A

APPENDIX A

Littoral Frequency of Occurrence of Aquatic Plants from available Point-Intercept Surveys

Point-Intercept Data Matrix

Scientific Name	Common Name	LFOO (%)			
		2012	2015	2020	2024
Ceratophyllum demersum	Coontail	42.8	54.4	55.9	49.5
Myriophyllum spicatum	Eurasian watermilfoil	56.3	65.3	24.0	29.5
Lemna trisulca	Forked duckweed	59.7	40.3	11.2	1.0
Vallisneria americana	Wild celery	4.8	14.1	23.9	33.4
Stuckenia pectinata	Sago pondweed	10.5	21.5	8.5	7.0
Heteranthera dubia	Water stargrass	5.3	11.7	13.4	5.2
Elodea canadensis	Common waterweed	3.6	15.6	7.8	4.0
Lemna minor	Lesser duckweed	1.7	6.9	4.8	5.9
Wolffia spp.	Watermeal spp.	1.2	6.6	5.5	5.1
Chara spp.	Muskgrasses	3.4	10.4	0.7	1.6
Potamogeton crispus	Curly-leaf pondweed	7.3	5.0	2.2	0.7
Myriophyllum sibiricum	Northern watermilfoil	0.0	0.8	0.0	3.5
Potamogeton friesii	Fries' pondweed	2.6	1.3	1.2	0.5
Potamogeton pusillus	Small pondweed	0.0	4.0	0.0	0.9
Spirodela polyrhiza	Greater duckweed	0.0	0.0	0.0	2.8
Nymphaea odorata	White water lily	0.2	1.0	1.7	1.0
Potamogeton nodosus	Long-leaf pondweed	0.2	1.1	0.7	0.5
Zizania aquatica	Southern wild rice	0.0	0.0	0.0	0.0
Ranunculus aquatilis	White water crowfoot	0.2	0.0	0.0	0.3
Potamogeton natans	Floating-leaf pondweed	0.0	0.0	0.0	0.3
Potamogeton zosteriformis	Flat-stem pondweed	0.2	0.3	0.0	0.0
Potamogeton richardsonii	Clasping-leaf pondweed	0.0	0.0	0.0	0.2
Potamogeton praelongus	White-stem pondweed	0.0	0.0	0.0	0.2
Najas flexilis	Slender naiad	0.0	0.0	0.0	0.2
Elodea nuttallii	Slender waterweed	0.0	0.0	0.0	0.2
Potamogeton illinoensis	Illinois pondweed	0.0	0.2	0.0	0.0
Fissidens spp. & Fontinalis spp.	Aquatic Moss	0.0	0.0	0.2	0.0

B

APPENDIX B

Select Aquatic Plant Species Information & Distribution Maps

Coontail (*Ceratophyllum demersum*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=3082

