		
Support 1080 use	6	6
Oppose 1080 use	0	0
Maybe	0	0
<b>Environment/Conservation</b>		
Support 1080 use	30	28
Oppose 1080 use	14	16
Maybe	4	4
<b>Hunting</b>		
Support 1080 use	15	13
Oppose 1080 use	20	23
Maybe	6	5
<b>Pest Control</b>		
Support 1080 use	6	6
Oppose 1080 use	4	4
Maybe	1	1
<b>Outdoor Recreation &amp; Tourism</b>		
Support 1080 use	4	4
Oppose 1080 use	0	0

Individual Submitters Group Affiliation	1080 Use for Tb Control	1080 Use for Conservation
Maybe	1	1
<b>No Group Affiliation</b>		
Support 1080 use	91	107
Oppose 1080 use	99	101
Maybe	19	12

### Submissions from individual submitters by personal characteristics

Individual - Characteristics	Number of Submitters	1080 Use for Tb Control			1080 Use for Conservation		
		Yes %	No %	Maybe %	Yes %	No %	Maybe %
<b>Gender</b>							
Male	219	52	36	12	51	39	10
Female	62	45	37	8	58	42	0
<b>Residence</b>							
Urban	193	51	39	9	50	40	9
Rural	92	50	28	14	62	33	5
<b>Ethnicity</b>							
New Zealand European	211	54	34	11	55	38	7
New Zealander	20	45	40	15	45	40	15
Other Ethnicity	9	56	44	0	56	44	0