habitat.

REPORT any suspected EFB to the WDNR Regional AIS Coordinator or County AIS Coordinator. Take note of where you are and take photos. visit DNR.WI.GOV and search "AIS contacts".

PREVENT the spread of aquatic invasive species by following these steps:

INSPECT - Boats, trailers, and other recreational equipment

REMOVE - All attached aquatic plants, animals, and mud

DRAIN - All water from boats, trailers, and recreational equipment

NEVER MOVE - Plants or live aquatic animals away from a waterbody

STOP AQUATIC HITCHHIKERS!
Be A Good Steward. Clean. Drain. Dry.
StopAquaticHitchhikers.org

LEARN how to differentiate EFB from its native look-a-likes and become familiar with its desired habitat.

PREVENT THE SPREAD

OF EUROPEAN FROGBIT

To Learn More about
European frogbit,

Check out these sites...

General information: Visit DNR.WI.GOV and Michigan.gov and search European frogbit

WDNR Press Release: Visit DNR.WI.GOV and search "Invasive European Frogbit, Found In Oconto County"

Or contact FLOW AIS at
Phone: 715-490-3325
Email: flowais@lumberjackrcd.org

Funding acknowledgement statement:
This Early Detection & Response project was funded in part with a Surface Water Grant provided by the Wisconsin Department of Natural Resources (AIRR27522)

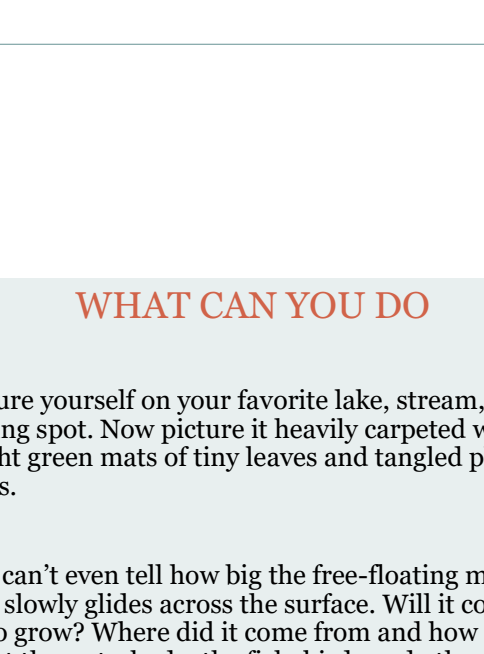
Assistance From:

WISCONSIN DEPT. OF NATURAL RESOURCES

Extension
UNIVERSITY OF WISCONSIN-MADISON

AQUATIC INVASIVE SPECIES PROGRAM
FLOW AIS

LUMBERJACK
est 1968



Found in Northeast
Wisconsin

European Frogbit
(EFB):*Hydrocharis morsus-ranae*

What to Know About a New Invasive Plant

WHAT CAN YOU DO

Picture yourself on your favorite lake, stream, or fishing spot. Now picture it heavily carpeted with bright green mats of tiny leaves and tangled plant roots.

You can't even tell how big the free-floating mat is as it slowly glides across the surface. Will it continue to grow? Where did it come from and how will it affect the waterbody, the fish, birds and other wildlife? Will the ducks even land if it looks like land from above?

Because you have so many questions, you decide to take some pictures and look for answers. You went to DNR.WI.GOV and searched AIS Contacts to find the DNR Coordinator for the county and they give you the email for your Regional Aquatic Invasive Species Coordinator. After sending them your photos, you meet at the site where they take a sample to properly identify the species.

Before they go, they thank you and say "Reporting invasive species is a first step in containing their spread." In this case, the species is European frogbit and there are ways to start managing the species, although it'll be a lot of hard work, including continued monitoring of the area. You take pride in the great contribution you made to preserve and protect aquatic ecosystems, not only at your lake but throughout Wisconsin.

REASONS TO CARE ABOUT EUROPEAN FROGBIT

In Wisconsin, European frogbit was first discovered along the Bay of Green Bay shoreline in July 2021. It is classified by the WDNR as an NR40 Prohibited Invasive Species.

- Prohibited species are illegal to possess, transport or transfer in the State of Wisconsin without a permit because they pose a threat to ecosystems, the economy or human health.
- EFB is a free-floating aquatic plant that moves with wind and wave action, which allows serval individual plants to easily float together, forming dense monoculture mats.
- WDNR and its partners hope to control EFB's pathways further into the state. Fortunately, as of December 2022 EFB is not yet known to be established in any of Wisconsin's inland lakes.
- EFB can reproduce from a single plant through stolon growth. Stolons are runners, like those that grow on strawberry plants. They allow the plant to propagate without the need for seed reproduction.

EFB dense mats block sunlight from reaching already established native plants which lowers available nutrients and impacts growth. The mats can also impede fish and wildlife movement throughout a waterbody. Waterfowl looking for a safe landing spot may mistake the matting for solid land and bypass a waterbody. The mats can also impede the ability for waterfowl to forage for food.

