

Fanwort: An Invasive Aquatic Plant

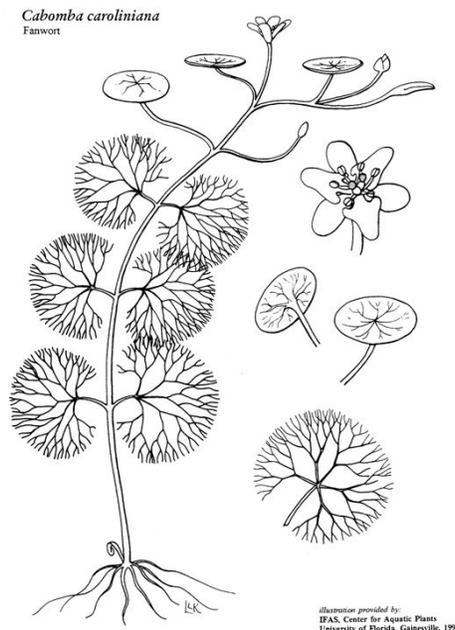
Cabomba caroliniana



Description

- Fanwort is a submerged invasive aquatic plant that can form dense mats at the water surface.
- The delicate green underwater leaves are fan-like and average 2 inches across. Leaves are arranged in opposite pairs on the stem. Small oval floating leaves are occasionally present.
- Small diamond-shaped floating leaves with the stem attached in the center may develop.
- Tubular stems can attain lengths of 6 feet.
- The white or cream flowers are ½” wide and form during May through September; however, some variations of Fanwort have pinkish or purplish flowers.

Fanwort



Habitat

Fanwort is a very hardy and persistent species that has established itself in a wide range of aquatic habitats. Fanwort is native to southern United States, but is non-native in northern regions.

- Over-winters in the frozen lakes of northern climates and can thrive in warm southern water bodies.
- Grows under a wide range of water chemistry conditions and can be found in both oligotrophic (low nutrient) and eutrophic (nutrient rich) lakes. Fanwort can tolerate a wide range of temperature and pH.
- Prefers slow moving waters, including lakes and ponds, but occasionally can be found in rivers.

Distribution Map



Reproduction

Fanwort reproduces by both vegetative methods and seed formation.

- Vegetatively, *C. caroliniana* reproduces by stem (rhizome) fragmentation. Stems are very fragile, fragment easily and most pieces can re-sprout and grow into new plants
- Seeds are also formed, and Fanwort can re-grow from seeds remaining in lake or pond sediment.

Impacts and Threats Posed by Fanwort

Fanwort is a highly competitive plant that is capable of rapid growth and spread. Fanwort can displace native species, reduce biodiversity, hamper recreational uses, reduce real estate value, diminish aesthetic values, and decrease water quality.

- Once established, Fanwort can negatively impact and out-compete native vegetation. Fish and animals that were dependent on the native vegetation must relocate or perish, leading to a decline in biodiversity.
- Fanwort can greatly impede boaters, fisherman, water skiers and swimmers, and these limitations on water use can negatively impact real estate values.
- *C. caroliniana* produces dense large mats of vegetation on the water surface, thus intercepting sunlight to the exclusion of other submerged plants.
- Sediment levels increase with increasing Fanwort abundance.
- When dense mats of Fanwort decay, the available oxygen in the water may be depleted. The resulting low oxygen conditions (anoxic) can lead to fish kills and harm other aquatic organisms.

Management Methods

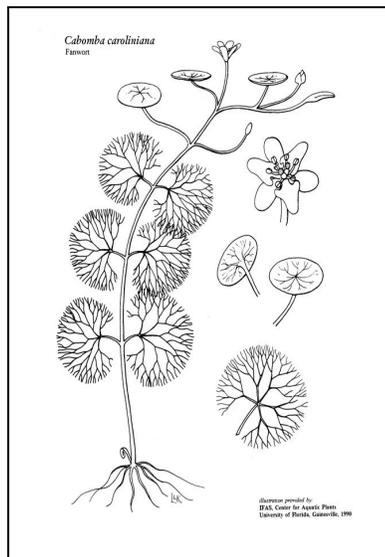
Management methods currently include mechanical removal, drawdowns and herbicides. No known biological controls exist.

