

Identification of Native and Exotic Aquatic Plants of the Upper Midwest

An underwater photograph showing several aquatic plants growing from a sandy bottom. The plants have green, elongated leaves and are arranged in a row. The water is clear and blue-green.

Paul Skawinski

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Susan Knight – UW-Trout Lake Station

Michelle Nault – WI Department of Natural Resources

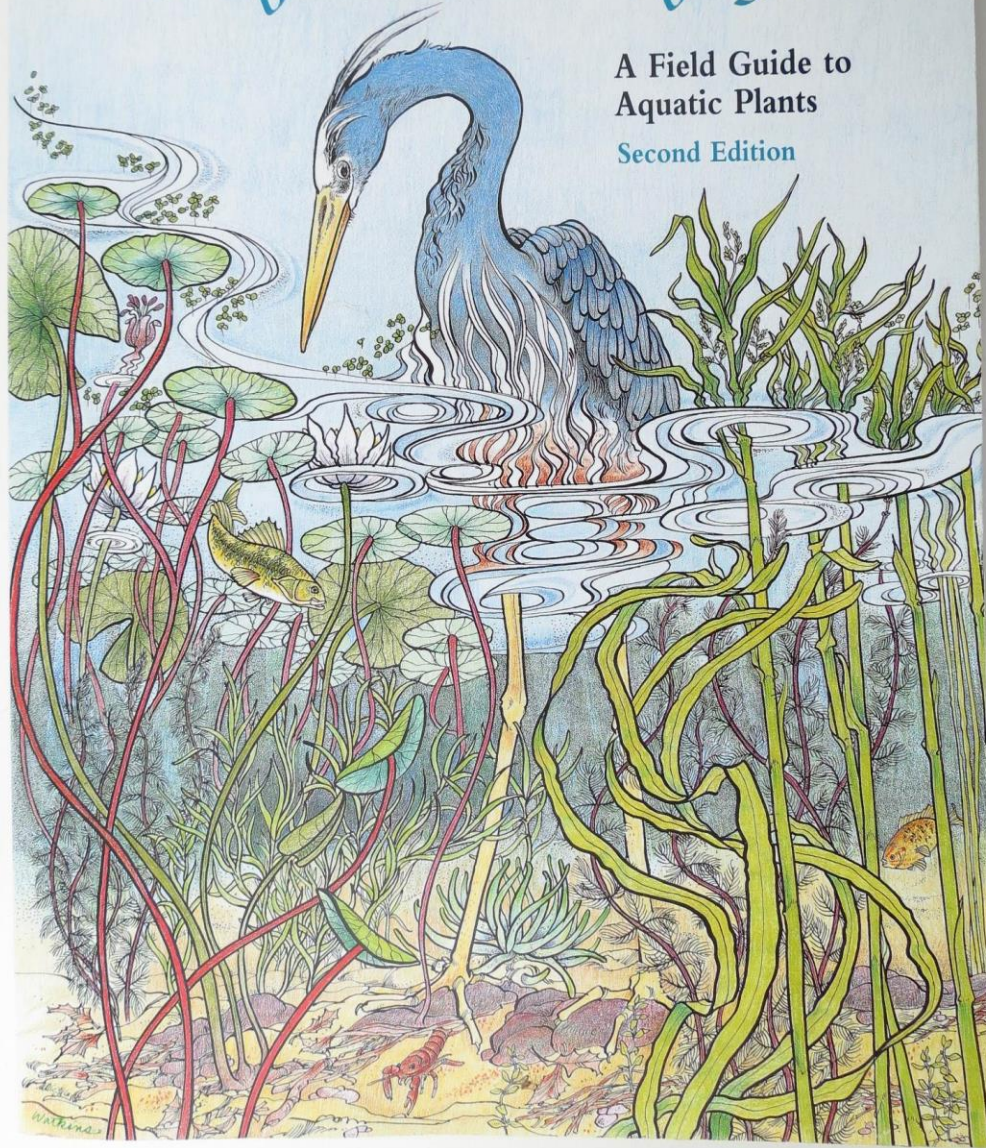
Chris Hamerla – Golden Sands RC&D Council, Inc.

Outline

- Introduction to aquatic plants
- Important definitions
- Highlight three major groups
- Breakouts
 - Watermilfoils/bladderworts
 - Pondweeds
 - Floating and floating-leaved plants
 - Other common species

Through the Looking Glass...

