

**Yellow Floating Heart
Eradication From Two Storm
Water Ponds Near
Delavan Lake**

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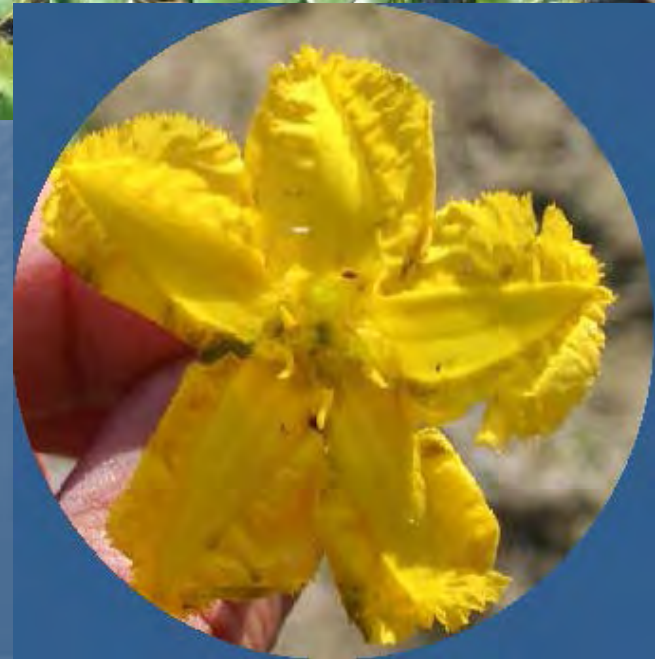
Yellow Floating Heart

Nymphoides peltata



IDENTIFICATION

- Heart – shaped shiny leaves
- Leaves alternate on stem
- Leaves opposite on flower stalks
- Leaf margins often rippled, may be purplish underneath
- 2-5 yellow flowers per stalk
- Flowers have 5 petals, fringed margin, 3-5 cm in diameter



