

Identification of NR40-listed Aquatic Plants

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Time is Money

- Cost quickly increases as population becomes more established
- Learn to recognize invasive species, and report sightings to local invasive species managers



Major Invasive Wetland Plants of the Upper Midwest

Eurasian watermilfoil

Curly-leaf pondweed

Brazilian waterweed

Yellow floating heart

Glossy buckthorn

Purple loosestrife

European frog-bit

Hydrilla

Starry stonewort

Flowering rush

Water hyacinth

Water lettuce

Parrot feather

Exotic *Nymphaea* species

Carolina fanwort

Phragmites

Narrow-leaf cattail

Major Invasive Wetland Plants Commonly Introduced for Ornamental Use

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Curly-leaf pondweed

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How do they get into our wetlands?











Why are invasive species used so often in plantings?

Customers like plants that are:

- Quick to establish
- Tolerant of poor conditions and poor maintenance
- Tough to kill!
- Resistant to pests, diseases, other stressors

These are the same characteristics of...

Remember this?



Mississippi River – Alma, WI



Mississippi River – Alma, WI



Flowering rush (*Butomus umbellatus*)



- Grows emergent in several feet of water.
- Can grow submerged in 10ft+
- Spreads by rhizomes and bulbils



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Flowering rush (*Butomus umbellatus*)



Flowering rush (*Butomus umbellatus*)



Stem cross-section

Parrot Feather (*Myriophyllum aquaticum*)

- Native to Amazon River region of South America
- Has submergent and emergent leaves
- Grows best in shallow, nutrient-rich waters
- Can survive on wet banks for several weeks



Photo: WA Dept. of Ecology

Parrot feather or other milfoil?

Parrot feather (*Myriophyllum aquaticum*)



Eurasian watermilfoil
M. spicatum

Northern watermilfoil
M. sibiricum



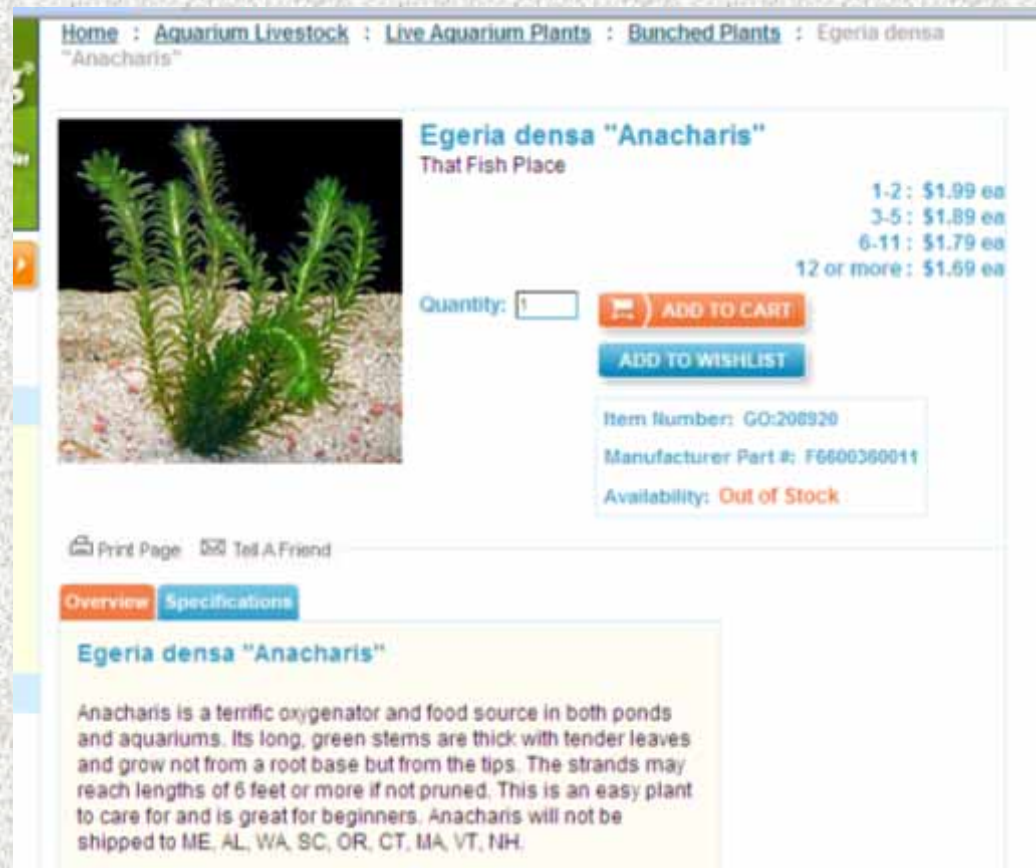
Curly-leaf pondweed (*Potamogeton crispus*)

- Native to Europe
- Grows mainly Oct-June
- Alternate leaves, serrated, with blunt tips
- Turions produced
- Spreads by seeds, rhizomes, turions



Brazilian waterweed (*Egeria densa*)

- Top-selling “oxygenator” plant for water gardens and aquaria.
- May be sold as:
- Anacharis,
- *Elodea densa*,
- Giant Elodea,
- Brazilian Elodea
- *Elodea canadensis*!



