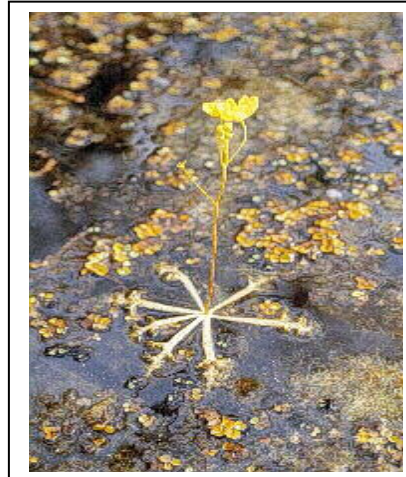


Swollen Bladderwort: An Exotic Aquatic Plant

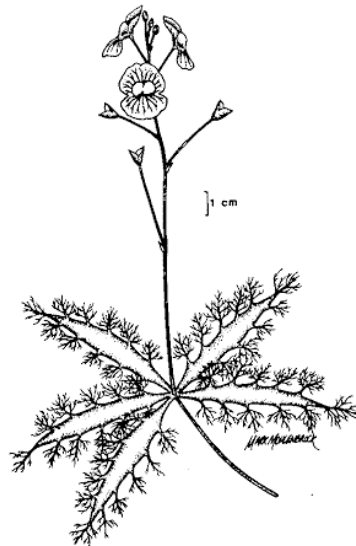
Utricularia inflata



Description

- Swollen Bladderwort is a rootless, carnivorous, bushy submerged plant that can form dense mats at the water surface.
- Bladderworts are a genus of plants that prey on planktonic organisms. Organisms are lured to the bladders with a sweet scent, and when trigger hairs on the bladder are brushed, the trap door opens and a vacuum force pulls the prey inside to be digested.
- The lace-like green leaves are branched and filled with seed-like bladders.
- In early spring, 3-15 yellow snap-dragon shaped flowers develop on emergent stalks. The stalks are supported by a floating pontoon comprised of 4-10 leaves arranged like the spokes of a wheel. The pontoon leaves are 1.5" long and appear inflated.

Swollen Bladderwort

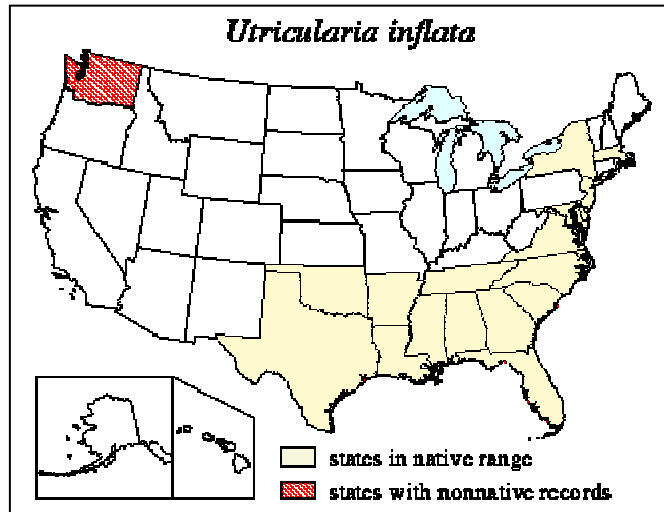


Habitat

Swollen Bladderwort is native to southern United States, but is non-native in Massachusetts.

- 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 oligotrophic (low nutrient), eutrophic (nutrient rich) and acidic waters.
- Prefers slow moving waters, including lakes, ponds and slow moving rivers.
- Bladderwort's ability to consume small organisms in addition to absorbing nutrients directly from the water column, provide a competitive advantage over other species.

Distribution Map



Reproduction

Swollen Bladderwort reproduces by both vegetative methods and seed formation.

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

Impacts and Threats Posed by Swollen Bladderwort

Swollen Bladderwort is a competitive plant that has the potential to displace native species, reduce biodiversity, hamper recreational uses, reduce real estate value, diminish aesthetic values, and decrease water quality.

