

Water Lettuce

(*Pistia stratiotes*)



Family name: Araceae (Arum family)
Common name/s: Water Lettuce, Nile Cabbage, Water Cabbage



Water Lettuce (*Pistia stratiotes*) is a free-floating aquatic plant. Although not currently established in Ireland, it is considered a potentially invasive species if introduced, due to its rapid growth and ability to form dense mats.

The plant primarily spreads through vegetative propagation, making management challenging. Control strategies include mechanical removal, herbicide use, biological control with the Water Lettuce Weevil, and preventive measures to limit its spread. If left unmanaged, Water Lettuce can significantly impact biodiversity, water quality, and the usability of water bodies.

Description - Water Lettuce is a floating aquatic plant noted for its rosette of light green, velvety leaves that resemble an open head of lettuce. It is considered one of the world's most invasive aquatic plants due to its rapid growth and ability to form dense mats on the water's surface.

The plant can thrive in a variety of freshwater habitats. Water Lettuce can significantly impact water bodies by blocking sunlight, reducing oxygen levels, and outcompeting native aquatic species.

Key characteristics include:

Height: Grows to a height of 5-15 cm, with individual plants spreading to about 15-30 cm in diameter.



Leaves: The leaves are pale green, spongy, and velvety, forming a rosette.

Each leaf is broad and fan-shaped, measuring 5-25 cm in length, with distinct parallel veins and fine hairs on the surface, which help the plant float.

Flowers: Produces small, inconspicuous flowers hidden in the centre of the leaf rosette.

The flowers are unremarkable and can be easily overlooked.



Fruit: Forms a small, green berry that contains seeds, though vegetative reproduction is the primary means of spread.



Stolon: Thin, trailing structures that extend horizontally from the parent plant. Stolons produce daughter plants at their nodes, which remain connected to the parent plant until they mature, enabling vegetative reproduction.

Roots: Has a mass of feathery, hanging roots that can extend up to 50 cm below the water surface, aiding in nutrient absorption. The roots are dark and help anchor the plant in the water column.



Habitat - Water Lettuce is native to tropical and subtropical regions around the world, but its exact origin is debated, with some theories suggesting it could have originated in Africa or South America.

In its introduced range, it can thrive in various aquatic habitats:

- **Lakes, Ponds, and Slow-Moving Rivers:** Often found in calm or slow-moving freshwater bodies, where it can form dense floating mats.
- **Wetlands and Marshes:** Can establish in shallow wetlands, ditches, and marshy areas, particularly in nutrient-rich conditions.
- **Canals and Irrigation Channels:** Frequently grows in man-made water bodies such as canals, reservoirs, and drainage ditches.

The plant prefers warm, nutrient-rich waters with temperatures ranging from 15°C to 35°C. It does not tolerate cold temperatures and dies back in freezing conditions.

Status in Ireland - In Ireland, Water Lettuce is not currently widespread due to its inability to survive cold winters. However, it is considered a potentially invasive species if introduced into controlled environments, such as greenhouses or indoor aquatic systems, where it can escape into natural water bodies during warmer periods. Its ability to form dense mats and rapid growth could pose risks to biodiversity and water quality if it becomes established.

Reproduction and Spread - Water Lettuce reproduces through both vegetative propagation and seed production:

- **Vegetative Propagation:** The plant primarily spreads through daughter plants that form on stolons (runners), creating a new rosette. This allows it to rapidly form dense colonies on the water's surface.
- **Seed Production:** While it can produce seeds, vegetative reproduction is the most common method of spread.

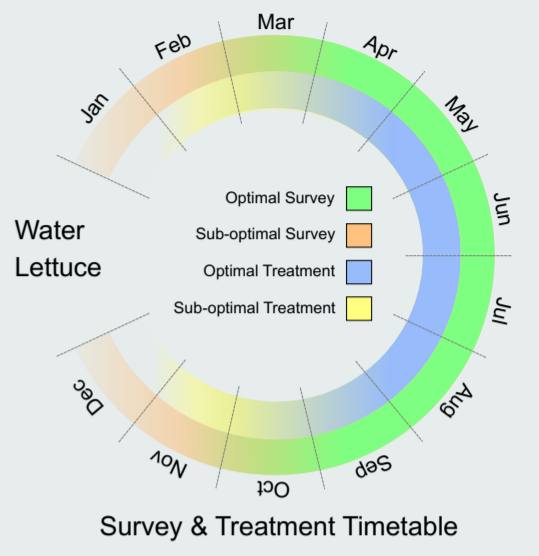
Seeds can remain dormant and germinate under favourable conditions, contributing to its long-term persistence in a habitat.

- **Human Activity:** The plant can spread through movement of watercraft, aquariums, and ornamental water gardens, where it is often used as an aquatic plant.

Management and Control - Controlling Water Lettuce is challenging due to its rapid growth and ability to regenerate from fragments. Management strategies include:

- **Mechanical Control:** Manual removal or mechanical harvesting can help reduce biomass, but all plant material must be removed to prevent regrowth. Regular monitoring is needed to control new infestations.

- **Chemical Control:** Herbicides approved for aquatic use, such as those containing glyphosate or diquat, can be applied to manage infestations. Multiple applications may be necessary for effective control, and care must be taken to minimise impacts on non-target species.



- **Biological Control:** The Water Lettuce Weevil (*Neohydronomus affinis*) has been used as a biological control agent in some regions. The weevil feeds on the leaves, reducing growth and spread.

- **Preventative Measures:** Avoid introducing Water Lettuce to outdoor ponds or water gardens, and clean boats and equipment before moving between water bodies.

Ecological Impact - Water Lettuce can have significant ecological impacts, especially in areas where it becomes invasive:

- **Competition with Native Species:** Forms dense mats that block sunlight, reducing the growth of submerged aquatic plants and affecting the aquatic food web.
- **Alteration of Water Quality:** The dense growth can lead to reduced oxygen levels in the water, impacting fish and other aquatic organisms.
- **Interference with Water Use:** Can impede navigation, fishing, and irrigation, making water bodies less accessible for recreational and agricultural use.
- **Increased Mosquito Breeding Sites:** The mats can create stagnant water areas, which may serve as breeding grounds for mosquitoes, potentially increasing the risk of mosquito-borne diseases.



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