Aquatic Plant Management Plan
Lake Cravath & Tripp Lake,
Walworth County, Wisconsin
January 2018
-Update for Harvesting Permit Renewal

Prepared by:

Lake and Pond Solutions Co.

W4950 County Road A

Elkhorn, WI 53121

(262) 742-2600

Table of Contents

Tables:

Figures:

Aquatic Plant Management Plan
Lake Cravath and Tripp Lake,
Walworth County, Wisconsin
January 2018
-Update for Harvesting Permit Renewal

Statement of Intent

The City of Whitewater Parks Department wishes to pursue aquatic plant harvesting permit for the conditional control of prolific vegetaion within channel areas.

Timing

Historically, contracted harvesting services are employed twice each season for channel maintenance. One harvest occurs in June and another in August. These harvesting times typically correspond with the emergence of the target species hindering lake usage. Ultimately, harvest timing will be based on nuisance plant density and lake usage.

Cutting / Treatment Procedures

All operations will be limited to navigation lanes that are described on pages 39 and 40. Disturbance of the bottom sediment can disrupt spawning activity and beneficial benthic organisms. Furthurmore, the suspension of solids reduces visibility of sight-feeding predators, as well as, the posibility of increasing available nutrients throughout the water column. By targeting and removing dense vegetation, it is the operator's intent to create navigational channels in designated areas. Top-cutting is a preferred method to reduce the canopy of the target species, while leaving bottom sediments and potential native plants untouched.

In all cutting areas bottom sediment must remain undisturbed with a minimum buffer of one-foot between blades and top of sediment. Cravath and Tripp Lakes' harvesting program is consistent with these methods and contracted harvesters must continue to do so in the future.

Concerns

Care should be taken to eliminate damage to spawning habitat and the conveyer must be monitored for the removal of young-of-the-year fish. Contracted operators must be proficient in basic aquatic plant identification.

Harvesting Equipment

Equipment currently used for the harvesting of aquatic plants on Cravath and Tripp lakes are listed below:

- One aquatic plant harvester: ILH6-300, manufactured by Inland Lake Harvesters, Inc.
- One land-based conveyer and a dump truck.

Disposal Site

The disposal sight for the aquatic plants removed from both Cravath and Tripp lakes via harvester are transported to and dumped on land owned by the City of Whitewater in Jefferson County, 599 North Jefferson Street, Whitewater, Wisconsin 53190; parcel number: **292-0515-3343-000**, due north of N. Jefferson street.

Figure 1: Haul route map from both Lake Cravath and Tripp Lake to the disposal sight.

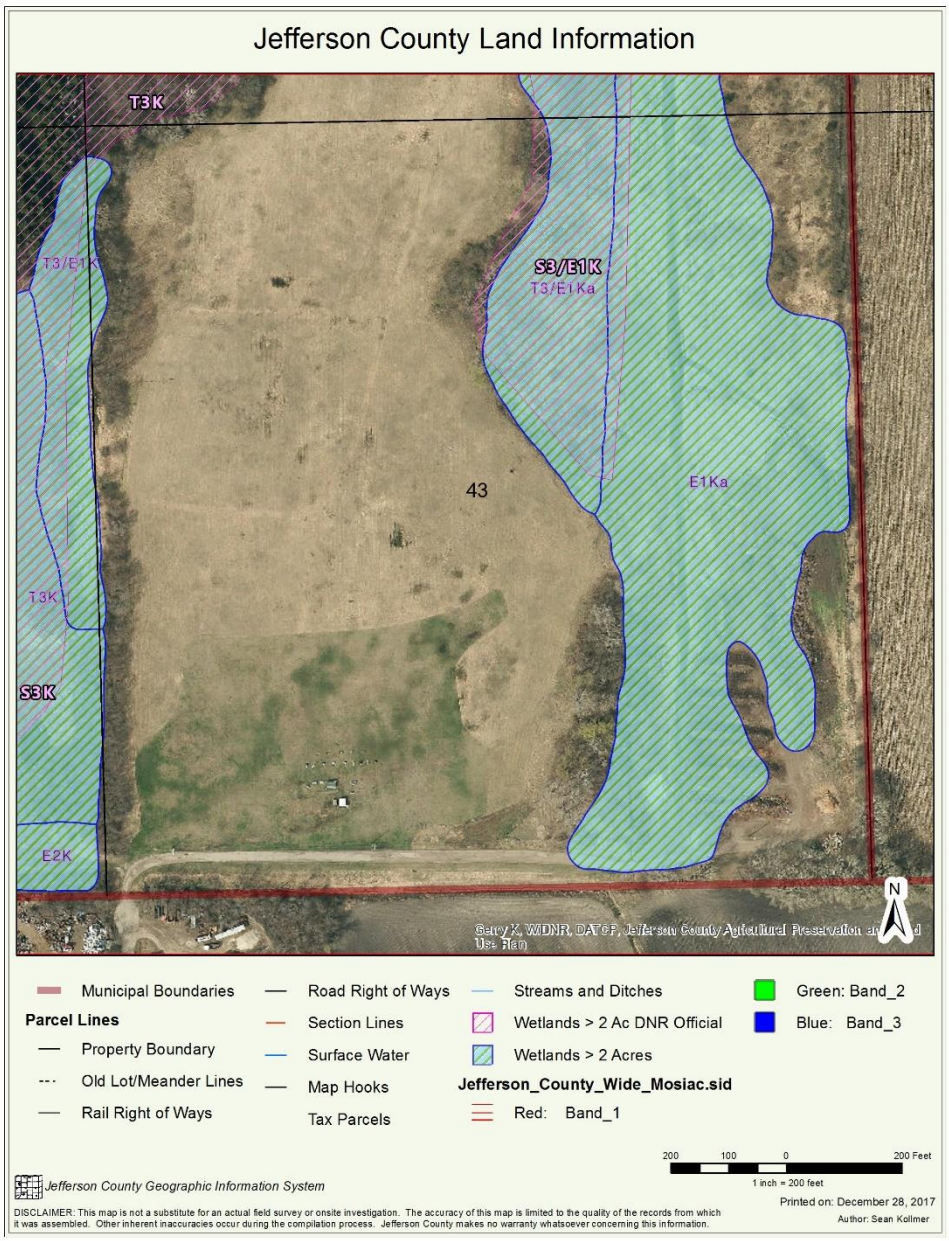
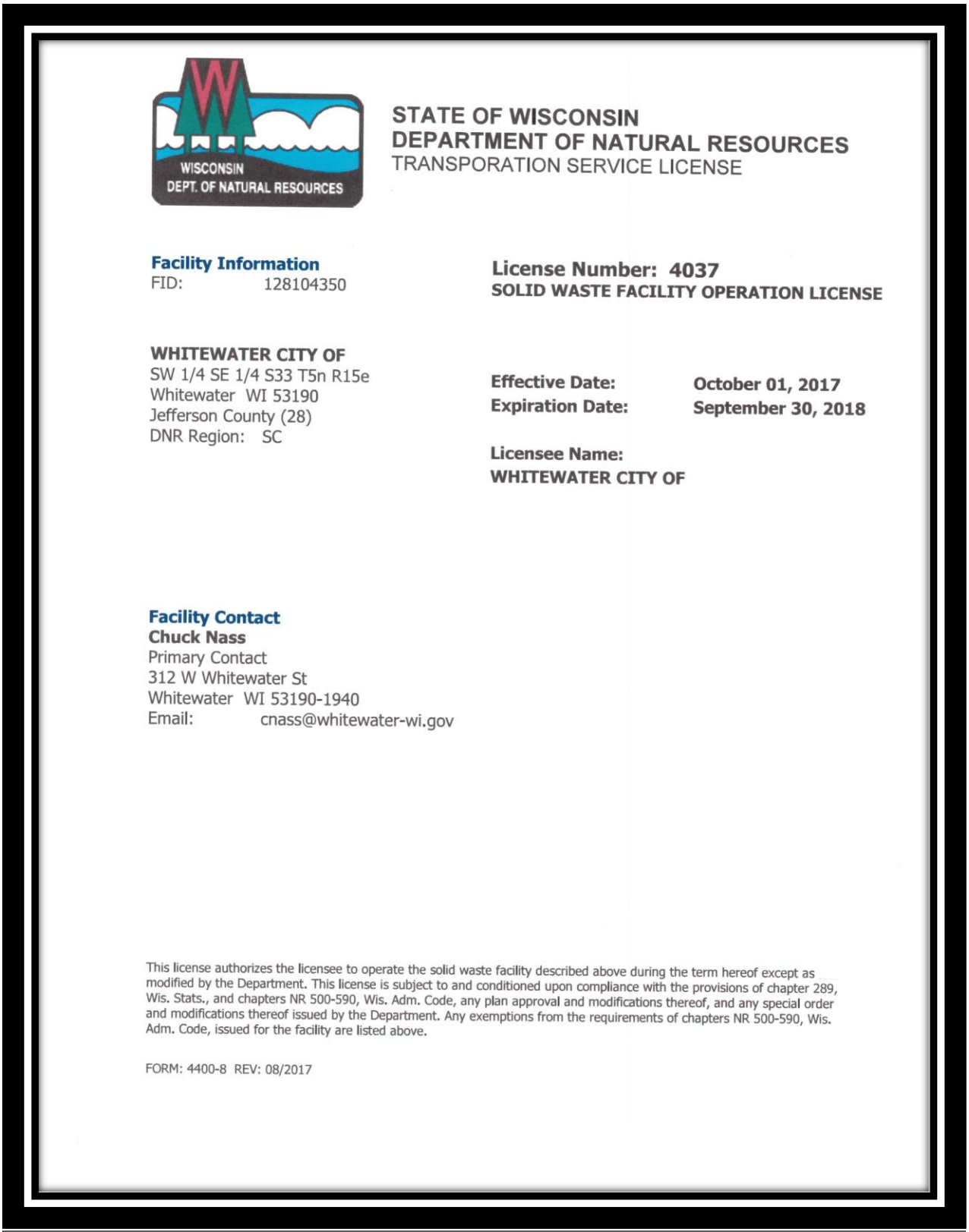


Figure 2: Aerial Image of Disposal Sight. From Jefferson County GIS website.



STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
TRANSPORATION SERVICE LICENSE

WISCONSIN
DEPT. OF NATURAL RESOURCES

Facility Information
FID: 128104350

WHITEWATER CITY OF
SW 1/4 SE 1/4 S33 T5n R15e
Whitewater WI 53190
Jefferson County (28)
DNR Region: SC

License Number: 4037
SOLID WASTE FACILITY OPERATION LICENSE

Effective Date: **October 01, 2017**
Expiration Date: **September 30, 2018**

Licensee Name:
WHITEWATER CITY OF

Facility Contact
Chuck Nass
Primary Contact
312 W Whitewater St
Whitewater WI 53190-1940
Email: cnass@whitewater-wi.gov

This license authorizes the licensee to operate the solid waste facility described above during the term hereof except as modified by the Department. This license is subject to and conditioned upon compliance with the provisions of chapter 289, Wis. Stats., and chapters NR 500-590, Wis. Adm. Code, any plan approval and modifications thereof, and any special order and modifications thereof issued by the Department. Any exemptions from the requirements of chapters NR 500-590, Wis. Adm. Code, issued for the facility are listed above.

FORM: 4400-8 REV: 08/2017

Figure 3: DNR issued permit for the disposal sight.

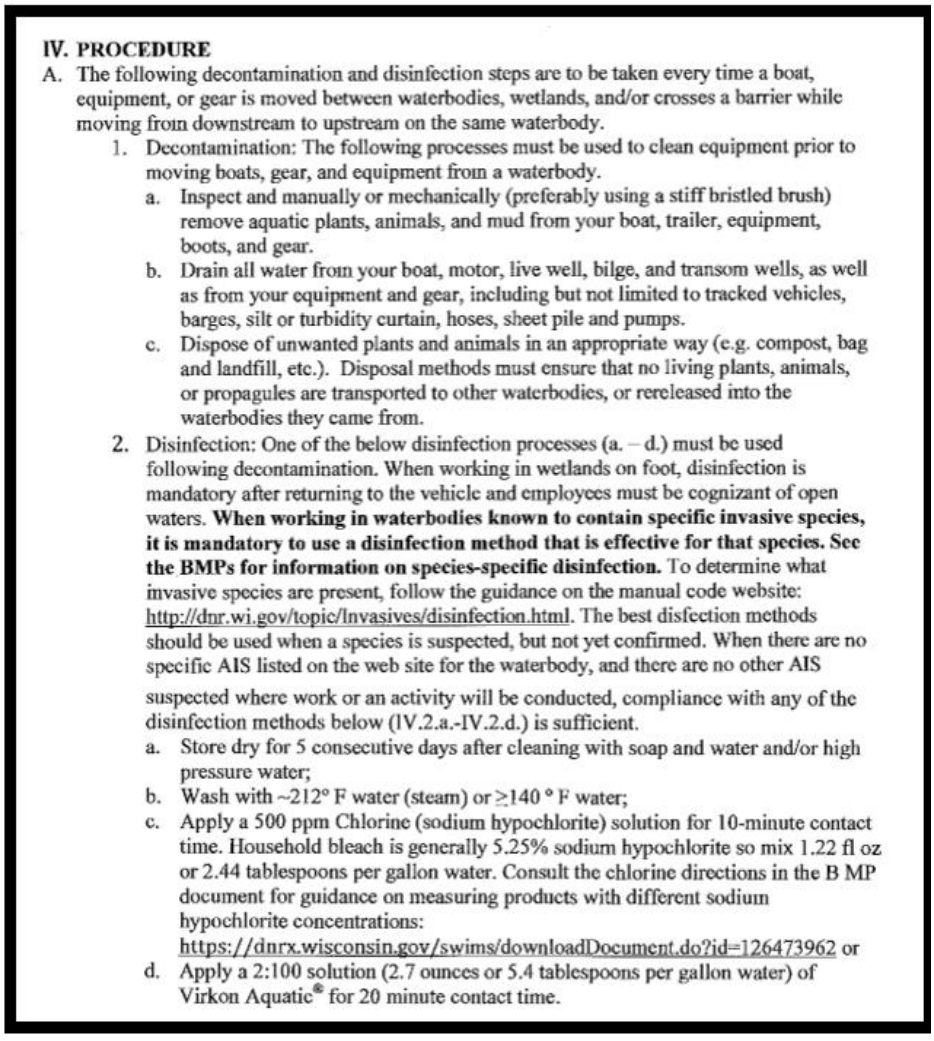
Disinfection Protocol

Counties or Lake Associations that receive DNR funding or permits must follow the Disinfection Manual Code and ensure any subcontractors working under DNR funding or permits must disinfect per the Manual Code when moving between waters.

Boat, gear and equipment decontamination and disinfection manual code 9183.1:

http://dnr.wi.gov/topic/invasives/disinfection.html

All methods described in this section require specific permits, and any equipment entering a waterbody is to be cleaned and sanitized as per NR40.02. DNR Preventative Measures Manual Code #9183.1 further details boat, gear and equipment decontamination and disinfection protocol (listed below) to prevent the spread of invasive species.



IV. PROCEDURE

A. The following decontamination and disinfection steps are to be taken every time a boat, equipment, or gear is moved between waterbodies, wetlands, and/or crosses a barrier while moving from downstream to upstream on the same waterbody.

1. Decontamination: The following processes must be used to clean equipment prior to moving boats, gear, and equipment from a waterbody.
   a. Inspect and manually or mechanically (preferably using a stiff bristled brush) remove aquatic plants, animals, and mud from your boat, trailer, equipment, boots, and gear.
   b. Drain all water from your boat, motor, live well, bilge, and transom wells, as well as from your equipment and gear, including but not limited to tracked vehicles, barges, silt or turbidity curtain, hoses, sheet pile and pumps.
   c. Dispose of unwanted plants and animals in an appropriate way (e.g. compost, bag and landfill, etc.). Disposal methods must ensure that no living plants, animals, or propagules are transported to other waterbodies, or rereleased into the waterbodies they came from.
2. Disinfection: One of the below disinfection processes (a. – d.) must be used following decontamination. When working in wetlands on foot, disinfection is mandatory after returning to the vehicle and employees must be cognizant of open waters. **When working in waterbodies known to contain specific invasive species, it is mandatory to use a disinfection method that is effective for that species. See the BMPs for information on species-specific disinfection.** To determine what invasive species are present, follow the guidance on the manual code website: http://dnr.wi.gov/topic/Invasives/disinfection.html. The best disfection methods should be used when a species is suspected, but not yet confirmed. When there are no specific AIS listed on the web site for the waterbody, and there are no other AIS suspected where work or an activity will be conducted, compliance with any of the disinfection methods below (IV.2.a.-IV.2.d.) is sufficient.
   a. Store dry for 5 consecutive days after cleaning with soap and water and/or high pressure water;
   b. Wash with ~212° F water (steam) or ≥140 ° F water;
   c. Apply a 500 ppm Chlorine (sodium hypochlorite) solution for 10-minute contact time. Household bleach is generally 5.25% sodium hypochlorite so mix 1.22 fl oz or 2.44 tablespoons per gallon water. Consult the chlorine directions in the B MP document for guidance on measuring products with different sodium hypochlorite concentrations: https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=126473962 or
   d. Apply a 2:100 solution (2.7 ounces or 5.4 tablespoons per gallon water) of Virkon Aquatic® for 20 minute contact time.

Figure 4: WDNR manual code 9183.1 for decontamination of boats, gear and clothing of state employees and some service providers.

General Procedures

Disinfect by either:

- Dry for 5 days
- Steam / hot water (>140^{o})
- Chlorine or Virkon (500ppm / 2%)

Boats

- Remove organic material from boats, trailers, and live wells.
- Drain water from live wells, bilges and pumps.
- Scrub all exterior surfaces with a long-handled stiff bristled brush to remove sediments. Scrubbing could damage the anti-fouling paint/coating of some boat hulls so check manufacturers recommendations.
- The outside and inside of the boat, trailer, live wells, bilges, and pumps should be steam cleaned or sprayed with the disinfection solution and left wet for the appropriate contact time.
- The inside of the live wells, bilges and pumps should be in contact with disinfection solution for the appropriate time as well.
- Due to the difficulty of ensuring appropriate contact times, steam cleaning is the preferred method for decontamination when possible.
- Run pumps so they take in the disinfection solution and make sure that the solution comes in contact with all parts of the pump and hose.
- The boat, trailer, bilges, live well, and pumps should be rinsed with clean water after the appropriate contact time.
- Every effort should be made to keep the disinfection solution and rinse water out of surface waters. Pull the boat and trailer off the ramp and onto a level area where infiltration can occur and away from street drains to minimize potential runoff into surface waters.

Heavy equipment

- Scrub equipment with a stiff bristled brush or spray with pressurized water to remove any sediment.
- Steam-cleaning or hot water (≥140° F) is an effective method for disinfecting heavy equipment.
- Steam-cleaning will not be effective if soil and other organic matter is present so be sure to scrub equipment with a stiff bristled brush.
- Decontamination should take place in areas where equipment is unloaded and loaded.
- Before transporting a piece of heavy equipment from one project site to the next, debris and soil must be cleaned off the tracks, tires and other portions equipment by hand with hand tools or with pressurized water.

Discussion: Lake Cravath

Methods

Study Area – Lake Cravath lies in Southeastern Wisconsin on the western edge of the Kettle Moraine region. The lake is 70 acres with a mean depth of 3.0 feet and a maximum depth of 5.5 feet based on the most recent survey (2017).

Field Sampling – 233 sample points, spaced 35 meters apart as specified by the WDNR were sampled. Depths were recorded at each point using a PVC measuring pole. At each point plants were identified and recorded based on the WDNR approved plant survey methods. A pole rake was used to sample plants at each point. Plant Density was based on a number scale. A value of (1) showed that the plant was present but with low density, (2) consisted of moderate density or covering about ½ of the pole rake while (3) showed high density or a rake completely covered with plants.

Results

Areas within the lake are not always accessible or some points are on land, this was the case for Lake Cravath as well, with 24 of the 233 points being recorded as either Non-Navigable or Terrestrial, resulting in 209 sampled points.

A species richness (total number of species, including visuals) of 18 was found in Lake Cravath with a Simpson diversity index of 0.82. Simpson diversity index is used to quantify the biodiversity of a habitat. It considers the number of species present, as well as the relative abundance of each species. The index assumes a value between 0 and 1, with 1 having complete evenness.

