Vallisneria spiralis 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Hydrocharitales	Hydrocharitaceae

Common name val (English), coiled vallisneria (English), eelgrass (English), tape grass (English), eel grass (English), eelweed (English)

Synonym

Similar species

Summary Vallisneria spp. commonly known as eelgrass are popular aquarium plants. They are submerged aquatic plants that can grow up to five metres. They grow in still or flowing water and form a dense monoculture that dominates from the bed of the water-body to the surface. Dense infestations may restrict recreational activities, cause flooding and silting and reduce the aesthetic appeal of a body of water.

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Species Description
Eelgrasses are submerged rhizomatous (but not tuberous) aquatic plants, producing rosettes of long strap-like leaves which can vary in length from a few centimetres to 5.5 metres in deep water. Rooted or anchored in sediment they have no leafy stem; leaves all arise from a basal rosette at the sediment surface. Leaves have many small longitudinal veinlets and cross-septa, from 0.4-1cm wide. Plants form stout rhizomes that extend from the sediments. Numerous roots, up to 40cm long, sprout at each leaf-bearing node on the rhizomes (Greater Wellington Regional Council 2004b). The sexes are on different plants, the male flowers released and free-floating and the female with a spiral peduncle.
Juvenile or sterile specimens may be difficult to distinguish (Warrington 1994).

Notes
Vallisneria spiralis and *Vallisneria nana* are both known as “eelgrass” (S. Jacobs, pers.comm., 2006).

Uses
Rooted submerged species, especially those that yield high biomass, such as some *Vallisneria* spp. are important in phytoremediation (biological remediation of environmental problems using plants) due to their soil-binding roots, rhizomes and stolons (which help facilitate colonisation by benthic algae, other microbes and invertebrates) (Qian *et al.* 1999, in Vajpayee *et al* 2001). A study conducted to evaluate the accumulation and toxicity of chromium (Cr) in *V. spiralis* found that after one week the plants ameliorated 59% of Cr from tannery effluent (which contains a high level of chromium). A higher level of remediation was obtained when the tannery effluent was diluted; 95% of Cr was removed from 25% effluent. It was concluded that *V. spiralis* effectively removes chromium by surface absorption or adsorption (incorporating it into its own system or storing it in a bound form). Therefore *V. spiralis* may be effective in bioremediation of diluted tannery effluent and in restoring contaminated wetlands; however safe disposal of contaminated plants in cemented vaults is recommended (Vajpayee *et al.* 2001).

Habitat Description
Coastal wetlands, lakes, and rivers

Reproduction
There is no evidence of viable seed being produced in New Zealand and any new infestations are formed vegetatively (Greater Wellington Regional Council 2004b).

General Impacts
Eelgrasses are submerged aquatic plants that can grow up to five metres. They grow in still or flowing water and form a dense monoculture that dominates from the bed of the water-body to the surface. Dense infestations may restrict recreational activities, cause flooding and silting and reduce the aesthetic appeal of a body of water.

Management Info
Options for control of *Vallisneria* spp. include mechanical removal, (with weed harvesters or suction dredges), chemical control with herbicide, manipulation of the habitat by drainage or weed mats and biological control with agents such as grass carp (Environment B.O.P. Undated). However, biological control should be carefully considered in respect to all situation-specific biotic variables. Taking biological control out of context, especially when there is a lack of robust scientific data, might cause more damage to an ecosystem than it prevents. Froude (2002) notes that while some generalist herbivorous fish promoted as biocontrol agents will reduce the biomass of plants in an area, their browsing is not host-specific as they reduce both undesirable and favoured plants. As an example she mentions grass carp used to reduce aquatic plant biomass.

Pathway
The spread of this species to previously unaffected water bodies is normally the result of intentional plantings (Greater Wellington Regional Council 2004b).

Principal source:

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ALIEN RANGE

[1] CANADA

[7] NEW ZEALAND

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Summary: This report is the first stage in a three-stage development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand.
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