



Water Celery in Nelson

Presentation to Tukituki Land Care
Kahahakuri Catchment

8 May 2024

Richard Frizzell

Nelson – A Smart Little City
He Tāone Tōrire a Whakatū



 **Nelson**
City Council | Te Kaunihera o
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Timeline

- Envirolink report by NIWA
 - May 2018
- EPA Permission to use Garlon/Triclopyr
 - Granted June 2019, renewed 29 March 2023
- Resource Consent for Aquatic Herbicide Use
 - Application lodged 15 June 2020
 - Granted 27 Oct 2020
- Envirolink report on biocontrol feasibility
 - June 2020
- Orphanage Stream trial
 - May – June 2021
- Annual spray programme
 - 2021 - present





Water celery/Cow cress, *Apium nodiflorum* (also *Helosciadum nodiflorum*)

Identification:

- Pinnate leaves with regular toothed leaflets; alternately arranged up the stem; carrotty smell when crushed
- Unstalked compound umbel of 5-petalled white flowers
- Not cultivated as an ornamental plant, nor often used as food plant, although not toxic either to humans or livestock





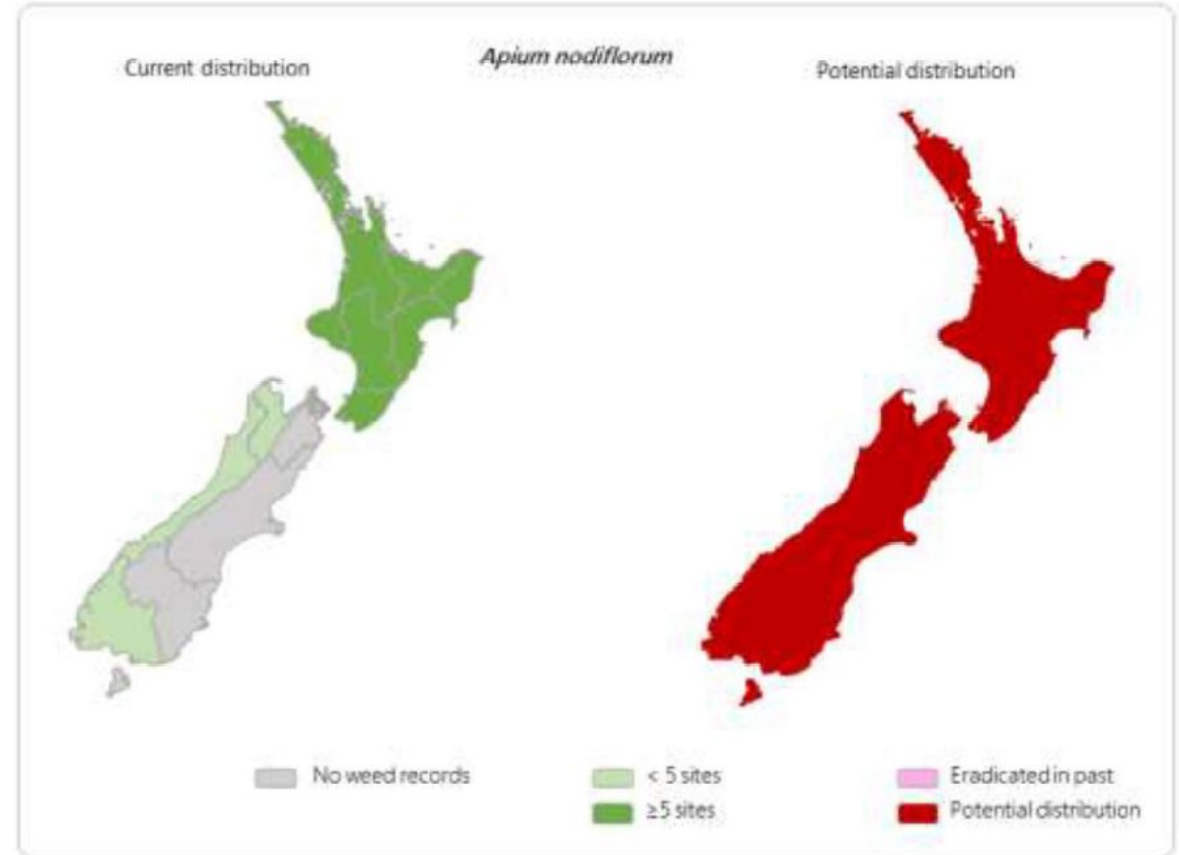
Water celery/Cow cress, *Apium nodiflorum*

Native to:

- Europe, western Asia, & North Africa

Distribution:

- Naturalised in NZ in 1947; widespread & locally abundant in lowland areas in North Island; rare in South Island (Marlborough, Nelson, Tasman, Westland, eastern Southland).