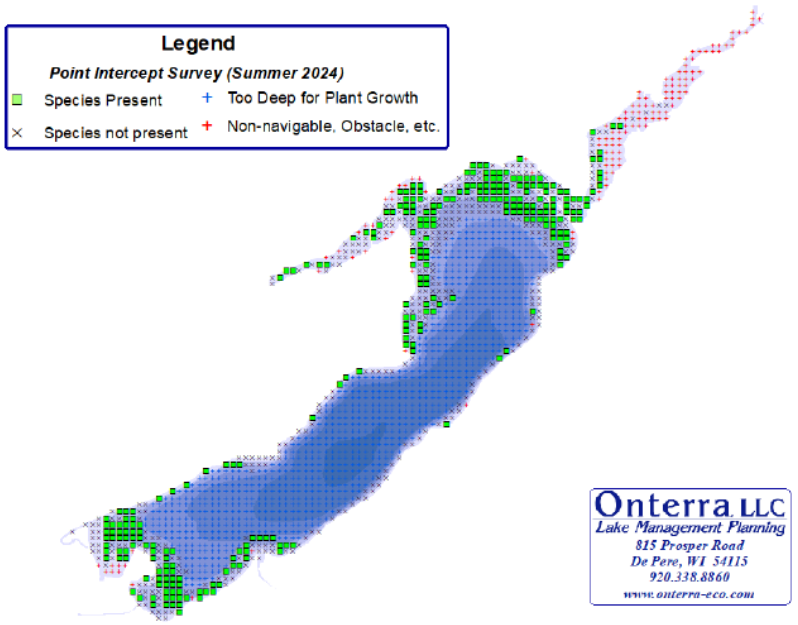

Photo Credit: Onterra

- Coontail has whorls of leaves which fork into two to three segments, providing surface area for invertebrate habitat.
- Does not produce true roots and is often found growing entangled amongst other aquatic plants or matted at the surface.
- Coontail has a high tolerance for low-light conditions which allows this plant to become more abundant in eutrophic waterbodies with higher nutrients and low water clarity.

Wild Celery (*Vallisneria americana*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=5329

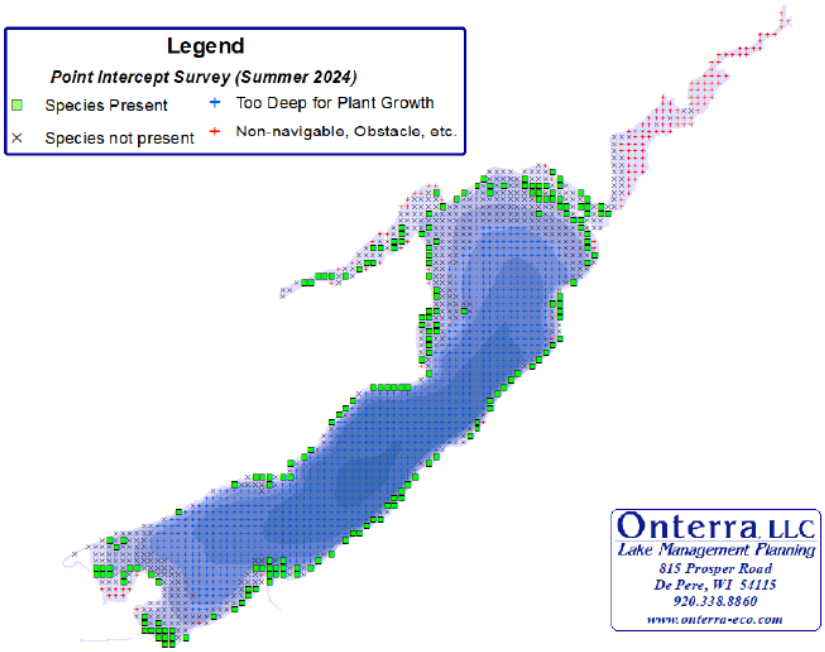

Photo Credit: Onterra

- Wild Celery has long ribbon-like leaves that tend to sway with the current and projects a singular small white flower to the surface from a spiraling stalk.

Prefers to grow over harder substrates and is tolerant of low-light conditions.

Sago pondweed (*Stuckenia pectinata*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=5170

