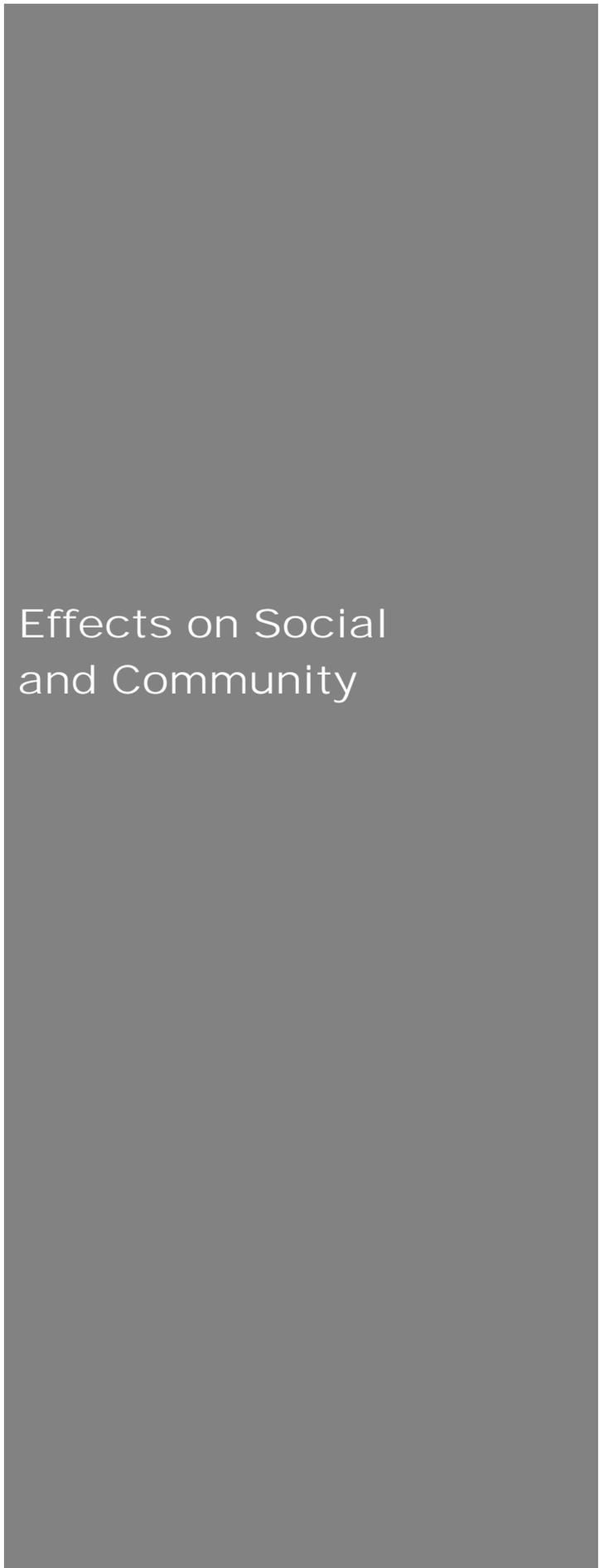


Section 4.1B Effects on Social
and Community



This section contains the registers which identify effects on New Zealand's social and community values. These include the following:

- Emotional and intangible effects
- Effects on recreation opportunities
- Effects on opportunities for hunting

The assessment of effects on social and community values is based on the relative effect between future scenarios WITH 1080 and WITHOUT 1080, as described in the Pest Control Scenarios section of the application.

Each adverse effect or benefit was assessed by asking the following questions:

- What is the relative likelihood that the risk/benefit will occur WITH 1080 compared to WITHOUT 1080?
- What is the magnitude of the risk/benefit when the effect WITH 1080 is compared to the effect WITHOUT 1080?

Significant effects that have been identified in these registers have been discussed further in Section 4.2.