Water celery/Cow cress, *Apium nodiflorum*

Dispersal:

- Spread within water bodies by water movement & colonization by vegetative fragments & buoyant seed
- Spread between water bodies likely via contaminated drainage machinery, especially by small seeds – no effective natural dispersal agents



Water celery seedlings, Orphanage Creek





Water celery/Cow cress, *Apium nodiflorum*

Potential impacts:

- ❑ Obstructs flowing & still water bodies
- ❑ Promotes sediment deposition
- ❑ Exacerbates flood impacts, threatening infrastructure
- ❑ Outcompetes & displaces indigenous plants
- ❑ Excludes light & deoxygenation of water beneath mats
- ❑ Sediment reduces habitat for pollution sensitive macroinvertebrates

Legal status:

- ❑ Not designated unwanted organism nationally
- ❑ Organism of interest in some Regional Pest Management Plans (eg Hawkes Bay); proposed to include as sustained control pest in Tasman-Nelson RPMP





Control options

□ Mechanical

- Manual or mechanical control depends on situation
- Mechanical removal only likely to give short to medium term control, with regrowth from remaining stems, & water celery seedling germination
- Regrowth noted one month after removal of biomass, both from stem fragments and seed

□ Chemical

- Likely to be most effective for eradication over time – need EPA permission and resource consent

□ Biocontrol

- None known/available - investigate feasibility





Suggested management

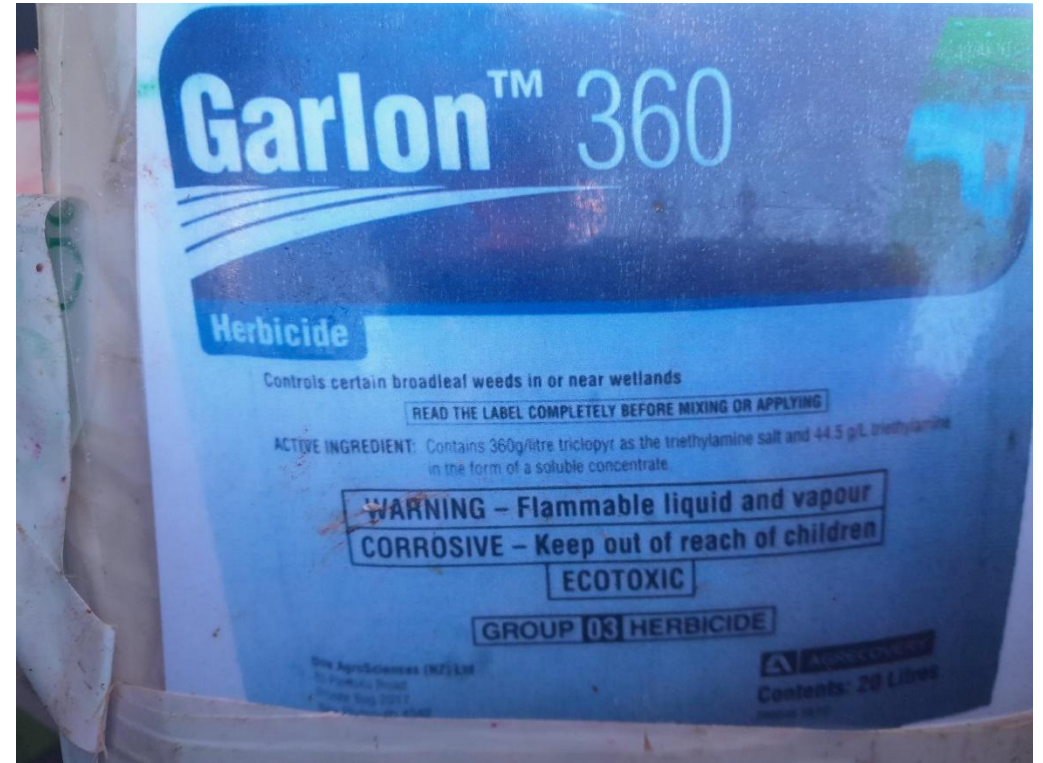
- Delimit extent of plants
- Identify risk sites for new incursions
- Manage decontamination of machinery used in contaminated sites
- Trial chemical control, recommended Triclopyr triethylamine (Garlon 360), with follow up control until no regrowth from vegetative fragments or seed





Triclopyr triethylamine (Garlon 360)