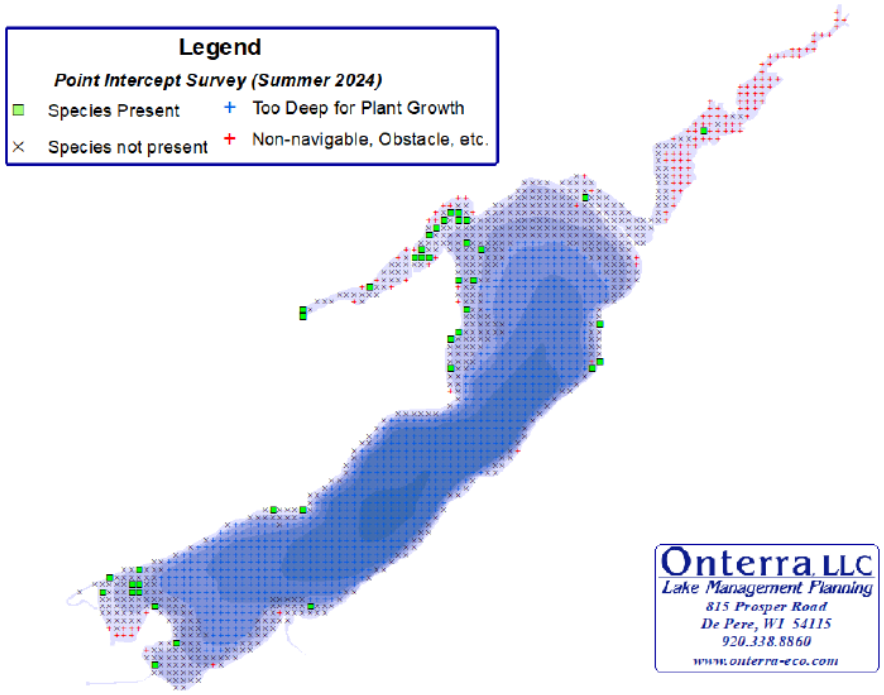

Photo Credit: Onterra

- Tolerant of disturbance and is often found in greater abundance in degraded lakes that have higher nutrient concentrations and low water clarity.
- Waterfowl have been observed to use sago pondweed as a major food source.

Lesser duckweed (*Lemna minor*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=4036

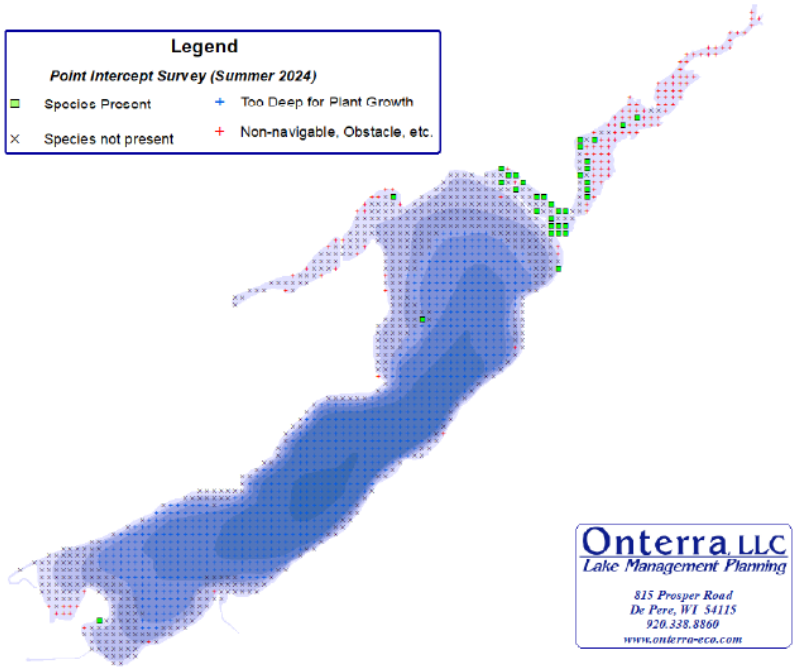

Photo Credit: Onterra

- Free-floating aquatic plant species found in nutrient rich still or slow-moving water
- It produces a winterbud that sinks to the bottom and overwinters in the sediment
- This perennial plant is the smallest plant known to produce a flower on earth.

Water stargrass (*Heteranthera dubia*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=3838

