

# Miramar in the Mad

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*Hygrophila polysperma* in Ohio's waterways

- I. V. Copen

# Taxonomy

## Miramar-weed

*Hygrophila polysperma* (Roxb.) T. Anders

Family: Acanthaceae

Synonyms: *Justicia polysperma*,  
*Hemidelphis polysperma*



Notably, there is a single species recognized as native to Eastern North America known currently as *Hygrophila lacustris* (Schlechtendal & Chamisso) Nees., Gulf Sumpweed. It is very morphologically divergent and can't be confused for the entity found in the Mad River.

# Morphology

**Leaves:** Simple, entire to very shallowly dentate-crenate, linear to elliptical, occasionally undulate, strong pinnate venation, strong midrib, and are green to red.

**Stems:** opposite branching, rhizomatous, flexuous, and are green to red.

**Blooms:** corolla white to pink, five petals, the top two are fused as are the bottom three, the five bracts are hirsute, in opposite pairs, axillary and/or terminally.

**Fruit:** ovaries pubescent and four locular, stigma long and persistent.



# Look-alikes

Vegetatively similar to:

- *Ludwigia palustris* has shorter, rounder leaves.
- *Veronica catenata* / *V. americana*
- *Didiplis diandra*

Similar gestalt to most small, pink mint spp. When blooming.



# Veronica Comparison

*Hygrophila polysperma*



*Veronica catenata* (and *V. anagallis-aquatica*) have more succulent stems and clasping leaves.

*Veronica americana* (and *V. beccabunga*) will also have shorter, rounder leaves.



# Didiplis Comparison

*Hygrophila polysperma*



*Didiplis diandra* has narrower leaves, strong midvein, obscured lateral veins, and never any shallow teeth. There are often inconspicuous cleistogamous fruit in leaf axils, which are orbicular with 4 spreading triangular bracts.



# Distribution

Miramar-weed is named for the Miramar region of Panjim, India. It is native to Southern Asia from Afghanistan east to Taiwan and south to Malaysia.

It's introduced in Australia, Austria, Germany, Hungary, Japan, and Poland, as well as Mexico and a number of states in the Southeast US.

*Hygrophila* survives in Northern Europe by occupying rivers and streams fed by thermal springs.



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# Origin



Kew - Wadumune, Sri Lanka

The species was first noted in the aquarium trade in 1945 and first collected in North America from Pasco County, Florida in February 1965. Australia in 2005, Europe in 2007, and Japan in 2010.

Popular in the aquarium trade for how easy it is to propagate, asexual reproduction can occur in most severed material. Meaning a single leaf can fall off and start a new colony.

It's introduction is almost undoubtedly from an aquarium dump.

# Habitat

Low gradient, clear, springfed bodies where the water never drops below freezing. It favors warmer waters of 64-86°F but can tolerate water temperatures as low as 39°F.

This species tolerates shade but needs a relatively soft substrate. Preferably, sand, marl, and/or organics.

It is seemingly well established in the Mad River where it has been collected by **Noah Ganson** while conducting surveys for Trout Unlimited. So far, only in areas that stay approximately 52-54°F year round.

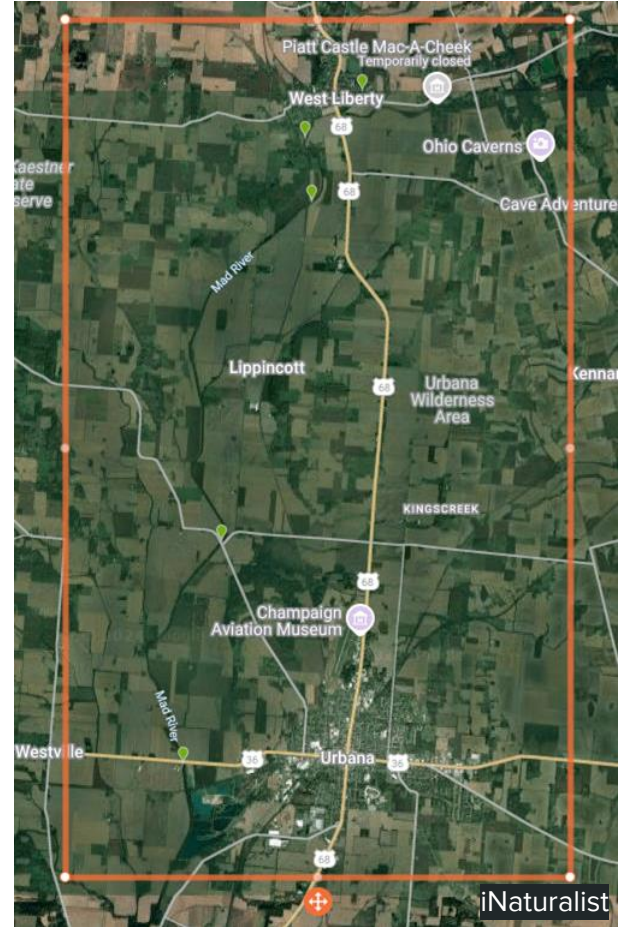


# Dispersal

So far it's known to be common in 11 river miles from West Liberty south to Urbana.

