

Aquatic Plant Management Plan: 2018 – 2023 UPDATE

Mudhen Lake Rehabilitation District

Burnett County, WI

July 12, 2018

Sponsored By

Mudhen Lake Rehabilitation District

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1.0 Introduction

The Mudhen Lake Rehabilitation District contacted Burnett County Land Services Conservation Department (BC LSCD) in 2016 to provide them with guidance relating to all aspects of aquatic plant management and to lesser degree, whole lake management. In 2012, an aquatic plant management plan was developed for Mudhen Lake. Over the course of five years, BC LSCD assisted MLRD with several projects pertaining to the implementation plans for each lake. Two major ongoing projects are controlling purple loosestrife on Mudhen Lake, and monitoring the lakes for aquatic invasive species (AIS). As part of the monitoring efforts, a curly-leaf pondweed (CLP) survey was conducted twice over the course of five years.

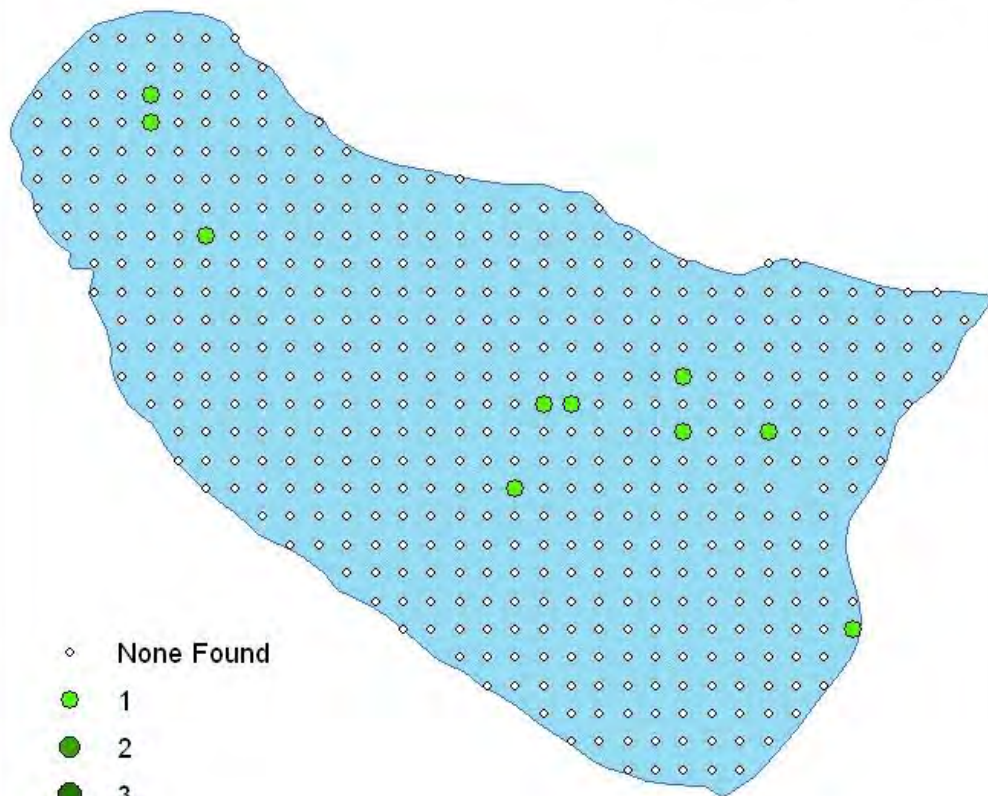
In 2016, the Mudhen Lake Rehabilitation District (MLRD) contracted with BC LSCD to update the aquatic plant management (APM) plan. Therefore, a CLP survey was conducted, as well as a Point Intercept Aquatic Plant Macrophyte survey was conducted in 2016. Furthermore, another CLP survey was conducted on June 14, 2018. Other goals for updating the APM were as follows:

- To provide long-range planning assistance related to APM plan implementation and lake management planning
- Continue to control the spread of purple loosestrife
- Continue to monitor for AIS using a Point Intercept Survey
- Provide general project support including attendance and presentation at designated MLRD meeting to discuss APM planning recommendation, as well as other topics as needed
- Facilitate the implementation of the APM Plan by coordinating with the needed service providers

2.0 Past Management

Due to the fact Eurasian water milfoil has not been found in Mudhen Lake, no management has been done for this plant. Even though CLP has been found in the lake, no management for CLP has been performed to date. Monitoring for CLP has been conducted over the course of 6 years, however, not in accordance with the APM. Three total surveys were conducted respectively in 2011, 2016 and 2018. Details of these surveys will be discussed below. The following is a synopsis of past CLP surveys:

Potamogeton crispus
Curly-leaf Pondweed
July 12, 2011



- ◊ None Found
- 1
- 2
- 3
- ◊ Visual

0 0.125 0.25 0.5 Miles



Figure 1: July 12, 2011 CLP Survey

The first CLP survey conducted on Mudhen Lake, by BC LSCD was performed on July 12, 2011. Unfortunately, this survey was done outside of the normal window in which CLP surveys are typically conducted. Regardless of the time frame, we found Curly-leaf Pondweed was scattered at 10 various locations around the lake in water depths between 1-3 meters. We did not find any beds or large amount of the plant at any of the sites on the lake.

The next CLP survey was conducted on June 12, 2016. This survey was done in the typical time frame that CLP surveys are conducted. For this reason, it is a bit difficult to compare the 2011 survey to the 2016 survey; however, we did find CLP at more sites and in some cases larger densities. A total of 19 sites were found to have CLP present (Figure 2). The locations were similar to those found in 2011.

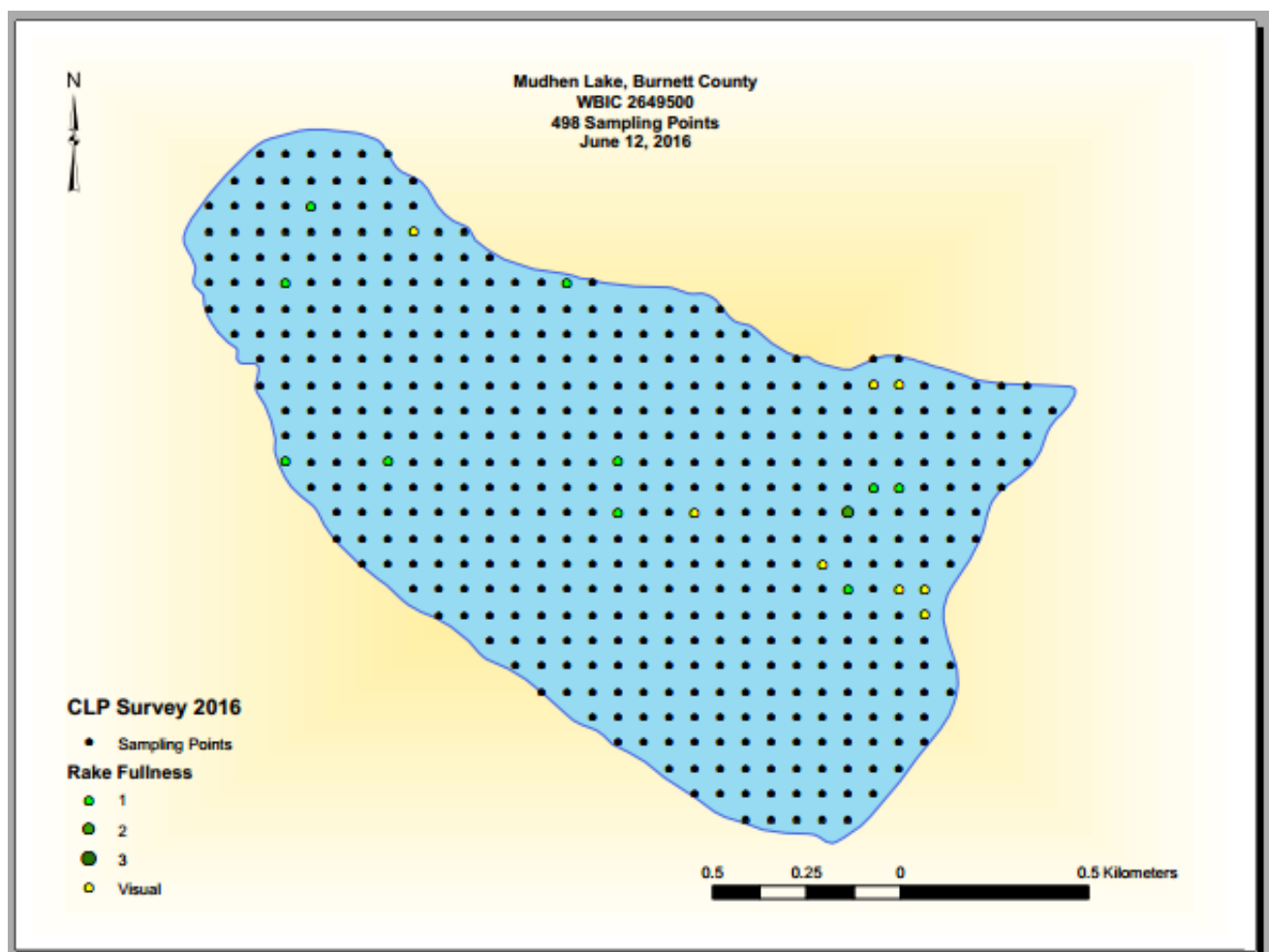


Figure 2: June 12, 2016 CLP Survey Results

On June 14, 2018, another CLP survey was conducted. At this time, CLP was found at only 7 sights. The average rake fullness was 1.25 and the frequency of occurrence was 2.34%. Overall, Curly-leaf Pondweed has not spread and is found in sights where it has been found in the past.

There does not seem to be an increase in density, as the density of the number of plants found has fluctuated over the past 7 years. My recommendation would be to continue to follow the implementation plan of the aquatic plant management plan and monitor for Curly-leaf Pondweed every two years. The Burnett County Land Services Conservation Department would be willing to assist the Mudhen Lake Rehabilitation District with this process, as it has been done in the past.

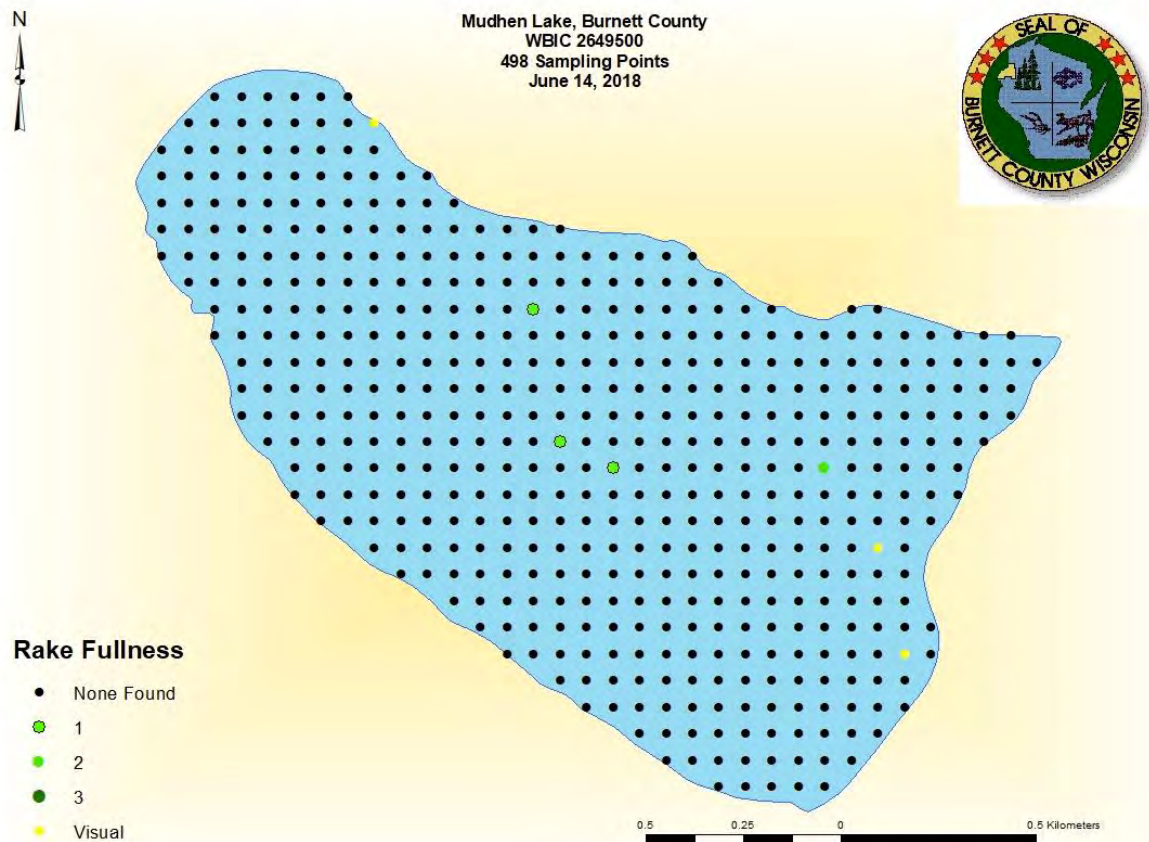


Figure 3: June 14, 2018 CLP Survey Results

Controlling the spread of Purple loosestrife (PLS) is still an ongoing goal. Over the past 7 years, BC LSCD and volunteers from MLRD have been working to control PLS. Biocontrol efforts, as well as hand pulling and cutting and spraying have been an ongoing process. Control efforts have had some success; however, continued work must be done.

3.0 Long-range Planning

Long range planning for MLRD involves looking at the specific needs of the lake. To date, Mudhen Lake does not have EWM or any other plant or algae invasive species other than CLP and PLS. An APM Plan was written in 2012 by BC LSCD. The past plan effectively dealt with monitoring and controlling purple loosestrife and CLP over the course of 3-5 years. Monitoring data obtained over the past seven years for CLP will be analyzed and management recommendations will be added to the updated APM Plan.

Along with managing aquatic plants, the MLRD needs to consider a more comprehensive approach to lake management. This would include APM education, but it also addresses other aspects such as:

- Nutrient loading (primarily phosphorus)
- Impacts of plant decay in the lake waters (I.E. CLP)
- Internal loading
- Septic systems
- Other aquatic invasive species education

The MLRD will be meeting to discuss updates to the APM Plan. Any new or modified goal, objective or action item will be summarized below, along with an implementation plan that outlines a timeline of activities.

4.0 Data Analysis:

4.1 Aquatic Macrophyte Results for Mudhen Lake 2016

An aquatic plant survey was completed for Mudhen Lake in 2016. Prior to the whole lake monitoring, a curly leaf pondweed (CLP) survey was conducted to confirm the presence of this aquatic invasive species. Since CLP grows earlier than native species, it typically dies in early July; therefore, the CLP survey is done in early June while the plant is still robust. A general boat survey was also conducted prior to the point intercept survey to gain familiarity with the lake and the plant species found on the lake. The results discussed below are taken from these surveys.

Using a standard formula based on a lake's shoreline shape and distance, islands, water clarity, depth, and size in acres, the Wisconsin Department of Natural Resources (WDNR) generated the sampling point grid of 498 points for Mudhen Lake. Figure 4 below shows the locations of these sampling points.