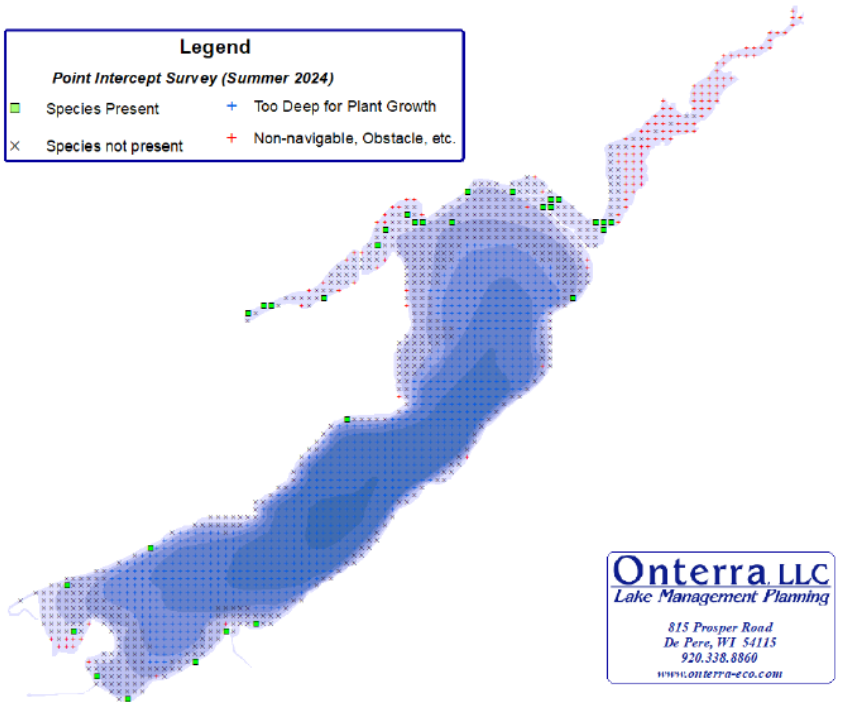

Photo Credit: Onterra

- Water stargrass has a similar morphology to some of the pondweed species with a rooted base, stem, and leaves that project off of the stem. A notable difference is that water stargrass does not have a midvein on its leaves like all pondweeds do.
- Does not produce true roots and is often found growing entangled amongst other aquatic plants or mated at the surface in very shallow water.

Watermeal (*Wolffia spp.*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=1425

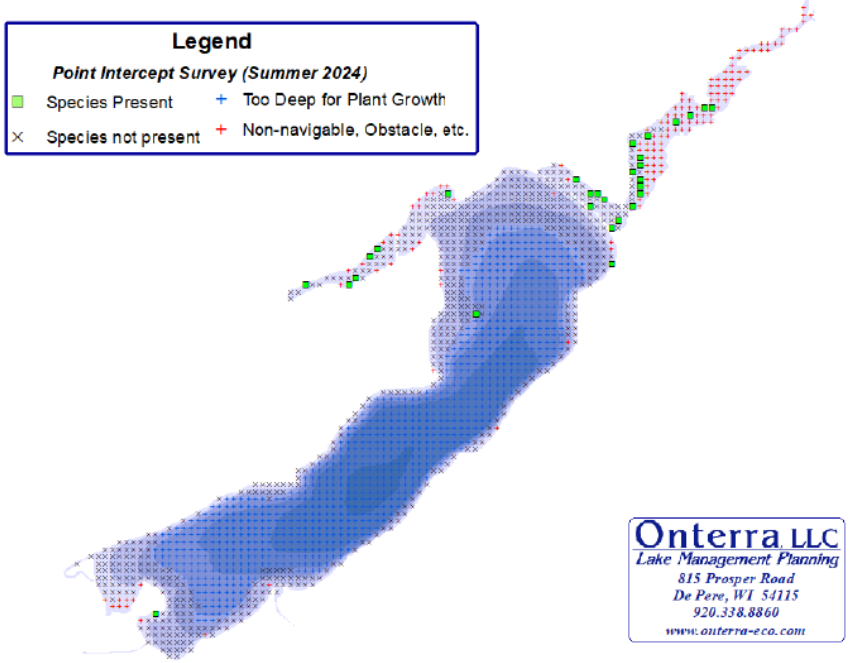

Photo Credit: Unknown

This plant is more commonly found in productive aquatic environments with high nutrients.

This free-floating aquatic plant has the texture of course sand.

Common waterweed (*Elodea canadensis*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=3499

