

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF: the Resource Management Act 1991

AND

IN THE MATTER OF: Proposed Variation 2 to the
Proposed Canterbury Land and
Water Regional Plan – Section 13
Ashburton

**EVIDENCE OF KEITH WILLIAM BRIDEN
FOR DIRECTOR-GENERAL OF CONSERVATION**

Dated 15 May 2015

Director General of Conservation
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Counsel: Pene Williams

STATEMENT OF EVIDENCE OF KEITH WILLIAM BRIDEN

1 My full name is **Keith William Briden**.

2 I am a Technical Advisor at The Department of Conservation's National Office based in Christchurch.

3 I have a Bachelor of Forestry Science (Canterbury). I am a full member of the New Zealand Biosecurity Institute and the New Zealand Ecological Society.

4 I have been the Department's key contact for invasive environmental weeds for 16 years. This has included providing advice on:

- funding allocations for wetlands,
- Advice on protection of aquatic ecosystems, and management of riparian weed vegetation,
- establishing a quality management system for weed control, development of weeds training material,
- development of community involvement in weed work through the "Weedbusters" education and awareness programme.
- Provided evidence to the Environmental Protection Authority in 2012 concerning approvals for the use of herbicides into or onto water and associated conditions such as notification and signage requirements.

5 I am therefore familiar with the management approaches for pest plant control related to wetlands, aquatic ecosystems, and riparian margins.

6 I presented evidence on the management of pest species (including agrichemicals) to the proposed Canterbury Land and Water Plan in 2013. I am familiar with the proposed Variation 2 to the proposed Canterbury Land and Water Plan in 2013 as it relates to agrichemical use.

- 7 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.
- 8 My evidence briefly describes DOC'S role in plant pest management and DOC's weed programmes and the plan rules affecting the use of chemicals to manage pest species, and, addresses proposed Rule 13.5.7 in Variation 2.

THE DEPARTMENT OF CONSERVATION'S ROLE IN PEST PLANT MANAGEMENT

- 9 The Department of Conservation ("DOC") is the leading central government agency responsible for the conservation of New Zealand's natural and historic heritage. DOC has duties under several pieces of legislation (including the Conservation Act 1987, National Parks Act 1980 and the Reserves Act 1977) to control pest plants on land that it manages (including lakebeds, riverbeds and riparian margins). It can also have responsibilities to control pests on land which it does not manage but which it neighbours.
- 10 DOC must also meet requirements for weed control under the Biosecurity Act 1993. Under this legislation Environment Canterbury has in place a Regional Pest Management Strategy (RPMS) 2011 – 2015. This strategy requires the control of a number of weed species that occur on DOC land, be they in aquatic, riparian or terrestrial locations.
- 11 The Biosecurity Act 1993 enables Environment Canterbury to prepare a Regional Pest Management Plan and Regional Pathway Management Plans which oblige Crown agencies to undertake weed control along boundaries with private landowners. This is known as the "good neighbour" principle. In performing weed control on land **within** and **outside** its immediate control, DOC will need to comply with the rules contained in the Canterbury Land and Water Plan. It therefore has an interest in the content of the rules, policies and objectives which touch upon pest plant management.

- 12 DOC manages around 8.5 million hectares of land which is almost one third of New Zealand's land area. Accordingly, a wide range of freshwater wetlands, lakes, rivers and streams are covered by DOC. Likewise riparian margins, hill and high country and erosion-prone land are also within its statutory functions.
- 13 DOC reports annually to the Environmental Protection Authority (EPA) about herbicide application into or over water for many of the herbicides used by the Department. These herbicides contain active ingredients metsulfuron – methyl, haloxyfop-R-methyl, imazapyr isopropylamine or triclophyr triethylamine salt. In the 2014/15 year none of these herbicides were applied into or onto water by the Department in the Hinds/Hekaeo Plains Area. However, these herbicides may be used in the future if weed species are included in a Canterbury Regional Pest Management Plan or serious new weeds become established. Two such weeds established in Canterbury north of the Hinds/Hekeao Plains Area are purple loosestrife and Spartina. Both these weeds are a serious threat to aquatic ecosystems and indigenous species that live in aquatic ecosystems. Further details on these weed species are provided in Appendix 1.
- 14 Should these serious weeds become established in the Hinds area the use of herbicides is the only practical and effective method available to eradicate, contain, or control these weeds. Herbicides would need to be applied early in order to eradicate or prevent spread.