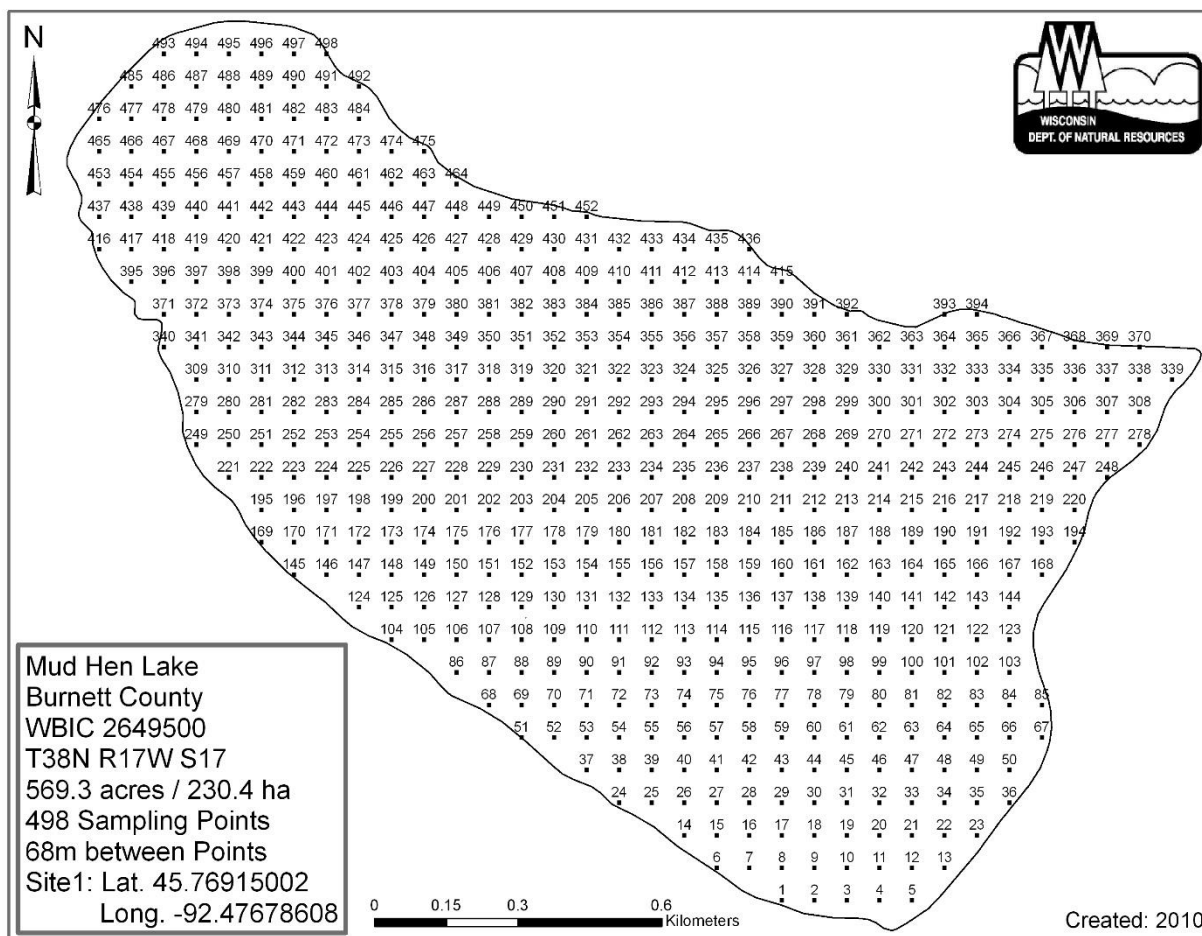


Figure 4: Sampling Points

4.2 Mudhen Lake CLP Survey Results

On July 12, 2011, both an aquatic invasive species (AIS) survey and an aquatic macrophyte survey was conducted. Several years later, another AIS survey was conducted on June 12, 2016 and an aquatic macrophyte survey on July 12, 2016. On June 14, 2018, another AIS survey was conducted. The results discussed below are taken from these surveys.

In 2011 no EWM was found on Mudhen Lake. We did find CLP at several sites however. Three sites were identified on the Northwest side of the lake, 6 sites were centrally located and one site was on the east end by the boat landing (Figure 1). Using the same sampling grid as we did in 2011, we conducted the next survey in 2016. The results from this survey were similar to the survey done in 2011, with a few exceptions. A total of 19 sites were found to have CLP, where only 10 sites were found in July of 2011. Keep in mind that the optimal time to survey CLP is before June 15th. That being said, it could be possible that there were more sites with CLP, however, due to the time frame, we did not find it as often. We found the plants in similar depths of water and at most of the same locations. A couple new sites were observed in the Northeast part of the lake. On June 14, 2018, we found CLP at seven sites, four of which were found on

the rake and three sites were just a visual. The frequency of occurrence over the past 7 years has also fluctuated. The highest occurrence was in 2016 and the lowest was in 2011 (Tables 1, 2 & 3). Overall, it does not appear that the plant is spreading or starting new beds. We only found it where we have found it in the past.

Table 1: July 12, 2011 Survey Results

Number of sites where species found	10
Average Rake Fullness	1.00
#visual sightings	0
Frequency	2.01

Table 2: June 12, 2016 CLP Survey Results

Number of sites where species found	19
Average Rake Fullness	1.09
#visual sightings	8
Frequency	3.81

Table 3: June 14, 2018 CLP Survey Results

Number of sites where species found	7
Average Rake Fullness	1.25
#visual sightings	3
Frequency	2.34

4.3 Purple Loosestrife Control

In the past, efforts have been made to control the Purple Loosestrife (PLS) on Mudhen Lake, such as cutting and spraying and the use of Galerucella beetles in a nearby wetland. There has been an overall reduction of PLS, however, continued efforts are needed. In the past, beetles were released in a wetland adjacent to the lake; however, their success in controlling the population of PLS was very limited. Due to mowing operations and livestock grazing, beetles have been ineffective. Recently, Burnett County Services Conservation Department in conjunction with volunteers on the lake, have been cutting and spraying the PLS along North Mudhen Lake Road, as well as the north shoreline of the lake. The majority of the PLS on the lake is on the north side of the lake. Over the past three years, concentrated control efforts have greatly reduced the density of the plants found on the lake and in nearby sites. Yearly monitoring needs to continue and control efforts need to be based on these observations.

4.4 Aquatic Plant Survey Results for Mudhen Lake

An aquatic plant survey was completed for Mudhen Lake in 2016, as a requirement to update the APM. Mudhen Lake survey grid comprised of 498 points. Of these points, we found plants at 298 sites in less than 17 feet of water (Figure 5: littoral zone). Areas that were shallow and had a mucky substrate supported more plants than those with sandy or rocky bottoms (Figure 6). Plants

were found growing on approximately 61% of the entire lake bottom, and in 92.55% of the littoral zone. Diversity was very high with a Simpson Diversity Index value of 0.93. Species richness was also high with 57 total species found growing in and immediately adjacent to the lake. The majority of aquatic macrophytes were found growing in moderately deep water with a mean depth of 4.78ft, and a median depth of 4.0ft. These 4-10ft areas of Mudhen Lake supported diverse plant beds that provide important underwater habitat. Tables 4, 5, and 6 summarize data from the completed survey.

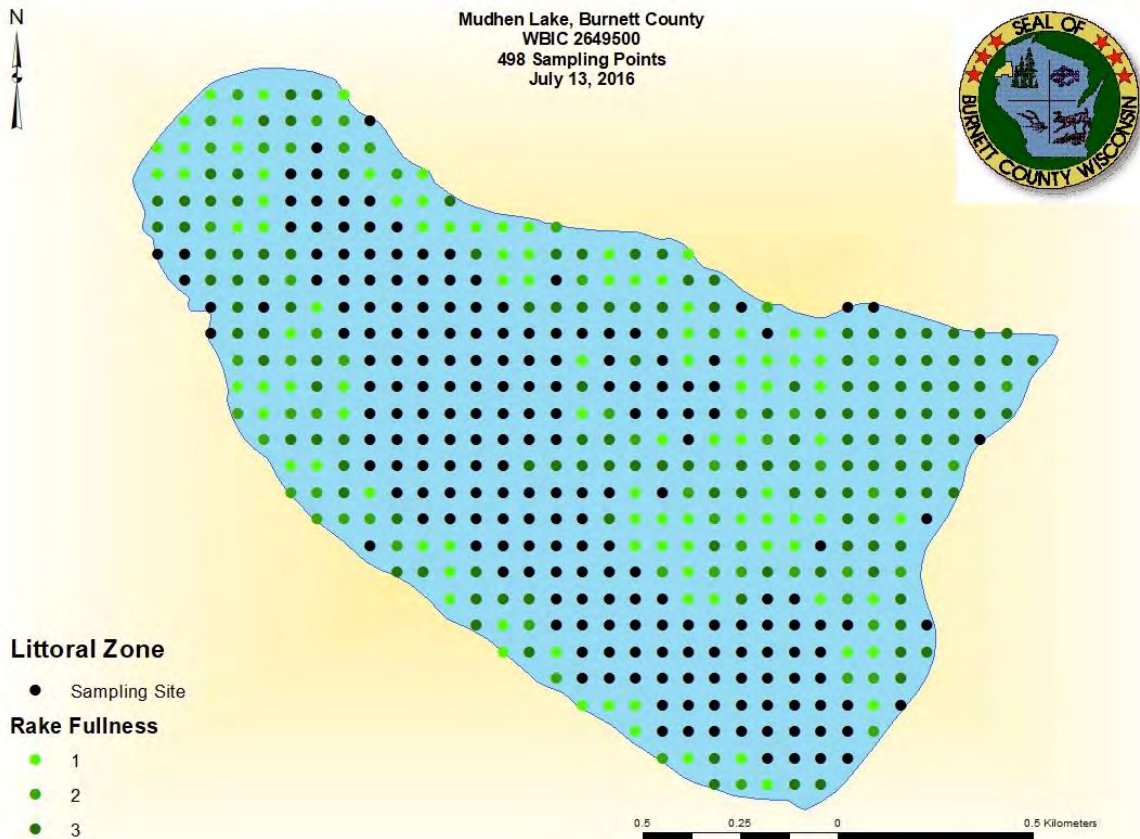


Figure 5: Littoral Zone: Region of Plant Growth

We identified a total of 57 native species in Mudhen Lake. They produced a mean Coefficient of Conservation of 6.4 and a Floristic Index of 40.48 which is up from the 2011 survey, which was 36.9 (Table 5). Nichols (1999) reported an Average mean C for the Northern Lakes and Forest Region of 6.7 putting Mudhen Lake slightly below average for this part of the state. The FQI was higher than the mean FQI of 24.3 for the Northern Lakes and Forest Region (Nichols 1999). The above average C value is a result of having a higher level of sensitive plants found in the lake. This may be a reflection of good water quality and clarity over the last few years, or that

different plants were found in 2016 opposed to 2011. The high FQI is a result of Mudhen Lake having an above average plant diversity (Table 6).

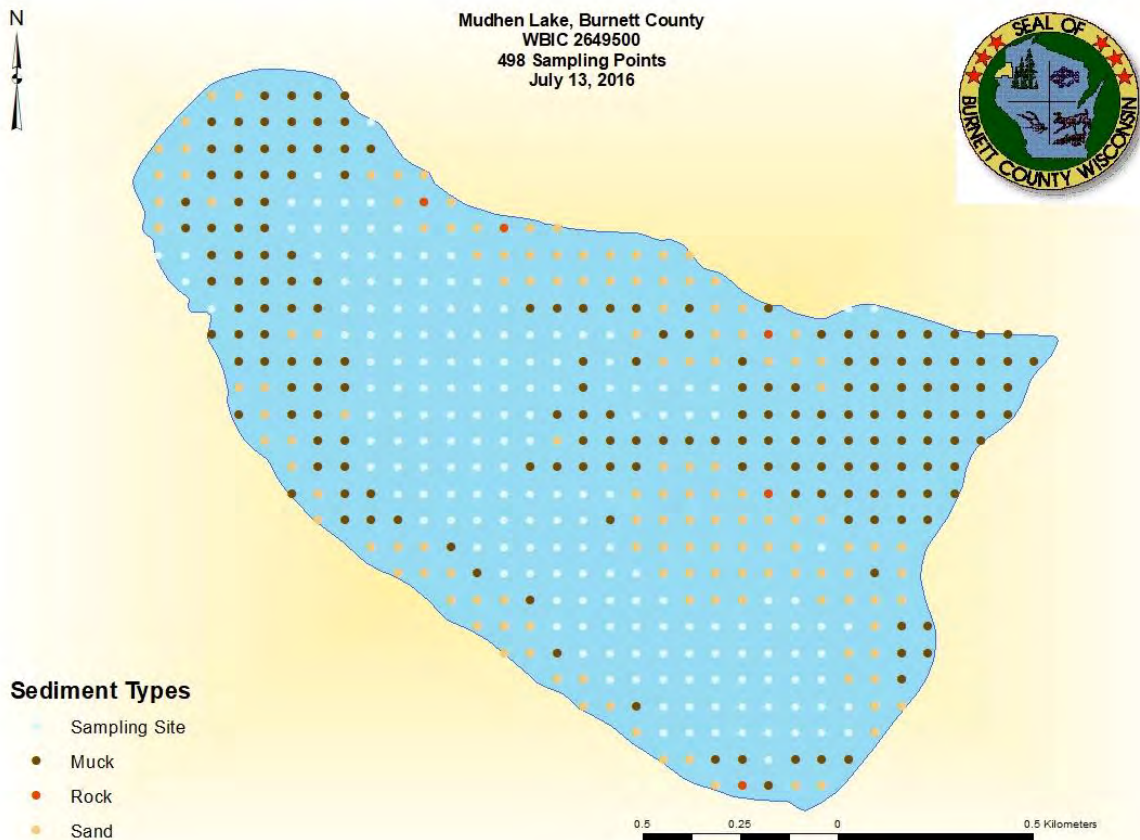


Figure 6: Sediment Types Found in Mudhen Lake

The most common plants found during the 2016 Macrophyte survey were: *Elodea nuttallii* (Slender waterweed), *Chara spp.* (Muskgrasses), *Najas guadalupensis* (Southern naiad), *Ceratophyllum demersum* (Coontail) (Table 6). We found them at 36.58%, 35.57%, 29.53%, and 27.18% of the survey points with vegetation respectively (Figure 7). All four species were widely distributed throughout the lake over muck bottoms (Figure 5). Although many other species were widely distributed, we did not find any with a relative frequency over 12%. In comparison, the most common species found during the 2011 survey were as follows: Flat-stem pondweed (*Potamogeton zosteriformis*), Clasping-leaf pondweed (*Potamogeton richardsonii*), Muskgrass (*Chara sp.*) and Fern pondweed (*Potamogeton robbinsii*).