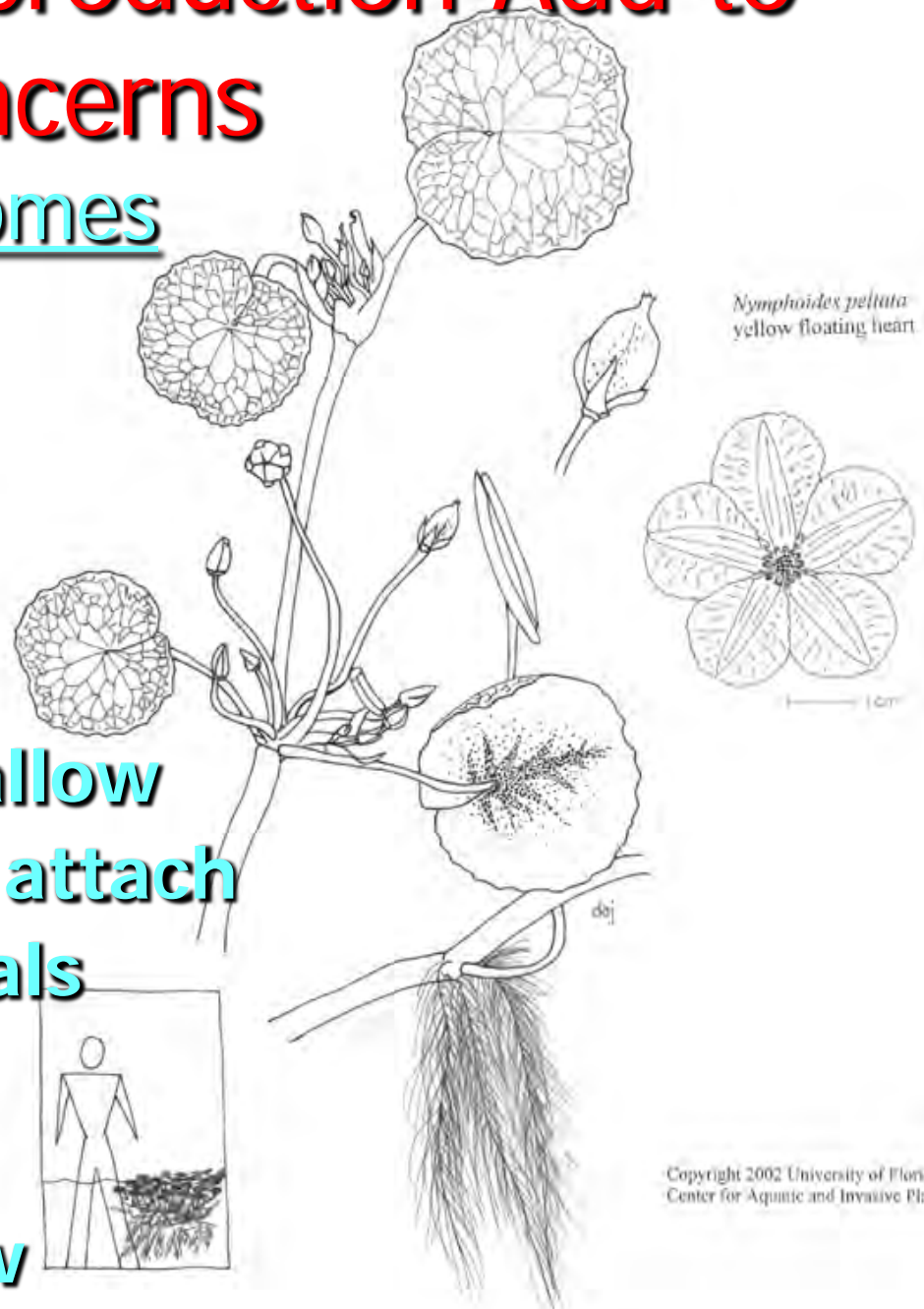
Yellow Floating Heart



- Aggressive non-native aquatic plant
- Prohibited in Wisconsin as of Sept. 1, 2009
- Prefers shallow, slow moving systems
- Produces monotypic patches across water surface
 - shades out native aquatic plants
 - creates stagnate water areas
 - Often found in low O₂ conditions
 - Reduces recreational opportunities (boating, swimming, fishing)

Methods of Reproduction Add to Concerns

- Under Ground Rhizomes
 - Must be removed completely or will produce growth
- Seeds
 - Viable 3-5 years
 - Winged margins allow them to float and attach to birds & mammals
- Adventitious Roots
 - Allows leaf/stem fragments to grow





Yellow Floating Heart Location



History of Infestation

■ 2007

- 7/3/07 Positively ID'ed by chemical applicator in North Pond
- Found in two ponds, called North and South ponds, respectively
- Chemically treated in July and August (2 treatments)
- 8/30/07 No YFH noted in either pond

■ 2008 – It's Back!!

- 5/2/08 Yellow Floating Heart growing in North Pond
- Chemically treated four times
- 8/15/08 Chemical Treatment Discontinued

2008 Continued..

- **9/8/08 Both ponds have flowering YFH – DNR manually remove biomass from South Pond**
- **10/7/08 DNR & Walworth County manually remove biomass and some root structure from North Pond**



Costs for Short Term Management

- Chemical treatment from 2007-2009 – Estimated cost of \$2000
- Handpulling: Estimated man hours: 32
- Estimated cost for handpulling: \$750

■ 2009 – It's Back!!

- May 5, 2009 - Yellow Floating Heart found in both ponds
- June 11, 2009 - Meeting held to plan Rapid Response Grant to eradicate Yellow Floating Heart
 - DNR
 - Geneva Landings Personnel & Directors
 - Town of Delavan
 - Delavan Lake Sanitary District
 - Walworth County
 - Chemical Firm

Rapid Response Project Goal

- Completely Eradicate Yellow Floating Heart from Storm Water Ponds
- Make Sure that No Seeds or Plant Parts Are Left Exposed to Possible Spread
- Prevent spread to nearby Delavan Lake

Project Cost-Shared with DNR Rapid Response Grants (2)

75% Cost-Share

Maximum \$20,000 per Grant

Required Partnership with Grant
Eligible Entity (Town of Delavan)

Rapid Response Plan

- Dewater ponds
- Dredge ponds
- Place liner
- Cap spoil pits
- Refill ponds
- Monitor for 3 years



Sept 14, 2009

**Spoil Pits Excavated Near
Ponds**

Dewatering 9/17 & 9/18

Time to
Dewater:
approx. 4
hours/pond





Dredging

- Remove all sediment down to existing clay liner
- shape & prep for liner











Pre/Post Dredge



Pond Liner – Step 1

Under liner to protect the liner from sharp objects on bottom of ponds



Pond Liner: Step 2

Liner is unfolded & laid across entire pond area



Pond Liner: Step 3 Trenching & Burying Liners



Double Silt Fence Between Work Pad & Pond Prevents Stray Seeds from Washing Back into Ponds



Equipment power washed over
spoil pit to reduce chance of
spreading YFH to other
construction sites.





Pond Liner:
Step 4
Soil on liner provides protection from UV rays & ballast to hold liner in place





Final Steps:

Disposing of filter bags into pits

Filling in (capping) spoil pits

Disposal of rocks from stormwater discharge pipes into pits

**Final Steps: Erosion control matting
Final Landscaping Spring 2010
Pictures from June 10th, 2010**



Ponds were monitored every other week in 2010 – A few plants found September 1st, 2010 and removed



Total Cost of Project

- Dredging two ponds and installing two liners: \$39,875
- Grading slopes, reestablish vegetation, remove rocks: \$14,275
- Total Cost: \$54,150
- DNR and Walworth County staff time not included



Questions??