All points sampled contained vegetation (100%). Plants grew throughout the entirety of the lake, including down to its maximum depth (5.5ft.). On average each point recorded 4.06 species, with 3.46 being native. Data described here is also listed on page 1 in *Table 1.*

Total number of sites with vegetation/ All sites sampled	209/233 (89.6%)
Maximum depth of plants	5.5 (ft.)
Species Richness (including visuals)	18
Average number of species per site (including exotics)	4.06
Average number of native species per site	3.46
Simpson Diversity Index	0.822
Average C-Value	4.88
Floristic Quality	14.66

Table 1: Cravath Lake's key values for 2017 sampling data.

To understand how the plant community in the lake has changed since the original APM plan was written, C-values and the floristic quality indicator (FQI) was assessed. AC-value is the measure of plant conservatism, which in short, means the value assigned to each plant indicates how sensitive that species is to disturbance. The more disturbed an area, the lower the C-value. C-value can range from 0-10. The calculated C-value has remained stable since 2008: 4.75 in 2008, 4.88 in 2013 and again 4.88 in 2017. This is mainly attributed to the lack of change in species sampled. The FQI, which evaluates how close an area is to its undisturbed counterpart [1], was 13.44 in 2008, 13.79 in 2013 and is now calculated to be 14.66 from the 2017 survey. High FQI values indicates less disturbance. The overall picture of the lake is that the plant community appears to maintain a disturbed status with relatively low floristic quality.

[1] Nichols, SA. 1999. Floristic Quality Assessment of Wisconsin Lake Plant Communities with Example Applications. Journal of Lake and Reservoir Management, 15(2):133-141.

Common Name	Scientific Name	Frequency of occurrence within vegetated areas (%)	Average Rake Fullness	Number of sites where species found (does not include visuals)	# of sites with visual sightings
American Lotus	*Nelumbo lutea*	1.4	1.7	3	3
Arrowhead sp.	*Sagittaria sp.*	0.5	1.0	1	5
Cattail sp.	*Typha sp.*	-	-	-	33
Common Reed	*Phragmites australis*	-	-	-	2
Common-Watermeal	*Wolffia columbiana*	85.2	1.6	178	10
Common Waterweed	*Elodea canadensis*	35.4	1.3	74	14
Coontail	*Ceratophyllum demersum*	95.7	2.2	200	1
Curly-Leaf Pondweed	*Potamogeton crispus*	12.9	1.0	27	39
Eurasian Water-Milfoil (or hybrid)	*Myriophyllum spicatum*	46.9	1.3	98	21
Filamentous Algae	*Filamentous algae*	16.3	1.3	34	2
Flat-Stem Pondweed	*Potamogeton zosteriformis*	2.4	1.0	5	4
Floating-Leaf Pondweed	*Potamogeton natans*	-	-	-	4
Illinois Pondweed	*Potamogeton illinoensis*	-	-	-	1
Sago Pondweed	*Stuckenia pectinata*	6.7	1.0	14	36
Small Duckweed	*Lemna minor*	92.3	1.7	193	13
Variable Pondweed	*Potamogeton gramineus*	1.0	1.0	2	7
Yellow Pond-Lily	*Nuphar advena*	-	-	-	26
White water lily	*Nymphaea odorata*	25.4	1.4	53	88
Overall totals for vegetation		100	2.363636	209	165

Table 2: Summary of Lake Cravath's 2017 PI Survey Plant Data.

The 2017 survey resulted in 18 species being present. Eurasian water-milfoil (EWM) was found and represented the 4th most frequent species found with an average density of 1.3 when sampled. As an exotic species, EWM is not given a C-value. Therefore, EWM is not included in average C-value or FQI calculations. EWM may provide limited habitat to the aquatic life in a lake, but it is not native and should be considered a negative impact to local lakes. EWM can be considered a burden that indirectly drives down C-values and FQI because it limits the range and distribution of beneficial native species.

Coontail, Small Duckweed and Common Watermeal were among the most sampled species in terms of frequency and density. These species have relatively low C-values associated with them (3,4 and 5, respectively). The maps below illustrate distribution and density of all exotics and the top five native aquatic plants found in the August 2017 survey. Rake fullness indicates density. Although not the most frequent or dense, EWM and CLP are placed first due to their invasive classifications. The remaining maps are arranged in order, with the most frequently found species positioned first.

Cravath Lake Plant Figures

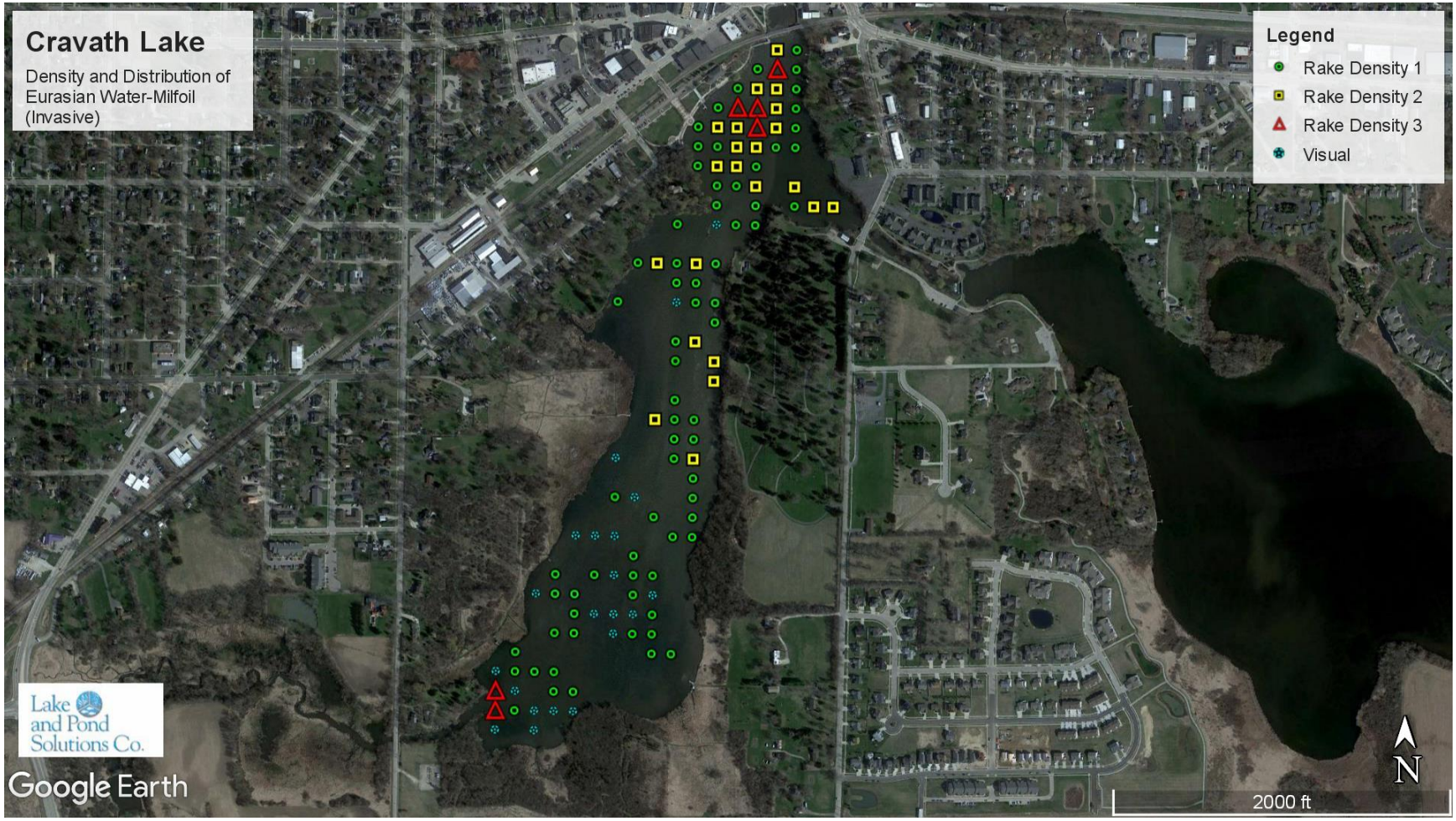


Figure 1: Distribution and density map of Eurasian Water-Milfoil (EWM) [Invasive].