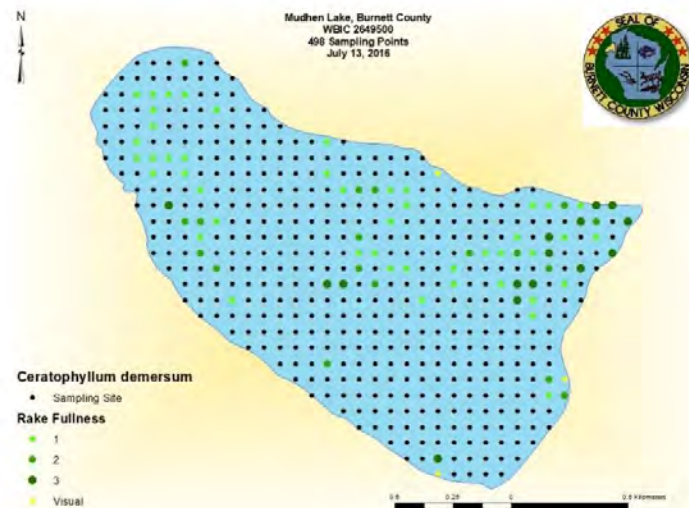
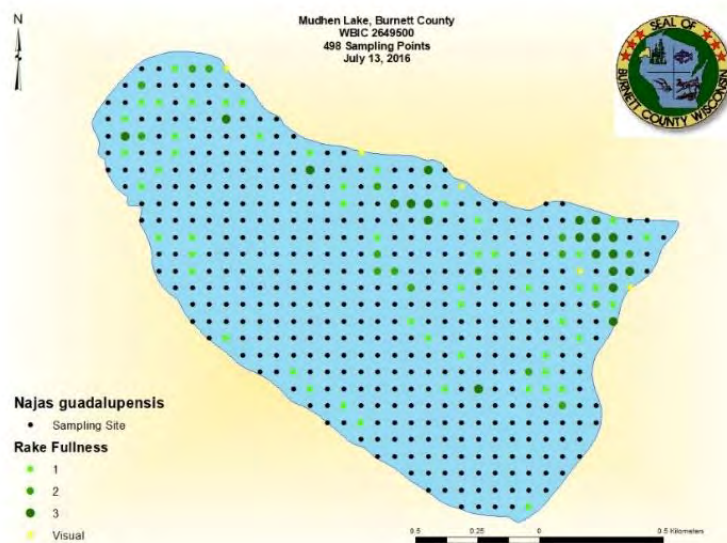
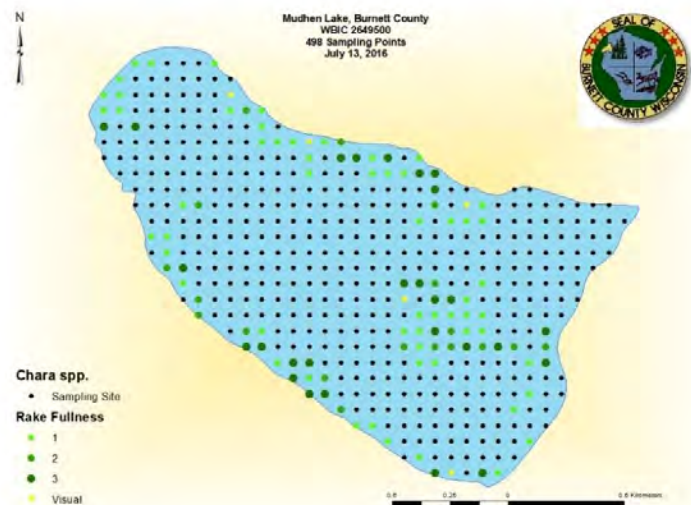
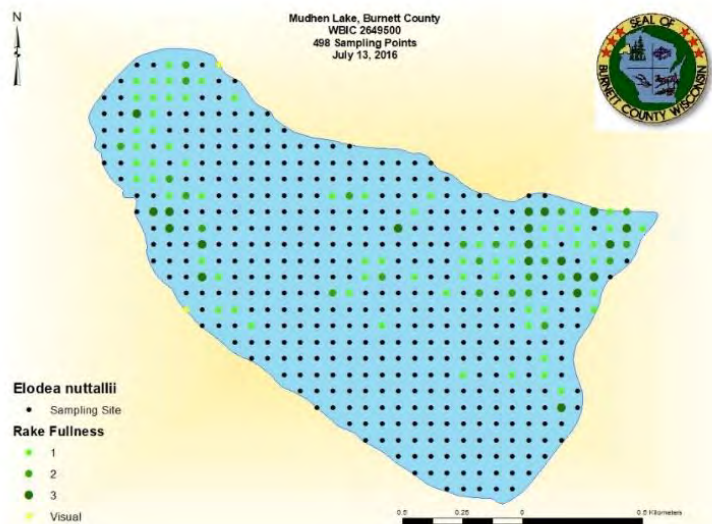


Figure 7: Four Most Common Aquatic Plant Species in Mudhen Lake

Table 4: Mudhen Lake Aquatic Macrophytes Survey Summary Statistics

Summary Statistics	
Total number of sites visited	491
Total number of sites with vegetation	298
Total number of sites shallower than maximum depth of plants	322
Frequency of occurrence at sites shallower than maximum depth of plants	92.55
Simpson Diversity Index	0.93
Maximum depth of plants (ft)**	17.00
Number of sites sampled using rake on Rope (R)	491
Number of sites sampled using rake on Pole (P)	0
Average number of all species per site (shallower than max depth)	2.87
Average number of all species per site (veg. sites only)	3.10
Average number of native species per site (shallower than max depth)	2.87
Average number of native species per site (veg. sites only)	3.10
Species Richness	42
Species Richness (including visuals)	57
Mean Depth of Plants (ft)	4.78
Median Depth of Plants (ft)	4

Table 5: Mudhen Lake FQI Species and Conservatism Values

Species	Common Name	C
<i>Bidens beckii</i>	Water marigold	8
<i>Brasenia schreberi</i>	Watershield	6
<i>Catabrosa aquatica</i>	Brook grass	10
<i>Ceratophyllum demersum</i>	Coontail	3
<i>Ceratophyllum echinatum</i>	Spiny hornwort	10
<i>Chara</i>	Muskgrasses	7
<i>Eleocharis palustris</i>	Creeping spikerush	6
<i>Elodea canadensis</i>	Common waterweed	3
<i>Elodea nuttallii</i>	Slender waterweed	7
<i>Heteranthera dubia</i>	Water star-grass	6
<i>Lemna minor</i>	Small duckweed	4
<i>Lemna trisulca</i>	Forked duckweed	6
<i>Myriophyllum sibiricum</i>	Northern water-milfoil	6
<i>Myriophyllum tenellum</i>	Dwarf water-milfoil	10
<i>Najas flexilis</i>	Slender naiad	6
<i>Najas guadalupensis</i>	Southern naiad	8
<i>Nitella</i>	Nitella	7
<i>Nuphar variegata</i>	Spatterdock	6
<i>Nymphaea odorata</i>	White water lily	6
<i>Polygonum amphibium</i>	Water smartweed	5
<i>Potamogeton amplifolius</i>	Large-leaf pondweed	7
<i>Potamogeton foliosus</i>	Leafy pondweed	6

Table 5: Continued		
Species	Common Name	C
<i>Potamogeton friesii</i>	Fries' pondweed	8
<i>Potamogeton gramineus</i>	Variable pondweed	7
<i>Potamogeton illinoensis</i>	Illinois pondweed	6
<i>Potamogeton natans</i>	Floating-leaf pondweed	5
<i>Potamogeton praelongus</i>	White-stem pondweed	8
<i>Potamogeton richardsonii</i>	Clasping-leaf pondweed	5
<i>Potamogeton robbinsii</i>	Fern pondweed	8
<i>Potamogeton strictifolius</i>	Stiff pondweed	8
<i>Potamogeton zosteriformis</i>	Flat-stem pondweed	6
<i>Ranunculus aquatilis</i>	White water crowfoot	8
<i>Schoenoplectus acutus</i>	Hardstem bulrush	6
<i>Schoenoplectus pungens</i>	Three-square bulrush	5
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush	4
<i>Spirodela polyrhiza</i>	Large duckweed	5
<i>Stuckenia pectinata</i>	Sago pondweed	3
<i>Utricularia vulgaris</i>	Common bladderwort	7
<i>Vallisneria americana</i>	Wild celery	6
<i>Zizania palustris</i>	Northern wild rice	8
<i>Zizania sp.</i>	Wild rice	8
N		40
Mean C		6.4
FQI		40.48

Table 6: Frequencies and Mean Rake Sample of Aquatic Macrophytes Mudhen Lake, Burnett County July 13, 2016

Scientific Name	Common Name	Total Sites	Relative Frequency (%)	Frequency of occurrence vegetated (%)	Mean Rake Fullness	Visual Sightings
Elodea nuttallii	Slender waterweed	109	11.78	36.58	1.58	2
Chara sp.	Muskgrasses	106	11.46	35.57	1.70	5
Najas guadalupensis	Southern naiad	88	9.51	29.53	1.64	5
Ceratophyllum demersum	Coontail	81	8.76	27.18	1.60	3
Potamogeton richardsonii	Clasping-leaf pondweed	80	8.65	26.85	1.53	35
Potamogeton zosteriformis	Flat-stem pondweed	77	8.32	25.84	1.31	20
Potamogeton robbinsii	Fern pondweed	70	7.57	23.49	1.71	3
Myriophyllum sibiricum	Northern water-milfoil	68	7.35	22.82	1.34	28
Potamogeton gramineus	Variable pondweed	47	5.08	15.77	1.26	33
Lemna trisulca	Forked duckweed	24	2.59	8.05	1.00	6
Vallisneria americana	Wild celery	22	2.38	7.38	1.14	8
Potamogeton amplifolius	Large-leaf pondweed	19	2.05	6.38	1.11	26
Potamogeton friesii	Fries' pondweed	19	2.05	6.38	1.00	7
Najas flexilis	Slender naiad	18	1.95	6.04	1.11	3
Nitella sp.	Nitella	13	1.41	4.36	1.54	
Zizania sp.	Wild rice	11	1.19	3.69	1.18	18
Potamogeton praelongus	White-stem pondweed	10	1.08	3.36	1.20	4
Heteranthera dubia	Water star-grass	8	0.86	2.68	1.13	6
Schoenoplectus acutus	Hardstem bulrush	8	0.86	2.68	1.13	66
Bidens beckii	Water marigold	7	0.76	2.35	1.29	1
Potamogeton natans	Floating-leaf pondweed	6	0.65	2.01	1.33	23
Schoenoplectus pungens	Three-square bulrush	5	0.54	1.68	1.40	7
Elodea canadensis	Common waterweed	3	0.32	1.01	1.33	1
Nymphaea odorata	White water lily	3	0.32	1.01	1.00	27

Table 6: Continued						
Scientific Name	Common Name	Total Sites	Relative Frequency (%)	Frequency of occurrence vegetated (%)	Mean Rake Fullness	Visual Sightings
Schoenoplectus tabernaemontani	Softstem bulrush	3	0.32	1.01	1.00	29
Eleocharis palustris	Creeping spikerush	2	0.22	0.67	1.00	10
Potamogeton illinoensis	Illinois pondweed	2	0.22	0.67	1.00	7
Ranunculus aquatilis	White water crowfoot	2	0.22	0.67	1.00	2
Stuckenia pectinata	Sago pondweed	2	0.22	0.67	1.00	8
Utricularia vulgaris	Common bladderwort	2	0.22	0.67	1.00	1
Brasenia schreberi	Watershield	1	0.11	0.34	1.00	1
Eleocharis robbinsii	Robbins' spikerush	1	0.11	0.34	1.00	
Lemna minor	Small duckweed	1	0.11	0.34	1.00	2
Myriophyllum tenellum	Dwarf water-milfoil	1	0.11	0.34	2.00	
Nuphar variegata	Spatterdock	1	0.11	0.34	1.00	18
Polygonum amphibium	Water smartweed	1	0.11	0.34	1.00	4
Potamogeton foliosus	Leafy pondweed	1	0.11	0.34	1.00	
Potamogeton strictifolius	Stiff pondweed	1	0.11	0.34	1.00	3
Sagittaria sp.	Arrowhead	1	0.11	0.34	1.00	3
Spirodela polyrhiza	Large duckweed	1	0.11	0.34	1.00	2
Filamentous algae	Filamentous algae	1		0.34	1.00	
Elatine minima	Waterwort	1				1
Eleocharis acicularis	Needle spikerush	3				3
Isoetes sp.	Quillwort	1				1
Lemna perpusilla	Least duckweed	1				1
Lobelia dortmanna	Water lobelia	1				1
Phragmites australis	Common reed	2				2
Pontederia cordata	Pickernelweed	21				21
Potamogeton obtusifolius	Blunt-leaf pondweed	1				1

Table 6: Continued Scientific Name	Common Name	Total Sites	Relative Frequency (%)	Frequency of occurrence vegetated (%)	Mean Rake Fullness	Visual Sightings
Potamogeton pusillus	Small pondweed	3				3
Sparganium americanum	American bur-reed	2				2
Sparganium emersum	Short-stemmed bur- reed	2				2
Typha angustifolia	Narrow-leaved cattail	5				5
Typha latifolia	Broad-leaved cattail	4				4
drapanacladus sp.	Aquatic moss	1				1

5.0 Future Management Strategy

The following section of the aquatic plant management plan is designed to discuss 5 major goals, objectives to accompany those goals and an action plan to meet the objectives set forth in the plan. Consideration is given to the audience and general time frame of action items.

5.1 Aquatic Plant Management Goals

Plan Goals

1. Prevent the introduction and spread of aquatic invasive species (AIS).
2. Reduce and control the population of purple loosestrife and monitor and control the spread of curly leaf pondweed.
3. Maintain and improve water quality conditions.
4. Enhance and maintain the diverse populations of native aquatic plants.
5. Educate the Mudhen Lake community and guests regarding aquatic plant management, management strategies found in the plan and appropriate plant management actions.

5.1.1 Goal 1: Prevent the introduction and spread of aquatic invasive species

Objectives

- A. 100% enforcement of Burnett County's and State's Do Not Transport Ordinance and Statewide regulations.
- B. Monitor Mudhen Lake regularly for AIS introduction.
- C. Mudhen Lake Rehabilitation District will rapidly respond to identified AIS in the lakes and river.
- D. 100% of boaters inspect, clean, and drain boats, trailers and equipment.
- E. Encourage members of the MLRD and community members to participate in the Clean Boats Clean Waters (CBCW) program.
- F. Maintain the ILIDS camera at the public landing as long as feasible.

Actions:

1. Train members of the MLRD to conduct Clean Boats Clean Waters monitoring at public boat landings.
2. Work with Burnett County and the Burnett County Sheriff's Department to encourage increased enforcement and potentially increased fines for the Do Not Transport Ordinance.
3. Hire a Consultant/to conduct Clean Boats Clean Waters Surveys at the public boat landings on Mudhen Lake.
4. Develop a rapid response plan for Eurasian water milfoil.

5. Train members of the MLRD, using the Citizen Lake Monitoring Network (CLMN), Aquatic Invasive Species training manual, to conduct whole lake monitoring on a yearly basis.
6. Maintain the I-Lids camera at the public landing as long as feasible.

5.1.2 Goal 2: Reduce and control the population of existing invasive species.

Objective. Using the point intercept survey method; the MLRD will conduct biennial monitoring of the existing beds of Curly leaf pondweed.

Action. Hire a Consultant to monitor the lake biennially; using existing GPS coordinates, for aquatic invasive macrophyte species.

Action. Monitor the lake annually for all aquatic invasive species, with the help of CLMN AIS volunteers.

Objective. Minimize populations of purple loosestrife on Mudhen Lake.

Action. Control with beetles and cut and spray as needed. Before cutting and spraying, consult with either the Board members of the Lake Association or Burnett County Land Services Conservation Department for assistance.

Objective. Identify and remove purple loosestrife plants from any newly colonized areas on Mudhen Lake.

Action.

Provide information and training to Mudhen Lake community so they can identify purple loosestrife and they know who to contact if they have a suspected plant.

Action.

Cut and spray individual plants where identification is confirmed by Lake association Board members or Burnett Land Services Conservation Department.

Action.

Work with adjacent property owners to control the spread of PLS.

Action.

Note each area where plant is sprayed and monitor in subsequent years and continue to monitor with CLMN AIS.

NOTE: NEED TO GET INPUT FROM BURNETT COUNTY LAND SERVICES CONSERVATION DEPARTMENT REGARDING MOST APPROPRIATE PL CONTROL METHODS FOR VARIOUS AREAS.

5.1.3 Goal 3: Maintain and improve water quality conditions.

Objectives

- A. Continue to sample and record both water samples and Secchi readings to ensure water quality. <https://dnrx.wisconsin.gov/swims/login.jsp>
- B. Encourage lake residents to restore and preserve shoreline buffers of native vegetation.

Messages

- 1. Shoreline buffers protect water quality and provide fish and wildlife habitat.
Describe ways to restore shoreline buffers (natural recovery, stop mowing, and plant natives).
 - 2. Cost sharing for restoration shoreline buffers is available from Burnett County.
 - 3. Describe the Burnett County shoreline buffer requirements and be able to report violations of these requirements.
 - 4. Highlight good examples of shoreline buffers on private waterfront property.
- C. Reduce phosphorus and sediment loads from immediate watershed.
 - D. Encourage Riparian land owners to adopt and implement storm water runoff controls for existing structures and all new constructions.

Adaptive Management Approach

Mudhen Lake share watersheds draining into them and as a result, the impacts that are most controllable at this time originate along the lake's immediate shoreline. These sources include faulty septic systems, the use of phosphorus-containing fertilizers, shoreland areas that are maintained in an unnatural manner, and impervious surfaces. To reduce these impacts, the Mudhen Lake Rehabilitation District will conduct an educational initiative aimed at raising awareness among shoreland property owners concerning their impacts on the lake. This will include newsletter articles and guest speakers at Association meetings. This Management Action will be completed in conjunction with the Shoreland Restoration Action listed below.