BENEFITS REGISTER					
ID	Effect	How likely?	Magnitude of effect	Level of benefit	Commentary
Intangible benefits to the nation and local communities resulting from pest management for conservation and bovine Tb outcomes					
S-B1	Reduced concern over native ecosystem degradation	Likely	Moderate	C	<p>Many people in New Zealand feel concern for the continuing degradation of our native ecosystems. For example, more than three-quarters of those surveyed in a 1992 Heylen Poll believed that protecting endangered species is a very important issue, whether for ethical, economic or cultural reasons (Ministry for the Environment 1997). This general sentiment is reflected in New Zealand's regulatory and non-regulatory approach to conservation of native biodiversity. People may become concerned if they perceive a decline in conservation outcomes.</p> <p>Many submitters to the 2004 Discussion Document (Green 2004) supported the use of 1080 and cited their concern over decline in native biodiversity or degrading ecosystems as a reason (see Appendix D).</p> <p>The environmental assessment (section 4.1D) identifies that various benefits to public conservation lands are likely, very likely or extremely likely to occur, as protection of habitat and endangered species is more likely to be achievable WITH 1080, compared to WITHOUT 1080. A reduction in concern over native ecosystem degradation occurring WITH 1080 compared to WITHOUT 1080 is therefore considered to be LIKELY.</p> <p>The benefit occurs for those people concerned about conservation outcomes, or who derive intrinsic values from healthy forests/native on public land and the social benefit they provide to local communities and some regions. The magnitude of the benefit is therefore considered to be MODERATE.</p> <p>Based on the above the likelihood of this benefit occurring is LIKELY (a good chance that it may occur under normal operating conditions). The effect is MODERATE (local community and some regional social benefit), therefore the benefit is C (benefits are considerable but do not justify high costs or risks).</p>
S-B2	Enhanced pride and pleasure from the protection of New Zealand's natural heritage and clean, green image	Likely	Moderate	C	<p>The use of 1080 is critical for:</p> <ul style="list-style-type: none"> the protection of many native habitats and endangered species (see Pest Control Context for more details); and

BENEFITS REGISTER					
ID	Effect	How likely?	Magnitude of effect	Level of benefit	Commentary
					<ul style="list-style-type: none"> the reduction of bovine Tb prevalence. <p>In a future WITH 1080 it is more likely that successes will be achieved in these two areas than in a future WITHOUT 1080 (see Pest Control Scenarios, Sections 4.1D Effects on Environment and Section 4.1B Effects on Market Economy).</p> <p>Success in both or either of these areas will positively impact on the pride and pleasure that New Zealanders feel in association with their natural heritage and further bolster New Zealand's clean, green image. The likelihood of enhanced pride and pleasure from protecting New Zealand's natural heritage WITH 1080 is considered to be LIKELY.</p> <p>This benefit would impact on a subset of the New Zealand community that gain pride and pleasure from our natural heritage (S-B1 refers to a survey that indicates 75% of New Zealander's may feel this). In a future WITH 1080 compared to WITHOUT 1080 it is likely that the magnitude of the benefit would be MODERATE. This acknowledges that some benefits would also be obtained in a future WITHOUT 1080.</p> <p>Based on the above the likelihood of this benefit occurring is LIKELY (a good chance that it may occur under normal operating conditions). The effect is MODERATE (local community and some regional social benefit), therefore the benefit is C (benefits are considerable but do not justify high costs or risks).</p>
S-B3	Reduction in concern over exposure to Tb infected animals (e.g. handling live animals, or contact with carcasses)	Likely	Minor	B	<p>People who could become exposed to bovine Tb by handling infected animals or infected carcasses (i.e. farmers, hunters, trappers) may have concerns about the likelihood of their exposure and their chance of becoming infected.</p> <p>1080 is the most effective and commonly used means of controlling bovine Tb vector reservoirs.</p> <p>The likelihood of the benefit of a reduction in concern over exposure to Tb infected animals occurring in a future WITH 1080 compared to WITHOUT 1080 is therefore considered to be LIKELY.</p> <p>The benefit would occur for people who could be exposed to infected animals and concerned about the potential for bovine Tb infection, providing minor localised community benefit. The magnitude of the benefit is considered to be MINOR acknowledging that some benefit would be achieved in a future WITHOUT 1080 as well.</p> <p>Based on the above the likelihood of this benefit occurring is LIKELY (a good chance that it may</p>

