



Centre for
Ecology & Hydrology

NATURAL ENVIRONMENT RESEARCH COUNCIL

Centre for Aquatic Plant Management

Information Sheet 7: Canadian Waterweed

Canadian Pondweed or Waterweed (*Elodea canadensis*) is native to North and South America where it occurs in lakes ponds, canals and slow flowing water. It was introduced to Ireland in 1836 as a fragment on an imported log from Canada, and rapidly spread to Europe soon after, occurring in similar habitats. In many regions of the world it is considered a pest. It grows from stolons (creeping stems) and has vertical, narrow, sparsely branched stems with leaves in whorls of three. The leaves are flat (not recurved like *Lagarosiphon major* and pointed like *E. nuttallii*). It can form dense mono-specific stands. It does not reproduce by seed in the UK and relies entirely on vegetative reproduction for its spread. Although it is now regarded as a naturalised aquatic plant, it causes problems by competing for nutrients and outgrowing many native species. However, it is now considered preferable to both *major* and *nuttallii* and where there is a danger of invasion from these species after

control, care should be exercised not to eradicate all of the plant.

MECHANICAL CONTROL

This plant is easily cut and controlled for short periods (1-2 months in summer) by mechanical control methods. The cut weed should be removed from the water to avoid deoxygenation. The cut weed can be left to decompose in small heaps away from the side of the water, taking care to avoid seepage of the liquor back into the water. However, if large amounts are to be disposed of then it should be taken away for composting or alternative disposal.

Cutting early in spring may delay the onset of the peak biomass period. Dragging trailing knives across the bottom in March is the best time for this. If the weed can be kept at a low level by regularly doing this then peak biomass should not be reached. Continued cutting will weaken the plant and may lead to its disappearance from the system

There are several appropriate methods of mechanical control, removal by hand, raking, chains, weed bucket weed boat or dredging. All are suitable.

Chemical control

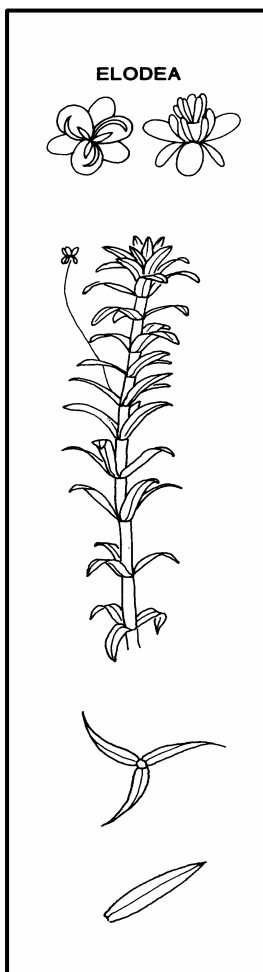
E. canadensis is susceptible to dichlobenil applied in spring before the plant is fully grown and terbutryn and diquat. Terbutryn will kill all submerged vegetation and can only be used in still water. Dichlobenil formulations should give localised control if used carefully and before the end of April. Dichlobenil affects most rooted submerged plants and some rushes too. The approved products containing diquat are Reglone and Midstream. Reglone is a liquid and can be applied as a spray to the water surface or directly by subsurface injection. Midstream is a viscous gel and can be used in flowing water or for localised control in still or slow flowing waters. It requires special application equipment. Diquat is not effective in muddy water. The effectiveness of diquat reduces later in the season because of the accumulation of marl and other debris on leaf surfaces. This

can interfere with the uptake of the herbicide and reduce herbicide efficacy.

Chemical control will give effective eradication of the plant for between 2 and 3 years. Regular inspections should be made to check on re-infestation and spot treatments should be applied to prevent further spread.

Biological control

The use of herbivorous Grass Carp is appropriate as a control method for this plant. Common Carp, and other bottom feeding fish, which create turbid water, can also be effective in preventing regrowth of the plant after mechanical removal or control by a herbicide. There have been reports of sudden population crashes of this species and it may be that some form of self-regulation occurs in some situations. It is not known if this is due to a pathogen.



Environmental control

Shade will control most submerged aquatic plants. This can be achieved by planting trees on the south side of waterbodies or by using a floating sheet of opaque material. Care must be taken when using the latter to prevent sudden deoxygenation.

Best option

In mixed stands: Remove as much of the plant as possible by mechanical means and apply spot treatments of Casoron, Luxan or Midstream to remaining infestations.

In mono-specific stands in enclosed still waters use Clarosan or Reglone after mechanical removal.

If mechanical removal is not possible then treat with any of the appropriate herbicides being sure to read the label recommendations.

If you prefer a biological control option then use Grass Carp. Be sure to obtain all the necessary agreements from DEFRA, Environment Agency and English Nature.