Desiccation resistance of invasive *Myriophyllum spicatum* and *Potamogeton crispus*

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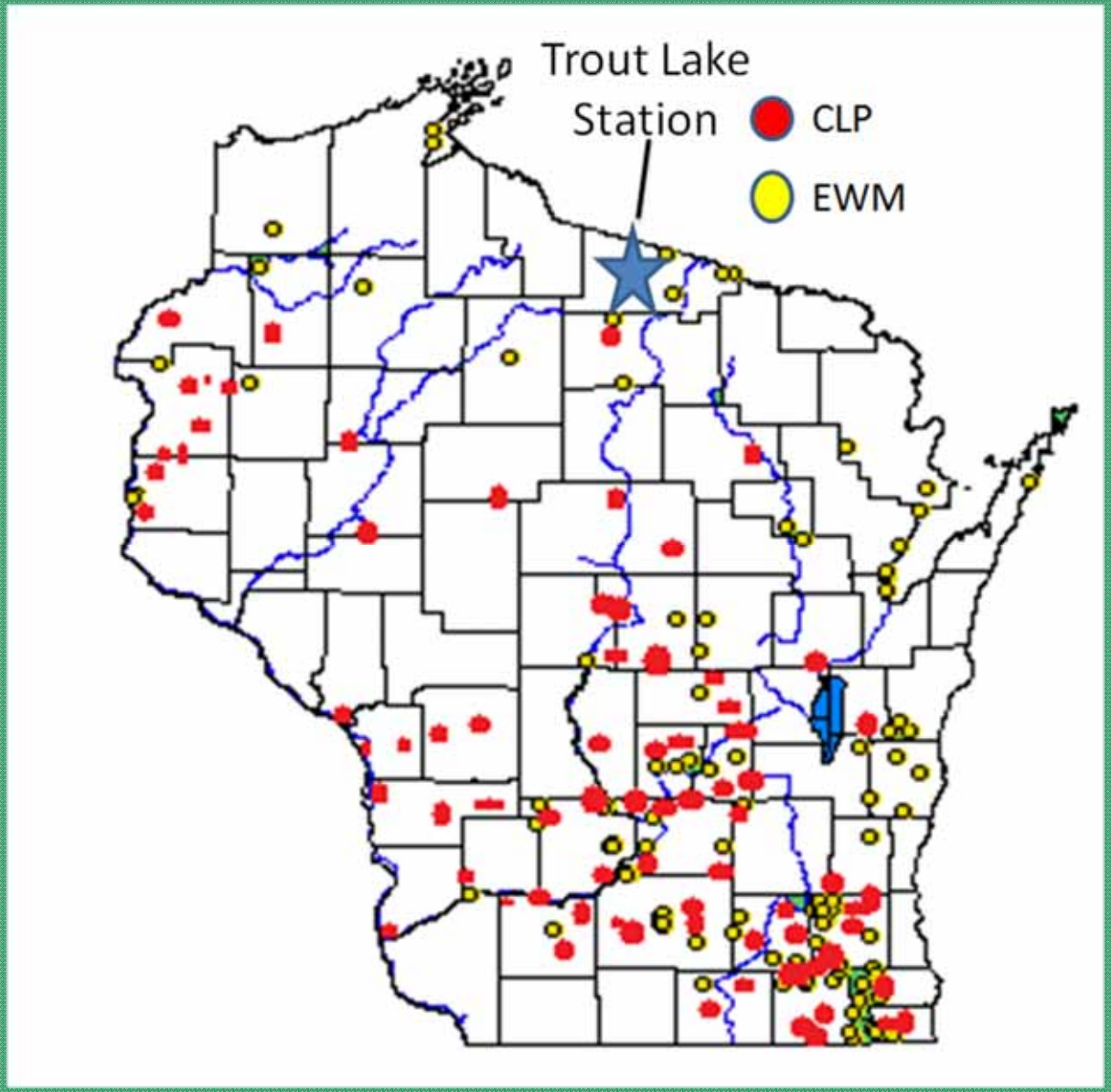
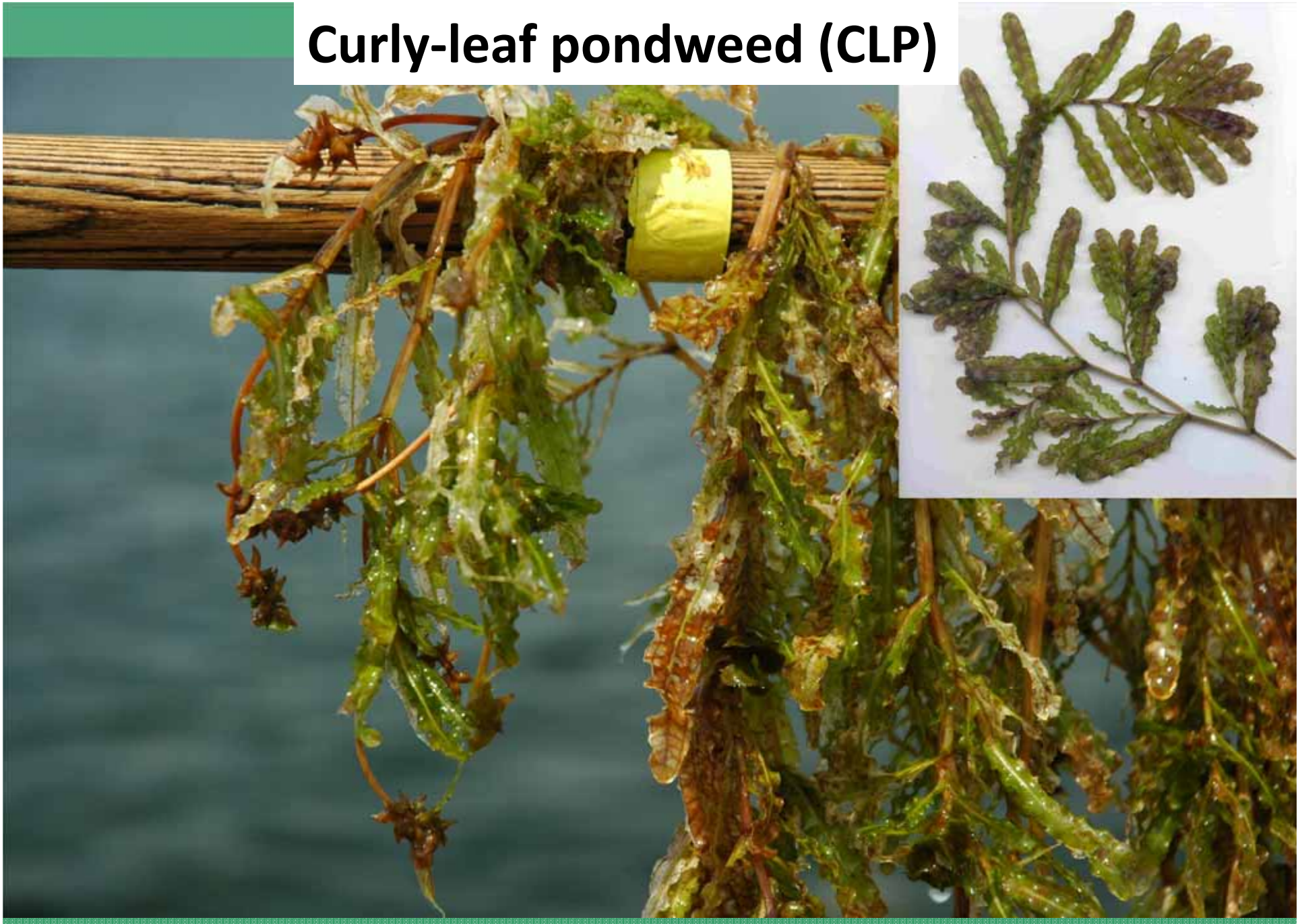