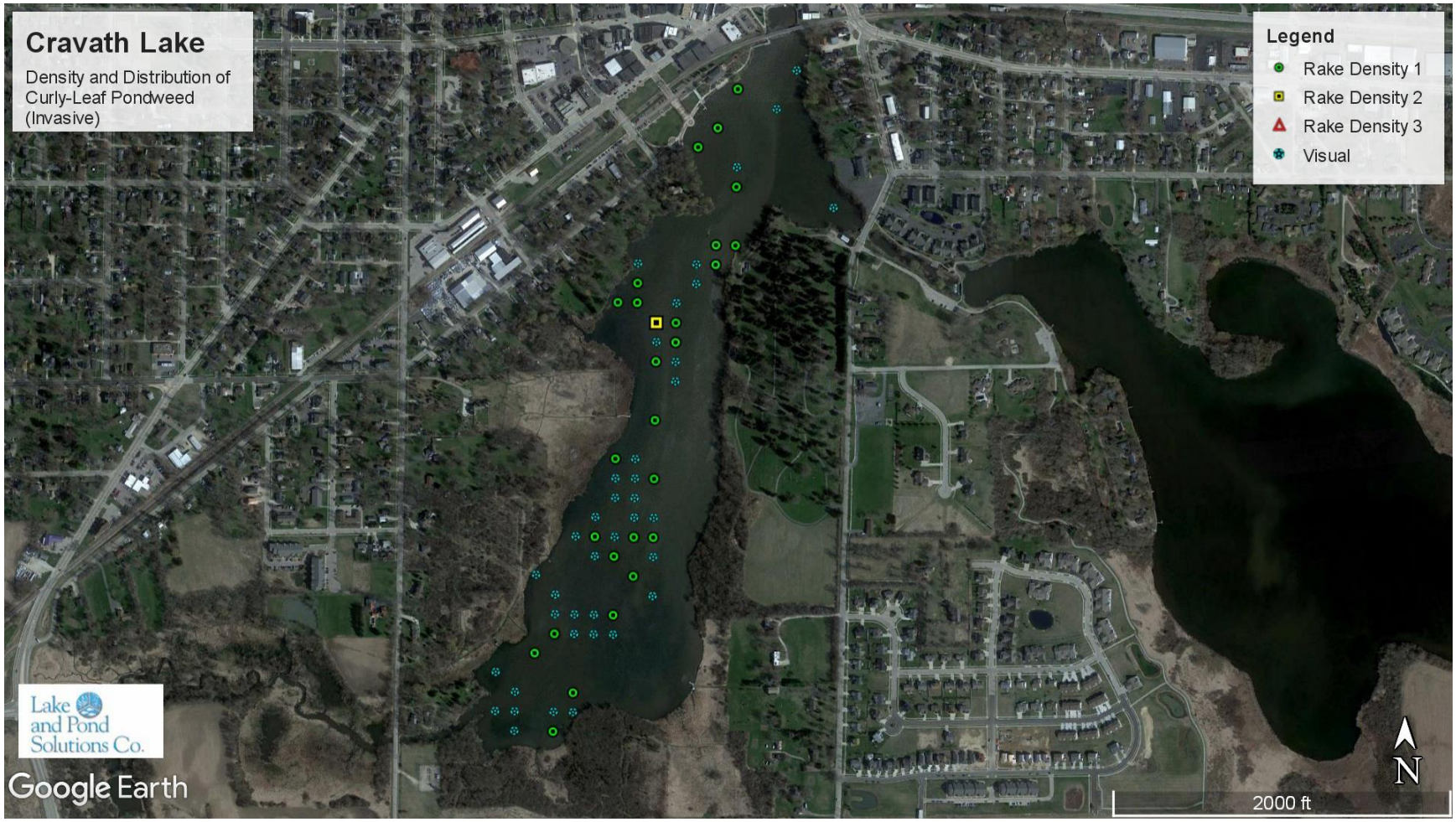


Figure 2: Distribution and density map of Curly-Leaf Pondweed (CLP) [Invasive].

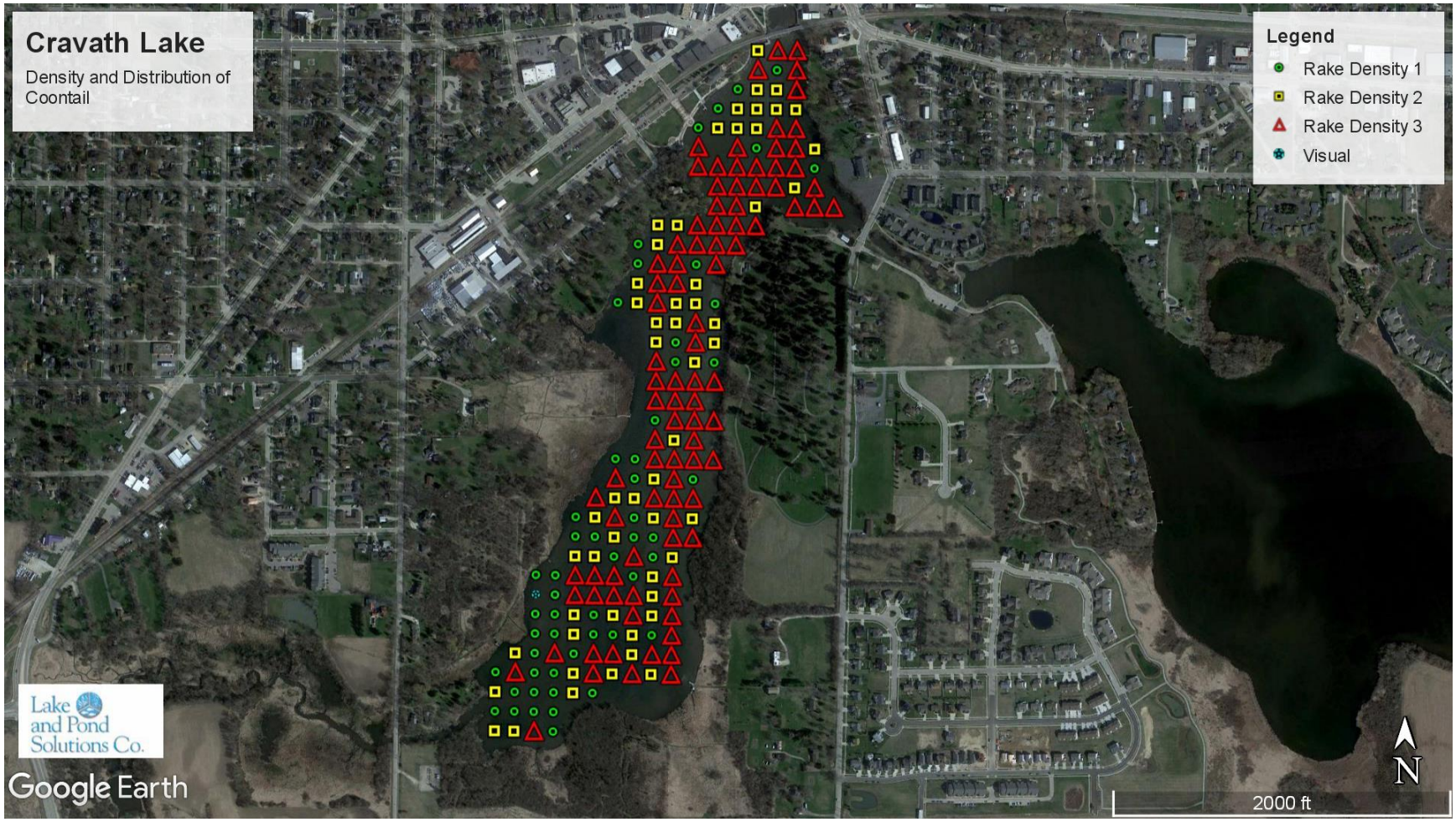


Figure 3: Distribution and density of Coontail (native).

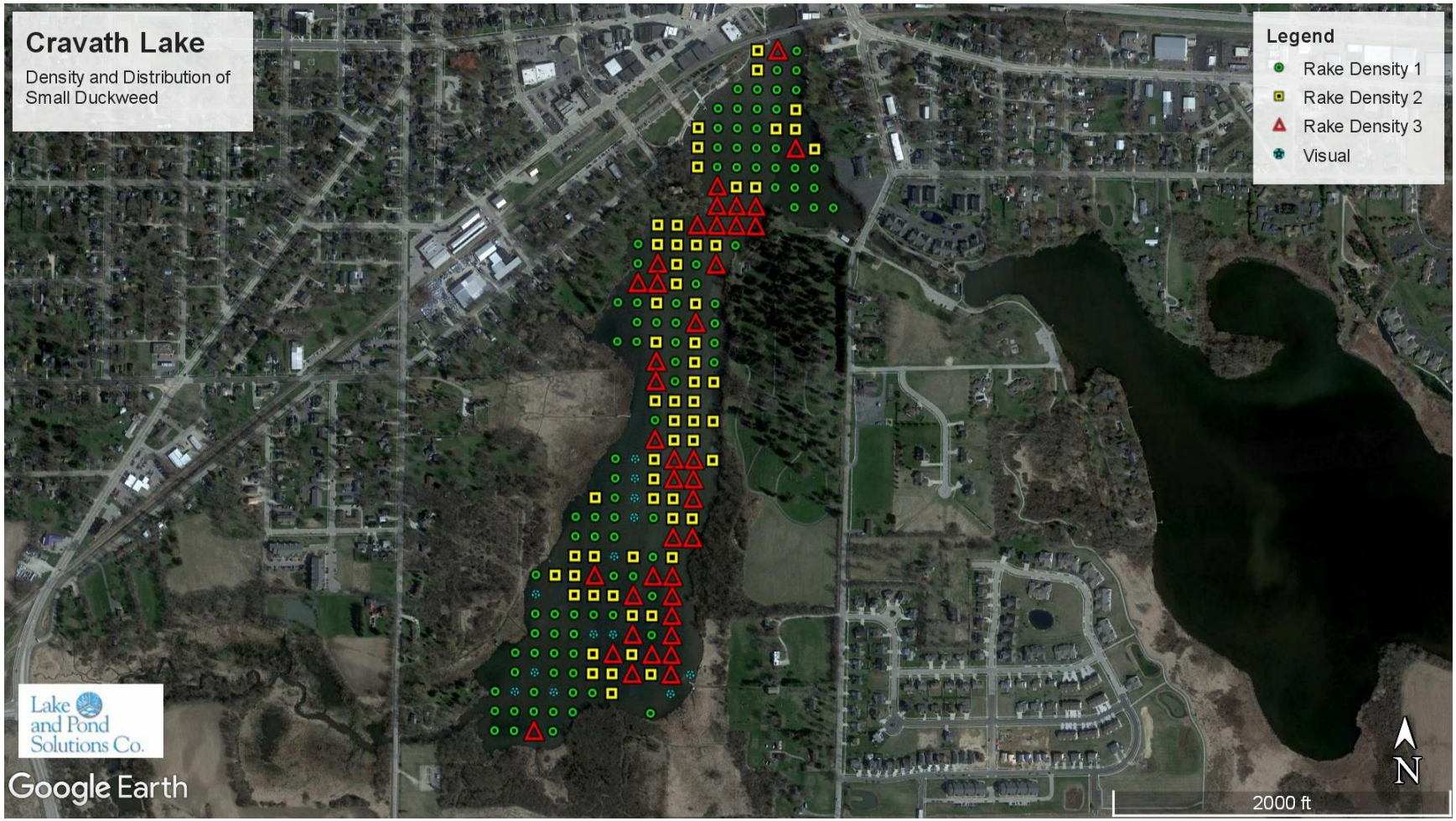


Figure 4: Distribution and density of Small Duckweed (native).

