



## Summary

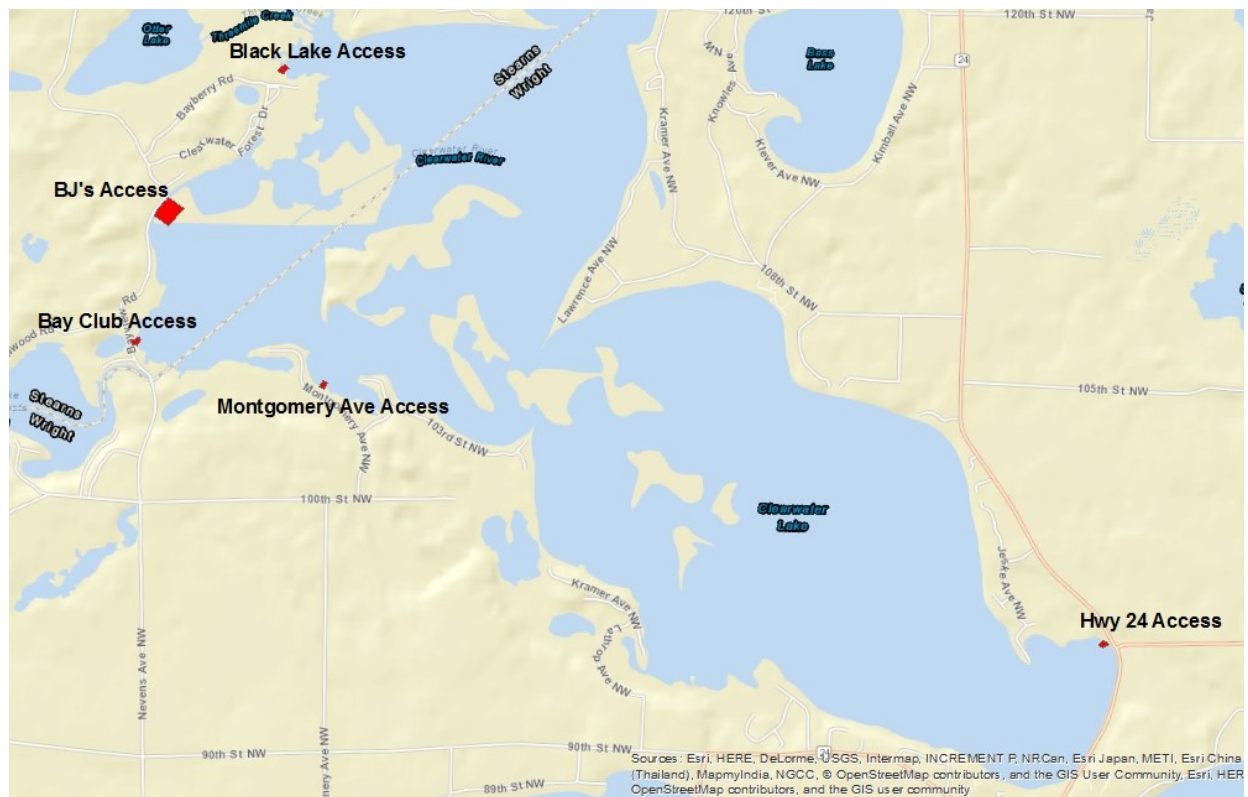
An early detection survey for Starry Stonewort (*Nitellopsis obtusa*) was conducted on Clearwater Lake in Wright County on April 8, 2017, by AIS Consulting Services, LLC. The search consisted of timed searches at 5 boat launches on the lake. No Starry Stonewort was found. While Starry Stonewort has the potential to have some growth remain throughout the winter, the plant is typically most abundant by early fall. We recommend an additional early detection survey be conducted in late summer or early fall. More details and tracks from the survey can be found in the results section of this report.

## Methods

Search zones were created in GIS around the five main boat launches on Clearwater Lake (*Figure 1*). At each search zone, we meandered through the zone with the boat, throwing a double-headed rake 1 to 2 meters and dragging it back to the boat. Vegetation throughout the area was sampled, and all vegetation collected on the rake was identified, and examined for any presence of Starry Stonewort. Additionally, visual inspection of submerged plants also occurred with the use of polarized sunglasses. Each search was timed, and recorded on a data sheet along with the various plant species found.