Action Steps:

- 1. Recruit facilitators
- 2. Facilitators summarize educational material collected from WDNR, UW-Extension, and County Land Services Conservation sources for the creation of informative materials
- 3. Facilitators disperse materials to stakeholders

Actions:

- 1. Continue to monitor water quality through WDNR Citizens Lake Monitoring Network advanced water chemistry program and Secchi disk sampling and record

data in the Surface Water Integrated Monitoring System (SWIMS) system
<https://dnrx.wisconsin.gov/swims/login.jsp> . (OBJ A)

2. Incorporate the Adaptive Management Approach to reduce phosphorus and sediment loads from immediate watershed. (OBJ B, C)
3. Educate and assist Mudhen Lake community members in the restoration and preservation of shoreland buffers and shoreland vegetation. Continue implementation of shoreline owners' education program. (OBJ B, C, D)

5.1.4 Goal 4: Enhance and maintain the diverse populations of native aquatic plants.

Objectives

- A. Implement strict adherence with treatment standards and monitoring methods prior to and following herbicide treatment.
- B. Prevent removal of native plants using herbicides, with special consideration to wild rice beds.
- C. Increase Mudhen Lake community's understanding of the role and importance of aquatic plants and their impacts on them.

Discussion

The plant community in the Mudhen Lake is very diverse and extensive. It is important to understand that these plants play a very important role in the lake ecosystem. Aquatic plants in the lake provide habitat for a diverse fish population. They also provide protection from shoreline erosion. Removing native plants could lead to adverse effects in the lakes. Healthy native plant populations prevent colonization by invasive plants. Erosion and runoff from waterfront property may alter sediment characteristics encouraging spread of invasive plants. Boating disturbance near the shoreline can remove aquatic plants and the valuable functions they provide. Boating disturbance near shore also creates sediment disturbance and the release of excess phosphorus, which can lead to excess algal blooms.

Actions

1. Consider alternative methods for removing native plants, other than using herbicide treatment. (OBJ B)
 2. Conduct a point intercept survey of the lake every five to ten years, or as needed. (OBJ C)
 3. Update the aquatic plant management plan every five to ten years, or as needed. (OBJ A, B and C)
- Educational activities are detailed in the discussion for Goal 4.

5.1.5 Goal 5: Educate the Mudhen Lake Residents, if any, who treated waterfront with herbicides in the past regarding aquatic plant management, management strategies found in the plan and appropriate plant management.

Audience: Mudhen Lake Community

- A. All lake residents
- B. Business owners
- C. Lake users
- D. Residents, if any, who treated waterfront with herbicides in the past
- E. Mudhen Lake Sportsman Club

Messages

1. Summary of APM plan, notice of public meeting, and how to get full APM plan
2. List of APM dos and don'ts
3. Contact list for APM include web resources
4. Native aquatic plant values
5. Limit impacts to native aquatic plants by traveling with no wake in shallow areas, using hand removal methods near docks and swimming areas, etc.
6. Explain procedure for individual corridor herbicide applications and describe conditions where herbicide treatment may be allowed.
7. Identification of CLP and methods for removal (include illustrations)
8. Identification of PLS and methods for removal (include illustrations)
9. Identification of EWM and contact if suspected (include illustrations)
10. Locations of nearby lakes with EWM
11. Describe new potential invasive species and why they are a threat
12. Native plant identification
13. Inspect, clean, and drain boats and equipment.
14. Burnett and as well as the State of Wisconsin have an ordinance that makes it illegal to transport aquatic plants on public roads.

Methods

Summary of APM plan
AIS education workshops for all lake users
Improvements to signage at boat landings
Updates to AIS handouts
Mailings and/or handouts to lake residents

Clean boats, clean waters monitoring/education

Annual meeting/special meetings

Door-to-door distribution of information

Plastic peel-off stickers for boats and cars

Attend Mudhen Lake Sportsman's Club meeting/s

Method	Audience	Message
APM plan summary	A - D	1
AIS workshops	A – C	4, 8-15
Signage	A – C	14, 15
AIS handouts	A – D	4, 6-15
Mailings	A – B	1 –15
Clean Boats, Clean Waters	C	8-11, 14, 15
Annual and special meetings	A – B	1-15
Door-to-door distribution	A	4-15
Plastic peel-off stickers	A – C	14, 15

5.2 Table 7: Implementation Plan

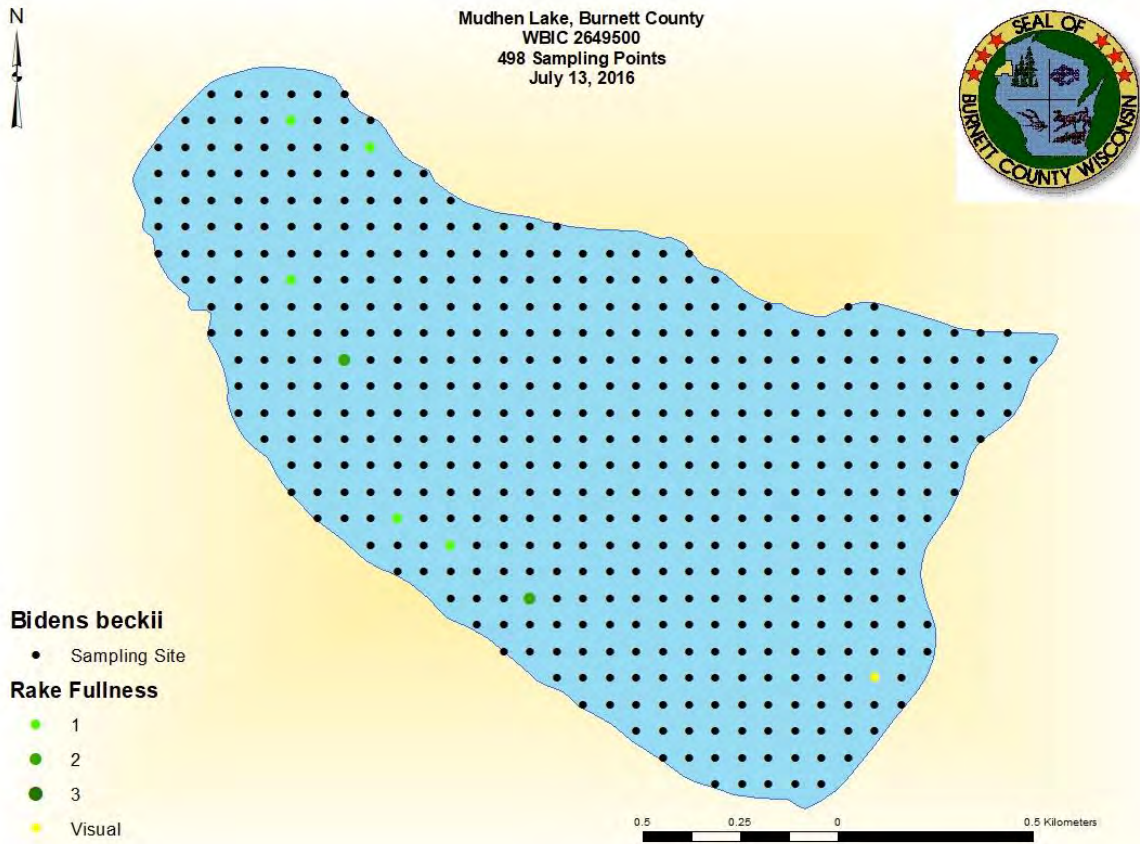
Action Items	Timeline	Cost 2018	Cost 2019	Cost 2020	Responsible Parties
Prevent AIS Introduction					
Identify and organize volunteer workers/employers for CBCW program	Ongoing	10 Hours	10 Hours	10 Hours	MLRD
Conduct CBCW program	Ongoing	10 Hours	10 Hours	10 Hours	MLRD
Increase enforcement of BC/WC Do Not Transport Ordinance	Ongoing	3 Hours	3 Hours	3 Hours	MLRD/Dan Heintz/BC Sheriff
Monitor Boat Landings	Ongoing	60 Hours	70 Hours	70 Hours	MLRD/BC LSCD
Train Volunteer monitors in CLMN	As needed	0 Hours	0 Hours	0 Hours	BC LSCD
Rapid Response plan review	Ongoing	1 Hour	1 Hour	1 Hour	MLRD/BC LSCD
Maintain ILIDS & Monitor Video from ILIDS	Ongoing	\$2250.00	\$2250.00	\$2250.00	MLRD
AIS Reduction and Prevention					
Provide Identification information and encourage volunteer monitoring	May - August	20 Hours	20 Hours	20 Hours	MLRD/BC LSCD
Monitor Lake for PL growth	July/August	10 Hours	10 Hours	10 Hours	MLRD
Cut and Spray plants as needed	July/August	15 Hours	15 Hours	15 Hours	MLRD/BC LSCD
Track and monitor previously sprayed areas in previous years	Ongoing	10 Hours	10 Hours	10 Hours	MLRD/BC LSCD
Monitor & map all CLP beds every two years or more often if warranted.	Mid May-Mid June	TBD	TBD	TBD	MLRD/BC LSCD
Consider if CLP control is warranted	September	TBD			

Action Items	Timeline	Cost 2018	Cost 2019	Cost 2020	Responsible Parties
Water Quality					
Water chemistry and Secchi sampling	Ongoing	15 Hours	15 Hours	15 Hours	MLRD
Reduce phosphorus and sediment loads from immediate watershed	Ongoing	TBD			
Educate and assist Mudhen Lake community members in the restoration and preservation of shoreland buffers and shoreland vegetation	Ongoing	5 Hours	5 Hours	5 Hours	MLRD/BC LSCD
Continue implementation of shoreline owners' education program	Ongoing	TBD			
Preserve Native Plants					
Conduct a point intercept survey of the lake	2021		TBD		
Update APM plan	2022		TBD		
Educate Mudhen Lake Community					
AIS workshops	Ongoing	\$0	\$0	\$0	BC LSCD
AIS signage	Ongoing	\$0	\$0	\$0	BC LSCD
Handouts, mailings, door-to-door distribution	As needed	\$200.00	\$200.00	\$200.00	MLRD

6.0 References

- Wisconsin Department of Natural Resources
<http://dnr.wi.gov/lakes/lakepages/LakeDetail.aspx?wbic=2706800>, July 18, 2016.
- *Through the Looking Glass*. Bowman et. al. 1997
- Templates and other data taken from Harmony Environmental. Aquatic Plant Management Plan. Yellow and Little Yellow Lakes, Burnett County, Wisconsin. June 2009

Appendix A: Aquatic Plants of Mudhen Lake





Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Brasenia schreberi

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Ceratophyllum echinatum

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

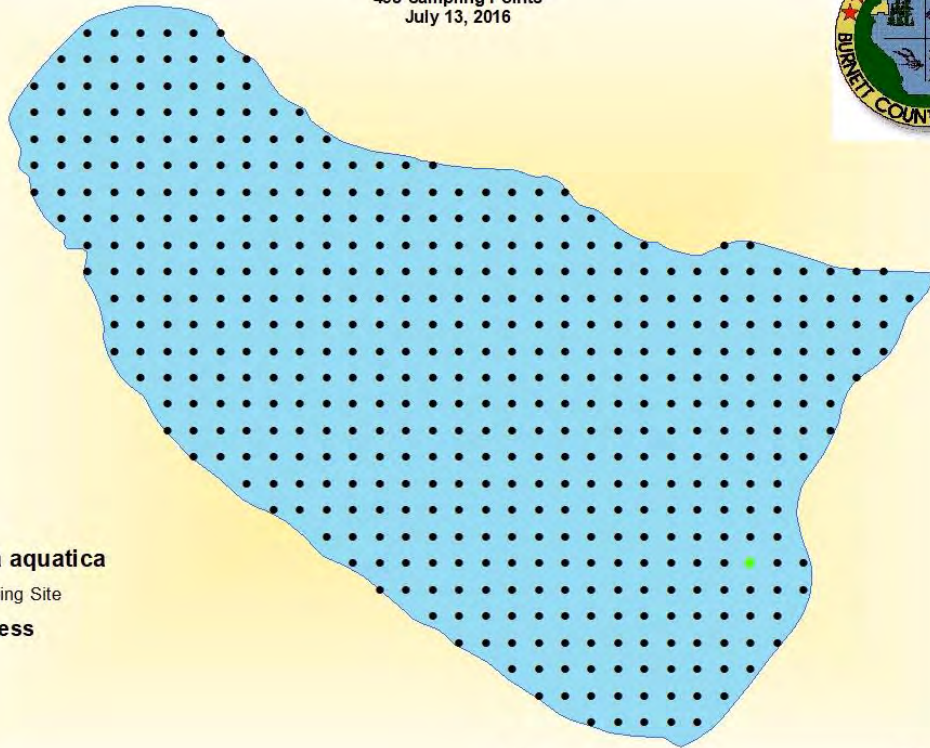


Catabrosa aquatica

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Ceratophyllum demersum

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Chara spp.

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

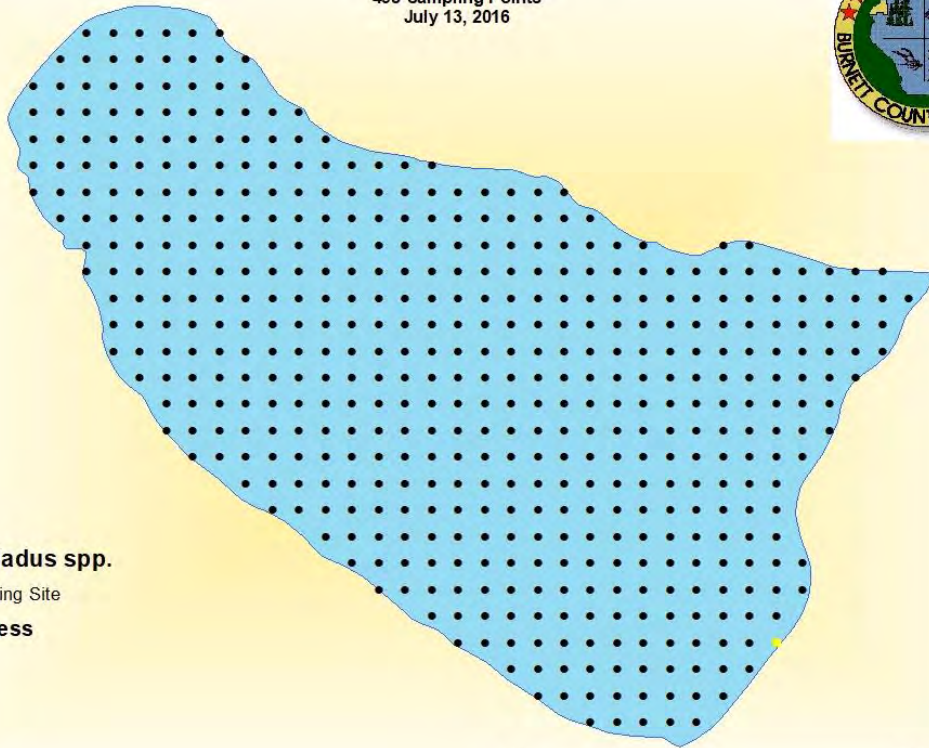


Drepanocladus spp.

