

Lake Ripley
Critical Habitat Designation Report
Jefferson County, Wisconsin



Wisconsin Department of Natural Resources

Final Report

May 24th, 2024



Acknowledgments

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Note: A detailed description of the Critical Habitat Designation program, associated methods, and the values of Critical Habitat can be found at <http://dnr.wi.gov/lakes/criticalhabitat/>.



Table of Contents

Section	Title	Page
I	Executive Summary	4
II	Lake Ripley Critical Habitat Study and General Recommendations	7
III	Lake Ripley Critical Habitat Sites	12
	- Site 1 - Critical Habitat Area LR_1	16
	- Site 2 - Critical Habitat Area LR_2	20
	- Site 3 - Critical Habitat Area LR_3	24
	- Site 4 - Critical Habitat Area LR_4	28
	- Site 5 - Critical Habitat Area LR_5	31
	- Site 6 - Critical Habitat Area LR_6	34
	- Site 7 - Critical Habitat Area LR_7	37
	- Site 8 - Critical Habitat Area LR_8	41
App. A	Aquatic Plant Distribution by Species	44

I. EXECUTIVE SUMMARY

A Critical Habitat study was conducted from 2006-2022 on Lake Ripley, Jefferson County, Wisconsin by lakes, fisheries, wildlife, and water management specialists with the Wisconsin Department of Natural Resources. Key partners in the study were the Lake Ripley Management District and The Jefferson County Land and Water Conservation Department. The project would not have gone forward without the very large commitments from these key partners.

Lake Ripley was chosen for the study for two primary reasons:

- 1) To protect areas within the lake that are most important for preserving the character and qualities of the lake; and
- 2) To preserve the reaches of shore that are predominately natural in appearance or that screen man-made or artificial features for the enjoyment of lake residents and visitors.

Lake Ripley has sensitive habitat areas that support fish and wildlife, harbor quality plant communities that protect water quality in the lake, as well as unique natural scenic beauty for south central Wisconsin. The Department has determined that specific locations in Lake Ripley contain Critical Habitats and/or Public Rights Features that ensure a healthy aquatic system and maintain the cultural and aesthetic values of the lake. Figure 1 shows the location of important near-shore and shallow water habitats about which Critical Habitat designations are most concerned.

Critical Habitats are referred to as Public Rights Features in Wisconsin Administrative Code NR1.06. They are characteristics of a lake that fulfill the rights of the public for quality and quantity of water, fishing, swimming, navigation, and reaches of the shore, which are predominately natural in appearance or that screen man-made or artificial features.

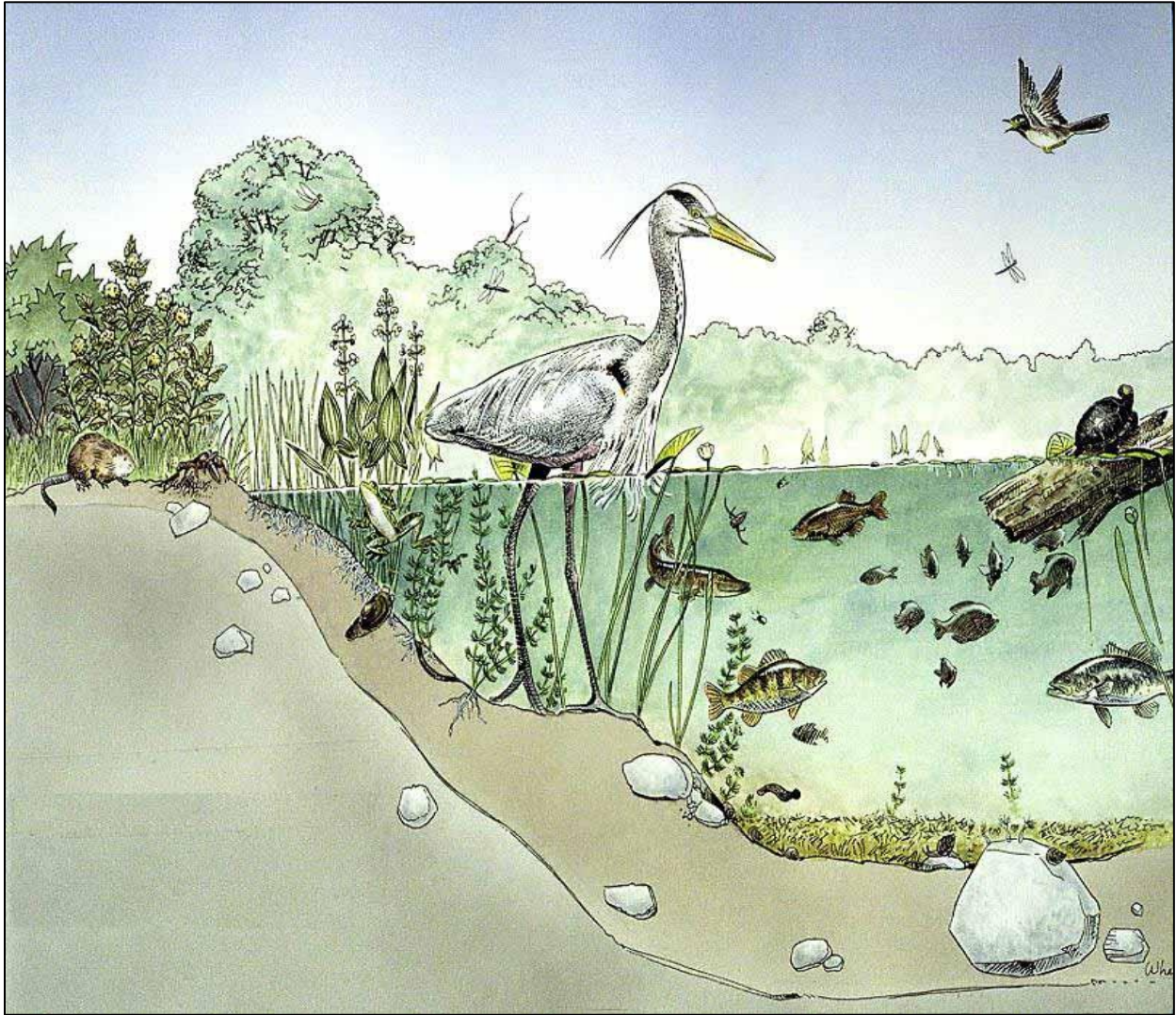


Figure 1. Location of important near-shore and shallow water habitats about which Critical Habitat designations are the most concerned.

Lake Ripley Background

Lake Ripley is a 423-ac, glacial kettle lake located in the Town of Oakland in western Jefferson County. The lake is classified as a natural drainage lake fed by streams, groundwater, precipitation, and runoff and drained by an outlet stream. Drainage lakes tend to be higher in nutrients than other lake types, and watershed conditions largely determine their water quality. Lake Ripley is fed by an inlet stream and drained by an outlet stream that flows to Koshkonong Creek over a low-head, rubble sill, referred to locally as a dam. This rubble dam was created in 1932 by the Lake Ripley Betterment Club at the outlet to maintain water levels during drought conditions. Koshkonong Creek flows into Lake Koshkonong, ultimately connecting to the Rock River. The lake and Koshkonong Creek are part of the Lower Rock and Upper Mississippi River Drainage Basins. Lake Ripley's watershed, or the land that drains surface water to the lake, covers just over 7 square miles. The watershed is primarily rural, includes the immediate lake area, and extends 2.7 mi east of the lake.

Lake Ripley has 5.62 mi of shoreline, a maximum depth of 44 ft, an average depth of 18 ft, and a volume of 7,561- ac ft. Approximately 34% of the lake's surface area is less than five ft deep, and 41% is greater than 20 ft deep. The lake has extensive shallow areas supporting rooted aquatic plants and a single deep basin near its center.

Public access is provided at a public boat landing, a public pier on the south shoreline at Island Lane, and a public beach on the west shoreline at Lake Ripley Park. A private marina is located on the southwest shoreline. Most of the lake's shoreline has been developed into residential and recreational housing, except for portions of the southeastern lobe of the lake, known locally as Milwaukee Bay.

One measure of a lake's health is the trophic state index, which relates to the volume of algae in the water. The average summer trophic state index from 2017 to 2022 was 49.8 (mesotrophic) and was determined using chlorophyll A, total phosphorus, and secchi data collected from the lakes deep hole using the WDNR long-term trend protocols. For a Deep-Lowland lake, this is considered "Good." The Deep-Lowland lake designation is based on the state's Natural Communities Determination. These lakes stratify, forming separate layers of water due to temperature variations during the summer months.

Lake Ripley has many areas that support fish, wildlife, and harbor high-quality plant communities that protect water quality in the lake. The lake and watershed contain numerous endangered, threatened, and/or special concern species.

II. LAKE RIPLEY CRITICAL HABITAT STUDY

Purpose of the Study and Definitions

Critical Habitat Designations are intended to identify areas, which if disturbed, would adversely affect public use and enjoyment of the lake. Such areas include locations important in maintaining fish and wildlife habitat, water quality, water quantity, or reaches of shore that are predominately natural in appearance or that screen man-made or artificial features. As described in the state administrative code (specifically, NR 1.06), examples of applicable areas include stands of aquatic plants, shorelines with abundant large woody material lying in the water, shorelines with overhanging shrubs or trees like snag trees, areas with substrate necessary for fish spawning, or reaches of shore that are predominately natural in appearance or that screen man-made or artificial features.

Areas fulfilling these criteria are designated as **Public Rights Features (PRFs)**, which include two groups:

Sensitive Areas are Public Rights Features defined specifically for stands of aquatic vegetation that provide critical or unique fish and wildlife habitat, including seasonal or life-stage requirements, or offer water quality or erosion control benefits to the area.

Other PRFs are all Public Rights Features that provide fish and wildlife habitat, water quality protection, or that have reaches of shore that are predominately natural in appearance or that screen man-made or artificial features and are not necessarily dependent on the presence of aquatic vegetation.

How will this impact waterfront owners?

DNR waterway exemptions (Wis. Stats. Chapter 30) that may apply to waterfront property development projects are generally limited within PRFs with few exceptions. Due to the sensitivity of habitat associated with PRFs, waterway projects within these areas would be subject to a higher level of DNR review or oversight.

The DNR maintains webpages to provide updated waterway exemption and general permit checklists to aid the public in navigating the DNR waterway permitting process and regulations.

[Waterways | Wisconsin DNR \(https://dnr.wisconsin.gov/topic/Waterways\)](https://dnr.wisconsin.gov/topic/Waterways)

Learn about why the DNR regulates waterways, the various water permits with general permit checklists, the water permit process, waterway contacts, FAQ, etc....

[Exemptions | Waterway protection | Wisconsin DNR \(https://dnr.wisconsin.gov/topic/Waterways/Permits/Exemptions.html\)](https://dnr.wisconsin.gov/topic/Waterways/Permits/Exemptions.html)

Provides information and checklists the public will need to identify DNR exemptions that may apply to their waterfront property development projects.

Aquatic Plant Management Implications

Chapter NR 107- Aquatic Plant Management

[Wisconsin Legislature: Chapter NR 107](#)

https://docs.legis.wisconsin.gov/code/admin_code/nr/100/107/

(3) The department may deny issuance of the requested permit if:

(i) The proposed chemical application is in locations identified by the department as sensitive areas, except when the applicant demonstrates to the satisfaction of the department that treatments can be conducted in a manner that will not alter the ecological character or reduce the ecological value of the area.

1. Sensitive areas are areas of aquatic vegetation identified by the department as offering critical or unique fish and wildlife habitat, including seasonal or lifestage requirements, or offering water quality or erosion control benefits to the body of water.
2. The department shall notify any affected property owners' association, inland lake district, and riparian property owner of locations identified as sensitive areas.

Chapter NR 109- Aquatic Plants: Introduction, Manual Removal, and Mechanical Control Regulations

[Wisconsin Legislature: Chapter NR 109](#)

[https://docs.legis.wisconsin.gov/document/administrativecode/NR%20109.05\(3\)\(f\)](https://docs.legis.wisconsin.gov/document/administrativecode/NR%20109.05(3)(f))

(3) The department may deny issuance of the requested permit if the department determines any of the following:

(f) The proposed introduction or control is in locations identified by the department as sensitive areas, under s. NR 107.05 (3) (i) 1., except when the applicant demonstrates to the satisfaction of the department that the project can be conducted in a manner that will not alter the ecological character or reduce the ecological value of the area.

[https://docs.legis.wisconsin.gov/document/administrativecode/NR%20109.06\(2\)\(b\)](https://docs.legis.wisconsin.gov/document/administrativecode/NR%20109.06(2)(b))

(2) A riparian owner who manually removes aquatic plants from a body of water or uses mechanical devices designed for cutting or mowing vegetation to control plants on an exposed lake bed that abuts the owner's property provided that the removal meets all of the following:

(b) Is not located in a sensitive area as defined by the department under s. NR 107.05 (3) (i) 1., or in an area known to contain threatened or endangered resources or floating bogs.

Critical Habitat Designations may also provide information for the DNR, other state agencies, and local agencies. Other local agencies include the Jefferson County Land and Water Conservation Department and the Lake Ripley Management District. This information may be used to guide future management and regulatory decisions made by these organizations. The purpose of this designation is to protect public rights on Lake Ripley, including water quality, healthy fish and wildlife, natural or screened shorelines and beneficial aquatic plants that help water quality, prevent erosion, and reduce invasion by new exotic plants and support a healthy fishery.

General Recommendations for Lake Ripley

The following are the general recommendations of the study to promote and protect the health of Lake Ripley:

- 1) Maintain natural shoreland buffers of native vegetation to protect water quality, fish and wildlife habitat, and areas with a natural appearance;
- 2) Maintain snag and cavity trees for cavity nesting species, canopy trees for roosting and perching of birds, and downed trees for wildlife habitat;
- 3) Maintain overhanging trees and shrubs, fallen trees along the shoreline, and large woody cover and boulders in the water for fish and wildlife habitat;
- 4) Encourage lakefront property owners to plant native vegetation (trees, shrubs, perennial forbs, and grasses) as a buffer zone to protect fish and wildlife habitat, reduce shoreline erosion, runoff of nutrients, and other pollutants that impact water quality;
- 5) Encourage lakefront property owners to implement healthy lakes practices through the surface water grant program to aid in funding future projects to improve water quality on Lake Ripley;
- 6) Minimize removal of native aquatic vegetation to protect water quality, reduce shoreline erosion, and preserve fish and wildlife habitat;
- 7) Limit aquatic plant management to methods specific to invasive species and/or for navigation channels;
- 8) Update the Aquatic Plant Management Plan every five years to reflect current lake conditions, plant populations, and emerging management techniques;
- 9) Maintain aquatic invasives signs at all boat landings to educate lake users about protecting the lake from the introduction of new exotic species and continue the Clean Boats, Clean Waters watercraft inspection program;
- 10) Limit activities (human disturbance or structures) adjacent and within Public Rights Features in order to protect water quality, fish and wildlife habitat and natural appearance.
- 11) Encourage the use of integrated shoreline stabilization structures and native vegetation for shoreline erosion control. Integrated structures based on site-specific wave energy calculations could include biologs, riprap with native vegetation or other biological shore protection in combination with native aquatic vegetation.

Methods

The Critical Habitat designations for Lake Ripley were based on data collected during whole-lake point-intercept aquatic plant surveys completed by the Lake Ripley Management District (2011, 2015, 2020), historical fish surveys, Natural Heritage Inventory reports, the Wisconsin Wetlands Inventory, a substrate survey, and Department staff knowledge of the wildlife that inhabits the area were used for this report. The Lake Ripley Management district has also provided significant local knowledge and advocated heavily for these designations.

Public input on the factual information relating to the location or presence of Critical Habitats (Public Rights Features) was welcomed at the public hearing held on May 18th, 2023 at the Oakland Town Hall (N4450 County Road A, Cambridge, WI 53523), written comments were accepted through June 30, 2023.

Table 1. Critical Habitat Justification Descriptions		
Justification #	Justification Description	Classification
1	Bio-diverse Submerged Aquatic Vegetation (SAV)	Sensitive Area
2	SAV Important to Fish and Wildlife Habitat	Sensitive Area
3	Emergent and Floating Leaf Vegetation	Sensitive Area
4	Rush Beds	Sensitive Area
5	Wild Rice Beds	Sensitive Area
6	Extensive Riparian Wetland	Sensitive Area
7	Woody Habitat	Public Rights Feature
8	Spawning Substrate	Public Rights Feature
9	Water Quality (springs, etc.)	Public Rights Feature
10	Natural Scenic Beauty	Public Rights Feature
11	Extensive Public Use	Public Rights Feature

III. LAKE RIPLEY CRITICAL HABITAT SITES

Figure 2 shows the eight sites that were designated Critical Habitat in Lake Ripley and five of these were classified as Sensitive Areas for their aquatic vegetation and associated fish, wildlife, and water quality benefits (Critical Habitats LR-1, LR-2, LR-5, LR-6, LR-7). Three sites were classified as Other Critical Habitats for their natural or screened shoreline and/or fish and wildlife habitat values (Critical Habitats LR-3, LR-4, and LR8). All eight sites are classified as Public Rights Features.

