



National Certificate of Educational Achievement  
TAUMATA MĀTAURANGA Ā-MOTU KUA TĀEA

## **Exemplar for Internal Achievement Standard**

### **Geography Level 2**

This exemplar supports assessment against:

**Achievement Standard 91245**

Explain aspects of a contemporary New Zealand geographic issue

An annotated exemplar is an extract of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade boundaries.

New Zealand Qualifications Authority

To support internal assessment

	Grade Boundary: Low Excellence
1.	<p>For Excellence, the student needs to explain, comprehensively, aspects of a contemporary New Zealand geographic issue.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• fully explaining the different viewpoints held in relation to the issue, incorporating beliefs, values, and/or perspectives, using geographic terminology, concepts and specific information</li> <li>• explaining, in detail, how one viewpoint has changed over time</li> <li>• fully explaining the strength(s) and weakness(es) of different courses of action</li> <li>• fully justifying a recommended course of action demonstrating why the chosen course of action is better than any other course of action.</li> </ul> <p>The student has comprehensively explained aspects of the geographic issue of using 1080 poison to control possums.</p> <p>They have fully explained the viewpoint of DOC, including how this viewpoint has changed over time. Both their environmental (1) and economic (4) perspectives are identified and supported with detailed reasons (2). The geographic concept of accessibility is incorporated (3). Why and how the DOC viewpoint has changed over time is explained with supporting detail (5).</p> <p>The recommended course of action is given with detailed reasons (6). The explanation demonstrates comprehensive understanding when the student weighs up the weaknesses of their solution (8). Alternative courses of action are considered (7).</p> <p>For a more secure Excellence, the student could consider alternative courses of action in more detail when making a fully justified recommendation. Greater use of statistical evidence relating to the alternative courses of action would provide a more comprehensive justification. For example, the student could compare the costs and financial rewards from trapping with the costs of using 1080.</p>

VIEWPOINTS and change over time.

Department of Conservation:

DOC strongly agrees and fully supports the use of 1080 poison to control possum populations, as they believe the benefits of 1080 outweigh the negatives and view this issue from an environmental perspective. DOC has this view because they believe that 1080 is the most efficient way to cut down the numbers of predators such as possums, rats and stoats, and consequently protect the native environment... 1080 is biodegradable and does not build up in the food chain... Studies have shown that per drop of 1080 poison, 98% of possums and 90% of rats are killed. In the Tongariro Forest Park, 9 out of 10 North Island brown kiwi chicks would die from actions of these predators, but after an aerial 1080 operation survival rates increased to 70%...

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2

1080 is also easily used in inaccessible places like Fiordland where it can be safely dropped from planes and in... This advantage of 1080 must be taken into consideration as large parts of NZ have limited accessibility. Failing to control pests in these areas would... DOC realise that 1080 has effects on other animals and birds, but as a means of protecting the environment it is the best way of eliminating the possums...

DOC have also viewed this issue from an economic perspective. They considered the bounty system ... but have found that 1080 is the "most cost effective method of providing landscape scale pest control over difficult terrain"... The average cost per hectare of aerially spreading 1080 is about \$17 Also using 1080 creates a range of employment opportunities especially in some rural areas...

3

4

Therefore, DOC currently believes their 1080 operation should continue as it is the cheapest and most effective option to be used nationwide.

Change over time:

The Department of Conservation's initial view on the issue of possum control was firmly in support of using 1080, but negative publicity and scientific research has encouraged DOC to look use a range of alternative methods.

...Studies including statistics which show large numbers of birds [25% of keas, 10% tomtits] and 50% of deer dying after some 1080 drops. This brings serious negative publicity and this evidence encouraged DOC to consider using other options. These trials have taken place mostly in more accessible areas and near areas used by the public or close to farms.

5

DOC's viewpoint has changed from supporting sole use of 1080 to advocating the use of biological controls and a more varied approach. This multi method approach is supported as the most effective, with research from agencies such as Landcare and other global companies producing viral infections to kill possums (stopping them breeding) These baits do not need to be used as often as 1080 and is cheaper and safer in the long run... There is statistical evidence showing that this method reduces the risk to native species and is more in line with the conservation principles of – kaitiakitanga.