Map and distribution by UW- Madison herbarium

Eurasian water-milfoil (EWM)

Curly-leaf pondweed (CLP)



Transport of Invasive plants

- Plants attach to boats and trailers
- Boats go to new lake
- Plants delivered to new lake
- Will plants survive the trip?

Tolerance of EWM and CLP to transport on boats and trailers

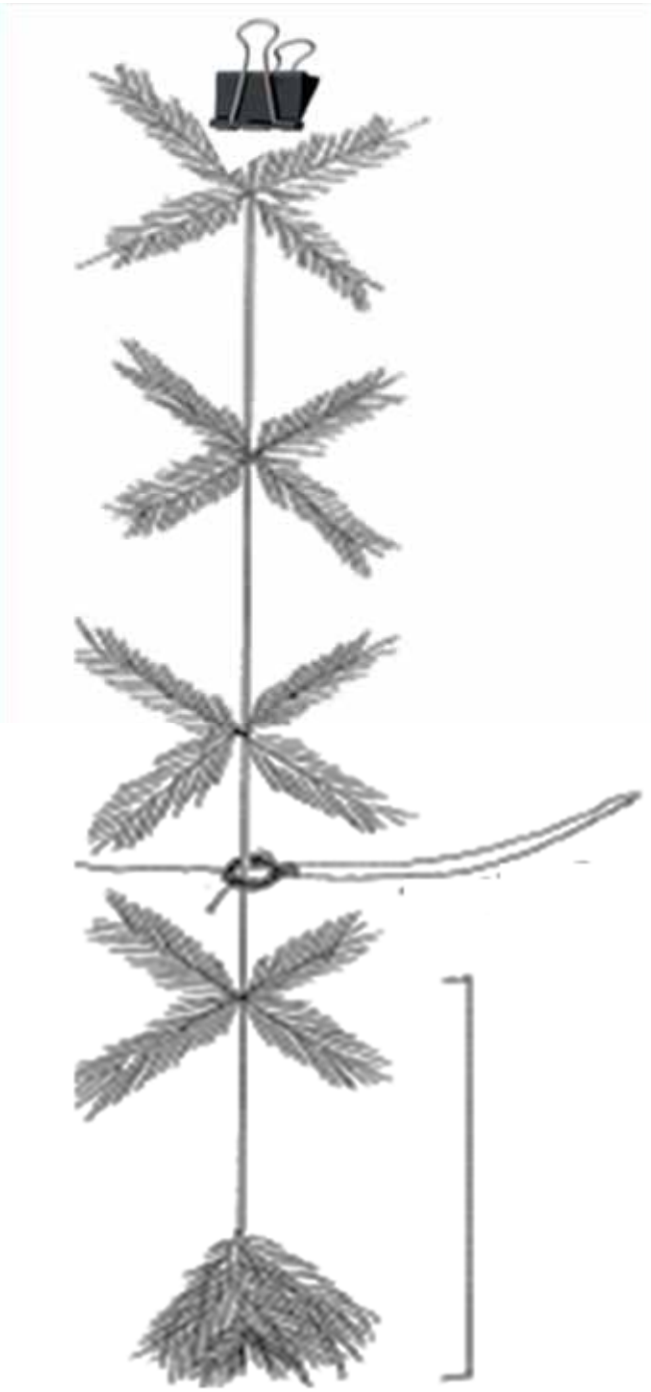
How long can EWM and CLP live once they leave the water?

Experimental Design

- Estimate longevity
- Test multiple end points
- Dry and rehydrate
- Single strands of plant
- More “realistic” scenarios

