

# LakeSPI User Manual

## Appendix 6 Plant Identification Sheets



# LakeSPI NATIVE PLANTS

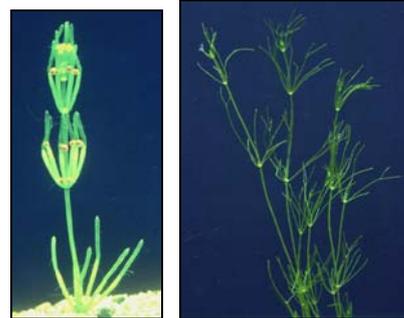
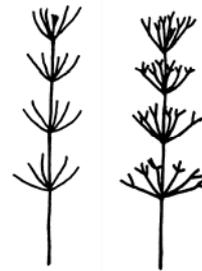
## Charophytes

## Native Plants

**Species** Includes all species of *Nitella* and *Chara*

**Description**

- Highly developed macroalgae, which lack true leaves and stems (no vascular tissue).
- The 'stems' are single celled and are sometimes enclosed by another layer of cells (two species of *Chara* only).
- The main 'stem' of charophytes bears whorls of branchlets, which are clustered at regularly spaced intervals.
- Species of *Chara* are easily identifiable by their strong musky smell.
- Most are bright green in colour.
- Can form 'meadows' across the bed of lakes to depths exceeding 20 m, but mostly < 1 m in height.



**New Zealand Distribution** Through-out all of New Zealand

**Not to be confused with:** Short stunted forms of *Ceratophyllum demersum*. (Refer to description on invasive species)



## Turf Plants

## Native Plants

**Species** May include – *Glossostigma diandrum*, *Glossostigma elatinoides*, *Lilaeopsis ruthiana*, *Elatine gratioloides*, *Limosella lineata*.

**Description**

- An association of numerous species forming short tufts or turfs in shallow water.
- If present, will be found in first few meters depth around lake edge.
- May comprise of only one species or many.
- Turf communities often < 10 cm in height.



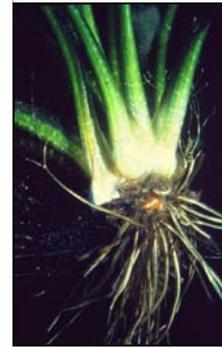
**New Zealand Distribution** Through-out all of New Zealand



## Isoetes

## Native Plants

<b>Species</b>	<i>Isoetes kirkii</i> (Quillwort)
<b>Description</b>	<ul style="list-style-type: none"> <li>• Each plant consists of a clump of grass-like hollow leaves that taper to a pointed tip.</li> <li>• Each clump arises from a distinctive bulb-like base (looks a bit like a miniature onion).</li> <li>• Plants can grow singly or in extensive beds.</li> <li>• Plants are dark green above sediment and white lower down.</li> <li>• Can grow to depths exceeding 5 m in some South Island lakes.</li> </ul>
<b>New Zealand Distribution</b>	Through-out New Zealand although they are now rare in northern North Island.
<b>Not to be confused with:</b>	Other turf plants. Always check for distinctive bulb-like base. <i>Isoetes</i> grow as single plants with no connecting rhizome.



## Milfoils

## Native Plants

<b>Species</b>	<i>Myriophyllum triphyllum</i> , <i>Myriophyllum propinquum</i>
<b>Description</b>	<ul style="list-style-type: none"> <li>• Leaves are arranged in whorls of 3-4 leaves around the stem.</li> <li>• Leaves often have a soft feather-like appearance.</li> <li>• Can form small compact emergent leaves at the top of stems</li> <li>• Plants may grow turf-like in shallow water, to 2-3 m tall in deeper water.</li> </ul>
<b>New Zealand Distribution</b>	Throughout all of New Zealand
<b>Not to be confused with</b>	<i>Ceratophyllum demersum</i> which has forked leaves with toothed margins. (Refer to description on invasive species)