A Field Guide to
Aquatic Plants
Second Edition



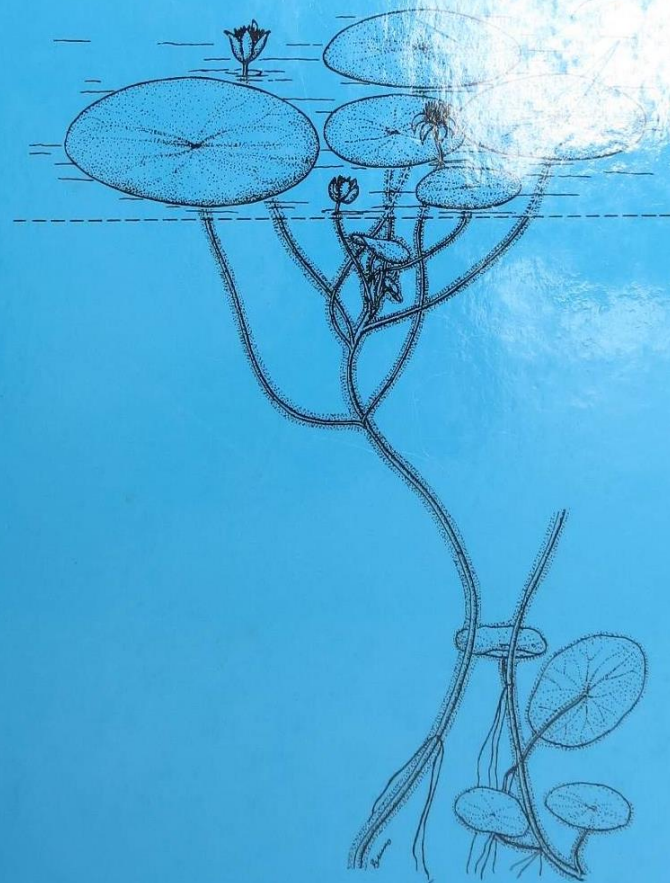
A Revised and Enlarged Edition of Norman C. Fassett's *A Manual of Aquatic Plants*