## RECOMMENDED course of action

I recommend keeping the status quo, maintaining the use of 1080 poison.

Maintaining the use of 1080 is not only the best course of action, but is better than the others because it is a more cost effective than other possum control ways and can be dropped in areas with limited accessibility. All spending on 1080 drops, including by the Animal Health Board, AHB, regional councils, DOC and private organisations (farmers) is estimated at \$15-\$20 million a year. DOC estimates that it only costs on average \$17 per hectare for aerial drops... DOC spending in 2009/2010 on 1080 operations was estimated to be between \$2.5 and \$3 million for both aerial and ground based control. Spending fluctuates slightly from year to year depending on operational demands, but this figure is consistent with DOC's recent annual spending on 1080 operations. With the Government tightening up its spending DOC has introduced for more cost-effective ways that will solve the possum population problem.

6

Maintaining the use of 1080 means it can control possums in places that are some distance from town and hard to access like the rugged Westland and Fiordland areas. These areas are the home of many threatened birds e.g. kea... 1080 can be aerial dropped into such places controlling possum numbers therefore 1080 is a better alternative than hunting and trapping which is restricted to areas where people can regularly get to, also they can't kill as many possums as 1080. If we relied on hunting and trapping these areas would not be controlled and possum numbers would continue to grow resulting in further damage to native forests e.g. beech forest on the West Coast, and threatened species would be lost.

7

1080 can cause accidental poisoning of non-target species, however there are not many proven cases, I think the cost of any native wildlife being accidentally poisoned is outweighed by the protection of the habitats with the eradication of the possum. There are ways that DOC could limit any problems by using it in regions with limited accessibility and work with groups like Basically Bush who have an economic interest in the possums. So, until a better alternative is developed that works, maintaining the use of 1080 is not only the best course of action but better than hunting and trapping. Biological controls are being researched but these haven't been proven.

8

	Grade Boundary: High Merit
2.	<p>For Merit, the student needs to explain, in depth, aspects of a contemporary New Zealand geographic issue.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• explaining, in detail, the different viewpoints individuals (or groups) hold in relation to the issue using specific information</li> <li>• explaining how one viewpoint has changed over time</li> <li>• explaining, in detail, the strengths(s) and weakness(es) of different courses of action</li> <li>• justifying a recommended course of action with detailed reasons.</li> </ul> <p>The student has explained, in depth, aspects of the geographic issue of using 1080 poison to control possums and rats.</p> <p>They have explained in detail the viewpoint of DOC using statistical evidence and quotes (1). Reasons for the viewpoint are given, demonstrating a depth of understanding of the issue (3), and the geographic concept of accessibility is incorporated (2).</p> <p>A justified recommendation is made with detailed reasons supporting the use of 1080. The justification is based on economic reasons (4), and its ease of use (5) and safety.</p> <p>To reach Excellence, the student could more explicitly incorporate beliefs, values and/or perspectives when explaining the viewpoints. For example, the economic and conservation perspectives of DOC could be explained more explicitly.</p> <p>A fully justified recommendation, as required for Excellence, would need to demonstrate why the chosen course of action is better than any other course of action. The student identifies alternatives, but these need to be developed further (6).</p>

**Department of Conservation Viewpoint:**

DOC is responsible for managing and protecting NZs natural environment, which includes the native forests and native wildlife especially kiwi and kea etc. DOC think that using 1080 is the most efficient way of killing possums as it can kill 98% of possums with one drop. Areas where 1080 baits are used, have more kiwis surviving and this is supported by research which shows that the survival rate is 70% more. Recent research recorded that “430 kiwi have been monitored using radio tracking equipment through 1080 operations since 1990. None have ever died due to 1080 poisoning”.

1

It is also easy to use in the rugged mountain areas like Fiordland where it is safely dropped from planes, these areas would otherwise not be controlled as they are not easily accessible by hunters. This access advantage is quite significant in DOC’s decisions to continue with 1080, because leaving a large areas untreated gives possum populations a chance to spread in to treated areas... The cost of using trackers in the more difficult areas...

