

Sustainable drainage management

Best management practice

By Henry R Hudson



6 *Glyceria maxima* (reed sweet grass)

Complexity			Environmental value			Cost		
Low	Moderate	High	Low	Moderate	High	Low	Moderate	High

Definition & purpose

The aim is to completely eradicate *Glyceria maxima* (reed sweet grass) in waterways. *Glyceria* is an aggressive aquatic plant pest and can form dense impenetrable stands in watercourses. It is troublesome in drains, slowing water flow. It has been implicated in cyanide poisoning of livestock. Traditional control approaches are often ineffective, and may spread the weed.

Location

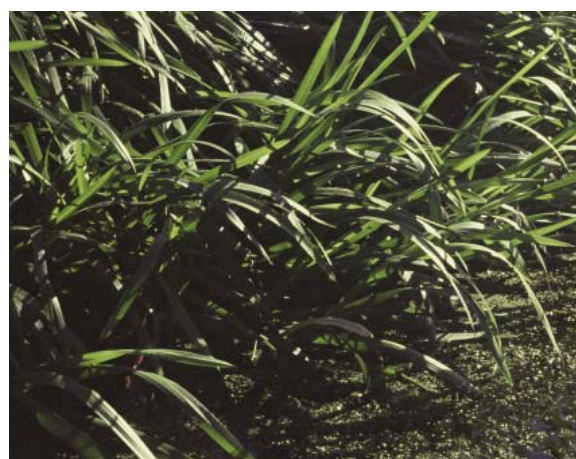
Waterways throughout New Zealand.

Work window

- *Glyceria* quickly becomes a large and vigorous plant, therefore any new infestation should be treated as early as possible. Destroying the young plants at an early growth stage, before they have become established or produce seed, is the most economical and effective method of control. If control is delayed until the infestation is established, eradication in one season is improbable and follow-up work over at least two or three seasons will be required. Application of herbicides is best done in late summer and autumn.
- Avoid nesting birds and inanga spawning areas on lowland stream banks.

Treatment objectives

1. Remove dense stands of *Glyceria* that restrict access to waterways, impede water flow, cause local flooding, reduce the capacity of drains and accelerate sediment deposition.
2. Plan to kill the plant and remove it. Not removing dead weeds can result in a large amount of decaying vegetation that may pollute the water or block pump intakes and channels and ditches.



Reed sweet grass. Photos: DOC.

Before you start

- Consult with District/Regional Council staff and landowners about habitat value, and the requirements for avoiding sensitive times and places.

□ Understand the plant you are dealing with:

- Glyceria produces an extensive root system to approximately 1 m depth. It also forms a sprawling mat of rhizomes, or underground stems, which comprise 40-55% of the plant's total biomass. These rhizomes produce vast numbers of shoots to quickly expand the plant's size. The plant's growth slows and stops at the onset of cooler temperatures in winter. Growth recommences in spring with a flush of new shoots arising from buds formed along the rhizomes.
- Glyceria produces vast numbers of dark brown seeds, 1.5-2 mm long, throughout summer and autumn. Most seeds are able to germinate immediately, however some remain dormant for several years. Seed may be spread on water, in mud or machinery and vehicles, on footwear and on livestock. Glyceria seed is not readily spread by wind.
- Glyceria may also be propagated by small sections of rhizome being moved around in mud on machinery and implements.

Procedures

Hand removal:

Suitable for small plants. Aim to remove all pieces of the roots and rhizomes, otherwise the plant may quickly regrow.



Excavation: Mechanical removal of larger plants is difficult because roots and rhizomes extend widely and are deep (~1 m), and may be missed during excavation. Excavated material should be dumped well away from the area, where it can dry out and kill all plants. Mechanical excavation has the advantage removing the plants from the watercourse. Thorough cleaning of any equipment that comes into contact with the plant or soil is required whenever any work is carried out near Glyceria infestations. (See the Channel Excavation BMP).

Cultivation: If low water levels permit, an alternative to excavation is to cultivate the soil and root areas in autumn. This brings root and rhizome material to the surface to allow winter frosts to desiccate the material. This method will give good control over small infestations and reduce the size of large infestations to more manageable levels. Great care must be taken to thoroughly clean all machinery after cultivation, to reduce the risk of spreading rhizome material.



Chemical control: Where a large area has been invaded herbicides can be used to control Glyceria (e.g. Glyphosate). A complete coverage of all foliage is necessary. Great care must be taken to minimise drift to water and desirable plants. Application of herbicides is best done in late summer and autumn. Plants which have more than about one-third of their stems below water may not be killed by herbicide. Whenever practicable the water level should be lowered to give the maximum possible plant exposure before treatment, and kept down for at least 12 hours after application. Removal of dead plants is desirable – the decaying vegetation provides ideal conditions for invasion by other species or a re-invasion of Glyceria. When dead plants are left they decompose and make the water dirty and smelly.



Additional reading

HBRC. 1995. *Plant pest control: aquatic plant pests – Glyceria maxima*. Environmental Topics, Hawkes Bay Regional Council.

Tamar Valley Weed Strategy Working Group. 1997. Strategic plan 1997. *Codes of Best Practice. Glyceria/reed sweet grass*. www.weeds.tassie.net.au/frames/cntrl