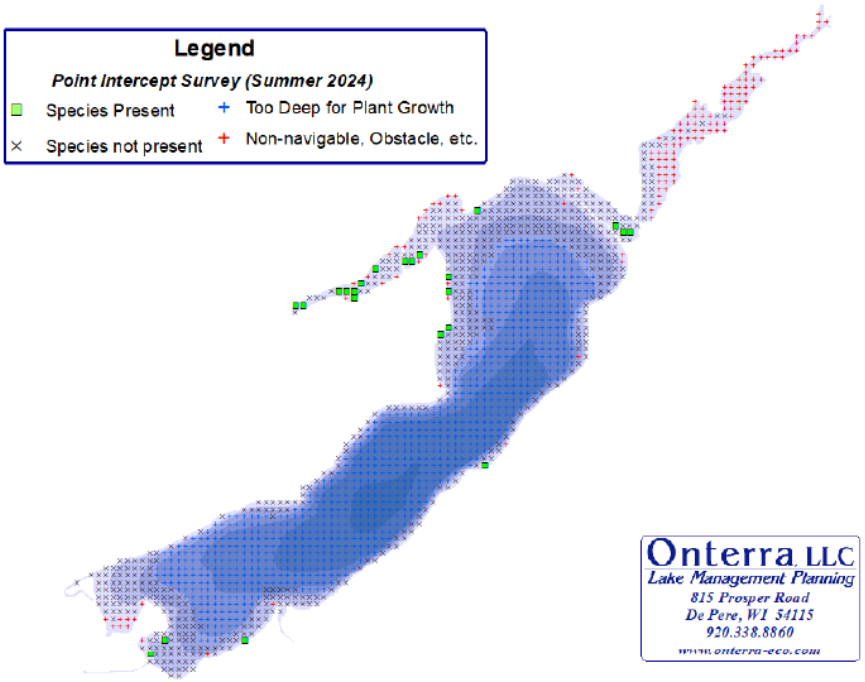

Photo Credit: Onterra

- Although it sometimes produces root-like structures that bury themselves into the sediment, it is largely an unrooted plant that can obtain nutrients directly from the water.
- As a result, this plant's location in a lake can be dependent upon water movement.

Northern watermilfoil (*Myriophyllum sibiricum*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=4312

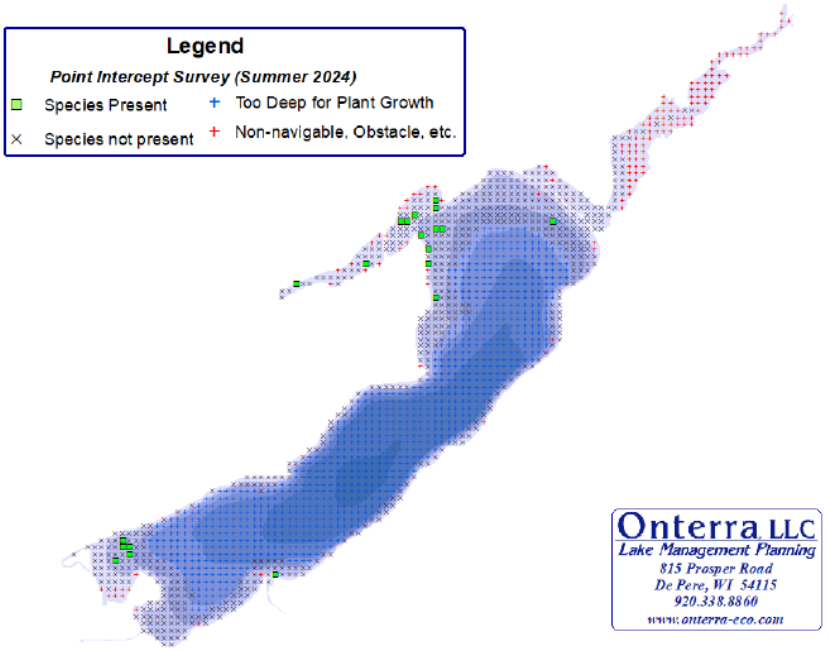

Photo Credit: Onterra

- Northern watermilfoil is arguably the most similar native species to the invasive Eurasian watermilfoil. These two plants can hybridize with one another.
- Northern watermilfoil also has less leaflets on its leaves (5-10 pairs) than Eurasian watermilfoil (12-16 pairs).
- Northern watermilfoil can be distinguished from the invasive Eurasian watermilfoil in that northern watermilfoil has more whorls of leaves per length of stem which appears as a bushier plant than Eurasian watermilfoil.