Aquatic and Wetland Plants

OF NORTHEASTERN NORTH AMERICA

Volume One PTERIDOPHYTES, GYMNOSPERMS,
AND ANGIOSPERMS: DICOTYLEDONS

Garrett E. Crow and C. Barre Helquist

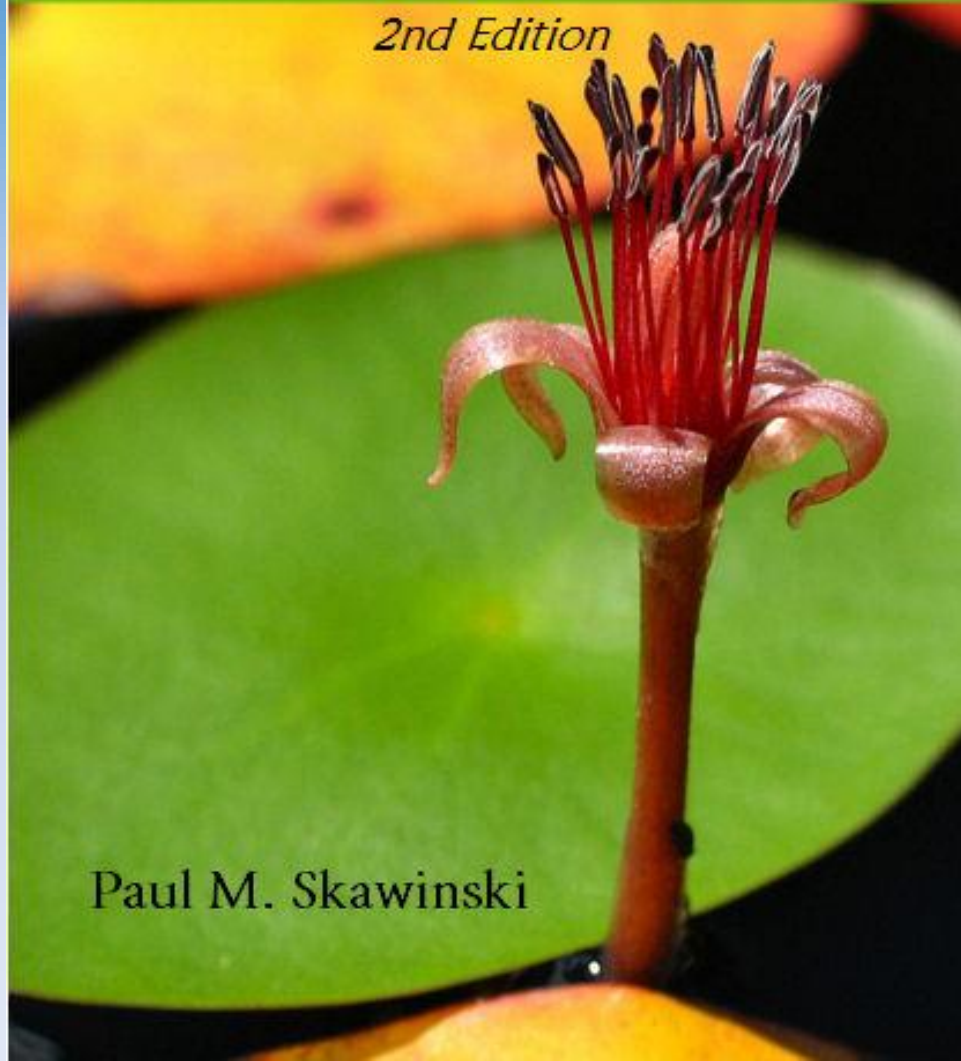


Aquatic Plants of the Upper Midwest

A photographic field guide to our underwater forests

2nd Edition