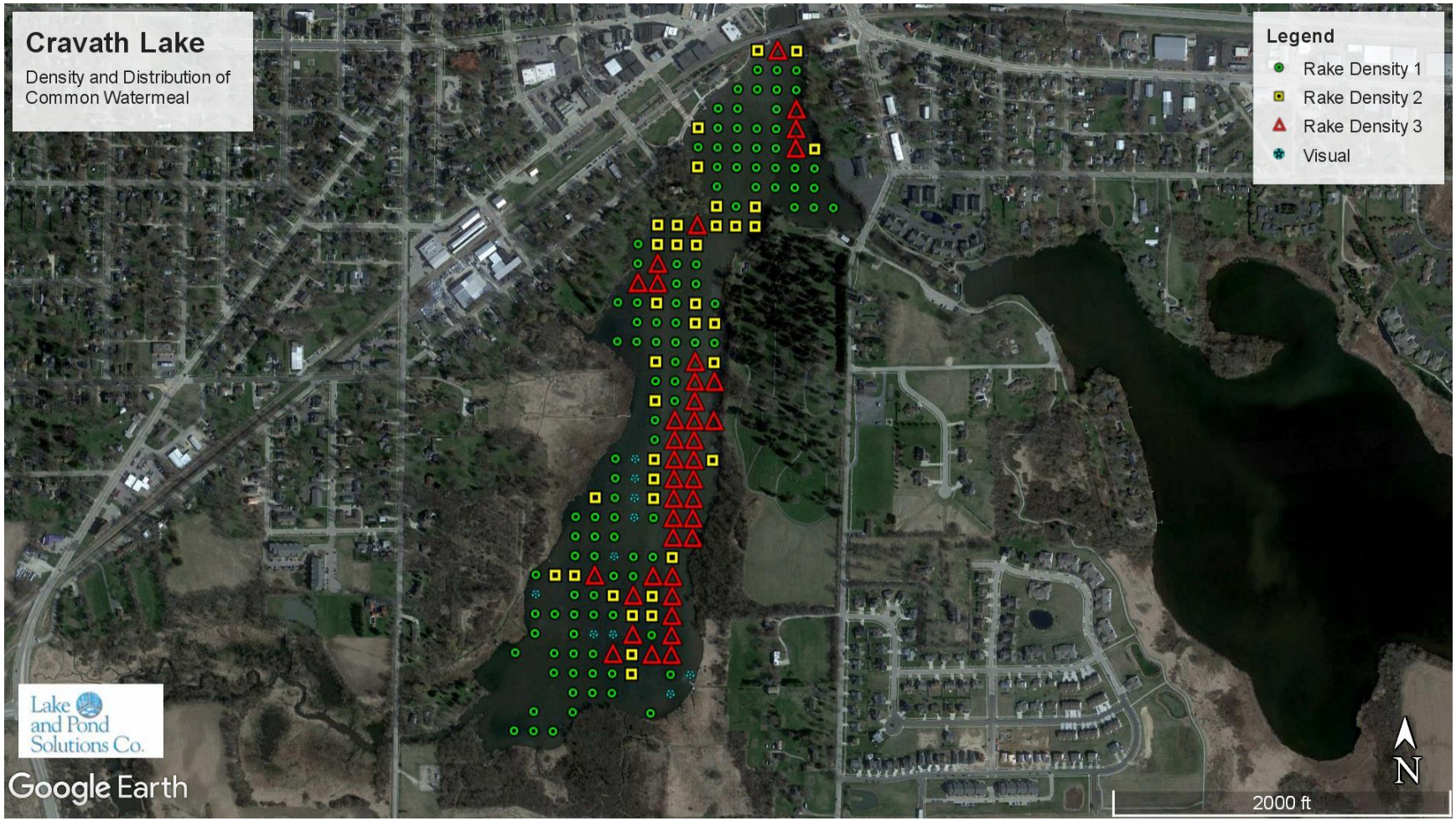


Figure 5: Distribution and density of Common Watermeal (native).

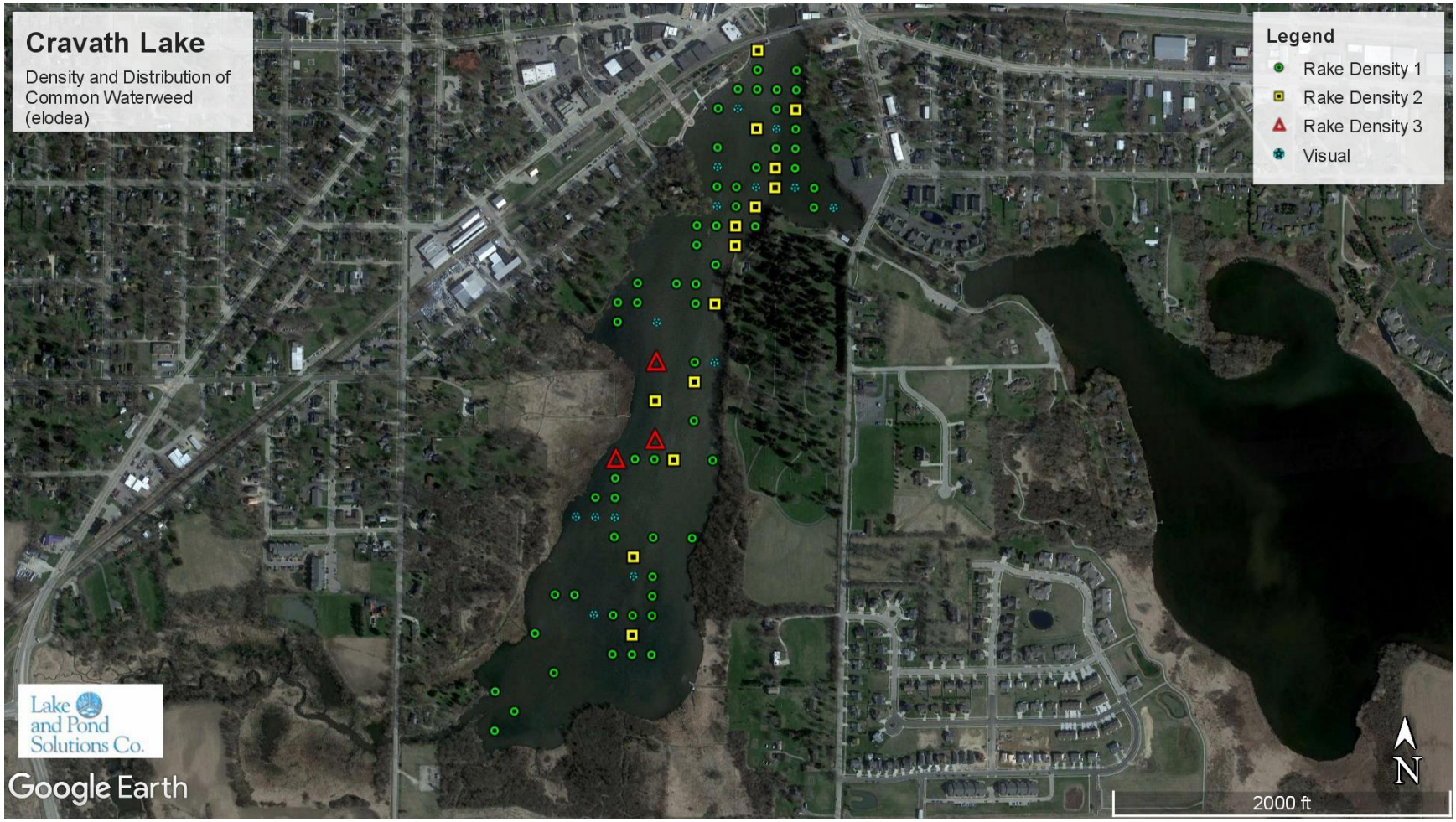


Figure 6: Distribution and density of Common Waterweed (native).

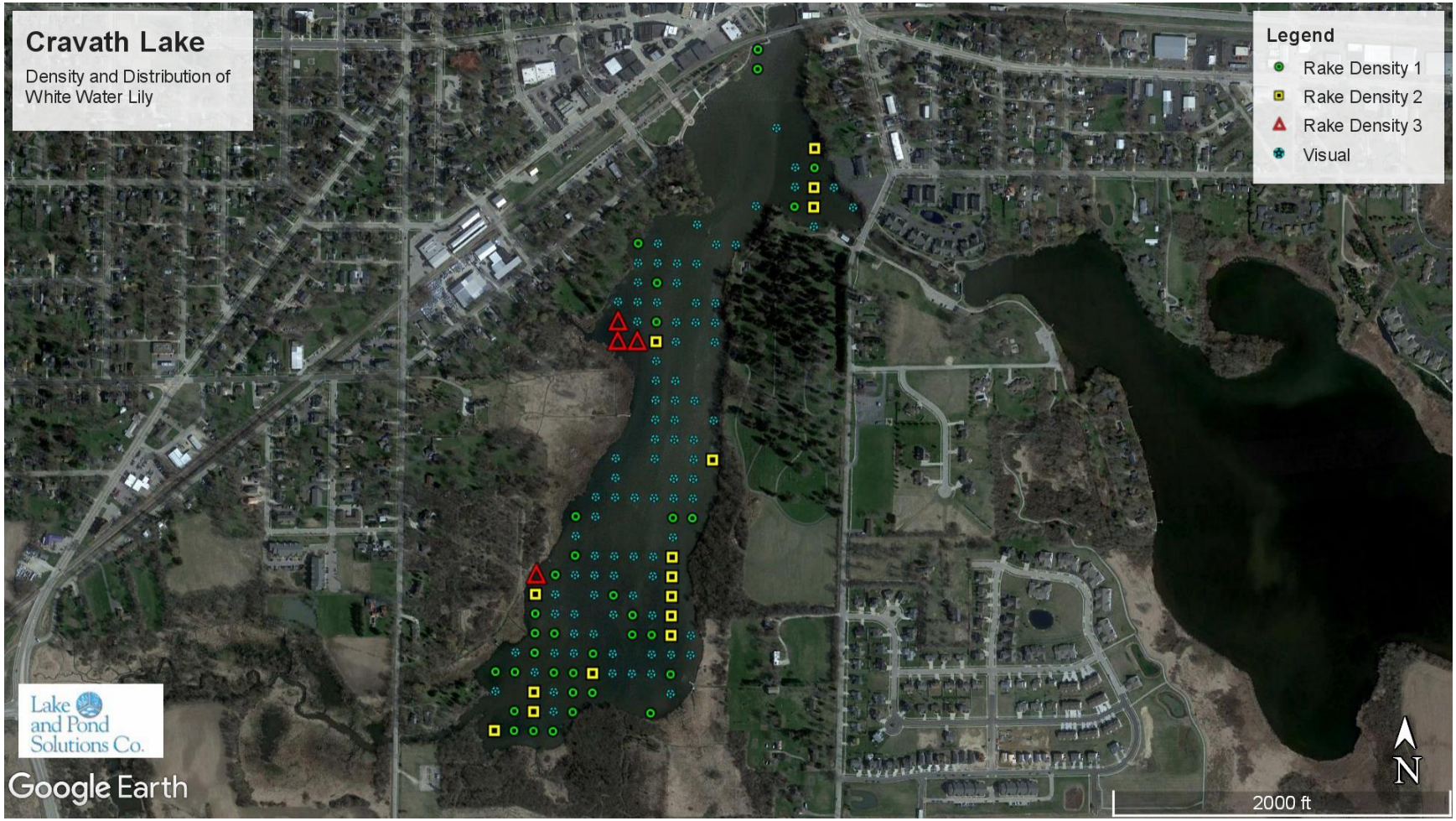


Figure 7: Distribution and density of White Water Lily (native).