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PROPOSED RULE 13.5.7 ON PEST CONTROL AND AGRICHEMICALS

15 Proposed rule 13.5.7 in Variation 2 is:

Pest Control and Agrichemicals

Rule 13.5.7 applies as an addition to Region-wide Rule 5.22 in the Hinds / Hekeao Plains Area.

13.5.7 Within the Hinds/Hekeao Plains Area, Region-wide Rule 5.22 shall include the following condition:

1. For discharges to surface water signs are erected at all public access points within 2km of the discharge location at least 48 hours prior to commencement of the discharge, and shall remain in place for at least 48 hours following the discharge. Signs shall include the following information:
 - (a) The name of the agrichemical discharged, the date and time the discharge will commence and a description of the application area; and
 - (b) A warning to avoid contact with surface water, and to avoid collection of shellfish or mahinga kai; and
 - (c) A contact name and phone number for the person carrying out the discharge.

16 I understand that the new Rule is proposed “to ensure whanau can continue to gather kai that is safe to eat and to ensure the management of drains continues in the most practical and effective matter” (section 32 evaluation page 45).

17 I agree that these outcomes are appropriate however I am concerned that as drafted the proposed rule is not well targeted or in alignment with HSNO legislation.

18 The Environmental Protection Agency (EPA) is responsible for approving the use of herbicides to control aquatic pests and set conditions around notification and signage. In approving herbicides and setting conditions the EPA consults with the applicants, stakeholders and iwi before approving herbicides and setting conditions around use.

19 Conditions set for particular sites and level of herbicide use can vary. For example tighter conditions are set for static waterways compared to flowing

water and where less than 5 square metres of a weed infestation is sprayed different requirements apply to those which apply to say an aerial application over an area of 50 hectares.

20 In 2012 an applicant group applied to the EPA for approval to use four herbicides to be applied into or onto water for the control of aquatic pest plants. Both the Department of Conservation and Environment Canterbury were part of the applicant group. As part of that process, there was considerable discussion around the timing of the placement of signs. The EPA accepted that New Zealand is a windy country and it is difficult to predict suitable spraying conditions and agreed it was not practical to require signs to be placed well in advance of a spray application. The decision of the EPA was a condition that requires signs to be erected on the day of the application, before starting the operation. Signs needed to be at all public access points within 100m of the application area. Signs must notify the public that the application of a herbicide has been undertaken and include the following statements:

- Do not swim.
- Do not gather food from the waterway including fish.
- Do not take water for consumption.

21 Information provided by the EPA about these requirements is appended as Appendix Two.

22 The EPA also set conditions around the length of time signs must remain in place after the herbicide is applied. This depends on the type of water body being treated and which substance is used. For substances containing haloxyfop-R-Methyl or triclopyr triethylamine it is five days after application in a flowing water body, or 21 days after application into a static water body. For substances containing metsulfuron –methyl or imazaphyr isopropylamine, signs must be in place for five days after the application regardless of the type of water body.

- 23 There are also requirements to consult with relevant local iwi runanga representatives and notify iwi at least five working days prior to each application of a herbicide. This applies nationwide.
- 24 The proposed rule 13.5.7 is not consistent with EPA conditions in that signs need to be placed for longer periods after application. It is inconsistent in that the EPA requires that signs should be placed on the day of the application and at distances of 100 meters from the application (not 2 kilometers as per proposed rule 13.5.7).
- 25 RMA rules that are inconsistent with EPA rules can cause confusion for staff and result in increased costs and delays, increasing the risk that weeds will spread before effective control can be undertaken. I consider that Proposed Rule 13.5.7 should be deleted.



Keith William Briden

15 May 2015

Appendix 1. Additional information on *Spartina* and purple loosestrife *Spartina*.

(*Spartina anglica*, *S. alterniflora* and *S. x townsendii*). *S. alterniflora* is native of eastern North America. Other species of hybrid origin are from England. *S. anglica* is the most common *Spartina* species in NZ and is naturalised from North Auckland to Invercargill and Stewart Island. *Spartina* was introduced to many countries for the purpose of estuarine reclamation. It has become weedy in many countries including the western seaboard of the USA, the Mediterranean, Australia and New Zealand. *Spartina* is rated in the top 100 alien invasive species worldwide. (Global Invasive Species Database, IUCN). Legal status in New Zealand under the Biosecurity Act is: Unwanted Organism. In New Zealand there is no equivalent native grass species that establishes on extensive intertidal estuary zones. The result is that *Spartina* can form dense stands completely replacing bare mud flats used by wading birds and flounders. (See images of infestation at Havelock estuary before and after herbicide control using haloxyfop). Once *Spartina* is established as the dominant vegetation it traps sediments, altering water courses and can eventually replace estuaries with grassland. In the Bay of Plenty farmers have fenced areas and have introduced cattle to graze the *Spartina*. Increased sedimentation in the New River Estuary near Invercargill was cited as a contributing cause of the Invercargill flooding event that occurred in 1988. The *Spartina* infestation was in the order of 800 hectares at that time. *Spartina* infestation can completely eliminate wading bird habitat, whitebait fisheries, eel habitat, and flounder habitat. It affects recreational activities such as bird watching, kayaking, white baiting and floundering, and, kai moana gathering by Iwi.