Paul M. Skawinski

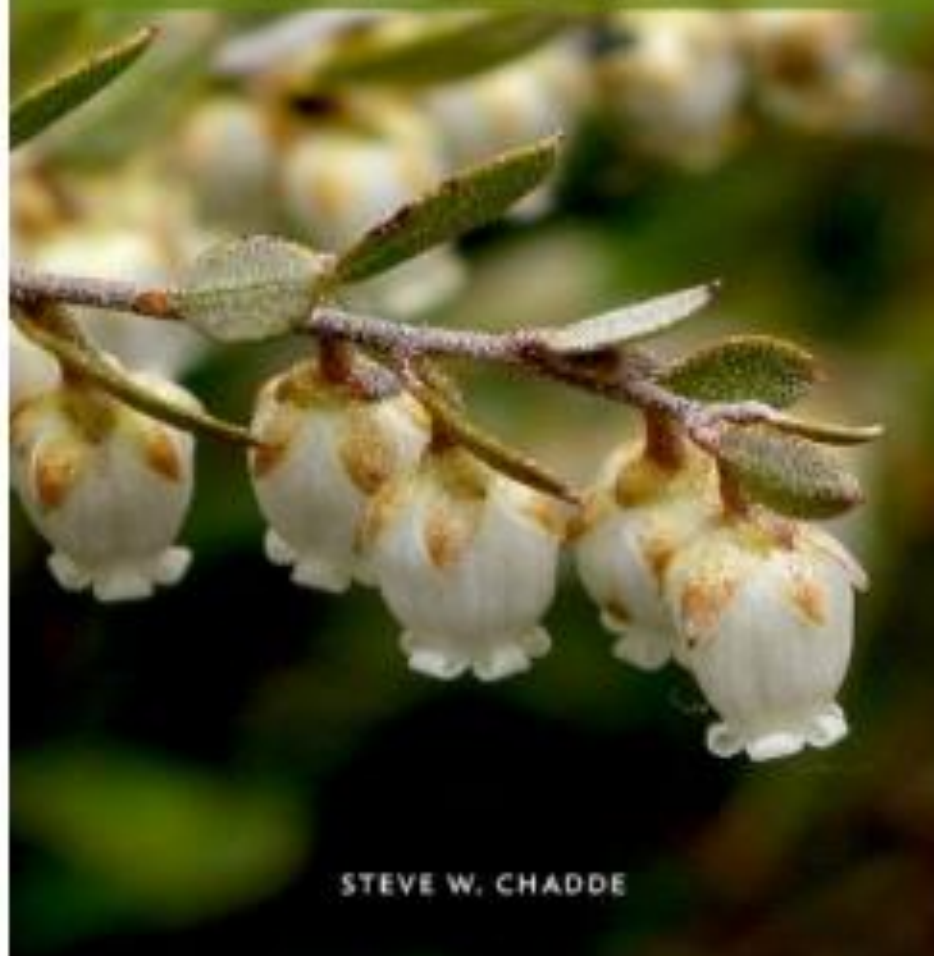


 *A Bogman Guide*

SECOND EDITION

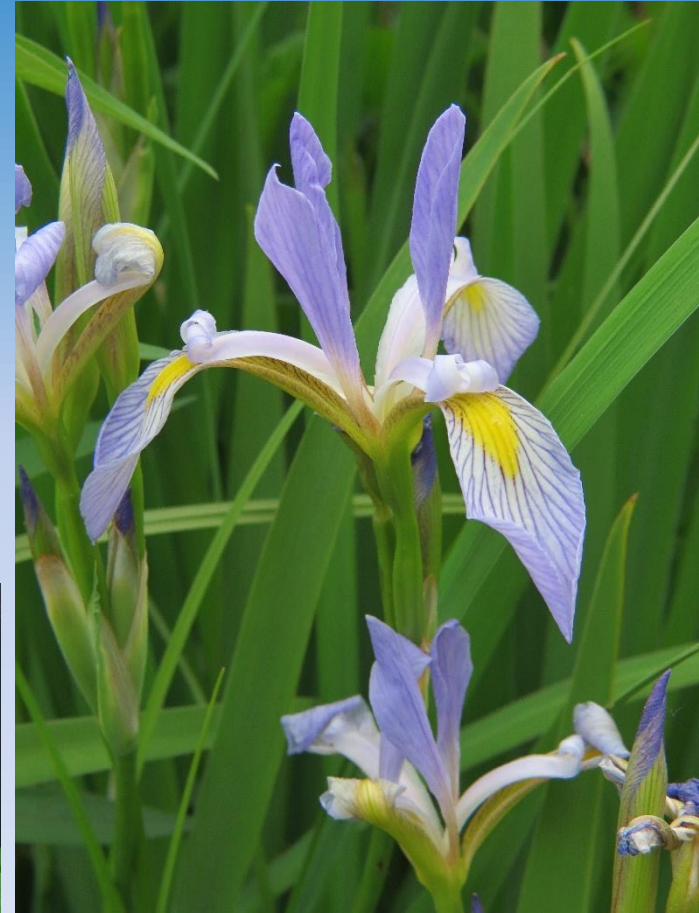
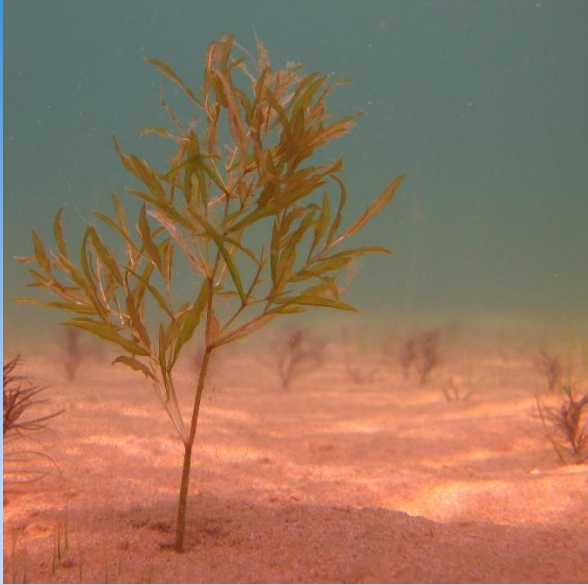
Wetland Plants of WISCONSIN

A complete guide to the wetland and
aquatic plants of the Badger State



STEVE W. CHADDE

What is an aquatic plant?