BENEFITS REGISTER					
ID	Effect	How likely?	Magnitude of effect	Level of benefit	Commentary
					occur under normal operating conditions.). The effect is MINOR (minor localised community benefits), therefore the benefit is B (either insignificant or minor and not warranting further assessment).
S-B4	Reduced stress to farming communities from removal or reduction in Tb risk and associated threat to farm productivity	Very likely	Moderate	D	<p>Bovine Tb may affect the farming community through infected animals, restrictions on farming practices and human infection. These factors may all lead to reduction in financial viability, disruption of farming practices, and stress related human health impacts. The farming community may therefore become concerned over a perception of Tb risk.</p> <p>It is expected there would be less bovine Tb WITH 1080 than WITHOUT 1080. Some submitters to the 2004 Discussion Document supported the use of 1080 in order to control bovine Tb. Many submitters to the Discussion Document who affiliated themselves with the farming community acknowledged that the threat or discovery of Tb infection amongst their herds was a significant source of concern for them (see Appendix D for analysis of submissions).</p> <p>The likelihood of the benefit of a reduction in concern within farming communities over Tb risk occurring in a future WITH 1080 is therefore considered to be VERY LIKELY.</p> <p>The benefit would occur for people in the farming community who are potentially exposed to bovine Tb or concerned about the risk, providing localised community and some regional benefit. The magnitude of the benefit is therefore considered to be MODERATE.</p> <p>Based on the above the likelihood of this benefit occurring is VERY LIKELY (expected to occur if all conditions met). The effect is MODERATE (local community and some regional social benefit), therefore the benefit is D (benefits are considerable but do not justify high costs or risks).</p>
Benefits to outdoor recreation from achievement of conservation outcomes through reduction in vertebrate pests					
S-B5	Enjoyment of recreational activities that rely on maintenance of healthy forest habitat and native biodiversity	Very likely	Major	E	<p>Many submitters to the 2004 Discussion Document identified themselves as people who enjoy outdoor recreation and who support the use of 1080 for the preservation of the natural values central to their outdoor experience. Submitters described personal experiences (while enjoying outdoor recreation activities) of increased native bird sights and sounds, along with general improved forest health after a 1080 operation (see Appendix D for analysis of submissions).</p> <p>This has been identified as a significant benefit and is discussed in more detail in Section 4.2.</p>

REGISTER OF ADVERSE EFFECTS					
ID	Effect	How likely?	Magnitude of effect	Level of risk	Commentary
Recreational hunting risks - reduced wild animal populations (feral vertebrates) during pest control operations					
S-A1	Loss of opportunity to hunt due to reduced deer populations	Likely	Minor	D	<p>The use of 1080 is perceived by some hunters to reduce deer populations and thereby reduce the number of deer which are available to hunt.</p> <p>Although this adverse effect does not trigger a significant risk ranking, it is discussed further in Section 4.2, as it is acknowledged as a potentially contentious issue.</p> <p>A deer repellent is currently under development and may change this assessment in the future.</p>
S-A2	Loss of opportunity to hunt other wild animals due to reduced populations	Likely	Minimal	D	<p>Non-deer wild animals that may be hunted and face population reductions through by-kill from toxins are principally pigs and goats.</p> <p>The LD₅₀ of cyanide for pigs (and goats) is approximately 3.5-4.5 mg/kg. The LD₅₀ of 1080 for pigs is approximately 0.3 mg/kg and for goats is approximately 0.6 mg/kg (Eason et al, 2001). Pigs and goats are therefore more susceptible to 1080 than cyanide.</p> <p>Veltman and Parkes (2002) report that mortality rates for goats are generally very low during 1080 aerial operations. Pigs become bait shy very easily and are therefore less susceptible to 1080 than other wild animals.</p> <p>WITH 1080 a greater area is able to be treated therefore it is likely that more (non-deer) wild animals would be exposed to 1080 compared to exposure to cyanide. For this reason the likelihood that there will be a reduction in the number of pigs and goats to hunt in a future WITH 1080 compared to WITHOUT 1080 is considered to be LIKELY.</p> <p>This likelihood needs to be tempered with variable by-kill rate of pigs and goats following 1080 operations and with the knowledge that goats are not attracted to pellets (Green 2004) further reducing the risk of their exposure to 1080. Recovery of pig and goat populations is also highly likely to occur within a relatively short time frame following pest control operations (McIlroy 2005, Parkes 2005) , thus any impact on hunters is likely to be short-term and localised to the area of pest control only.</p> <p>The magnitude of the effect is restricted to the pig and goat hunting community. Based upon the above analysis this magnitude is considered to be MINIMAL.</p> <p>Based on the above the likelihood of this exposure occurring is LIKELY (a good chance that it</p>