I suspect it has gone unnoticed long enough to become so well established due to a steady flow and water levels prohibiting the plants from emerging and blooming. If they were regularly blooming, they would be rather easy to identify.

While this has allowed it to spread through the Mad River vegetatively, the lack of fruit may be keeping the *Hygrophila* from spreading upstream into adjacent watersheds.

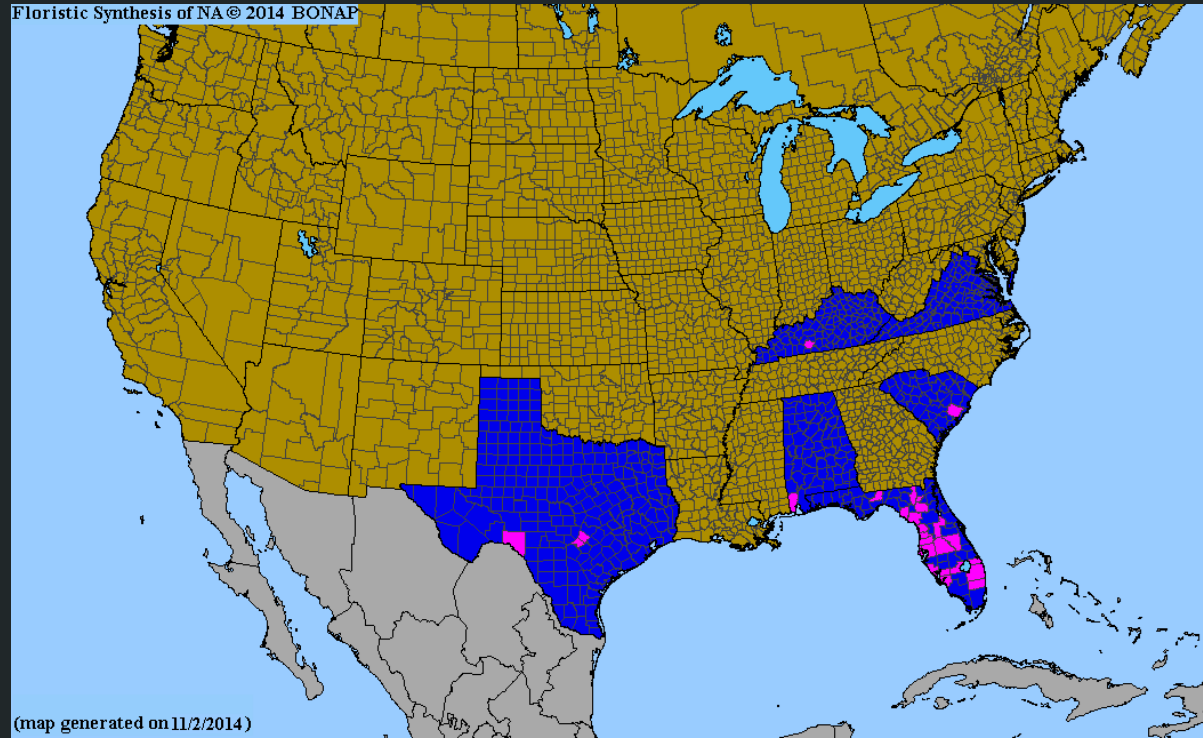


# Invasive Status

This species is listed on the Federal Noxious Weed List.

*Hygrophila polysperma* has replaced *Hydrilla verticillata* as the major aquatic weed in some parts of Florida.

KY-EPPC (Kentucky Exotic Pest Plant Council) as of 2015 did not list it as a threat.



# Control

Management is extremely difficult and costly.

- **Biological:** Extremely high rates of sterile grass carp (in canal systems)
  - **This will put other rare species at risk**
- **Chemical:** Flumioxazin most effective, frequent applications of various formulations / rates of copper, diquat, endothall, fluridone and 2,4-D provide marginal control
  - **Waterways are always flowing due to strong tie to groundwater**
- **Mechanical:** Harvest floating mats
  - **Fragments may start new infestations downstream**
- **Physical:** Hand pulling
  - **Expensive and time consuming**

## Final Note

The best thing we have going for us so far is that the places it can survive in here (for now) are both **shallow** and stay too **cold** in the summer for the plant to thrive. That means we might still be able to get a head of it due do its slowed growth.

## Questions?



# References:

- [1] <https://plants.ifas.ufl.edu/why-manage-plants/floridas-most-invasive-plants/hygrophila/>.
- [2] <https://plant-directory.ifas.ufl.edu/plant-directory/hygrophila-polysperma/>
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