2

DOC has done lots of research into how 1080 effects other untargeted native species, and believe that any small effects on native wildlife are largely outweighed by the number of possums and other pests like rats and stoats that are killed. DOC confirmed that “rat tracking rates dropped to zero and remained undetectable for 5 months after a drop in the Hawdon Valley”... 1080 is also biodegradable which means it doesn’t leave residues in water, soil, plants or animals. Drinking water has been tested in drop zones [500 samples over 5 years] and traces of 1080 have never been found.

3

**Recommendation**

I recommend keeping the status quo, maintaining the use of 1080 poison.

Using 1080 is better than the others because it is cost effective and can be used in difficult terrain.

The Department of Conservation spends around \$2-3 million a year on dropping 1080, but other organisations also use 1080 for pest control including regional councils and farmers... The total spent nationally could be over \$15million. With the Government tightening up its spending DOC has needed to look for cost effective ways that will solve the possum population problem and 1080 is considered a fairly cheap means of possum control at \$17 per hectare for aerial drops...

4

Maintaining the use of 1080 means it can control possums in places that are some distance from town and hard to access like parts of Westland and Fiordland. These areas are the home of many threatened birds like the kea and if we relied on hunting and trapping these areas would not be controlled. Thus possum numbers would continue to grow meaning damage to native forests e.g. beech forest on the West Coast, and threatened species would be lost. 1080 can be aerial dropped into such places to control possum numbers.

5

So, until a better alternative is developed that works, maintaining the use of 1080 is not only the best course of action, but better than hunting and trapping or using a bounty system. Biological controls are being researched, but these haven’t been proven.

6

	Grade Boundary: Low Merit
3.	<p>For Merit, the student needs to explain, in depth, aspects of a contemporary New Zealand geographic issue.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• explaining, in detail, the different viewpoints individuals (or groups) hold in relation to the issue using specific information</li> <li>• explaining how one viewpoint has changed over time</li> <li>• explaining, in detail, the strengths(s) and weakness(es) of different courses of action</li> <li>• justifying a recommended course of action with detailed reasons.</li> </ul> <p>The student has explained, in depth, most aspects of the geographic issue of using 1080 poison to control possums.</p> <p>The student focuses on how the viewpoint of the wider opposition group to 1080 has changed over time. The explanation focuses on 3 main reasons (1) and different factions within this group (2), which shows a depth of understanding.</p> <p>Strengths and weaknesses for each course of action are explained with some detail (4).</p> <p>For a more secure Merit, the student could provide more specific detail for each strength and weakness. For example, more detail could be provided in the number of possums killed per drop, in the cost per drop, or by naming specific locations (3).</p>

How a viewpoint has changed over time:

Viewpoints about the use of 1080 poison to kill possums have changed from full support to large scale opposition and now there are groups who accept it, but want research into alternatives so it can be stopped in the future. Many of the people who moved from supporting to opposing the use of 1080 used reasons like:

1. it is killing native birds and animals
2. it creates risks for other uses of the bush
3. it affects the possum fur industry.

1

At first when possums weren't controlled large areas of native bush was being destroyed. People supported 1080 as it was the best way of killing large numbers of possums quickly. As new methods of controlling possums, like biological controls and ... are introduced enabling a direct target on the possum, more people have moved away from supporting the use of 1080.

This opposition group includes Forest and Bird, conservationists and hunters who now see 1080 as creating a risk to people in the bush through being poisoned and a risk to birds like robins, and kea etc. Their view moved from support to strongly against, but are now less strongly opposed as the amount of 1080 has been reduced but possum numbers are still very high in some less accessible areas like Fiordland.

2

The degree of change varies among people within this group. People involved in the fur industry like Basically Bush are probably the most strongly opposed because use of 1080 directly affects them economically.

Different courses of action:

Maintain the use of 1080

Strengths:

Some strengths of maintaining the use of 1080 poison include its widespread success rate. This poison guarantees the killing of masses of possums per drop, it is easily used in areas with limited accessibility that trappers can't get to. 1080 has the added advantage of being described by DOC as being soluble and is rapidly diluted, as well as not being able to exist for more than a few weeks...

