***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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**Review:** Dr. Surrey Jacobs Principal Research Scientist Royal Botanic Gardens Sydney NSW, Australia

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**ALIEN RANGE**

**[1]** CANADA

**[7]** NEW ZEALAND

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**Summary:** Available from: http://www.mfe.govt.nz/publications/water/lm-alien-invaders-jun02.pdf [Accessed 3 February 2005]
Champion, P.D.; Clayton, J.S. 2000. Border control for potential aquatic weeds. Stage 1. Weed risk model. Science for Conservation 141. .
**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.
Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/sfc141.pdf [Accessed 13 June 2007]

Champion, P.D.; Clayton, J.S. 2001. Border control for potential aquatic weeds. Stage 2. Weed risk assessment. Science for Conservation 185. 30 p.
**Summary:** This report is the second stage in the development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand. Importers and traders in aquatic plants were surveyed to identify the plant species known or likely to be present in New Zealand. The Aquatic Plant Weed Risk Assessment Model was used to help assess the level of risk posed by these species. The report presents evidence of the various entry pathways and considers the impact that new invasive aquatic weed species may have on vulnerable native aquatic species and communities.
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**Summary:** The Freshwater Biodata Information System (FBIS) contains fish, algae, aquatic plant and invertebrate data and metadata gathered from New Zealand s freshwater streams, rivers and lakes. FBIS provides different ways to search for biodata: choose a predefined search from a list of common searches; use the map view to draw a box on a map and search for biodata; or create your own search for maximum search flexibility. FBIS is offered as a nationally available resource for the New Zealand public, institutions and companies who need access to a well-maintained long-term data repository.
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