While aquatic vegetation was present at all sites surveyed on Lake Ripley, only those with the most native aquatic plants and high native aquatic plant diversity were classified as Sensitive Areas.

All areas designated as Critical Habitat were geo-referenced and mapped (Figure 2). These areas are described in the following sections.

Table 2: Lake Ripley Critical Habitat Polygon Justifications

Critical Habitat Polygon ID	Justifications	Classification
LR-1	1, 2, 3, 6, 10	Sensitive Area
LR-2	1, 2, 8	Sensitive Area
LR-3	8	Public Rights Feature
LR-4	8	Public Rights Feature
LR-5	1, 2, 3, 7, 10	Sensitive Area
LR-6	1, 2, 3, 6, 10	Sensitive Area
LR-7	1, 2, 3, 6, 10	Sensitive Area
LR-8	8, 10	Public Rights Feature

Lake Ripley Critical Habitat

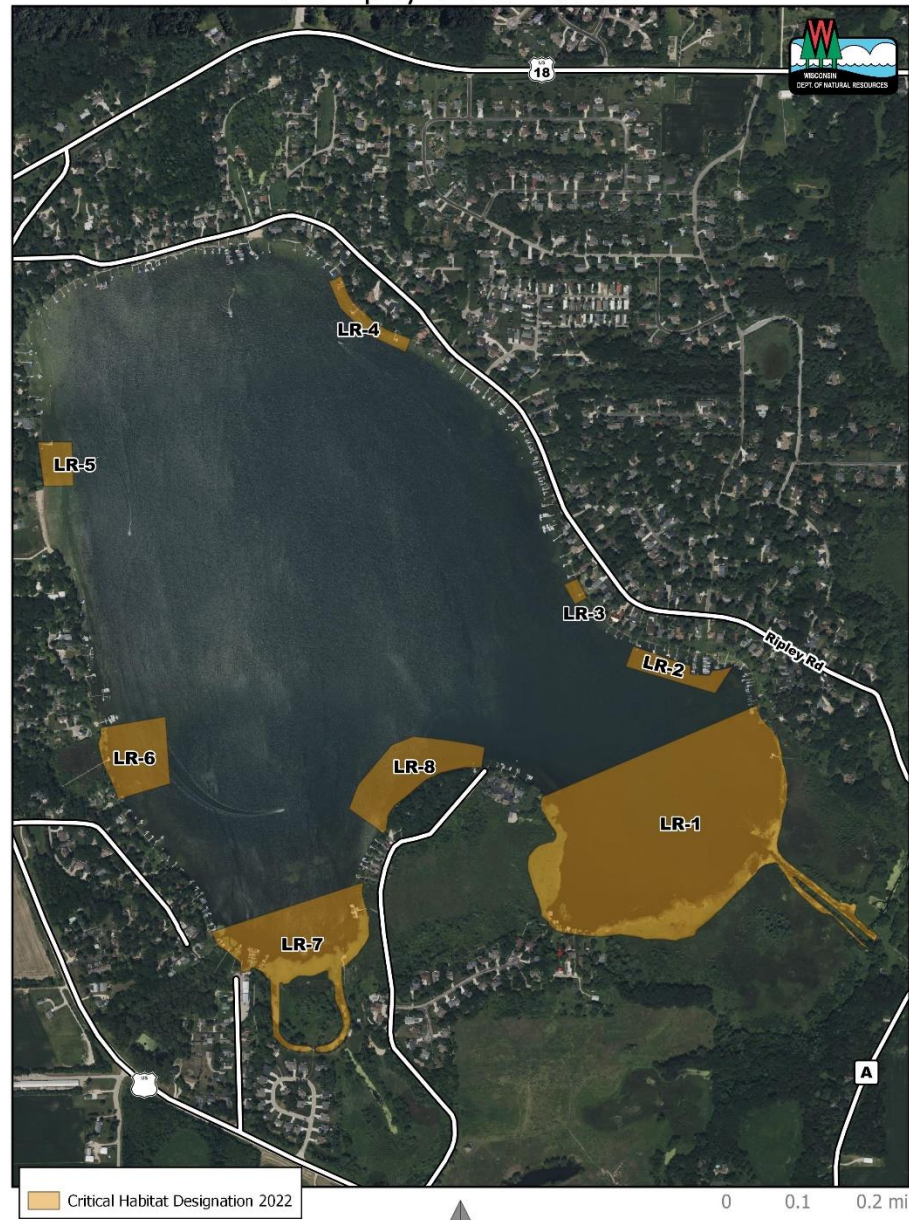


Figure 2. Location of Lake Ripley Critical Habitat: Sensitive Areas (SAD) and Other Public Rights Features (PRF). (map created by Breanna Crane-DNR)

Aquatic Plants

In the last three whole lake point-intercept plant surveys on Lake Ripley (2011, 2015, 2020) plants have been found at a maximum depth of 16, 15, and 21 feet of water. Lake Ripley's floristic quality index scores from the three surveys were 23.77, 25.92, and 25.94 respectively. The FQI scores consistently rank above the median (21.10) and average (20.00) values for lakes in the Southeast Wisconsin Till Plains ecoregion. There were 17 species of plants sampled in 2011, 19 species in 2015, and 20 species in 2020. More information about the aquatic plants in Lake Ripley can be observed in Appendix A.



Figure 3. Sensitive Area in Lake Ripley. Photograph provided by the Lake Ripley Management District

Fishery

Table 3: Lake Ripley fish diversity.

Species	Classification
Northern Pike	G
Walleye	G
Largemouth and Smallmouth Bass	G
Bluegill	G
Yellow Perch	G
Pumpkinseed	G
Green Sunfish	G
Rock Bass	G
Black Crappie	G
Bowfin	NG
Grass Pickerel	NG
White Sucker	NG
Brook Silverside,	NG
Golden, Emerald, and Mimic Shiner	NG
Bluntnose and Fathead Minnow	NG
Yellow, Black, and Brown Bullhead	NG
Longnose Gar	NG
Central Mudminnow	NG
Blackstripe Topminnow	NG
Johnny and Iowa Darter	NG
Bigmouth Buffalo	NG
Common Carp	NG

(*) *Game Species = G, Non-Game Species = NG*

Historically, Lake Ripley also supported populations of several intolerant fish species, including blackchin and blacknose shiner, and Banded Killifish (also a State Special Concern (SC) species). It also supported two additional SC species, the Lake Chubsucker, Least Darter, and one Threatened (T) species, the Pugnose Shiner.

Lake Ripley Critical Habitat (LR 1) – SE Shoreline, Milwaukee Bay and Main Lake

This Critical Habitat encompasses most of Milwaukee Bay in the southeast corner of the lake, including the unnamed inlet channel to Lake Ripley, which flows through the wetlands in the bay's southeast corner (Figure 4). This area represents a substantial portion of Lake Ripley's remaining natural, undeveloped shoreline with comparatively less shoreline development than other parts of the lake. Except for 400 linear feet of residential development, wetlands border the entire shoreline of the site. The site is primarily protected from motorboat disturbance because of a slow-no-wake-ordinance in the bay. LR-1 is designated as a sensitive area for bio-diverse submerged aquatic vegetation, submersed aquatic vegetation important to fish and wildlife, emergent and floating leaf vegetation, extensive riparian wetland, and natural scenic beauty.

Lake Ripley Critical Habitat: LR-1 & LR-2

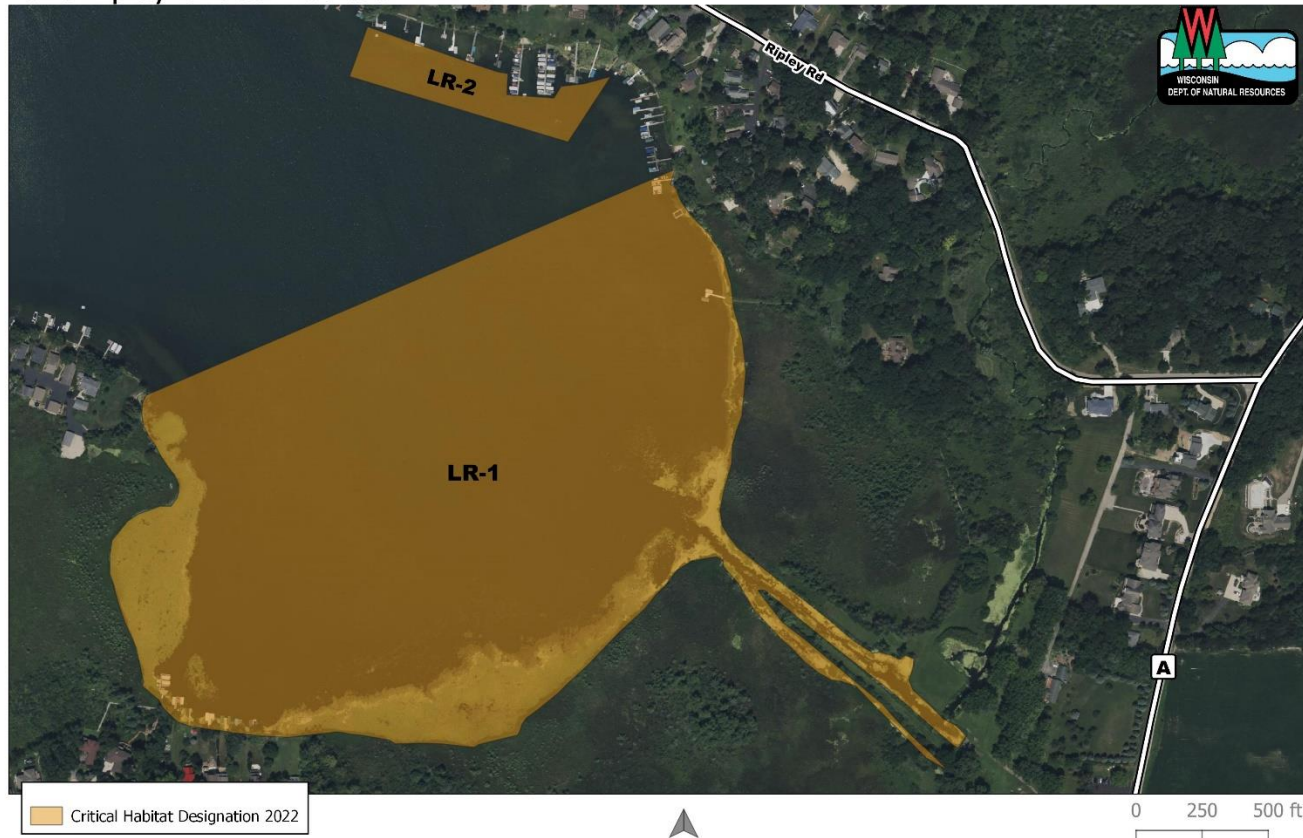


Figure 4. Designated Sensitive Area LR-1 and LR-2 (map created by Jefferson Co LWCD)

Table #4: LR-1 Aquatic Plants

<i>Scientific Name</i>	Common Name	Plant Type	Coefficient of Conservatism	Ecological Significance
<i>Nuphar variegata</i>	Spatterdock	Floating-leaved	6	Provides shade and structural habitat for fish and invertebrates; Fruits are food source for waterfowl.
<i>Nymphaea odorata</i>	Whitewater Lily	Floating-leaved	6	Provides shade and structural habitat for fish and invertebrates; Fruits are food source for waterfowl.
<i>Utricularia vulgaris</i>	Common Bladderwort	Submergent	7	Habitat for fish and invertebrates
<i>Chara spp.</i>	Muskgrasses	Submergent	7	Habitat for invertebrates and juvenile fish; Stabilizes bottom sediments
<i>Lemna minor</i>	Small duckweed	Free-floating	4	Food source for waterfowl; provides shade and cover for fish and invertebrates
<i>Heteranthera dubia</i>	Water star grass	Submergent	6	Habitat for fish and invertebrates; Food source for waterfowl
<i>Vallisneria americana</i>	Eel grass/water celery	Submergent	6	Food source for waterfowl; habitat for fish and invertebrates
<i>Elodea canadensis</i>	Common waterweed	Submergent	3	Habitat for fish and invertebrates
<i>Ranunculus aquatilis</i>	Whitewater crowfoot	Submergent	8	Habitat for fish and invertebrates
<i>Potamogeton friesii</i>	Fries' pondweed	Submergent	8	Habitat for fish and invertebrates; Turions are important food source for waterfowl
<i>Potamogeton pusillus</i>	Small pondweed	Submergent	7	Habitat for fish and invertebrates
<i>Potamogeton illinoensis</i>	Illinois Pondweed	Submergent	6	Habitat for fish and invertebrates

<i>Stuckenia pectinate</i>	Sago pondweed	Submergent	3	Habitat for fish and invertebrates; Nutlets are important food source for waterfowl
<i>Ceratophyllum demersum</i>	Coontail	Submergent	3	Habitat for fish and invertebrates
<i>Potamogeton strictifolius</i>	Stiff Pondweed	Submergent	8	Habitat for fish and invertebrates
<i>Najas flexilis</i>	Slender naiad	Submergent	6	Habitat for fish and invertebrates
<i>Myriophyllum sibiricum</i>	Northern watermilfoil	Submergent	6	Habitat for fish and invertebrates; Food source for waterfowl
<i>Potamogeton gramineus</i>	Variable pondweed	Submergent	7	Habitat for fish and invertebrates; Food source for waterfowl
<i>Potamogeton crispus</i>	Curly-leaf pondweed	Submergent	-	Non-native; provides winter and spring habitat for fish; summer die-offs can lead to nutrient release; Can outcompete more desirable native species
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Submergent	-	Non-native; Habitat for fish and invertebrates; Food for waterfowl; Can outcompete more desirable natives
<i>Najas marina</i>	Spiny naiad	Submergent	-	Non-native; Habitat for fish and invertebrates; Stabilizes bottom sediments

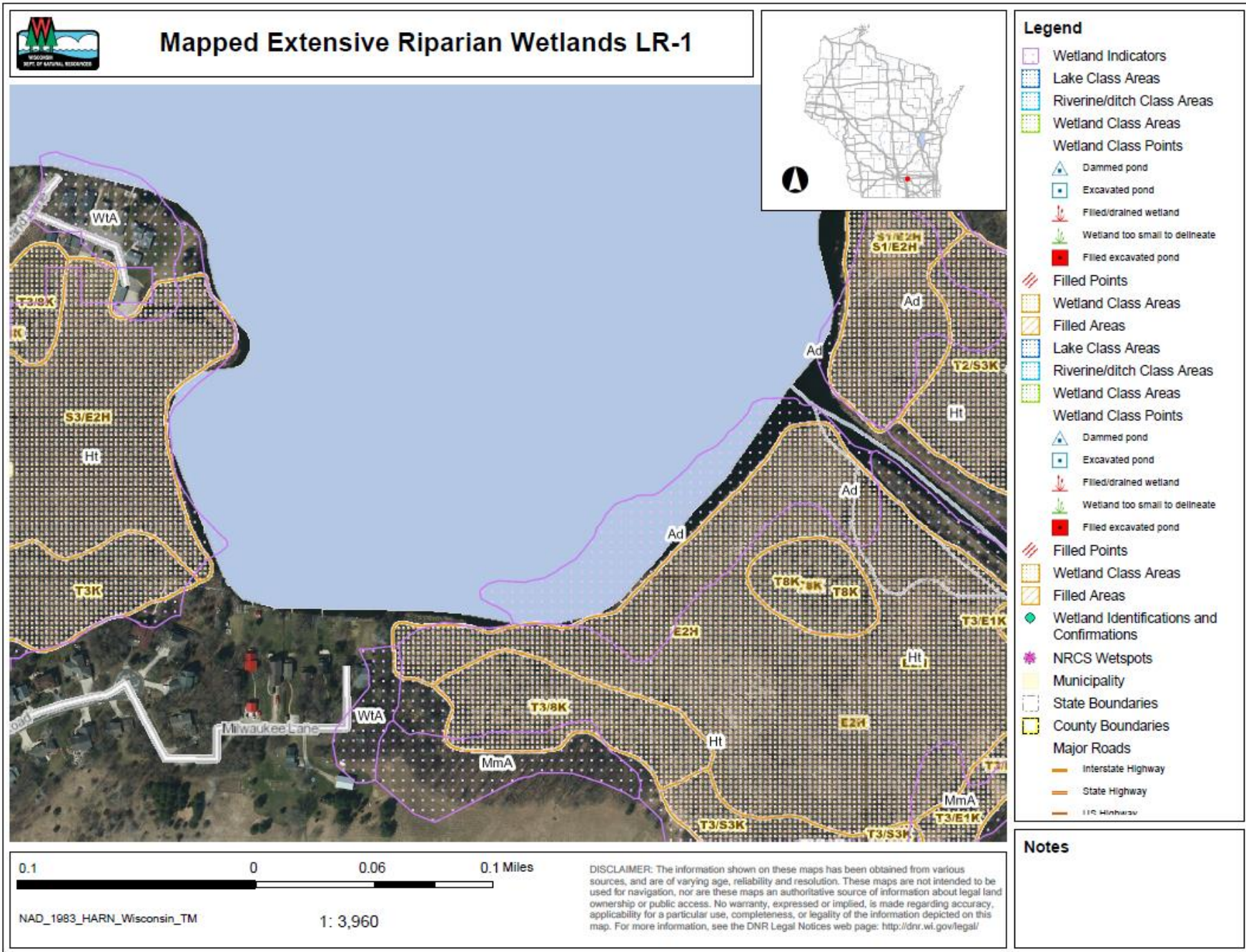


Figure 5. Mapped Extensive Riparian Wetlands LR-1 (map gathered from WDNR Surface Water Data Viewer)

Lake Ripley Critical Habitat (LR 2) – SE Shoreline, Main Lake

This Critical Habitat is along the lake's southeast shoreline, north of Milwaukee Bay (Figure 6). Area LR-2 is designated as a sensitive area for bio-diverse submerged aquatic vegetation, submerged aquatic vegetation important to fish and wildlife, and spawning substrate.