REGISTER OF ADVERSE EFFECTS					
ID	Effect	How likely?	Magnitude of effect	Level of risk	Commentary
					may occur under normal operating conditions.). The effect is MINIMAL (minimal social disruption, community and cultural impact, and a very few unconnected individuals are affected), therefore the risk is D (Risks within the ALARP band and broadly classed as tolerable subject to ongoing monitoring and control).
Intangible adverse effects to the nation and local communities resulting from the pest management for conservation and bovine Tb outcomes					
S-A3	Disagreement between hunting community and government/pest control agencies regarding appropriate pest control target/non-target species	Likely	Minor	D	<p>Some submitters to the 2004 Discussion Document (Green 2004) did not support the use of 1080 because of concerns over recreational hunting. Reasons cited included non-target by-kill of wild animals or target kill of wild animals, the threat of contamination of wild meat (particularly venison) making it inedible and affecting the viability of wild venison export and because (hunting) dogs are extremely susceptible to 1080 poisoning (see Appendix D for analysis of submissions). These concerns are the embodiment of disagreement over whether wild animals that hunters target for recreation should be the target of pest control operations. Further disagreement exists over levels of by-kill of hunted species.</p> <p>Submitters also commented that the cheapest option is not always the best, suggesting a concern amongst the public that 1080 is being used because it is the cheapest option, not because it is the best option. However, it is the effectiveness of 1080 which is of more relevance than its cost. Regardless of cost it would not be possible to undertake pest management in many inaccessible areas of land WITHOUT 1080.</p> <p>Cyanide cannot be applied aurally and targets possums primarily. Hunters feel this is a benefit as its use is perceived to result in less by-kill or direct kill of wild animals. The use of cyanide and traps may therefore reduce disagreements between the hunting community and pest control agencies/government over appropriate pest control and target/non-target species. The likelihood of this effect occurring WITH 1080 is therefore considered to be LIKELY.</p> <p>The magnitude of the effect is restricted to those in the hunting community who disagree with targeting of wild animals hunted for recreation. The magnitude of the effect is assessed as MINOR.</p> <p>Based on the above the likelihood of this exposure occurring is LIKELY (a good chance that it may occur under normal operating conditions.). The effect is MINOR (low community and cultural impact for the region and nation, potential social disruption (e.g. community on alert) and</p>

REGISTER OF ADVERSE EFFECTS					
ID	Effect	How likely?	Magnitude of effect	Level of risk	Commentary
					some unconnected individuals are affected), therefore the risk is D (Risks within the ALARP band and broadly classed as tolerable subject to ongoing monitoring and control).
S-A4	<p>Perceived loss of control over own environment.</p> <p>Landowners, hunters and the local community may perceive a loss of control over their own environment, and a general disregard for their opinions and welfare.</p>	Likely	Minor	D	<p>Hunters, landowners and communities close to pest control operations may feel a loss of control over their own environment if:</p> <ul style="list-style-type: none"> • they see evidence of a 1080 application through aerial drops, bait stations or warning signs on public land • animals they want to hunt are killed by pest control operations • their pets are poisoned during a pest control operation • they oppose toxin use on their local area due to its perceived environmental risks (e.g. soil and water contamination) <p>Some submitters to the 2004 Discussion Document did not support the use of 1080 because of perceived risks to the agricultural industry. Concerns raised included risk of dust (or pellet) drift (aerial application), negative perception of 1080 use in overseas export markets, lack of research into residual effects, lack of robust monitoring, and economic costs from loss of stock and farm dogs due to 1080 poisoning (see Appendix D for analysis of submissions).</p> <p>Hunters and landowners may feel less control over their environment WITH 1080 compared to WITHOUT 1080 as 1080 can be applied aerially to larger areas. The likelihood that hunters, landowners and members of communities near pest control operations may feel a loss of control over their own environment occurring WITH 1080 compared to WITHOUT 1080 is therefore considered LIKELY.</p> <p>The magnitude of the effect is restricted to those in the hunting, farming and local communities who feel a loss of control over their own environment WITH 1080 compared to WITHOUT. The magnitude of the effect is assessed as MINOR.</p> <p>Based on the above the likelihood of this exposure occurring is LIKELY (a good chance that it may occur under normal operating conditions). The effect is MINOR (low community and cultural impact for the region and nation, potential social disruption (e.g. community on alert) and some unconnected individuals are affected), therefore the risk is D (Risks within the ALARP band and</p>