Greater duckweed (*Spirodela polyrhiza*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=22037

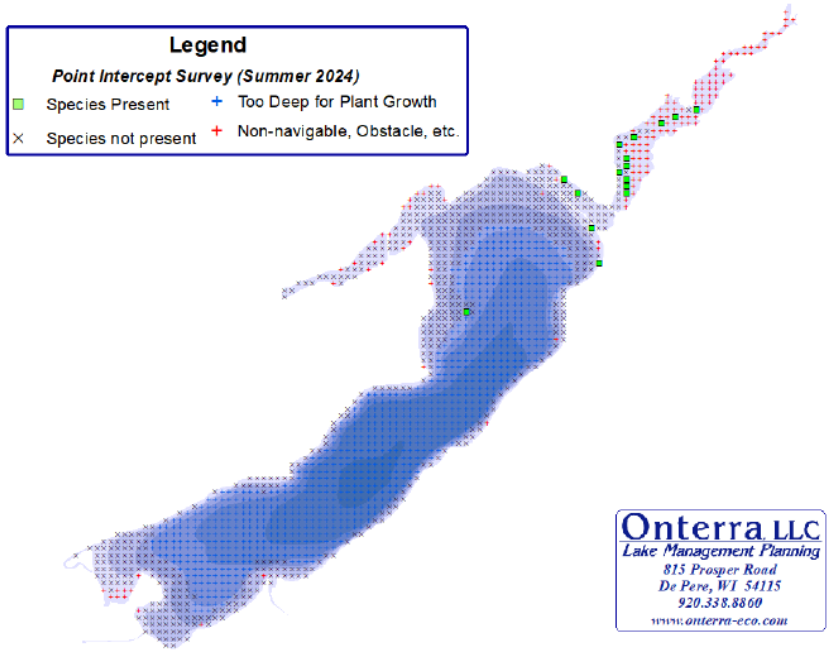

Photo Credit: Gary Fewless

- This free-floating aquatic plant species is more likely to be found in lakes that have high nutrient concentrations.
- Greater duckweed is generally larger than other duckweed species and has multiple roots (5 to 12+) under each frond.

Muskgrasses (*Chara spp.*) Native

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=22152

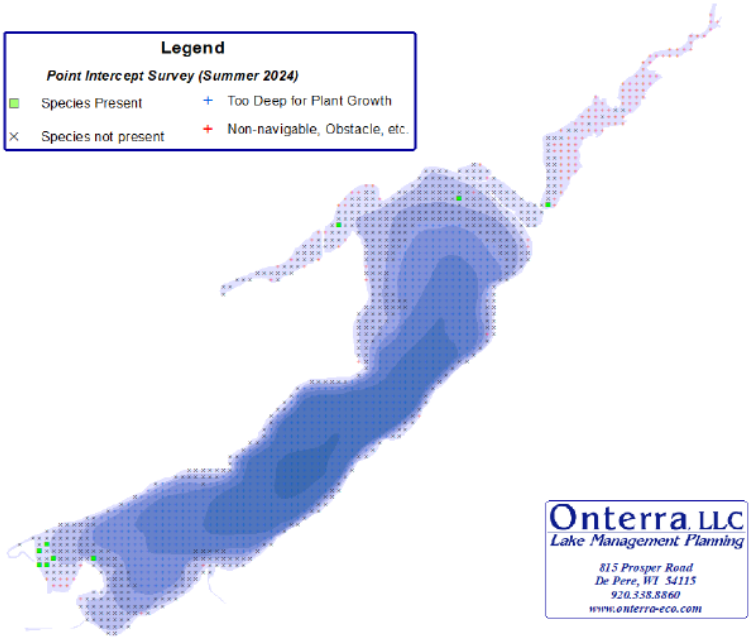

Photo Credit: Onterra

- These groups of plants grow unrooted and generally and low along the bottom of the water column and can provide dense coverage. Their large beds help stabilize bottom sediments.
- Muskgrasses do not have forked ends, and they commonly have a skunk like smell.
- Muskgrasses require lakes with good water clarity, and are often some of the deepest growing plants in the lake.