Lake Ripley Critical Habitat: LR-2 & LR-3



Figure 6: Designated Sensitive Area LR-2 and LR-3 (map created by Breanna Crane-DNR)

Table #6: LR-2 Historical Aquatic Plants

<i>Scientific Name</i>	Common Name	Plant Type	Coefficient of Conservatism	Ecological Significance
<i>Utricularia vulgaris</i>	Common Bladderwort	Submergent	7	Habitat for fish and invertebrates
<i>Chara spp.</i>	Muskgrasses	Submergent	7	Habitat for invertebrates and juvenile fish; Stabilizes bottom sediments
<i>Heteranthera dubia</i>	Water star grass	Submergent	6	Habitat for fish and invertebrates; Food source for waterfowl
<i>Vallisneria americana</i>	Eel grass/water celery	Submergent	6	Food source for waterfowl; Habitat for fish and invertebrates
<i>Potamogeton friesii</i>	Fries' pondweed	Submergent	8	Habitat for fish and invertebrates; Turions are important food source for waterfowl
<i>Potamogeton pusillus</i>	Small pondweed	Submergent	7	Habitat for fish and invertebrates
<i>Stuckenia pectinate</i>	Sago pondweed	Submergent	3	Habitat for fish and invertebrates; Nutlets are important food source for waterfowl
<i>Ceratophyllum demersum</i>	Coontail	Submergent	3	Habitat for fish and invertebrates
<i>Potamogeton strictifolius</i>	Stiff Pondweed	Submergent	8	Habitat for fish and invertebrates
<i>Najas flexilis</i>	Slender naiad	Submergent	6	Habitat for fish and invertebrates
<i>Myriophyllum sibiricum</i>	Northern watermilfoil	Submergent	6	Habitat for fish and invertebrates; Food source for waterfowl
<i>Potamogeton gramineus</i>	Variable pondweed	Submergent	7	Habitat for fish and invertebrates; Food source for waterfowl

<i>Potamogeton cripus</i>	Curly-leaf pondweed	Submergent	-	Non-native; Provides winter and spring habitat for fish; Summer die-offs can lead to nutrient release; Can outcompete more desirable native species
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Submergent	-	Non-native; Habitat for fish and invertebrates; Food source for waterfowl; Can outcompete more desirable natives



LR-2 Substrate Sampling Sites



Legend

— Railroads



0.0 0 0.02 0.0 Miles

NAD_1983_HARN_Wisconsin_TM

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Notes

Sampling Date
10-20-2015

Figure 7: LR-2 Substrate Sampling Sites

Table # 7: LR-2 Substrate Survey Results 10-20-2015

Transect #	Quadrant #	Band Dimension (m)	Embeddedness (1-5)	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Course Gravel	Rubble/Cobble	Small Boulder	Large Boulder	Bedrock
1	1	0.5	1									25	75	
1	2	1	5						25	50	25			
1	3	13.5+	-	60			30	10						
2	1	1	3						15	15	50		20	
2	2	1.5	3	10					40	40	10			
2	3	2.5		50				20	30					
2	4	10+		30				30	30	10				
3	1	1.3	3						10			30	60	
3	2	1.5	2	5					25	35	35			
3	3	2.7		30				30	30	10				
3	4	9.5+		45				45	10					
4	1	1							5			15	80	
4	2	1.5	1	15					30	40	15			
4	3	2.5		15					30	30	25			
4	4	4		60				20	20					
4	5	6+		80				20						
5	1	1.5	3						30	20		20	30	
5	2	2.5		45	5			45	5					
5	3	10+		5				5	40	50				
6	1	1	1	10					40	10			40	
6	2	4	3	10					20	30	40			
6	3	5+		65				35						

Lake Ripley Critical Habitat (LR 3) – E Shoreline, Main Lake

This Critical Habitat is on the eastern shore of the main lake (Figure 8). This site encompasses one a single-home property with one simple pier and outfall pipe. This site was selected for its spawning substrate, and it is classified as Other Public Rights Feature.

Lake Ripley Critical Habitat: LR-2 & LR-3



Figure 8: Designated Sensitive Area LR-2 and LR-3 (map created by Breanna Crane-DNR)



LR-3 Substrate Sampling Sites



Legend



Notes

Sampling Date
10-20-2015

0.0 0 0.02 0.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 990

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Figure 9: LR-3 Substrate Sampling Sites

Table #8: LR-3 Substrate Survey Results 10-20-2015

Transect #	Quadrant #	Band Dimension (m)	Embeddedness (1-5)	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Course Gravel	Rubble/Cobble	Small Boulder	Large Boulder	Bedrock
1	1	1.5	1							45	30	15	10	
1	2	1	1					15	35	30	20			
1	3	2.5	2					10		40	50			
1	4	10+		40				40	20					
2	1	5	3					15	15	15	55			
2	2	3.5	3					10	25	35	30			
2	3	6.5+	1	35				35	20	10				
3	1	2.5	1						30		30	40		
3	2	3	3					20	20	10	50			
3	3	9.5+					35	35	30					

Lake Ripley Critical Habitat (LR 4) – NE Shoreline, Main Lake

This Critical Habitat is the northeast area of the lake (Figure 10). This site was selected for its spawning substrate, and it is classified as Other Public Rights Feature.

Lake Ripley Critical Habitat: LR-4



Figure 10. Designated Sensitive Area LR-4 (map created by Breanna Crane-DNR)



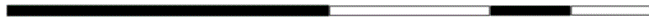
LR-4 Substrate Sampling Sites



Legend



0.1 0 0.03 0.1 Miles



NAD_1983_HARN_Wisconsin_TM

1: 1,980

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal>

Notes

Sampling Date
10-20-2015

Figure 11: LR-4 Substrate Sampling Sites

Table #9: LR-4 Substrate Survey Results 10-20-2015

Transect #	Quadrant #	Band Dimension (m)	Embeddedness (1-5)	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Course Gravel	Rubble/Cobble	Small Boulder	Large Boulder	Bedrock
1	1	0.5											100	
1	2	4	2					5	20	25	50			
1	3	3		25				25	25	25				
1	4	.5		10				40	50					
1	5	7+		70				30						
2	1	1.5	1						45		5	25	25	
2	2	3.5	3					10	60	20	10			
2	3	6		40				30	30					
2	4	4+		5				35	60					
3	1	1							30		20		50	
3	2	5						15	10	15	60			
3	3	9+		35				35	30					
4	1	3.5						5	15	15	65			
4	2	3		15				15	40	30				
4	3	4.5	5	30				30	20	20				
4	4	4+		40				40	20					
5	1	6	3					10	35	40	15			
5	2	2	4	30				30	20	20				
5	3	7+		60				35	5					

Lake Ripley Critical Habitat (LR 5) – W Shoreline, Main Lake

This Critical Habitat is located along the western shore of the main lake (Figure 12). It encompasses the shoreline of the Lake Ripley cemetery and extends east ~ 235 ft within Lake Ripley. LR-5 is designated as a sensitive area for bio-diverse submerged aquatic vegetation, submersed aquatic vegetation important to fish and wildlife, emergent and floating leaf vegetation, woody habitat, and natural scenic beauty.

Lake Ripley Critical Habitat: LR-5



Figure 12: Designated Sensitive Area LR-5 (map created by Breanna Crane DNR)

Table #10: LR-5 Aquatic Plants

<i>Scientific Name</i>	Common Name	Plant Type	Coefficient of Conservatism	Ecological Significance
<i>Nymphaea odorata</i>	Whitewater Lily	Floating-leaved	6	Provides shade and structural habitat for fish and invertebrates; Fruits are food source for waterfowl.
<i>Utricularia vulgaris</i>	Common Bladderwort	Submergent	7	Habitat for fish and invertebrates
<i>Chara spp.</i>	Muskgrasses	Submergent	7	Habitat for invertebrates and juvenile fish; Stabilizes bottom sediments
<i>Vallisneria americana</i>	Eel grass/water celery	Submergent	6	Food source for waterfowl; habitat for fish and invertebrates
<i>Potamogeton friesii</i>	Fries' pondweed	Submergent	8	Habitat for fish and invertebrates; Turions are important food source for waterfowl
<i>Potamogeton illinoensis</i>	Illinois Pondweed	Submergent	6	Habitat for fish and invertebrates
<i>Stuckenia pectinata</i>	Sago pondweed	Submergent	3	Habitat for fish and invertebrates; Nutlets are important food source for waterfowl
<i>Ceratophyllum demersum</i>	Coontail	Submergent	3	Habitat for fish and invertebrates
<i>Najas flexilis</i>	Slender naiad	Submergent	6	Habitat for fish and invertebrates
<i>Myriophyllum sibiricum</i>	Northern watermilfoil	Submergent	6	Habitat for fish and invertebrates; Food source for waterfowl
<i>Potamogeton gramineus</i>	Variable pondweed	Submergent	7	Habitat for fish and invertebrates; Food source for waterfowl
<i>Potamogeton crispus</i>	Curly-leaf pondweed	Submergent	-	Non-native; provides winter and spring habitat for fish; summer die-offs can lead to nutrient release; Can outcompete more desirable native species

<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Submergent	-	Non-native; Habitat for fish and invertebrates; Food for waterfowl; Can outcompete more desirable natives
<i>Najas marina</i>	Spiny naiad	Submergent	-	Non-native; Habitat for fish and invertebrates; Stabilizes bottom sediments

Lake Ripley Critical Habitat (LR 6) – W Shoreline, Main Lake

This Critical Habitat encompasses the western shoreline between Golf Side Ln to the north and Sleepy Hollow Rd to the south (Figure 13). LR-6 is designated as a sensitive area for bio-diverse submerged aquatic vegetation, submersed aquatic vegetation important to fish and wildlife, emergent and floating leaf vegetation, extensive riparian wetland, and natural scenic beauty.

Lake Ripley Critical Habitat: LR-6



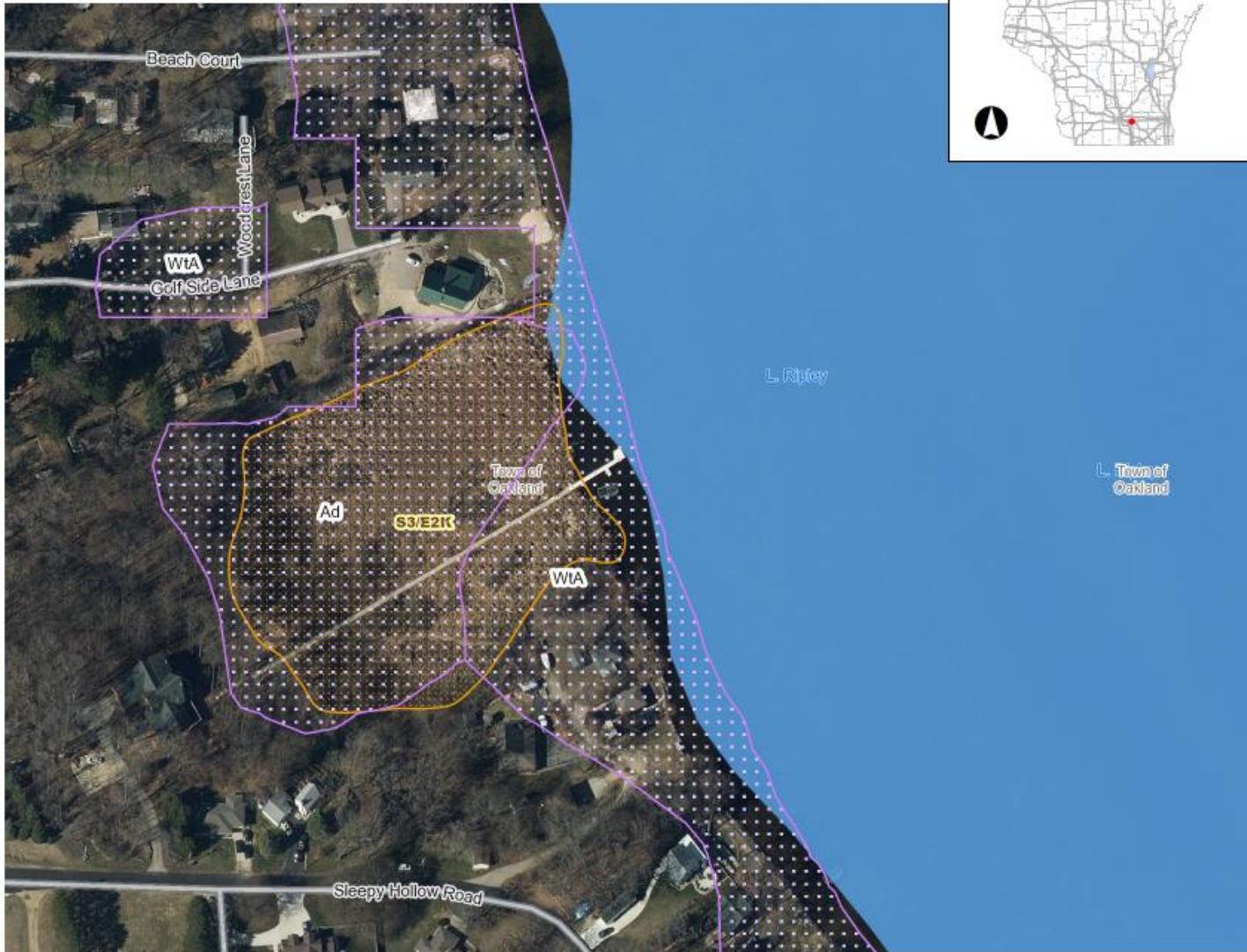
Figure 13: Designated Sensitive Area LR-6 (map created by Breanna Crane-DNR)

Table #11: LR-6 Aquatic Plants

<i>Scientific Name</i>	Common Name	Plant Type	Coefficient of Conservatism	Ecological Significance
<i>Nymphaea odorata</i>	Whitewater Lily	Floating-leaved	6	Provides shade and structural habitat for fish and invertebrates; Fruits are food source for waterfowl.
<i>Utricularia vulgaris</i>	Common Bladderwort	Submergent	7	Habitat for fish and invertebrates
<i>Chara spp.</i>	Muskgrasses	Submergent	7	Habitat for invertebrates and juvenile fish; Stabilizes bottom sediments
<i>Vallisneria americana</i>	Eel grass/water celery	Submergent	6	Food source for waterfowl; habitat for fish and invertebrates
<i>Elodea canadensis</i>	Common waterweed	Submergent	3	Habitat for fish and invertebrates
<i>Potamogeton friesii</i>	Fries' pondweed	Submergent	8	Habitat for fish and invertebrates; Turions are important food source for waterfowl
<i>Potamogeton pusillus</i>	Small pondweed	Submergent	7	Habitat for fish and invertebrates
<i>Potamogeton illinoensis</i>	Illinois Pondweed	Submergent	6	Habitat for fish and invertebrates
<i>Stuckenia pectinate</i>	Sago pondweed	Submergent	3	Habitat for fish and invertebrates; Nutlets are important food source for waterfowl
<i>Ceratophyllum demersum</i>	Coontail	Submergent	3	Habitat for fish and invertebrates
<i>Najas flexilis</i>	Slender naiad	Submergent	6	Habitat for fish and invertebrates
<i>Najas marina</i>	Spiny naiad	Submergent	-	Non-native; Habitat for fish and invertebrates; Stabilizes bottom sediments



Mapped Extensive Riparian Wetlands LR-6



Legend

- Wetland Indicators
- Lake Class Areas
- Riverine/ditch Class Areas
- Wetland Class Areas
- Wetland Class Points
- Dammed pond
- Excavated pond
- Filled/drained wetland
- Wetland too small to delineate
- Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Railroads

Notes

0.1 0 0.03 0.1 Miles

NAD_1983_HARN_Wisconsin_TM

1: 1,980

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Figure 14: Mapped Extensive Riparian Wetlands LR-6 (map gathered from WDNR Surface Water Data Viewer)

Lake Ripley Critical Habitat (LR 7) – SW, South Bay (Marina Bay), Main Lake

This Critical Habitat encompasses majority of the South Bay and includes Vasby's Channel (Figure 15). LR-7 is designated as a sensitive area for bio-diverse submerged aquatic vegetation, submersed aquatic vegetation important to fish and wildlife, emergent and floating leaf vegetation, extensive riparian wetland, and natural scenic beauty.

