



Information Sheet

Callitriche spp.

Water-Starworts

Water-Starworts (*Callitriche* spp.) are so called because of the shape of their floating apical rosettes. They are most common in slow-flowing waters where muddy and silty sediments predominate, although they will grow in still and fast-flowing conditions up to 1 m deep. They are intolerant of inorganic pollution. They have slender stems and long, thin submerged leaves which expand when they reach the surface. The submerged leaves are characterised by the notched ends. The genus is extremely polymorphic, taking on different leaf shapes in different environmental conditions. Classification and distinction between species is often only possible by examination of the flowers and seeds. The Water-Starworts should not be confused with *Crassula helmsii*, which has similar shaped leaves to the submerged type exhibited by *Callitriche* species but no notches in the leaf

tips.

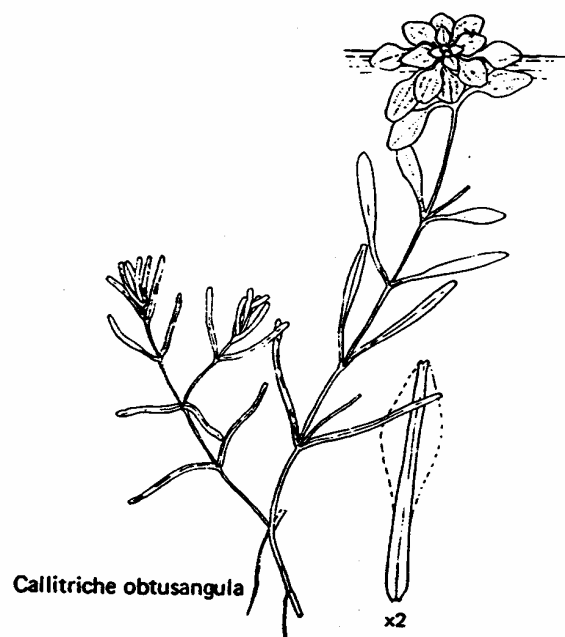
There are approximately 25 species worldwide, some of which are semi-terrestrial while all other species are restricted to freshwater aquatic habitats. There are nine species in Great Britain, *C. stagnalis* (Common Water-Starwort) and *C. obtusangula* (Blunt-fruited Water-Starwort) are the most commonly encountered species.

They are perennial and easily reproduce by seed and vegetative methods. Small, single-node fragments will grow rapidly. They have small insignificant flowers, with male and female flowers occurring on the same plant. The seeds contain four nutlets within an elastic coat. They sink to the bottom when released and can lie dormant in the mud for up to five years. Often this accounts for their sudden appearance in waters which have recently been cleared or dredged. Darkness inhibits the germination of the seed.

The Water-Starworts cause problems by blocking flow in drainage systems and by dominating slow-flowing ponds and canals. In such conditions they form dense mono-specific stands. They are important as food and shelter for fish, as an invertebrate habitat and as food for ducks.

Mechanical control

Cutting and dredging are acceptable methods of control for this species. Care should be taken to restrict the spread of viable fragments out of the area in which



Callitriche obtusangula

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the plant is controlled. Cutting can be carried out at any time during the season but should be delayed until after July if longer term control is required. Cutting is not the preferred method of control because of the high viability of the fragments and the risk of spreading the plant to unaffected areas.

Being perennial, they retain their leaves overwinter and rooting internodes bearing lateral buds can remain in the mud overwinter and regrow the following spring. This characteristic makes mechanical control late in the season less likely to produce a good long-term reduction in plant density.

Chemical control

Dichlobenil can be used in static waters. The timing of application should be as early as possible in the season definitely before the floating leaves have formed. This will usually be before mid-April.

Biological control

Grass carp will control the growth of *Callitriche* species. Wildfowl will also eat the submerged plant material. Increasing wildfowl numbers may reduce the amount of weed growth, but may promote algal growth due to higher nutrient enrichment from the wildfowl..

Environmental control

Deepening the water to below 1 metre will make the conditions unsuitable for the growth of this plant. Shading is another possibility, although deep shade will be required.

Best option

Apply dichlobenil in static water only in April

There is no chemical method of control inflowing water, so use mechanical means.