Terrestrial Beginnings

- First plants were aquatic
- Terrestrials arise, with vascular systems
- Vascular plants return to water

On The Fence...

- Some plants can't make up their mind



On The Fence...

- Some plants can't make up their mind



Persicaria amphibia

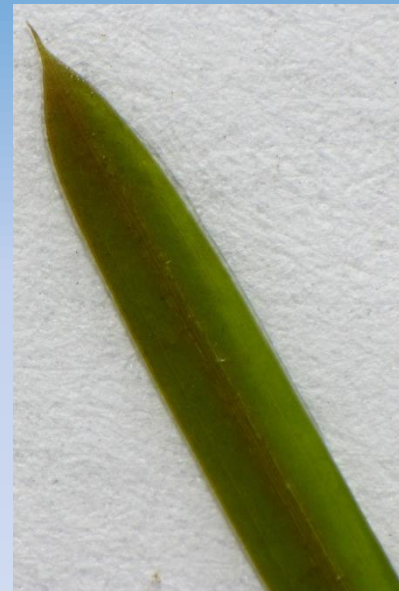


Important for Identification

Midvein



Apex



Terminology Review

Total veins



Terminology Review

Total veins

1
2
3
4
5
6
7
8
+1

8+8+1 = 17 total veins

+8

Important for Identification

Margin



Stipule



Important for Identification

Clasping



Stalked/petiolate



Sessile



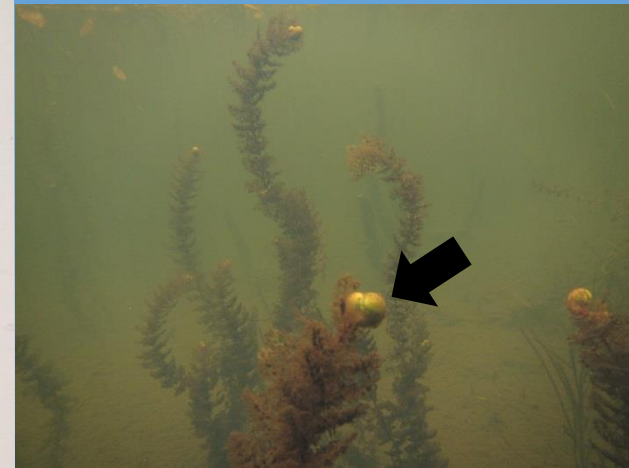
Important for Identification

Nodal glands



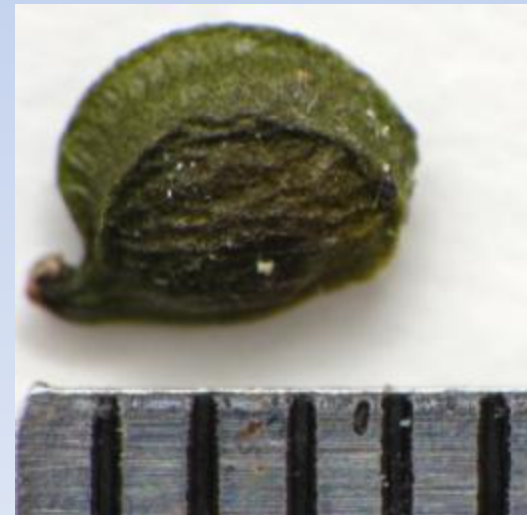
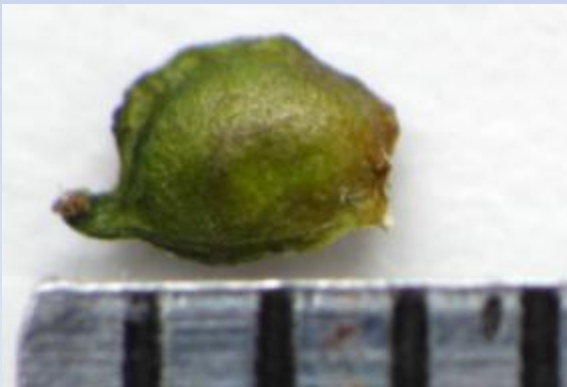
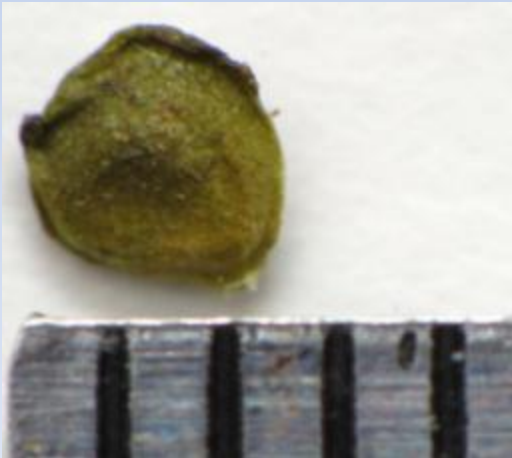
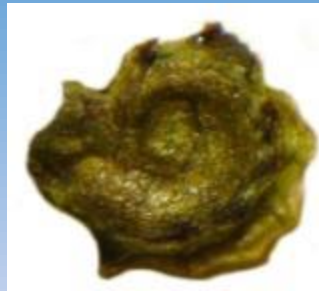
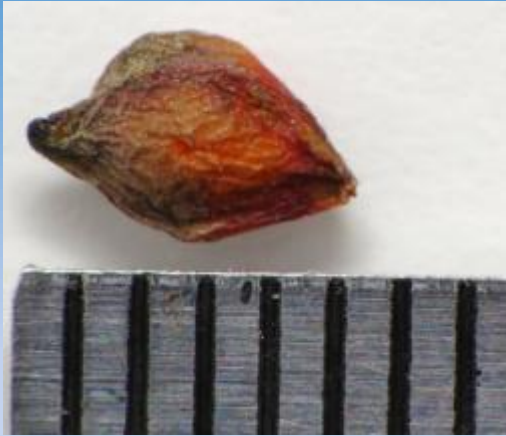
Terminology Review

