

Potential Invader

Eastern Indian Hygrophila: An Exotic Aquatic Plant

Hygrophila polysperma



East Indian hygrophila
Hygrophila polysperma
Photo by Ann Murray
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Description

- *Hygrophila polysperma*, often called Miramar Weed or Indian Swamp Weed, is a very aggressive non-native invasive aquatic plant. This species was imported by the aquarium trade from India and Malaysia in 1945 (Innes 1947) and escaped cultivation in Florida in 1965 (Vandiver 1980).
- The elliptical leaves are approximately 1/2" long and 1/2" wide and taper to a sharp point.
- Leaves are covered in fine white hairs and grow opposite on the stem. Submerged leaves are longer with small leaf stalks; emerged leaves are sessile (no leaf stalk) and slightly rounder.
- The emergent stems are square; submerged stems are round and can grow over 6 feet long.
- Each fall, blueish-whitish flowers form at the axils (place where leaves attach to the stem).

Eastern Indian Hygrophila



Illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1998

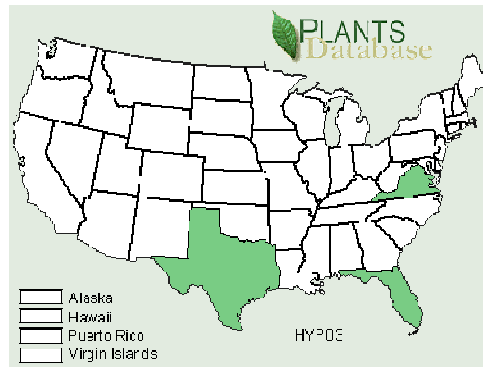
Habitat

H. polysperma is a very hardy and persistent species that has established itself in a wide range of aquatic habitats.

- Tolerates a variety of habitats including moving water, low light conditions, and a wide pH range.
- This species is not yet found in Massachusetts but has been documented as far north as Virginia. (Reams 1953).

Distribution Map

Hygrophila polysperma



Reproduction

The main method of reproduction for *H. polysperma* is vegetative.

- *H. polysperma* fragments very easily, and fragments can hitch rides on boats, gear or wildlife or drift to new locations. Where double nodes have formed, roots or stems can develop.
- Each fall, small blue/white flowers with two lips develop at the axils.
- Small fruit pods, 7-6 mm long and containing 20-30 seeds are produced by *H. polysperma*, but the importance of seeds in the plants reproduction is not certain.

Impacts and Threats Posed by Eastern Indian Hygrophila

H. polysperma is a highly competitive plant that is capable of rapid growth and spread. *H. polysperma* can displace native species, reduce biodiversity, limit recreation, diminish aesthetic value, and decrease water quality and flow.

- Once established, *H. polysperma* can form thick unsightly mats on the water's surface that may restrict light to the complete exclusion of other native plants.
- The mats formed can hamper fishing, boating, swimming and other activities and the loss of recreational and aesthetic value can cause a decline in surrounding lake property value.
- *H. polysperma* may form dense single species stands that often do not provide ideal habitat or food for native wildlife. These native wildlife populations may be forced to relocate or perish, ultimately resulting in a loss of biodiversity and a disruption in the balance of the ecosystem.
- In Florida, *H. polysperma* is being described as the new *Hydrilla* due to its ability to completely dominate waterways and compete with (and in some cases out-compete) *Hydrilla* for space and nutrients.
- When the large stands of *H. polysperma* die, their decomposition can create anoxic (low oxygen) conditions in the water which may result in fish kills.
- Dense stands of *H. polysperma* trap sediments, slow water flow in irrigation channels and waterways. Dense surface mats may provide a breeding ground for mosquitoes.
- Sediment levels increase with increasing *H. polysperma* abundance.

Management Methods

Management methods currently include mechanical methods and herbicides.