*Double-headed rake used to sample vegetation*



*Figure 1. Early Detection Search Zones*



# Results

## Bay Club Access

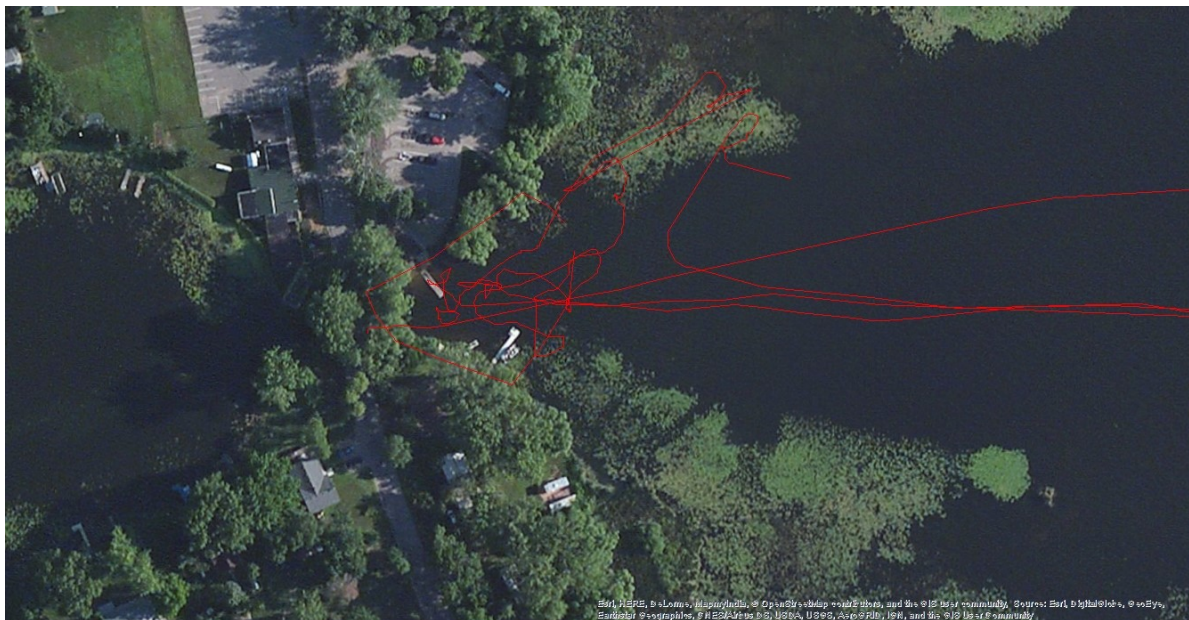
Time Searched: 25 minutes

Aquatic Plant Species Found: Coontail, Curlyleaf Pondweed and filamentous algae.

No Starry Stonewort was found around this access area. Figure 2 shows the tracks from the survey.



*Bay Club Access*



*Figure 2. Survey tracks at the Bay Club Access*



### **BJ's Access**

Time Searched: 40 minutes

Aquatic Plant Species Found: Chara, Elodea, Coontail

No Starry Stonewort found, however, this area has abundant native Chara and is highly vegetated. Figure 3 shows the tracks from this survey.



*BJ's Access*



*Figure 3. Survey tracks at BJ's Access*



### **Black Lake Access**

Time Searched: 15 minutes

Aquatic Plant Species Found: Curlyleaf Pondweed, Eurasian Watermilfoil, Large Leaf Pondweed and Coontail

No Starry Stonewort was found around this access area. Figure 4 shows the tracks from the survey.



*Black Lake Access*



*Figure 4. Survey tracks at the Black Lake Access*



## Montgomery Avenue Access

Time Searched: 15 minutes

Aquatic Plant Species Found: Chara

No Starry Stonewort found, however, this area has abundant native Chara. Figure 5 shows the tracks from this survey.