Discussion: Tripp Lake

Methods

Study Area – Tripp Lake lies in Southeastern Wisconsin and up-stream of Lake Cravath. The lake is 121 acres with a mean depth of 3.2 feet and a maximum depth of 7.5 feet based on the most recent survey (2017).

Field Sampling – 305 sample points, spaced 40 meters apart as specified by the WDNR were sampled. Depths were recorded at each point using a measuring pole. At each point plants were identified and recorded based on the WDNR approved plant survey methods. A pole rake was used to sample plants at each point. Recording density was based on a number scale. A value of (1) showed that the plant was present but with low density, (2) consisted of moderate density or covering about ½ of the pole rake while (3) showed high density or a rake completely covered with plants.

Results

Areas within the lake are not always accessible or some points are on land, this was the case for Tripp Lake, with 161 of the 305 points being recorded as non-navigable, resulting in 144 sampled points.

A species richness (total number of species, including visuals) of 22 was found in Tripp Lake with a Simpson diversity index of 0.75. Simpson diversity index is used to quantify the biodiversity of a habitat. It considers the number of species present, as well as the relative abundance of each species. The index assumes a value between 0 and 1, with 1 having complete evenness.

Out of the 144 sampled points 116 were found to have plants (80.56%). Plants were found at the maximum depth (7.5 ft.). Points that recorded vegetation had an average of 1.97 species, with 1.71 being native. Data described here is also listed on page 22 in *Table 3.*

Total number of sites with vegetation/ All sites sampled	144/305 (47.2%)
Maximum depth of plants	7.5
Species Richness (including visuals)	22
Average number of species per site (including exotics)	1.97
Average number of native species per site	1.71
Simpson Diversity Index	0.75
Average C-Value	5.28
Floristic Quality	19.77

Table 3: Tripp lake's key values for 2017 sampling data.

To understand how the plant community in the lake has changed since the original APM plan was written, C-values and the floristic quality indicator (FQI) was assessed. As per the most recent survey, the calculated C-value has remained stable since 2008: 5.17 in 2008, 5.15 in 2013 and 5.28 in 2017. This is mainly attributed to the lack of change in species sampled. The FQI was 17.9 in 2008, 19.24 in 2013 and is now calculated to be 19.77 from the 2017 survey. The overall picture of the lake is that the plant community appears to maintain its status as disturbed, with a relatively low floristic value.

The 2017 survey resulted in 22 species being present. Eurasian water-milfoil (EWM) was found and represented the 4th most frequent species found and an average density of 1.15 when found. EWM and CLP are not given a C-value because they are listed as exotic species, which means that it is not included in average C-value or FQI calculations. EWM may provide limited habitat to the aquatic life in a lake, but it is not native and should be considered a negative impact to local lakes. EWM can be considered a burden that indirectly drives down C-values and FQI because it limits the range and distribution of beneficial native species. Shallow water and thick vegetation made 52% of the lake non-navigable *(Figure 19).* American Lotus was prolific throughout these non-navigable areas and were recorded as visuals due to the presence of prominent growth. These *visual* areas were not truly sampled or recorded as defined by point-intercept methods and as a result, other vegetation may have been present but not properly identified. However, to leave this plant unaccounted for would misrepresent a major influence in the plant community of Tripp Lake. Other major species found during this survey include Coontail and Filamentous Algae in terms of their frequency and density. These species have low C-values associated with them (3,0).

Listed below are maps of the two exotic species and top five native species of aquatic plants discovered during the August 2017 survey. They illustrate the distribution and density of each sample point where that species was found. Rake fullness indicates density. Although not the most frequent or dense, EWM and CLP are placed first due to their invasive classifications. The remaining maps are arranged in order, with the most frequently found species positioned first.

Common Name	***Scientific Name***	Frequency of occurrence within vegetated areas (%)	Average Rake Fullness	Number of sites where species found (does not include visuals)	# of sites with visual sightings
American Lotus	*Nelumbo lutea*	16.38	19	1.84	208
Arrowhead sp.	*Sagittaria sp.*	-	-	-	3
Cattail sp.	*Typha sp.*	-	-	-	45
Common-Watermeal	*Wolffia columbiana*	-	-	-	25
Common Waterweed	*Elodea canadensis*	16.38	19	1.11	11
Coontail	*Ceratophyllum demersum*	91.38	106	1.93	37
Curly-Leaf Pondweed	*Potamogeton crispus*	3.45	4	1.00	21
Eurasian Water-Milfoil (or hybrid)	*Myriophyllum spicatum*	23.28	27	1.15	39
Filamentous Algae	*Filamentous algae*	57.76	67	1.46	20
Flat-Stem Pondweed	*Potamogeton zosteriformis*	0.86	1	1.00	2
Floating-Leaf Pondweed	*Potamogeton natans*	10.34	12	1.75	14
Illinois Pondweed	*Potamogeton illinoensis*	3.45	4	1.25	5
Large Duckweed	*Spirodela polyrhiza*	0.86	1	1.00	2
Leafy Pondweed	*Potomogeton foliosus*	2.59	3	1.00	8
Long-Leaf Pondweed	*Potamogeton nodosus*	2.59	3	1.00	7
Purple Loosestrife	*Purple Loosestrife*	-	-	-	15
Sago Pondweed	*Stuckenia pectinata*	5.17	6	1.00	48
Small Duckweed	*Lemna minor*	2.59	3	1.00	60
Variable Pondweed	*Potamogeton gramineus*	0.86	1	1.00	-
Yellow Pond-Lily	*Nuphar advena*	-	-	-	4
White water lily	*Nymphaea odorata*	12.93	15	1.53	80
Wild Celery	*Vallisneria americana*	4.31	5	1.20	5
Wild Rice	*Zizania sp.*	-	-	-	5
Overall totals for vegetation		80.56	116	2.22	272

Table 4: Summary of Tripp Lake's 2017 PI Survey Plant Data.

Tripp Lake Plant Figures

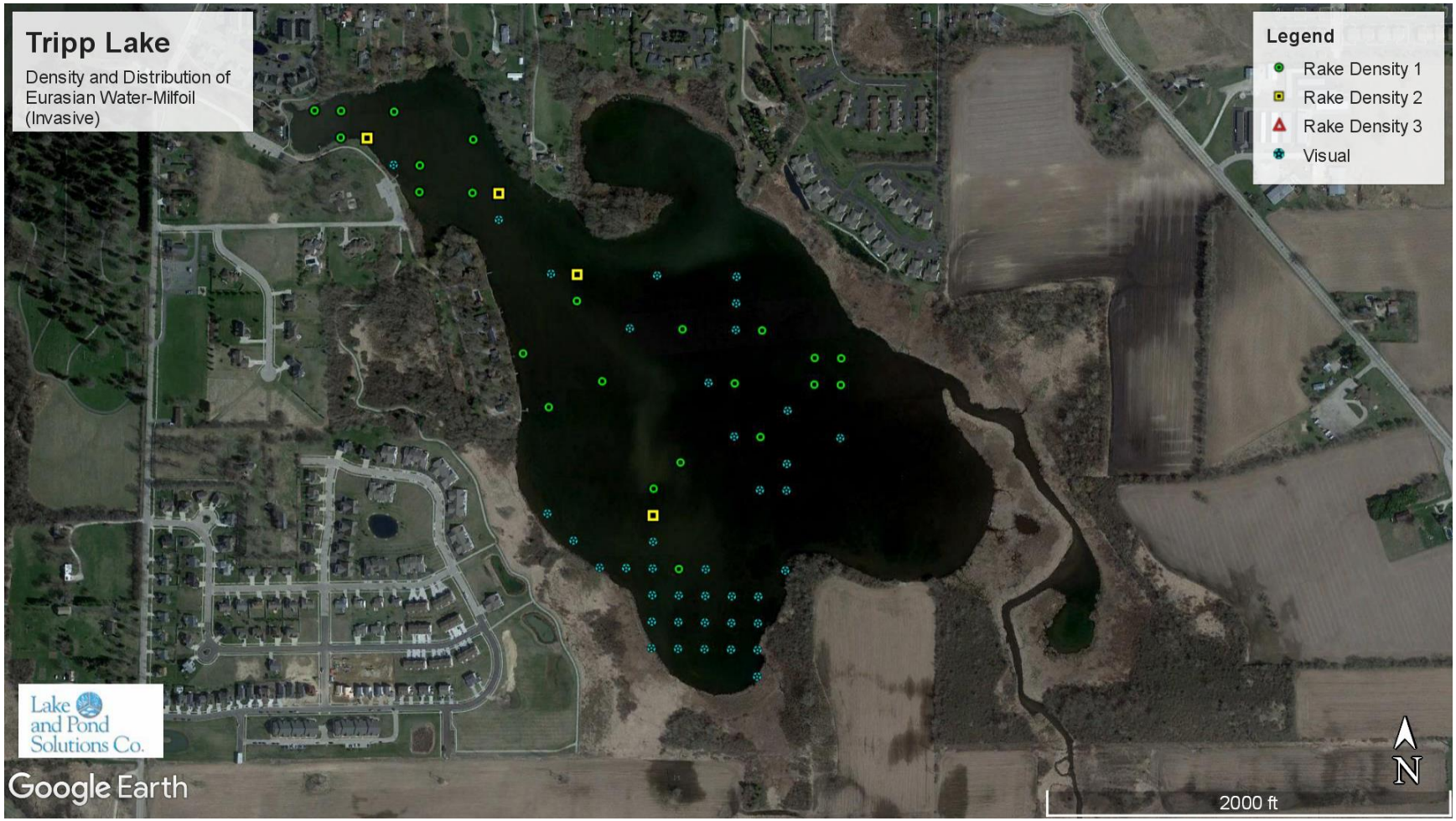


Figure 8: Distribution and density map of Eurasian Water-Milfoil (EWM) [Invasive].