3

Weakness:

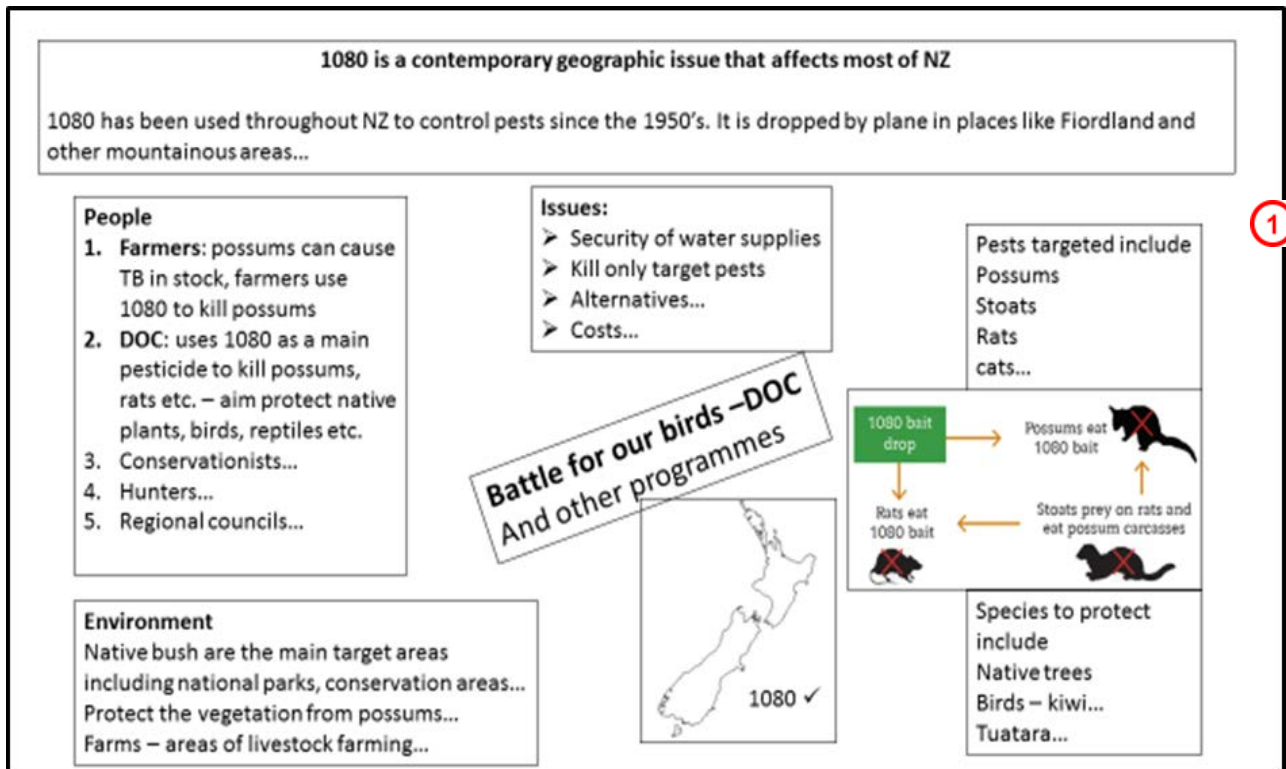
A weakness of maintaining the use of 1080 is that although possums are getting killed other animals are also dying. It is estimated that 20,000 deer are killed annually by 1080 drops and 55% of robins...

4



	Grade Boundary: High Achieved
4.	<p>For Achieved, the student needs to explain aspects of a contemporary New Zealand geographic issue.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• describing the nature of the contemporary geographic issue</li> <li>• explaining different viewpoints individuals (or groups) hold in relation to the issue</li> <li>• describing how one viewpoint has changed over time</li> <li>• explaining the strength(s) and weakness(es) of different courses of action to address the issue</li> <li>• providing a recommended course of action with a reason(s).</li> </ul> <p>This student has explained aspects of the geographic issue of using 1080 poison to control possums.</p> <p>They use a diagram to support the description of the nature of the issue (1). This approach identifies the spatial dimension, and how the issue is related to the natural and cultural environments.</p> <p>Two different viewpoints have been identified and explained. The viewpoint of a business called Basically Bush is explained, using specific detail (2). The evidence for an alternative to 1080 (3) expands the explanation. The student has described how Basically Bush has changed their viewpoint over time (4).</p> <p>Strengths and weaknesses for each course of action are explained with some elaboration, which approaches the depth of explanation expected for Merit (5).</p> <p>To reach Merit, the student needs to explain how the viewpoint has changed over time by further developing the reasons given. For example, how does 1080 impact on the Basically Bush's fur business?</p> <p>The explanation of the strengths and weaknesses could be supported with more specific detail. For example, statistics, named locations and case study evidence would show the complexity expected from an explanation at Merit.</p>