Lake Ripley Critical Habitat: LR-7



Figure 15: Designated Sensitive Area LR-7 (map created by Breanna Crane-DNR)

Table #12: LR-7 Aquatic Plants

<i>Scientific Name</i>	Common Name	Plant Type	Coefficient of Conservatism	Ecological Significance
<i>Nuphar variegata</i>	Spatterdock	Floating-leaved	6	Provides shade and structural habitat for fish and invertebrates; Fruits are food source for waterfowl.
<i>Nymphaea odorata</i>	Whitewater Lily	Floating-leaved	6	Provides shade and structural habitat for fish and invertebrates; Fruits are food source for waterfowl.
<i>Utricularia vulgaris</i>	Common Bladderwort	Submergent	7	Habitat for fish and invertebrates
<i>Chara spp.</i>	Muskgrasses	Submergent	7	Habitat for invertebrates and juvenile fish; Stabilizes bottom sediments
<i>Spirodela polyrhiza</i>	Large duckweed	Free-floating		
<i>Lemna minor</i>	Small duckweed	Free-floating	4	Food source for waterfowl; provides shade and cover for fish and invertebrates
<i>Heteranthera dubia</i>	Water star grass	Submergent	6	Habitat for fish and invertebrates; Food source for waterfowl
<i>Vallisneria americana</i>	Eel grass/water celery	Submergent	6	Food source for waterfowl; habitat for fish and invertebrates
<i>Potamogeton friesii</i>	Fries' pondweed	Submergent	8	Habitat for fish and invertebrates; Turions are important food source for waterfowl
<i>Potamogeton pusillus</i>	Small pondweed	Submergent	7	Habitat for fish and invertebrates
<i>Potamogeton illinoensis</i>	Illinois Pondweed	Submergent	6	Habitat for fish and invertebrates

<i>Stuckenia pectinata</i>	Sago pondweed	Submergent	3	Habitat for fish and invertebrates; Nutlets are important food source for waterfowl
<i>Ceratophyllum demersum</i>	Coontail	Submergent	3	Habitat for fish and invertebrates
<i>Najas flexilis</i>	Slender naiad	Submergent	6	Habitat for fish and invertebrates
<i>Myriophyllum sibiricum</i>	Northern watermilfoil	Submergent	6	Habitat for fish and invertebrates; Food source for waterfowl
<i>Potamogeton gramineus</i>	Variable pondweed	Submergent	7	Habitat for fish and invertebrates; Food source for waterfowl
<i>Potamogeton Natans</i>	Floating-leaf pondweed	Submergent	5	Provides shade and structural habitat for fish and invertebrates
<i>Potamogeton crispus</i>	Curly-leaf pondweed	Submergent	-	Non-native; provides winter and spring habitat for fish; summer die-offs can lead to nutrient release; Can outcompete more desirable native species
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	Submergent	-	Non-native; Habitat for fish and invertebrates; Food for waterfowl; Can outcompete more desirable natives
<i>Najas marina</i>	Spiny naiad	Submergent	-	Non-native; Habitat for fish and invertebrates; Stabilizes bottom sediments

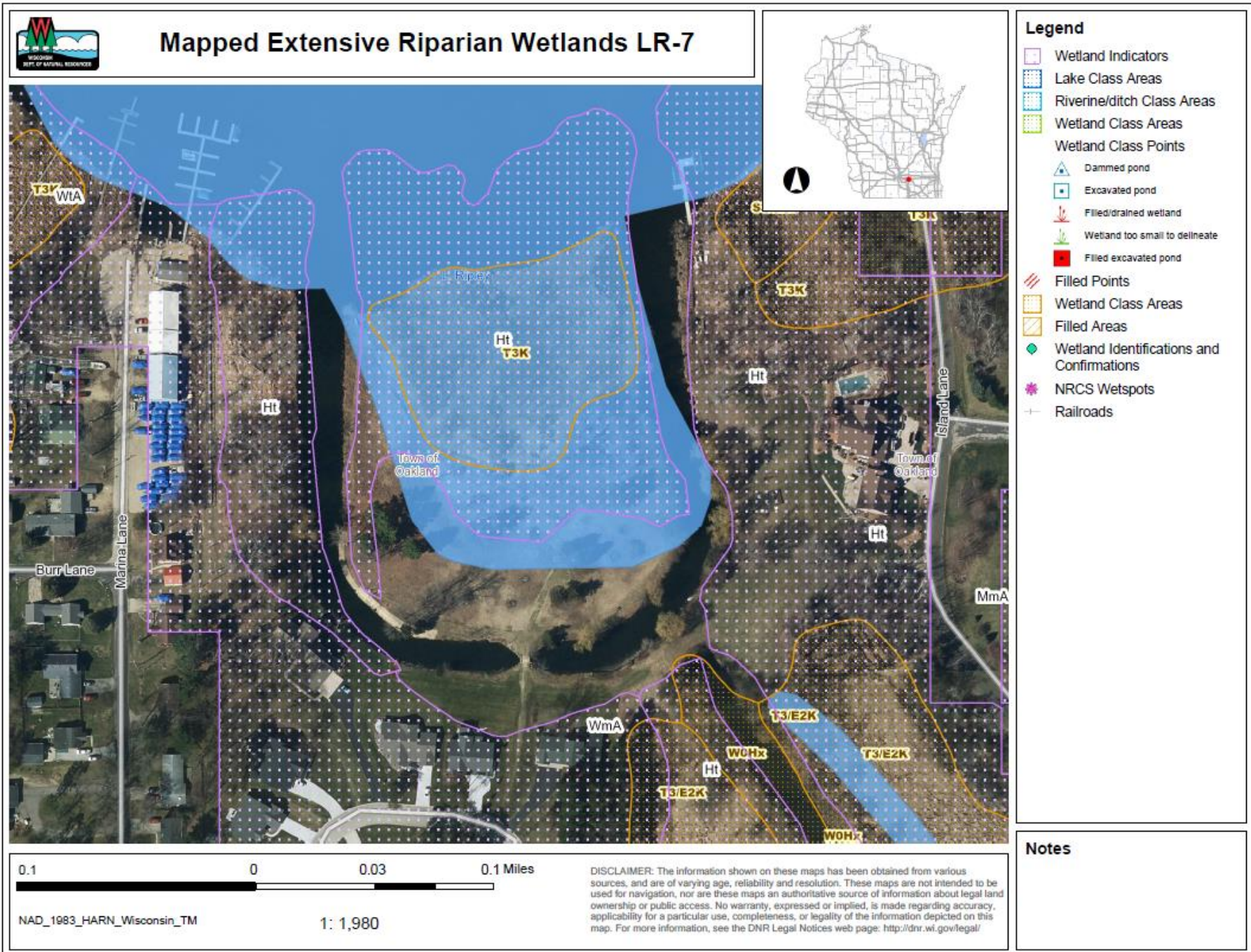


Figure 16: Mapped Extensive Riparian Wetlands LR-6 (map gathered from WDNR Surface Water Data Viewer)

Lake Ripley Critical Habitat (LR 8)

This Critical Habitat is the shoreline along the southern the southern end of the lake between the southwest bay and Milwaukee Bay (Figure 17). The area begins at the western property line of the Hoard and Curtis Scout Camp and ends at the eastern property line. This site was selected for its spawning substrate and natural scenic beauty. It is classified as Other Public Rights Feature.

Lake Ripley Critical Habitat: LR-8



Figure 17: Designated Sensitive Area LR-8 (map created by Breanna Crane-DNR)



LR-8 Substrate Sampling Sites



Legend



0.1 0 0.03 0.1 Miles

NAD_1983_HARN_Wisconsin_TM

1: 1,980

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Notes

Sampling Date
10-20-2015

Figure 18: Substrate Sampling Sites LR-8

Table #13 LR-8 Substrate Survey Results 10-20-2015

Transect #	Quadrant #	Band Dimension (m)	Embeddedness (1-5)	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Course Gravel	Rubble/Cobble	Small Boulder	Large Boulder	Bedrock
1	1	2	5					5					95	
1	2	3	3	50				50						
1	3	5	1	45				45		10				
2	1	.5	5				10	10				80		
2	2	2.5	3					10					90	
2	3	9	1	55			5	40						
2	4	15	1	15				15	30	40				
3	1	1.5	5									10	90	
3	2	2.5	3	10			40	20				30		
3	3	5.5	1	45				45	10					
4	1	1.5	5	5				5				45	45	
4	2	1	3	10				10		30		50		
4	3	5	1	50			50							
4	4	6	1	25			25		30	20				
5	1	1.5	5									40	60	
5	2	2.5	3	25			25		25	25				
5	3	4	1				10		30	30		30		
6	1	3	5						5	10			85	
6	2	8	3				20		40	30		10		
6	3	6.5	1	10					35	35		20		

APPENDIX A

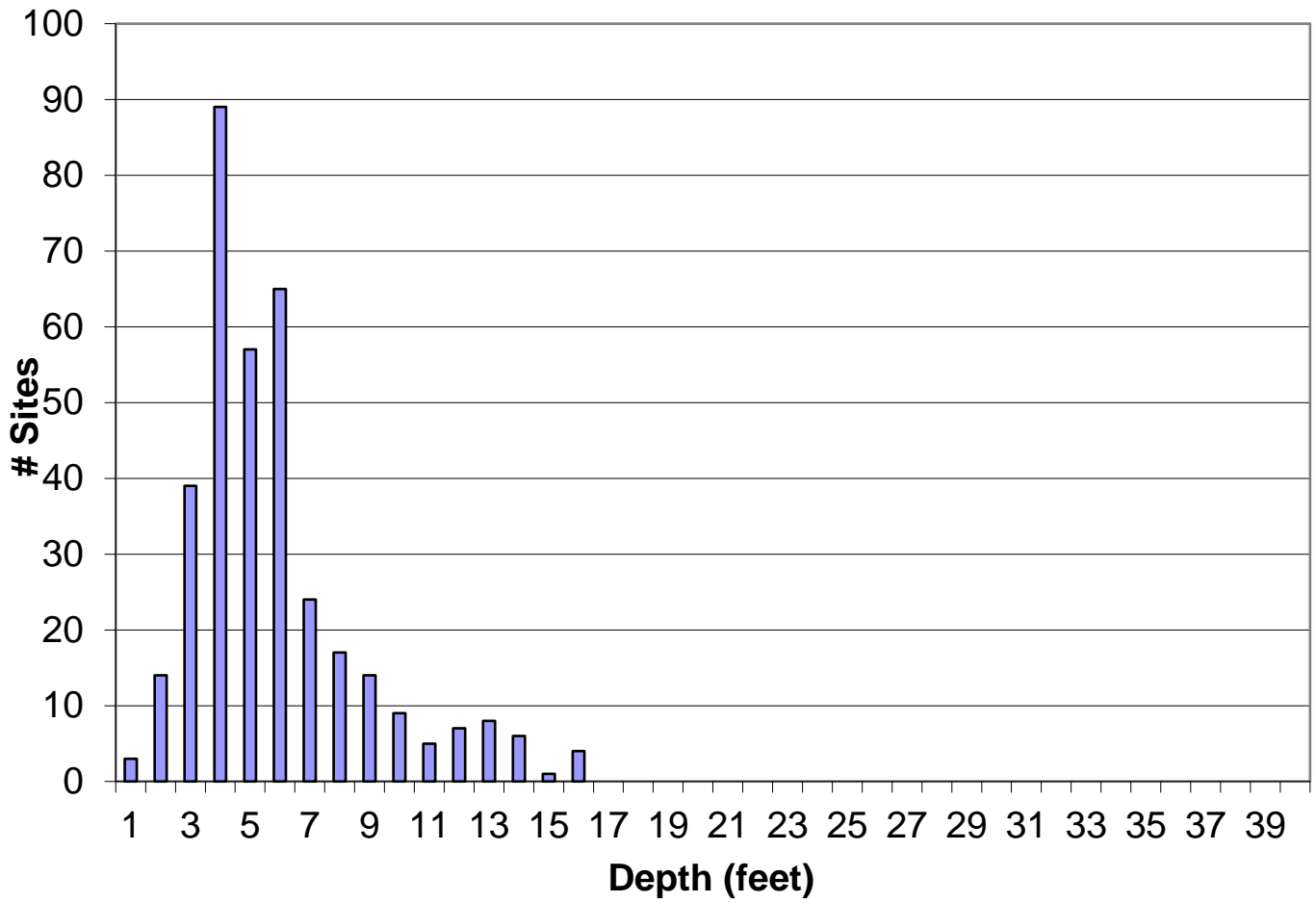
AQUATIC PLANT INFORMATION

LAKE RIPLEY, JEFFERSON COUNTY, WISCONSIN

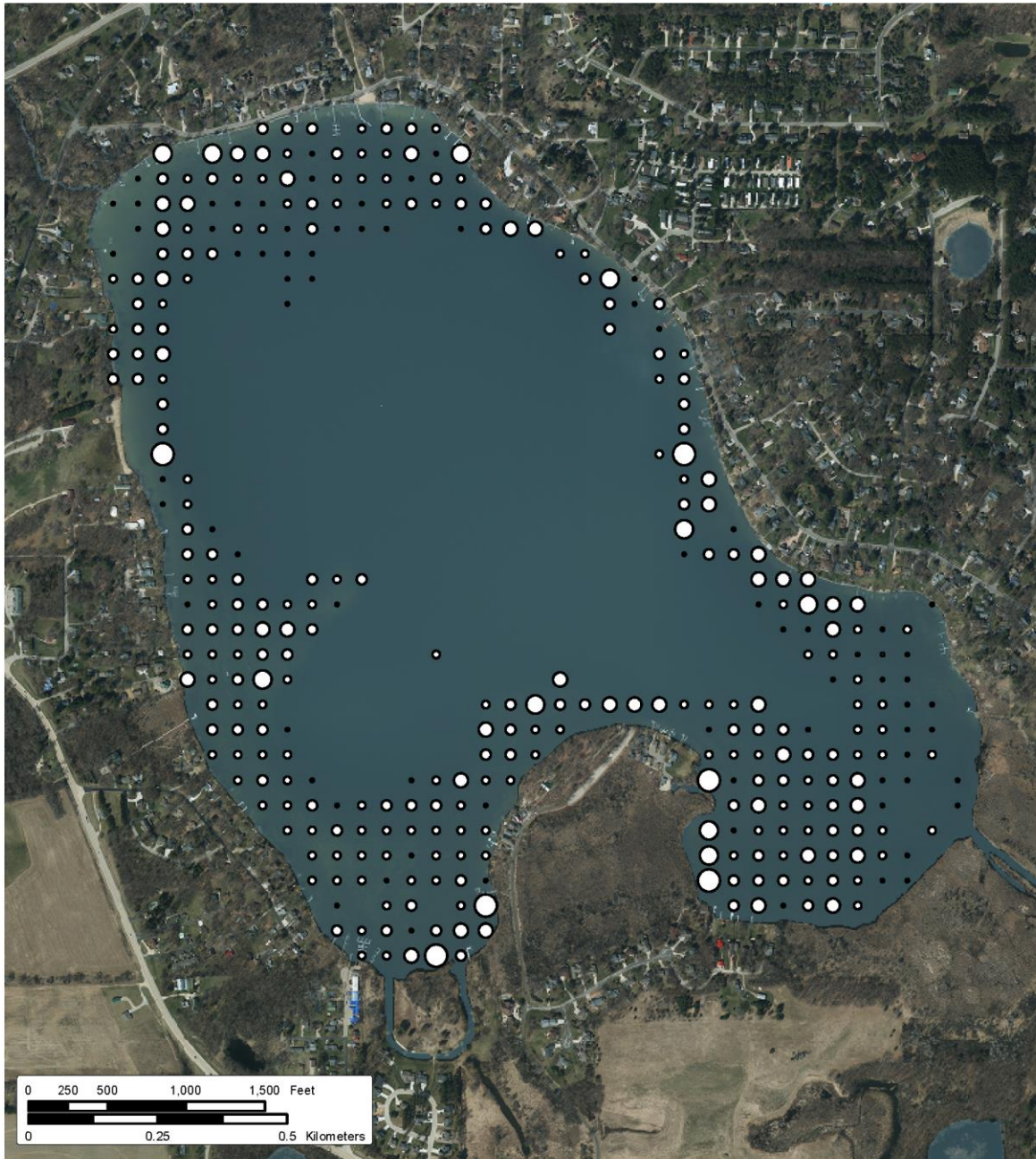
From data collected in 2011, 2015, and 2020 by the Lake Ripley Management District and Jefferson Co LWCD