Image. *Spartina* in the new river estuary before *Spartina* control



Purple Loosestrife *Lythrum salicaria* . The native range of this species is Eurasia; throughout Great Britain, and across central and southern Europe to central Russia, Japan, Manchuria China, southeast Asia and northern India. Purple Loosestrife is rated in the top 100 alien invasive species worldwide. (Global Invasive Species Database, IUCN). Legal status in New Zealand under the Biosecurity Act is: **Unwanted Organism**. Where it has invaded other countries such as Canada and the USA it has become a serious environmental weed. It is one of the worst agricultural and environmental weeds in North America, invading large areas and displacing other plants. This plant rapidly invades damp ground, wetlands and shallow water. It overtops native species with dense bushy growth, is long-lived and produces millions of long lived highly viable seeds from an early age. It tolerates hot or cold conditions and low to high nutrient levels in the water, but is intolerant of salt water. Fortunately there are very few places in New Zealand so far where purple loosestrife is growing in the wild. However, if no action is taken, this species may spread out of control. Seeds are dispersed by water, but may also be spread by wind and birds and on machinery. Because it has so many seeds, once established, purple loosestrife can quickly form a dense stand that excludes most other vegetation. A single plant can produce over a million seeds a year. The Department of Conservation (DOC), Ngai Tahu, Environment Canterbury and the Christchurch City Council are working together to try to eradicate purple loosestrife from Canterbury. Purple loosestrife thrives in damp places, particularly river or lake margins, and can clog drains and irrigation ditches. It also crowds out native plants, and changes habitat for wetland birds and fish.

Image. Purple loosestrife infestation in Minnesota USA



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APPENDIX 2
EPA FACTSHEET



Using herbicides to control aquatic pest plants

The Environmental Protection Authority (EPA) has modified the approvals for herbicides containing the active ingredients metsulfuron-methyl, haloxyfop-R-methyl, imazapyr isopropylamine or triclopyr triethylamine salt. These substances can now be applied onto or into water as herbicides to control aquatic pest plants. The EPA considers these substances beneficial in the control of aquatic pest plants and more effective than other methods of control.

The Hazardous Substances and New Organisms Act (HSNO) (1996) regulates these substances and applies controls that manage the risks associated with their application onto or into water. This document will help users of these substances comply with HSNO. Users could include regional councils, the Ministry for Primary Industries, the Department of Conservation (DOC) and contractors that apply these herbicides. A list of these herbicides and their trade names is available in Table 2.



This document contains:

An overview of the additional controls that must be in place when these substances are applied onto or into water.

This document is intended to be guidance only and does not set out in detail the full legal requirements for these substances. There are other controls you must also follow when storing, using or disposing of these substances and their packaging.

For a full list of the controls that apply under the Hazardous Substance and New Organisms Act 1996 and associated regulations (HSNO), see the *Controls for approved hazardous substances* database on the EPA website www.epa.govt.nz. To generate a list of controls, type the HSNO approval number (the HSR) for your substance into the database. These approval numbers are available in Table 2.

Managing risk

These substances have toxic properties that present a risk to human health, the aquatic environment and the relationship between Māori and the environment. Where these substances are applied onto or into water people may be exposed to their toxic properties through:

- swimming
- drinking water, and
- consuming kai moana.

Potential risks to the environment include:

- risks to fish, aquatic invertebrates and non-target plants
- risks to sediment-living organisms, and
- risks to terrestrial plants from irrigation water.

To mitigate these risks, additional controls have been developed to manage the application of these substances onto or into water. You need to comply with all the controls when applying these substances.



Alligator weed infestation. The EPA thanks Lynley Hayes from Landcare Research for the use of her photograph in this publication.



Your responsibilities

If you apply these substances onto or into water you need to comply with the controls.