## Native Pondweeds

## Native Plants

<b>Species</b>	<i>Potamogeton ochreatus</i> , <i>Potamogeton cheesemanii</i> , <i>Potamogeton pectinatus</i>
<b>Description</b>	<p><i>P. ochreatus</i> and <i>P. cheesemanii</i></p> <ul style="list-style-type: none"> <li>• Submerged leaves up to 10 cm or more long, with distinctive longitudinal veins.</li> <li>• Leaves alternate along the stems and have entire, smooth margins.</li> <li>• When flowering, has a dense spike, 15-20 mm long, produced at the water surface.</li> <li>• <i>P. cheesemanii</i> – can also have floating oval shaped leaves.</li> </ul> <p><i>P. pectinatus</i></p> <ul style="list-style-type: none"> <li>• Often described as the grassy-leaved pondweed.</li> <li>• Leaves are long, thin and thread-like with prominent mid-vein.</li> <li>• Forms small tubers.</li> </ul>
<b>New Zealand Distribution</b>	Throughout all of New Zealand. <i>P. pectinatus</i> more scattered and prefers brackish waters.



<b>Not to be confused with</b>	<p><i>Potamogeton crispus</i>, with wavy, toothed, leaf margins (refer to description on invasive species);</p> <p><i>P. pectinatus</i> may be confused with <i>Ruppia</i>, which is also common in brackish water, but has highly branched stems, very fine long leaves, no prominent mid-vein, no tubers and often has long cork-screw peduncles.</p>
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## Emergents (Reeds)

## Native Plants

<b>Species</b>	<i>Typha orientalis</i> (Raupo or Bulrush), <i>Eleocharis sphacelata</i> (Spike Rush), <i>Scirpus</i> spp., <i>Juncus</i> spp,
<b>Description</b>	<ul style="list-style-type: none"> <li>• Often found around the more sheltered margins of a lake.</li> <li>• Can grow down to 2m in depth.</li> </ul>
<b>New Zealand Distribution</b>	Throughout all of New Zealand.

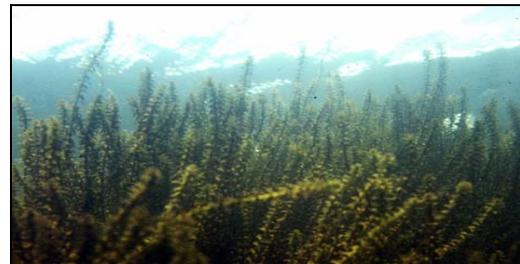
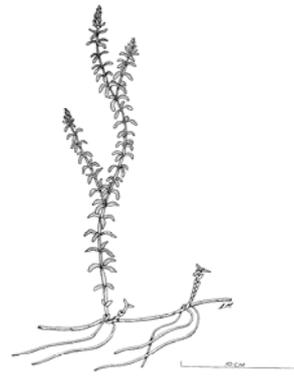


# LakeSPI INVASIVE PLANTS

## Elodea

## Invasive Plants

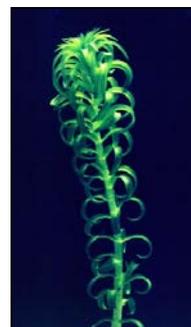
- Species** *Elodea canadensis*  
(Canadian waterweed)
- Description**
- Leaves are arranged densely up the stem in whorls of three.
  - Leaves are small (usually 6-12 mm long) and light to dark green.
  - Stems may grow several metres tall and down to 10 m depth.
- New Zealand Distribution** Common throughout all of New Zealand
- Not to be confused with** *Hydrilla*, which has toothed leaf margins and 4-5 leaves per whorl (see description).