Tables and charts from Jefferson Co LWCD, Lake Ripley Management District

2020 Maximum Depth of Plant Colonization



Aquatic Plant Survey Lake Ripley - Jefferson County - June 2020 Total Number of Species



Total # of Species at each Survey Site

• 1	○ 3	○ 5
• 2	○ 4	○ 6

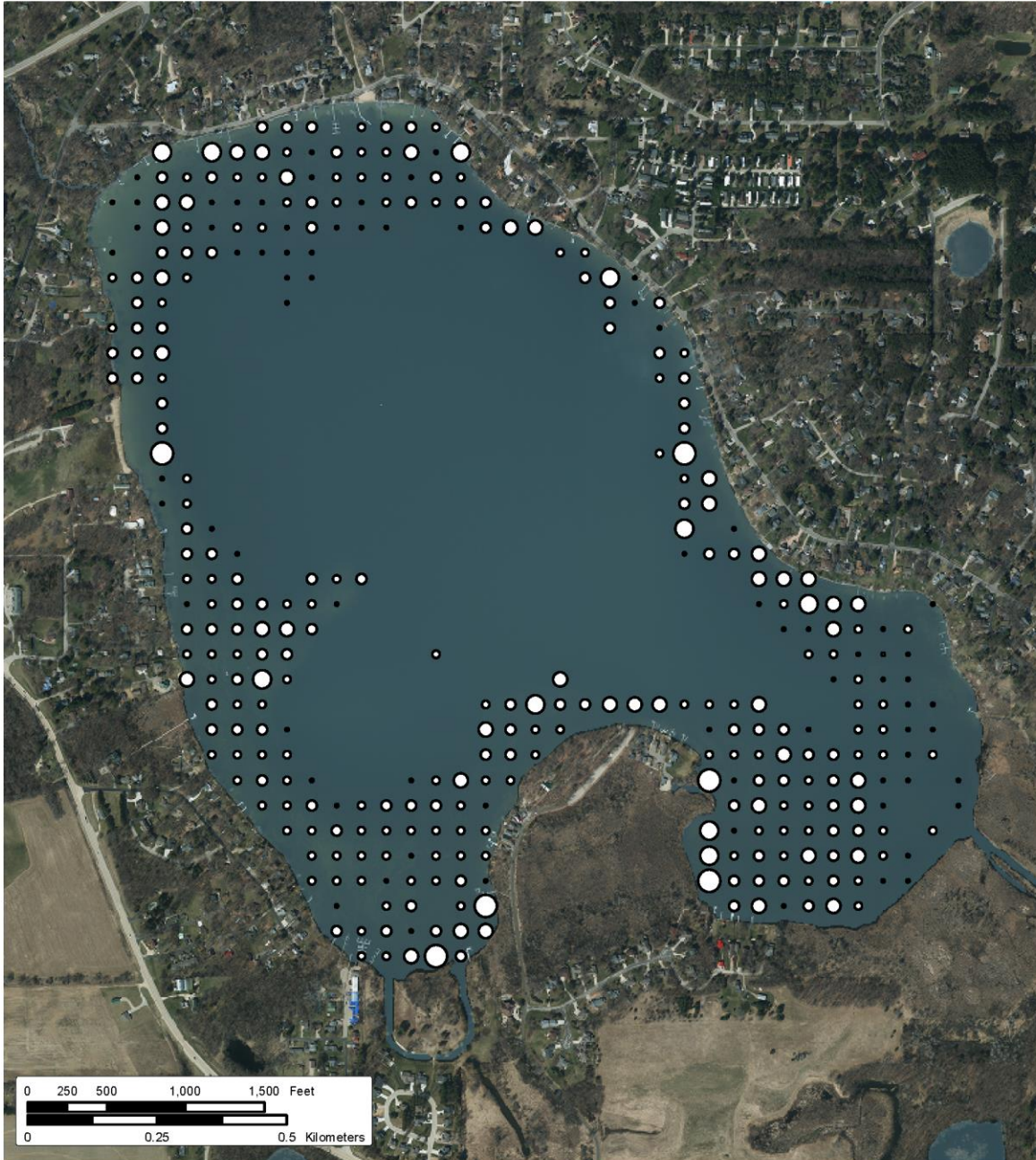




Spring 2020
Aerial

Author:
Jefferson County Land
& Water Conservation Dept Date: 11/27/2020

Aquatic Plant Survey Lake Ripley - Jefferson County - June 2020 Total Number of Species



Total # of Species at each Survey Site

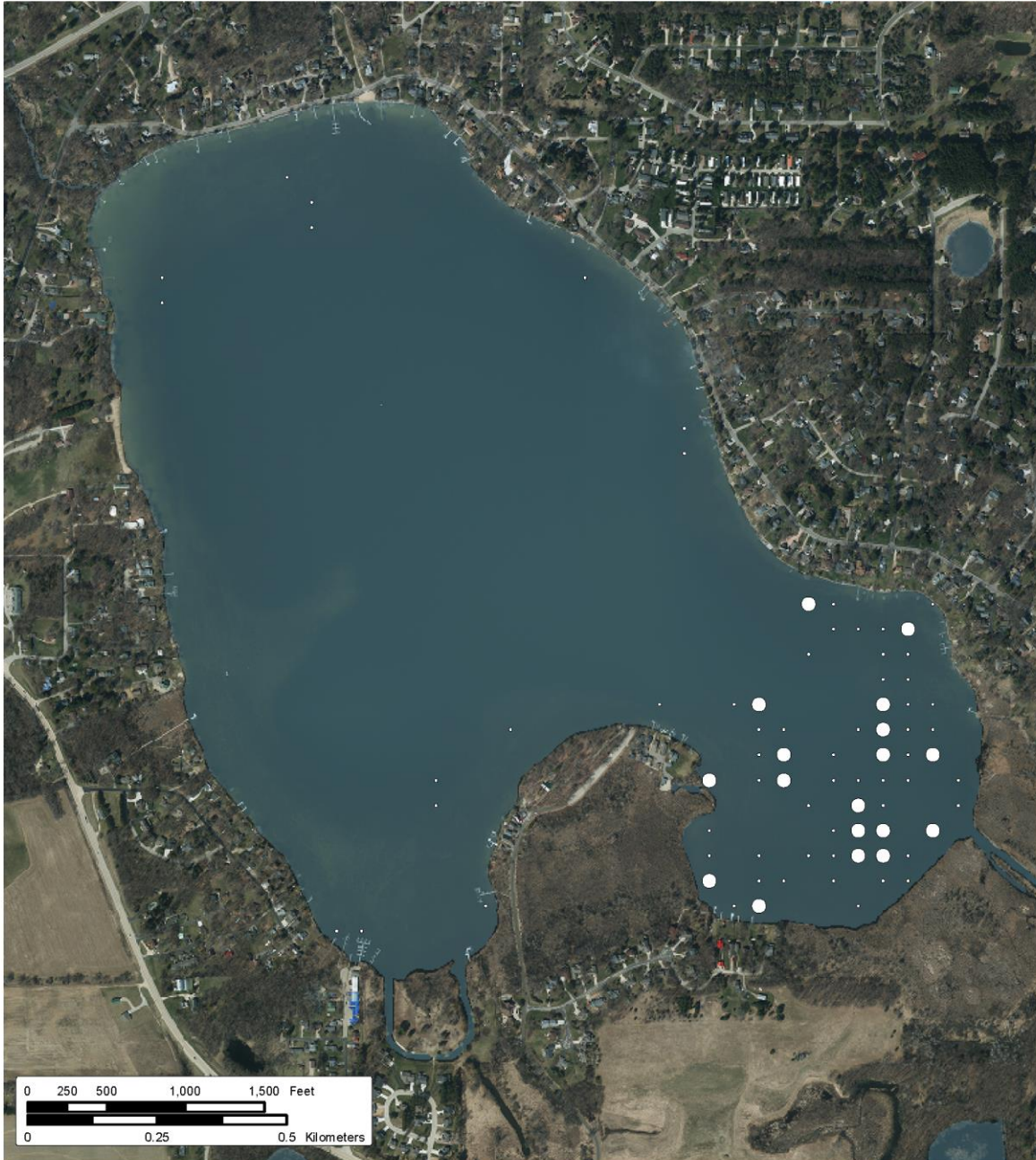
- | | | |
|-----|-----|-----|
| • 1 | ○ 3 | ○ 5 |
| ○ 2 | ○ 4 | ○ 6 |



Spring 2020
Aerial

Author:
Jefferson County Land
& Water Conservation Dept Date: 11/27/2020

Aquatic Plant Survey Lake Ripley - Jefferson County - June 2020 Total Number of Invasive Species



Total # of Species at each Survey Site

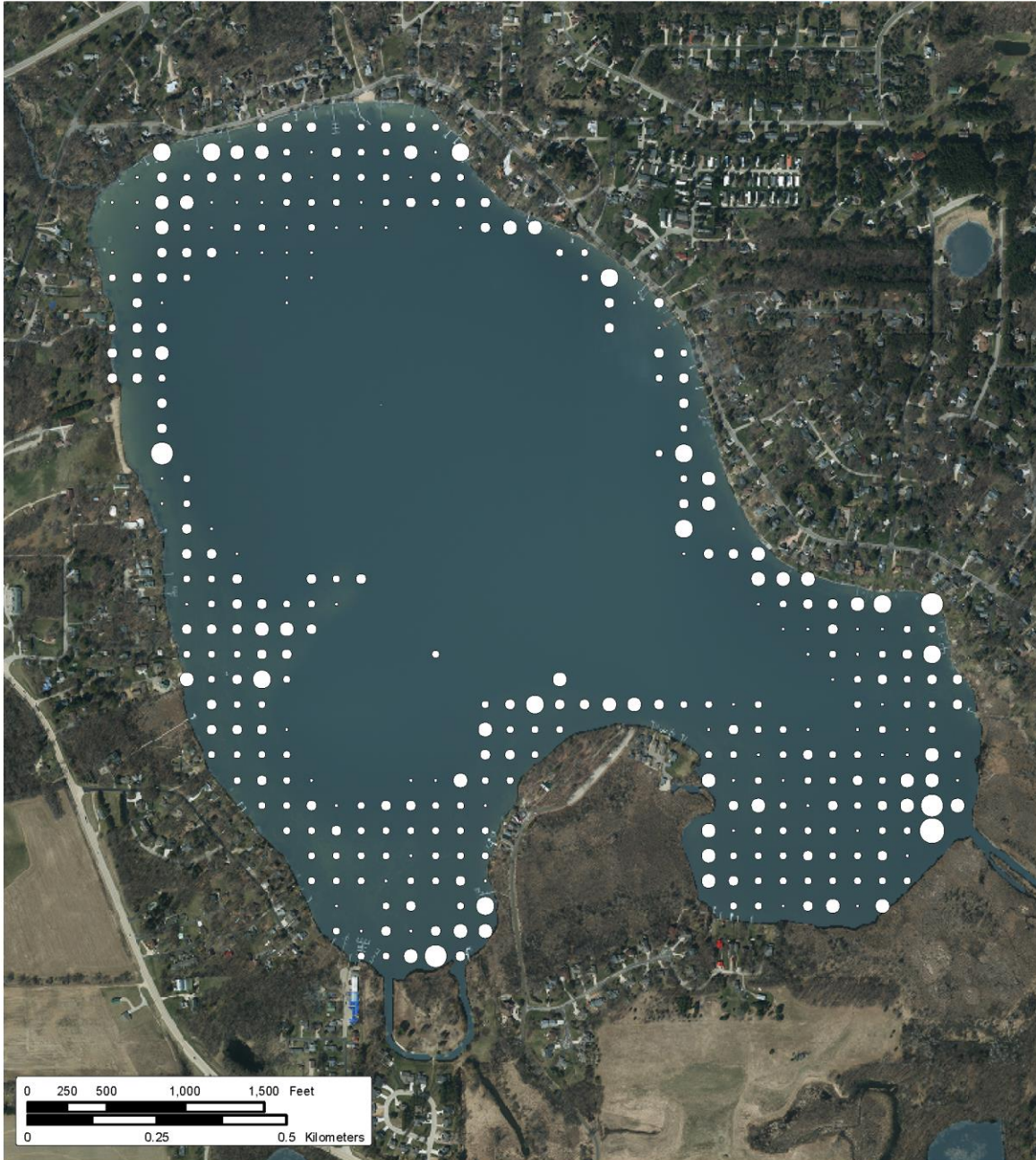
○ 1 ○ 2



Spring 2020
Aerial

Author:
Jefferson County Land
& Water Conservation Dept Date: 11/27/2020

Aquatic Plant Survey Lake Ripley - Jefferson County - June 2020 Total Number of Native Species



Total # of Species at each Survey Site

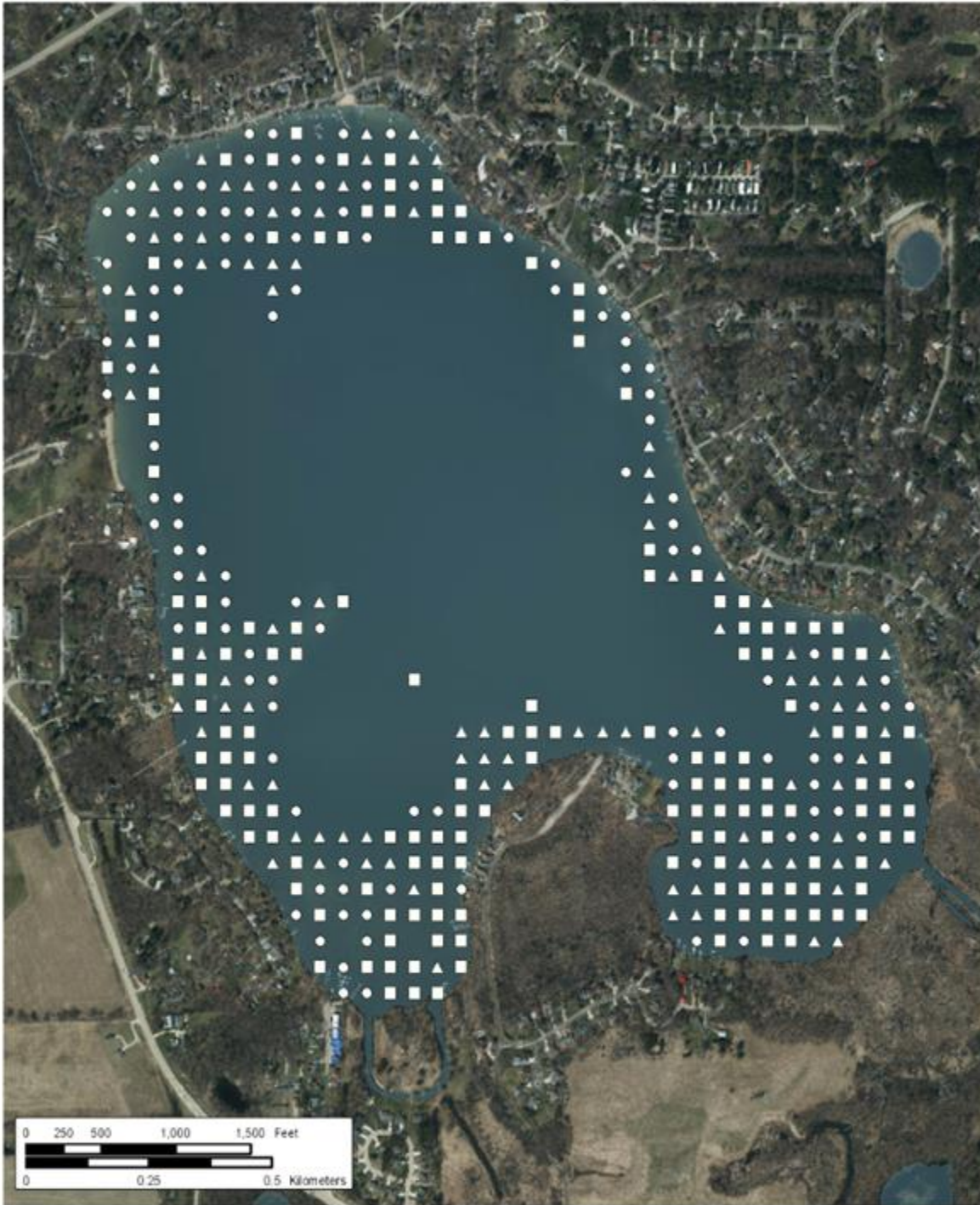
- | | | | |
|-----|-----|-----|-------|
| ◦ 1 | ◦ 3 | ◦ 5 | ◦ 7-8 |
| ◦ 2 | ◦ 4 | ◦ 6 | |



