



# WNY PRISM

*Partnering to Protect Western New York from Invasive Species*

## Best Management Practices: Water Lettuce

Water lettuce (*Pistia stratiotes*) is a floating aquatic plant found in lakes and slow-moving streams. Water lettuce leaves are thick and pubescent with parallel leaf veins. The leaves form a rosette that floats on the water and has feathery roots that hang below. Its white flower is small and inconspicuous, and eventually develops into a small, green fruit.

Water lettuce is often used in water gardens and is introduced to waterways both intentionally and accidentally. Individual plants can reproduce vegetatively, which can cause populations to double in 3 weeks under ideal conditions. Rosettes and seeds are then spread by water flow and human activity. Though the vegetative portions die back each year, climate change has created opportunities for viable seeds to overwinter and create sustaining populations in western New York.

Water lettuce can cover a waterbody in dense mats that push out other, native vegetation, lower dissolved oxygen levels and create a breeding ground for mosquitoes. Water lettuce also impedes water recreational activities and may impact hydroelectric power generation.

**Integrated Pest Management (IPM)** is an adaptive approach to invasive species management that involves the selection of multiple control methods and appropriate timing to meet the needs of each specific site and species. The goal is to maximize effective control and to minimize and potential negative impacts.

Management efforts should begin with an invasive species survey and site assessment. This allows for the development of a management plan and selection of appropriate removal methods. Management for most well-established species and/or infestations will require dedication over a number of years, often 2-5. Once initial control is achieved, restoration and continued monitoring will be required to maintain success.



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### Management

#### Manual

Individual plants and small infestations can be hand pulled or collected with nets or pond rakes. Given their high rate of reproduction, the plants should be removed as soon as possible after initial detection.

#### Mechanical

Large infestations can be managed using a mechanical harvester. The infestation will need to be harvested for many years to deplete the seedbank. Water level manipulation through drawdowns can be employed in certain waterbodies.

#### Chemical

For large, established infestations where manual and mechanical removal methods are not available, herbicides are an effective alternative, but may negatively impact native species present. Multiple treatments will be needed to reduce the size of the infestation to manageable levels.

#### Biological

Several biocontrols have been identified that impact plant growth and reproduction, including the water lettuce leaf weevil (*Neohydronomus affinis*).

#### Spread Prevention

The use of these plants in water gardens is a primary vector and their use is discouraged. Clean, drain and dry all watercraft to prevent the spread of aquatic invasive species.

#### Disposal

Plants should be placed in thick, black plastic bags and disposed of in landfills. If the harvested material cannot be moved, plants should be disposed of upland at least 50 feet away from shore to prevent re-entry into the waterbody.

#### Restoration

Creating competition will protect against future infestations and reestablishment of water lettuce. Aquatic communities are positively affected by restoration and increased food web diversity.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully and follow all instructions. Pesticide regulations can vary widely between regions; please contact local authorities for additional pesticide use requirements, restrictions or recommendations. Mention of pesticide products by WNY PRISM does not constitute endorsement of any material.



**Photos Front:** Top- water lettuce plants; Middle- water lettuce infestation; Bottom (left to right)- water lettuce flower, water lettuce for sale at a nursery, water lettuce clonal daughter.  
**Photos Back:** Top- water lettuce rake removal; Bottom- mechanical removal (Photo Credit: Mike Goehle, USFWS).

#### Additional Resources

Michigan's Water Lettuce Management Plan

<https://bit.ly/MichiganWaterLettuceManagement>

University of Florida Center for Aquatic and Invasive Plants

<https://plants.ifas.ufl.edu/plant-directory/pistia-stratiotes/>



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