Assess viability of plants

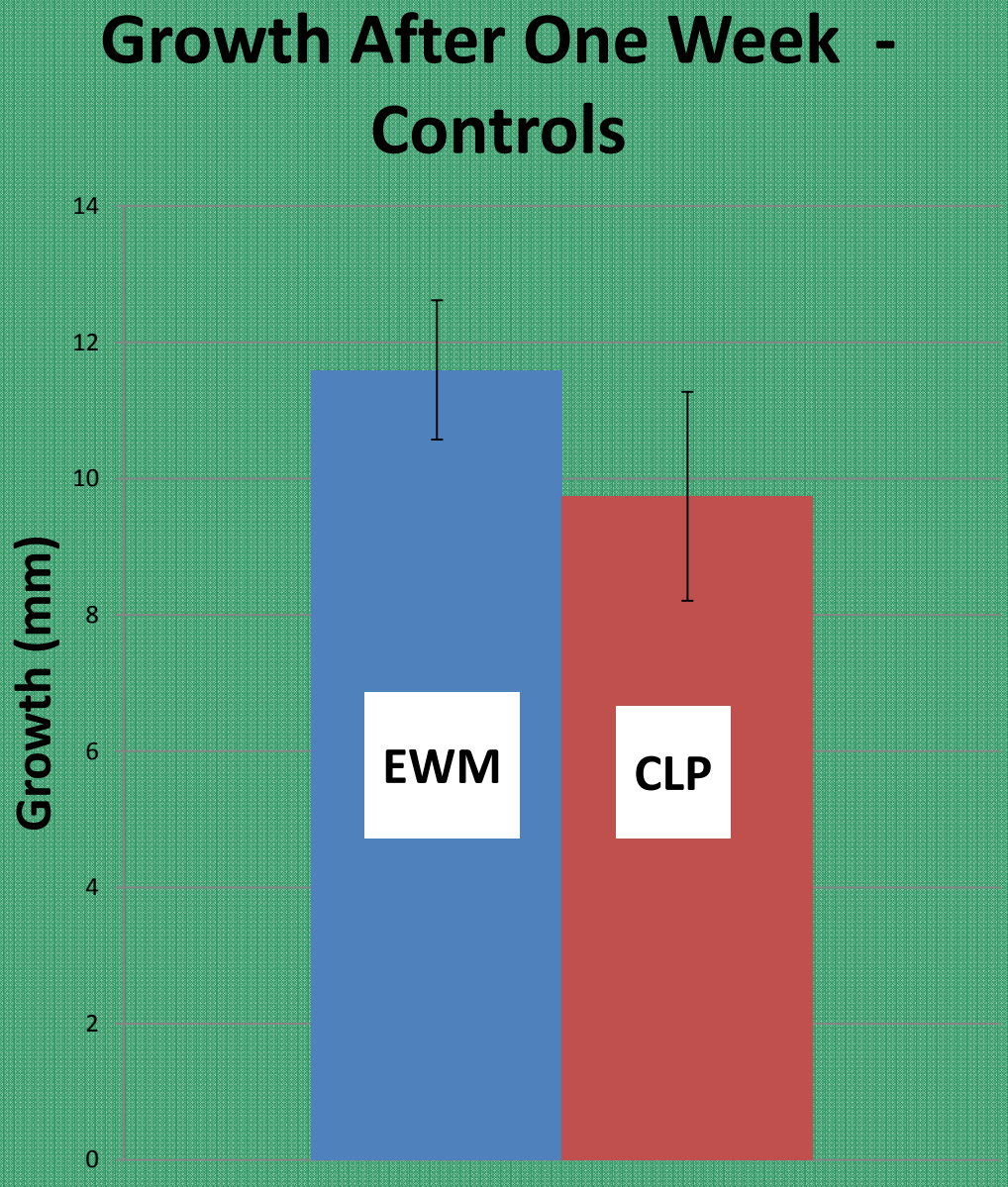
- Methods:
  - Look for growth
  - Measure length before drying
  - Rehydrate
  - Measure after rehydration
- Alternative measures




Helix

Establishing growth potential:

Control plants grow well prior to drying

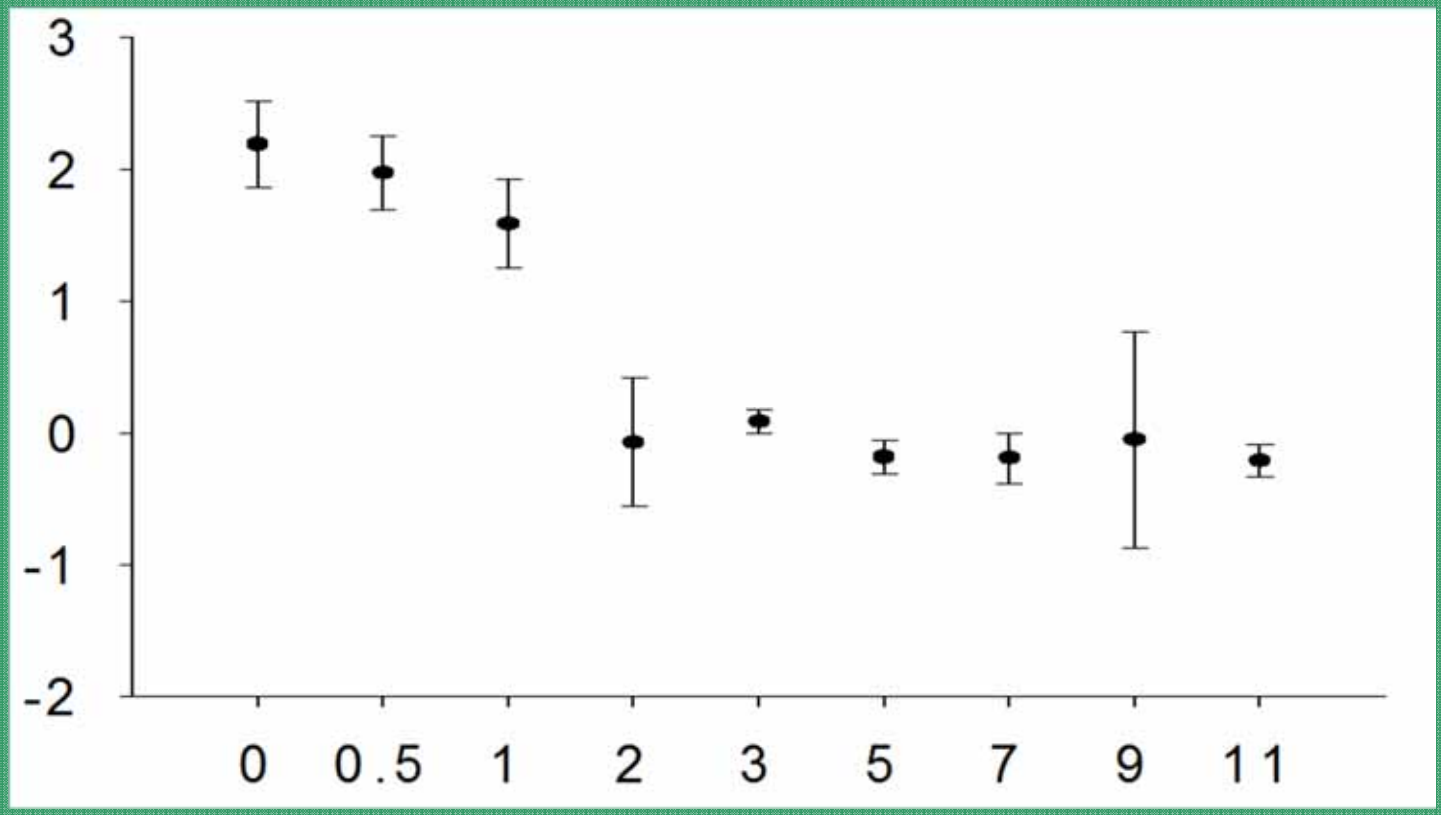


Assessing survival of plants following drying

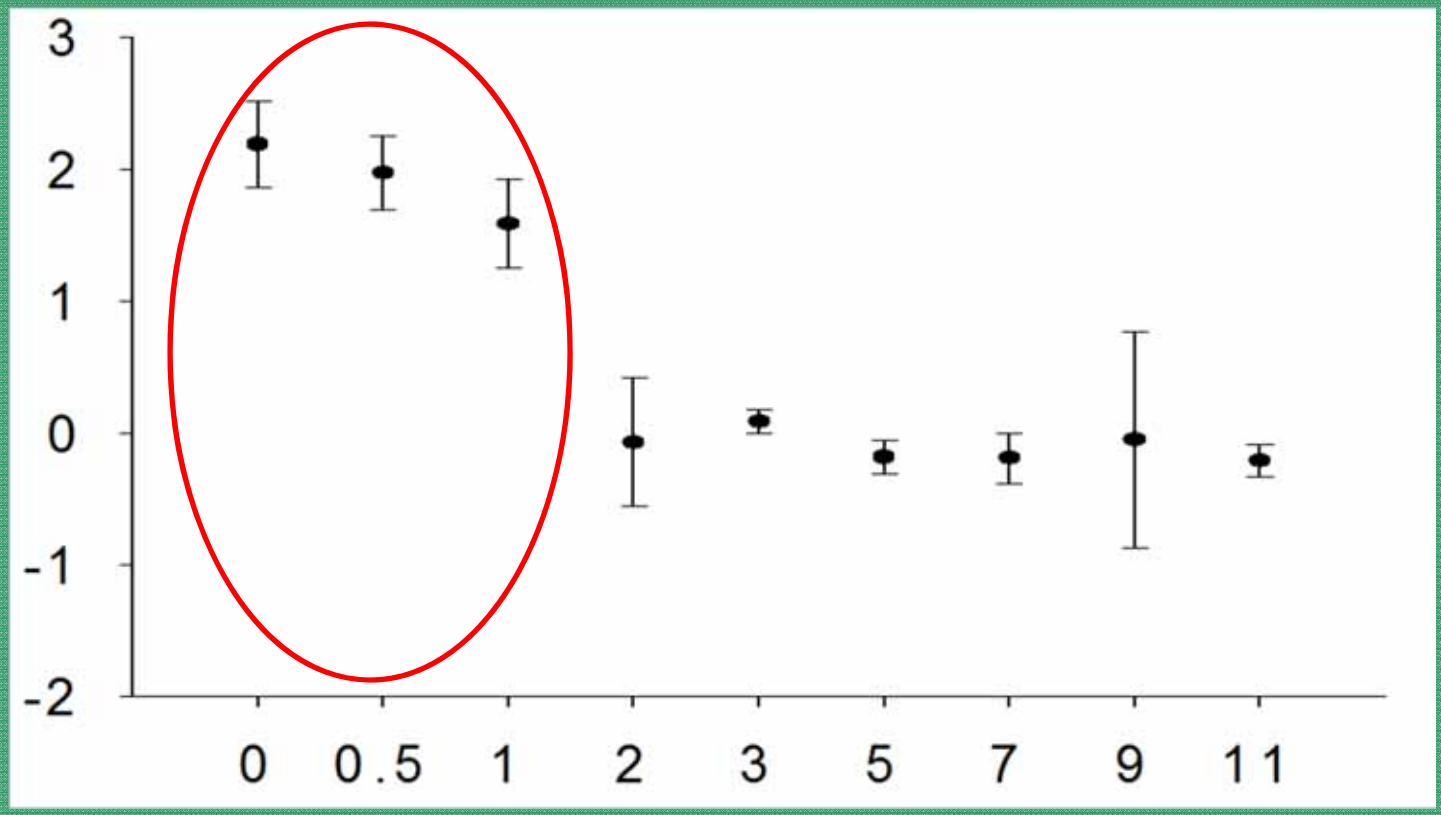
Results

- Control plants grew
- EWM survived 24 hours
- CLP results inconclusive
- Mesocosm conditions too warm

EWM Growth



EWM



Curly-leaf pondweed

- No growth of CLP
- Experiments to be repeated in 2012
- In 2012 consider life history of CLP

Exp.	Start Date	Temperature (°C) Mean (Range)	Relative Humidity (%)	Drying Time (d)
1 EWM	23-Jun	19.1 (7.7-32.7)	75.5 (72.8-78.1)	0, 0.5, 1 , 2, 3, 5, 7, 9, 11
2 EWM	12-Jul	20.2 (11.4-33.5)	83.6 (81.6-85.5)	0, 0.5, 1, 1.5, 2, 2.5 , 3, 4, 6
3 CLP	6-Jul	20.8 (11.4-33.5)	79.9 (77.7-82.1)	0, 0.5, 1, 2, 3, 5, 7, 9, 11
4 CLP	15-Jul	23.5 (11.3-33.5)	83.1 (81.1-85.1)	0, 1, 3, 4, 5, 6

CLP Turion Experiment
Simulating turion removal from water

- 200 turions dried to endpoint days (1-11 days)
- Turions refrigerated or frozen
- Spring 2012: Turions will be placed in sun, growth measured


CLP turion, magnified

2012 Work

- 2011 Pilot Year
- Repeat CLP studies of 2011
- New Studies:
  - Simulate more realistic drying scenarios
  - Better temperature control
    - Screen house
    - Rehydrate in cooler mesocosms

Summary

- EWM survives 1 day
- CLP results unclear
- Spring 2012 turion experiments
- 2012: Test EWM and CLP survival under different conditions