Centre for Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Aquatic Plant Management

Information Sheet
Lagarosiphon major
Curly water Thyme
Curly Waterweed

Lagarosiphon major was first recorded in Britain in a chalk pit in 1944. It has since spread to many locations and has displaced both *Elodea canadensis* and *Elodea nuttallii* by virtue of its superior photosynthetic capacity in alkaline water. There are nine species of *Lagarosiphon*, all from Africa. *L. major* is native to Southern Africa, where it is also a nuisance weed species. It is sold by garden centres and aquarists as an oxygenating plant, often mis-labelled as *Elodea crispa (no such plant!).* All plants in the UK are though to be female. The flowers are borne singly in the axils of leaves on a long stem (called a hypanthia) and they float on the surface of the water. The flower has a sail composed of 3 staminodes (petals) and thy blow freely across the surface of the water. Pollination is achieved when a male and female flower encounter each other on the surface. Because there are no male plants in the UK, all reproduction is by fragmentation or vegetative reproduction. Small fragments can become rooted, and in many sites lateral branches become detached and float to increase dispersal within a lake or pond. There is no evidence that it is carried form one site to another by birds, because it is a large plant, so new observations are likely to have been due to deliberate introduction by human activity.

Lagarosiphon will grow down to 3 m in still water. It does not grow in fast flowing water, although it will grow in canals, drainage ditches and slow-flowing rivers. The leaves measure between 6 and 300 mm in length (depending on nutrient status) and are between 1 and 3 mm wide. They are strongly recurved, that is they roll back and point at the stem below. The leaves are borne in a whorl or spiral of 3s around the stem. The leaves rapidly become encrusted with calcium carbonate marl on the upper surface, a consequence of the way in which carbon is taken up by the plant. Photosynthesis by this plant can take the pH up to values over 10, and may reach 10.4 (the limit of bicarbonate uptake) in small ponds. This feature is the key to its success in dominating mixed plant communities as few submerged macrophytes can photosynthesise effectively at such high pH. Prolonged periods of high pH will lead to the loss of less competitive species.

Mechanical Control

This plant tends to survive over-winter in southern areas of Britain, and therefore mechanical control can be undertaken early in the season. Further north, the plant mass collapses, but never dies down completely, meaning that early season cutting should be deeper than normal, or should be delayed until the plant has started to grow in late April. Care should be taken to remove as much cut material as possible because of the problem of vegetative reproduction form fragments. Cutting tends to dislodge the brittle side branches which float away and root elsewhere, increasing the problem or at least spreading to uninfested sites.

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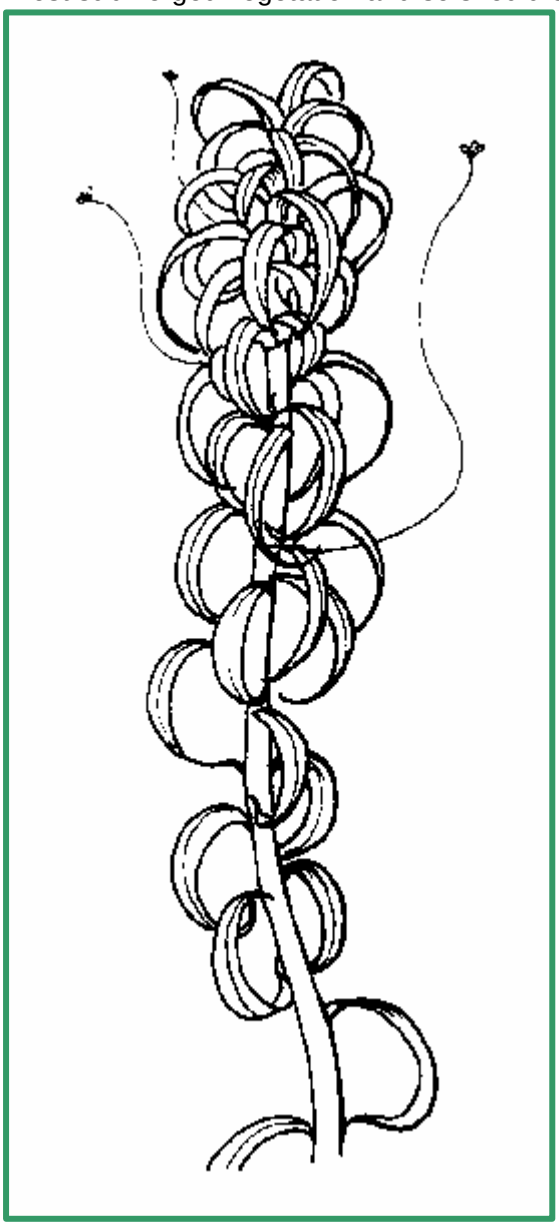
Chemical Control

Lagarosiphon is susceptible to herbicides containing terbutryn or dichlobenil. The preferred method of control is application of dichlobenil in March or early April. Application of terbutryn as Clarosan will kill most submerged vegetation and so should only be used where *Lagarosiphon* is the dominant species.



Clarosan should be applied in April. Control after late June with herbicides is usually not successful, although Clarosan can be used when there are no fish present, as the sudden decline in photosynthesis causes a severe drop in oxygen concentration which will kill fish. This does not occur when Clarosan is applied in spring.

Biological Control

Grass carp will eat *Lagarosiphon* if they have no other choice, but it is not one of their preferred foods. There are no known classical biological control agents appropriate for release in the UK.

Environmental Control

Increasing shade will reduce the growth of this species, although because it tends to occupy such large areas, the application of shade will often be inappropriate. Excavation to depths of over 4 m will also prevent growth but again this is impractical. Increasing flow may reduce the growth of the species *in situ*, but is likely to spread the plant to other previously unaffected areas.

Best Option

Treat with dichlobenil in April

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