Eurasian watermilfoil (*Myriophyllum spicatum*) Exotic

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=4313

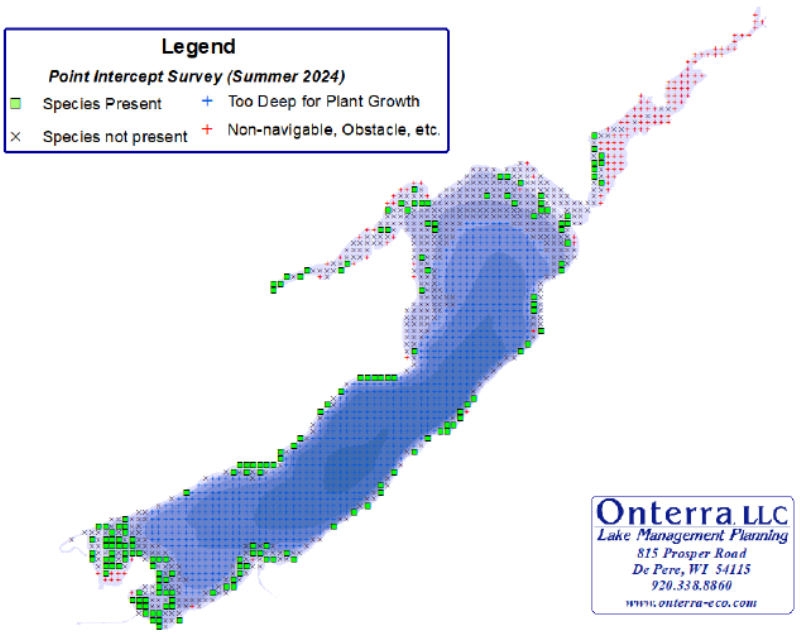

Photo Credit: Onterra

- A common and problematic invasive species in Wisconsin. Most developed lakes in Wisconsin have been exposed to this plant and some have even experienced change in its aquatic environment due to this plant.
- It can be identified by its slender shape when held out of water, the leaves are in whorls of around four, and each leaf has 24 or more leaflets (12 on each side of a leaf). There are some native milfoil plants in Wisconsin, but they are more likely to hold their bushy shape when pulled out of the water and have less leaflets on each of their leaves.

Curly-leaf pondweed (*Potamogeton crispus*) Exotic

FLORA of WISCONSIN: https://wisflora.herbarium.wisc.edu/taxa/index.php?taxon=4618

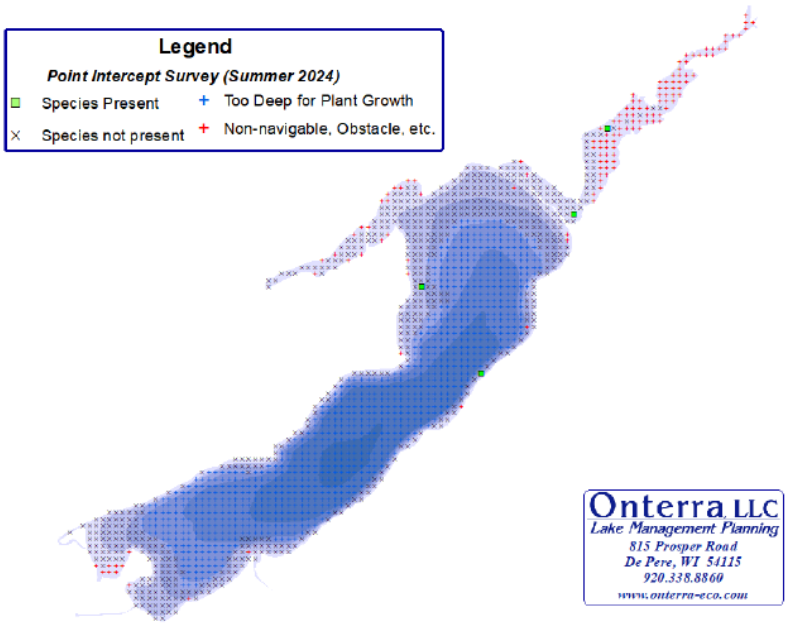

Photo Credit: Onterra

- A common and problematic invasive species in Wisconsin. It is more likely to be seen in the beginning half of the growing season, as it generally finishes its life cycle and starts to decay earlier than the native plants in Wisconsin.
- It's easily identifiable by its curly and serrated leaf edges which none of the native pondweeds of Wisconsin have.