- Although harvesting can greatly reduce the Fanwort biomass in a water body, harvesting causes fragmentation and fragments are capable of producing new plants. Some fragments may drift down stream or attach to boats and wildlife and create new infestations elsewhere.
- Drawdowns can be an effective mode of Fanwort control if the drawdown is of an adequate time and depth to prevent re-growth from seeds, however, drawdowns may affect fish, aquatic organisms, reptiles, amphibians and downstream conditions.
- Several herbicides have been used to control Fanwort, but the most effective is Fluridone (a systemic herbicide).
- Benthic barriers may be used in small areas including swimming beaches, boating lanes and around docks. The barriers restrict light and upward growth but can have a negative impact on benthic organisms, and need to be properly anchored and maintained.

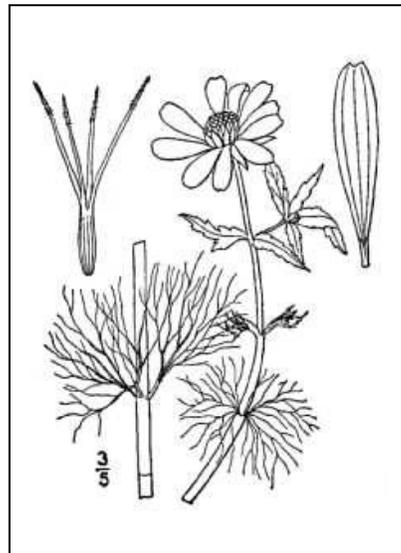
Other Information

- Fanwort is on the Massachusetts Prohibited Plant List (as of January 1, 2006).
- Fanwort was first discovered in 1930 in Hatfield, MA. Since then, despite management efforts, Fanwort has spread throughout most of New England. Due to its delicate appearance Fanwort is still in high demand at pet stores, aquarium dealers and over the Internet.
- Informational websites:
<http://aquat1.ifas.ufl.edu/welcome.html> (Center for Aquatic Invasive Species, Florida)
www.ccy.wa.gov/programs/wq/plants/weeds/cabomba.html (Washington State Ecology Dept.)
www.ProtectYourWaters.net (Aquatic Nuisance Species national web site)
- Fanwort is often confused with the native Water Buttercup (*Ranunculus*) and Water Marigold (*Megalodonta beckii*). (see drawing below)
 - Water Buttercup has leaves that are arranged singly on the stem, not in opposite pairs.
 - Water Marigold has opposite leaves that attach directly to the stem with no petiole between the leaf and stem.

Fanwort compared to native Water Marigold



Fanwort



Water Marigold

References:

- 1) www.mass.gov/dcr/waterSupply/lakepond/geir.htm (Generic Environmental Impact Report)
<http://plants.ifas.ufl.edu/cacapic.html> (Center for Aquatic and Invasive Species)
<http://www.bio.umass.edu/biology/conn.river/cabomba.html> (UMass- Conn. River Page)
<http://www.ecy.wa.gov/programs/wq/plants/weeds/cabomba.html> (WA State Dept. of Ecology)
- 2) Photographs were obtained from:
Kerry Dressler 1996 (cover photograph)
<http://aquat1.ifas.ufl.edu/> (line drawing of Fanwort)
http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=MEBE2
(Line drawing of Water Buttercup from USDA Plant Profile website)
- 3) The distribution map was taken from:
<http://plants.ifas.ufl.edu/cacapic.html> (Center for Aquatic and Invasive Species)

For more information please contact:

D.C.R. Office of Water Resources, Lakes and Ponds Program

Michelle Robinson at: michelle.robinson@state.ma.us

or visit the Lakes and Ponds website at: www.mass.gov/lakesandponds

Prepared by Michelle Robinson: November 2002