**The nature of the issue**



1

**Viewpoints on the issue**

Basically Bush

Sue and Steve Boot run a business called Basically Bush. They are quite strongly against the use of 1080 poison being used because when a possum eats 1080 they don't die instantly and the possum can walk away and not be found. This poison causes Basically Bush to lose possums and money as they often don't find the possums and miss out on the fur. **Possum fur earns \$105 a Kg this makes 1 bail worth \$1200 which is more than 5 times the price of merino wool.** The use of 1080 is slowly destroying the possum wool business...

2

They support **alternatives like trapping where and baits are coated with cyanide. When the possum eats the cyanide they die faster (4-8 hours) than with 1080 and they stay within a certain radius of the bait. The possums can then be collected and skinned...** Even though cyanide is more expensive and the time to set baits and collect the possums is time consuming, if the fur can be sold this means that there is a profit being made...

3

**Basically Bush's viewpoint has changed from totally opposing 1080 to partly supporting it for use in regions where the terrain is rugged and particularly if areas where they trap are avoided (4)...** Basically bush might also start to support 1080 if it killed the possum more quickly...

4

### **Strengths and weaknesses of the courses of action**

#### **Strengths:**

The strengths of maintaining the use of 1080 poison is that it can protect native plants and animals by lowering the possum population to a more manageable level and holding them there. Another strength is that you can do aerial drops of 1080 pellets in terrain that is difficult for trapping or poisoning by hand. This method enables it to be accurately dropped in high possum population areas which will keep possum numbers more manageable.

5

#### **Weakness(es)**

The weaknesses of maintaining the use of 1080 poison is that 1080 can kill dogs, deer, native insects and birds. Another weakness is that 1080 does not kill the animal straight away, meaning it can travel away from the poison site and not be found by people who want to harvest their pelts. This also leaves poisoned carcasses in the bush...

	Grade Boundary: Low Achieved
5.	<p>For Achieved, the student needs to explain aspects of a contemporary New Zealand geographic issue.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• describing the nature of the contemporary geographic issue</li> <li>• explaining different viewpoints individuals (or groups) hold in relation to the issue</li> <li>• describing how one viewpoint has changed over time</li> <li>• explaining the strength(s) and weakness(es) of different courses of action to address the issue</li> <li>• providing a recommended course of action with a reason(s).</li> </ul> <p>This student has explained aspects of the geographic issue of using 1080 poison to control possums.</p> <p>They clearly explain the viewpoint of Basically Bush (1), and briefly describe how their viewpoint has changed (2). The viewpoint for DOC was also given, demonstrating a response of similar quality.</p> <p>Some strengths and weaknesses of different courses of action have been briefly explained (3) (6). A recommendation is provided, with two valid reasons (7).</p> <p>For a more secure Achieved, the student could develop responses further, to demonstrate a greater understanding of the issue and viewpoints held. The repetition of ideas (4) (5) can affect the overall quality of the work, which needs to reflect Level 7 of the New Zealand Curriculum.</p>

Student 5 – Low Achieved

### Viewpoints

Basically Bush

Against the use of 1080. They hold this viewpoint because they are a possum fur company who rely on the possum pelts. When the possums are poisoned with 1080, it can take several days for them to die, and they are often lost because they wander off into the bush. Basically Bush prefer to use cyanide because it acts faster and the possum dies near the poison station. Using 1080 reduces the number of possums Basically Bush can get so they are against 1080 being used in areas they are trapping.

1

Basically Bush have changed from total opposition to 1080 ever since DOC has limited its use to mainly places that they can't access and where the possum numbers are getting out of control.

2

### Courses of action

Maintain the use of 1080 poison

A strength of using 1080 is that it effectively kills large numbers of possums and keeps the numbers down. Where 1080 drops happen the possum numbers drop drastically, it can be dropped in any part of the country by helicopters...