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Elatine minima

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

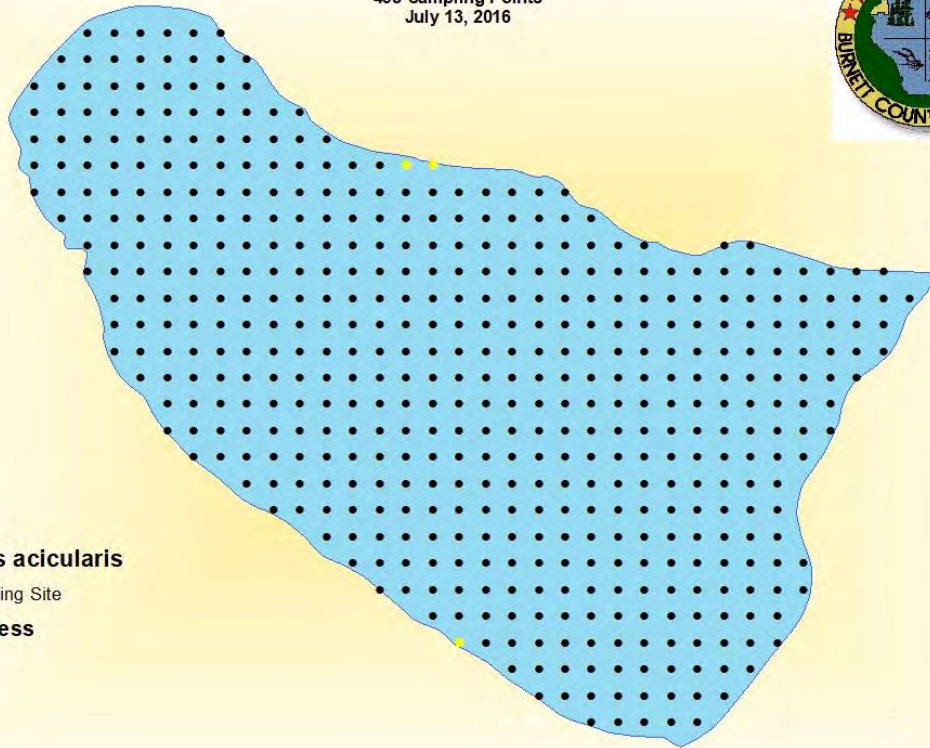


Eleocharis acicularis

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

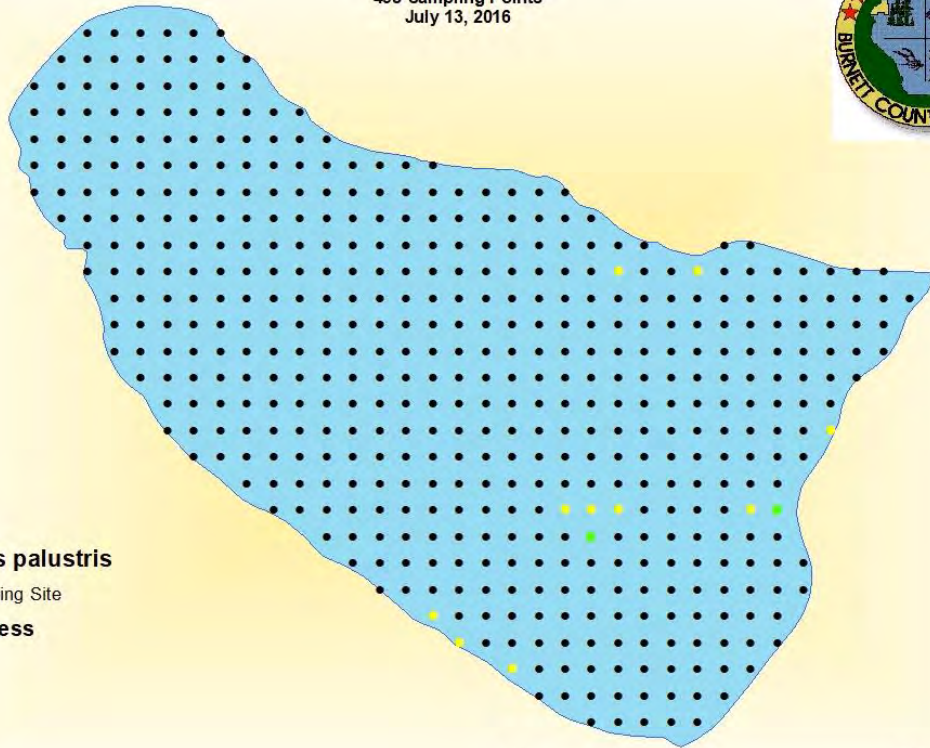


Eleocharis palustris

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

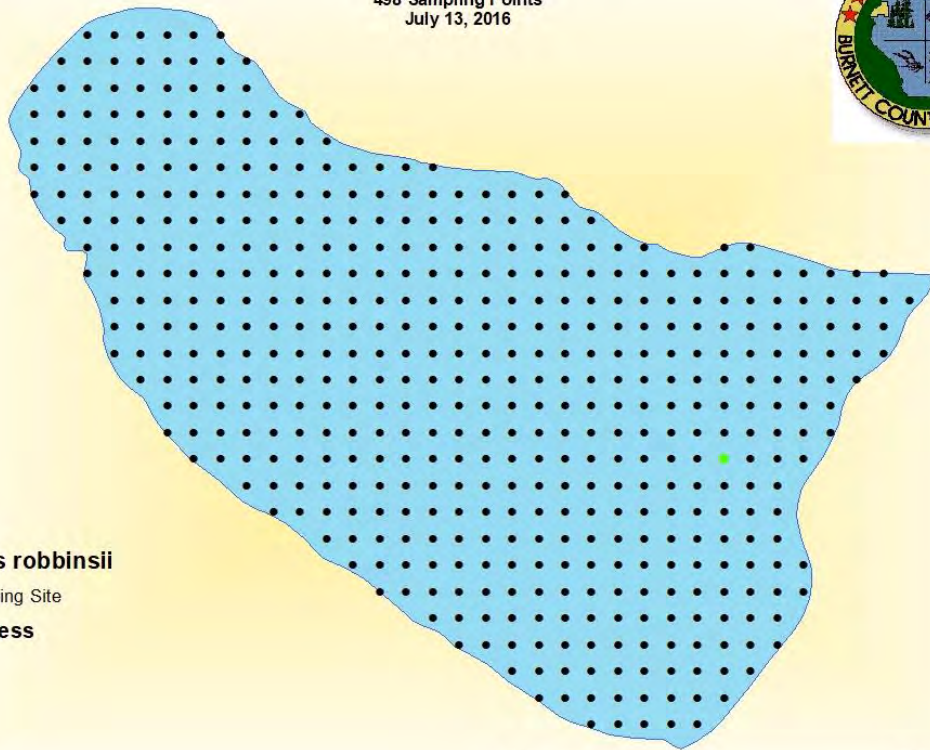


Eleocharis robbinsii

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Elodea canadensis

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Elodea nuttallii

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

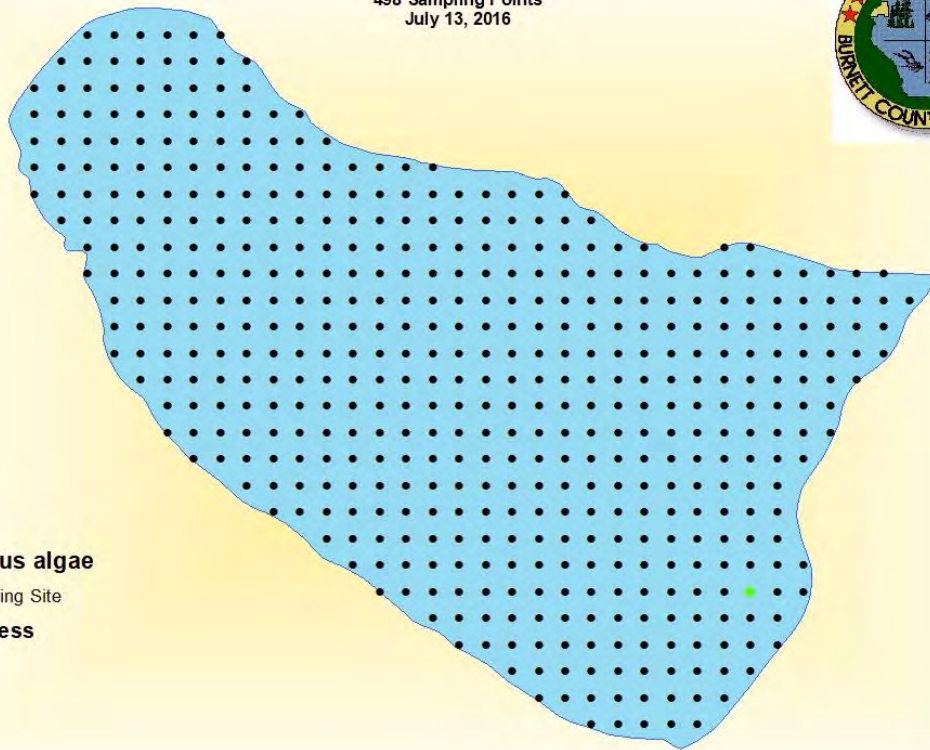


Filamentous algae

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016

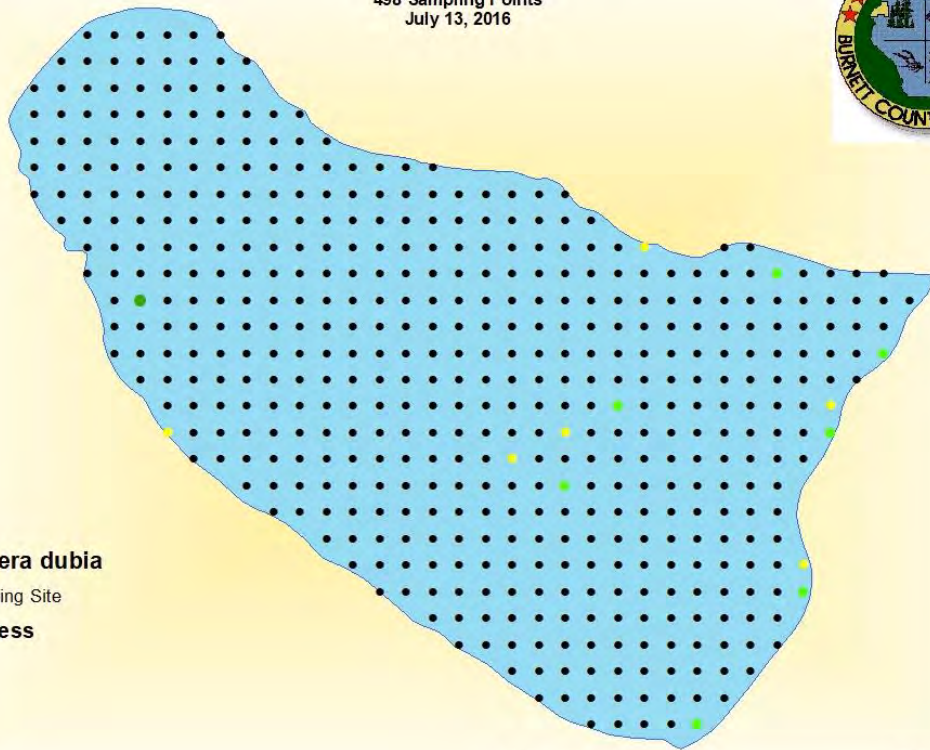


Heteranthera dubia

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
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July 13, 2016