Turions or winter buds



Important for Identification

Achenes



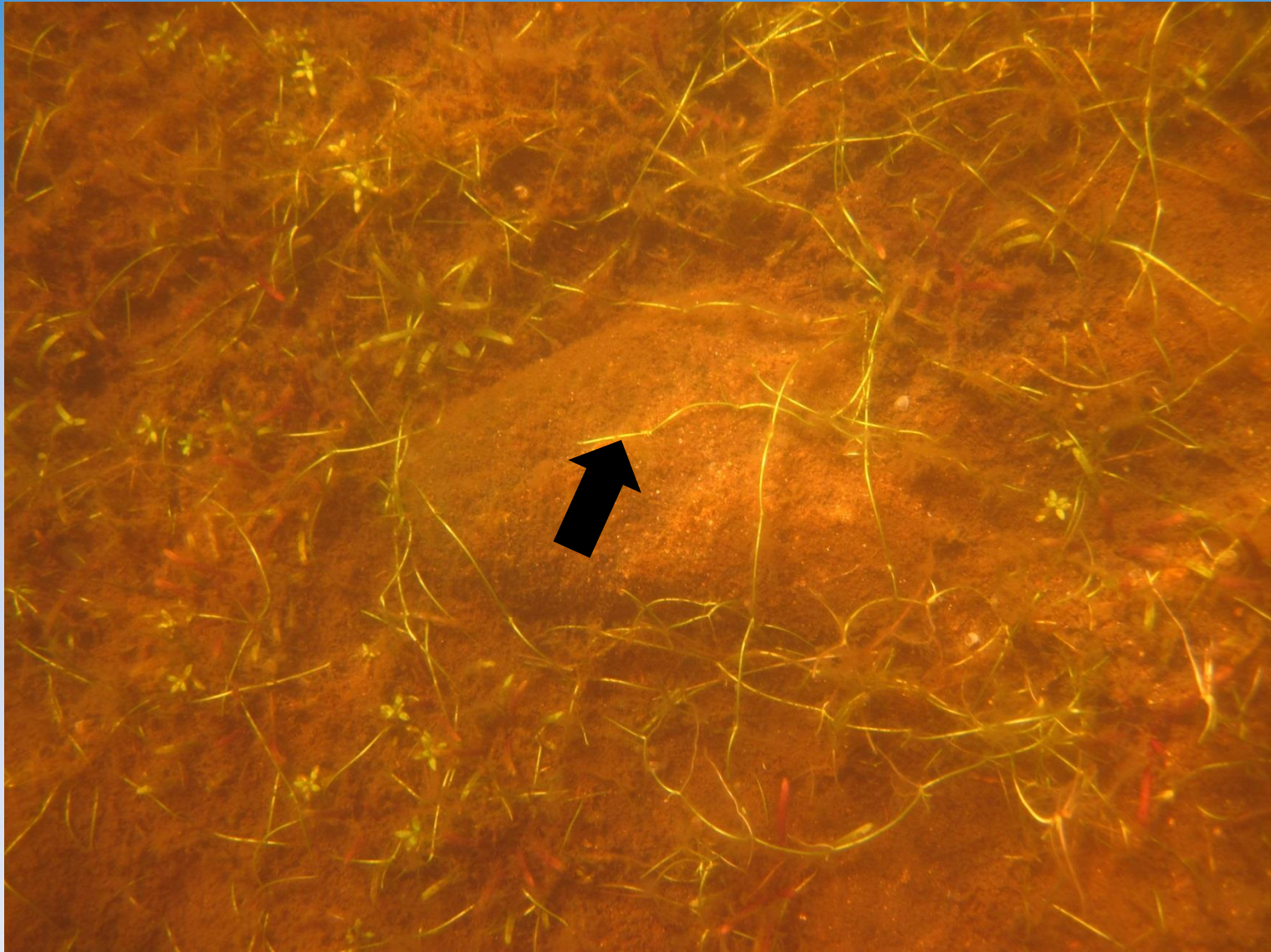
Terminology Review

Rhizome



Terminology Review

Stolon



Collecting an Unknown Specimen



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Aquatic and Wetland Plants

OF NORTHEASTERN NORTH AMERICA

Volume Two

ANGIOSPERMS: MONOCOTYLEDONS

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Components of a Plant Press

Press board
Cardboard

Newspaper

Mounting paper and
plant

Waxed paper

Newspaper

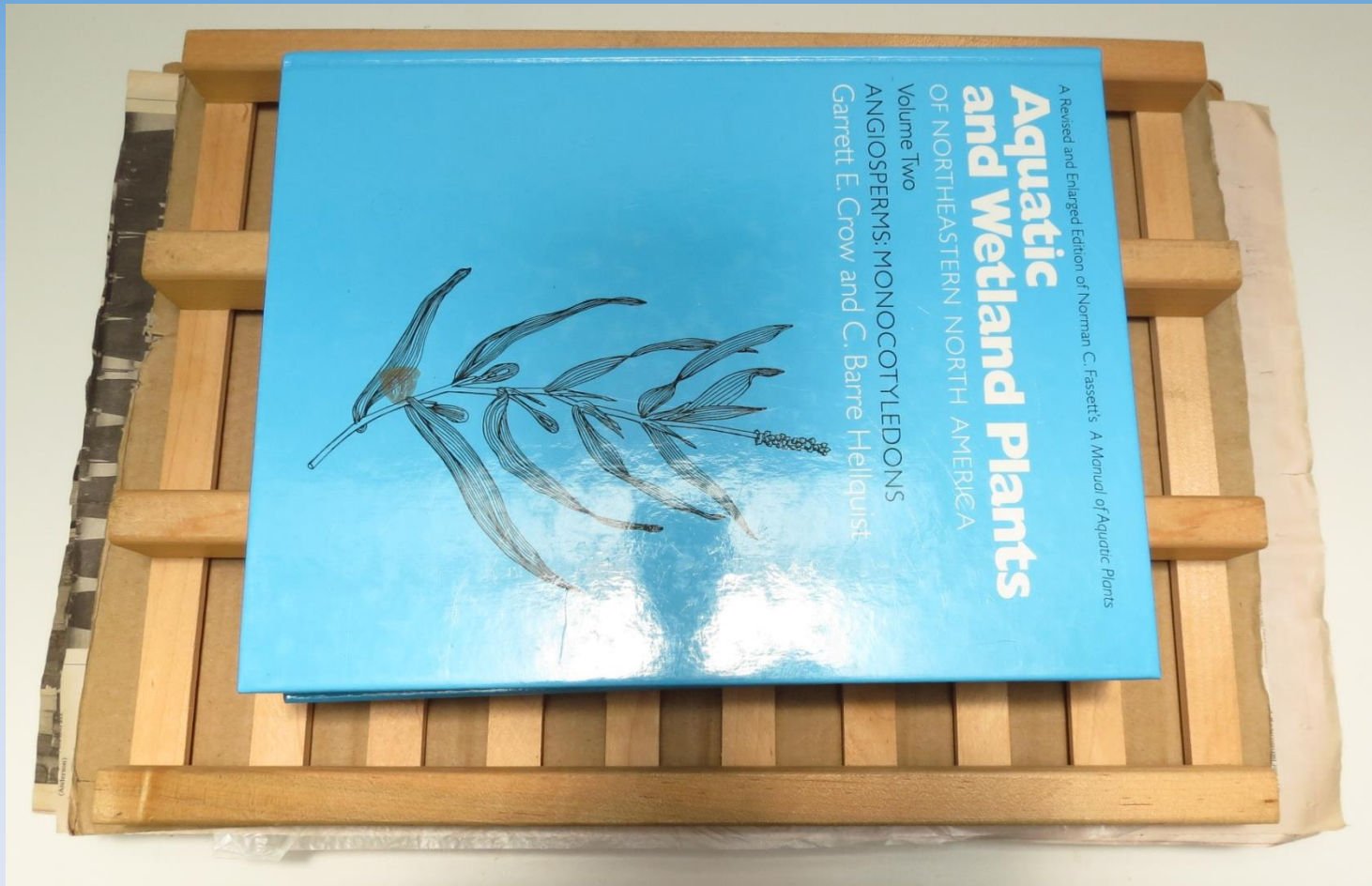
Cardboard

Press board



Components of a Plant Press

Tighten the plant press straps to cinch the parts together, or use a heavy book. Place the press in a location with low humidity and good air flow.



Accurate Labels are Essential!

Finished plant specimen with label. Ready to be submitted to an herbarium collection.



Bladderworts (*Utricularia* spp.)