REGISTER OF ADVERSE EFFECTS					
ID	Effect	How likely?	Magnitude of effect	Level of risk	Commentary
					broadly classed as tolerable subject to ongoing monitoring and control).
S-A5	Negative experience due to pest control in recreational and rural areas	Very unlikely	Minimal	B	<p>Some submitters to the 2004 Discussion Document did not support the use of 1080 due to personal negative experience of 1080 or anecdotal evidence of negative consequences of 1080. Negative experiences include:</p> <ul style="list-style-type: none"> witnessing suffering or death amongst non-target and target wild and domestic animals; perception of a “silent” forest following 1080 operations due to the death of non-target as well as target species. <p>The WITH 1080 scenario may lead to more frequent negative experiences as the WITHOUT 1080 scenario will kill fewer scavenging animals (as 1080 persists for longer in carcasses than cyanide), and will kill fewer target or non-target animals due to the smaller land area ground applications can cover.</p> <p>However, the overall risk of people having negative experiences in a future WITH 1080 compared to WITHOUT 1080 is low as aerial 1080 operations occur primarily in backcountry areas thereby limiting the exposure of domestic animals to poisoning and limiting the opportunity for personal negative experiences. Increased use of traps WITHOUT 1080 may increase the exposure of people to the negative experience of seeing native birds, such as weka and kiwi, in traps compared to WITH 1080. Further, the net benefit of a 1080 application has been assessed as increasing survival rates for non-target native species in the breeding seasons following application therefore any negative experiences of a “silent” forest is likely to be perception based. The likelihood of people having negative experiences WITH 1080 is therefore considered to be VERY UNLIKELY.</p> <p>The magnitude of the effect is restricted to those who have negative experiences related to pest control operations in recreational or rural areas. There is little difference between the experiences of people in a future WITH 1080 compared to WITHOUT 1080 creating a MINIMAL magnitude for the effect.</p> <p>Based on the above the likelihood of this exposure occurring is VERY UNLIKELY (considered only to occur in very unusual circumstances). The effect is MINIMAL (minimal social disruption, community and cultural impact and a very few unconnected individuals are affected) and some</p>

REGISTER OF ADVERSE EFFECTS					
ID	Effect	How likely?	Magnitude of effect	Level of risk	Commentary
					unconnected individuals are affected), therefore the risk is B (Risks within the ALARP band (either insignificant or minor and not warranting further assessment).
Public concern - animal welfare and opinion on the use of vertebrate toxic agents					
S-A6	Grief caused by pet suffering or mortality resulting from pest control operations	Likely	Minor	D	<p>Pets that are prone to scavenging are highly susceptible to toxin poisoning during pest control operations. Some submitters to the 2004 Discussion Document did not support the use of 1080 because of animal welfare concerns over the suffering of poisoned animals including specific concerns over the suffering of dogs from 1080 poisoning.</p> <p>This has not been identified as a significant adverse effect but it is discussed in more detail in Section 4.2 as it is a contentious effect.</p>
S-A7	Concern for welfare of target animals exposed to vertebrate pest control methods	Unlikely	Minimal	C	<p>Some submitters to 2004 Discussion Document did not support the use of 1080 due to animal welfare concerns over the suffering of poisoned animals. Specific issues raised included a lack of research into the suffering of targeted and non-targeted species from sub-lethal or lethal doses (see Appendix D for analysis of submissions).</p> <p>Landcare Research has assessed the welfare impacts of pesticides and traps commonly used to control vertebrate pests. Landcare's results showed that cyanide is the most humane possum poison followed by 1080 and cholecalciferol, with phosphorus and brodifacoum being least humane (Landcare Research, 2003). In possums the humaneness of 1080 is described as medium (C. O'Connor, Landcare Research, pers. comm. in Broome et al 2004).</p> <p>Traps vary in humaneness, with some able to kill in one minute or less while others may cause serious trauma or injuries (see Section 4.1D Register of Adverse Effects WITHOUT 1080 for further information on traps). The New Zealand Society for the Prevention of Cruelty to Animals submitted that in the case of 1080 use for possums and rabbits their general opposition to the use of 1080 is moderated by effective controls.</p> <p>The likelihood of the risk of concern for welfare of target animals exposed to vertebrate poisoning pest control methods occurring is considered to be UNLIKELY as the combination of the more humane options of cyanide and the sometimes less humane option of traps (WITHOUT 1080) creates little difference in the likelihood of this effect occurring compared to WITH 1080.</p> <p>The magnitude of the effect is restricted to those who are concerned for welfare of target</p>