August 2022: European frogbit monoculture mat. Photo credit WDNR

Key European Frogbit Facts and Highlights

BACKGROUND

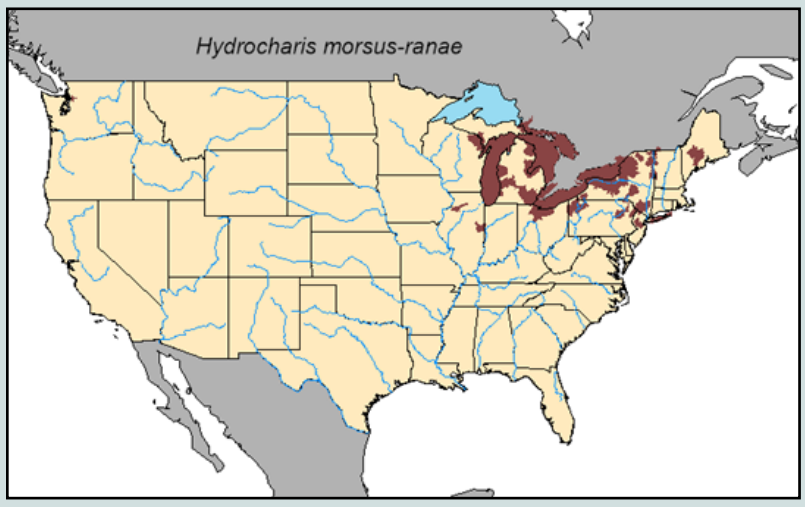
European frogbit (EFB) is native to regions of Europe and Northern Asia. According to the United State Geological Survey (USGS), EFB was first discovered in North America in 1932, in the United States (New York State) in 1974 and in Wisconsin in 2021. It is believed that the initial introduction to the United States was through the aquarium and ornamental pond industry. *-Source USGS*

HABITAT

EFB can be found in slow moving open water areas such as lakes, rivers and streams. It has also been found in small pools or ponds, marshes and in roadside ditches. It is generally found in shallower water and along edges of waterbodies where it entangles itself to rocks and plants, fallen tree branches, sand bars and mud flats.

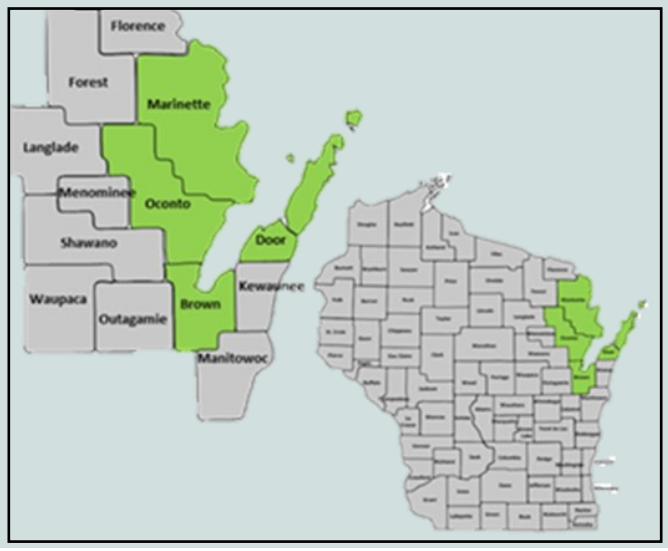
CURRENT EXTENT

European frogbit is found throughout the Great Lake States including Illinois, Maine, Michigan, New Jersey, New York, Ohio, Pennsylvania, Vermont and Wisconsin. Illinois and Wisconsin are the furthest west EFB has been found, other than a small population in Washington State. Lake Superior is the only Great Lake that does not have a known population of EFB.



Map created on 10/1/2022 United States Geological survey

As of Fall 2022 EFB in Wisconsin has been only found in four counties along the Bay of Green Bay section of Lake Michigan: Brown, Door, Marinette and Oconto (see map below.) Currently, established populations span from Red Arrow Park in Marinette County, to the Oconto Sportsman's Club in the City of Oconto. Smaller satellite populations can be found throughout the southern half of Oconto County and into Brown and Door Counties.



MANAGEMENT METHODS

Hand-Pulling: Removal of European Frogbit by hand can be augmented by using small handheld rakes. Hand removal is generally used for smaller known populations and is labor intensive.

Chemical Control **(REQUIRES an Aquatic Plant Management Permit from WDNR):** In Wisconsin chemicals have been applied to EFB through foliar application, directly spraying the chemical to the leaf . The active chemical used is imazapyr and is applied using a backpack sprayer.

Combining hand removal and chemical control methods is still being studied.

Monitoring: Monitoring can be is used a as management method to help contain a species in its known area and find new population expansions. Monitoring for European frogbit has been done by canoe and kayak as well as walking with the use of waders through shallow water or wetland areas. While monitoring in the field presents or absents data is captured through a mapping software.