Figure 9: Distribution and density map of Curly-Leaf Pondweed (CLP) [Invasive].

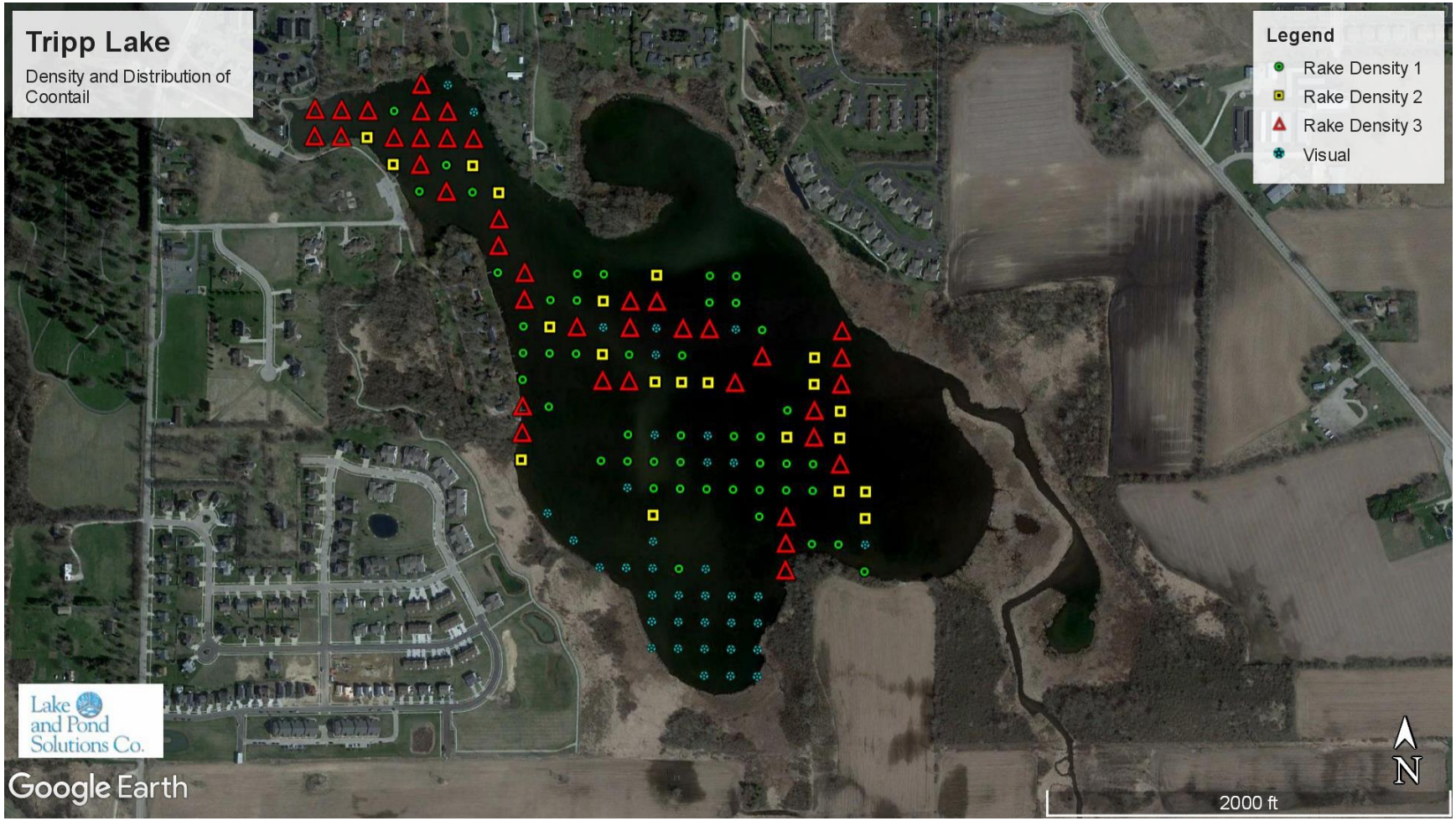


Figure 10: Distribution and density of Coontail (native).

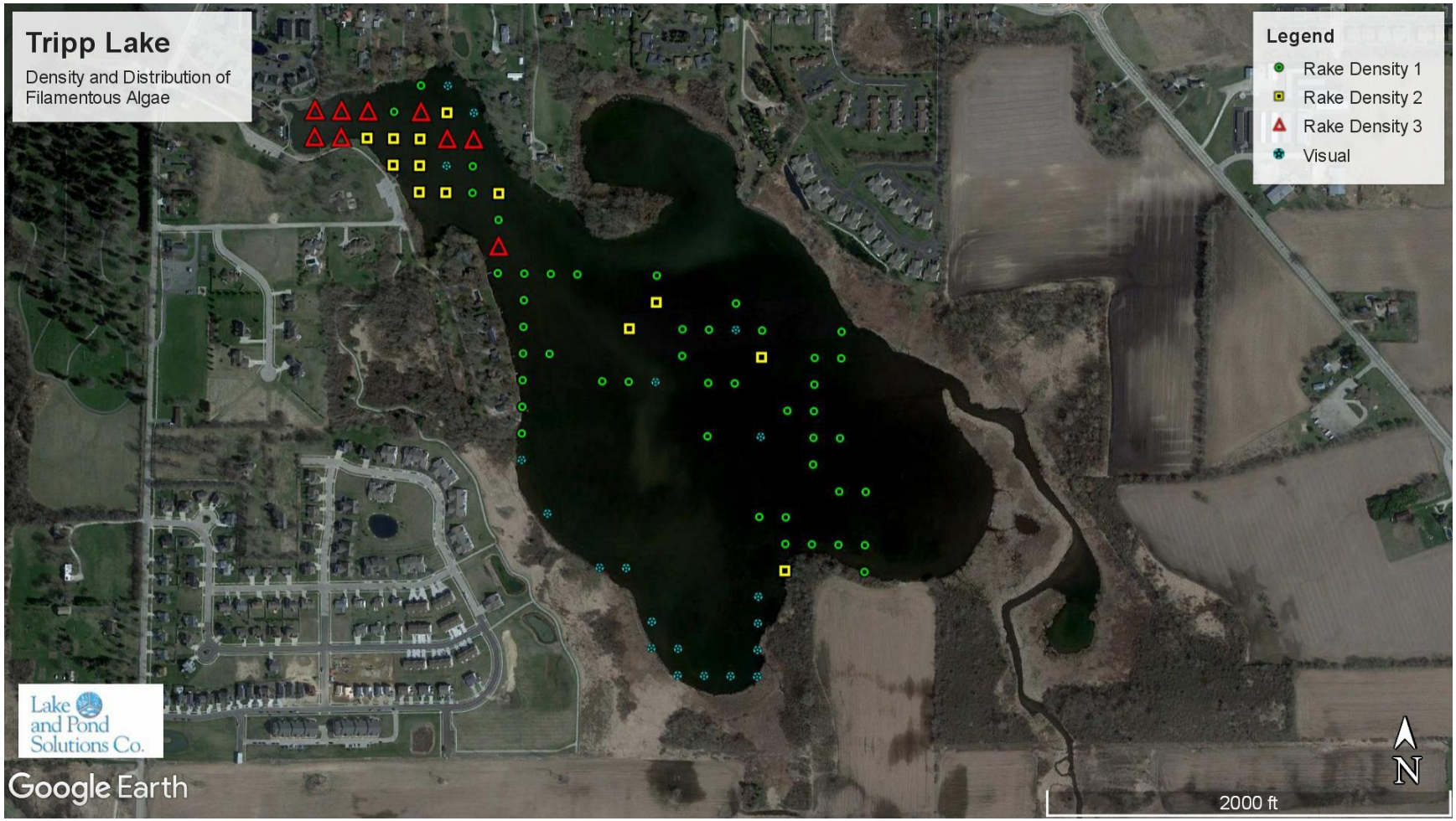


Figure 11: Distribution and density of Filamentous Algae.

Figure 12: Distribution and density of Common Waterweed (native).