- ❑ Selective, systemic herbicide used for control of woody & broadleaf plants
- ❑ Readily degrades in water
- ❑ Non-persistent in soils & water-sediment interface
- ❑ Low potential for bioaccumulation
- ❑ Toxicity:
 - Mammals – moderate to high
 - Birds – moderate
 - Fish & aquatic invertebrates – low
- ❑ Adverse effects on non-target aquatic plants





EPA permission/resource consent

- Specifies aquatic pest plants/grounds for use
- Monitoring Plan within 1 year
- Annual schedule of proposed control – dates and location
- Risk assessment for each site prior to application
- Notification – 5 working days:
 - Water takes
 - Iwi/rūnanga
 - Fish & Game
 - Eel Industry Association
- Reporting:
 - Annual report
 - Any adverse effects, including by-kills, within 5 working days



Permission for the use of substances

Pursuant to section 95A of the Hazardous Substances and New Organisms Act 1996.

Name of applicant: Nelson City Council

Postal address: PO Box 645, Nelson 7040

Permission register number: STRG-06-06-2022-013

Purpose of application: Use of herbicides for the control of aquatic pest plants.

Application area: Affected areas in the Nelson Region.

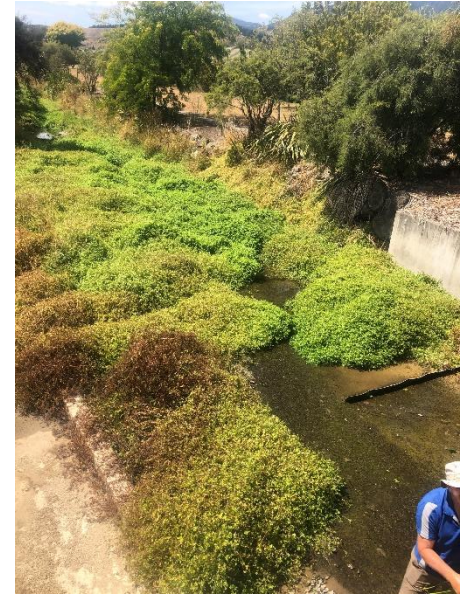
Start date: 1 April 2023

Finish date: 1 April 2028





Orphanage Stream trial



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Orphanage Stream trial

Control of Water Celery

Contractor: Nelmac
Where:
Project Duration:



Invasive water celery is impacting stream health in Nelson.

Control will use a selective, systemic herbicide Triclopyr triethylamine (Garlon 360) as recommended by NIWA. It readily degrades in water and soil and does not persist in the environment.

It has low toxicity to fish and aquatic invertebrates.

Spraying is carried out under Environmental Protection Authority permissions and Resource Consent RM250133, using GROWSAFE trained Contractors and industry best practice.

Council will be monitoring the stream for pH, dissolved oxygen and temperature before, during and after herbicide application.

Follow up spraying may be required.

NOTE: Do not harvest plants or animals (eg tuna) from area sprayed for at least a week after spray date stated above. Keep dogs and children away from spray area during spraying.

Please let us know if you see anything that concerns you after the spraying. This can be done through email richard.frizzell@ncc.govt.nz or call Nelson City Council Customer Services **03 546 0200**.

For more information on this project visit nelson.govt.nz/water-celery or scan the QR code.



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Orphanage Stream trial



26 May 2021 (initial spray day)



15 June 2021 (3 weeks post spray)



23 June 2021 (4 weeks post spray)





Annual spray programme



20 February 2023 (before spray)

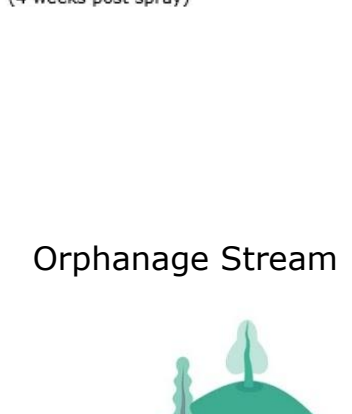


(4 weeks post spray)

Saxton Creek



9 February 2023 (before spray)



(3 weeks post spray)

Orphanage Stream





Biocontrol

- Manaaki Whenua Landcare Research feasibility study – June 2020
- Difficult to control mechanically & chemically
- Biological control of water celery never attempted
- Very expensive to develop
 - @\$500,000 per agent, 2-3 agents needed to achieve control
- Stem miner moth, *Depressaria ultimella*
 - Most promising candidate
 - Common on water celery in UK
 - Caterpillars mine stems – plants collapse later in season
 - BUT listed as unwanted organism





Questions?

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