

## Water lettuce

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It is thought to have been introduced to NSW rivers and dams via eel traps from Queensland and as an aquarium plant and water garden specimen sold in nurseries.

Rivers, wetlands, lakes, reservoirs and slow moving streams are most at risk from this weed, especially in the subtropical parts of the State.

### Introduction

Water lettuce (*Pistia stratiotes*) is a free floating aquatic plant native to Asia, Africa and equatorial America. There is some debate as to whether the Northern Territory forms part of its native range.

Once established, it has the potential to quickly spread and form a dense mat that can cover an entire body of water.

### Impacts

Under favourable conditions, water lettuce will produce abundant growth, expand rapidly and form obstructive mats.

These large dense floating mats can have negative impacts on native aquatic plants and animals. They can also interfere with irrigation, boating and water sport activities.

Thick mats of water lettuce are also known to harbour disease-causing mosquitoes.



A large infestation of water lettuce on a dam near Maitland. (Photo: Brian Worboys, Maitland City Council)

## Habitat

Water lettuce grows best on still or slow moving bodies of fresh water such as farm dams, reservoirs, lakes, rivers and creeks.

It will tolerate temperatures between 15°C and 35°C; however optimum temperatures for growth range between 22°C and 30°C. Water lettuce is frost sensitive and growth is limited in temperate zones by long cool winters.

Water lettuce can survive for long periods on mud banks or in other damp locations such as roadside culverts.

## Distribution

While water lettuce is not established in NSW, there have been outbreaks of it throughout the northern coastal part of the State.

Infestations have been located in the Tweed River Catchment at Pigaben and Tyalgum, and the Richmond River Catchment at Bungawalbin, Casino, Bonalbo and Grevillia. Isolated infestations have also been found at Macksville, Taree and Maitland.

At all identified sites water lettuce is currently under active control with the aim of eradication.

## Description

Water lettuce is a free floating plant that has an appearance very much like an open head of lettuce. It can grow up to 15 cm tall and 30 cm wide. Mother and daughter plants are attached by stolons (white root-like structures which link plants together) up to 60 cm long.



Water lettuce resembles an open head of lettuce. (Photo: Brian Worboys, Maitland City Council).



Water lettuce is free floating with submersed feathery roots. (Photo: Rod Ensbey, NSW DPI).

## Leaves

Pale green leaves are ribbed, wedge-shaped and form a rosette. They are spongy to touch and have a velvety appearance due to the small thick hairs that cover them.

## Roots

A large number of unbranched feathery roots up to 80 cm long are submersed in water beneath the leaves of the plant.

## Flowers

The flowers of water lettuce are very small (up to 1.5 cm long) and hidden in the centre of the plant amongst the leaf bases. They are whitish-green in colour. Flowering occurs throughout the year.

## Fruit

The fruit is a greenish berry, 5–10 mm in diameter. Four to fifteen oblong shaped seeds occur in each berry. They are green at first then mature to a brown colour and are about 2 mm long.

## Reproduction

Water lettuce is a perennial plant that reproduces vegetatively and from seed.



Water lettuce can quickly multiply and cover an entire body of water. Photo: Brian Worboys, Maitland City Council.

Each plant produces a number of stolons, with each producing a new rosette or daughter plant at its end. Each daughter plant will then form its own stolons, enabling the plant to increase rapidly.

Once shed, the seeds will float on the water before sinking to the bottom. They germinate in early summer once temperatures rise above 20°C and then float to the surface as seedlings.

Flowering and reproduction can occur as early as the four- to five-leaf stage of development. When conditions for growth are good, the plant can quickly reproduce and cover an entire body of water with a thick mat of connected rosettes.

### **Dispersal**

This weed is thought to have spread through dumping of water lettuce from aquariums or fish ponds into creeks, rivers and wetlands, or of deliberate cultivation. It is also thought to have been introduced to NSW rivers and dams via eel traps from Queensland.

Water lettuce is capable of being dispersed as broken pieces, buoyant seedlings or whole plants.

Pieces of water lettuce can be spread by boats or fishing equipment moving it from an infested to a clean water body.

Seeds can float downstream providing a seed reserve in uninfested areas. Seeds also create ongoing problems in infested areas.

### **Control and management**

#### **Preventing spread**

If you find water lettuce, notify the local council so that appropriate control methods can be carried out.

Emptying unwanted aquarium or fish pond plants into dams, creeks or streams is an offence and may harm the environment. When removing plants from an aquarium, remove from the water and let the plant dry out completely before wrapping in paper and disposing of it in the bin.

If you suspect anyone has water lettuce and they are not aware of the problems it poses, you should advise them to contact the local council weeds officer for advice.

If using an area for recreational water sports, prior to leaving, check equipment for water lettuce and remove it.

While water lettuce should no longer be available for sale in NSW, it still does appear in nurseries, pet shops and on the World Wide Web, often being sold

as 'water rose'. If you notice it being sold, report the instance to the local council weeds officer.

### Mechanical / Physical removal

Physical removal is effective for small infestations. Water lettuce plants cannot survive for long out of the water and can be removed by either raking or being pulled to the bank with an encircling rope.

Once removed, plants must be allowed to dry out and break down. Make sure that all plants removed are placed above the floodline. If possible, place on plastic to prevent them from taking root in mud.

Water weed harvesting craft may be suitable for larger infestations although these can be quite expensive.

### Herbicides

Herbicide may be necessary to control large infestations of water lettuce. When applying herbicides to a water body, it is important to follow these procedures:

- Identify the plant or plants correctly.
- Select a chemical registered for use in water and on that particular plant.
- Read the chemical label carefully and observe all special precautions.

Chemicals registered for control of noxious weeds are listed in the publication *Noxious and Environmental Weed Control Handbook* which is available online at [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au). For further information on chemicals and rates, read the product label or enquire at your local NSW Department of Primary Industries office.

A permit may need to be obtained from the Department of Environment and Conservation (DEC) for any herbicide applications applied over or near water.

### Biological control

Insects such as the weevil *Neohydronomus affinus* have been introduced for biological control in Australia.

While this insect has not been released in NSW, it has shown to be effective on dams in south-eastern Queensland.

### Legislation

*Pistia stratiotes* is a Class 1 noxious weed throughout NSW under the NSW *Noxious Weeds Act 1993*. As such, the weed must be eradicated from the land and the land must be kept free of the plant. As a notifiable weed, all outbreaks must be reported to the local council within three days.

The responsibility for the control of noxious weeds on private land rests with the land owner or occupier of the land. This responsibility extends to the middle line of any adjacent watercourse, river or inland water (tidal or non-tidal).

This plant is banned from sale in NSW, ACT, Qld, WA and NT.

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