Montgomery Avenue Access



Figure 5. Survey tracks at the Montgomery Avenue Access

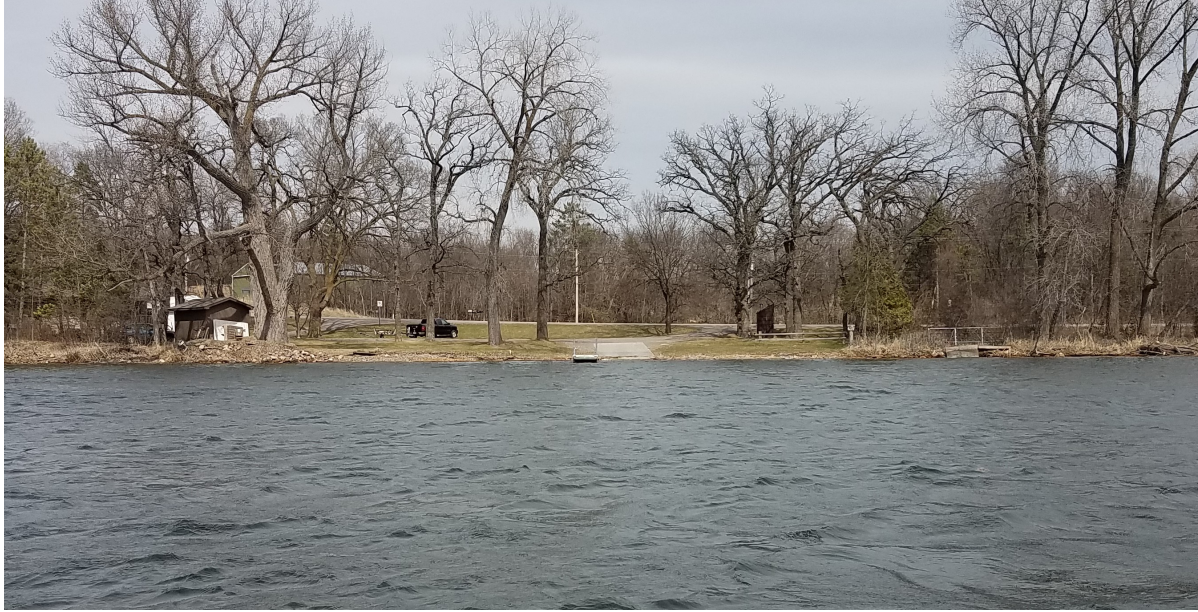


## Hwy 24 Access

Time Searched: 15 minutes

Aquatic Plant Species Found: Curlyleaf Pondweed, Coontails, Zebra mussels attached to aquatic vegetation.

No Starry Stonewort was found around this access area. Figure 6 shows the tracks from the survey.



*Hwy 24 Access*



Figure 6. Survey tracks at the Hwy 24 Access



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## Aquatic Invasive Species Quick Guide

### Starry Stonewort (*Nitellopsis obtusa* L.)

**Description:** Starry stonewort is a non-native species of large algae in the Characeae family. It has whorls of 4-8 long branchlets. It is more robust than most members of its family, and can grow to over two meters tall. Anchored by colorless filaments (rhizoids) that contain up to several dozen 4-5mm, star-shaped bulbils, starry stonewort typically grows in marl sediments of alkaline lakes, up to 9 meters deep. Orange, male reproductive structures are located in the axils of the upper branchlets. Starry stonewort typically dies back to the sediments in the fall, but may persist during mild winters. Interestingly, starry stonewort is listed as an endangered species in the United Kingdom.

**North American Distribution:** Michigan, northern Indiana, and the northeastern United States. Recently found in Wisconsin and Minnesota.



Star-shaped bulbils are produced in the sediments, and give starry stonewort its name.

**Dispersal Vectors:** Starry stonewort is native to Europe and western Asia. It was probably introduced to the Great Lakes via ballast water carried in trans-oceanic ships. Fragments of starry stonewort can be spread between lakes by boats, trailers, and anchors holding sediments. Local dispersal occurs by bulbils or fragments being transported by water currents or boats within the lake. Since only male starry stonewort exists in the U.S., no viable "seeds" are produced.

**Ecological Impacts:** By forming dense mats of vegetation, starry stonewort can reduce the diversity of aquatic plants in a lake. It can also impede movement of fish and other animals, and may impact spawning activity of some fishes. Mats growing to the surface can reduce water flow and make recreational activities difficult.

**Control Options:** Manual removal of starry stonewort is possible, but difficult, and may be impractical on a large scale. Abundant bulbils on the rhizoids can dislodge if disturbed, and will sprout new individuals. Manual removal efforts must emphasize careful removal of these bulbils.

Some chemical herbicides and algaecides have been effective at reducing starry stonewort. Herbicide applications may be less effective on tall stands of starry stonewort, as the chemical is quickly absorbed into the upper parts of the algae, leaving the lower parts unharmed. Most states require chemical use permits for any herbicide/algaecide treatments in standing water or wetland situations.

An effective biological control agent is not known at this time.

#### Additional Information:

Brown, W.S. 2014. Defining trophic conditions that facilitate the establishment of an invasive plant: *Nitellopsis obtusa*. Master's thesis. University of Illinois - Urbana Champaign.

#### Photo credit: Paul Skawinski

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Starry stonewort has many whorls of long branchlets. Some branchlets may appear forked due to long bracts where reproductive structures are forming.



Starry stonewort (front, center), much more robust than the surrounding native muskgrasses (*Chara* spp.).