

Invasive Plants in Pennsylvania

European Water Chestnut

Trapa natans L.



Photo: Leslie Mehrhoff, IPANE

Background:

Water chestnut was brought to the U.S. by water gardeners in the 1800s, after which it quickly became established.

Range:

This plant is a native of Eurasia, where it is vanishing from portions of its native range. It was first observed in North America near Concord, Massachusetts in 1859. Since then it has spread to most New England and Mid-Atlantic states, including Pennsylvania. It has established itself within Bucks, Pike and Dauphin counties, perhaps others.

Description:

This is an annual aquatic plant made up of submerged leaves and a buoyant rosette of floating green, glossy, roundly-triangular leaves with toothed edges. The plant's stem can reach up to 15 feet in length.

The flowers are small, white and form at the center of the stem. They appear in mid to late July. The hard nuts ripen one month later and have four short, sharp spines that can puncture shoe leather.



Photo: Leslie Mehrhoff, IPANE

Habitat:

This plant can grow in any freshwater body, although it prefers nutrient rich waters less than 16 feet deep.



Biology and Spread:

Water chestnut has a high reproductive rate, producing up to 20 nuts per rosette per season. The blackish nuts have sharp, half-inch long spines that can get caught on animals and gear. The seeds can remain viable up to 12 years, although most germinate within the first two. The plant also spreads vegetatively. Any fragment of leaf can get stuck to a boat or animal and be transported elsewhere, where it may then re-root.



Photo: Steve Hurst, USDA PLANTS Database

Ecological Threat:

This aquatic plant can form dense floating mats that limit light and oxygen to other species. Water chestnut can outcompete native organisms for nutrients and space and offer little nutritional value for wildlife.

Water chestnut is also economically damaging: it can make boating and swimming dangerous and costs hundreds of thousands of dollars to control.

How to Control this Species:

A combination of treatments is often the most effective against this plant. Eradication will require several years since seeds can remain viable for so long. Infected waters may need to be monitored for five to 12 years to try to eliminate it.



Photo: Leslie Mehrhoff, IPANE

Small populations are easy to remove by hand. Pull out the plant and dispose of it far away from the water, ideally in a trash bag.

Larger infestations can be removed with a floating weed harvester. This will help open up navigational passageways and may or may not provide a long-term control solution, depending on follow-up monitoring.

Chemical control is no longer widely used due to possible impacts to other species. However, the herbicide 2, 4-D has been deemed safe for this use.

Native Alternatives:

Some aquatic nurseries carry native and non-invasive alternatives. However, because of the similarity in appearance among aquatic plants, they are easily confused.

To avoid purchasing an aquatic plant that may become invasive, contact your local [conservation district](#) or [Master Gardener](#) for help in purchasing safe and appropriate native aquatic plants.

References:

SeaGrant Pennsylvania factsheet on water chestnut:

<http://seagrants.psu.edu/publications/factsheets/waterchestnut2011reduced.pdf>

Invasive Exotic Plant Tutorial for Natural Lands Managers:

http://www.dcnr.state.pa.us/forestry/invasivetutorial/water_chestnut.htm

Water Chestnut in the Chesapeake Bay Watershed: A Regional Management Plan:

<http://www.anstaskforce.gov/Species%20plans/Water%20Chestnut%20Mgt%20Plan.pdf>

For More Information:

To learn more about invasive plants in Pennsylvania here are some useful resources:

Plant Invaders of Mid-Atlantic Natural Areas, National Park Service:

<http://www.nps.gov/plants/alien/pubs/midatlantic/midatlantic.pdf>

Invasive Plants Field and Reference Guide, U.S. Forest Service:

http://na.fs.fed.us/pubs/misc/ip/ip_field_guide.pdf