- Although harvesting can greatly reduce the *H. polysperma* biomass in a water body, harvesting causes fragmentation. *H. polysperma* spreads primarily by fragmentation, and fragments created by mechanical harvesting may drift downstream or attach to boats and wildlife and create new infestations elsewhere.
- *H. polysperma* is more difficult to control with herbicides than other species, such as *Hydrilla*, and herbicides need to be applied at a greater rate (Vandiver 1990). Herbicides require permits, must be applied by a licensed applicator and may impact non-target native plants or animals.
- No studies on the use of benthic barriers or drawdowns were located.

Other Information

- *H. polysperma* is on the Massachusetts Prohibited Plant List (as of January 1, 2006)
- Informational websites:
 - <http://aquat1.ifas.ufl.edu/> (Center for Aquatic and Invasive Plants)
 - <http://nas.er.usgs.gov/queries/plants/PlantState.html> (USGS- search for exotic species by state)
 - www.ProtectYourWaters.net (Aquatic Nuisance Species national web site)
- *H. polysperma* is now on the Federal Noxious Weed List, yet remains is a popular aquarium plant.
- *H. polysperma* spreads very rapidly, and according to one documented case, a small 0.1 acre population expanded to 10 acres in just one year (Vandiver 1980).
- *H. polysperma* may be confused with the native Red Ludwigia (*Ludwigia repens*). Red Ludwigia has yellow flowers with four petals and blunt leaf tips.

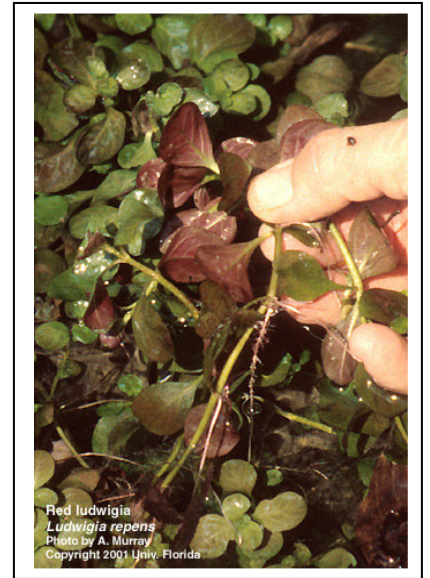
Eastern Indian Hygrophila compared to native Red Ludwigia



Eastern Indian Hygrophila flower is blue/white in color. (Notice the small white hairs on the leaves).



Submerged leaves of Eastern Indian Hygrophila have pointed tips.



Leaves of Red Ludwigia have blunt tips and contain more purple pigment.

Prevent The Spread!

- **Never release any plant or animal into a waterbody unless it came from that waterbody.**
- **Never empty aquariums into a local water body.**
- **Remove ALL plant matter and mussels from boat, trailer, anchors, fishing and dive gear.**
- **Flush engines, dispose of bait, bilge water, bait bucket water on dry land away from shore.**
- **Report any suspected sightings of this plant to michelle.robinson@state.ma.us**

References:

1) Literature References:

Paper by Victor Ramey FCAIS & SeaGrant <http://aquat1.ifas.ufl.edu/seagrant/hygp0l2.html>

Florida Center for Aquatic and Invasive Species <http://plants.ifas.ufl.edu/hypopic.html>

USGS Non-indigenous Aquatic Species http://nas.er.usgs.gov/plants/docs/hy_polys.html

Langeland & Burks "Identification & Biology of Non-Native Plants in Florida's Natural Areas".

A pdf of this is file located at <http://plants.ifas.ufl.edu/hygp0l.pdf>

2) Photographs were obtained from:

<http://plants.ifas.ufl.edu/egdepic.html> (Center for Aquatic Invasive and Non-native Plants)

3) The distribution map was taken from:

http://plants.usda.gov/cgi_bin/topics.cgi (USDA Plant Atlas)

For more information please contact:

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Or visit the Lakes and Ponds web site at: <http://www.mass.gov/lakesandponds>

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