The screenshot shows a product page for 'Egeria densa "Anacharis"'. The breadcrumb trail at the top reads: Home : Aquarium Livestock : Live Aquarium Plants : Bunched Plants : Egeria densa "Anacharis". The product title is 'Egeria densa "Anacharis"' with the subtitle 'That Fish Place'. A photograph of the plant is shown on the left. To the right of the photo, the price is listed as 1-2: \$1.99 ea, 3-5: \$1.89 ea, 6-11: \$1.79 ea, and 12 or more: \$1.69 ea. Below the price is a quantity input field with '1' and two buttons: 'ADD TO CART' and 'ADD TO WISHLIST'. Further down, the item number is GO:206920, the manufacturer part number is F6600360011, and the availability is 'Out of Stock'. At the bottom, there are links for 'Print Page' and 'Tell A Friend', and two tabs: 'Overview' (selected) and 'Specifications'. The 'Overview' section contains a description: 'Anacharis is a terrific oxygenator and food source in both ponds and aquariums. Its long, green stems are thick with tender leaves and grow not from a root base but from the tips. The strands may reach lengths of 6 feet or more if not pruned. This is an easy plant to care for and is great for beginners. Anacharis will not be shipped to ME, AL, WA, SC, OR, CT, MA, VT, NH.'

Brazilian waterweed (*Egeria densa*)

- Lance-shaped leaves in whorls of 4-8
- Long stems, bushier near the top
- Serrated leaves, with spines on margins
- No spines on midrib, no tubers produced

(Hydrilla)



Brazilian waterweed, *Hydrilla* or *Elodea* spp.?



Brazilian waterweed (*Egeria densa*)



Common waterweed (*Elodea canadensis*)

Elodea nuttallii



Brazilian waterweed, *Hydrilla* or *Elodea* spp.?



Brazilian waterweed (*Egeria densa*)



Elodea canadensis
Elodea nuttallii



Hydrilla (Hydrilla verticillata)



Fanwort (*Cabomba caroliniana*)

- Opposite leaves, finely dissected
- Fairly short internodes, usually concealed by dense leaves
- Resembles water marigold (*Bidens/Megalodonta beckii*)

Fanwort or Water Marigold?

Fanwort (*Cabomba caroliniana*)



Water marigold (*Bidens beckii*)



Yellow Floating Heart (*Nymphoides peltata*)

- Ornamental from Eurasia
- Spreads by fragments and seeds
- Seeds are hairy, which help seeds float and stick to feathers
- Four other *Nymphoides* species in U.S.. None found in WI.
- Unaffected by herbicides at max concentration

Yellow Floating Heart (*Nymphoides peltata*)



Yellow floating heart or *Nuphar* spp.?

Yellow floating heart (*Nymphoides peltata*)



Bullhead pond lily (*N. variegata*)



N. variegata

N. advena

N. microphylla



Brittle Naiad (*Najas minor*)

- Spreads by fragments (leaf axils)
- Stems brittle, very branched, bushy
- Leaves ~1" long, tiny spines on margins
- Grows to 12ft deep



Brittle naiad or other naiad (*Najas* spp.)?

Brittle naiad (*Najas minor*)
NR40-prohibited



Spiny naiad (*Najas marina*)
Introduced



Slender naiad (*N. flexilis*)



Starry Stonewort (*Nitellopsis obtusa*)



Starry Stonewort (*Nitellopsis obtusa*)



Starry Stonewort (*Nitellopsis obtusa*)

- Native to Europe (**Endangered**)
- Identified in SE Michigan in 1986
- Most Characeae prefer specific depth ranges...not *Nitellopsis*
- Most control options include toxic copper compounds



Starry Stonewort (*Nitellopsis obtusa*)

- Spreads by fragments and bulbils
- No sexual reproduction in North America



Starry Stonewort (*Nitellopsis obtusa*)

- Spreads only by fragments and bulbils – likely dispersed by equipment moving between lakes



European Frog-bit (*Hydrocharis morsus-ranae*)

- Reproduces by seed and stolons
- Free-floating
- Not currently known in Wisconsin
- Usually in calm, nutrient-rich areas



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Water Chestnut (*Trapa natans*)

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Water Chestnut (*Trapa natans*)

- Reproduces by very large seeds and stolons
- Free-floating rosette with submersed leaves
- Not currently known in Wisconsin
- Usually in calm, nutrient-rich areas



Early Detection is Key

If you find a plant that looks like one of these, get it to an expert for verification ASAP



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