Spring 2020
Aerial

Author:
Jefferson County Land
& Water Conservation Dept Date: 11/30/2020

Aquatic Plant Survey Lake Ripley - Jefferson County - June 2020 Rake Fullness Rating all Species



Rake Fullness Rating

○	1
△	2
□	3





Spring 2020
Aerial

Author:
Jefferson County Land
& Water Conservation Dept

Date: 11/25/2020

Total Rake Fullness Rating

- 1
- 3
- △ 2
- ◆ Visual

Lake Ripley - Jefferson County
June 2020



Eurasian watermilfoil



Northern watermilfoil



Curly-Leaf Pondweed



Variable Pondweed



Total Rake Fullness Rating

- 1
- 3
- △ 2
- Visual

Lake Ripley - Jefferson County

June 2020

Illustration of Rake Fullness Rating



Fetid Stonewort



Sago pondweed



Globular Stonewort



Coontail



Total Rake Fullness Rating

- 1
- 3
- △ 2
- ◆ Visual

Lake Ripley - Jefferson County
June 2020

Illustration of
Rake Fullness Rating



Fries' pondweed



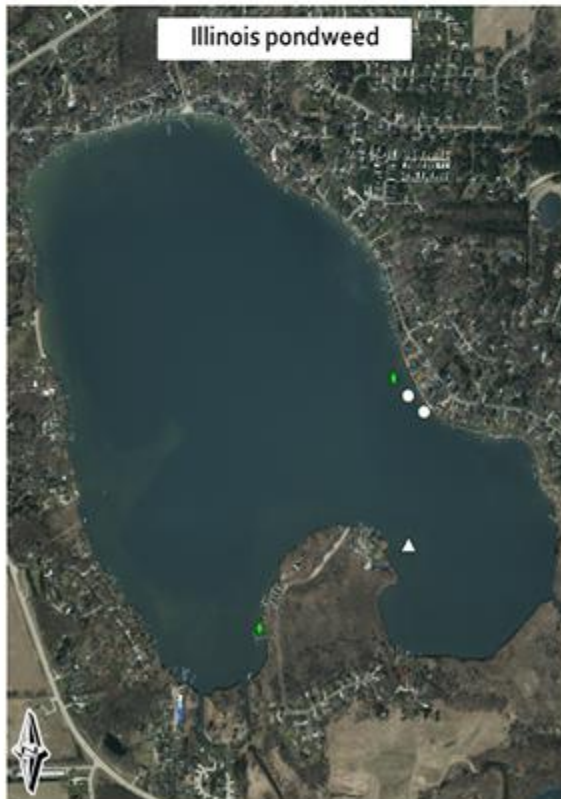
Small pondweed



Stiff pondweed



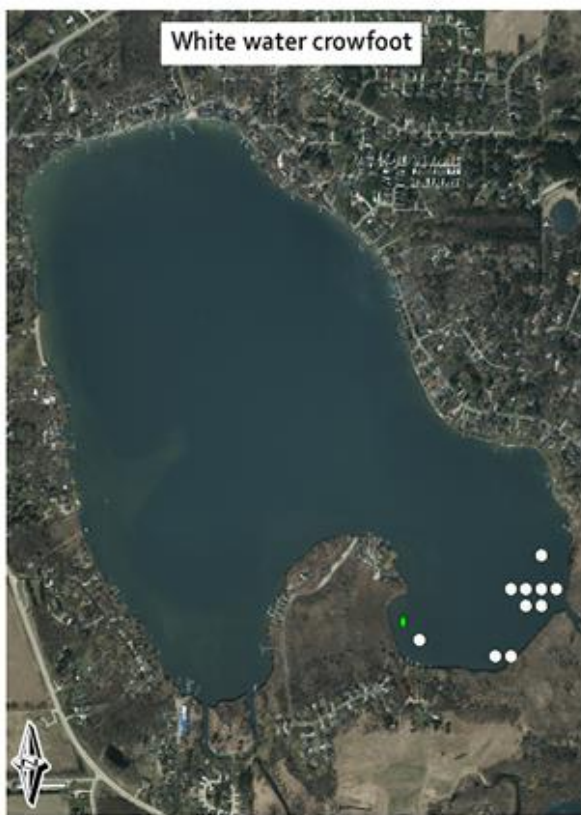
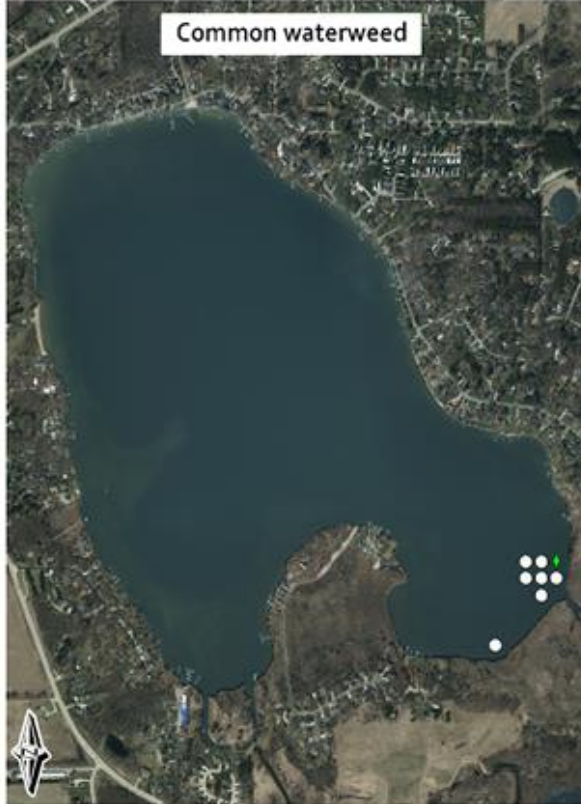
Illinois pondweed



Total Rake Fullness Rating

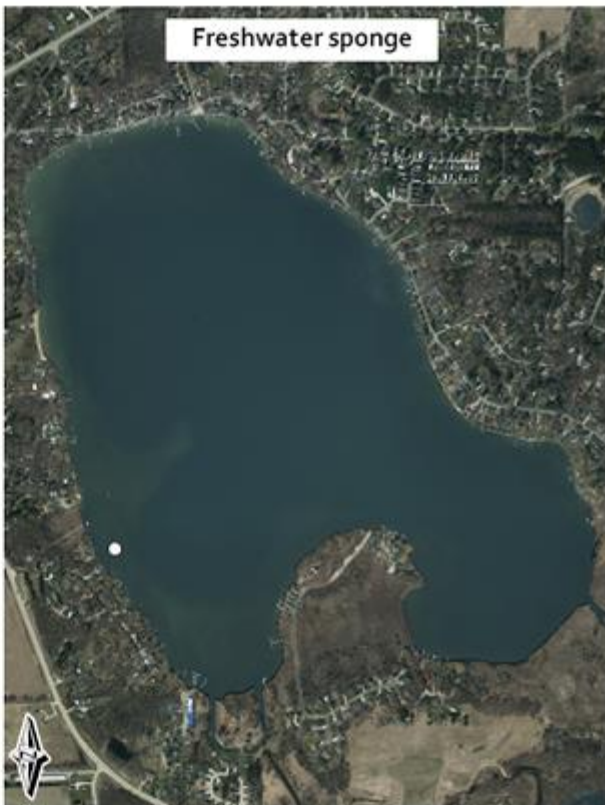
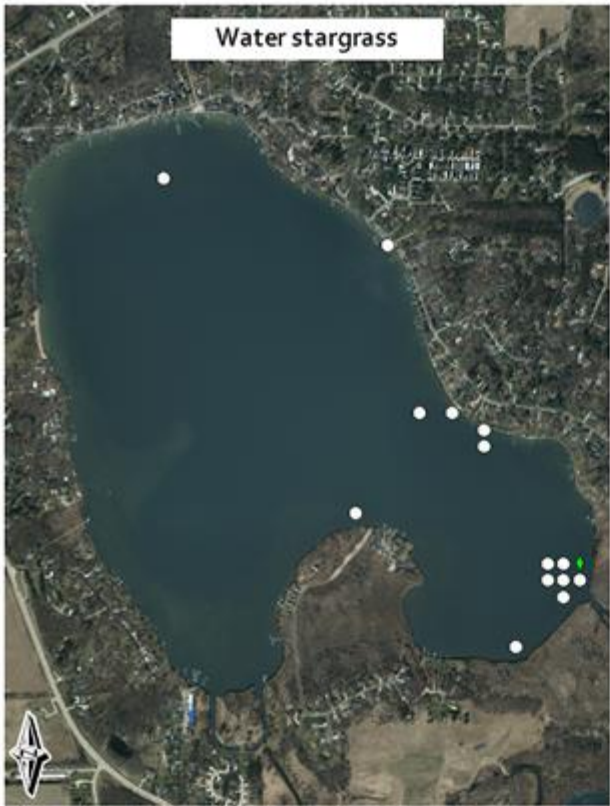
○	1	□	3
△	2	◆	Visual

**Lake Ripley - Jefferson County
June 2020**



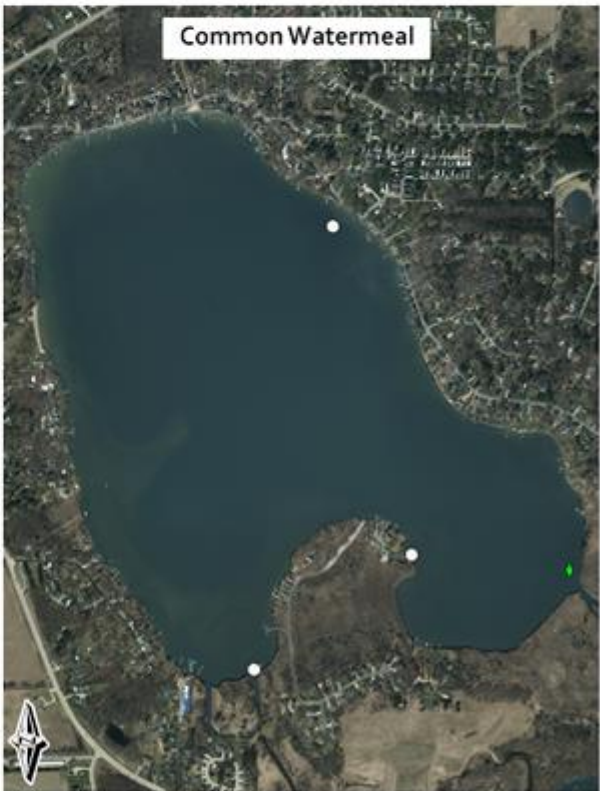
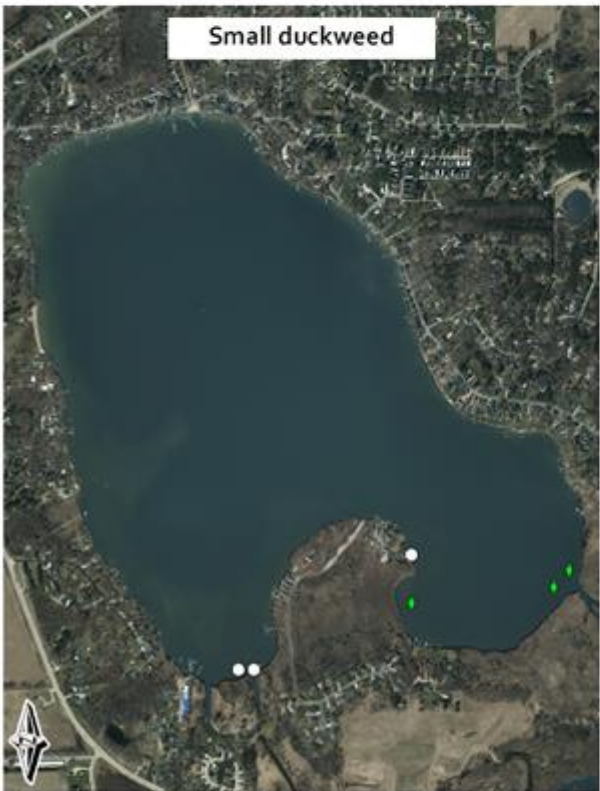
Total Rake Fullness Rating			
○	1	□	3
△	2	◆	Visual

Lake Ripley - Jefferson County June 2020



Total Rake Fullness Rating			
○	1	□	3
△	2	◆	Visual

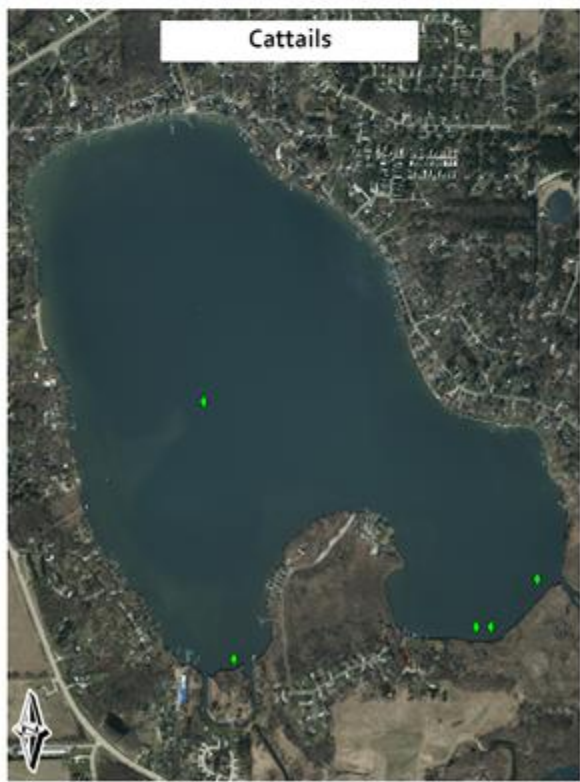
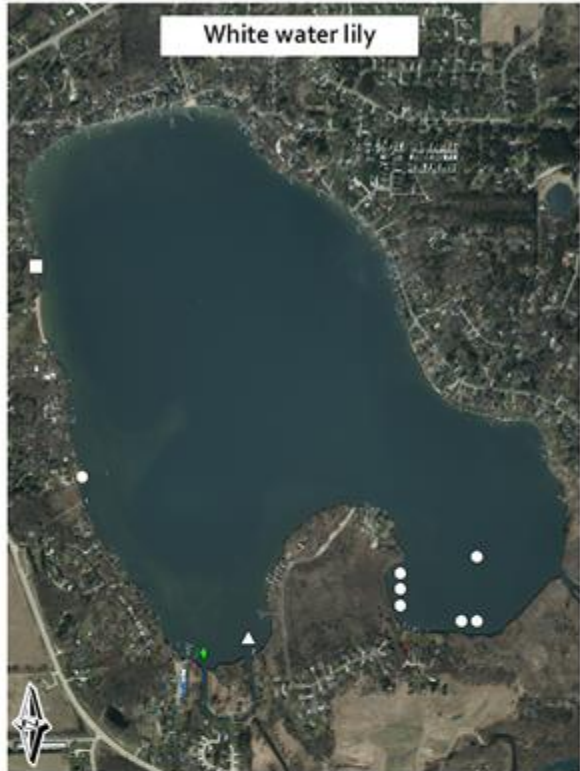
Lake Ripley - Jefferson County June 2020