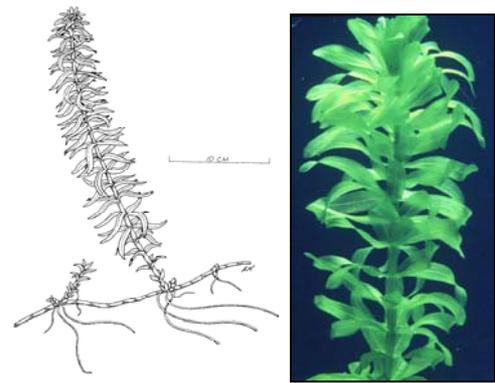
## Lagarosiphon

## Invasive Plants

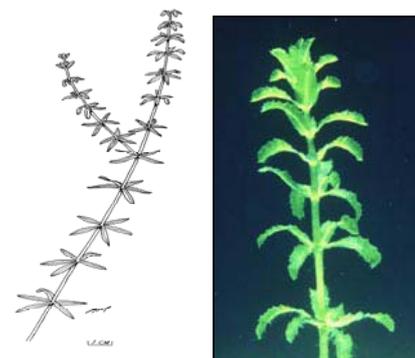
- Species** *Lagarosiphon major*  
(Oxygen weed)
- Description**
- Leaves are not whorled, but are arranged in spirals around the stem.
  - Leaves are usually stiff and strongly recurved.
  - Light to dark green in colour.
  - Flowers inconspicuous.
- New Zealand Distribution** Throughout all of New Zealand.
- Not to be confused with** *Elodea*, which has leaves arranged in whorls of three and not strongly recurved.



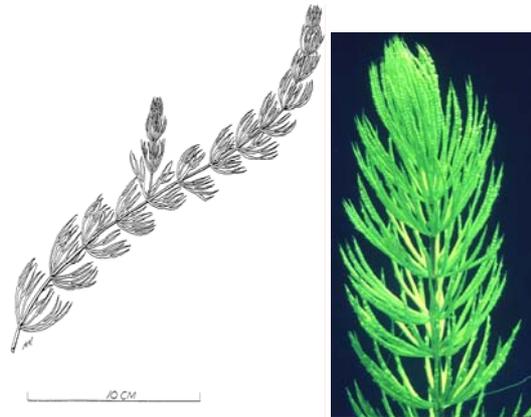
<b>Species</b>	<i>Egeria densa</i> (Oxygen weed)
<b>Description</b>	<ul style="list-style-type: none"> <li>• Densely packed leaves arranged in whorls of usually 4-5 around the stem.</li> <li>• Leaves are dark green (10-30 mm long) and have minutely toothed edges.</li> <li>• Male flowers are conspicuous, white with 3 petals and are held above the water surface.</li> </ul>
<b>New Zealand Distribution</b>	Throughout much of the North Island. Also in Marlborough and Avon River in Christchurch.
<b>Not to be confused with</b>	<i>Hydrilla</i> , which has much smaller leaves, thinner stems and has tubers; or <i>Elodea</i> , which has three leaves per whorl.



<b>Species</b>	<i>Hydrilla verticillata</i> (Oxygen weed)
<b>Description</b>	<ul style="list-style-type: none"> <li>• Leaves are arranged in whorls of usually 4-5 around the stem.</li> <li>• Leaves (6-20 mm) have distinctive toothed margins.</li> <li>• Leaves are dark green or brownish.</li> <li>• Thin stringy stems – much thinner than other invasive oxygen weeds.</li> <li>• The most reliable way to identify <i>Hydrilla</i> is to look for small tubers.</li> </ul>
<b>New Zealand Distribution</b>	Four sites in the Hawkes Bay region.
<b>Not to be confused with</b>	<i>Elodea</i> or <i>Egeria</i> , which have a similar form and leaf arrangement. With <i>Hydrilla</i> look for small tubers and toothed leaf margins.



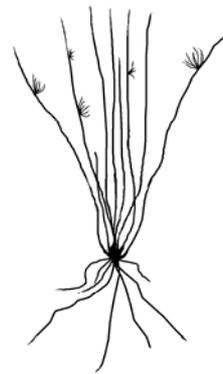
<b>Species</b>	<i>Ceratophyllum demersum</i> (Hornwort or Coontail)
<b>Description</b>	<ul style="list-style-type: none"> <li>• Leaves are arranged in stiff whorls around the stem and can be up to 4 cm long.</li> <li>• Leaves are forked with conspicuous small teeth or tiny horns along one margin.</li> <li>• Stems have no roots.</li> <li>• Plants can grow down to depths of 10 m, although beds may be deposited deeper.</li> <li>• Stems are brittle and often have thick bushy leaf growth occurring at stem tips giving the appearance of a raccoon's tail.</li> </ul>
<b>New Zealand Distribution</b>	Throughout much of the North Island. Recently in Nelson.
<b>Not to be confused with</b>	Milfoil species, which have feather-like leaves.