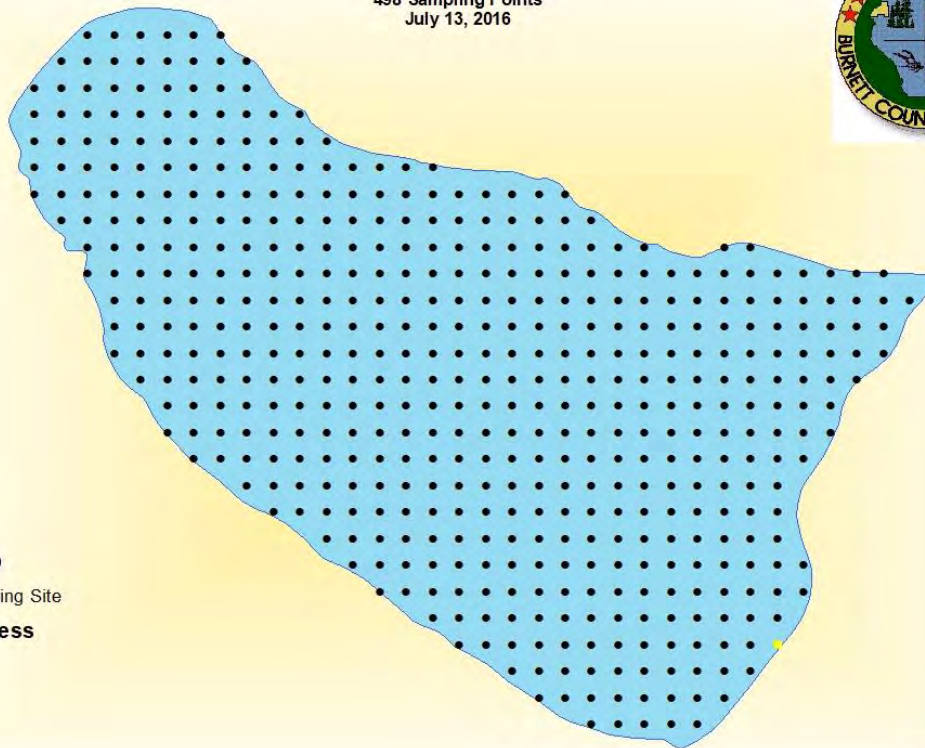


Isoetes sp

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual





Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016

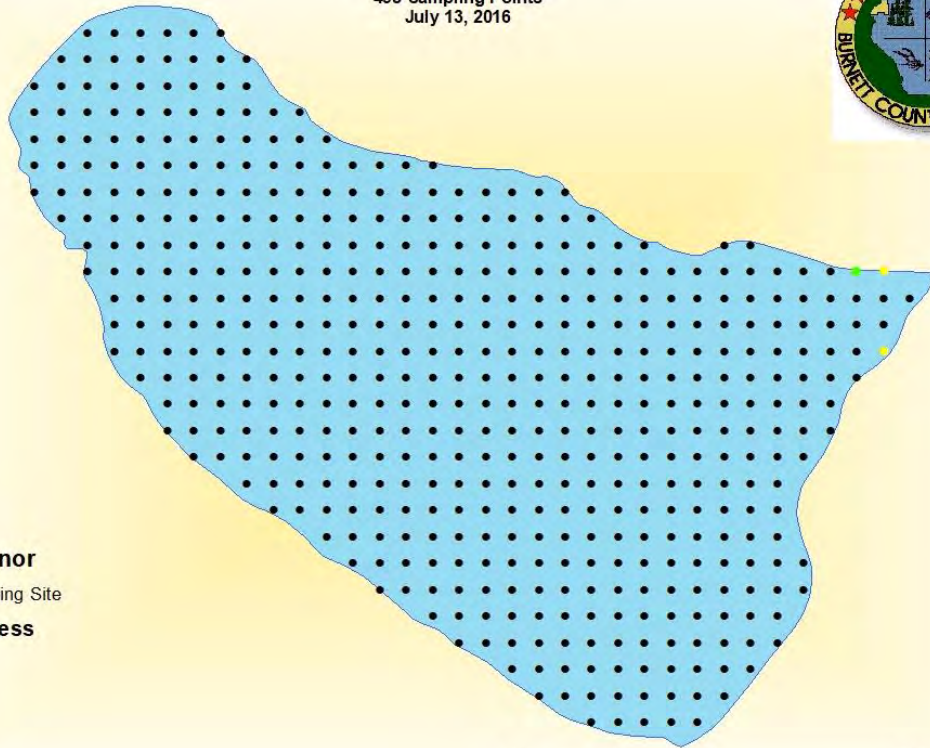


Lemna minor

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Lemna trisulca

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Lemna perpusilla

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Littoral Zone

- Sampling Site

Rake Fullness

- 1
- 2
- 3

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Lobelia dortmanna

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

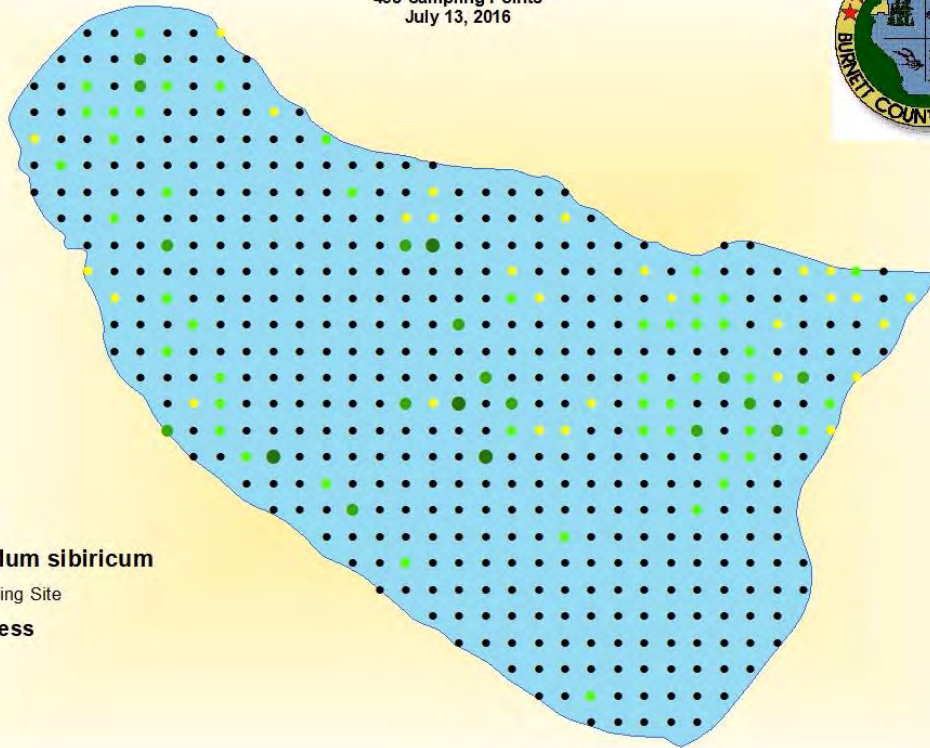


Myriophyllum sibiricum

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Myriophyllum tenellum

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

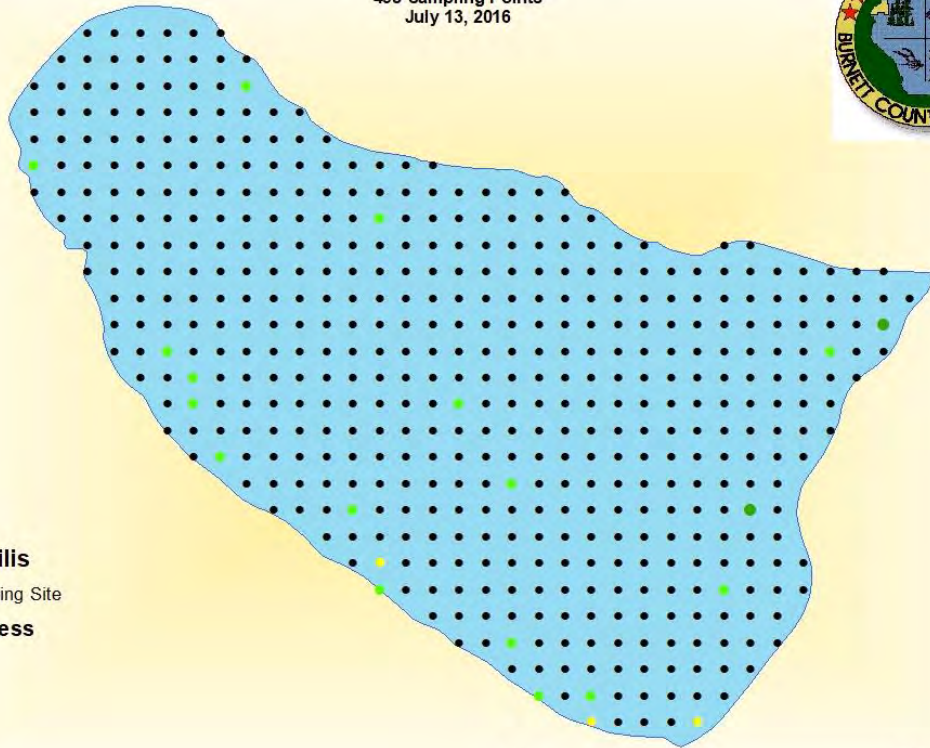


Najas flexilis

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016

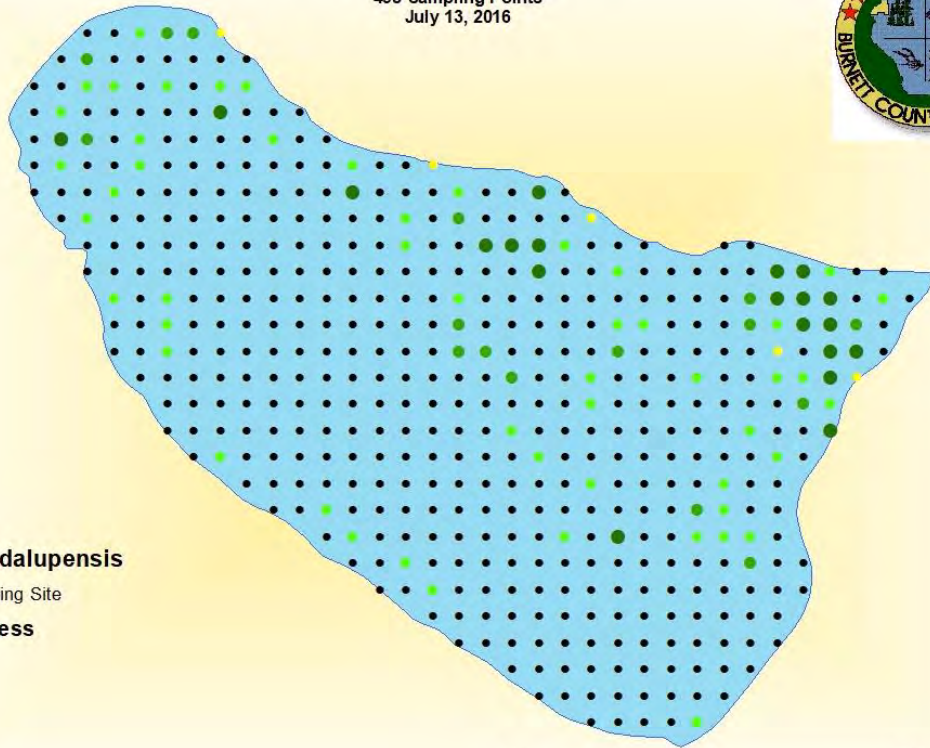


Najas guadalupensis

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016

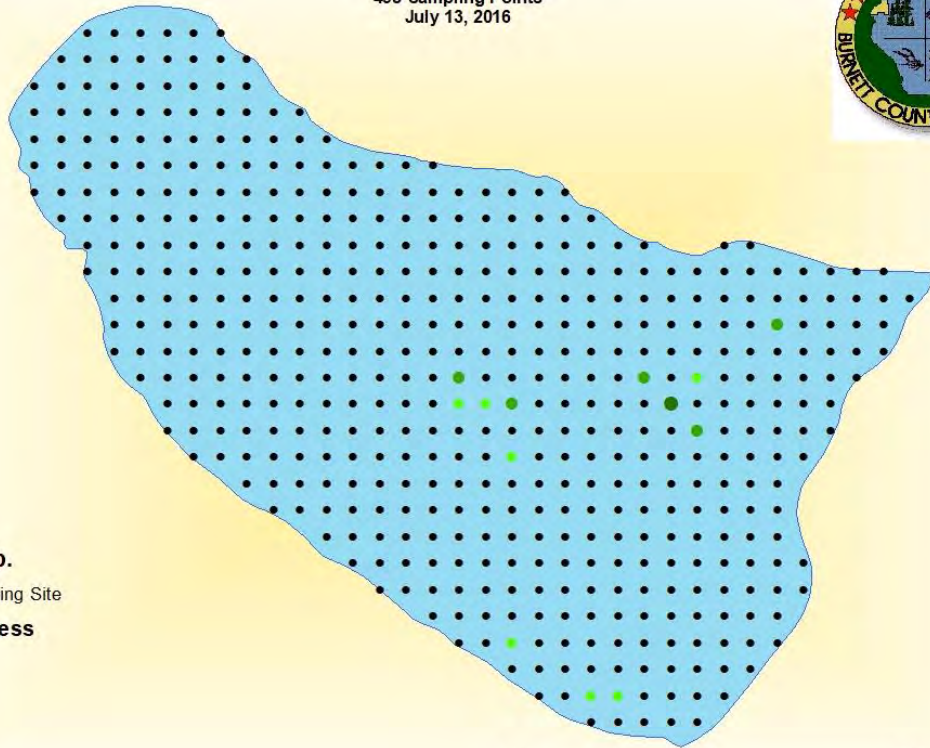


Nitella spp.

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

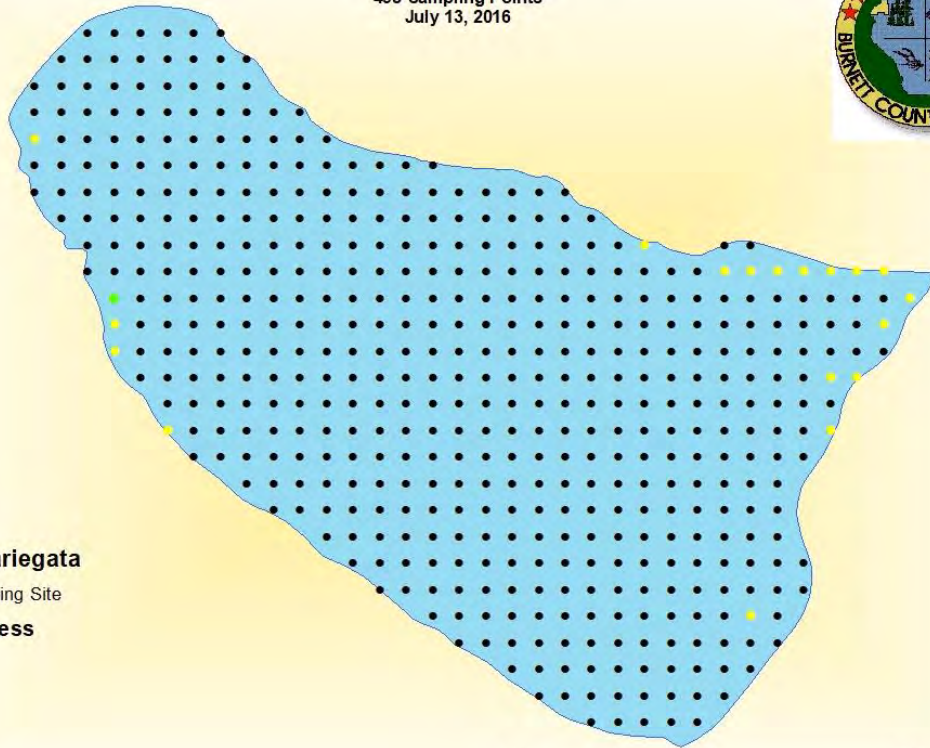


Nuphar variegata

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Nymphaea odorata

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Phragmites spp.

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Polygonum amphibium

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
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498 Sampling Points
July 13, 2016