8 species in Upper Midwest

Carnivorous

Mostly in shallow, acid environments

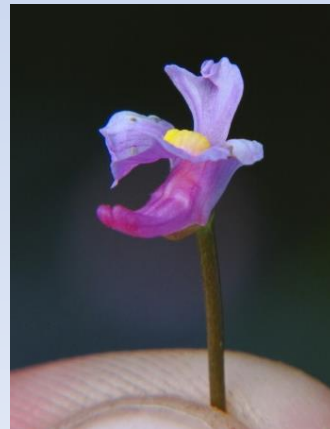
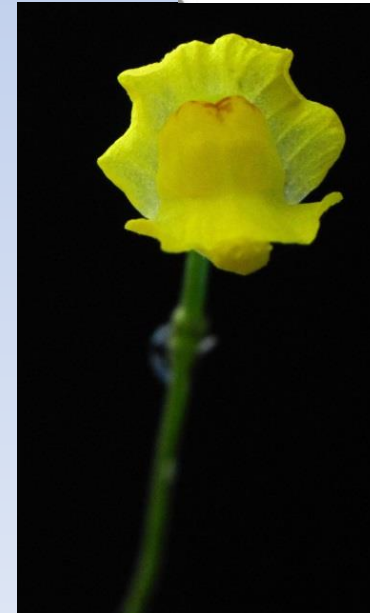


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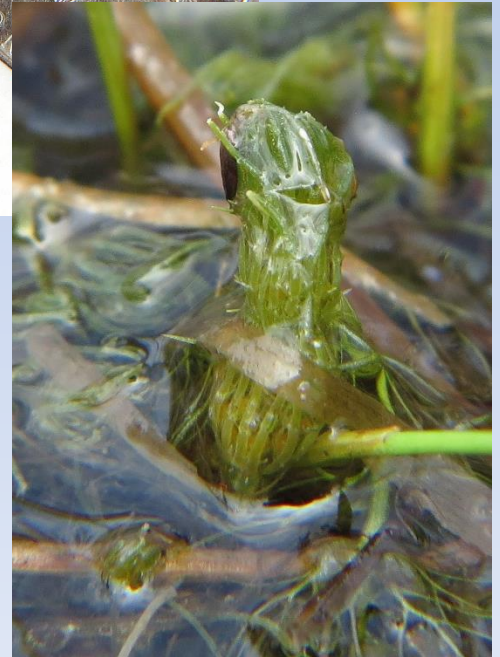


Characeae family (macro-algae)

Chara spp.
(Muskgrasses)



Chara spp. (Muskgrasses)