3

The weakness of using 1080 is that it kills a lot of native animals and birds e.g. keas. This poison is very dangerous if used near where people go or near farms as it can also kill farm animals and pets.

4

Ban 1080 and rely on hunting

Strengths for this are that the native animals won't get killed like with 1080. Hunters will only be after possums and they can use the fur, like the trappers for Basically Bush.

5

A problem with hunting is that you can't kill possums in areas where people can't get to like in Fiordland which is rugged and isolated, but 1080 can be dropped here from helicopters.

6

### Recommendation

Ban 1080 and rely mainly on biological control.

This is the best course of action because it means the possums can no longer reproduce which will definitely decrease the number of possums and finally they will die out... It also means that other animals...and birds... are safe...

7

	Grade Boundary: High Not Achieved
6.	<p>For Achieved, the student needs to explain aspects of a contemporary New Zealand geographic issue.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• describing the nature of the contemporary geographic issue</li> <li>• explaining different viewpoints individuals (or groups) hold in relation to the issue</li> <li>• describing how one viewpoint has changed over time</li> <li>• explaining the strength(s) and weakness(es) of different courses of action to address the issue</li> <li>• providing a recommended course of action with a reason(s).</li> </ul> <p>This student has used a diagram (1) to provide some evidence for most aspects of an issue relating to the use of 1080 to control pests.</p> <p>The viewpoint held by a business called Basically Bush is briefly explained, with reasons given for their opposition to using 1080 (2). How DOC's viewpoint has changed over time has been simply described, showing some understanding of the issue (4).</p> <p>To reach Achieved, the student could develop ideas further, and include specific evidence to provide more complete explanations.</p> <p>When describing the nature of the issue (1), the student could show understanding of the spatial dimension by including a map or referring to specific locations. Using this diagram to support a more detailed description would more accurately reflect the quality of evidence indicative of Level 7 of the New Zealand Curriculum.</p> <p>The second viewpoint needs to focus more on the issue of using 1080, and an explanation is needed of why DOC supports the use of 1080 as the pesticide of choice (3).</p> <p>For Achieved, the student needs to explain, rather than describe, the strengths and weaknesses of different courses of action (5).</p>

Student 6 – High Not Achieved

Student 6: High Not Achieved

NZQA Intended for teacher use only

## The nature of the issue

**The geographic issue is**  
Should 1080 continue to be used in NZ to control possums and other pests? 1

**People** involved are DOC, and farmers, who are in favour of 1080 and hunters and Basically Bush who are against using 1080

The **environment** is affected by possums eating up to 20,000 tonnes of vegetation a night. This leads to large areas of native bush being destroyed. Pohutukawa and Rata are examples of native trees affected.

Possums also carry **TB** which can kill animals like deer but also affects stock on farms. Rats and stoats kill native birds and lizards etc.

**Issues with 1080:**  
It kills protected native birds as well as deer and other animals like dogs.  
It can pollute rivers  
Possums killed by 1080 can poison other animals that eat them

## Different Viewpoints

### Basically Bush

Against the use of 1080. Basic Bush are a company that harvest possum fur. If 1080 is used they often can't find the dead possum. They prefer to use traps or cyanide because then they can find the possum because it dies near the poison station/trap. This makes it much easier for the dead possums to be collected. They also think 1080 is cruel because it takes too long to kill the possum. 2

### Department of Conservation

Support the use of 1080, because it is their job to conserve the native bush that possums are destroying. DOC is worried about the damage to native trees because possums eat about 20,000 tonnes of vegetation in a single night and large areas of bush are being destroyed. Possums also eat eggs and chicks... 3

I think the DOC's viewpoint has changed over time. Research shows that native birds and animals are being killed in large numbers from 1080, so DOC has changed how and where they use 1080 and also use other ways of controlling pests. 4

### Strengths and weaknesses of courses of action

Maintain the use of 1080 poison:

#### Strengths

The possums will be kept under control and pest numbers will go down. Pests will be killed 24/7 constantly.

5

#### Weaknesses

Native animals in the bush, especially birds will die from the 1080 baits and vegetation will be continued to be destroyed until the possums are controlled. People will continue to become angry at the continued use of 1080.