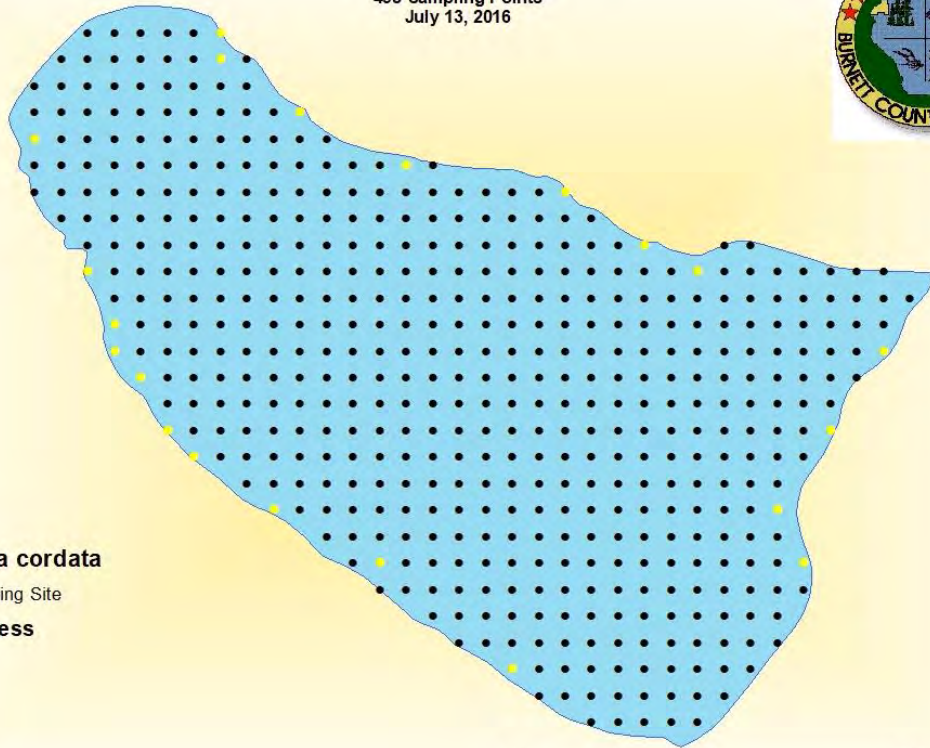


Pontederia cordata

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016

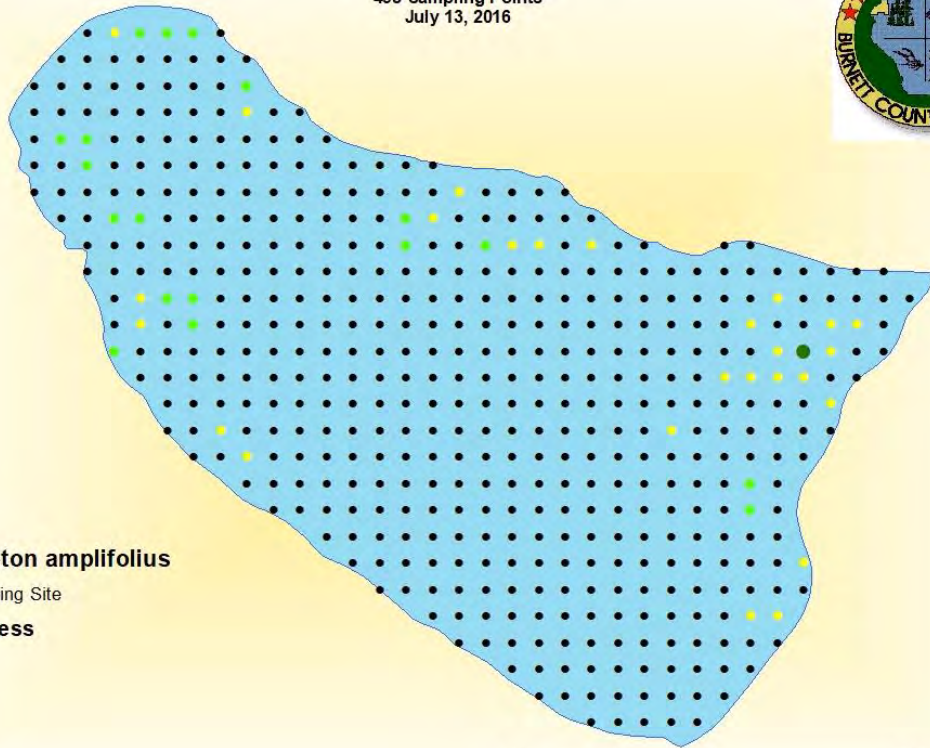


Potamogeton amplifolius

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

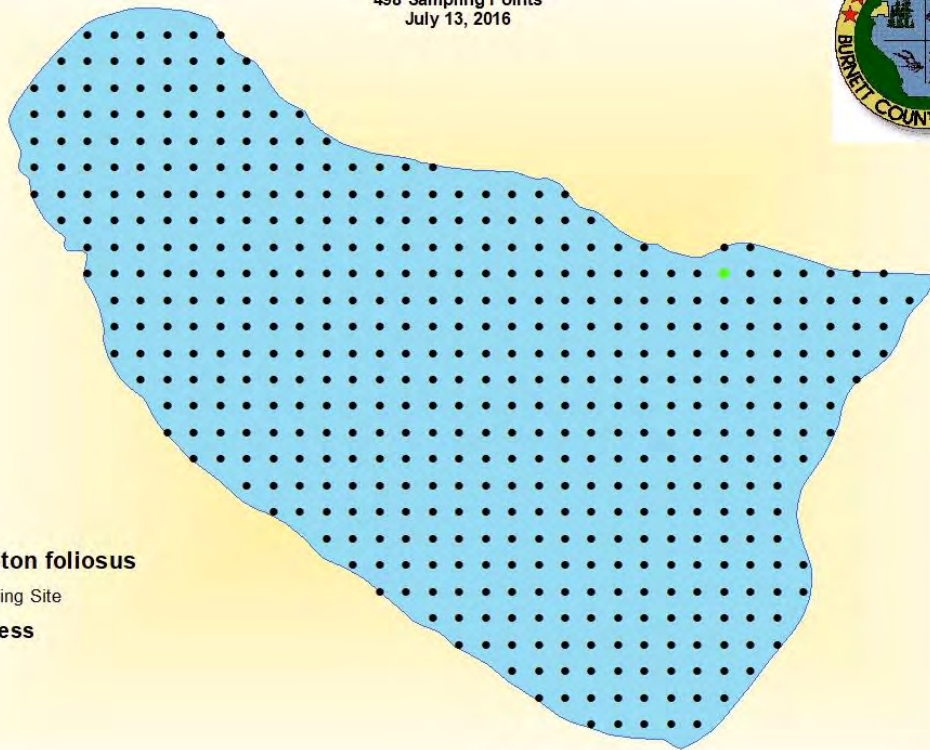


Potamogeton foliosus

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

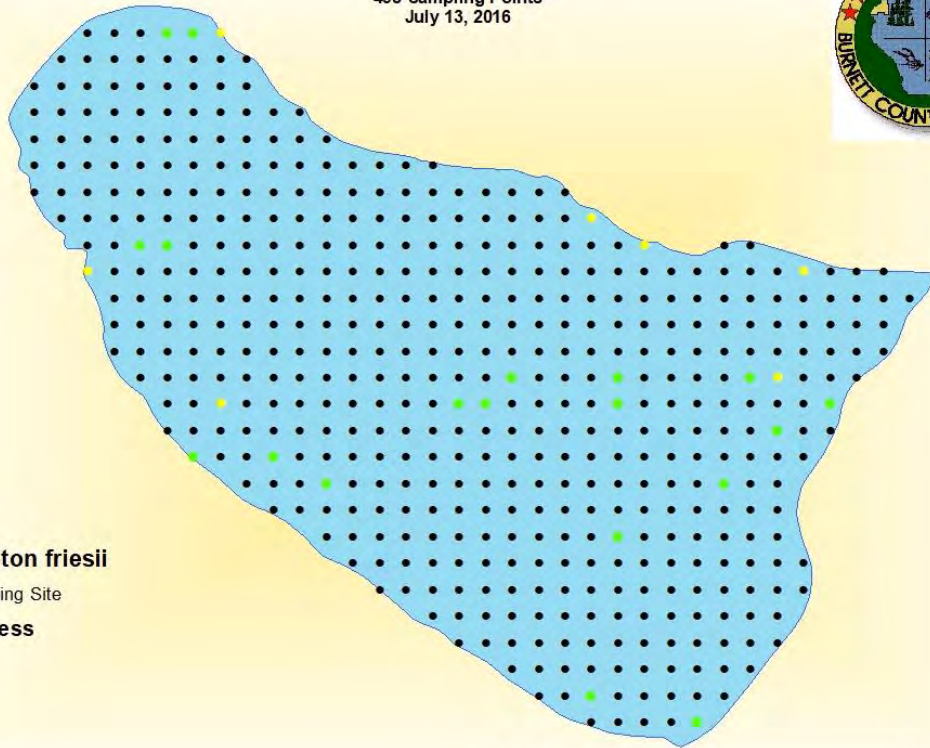


Potamogeton friesii

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Potamogeton gramineus

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Potamogeton illinoensis

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Potamogeton natans

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Potamogeton obtusifolius

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

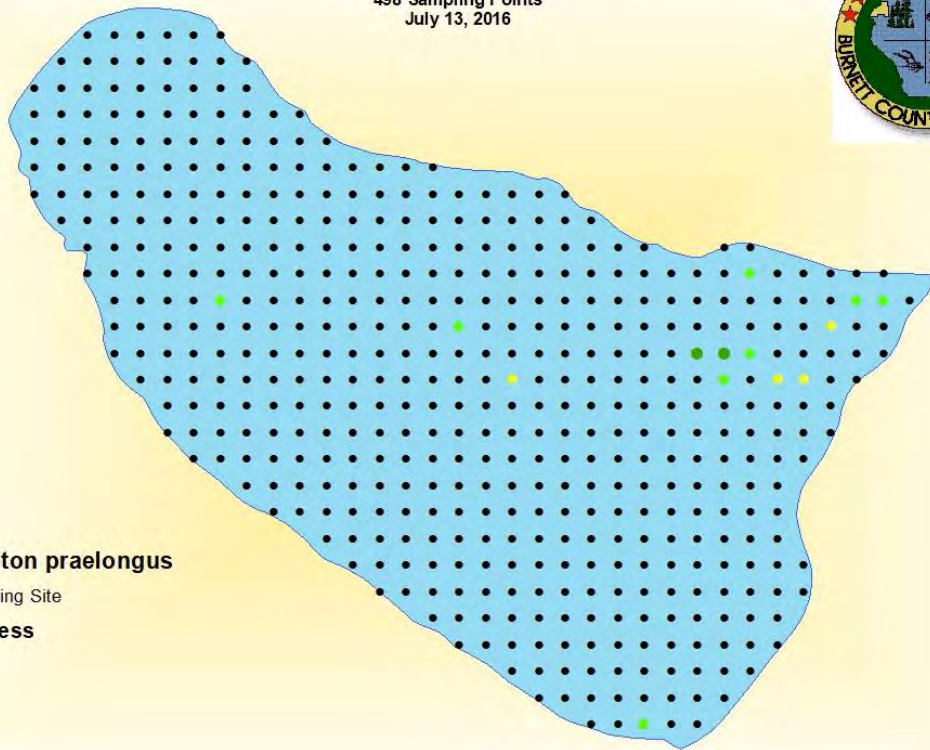


Potamogeton praelongus

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Potamogeton pusillus

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

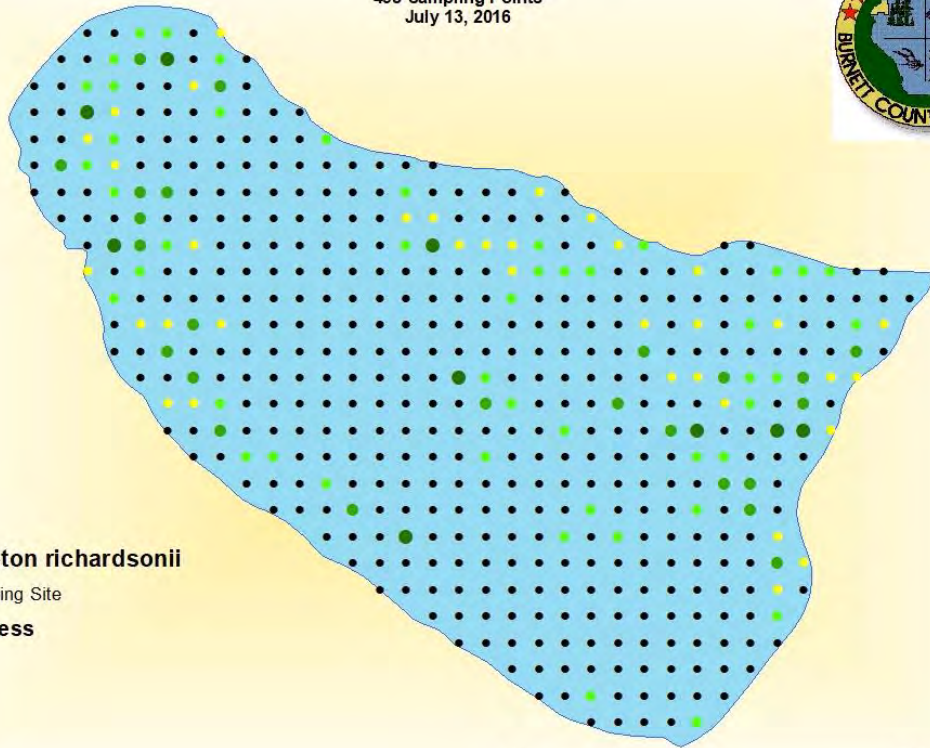


Potamogeton richardsonii

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Potamogeton robbinsii

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

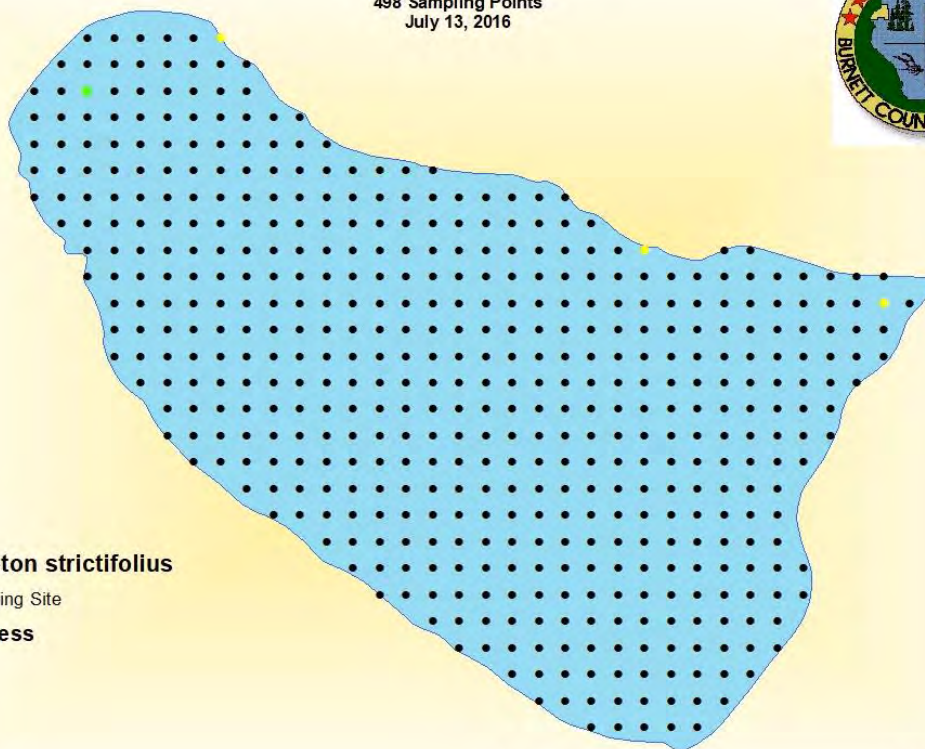


Potamogeton strictifolius

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Potamogeton zosteriformis

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Ranunculus aquatilis

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Sagittaria spp.

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Schoenoplectus acutus

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
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July 13, 2016



Schoenoplectus pungens

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
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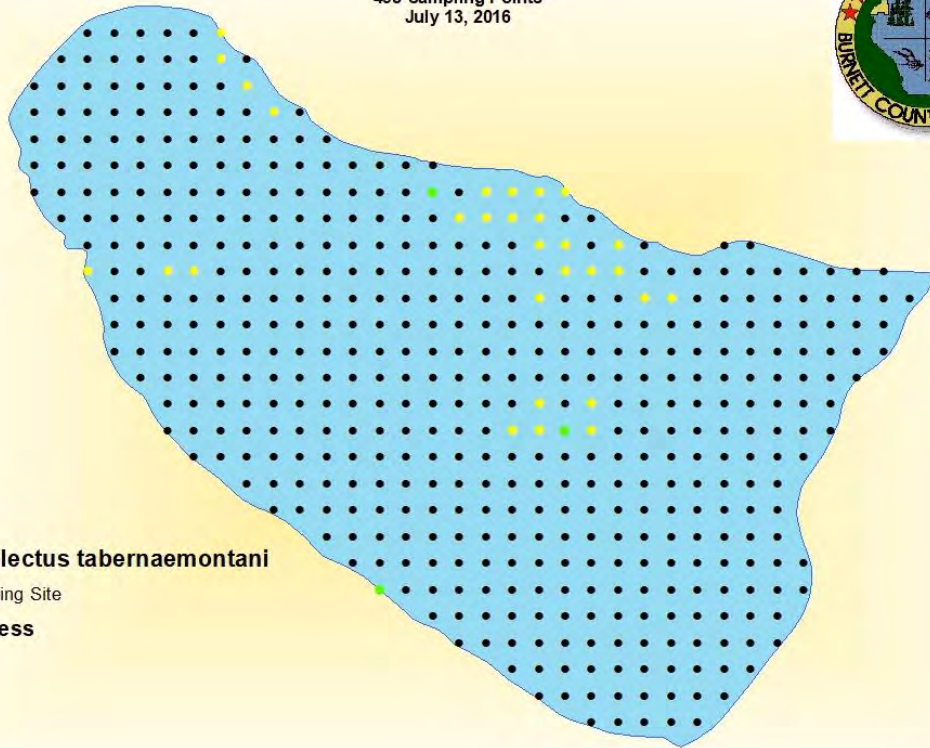