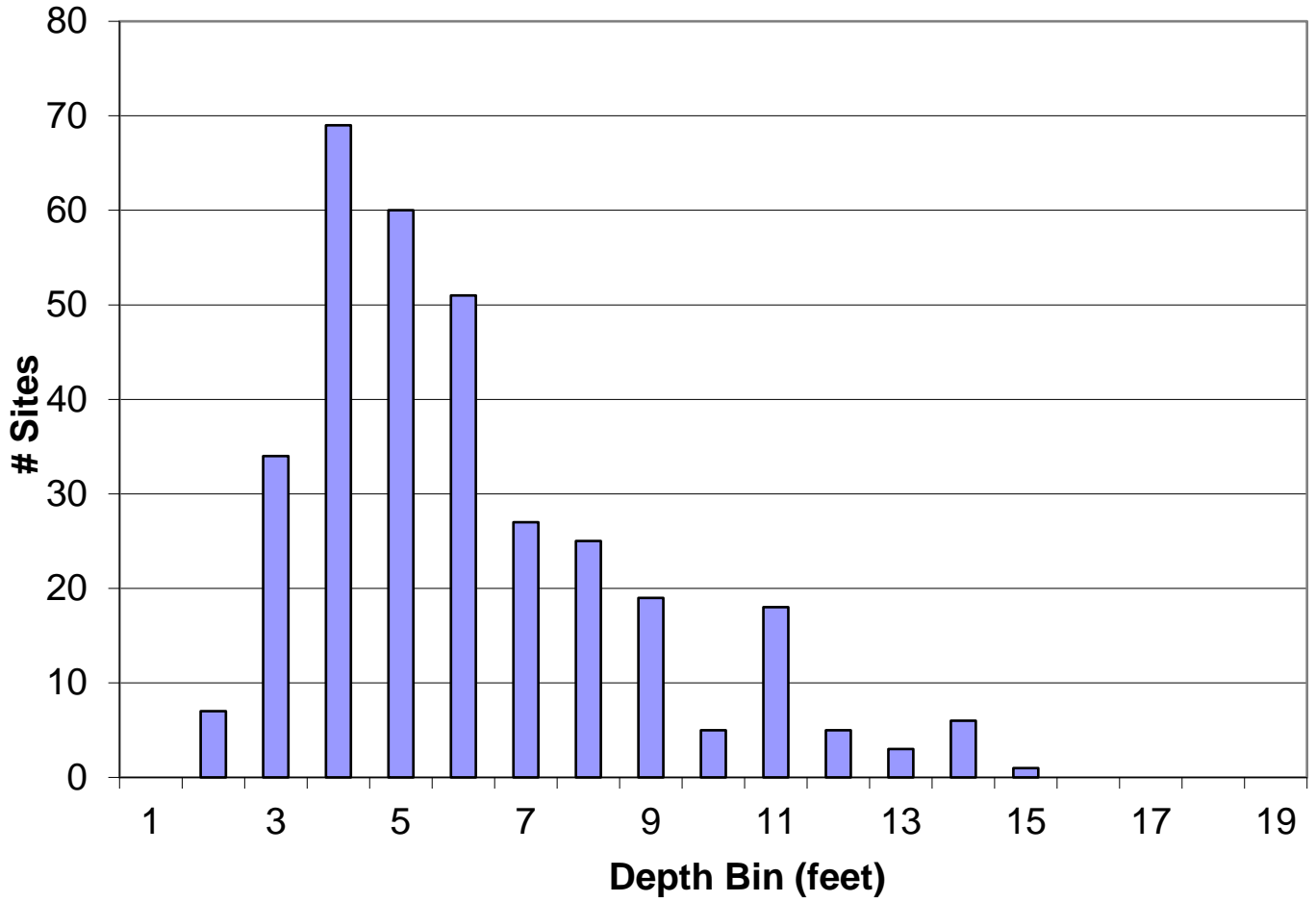
Total Rake Fullness Rating

○	1	□	3
△	2	◆	Visual

Lake Ripley - Jefferson County
June 2020



2015 Maximum Depth of Plant Colonization




Aquatic Plant Survey Lake Ripley - Jefferson County - August 2015 Rake Fullness Rating all Species



Rake Fullness Rating

- 1
- △ 2
- 3





Author:
Jefferson County Land
& Water Conservation Dept

Spring 2015
Aerial

Date: 7/19/2016

Aquatic Plant Survey Lake Ripley - Jefferson County - August 2015 Total Number of Species



Total # of Species at each Survey Site					
◊	Visual	○	4	○	8
◦	1	○	5	○	9
○	2	○	6	○	11
○	3	○	7		



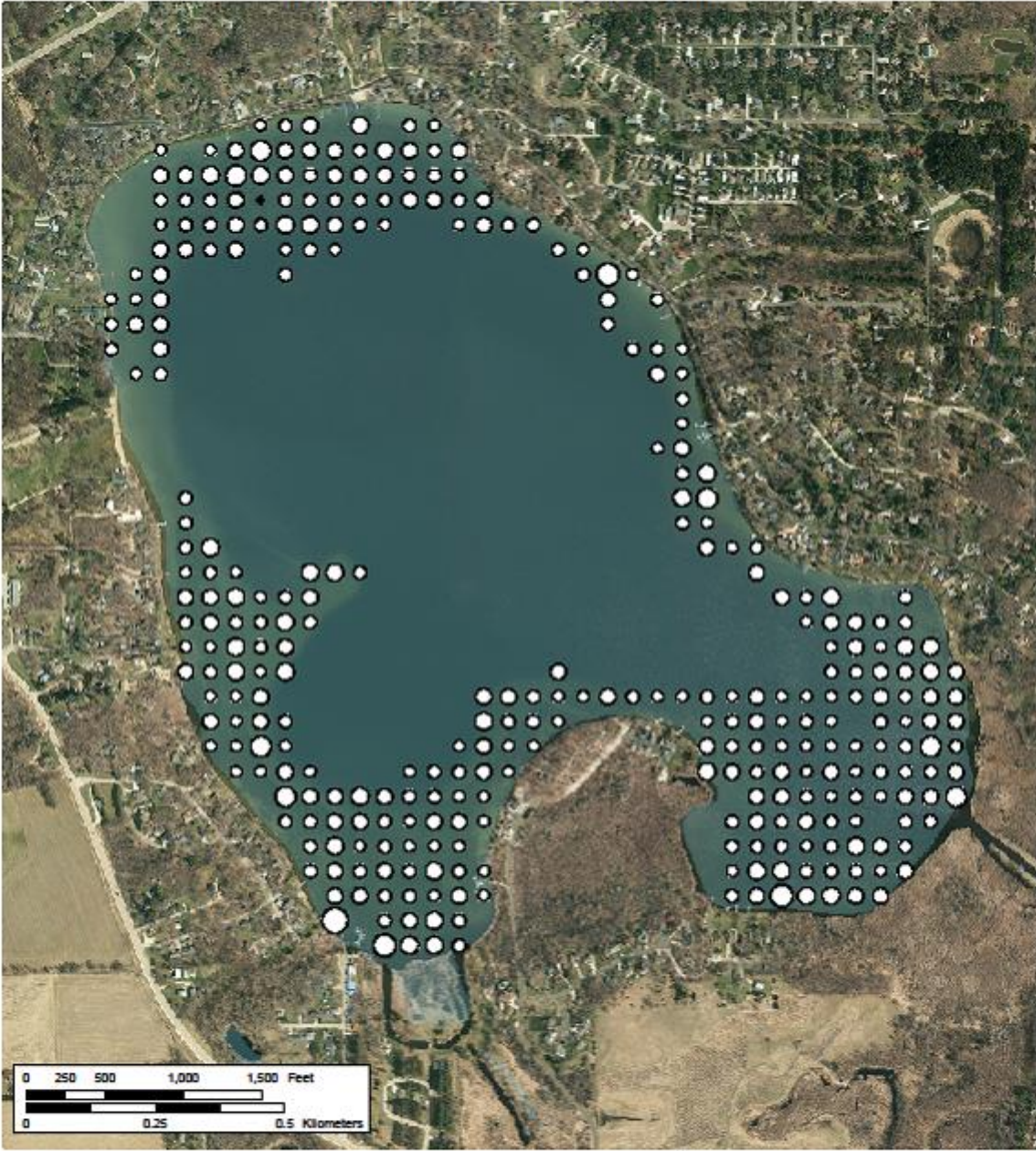


Author:
Jefferson County Land
& Water Conservation Dept

Spring 2015
Aerial


Date: 7/19/2016

Aquatic Plant Survey Lake Ripley - Jefferson County - August 2015 Total Number of Native Species



Total # of Species at each Survey Site					
◆	Visual	○	3	○	6
○	1	○	4	○	11
○	2	○	5		