- Once established, Swollen Bladderwort may 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.
- Floating mats of Swollen Bladderwort can greatly impede boaters, fisherman, water skiers and swimmers, and these limitations on water use can negatively impact real estate values.
- The dense large mats of vegetation on the water surface may also intercept sunlight to the exclusion of other submerged plants.
- Sediment levels may increase with increasing Swollen Bladderwort abundance.
- When dense mats of Swollen Bladderwort 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

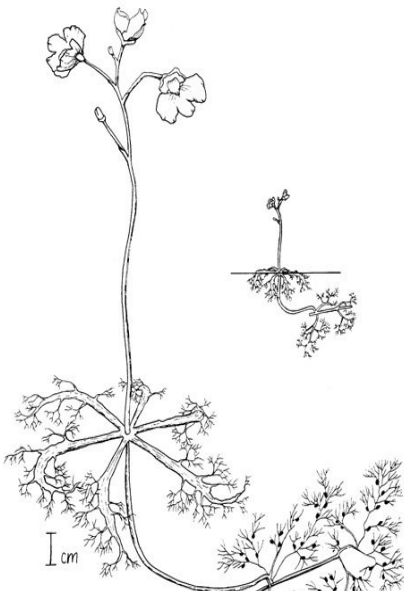
Management methods currently include mechanical removal, drawdowns and herbicides. No known biological controls exist.

- Although harvesting can greatly reduce the Swollen Bladderwort biomass in a water body, harvesting causes fragmentation and some fragments may develop into new plants. Some fragments may drift down stream or attach to boats and wildlife and create new infestations elsewhere.
- Several herbicides have been used to control Swollen Bladderwort, including Sonar (fluridone).
- 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.

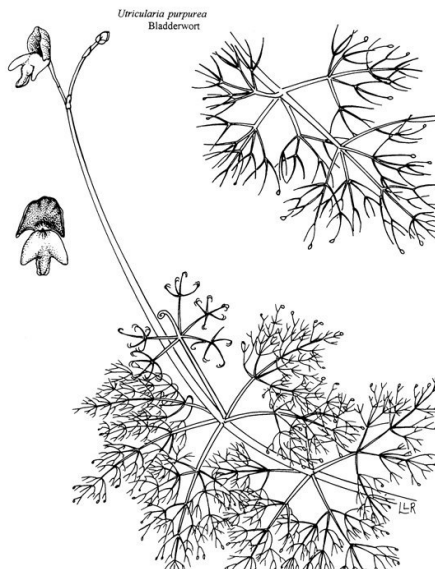
Other Information

- There are many native and valuable Bladderwort species in Massachusetts including Common Bladderwort (*U. vulgaris*), Purple Bladderwort (*U. purpurea*), Little Floating Bladderwort (*U. radiata*) and Flatleaf Bladderwort (*U. intermedia*).
- 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)
- Swollen Bladderwort may be confused with other native Bladderworts, especially Little Floating Bladderwort.
 - Little Floating Bladderwort also produces yellow flowers and a floating pontoon, but the pontoon is smaller and the overall plant is less robust and bushy.
 - Purple Bladderwort lacks floating pontoon structures and has purple flowers. The bladders are located in clusters only at the very tips of the branches.
 - Common Bladderwort is large and bushy, lacks floating pontoon structures and has cream-white flowers.

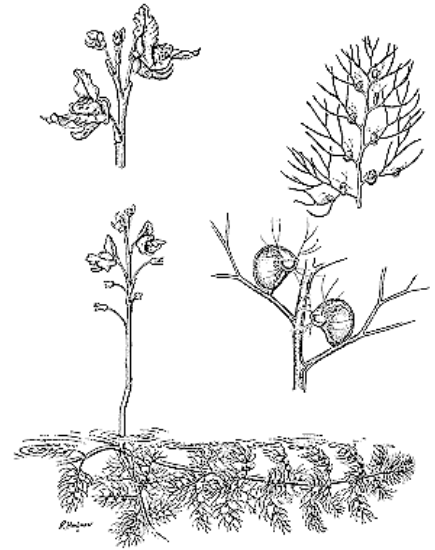
Other Native Bladderworts



Little Floating Bladderwort: bladders are dispersed through plant and pontoon is present when flowering.



Purple Bladderwort: leaves are in clusters with bladders at tips. Flowers are purple.



Common Bladderwort: no pontoon present and bladders not at tip of leaves.

References:

- 1) Center for Aquatic and Invasive Species : <http://plants.ifas.ufl.edu/cacapic.html>
USGS website: http://nas.er.usgs.gov/plants/docs/utric_in.html
- 2) Photographs were obtained from:
Cover photo: Dan Skean at Payne's Prairie State Preserve
Swollen Bladderwort line drawing: Aquatic Plant Identification and Herbicide Use Guide, Technical Report A-88-9. U.S. Army Corps of Engineers Waterways Experiment Station.
Native Bladderwort Line Drawings: Center for Aquatic and Invasive Species
Common Bladderwort line drawing: Washington State Department of Ecology
<http://www.ecy.wa.gov/programs/wq/plants/plantid2/index.html>
- 3) The distribution map was taken from:
USGS website: http://nas.er.usgs.gov/plants/docs/utric_in.html

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