Schoenoplectus tabernaemontani

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers

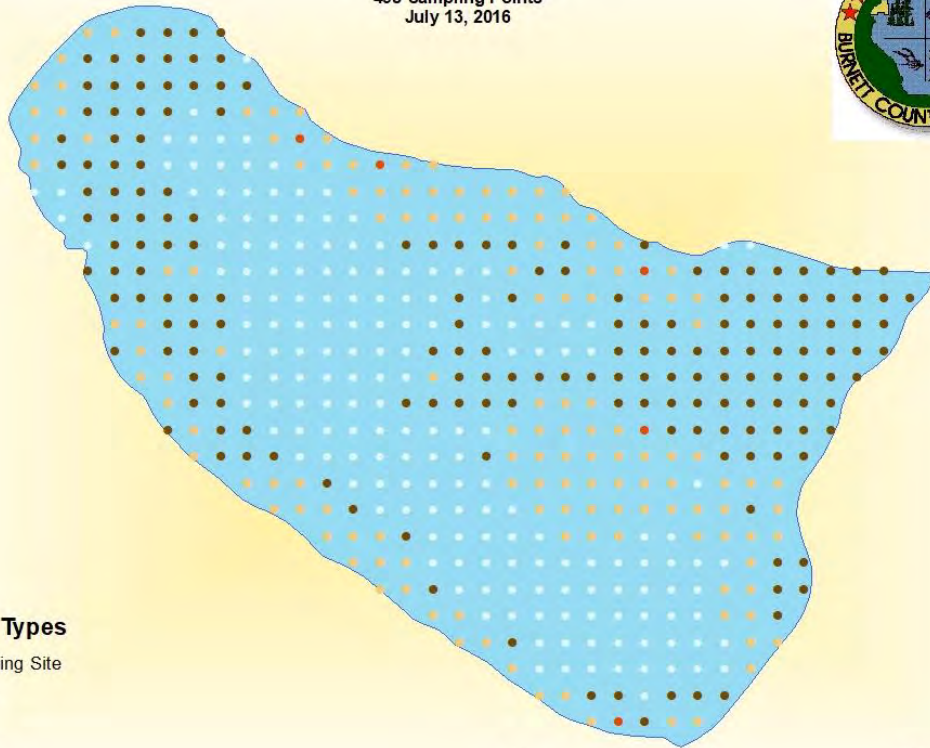


Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Sediment Types

- Sampling Site
- Muck
- Rock
- Sand





Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Sparganium americanum

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Sparganium emersum

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Spirodela polyrhiza

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

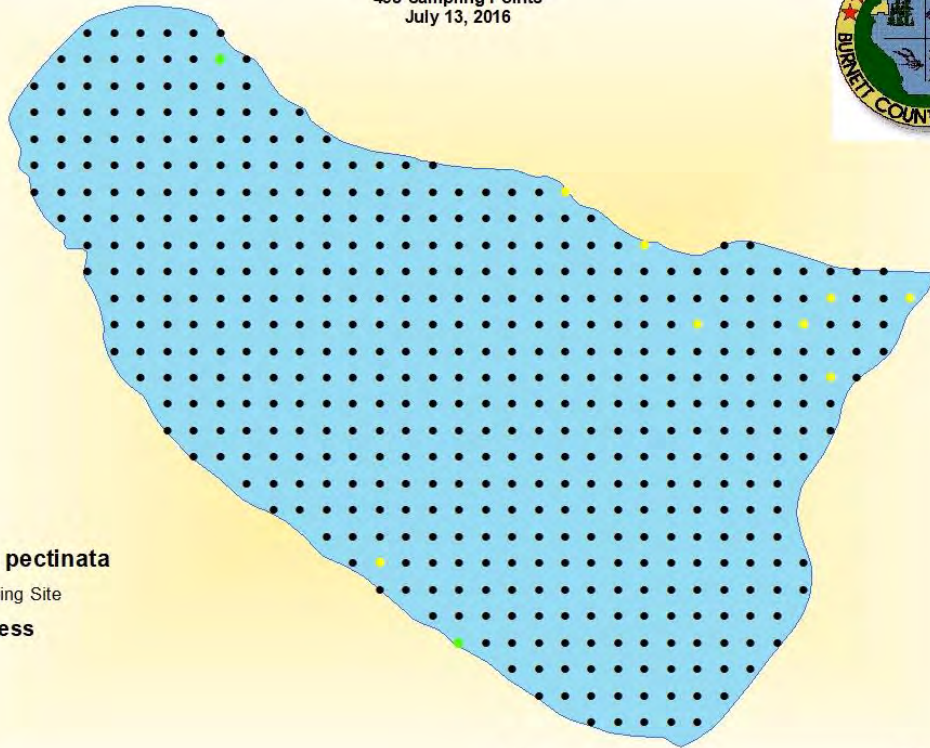


Stuckenia pectinata

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Typha angustifolia

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

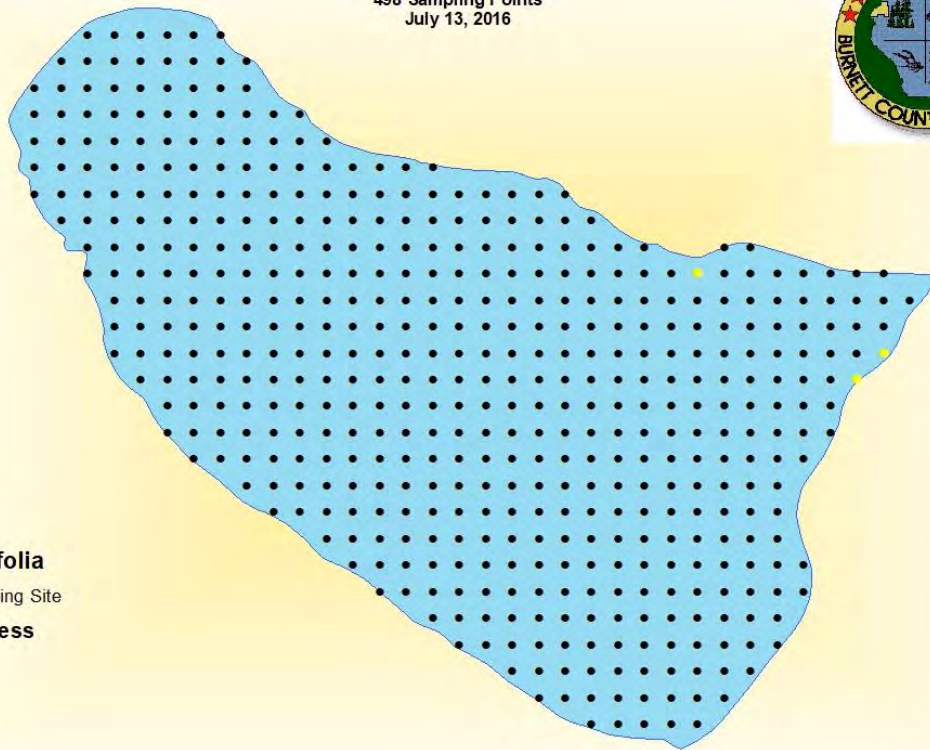


Typha latifolia

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Typha spp.

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016



Utricularia vulgaris

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

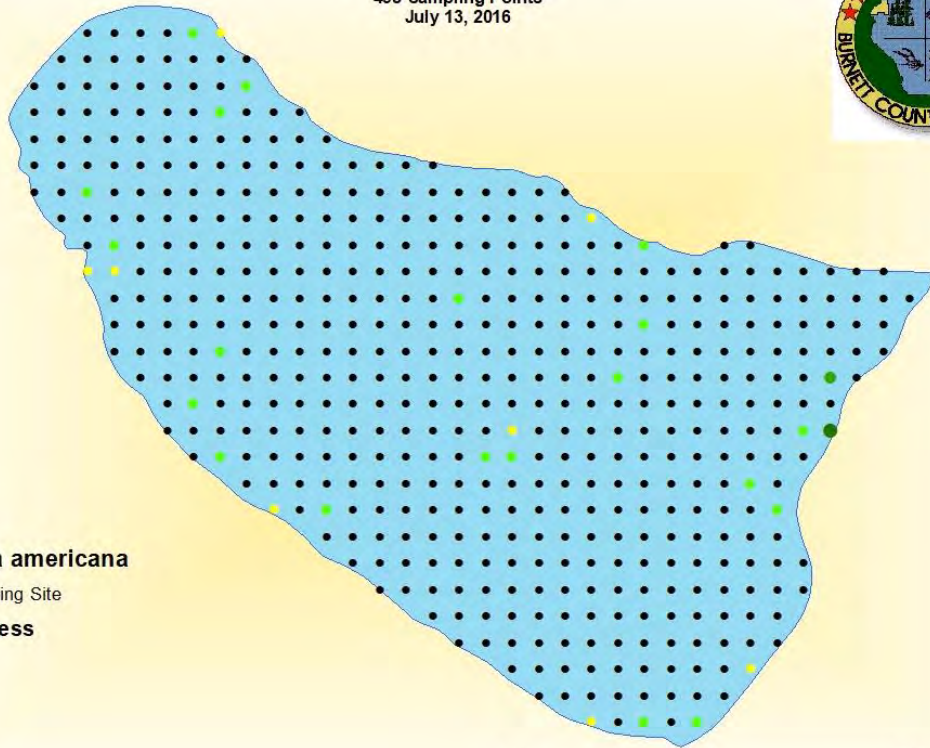


Vallisneria americana

- Sampling Site

Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers



Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
July 13, 2016

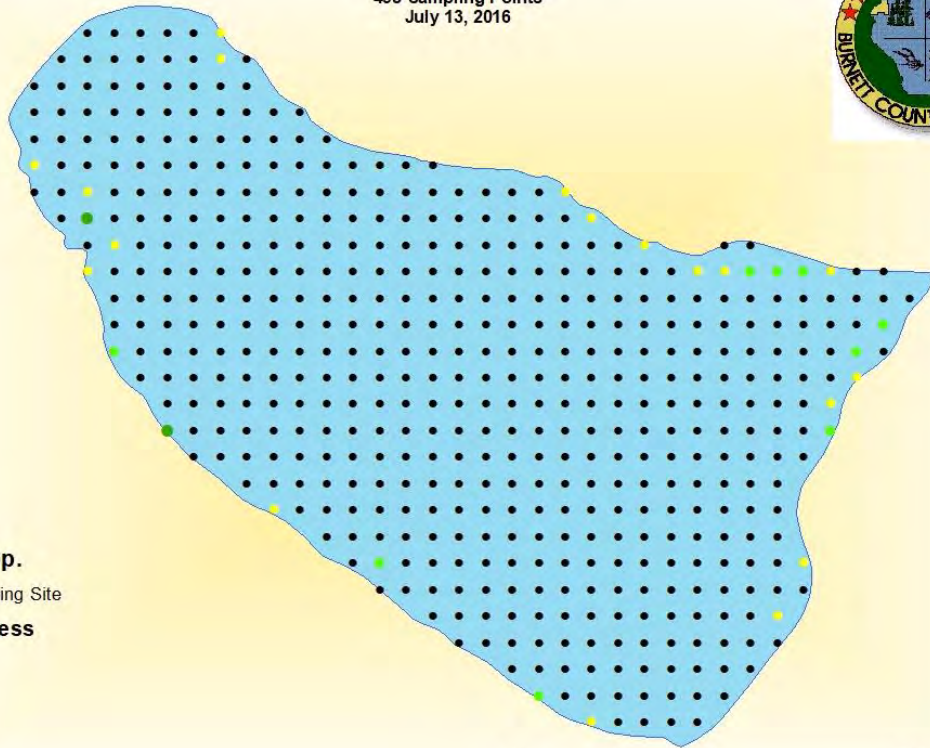


Zizania spp.

- Sampling Site

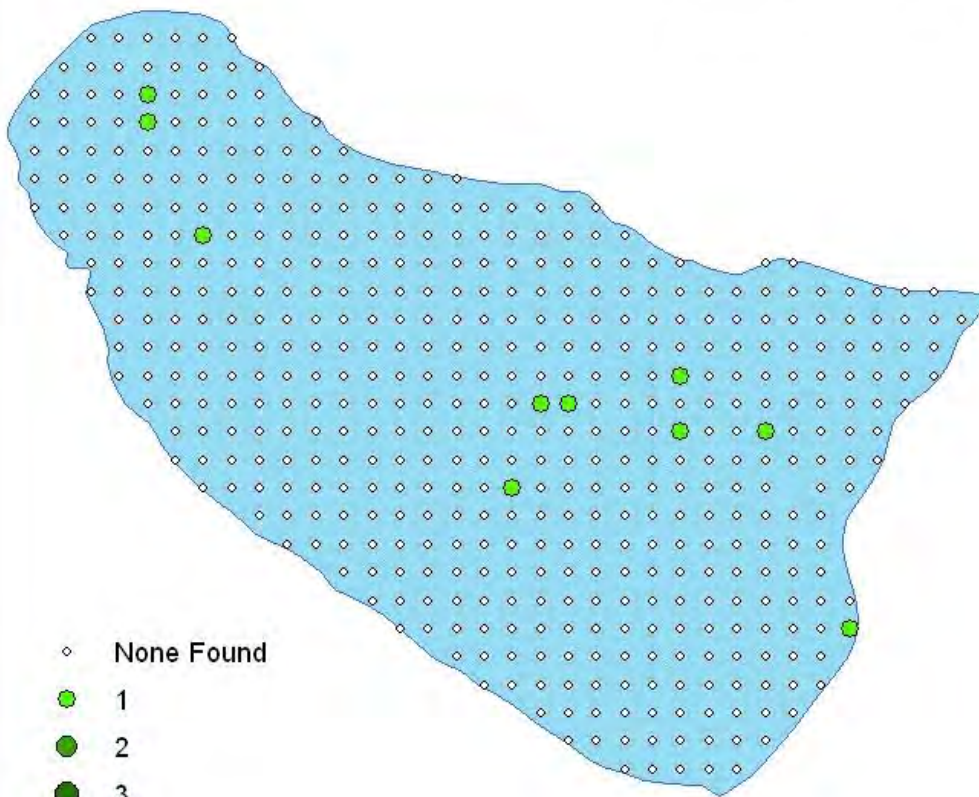
Rake Fullness

- 1
- 2
- 3
- Visual



0.5 0.25 0 0.5 Kilometers

Potamogeton crispus
Curly-leaf Pondweed
July 12, 2011



- None Found
- 1
- 2
- 3
- Visual

0 0.125 0.25 0.5 Miles





Mudhen Lake, Burnett County
WBIC 2649500
498 Sampling Points
June 14, 2018



Rake Fullness

- None Found
- 1
- 2
- 3
- Visual

0.5 0.25 0 0.5 Kilometers

Appendix B: Rapid Response

Rapid Response for Early Detection of Eurasian Water Milfoil

1. The Mudhen Lake Rehabilitation District (MLRD)) community will be directed to contact the EWM identification (ID) lead Dan Heintz, if they see a plant in the lakes they suspect might be Eurasian water milfoil (EWM). Signs at the public boat landings, web pages, and newsletter articles will provide contact information and instructions.
2. If the plant is likely to be EWM, the AIS ID lead will confirm identification with WDNR and inform the rest of the MLRD board.
3. Mark the location of suspected EWM (AIS ID Lead). Use GPS points, if available, or mark the location with a small float.
4. Confirm identification of EWM (or other AIS) with the WDNR (within 72 hours) (AIS ID Lead). Two entire intact rooted adult specimens of the suspect plants will be collected and bagged and delivered to the WDNR. WDNR may confirm identification with the herbarium at the University of Wisconsin – Stevens Point or the University of Wisconsin – Madison.
5. If the suspect plants are determined to be EWM, the location of EWM will be marked with a more permanent marker. (AIS ID Lead).
6. If identification is positive, inform the board, Burnett County LSCD, herbicide applicator, the person who reported the EWM, lake management consultant, and all lake residents. (AIS ID Lead).
7. If identification is positive, post a notice at the public landing and include a notice in the next newsletter. These notices will inform residents and visitors of the approximate location of EWM and provide appropriate means to avoid spread. (MLRD board)
8. Contact Burnett County LSCD to seek assistance in EWM control efforts. The county has a rapid response plan in place that includes assisting lakes where EWM is discovered. Request that the county determine the extent of the EWM introduction and conduct initial removal efforts. If unavailable to assist within two weeks, proceed to step 9.
9. Hire a consultant to determine the extent of the EWM introduction. A diver may be used. If small amounts of EWM are found during this assessment, the consultant will be directed to identify locations with GPS points and hand pull plants found. All plant fragments will be removed from the lake when hand pulling.
10. Select a control plan in cooperation with Burnett County AIS Coordinator and WDNR (board of directors). Additional guidance regarding EWM treatment is found in DNR's *Response for Early Detection of Eurasian Water Milfoil Field Protocol*.

Control methods may include hand pulling, use of divers to manually or mechanically remove the EWM from the lake bottom, application of herbicides, and/or other effective and approved control methods.

The goal of the control plan will be eradication of the EWM.

11. Implement the selected control plan including applying for the necessary permits. Regardless of the control plan selected, it will be implemented by persons who are qualified and experienced in the technique(s) selected.
12. MLRD funds may be used to pay for any reasonable expense incurred in implementing the selected control plan, and implementation will not be delayed by waiting for WDNR to approve or fund a grant application.
13. The President of the MLRD will work with the WDNR to confirm, as soon as possible, a start date for an Early Detection and Rapid Response AIS Control Grant. Thereafter, the MLRD shall formally apply for the grant.
14. MLRD shall have the authority to accept donations or borrow money for the purpose of paying for control of EWM.
15. Frequently inspect the area of the EWM to determine the effectiveness of the treatment and whether additional treatment is necessary.
16. Contract for professional monitoring to supplement volunteer monitoring in years following EWM discovery.

Mudhen Lake Rehabilitation District

President

Dan Heintz

EWM ID Lead

Dan Heintz – 715-248-7271
715-781-3376

Burnett County Land Services Conservation Department – 715-349-2109

Rebecca Klemme, AIS Coordinator
Dave Ferris, County Conservationist

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Grants	Pamela Toshner:	715-635-4073
Permits	Mark Sundeen:	715-635-4074
EWM Notice	Kathy Bartilson:	715-635-4053

CHEMICAL APPLICATOR

LAKE MANAGEMENT CONSULTANT

Burnett County Land Services Conservation Department – 715-349-2109

Brad Morris, AIS Consultant	715-566-4866
Dave Ferris, County Conservationist	715-349-2109

DIVERS

Ecological Integrity Services	Steve Schieffer:	715-554-1168
Blue Water Science	Steve McComas:	651-690-9602
Endangered Resource Services	Matt Berg:	715-483-2847