Author:
Jefferson County Land
& Water Conservation Dept

Spring 2015
Aerial

Date: 7/19/2016

Total Rake Fullness Rating

- 1 □ 3
- △ 2 ♣ Visual

Lake Ripley - Jefferson County
August 2015

Illustration of
Rake Fullness Rating



Eurasian watermilfoil



Northern watermilfoil



Possible hybrid watermilfoil



Curly-leaf pondweed



Total Rake Fullness Rating

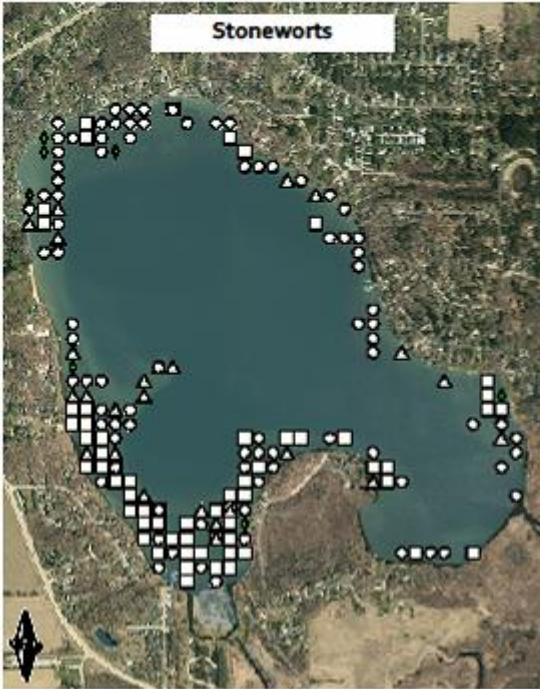
- 1 □ 3
- △ 2 † Visual

Lake Ripley - Jefferson County August 2015

Illustration of
Rake Fullness Rating



Stoneworts



Sago pondweed



Coontail



Fries' pondweed



Total Rake Fullness Rating

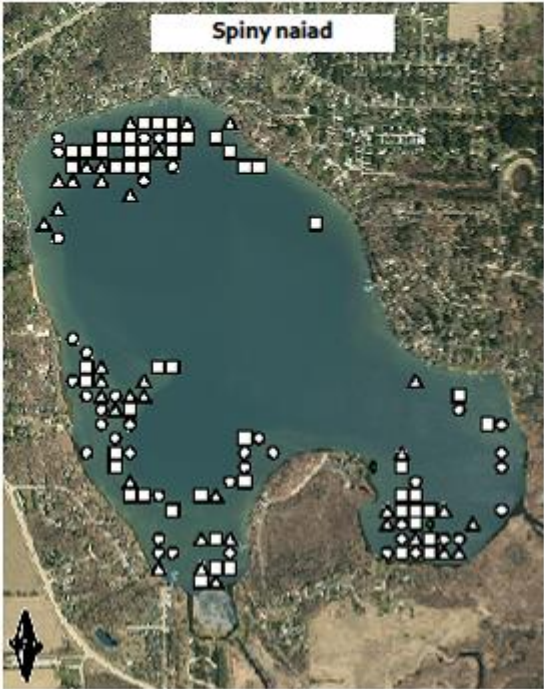
- 1
- 3
- △ 2
- ◆ Visual

Lake Ripley - Jefferson County
August 2015

Illustration of
Rake Fullness Rating



Spiny naiad



Water celery/Eel grass



Elodea



Illinois pondweed



Total Rake Fullness Rating

- 1 □ 3
- △ 2 ◆ Visual

Lake Ripley - Jefferson County
August 2015

Illustration of
Rake Fullness Rating



Common bladderwort



Bushy pondweed



Spatterdock



White water lily



Total Rake Fullness Rating

- | | | | |
|---|---|---|--------|
| ○ | 1 | □ | 3 |
| △ | 2 | ◆ | Visual |

Lake Ripley - Jefferson County
August 2015

Illustration of
Rake Fullness Rating



Water stargrass



Small pondweed



Small duckweed



Variable pondweed



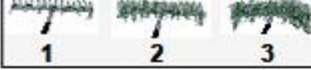
Total Rake Fullness Rating

- 1 □ 3
- △ 2 ◆ Visual

Lake Ripley - Jefferson County

August 2015

Illustration of Rake Fullness Rating



Horned pondweed



Flatstem pondweed



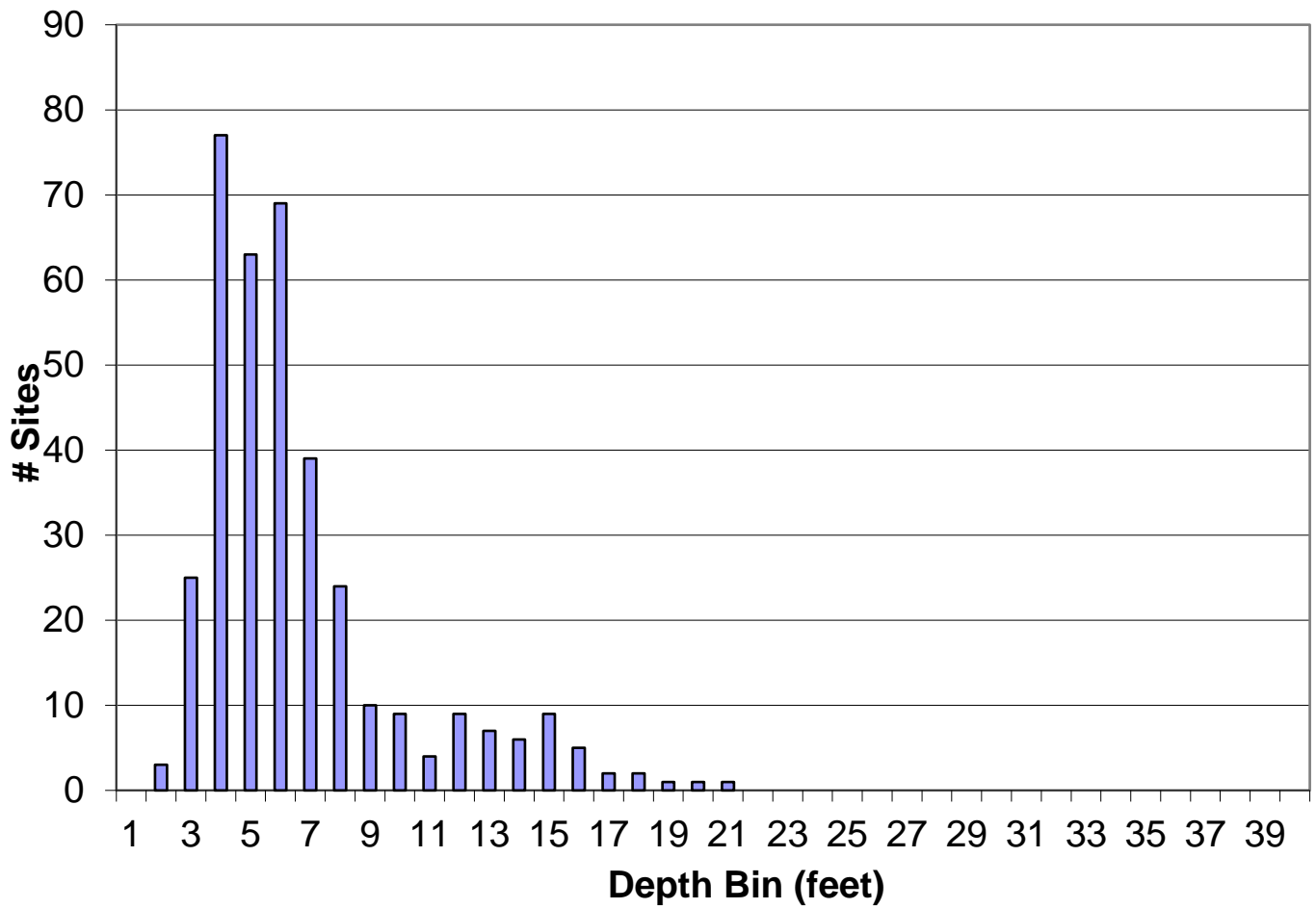
Floating-leaf pondweed



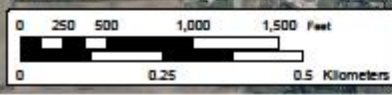
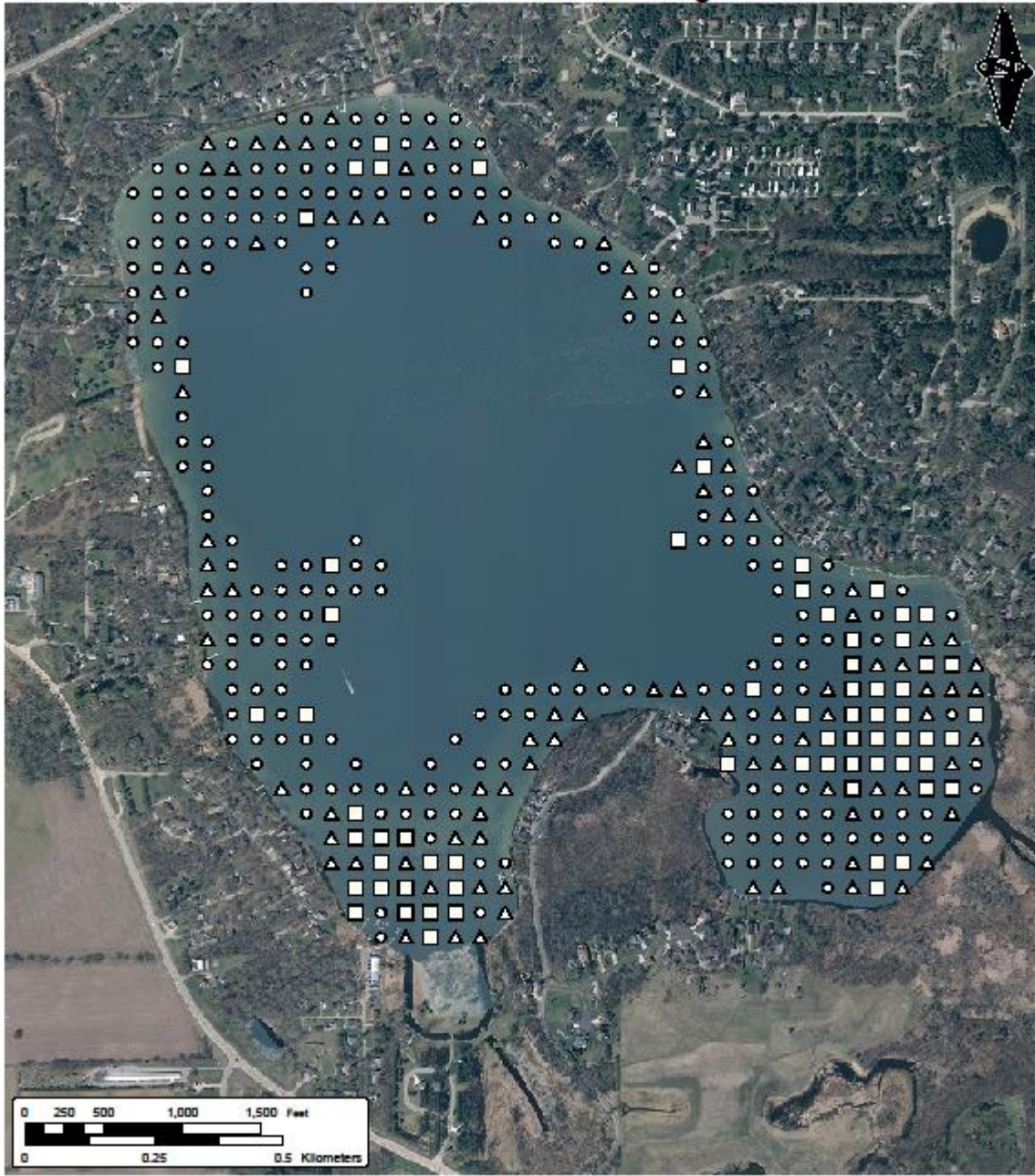
Stiff pondweed



2011 Maximum Depth of Plant Colonization



Aquatic Plant Survey Lake Ripley - Jefferson County - June 2011 Total Rake Fullness Rating



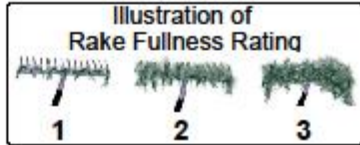
Rake Fullness	
○	1
△	2
□	3



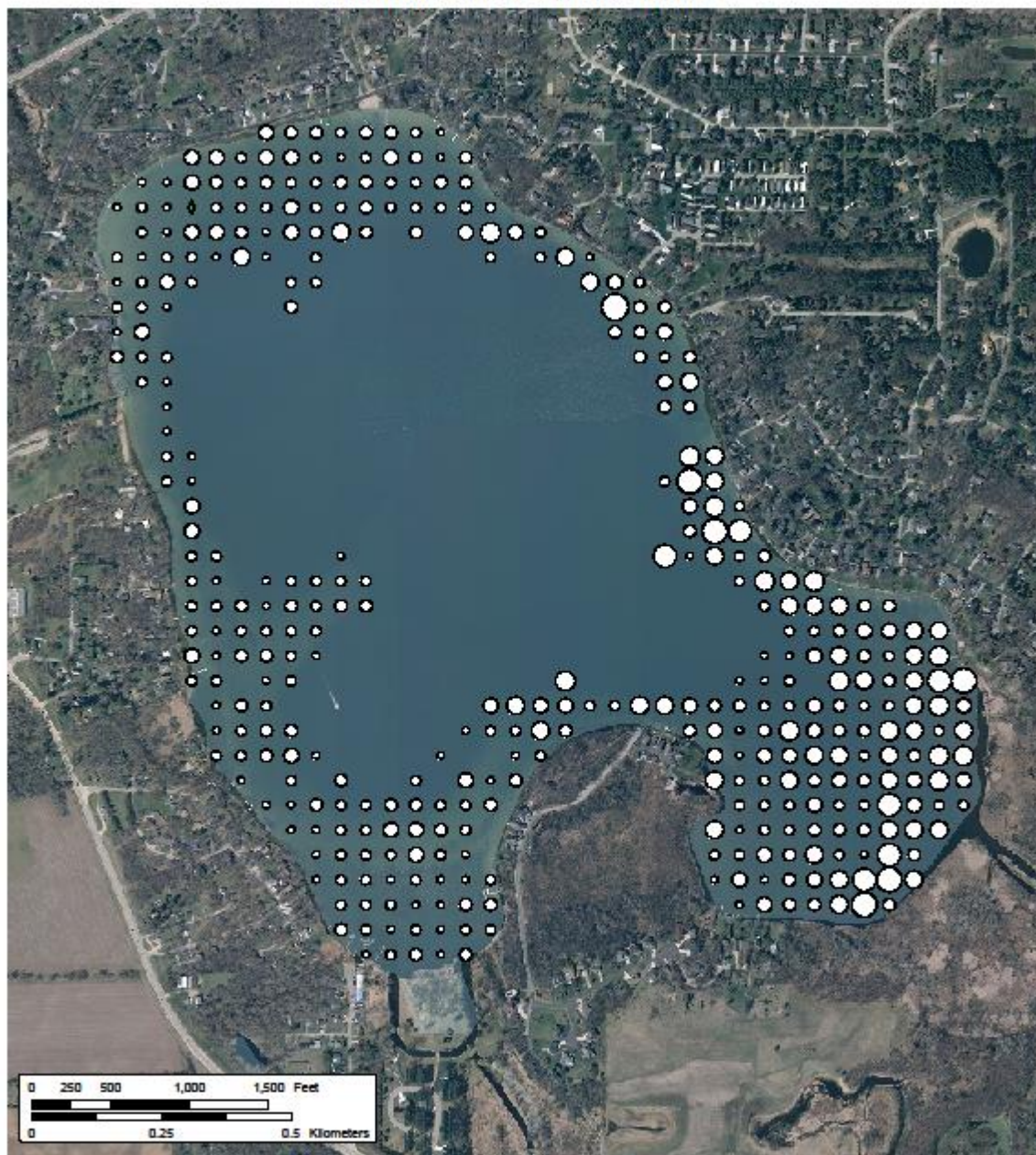
Author:
Jefferson County Land
& Water Conservation Dept

Spring 2010
Aerial

Date: 11/3/2011



Aquatic Plant Survey Lake Ripley - Jefferson County - June 2011 Native and Exotic Plants



Total # of Species at each Survey Site			
○ 1	○ 4	○ 7	◆ Visual
○ 2	○ 5	○ 8	
○ 3	○ 6	○ 9	



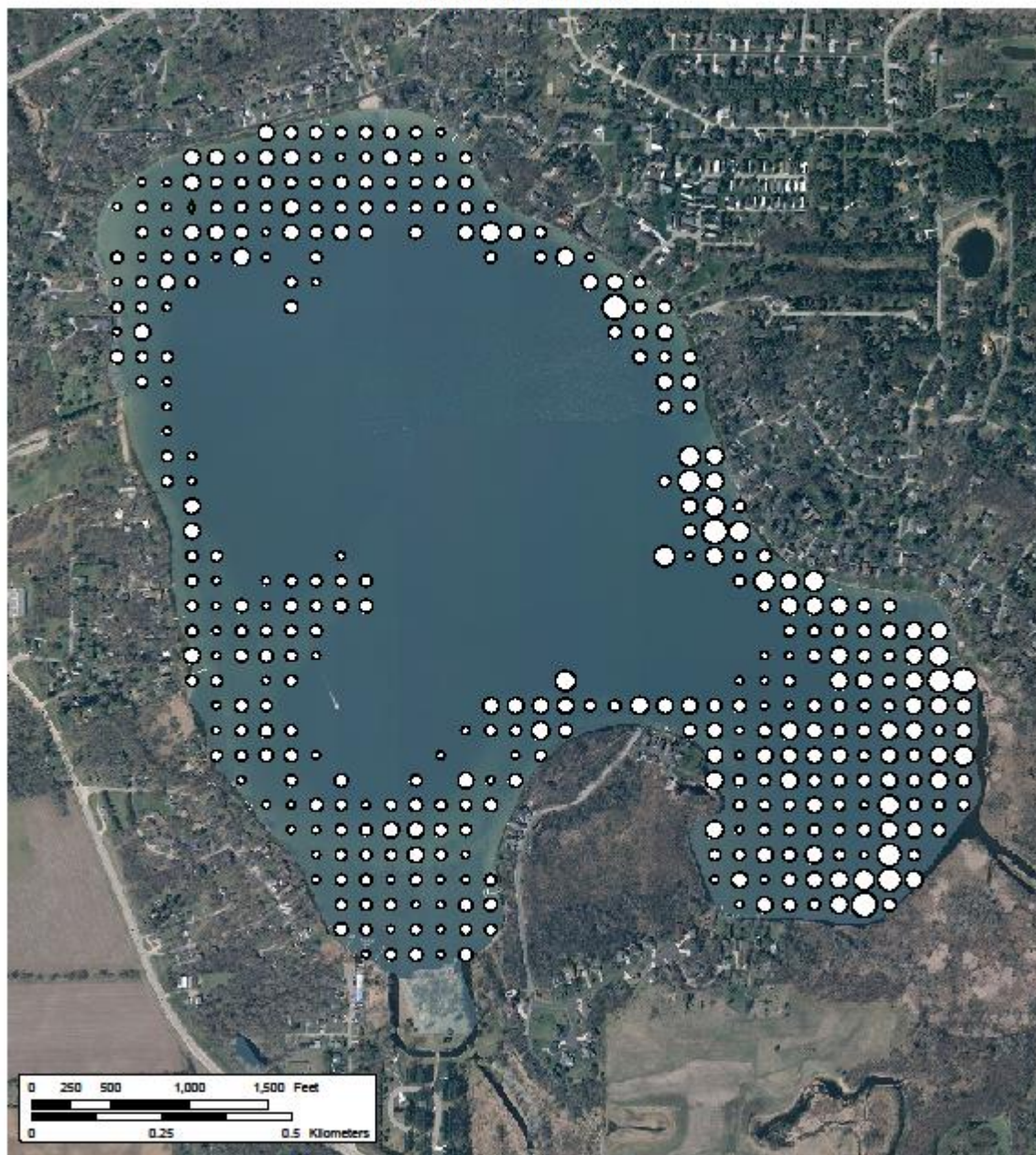


Author:
Jefferson County Land
& Water Conservation Dept

Spring 2010
Aerial


Date: 11/3/2011

Aquatic Plant Survey Lake Ripley - Jefferson County - June 2011 Native Plants



Total # of Species at each Survey Site		
○ (smallest)	1	○ (medium-small)
○ (medium)	2	○ (medium-large)
○ (large)	3	○ (largest)
○ (medium-small)	4	○ (medium-large)
○ (medium)	5	○ (medium-large)
○ (large)	6	○ (largest)
○ (smallest)	7	○ (medium-small)
○ (medium)	8	○ (medium-large)
○ (large)	Visual	○ (largest)





Author:
Jefferson County Land
& Water Conservation Dept

Spring 2010
Aerial

Date: 11/3/2011

Total Rake Fullness Rating

- 1 □ 3
- △ 2 ◆ Visual

Lake Ripley - Jefferson County
June, 2011

Illustration of
Rake Fullness Rating



Eurasian watermilfoil



Northern watermilfoil



Possible hybrid watermilfoil



Curly-leaf pondweed



Total Rake Fullness Rating

- 1 □ 3
- △ 2 ◆ Visual

Lake Ripley - Jefferson County
June, 2011

Illustration of
Rake Fullness Rating



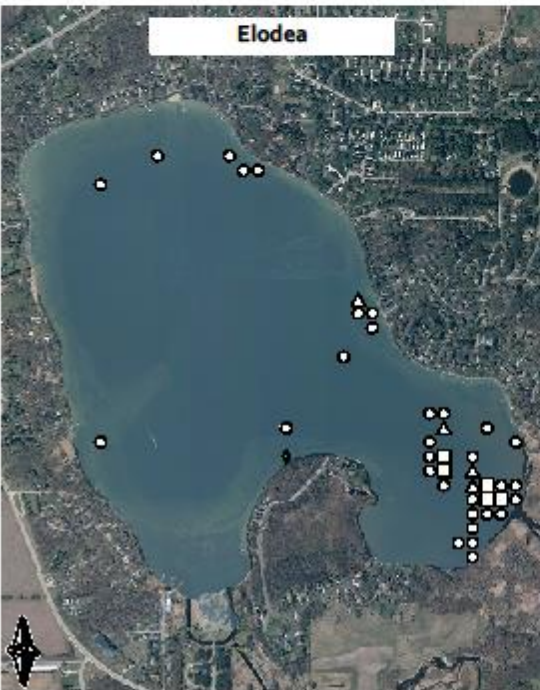
Spiny naiad



Water celery/Eel grass



Elodea



Illinois pondweed



Total Rake Fullness Rating

- 1 □ 3
- △ 2 ◆ Visual

Lake Ripley - Jefferson County
June, 2011

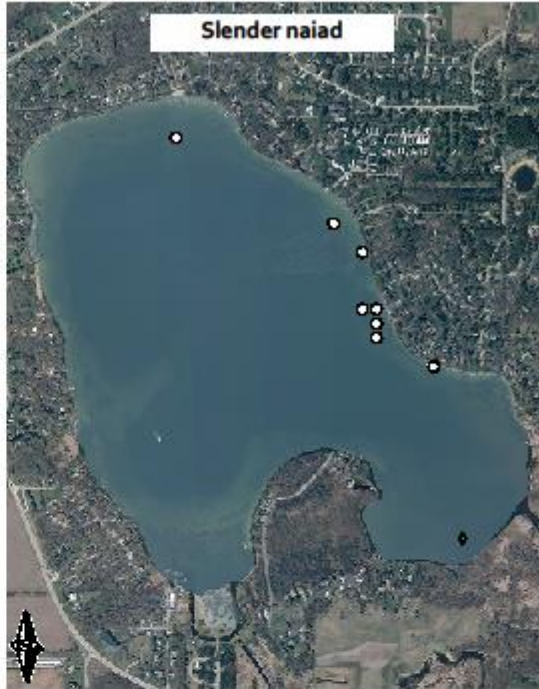
Illustration of
Rake Fullness Rating



Common bladderwort



Slender naiad



Spatterdock



White water lily

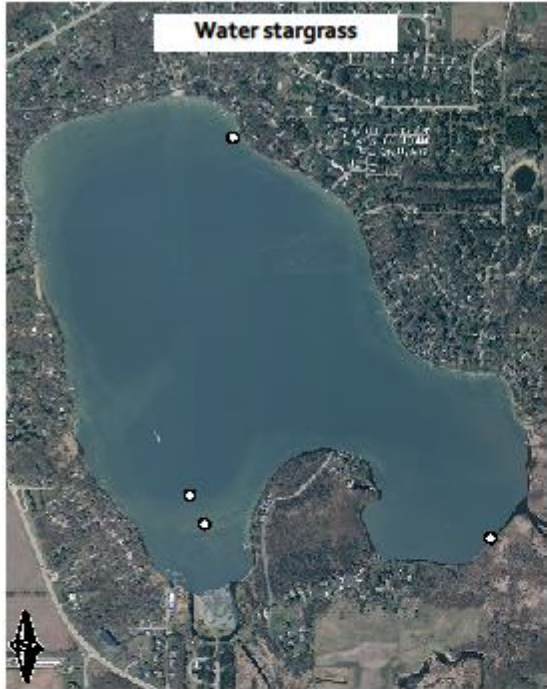


Total Rake Fullness Rating

- 1 □ 3
- △ 2 ◆ Visual

Lake Ripley - Jefferson County
June, 2011

Illustration of
Rake Fullness Rating



Total Rake Fullness Rating

- | | | | |
|---|---|---|--------|
| ○ | 1 | □ | 3 |
| △ | 2 | ◆ | Visual |

Lake Ripley - Jefferson County
June, 2011

Illustration of
Rake Fullness Rating



Horned pondweed



Common watermeal



Floating-leaf pondweed