REGISTER OF ADVERSE EFFECTS					
ID	Effect	How likely?	Magnitude of effect	Level of risk	Commentary
					<p>animals. The magnitude of the risk is assessed as MINIMAL.</p> <p>Based on the above, the likelihood of this exposure occurring is UNLIKELY (could occur, but is not expected to occur under normal operating conditions). The effect is MINIMAL (minimal social disruption, community and cultural impact, and a very few unconnected individuals are affected), therefore the risk is D (Risks within the ALARP band and broadly classed as tolerable subject to ongoing monitoring and control).</p>
S-A8	Concern for welfare of non target animals exposed to vertebrate pest control methods (e.g. accidental consumption of bait)	Likely	Minor	D	<p>Non target animals (e.g. native birds) may accidentally consume 1080 bait or a 1080 contaminated carcass and receive a sub lethal or lethal dose of 1080 (see 4.1D Adverse Effects WITH 1080 for further information non-target effects). Some submitters to the 2004 Discussion Document did not support the use of 1080 in relation to animal welfare concerns such as undue suffering or death of non-target poisoned animals (see Appendix D for analysis of submissions).</p> <p>1080 residues may persist in possum carcasses for more than 80 days (Eason et al. 2001), increasing the chances of exposure through secondary poisoning. No practical antidote treatment exists for vertebrates poisoned with 1080.</p> <p>All animals are extremely susceptible to cyanide poisoning although residues and secondary poisoning are less likely to occur compared to 1080 as cyanide breaks down rapidly in animal carcasses. Antidote treatment for cyanide exists, but must be given very shortly after ingestion of bait (Sholsberg et al, date unknown). Cyanide is also more likely to result in a swift death should accidental poisoning of non target animals occur. However, traps may cause undue suffering and mortality amongst non-target species – of particular concern are kiwi and weka (see Section 4.1D Register of Adverse Effects WITHOUT 1080 for further information on traps).</p> <p>Given the above, the likelihood of concern for welfare of non target animals exposed to vertebrate pest control methods occurring WITH 1080 is therefore considered to be LIKELY.</p> <p>The magnitude of the effect is restricted to people who are concerned for the welfare of non target animals. Given this and the likely difference in number of non-target animals exposed to pest control methods in a future WITH 1080 compared to WITHOUT 1080 the magnitude of the effect is MINOR.</p> <p>Based on the above the likelihood of this exposure occurring is LIKELY (a good chance that it may occur under normal operating conditions). The effect is MINOR (low community and cultural</p>

REGISTER OF ADVERSE EFFECTS					
ID	Effect	How likely?	Magnitude of effect	Level of risk	Commentary
					impact for the region and nation, potential social disruption (e.g. community on alert) and some unconnected individuals are affected), therefore the risk is D (Risks within the ALARP band and broadly classed as tolerable subject to ongoing monitoring and control).
S-A9	<p>Distrust and suspicion of motives for pesticide or vertebrate toxic agent use and negative perceptions of indiscriminate use of toxins</p>	Likely	Minor	D	<p>Some submitters to the 2004 Discussion Document did not support the use of 1080 in relation to concerns over DOC/AHB/territorial authorities' agenda and attitude (see Appendix D for analysis of submissions).</p> <p>It is expected that the difference in effects of distrust and suspicion in a future WITH 1080 compared to WITHOUT 1080 would be small, as distrust is still expected to occur if a different poison is being used. Distrust may be slightly higher with 1080 than with cyanide owing to 1080's higher coverage area amongst other reasons.</p> <p>Some submitters to the 2004 Discussion Document did not support the use of 1080 due to concerns over general environmental contamination. Specific issues included an alleged lack of knowledge of the long term implications of 1080 use and the possibility of catchment wide effects from 1080 contamination.</p> <p>The likelihood of distrust and suspicion of motives and of negative perceptions at indiscriminate use of pesticides WITH 1080 compared to WITHOUT 1080 is considered to be LIKELY.</p> <p>The magnitude of the effect is restricted to those who are distrustful and suspicious of motives for pesticide use. The magnitude of the effect is assessed as MINOR.</p> <p>Based on the above the likelihood of this exposure occurring is LIKELY (a good chance that it may occur under normal operating conditions.). The effect is MINOR (low community and cultural impact for the region and nation, potential social disruption (e.g. community on alert) and some unconnected individuals are affected), therefore the risk is D (Risks within the ALARP band and broadly classed as tolerable subject to ongoing monitoring and control).</p>

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