IDENTIFICATION

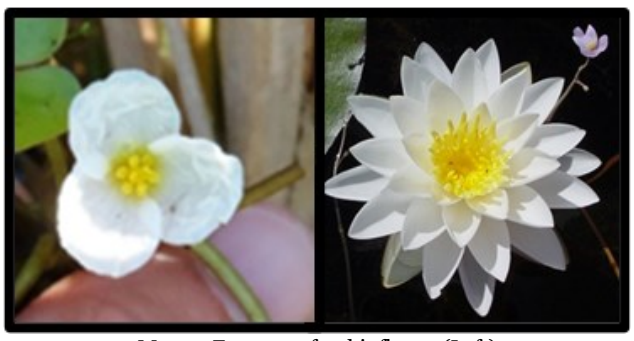
Leaves: Usually floating; resemble tiny water lilies; kidney to heart shaped with long stems; range in size from 0.5" at the start of the growing season to 2.25" towards the end of the growing season. The green leaves are smooth and may have a dark purple underside. The leaf also has tissue on the underside that contains air pockets which are located mostly along the midvein. These air pockets help the plant float.

Flowers: White; cup-shaped; three petals with yellow dots at the base. The flower blooms midsummer months and only last two to three days.

Fruits & seeds: Rarely produces seeds and instead relies on vegetative reproduction: runners or turions.

Stems: Long, cord-like stolons (runners) form large free-floating mats of connected plants.

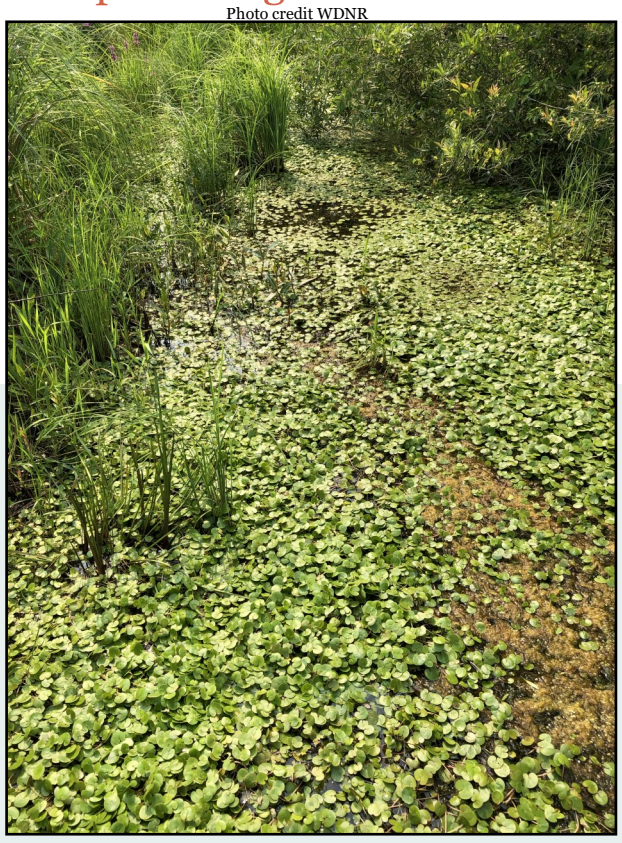
Perennial: Meaning comes back year after year.



Mature European frogbit flower (Left)
Mature White water lily flower (Right)
Photos by Paul Skawinski, UW-Stevens Point Extension Lakes.

European Frogbit Monoculture

Photo credit WDNR



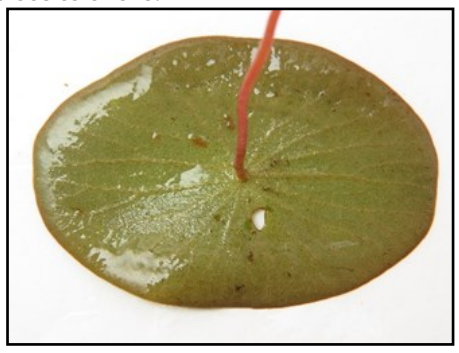
THREE QUICK ID TIPS

1. Free Floating
2. Small heart shaped leaf with air pockets resembling a thin spongy area near the base of the leaf underside
3. Cord-like stems

LOOK-A-LIKE SPECIES

Watershield: *Brasenia Schreberi*

The leaf is oval to football shaped with a green to purple underside. The stem is attached to the center of the leaf and the underside is covered in a clear slimy coating. The flower sits above the water and has six to eight parts with a purple reddish color. It appears in slow moving waterbodies rooting close to shore.



Watershield leaf
Photo by Paul Skawinski, UW-Stevens Point Extension Lakes.

White Water Lilly: *Nymphaea Odorata*

The leaf is round with a notch leading to the center. The flowers are white with a yellow center. It appears in slow moving waterbodies, rooting close to shore or in shallow water.

White Water Lily leaf (Left) Next to EFB leaf (Right)

Photo by Paul Skawinski, UW-Stevens Point Extension Lakes.