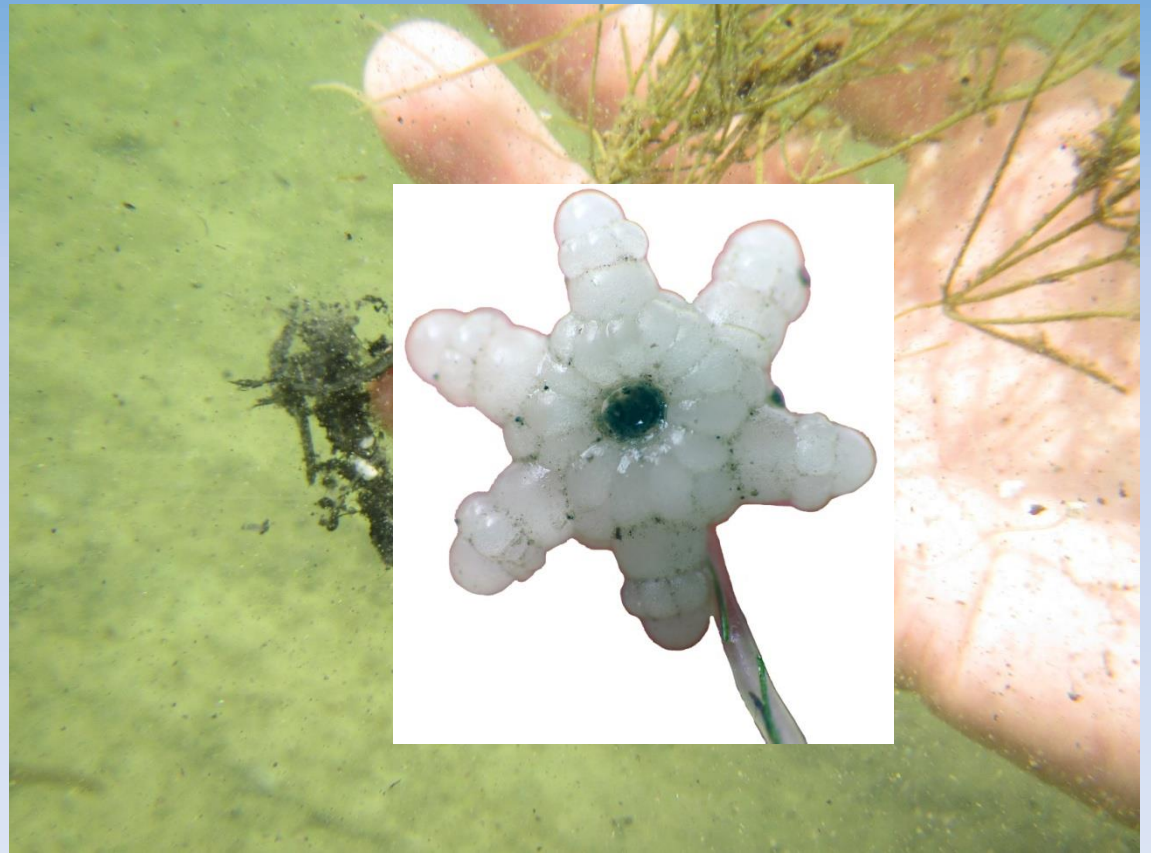


Nitella spp. Stoneworts



Starry Stonewort

Nitellopsis obtusa



Other Characeae

Tolypella



Lychnothamnus



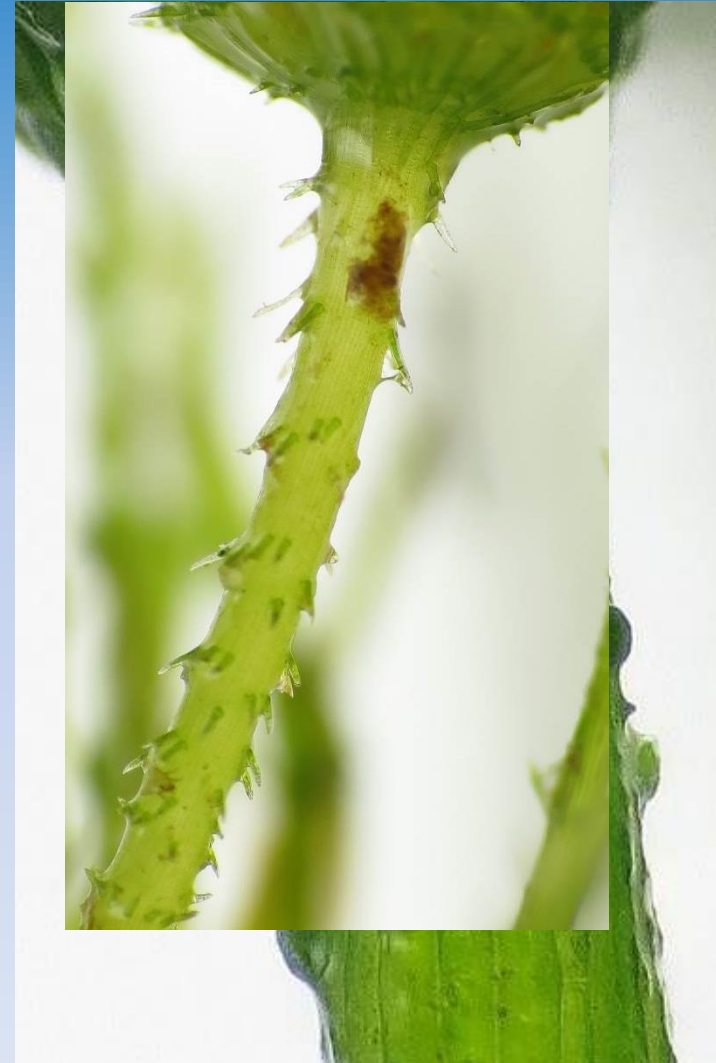
Distinguishing the Characeae

- Stem cortication
- Spine cells
- Branchlet division (or none)
- Stipulodes
- Placement of reproductive structures (oogonia and antheridia)



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- Placement of reproductive structures (oogonia and antheridia)
 - Dioecious vs. monoecious, conjoined vs. sejoined



Distinguishing the watermilfoils

Myriophyllum spp.

- Number of leaflets
- Floral bracts
- Stem color
- Leaves whorled or scattered



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Myriophyllum spp.

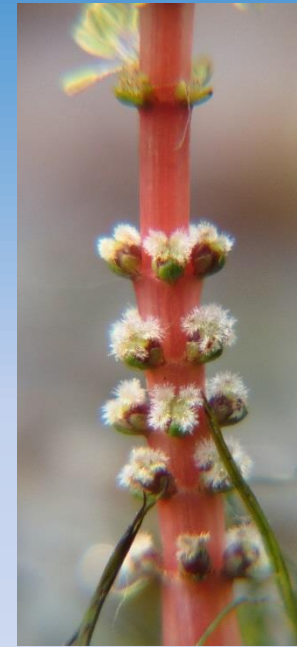
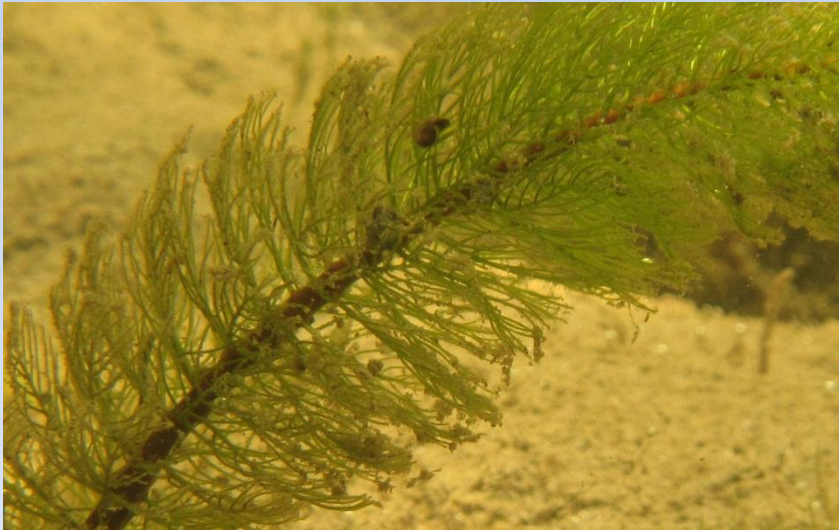
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Small Group Rotations

Chris – Floating and floating-leaf plants

Susan – Bladderworts and watermilfoils

Michelle – Pondweeds

Paul – Other cool stuff