This includes:

- knowing the activities of neighbouring interest groups
- consulting and notifying the relevant interest groups, including iwi
- ensuring that you or people who apply the substance are trained and qualified
- applying the substances within maximum allowable application rates
- the concentration of your substance in water not exceeding allowable levels
- the substance not adversely impacting irrigation water and aquatic farms
- knowing restrictions around the application of the substance into static water bodies and into areas where whitebait or elvers may be present, and
- complying with existing controls for the storage, handling and disposal of these substances and their packaging.

Before you start

Obtaining a permission

Anyone, including organisations such as councils or DOC that wishes to apply these substances onto or into water, must first obtain a permission from the EPA under HSNO. Permissions identify who must be notified before these substances are applied onto or into water and any additional monitoring requirements.

Notification

Notification must occur at least five working days prior to each application of the substance.

If you hold a permission, you must notify any parties who may be directly affected by the operation and specifically identified in your permission. You must provide the details of your operation including treatment dates and the substance you are using. You also need to provide information on how water use for other activities such as irrigation may be affected by the application of substances.

Permissions will be site-specific and you must be familiar with the full terms of your permission before applying substances onto or into water.

Consultation

You should directly engage with iwi/Māori that may be affected by operations as early as possible. This will enable the sharing of customary knowledge and expertise that will help identify issues of significance and traditional sites that require protection.

When aerially applying a substance, you should pay particular attention to community engagement and consultation prior to application.

Signage

When you apply the substance onto or into water, signage must be erected on the day of the application, before starting the operation. Signs need to be at all public access points within 100 metres of the application area and must be capable of being read from at least five metres during daylight hours.

Signs must notify the public that the application of a herbicide has been undertaken and include the following statements:

- Do not swim.
- Do not gather food from the waterway (including fish).
- Do not take water for consumption.

How long signs need to remain in place depends on the type of water body being treated and which substance is used.

For substances containing haloxyfop-R-methyl or triclopyr triethylamine, signs must be in place for:

- five days after application in a flowing water body, or
- 21 days after application into a static water body. A static water body is any water body with standing or slow-moving water such as a lake or a pond.

For substances containing metsulfuron-methyl or imazapyr isopropylamine, signs must be in place for five days after the application regardless of the type of water body.

The signs must be removed at the end of the specified periods.

Applying the substances

Organisations that use these substances as part of their aquatic pest plant control often employ contractors to carry out the work. Contractors or other people who apply these substances must comply with the controls that manage their application.

Approved handler

To apply these substances onto or into water an approved handler must be in control of the substance. The approved handler must have undergone specialised training in the application of pesticides onto or into water.

Other people may apply the substance if they are under the direct supervision of an approved handler who has undergone specialised training.

Nonylphenol ethoxylates
Before applying one of these substances onto or into water you must ensure that nonylphenol ethoxylates are not part of the formulation. The chronic toxicity and persistence of nonylphenol ethoxylates presents a risk to the environment.

Application rates

The EPA has set maximum application rates (Table 1), environmental exposure limits (EEL), and tolerable exposure limits (TEL) to protect people and the environment.

TEL values represent the level of the substance in drinking water that is considered to be protective of human health.

EEL values represent the level of the substance in water that is considered to be protective of the environment. You should monitor EEL levels if an operation treats more than 2,500 m² of a static water body or 5,000 m² of a moving water body. In the case of moving water bodies, water samples should be taken within 24 hours of application of the substance, 100 metres downstream from the application area. For static water bodies, samples must be taken at a point no more than 100 metres from the application area.

Application into static water bodies

Treating aquatic plants with herbicides can result in oxygen loss in water from decomposition of dead plants.

This can lead to fish suffocation and can harm other aquatic organisms.

To ensure that dissolved oxygen levels remain at a level that is protective of aquatic organisms you must:

- ensure that the substance is not applied to more than 33% of the static water body in a single application, or
- if multiple applications occur, the treated area must not total more than 33% of the water body within a seven day period.

In both cases, further treatment of the water body is prohibited for seven days after the last application. This will allow oxygen levels to recover. These controls do not apply if monitoring shows that the average dissolved oxygen level for the static water body is less than 4 mg/L at the time of the application of a substance. This is because fish and other aquatic organisms are unlikely to be present under these conditions.

Protecting aquaculture and crops

The substance in a water body presents a risk to crops and aquatic farms that are exposed to this substance.