<b>Species</b>	<i>Potamogeton crispus</i> (Curly leaf pondweed)
<b>Description</b>	<ul style="list-style-type: none"> <li>• Leaves (up to 80 mm long) are oblong with distinctive wavy-edges that are finely serrated.</li> <li>• Leaves are arranged alternatively along the stem, have no leaf stalk but do have a distinctive main vein that is often red in colour.</li> <li>• Leaf colour is olive-green to reddish-brown.</li> <li>• Small flowers (3-5) are produced on spikes that extend to the water surface</li> </ul>
<b>New Zealand Distribution</b>	Throughout the North Island. Limited distribution in the South Island.
<b>Not to be confused with</b>	Native pondweeds (see description).



<b>Species</b>	<i>Juncus bulbosus</i> (Bulbous rush)
<b>Description</b>	<ul style="list-style-type: none"> <li>• A much branched rooted plant, with fine, hair-like leaves.</li> <li>• Leaves are brownish-green translucent, and form open tufts along stems.</li> <li>• Flowering stems common often with leafy tufts among flowers.</li> <li>• Plants can grow down to a depth of 3m.</li> </ul>
<b>New Zealand Distribution</b>	Throughout all of New Zealand. Mostly found in dystrophic lakes.
<b>Not to be confused with</b>	<i>Ranunculus</i> or <i>Ruppia</i>



<b>Species</b>	<i>Vallisneria gigantea</i> , <i>Vallisneria spiralis</i> (Eel grass or ribbonweed)
<b>Description</b>	<ul style="list-style-type: none"> <li>• Light to dark green leaves that are long, narrow and ribbon like ending with a blunt tip.</li> <li>• Leaves (0.2-2 cm wide) grow from a creeping stem (rhizomes), and can grow to more than 5 m long and 10 m depth.</li> <li>• The presence of coiled, corkscrew-like flower stalks can help identify this plant.</li> </ul>
<b>New Zealand Distribution</b>	Few sites in Auckland (Lake Pupuke and Meola Creek), Wanganui (Lake Wairitoa), Masterton, and Blenheim (Opawa Loop).
<b>Not to be confused with</b>	Juvenile <i>Ottelia ovalifolia</i> , which has similar ribbon-like leaves. Mature plants of <i>Ottelia</i> also have surface floating leaves and no rhizomes.



## Ranunculus

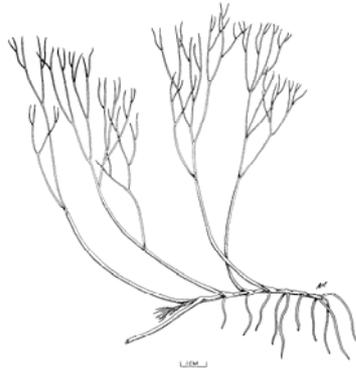
## Invasive Plants

### Species

*Ranunculus trichophyllus*  
(Water buttercup)

### Description

- Leaves thread-like, forked and more finely divided towards leaf tips.
- Leaf length varies from short and tufty to long and straight.
- Plants rooted with creeping rhizomes and leafy stems 2 m or more long.
- Flowers appear above the water surface and are small, white, 5-petalled and have a yellow centre.



### New Zealand Distribution

Widespread from Auckland to Southland. Often in flowing clear water.



## Utricularia gibba

## Invasive Plants

### Species

*Utricularia gibba*  
(Bladderwort)

### Description

- Leaves are alternate, filamentous, entire or simply divided.
- Flowers are conspicuous, yellow and the upper lid of the flower is entire.
- Flowers appear just above the water surface as are small green capsules (2-3mm) produced following the flowers.



### New Zealand Distribution

West and North Auckland and a few sites in the Waikato.

### Not to be confused with

The endangered native bladderwort *U. australis* which has many-branched leaves compared with the entire or simply divided leaves of *U. gibba*.