Guidance note

How you meet the requirement to protect crops and aquatic farms is up to you. You could:

- discuss strategies with irrigation users to ensure substances are not applied in a way that damages crops
- create buffer zones around areas where water is taken up for irrigation
- discuss strategies with aquatic farmers to ensure substances are not applied when aquatic farms are vulnerable, or
- create buffer zones around aquatic farms.

You must ensure the strategy you employ does not have adverse impacts on aquatic farms and crops.

A substance must not be applied in a way that:

- harms crops that are irrigated with water from the water body, or
- causes harm to aquatic farms where food is produced.

Protecting whitebait and eels

You must not apply substances containing haloxyfop-R-methyl where whitebait and elvers (young eels) are present during the Department of Conservation's defined local whitebait season relevant to that region.

However, you can apply the substance to a plant infestation area less than 5 m² during the period 1 to 30 November if the substance has previously been applied to the area and applying the substance is likely to ensure the complete eradication of a pest species in that area. This period is specified because this is when scheduled surveillance activities overlap with the whitebait season.

Iwi may have local knowledge relating to the behaviour of whitebait and elvers. Local iwi should be consulted in relation to the mātauranga Māori for the area before the substance is applied.

Table 1: Allowable application parameters, EEL and TEL values for substances containing the four active ingredients.

	metsulfuron-methyl	haloxyfop-R-methyl	imazapyr isopropylamine	triclopyr triethylamine
Maximum application rate	0.084 kg ai/ha	0.75 kg ai/ha	2 kg ai/ha	7.92 kg ai/ha
Maximum application frequency	Three times per year	Three times per year	Three time per year	Three times per year
Minimum application interval	30 days	30 days	30 days	30 days
EEL _{water}	0.0084 µg/L	0.884 µg/L	0.18 µg/L	59 µg/L
TEL _{drinking water}	0.04 mg/L	0.0021 mg/L	9 mg/L	0.1 mg/L

Monitoring and reporting

The person applying the substance must ensure that any instances of unintended or accidental by-kills are reported to the EPA within a week of the application of the substance. This report needs to include the time, date and location where the monitoring was undertaken.

Organisations or people that use these substances to control aquatic pest plants are required to submit an annual report of their activities to the EPA. The report must include the results of monitoring activities, the consultation undertaken with local communities, details of their operation and its outcomes.

Trade names for active ingredients

Table 2. Trade names and the HSNO approval numbers for the substances that contain the active ingredients referred to in this document are listed below. You must still comply with the controls if the trade name of the substance you use is not listed. The HSNO approval number of a substance should be on the product label or its safety datasheet.

Active ingredient	HSNO approval number	Trade name
Metsulfuron-methyl	HSR000232	MET 600, Escort, Zeal
	HSR000242	Reply 600, Eradicate 600, Agronica Metsulfuron, Donaghys Brushweed Kill
		MET 600, Mustang, Country Mile Metsulfuron 600, Associate 600 WDG, Ken-Met 600 WG, Prism, Agpro Meturon, Matrix WDG
	HSR000238	DuPont Answer, Veto
	HSR000245	Synergy Met 200, Rival Clear
Haloxypop-R-methyl [‡]	HSR000063	MSF 600
	HSR008025	Scorp EC
	HSR000373	Valiant, Hurricane, Gallant NF
Imazapyr isopropylamine	HSR100054	Valiant 520, Laser, Crest 520, Gallant Ultra
	HSR002431	Ignite, Valiant 100, Agpro Haloxypop 100, Fopp 100
Triclopyr triethylamine	HSR000521	
	HSR100098	Unimaz 250 SL
	HSR007690	Garlon 360

[‡]Product labels often refer to haloxypop-R-methyl as haloxypop-P-methyl.



Reporting your activities

Councils, DOC or other organisations that use these substances to control aquatic pest plants must provide the EPA with an annual report of their operations by 31 July each year*.

This report will cover the period 1 January to 31 December and must include:

- a map of all locations where the substances have been applied
- details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application
- details (including results) of water sampling conducted to confirm compliance with EEL values
- details of sediment testing conducted
- details of pest plant species targeted
- details of dissolved oxygen levels prior to application of the substance to any static water body
- details of pH testing conducted prior to application of substances containing metsulfuron-methyl
- details of engagement/consultation activities undertaken
- details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints, and
- an overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

*The first annual report is due on 31 July 2014 and will cover the period 1 January 2013 to 31 December 2013.



Contact us for further information

For more information on complying with HSNO, visit our website www.epa.govt.nz or call our compliance information line during business hours on 0800 376 234, or email hsinfo@epa.govt.nz.