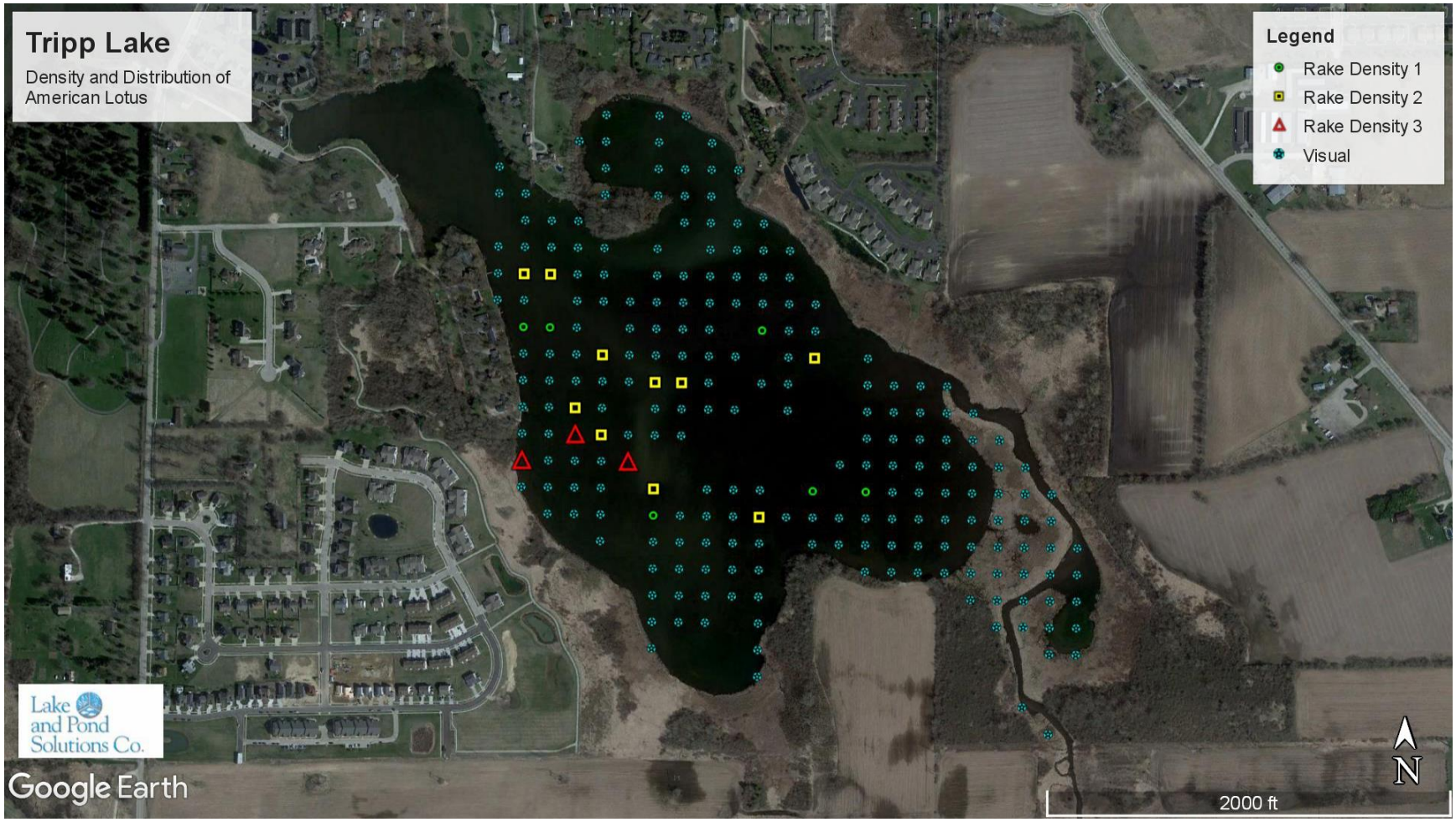


Figure 13: Distribution and density of American Lotus (native).

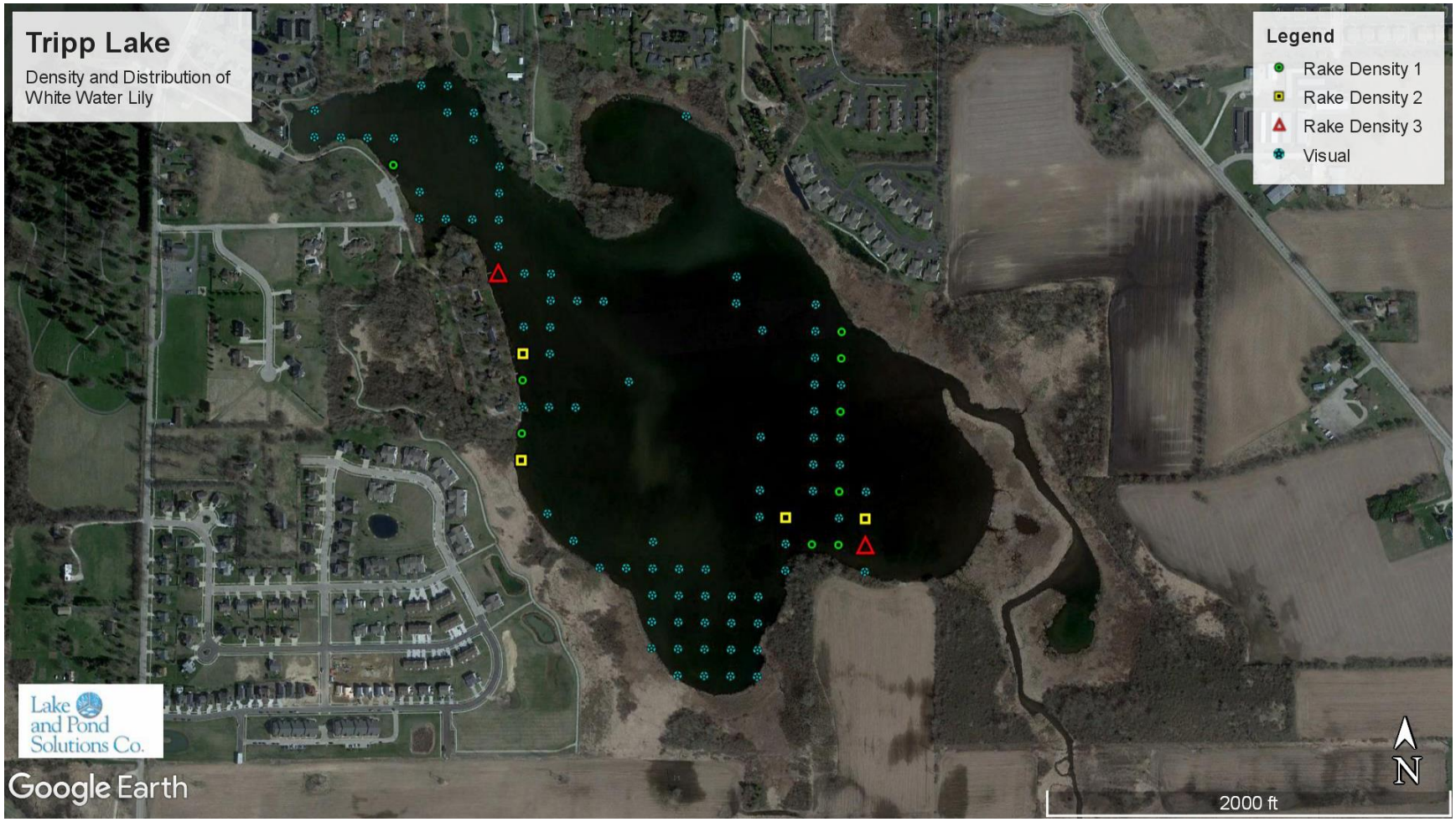


Figure 14: Distribution and density of White Water Lily (native).

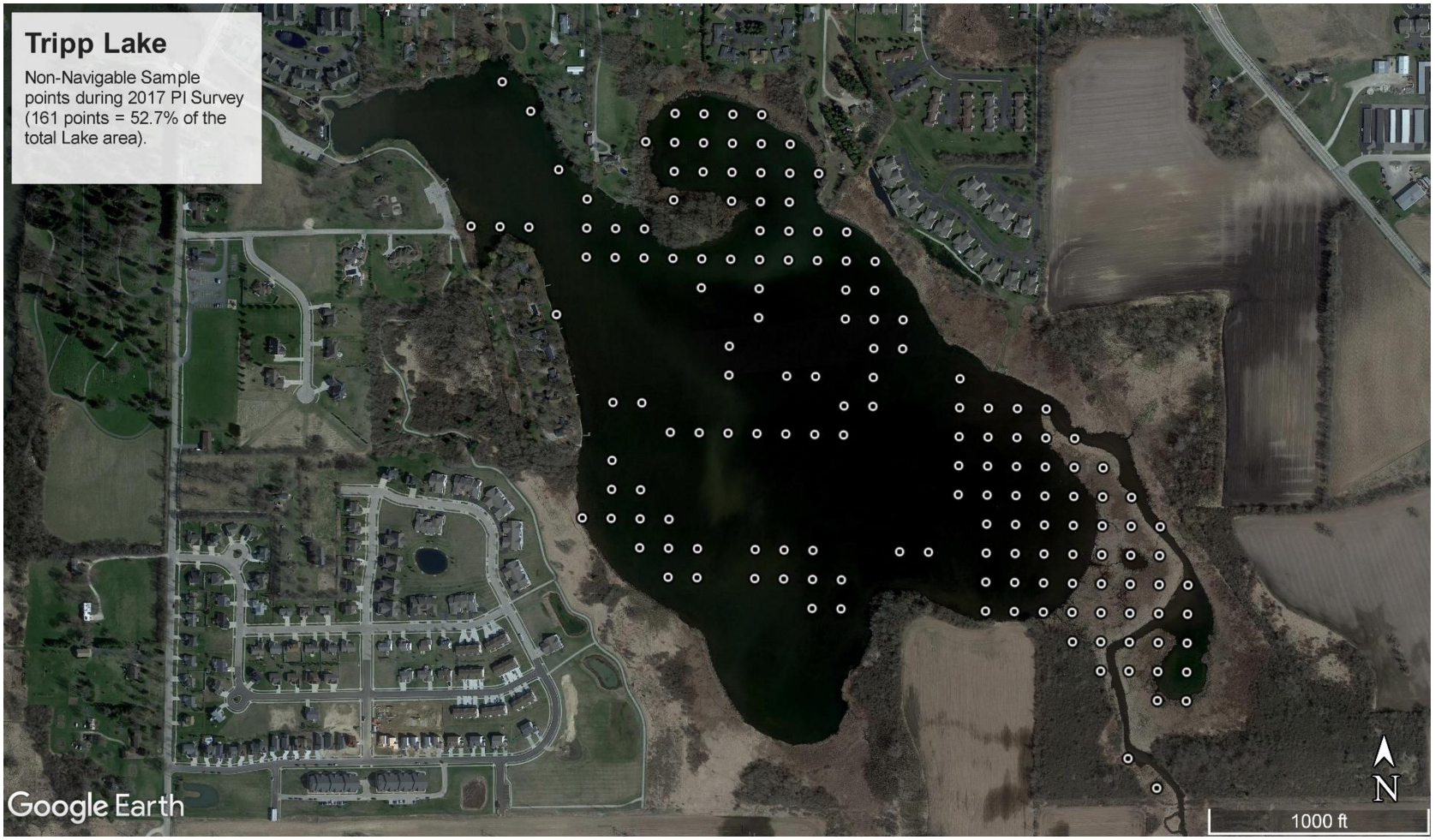


Figure 15: Non-Navigable sample points within Tripp Lake during 2017 survey.

The depth of plants found in the 2017 survey is listed in *Figure 20* for Lake Cravath and in *Figure 21* for Tripp Lake. Both lakes are shallow waterbodies that are 8 feet or less in depth. The plant community is made up of mainly emergent or floating species (watermeal, duckweed, white water lily, American lotus and filamentous algae). Both lakes are capable of plant production 100% throughout the entire waterbody.

Plant Depth Graph for Lake Cravath

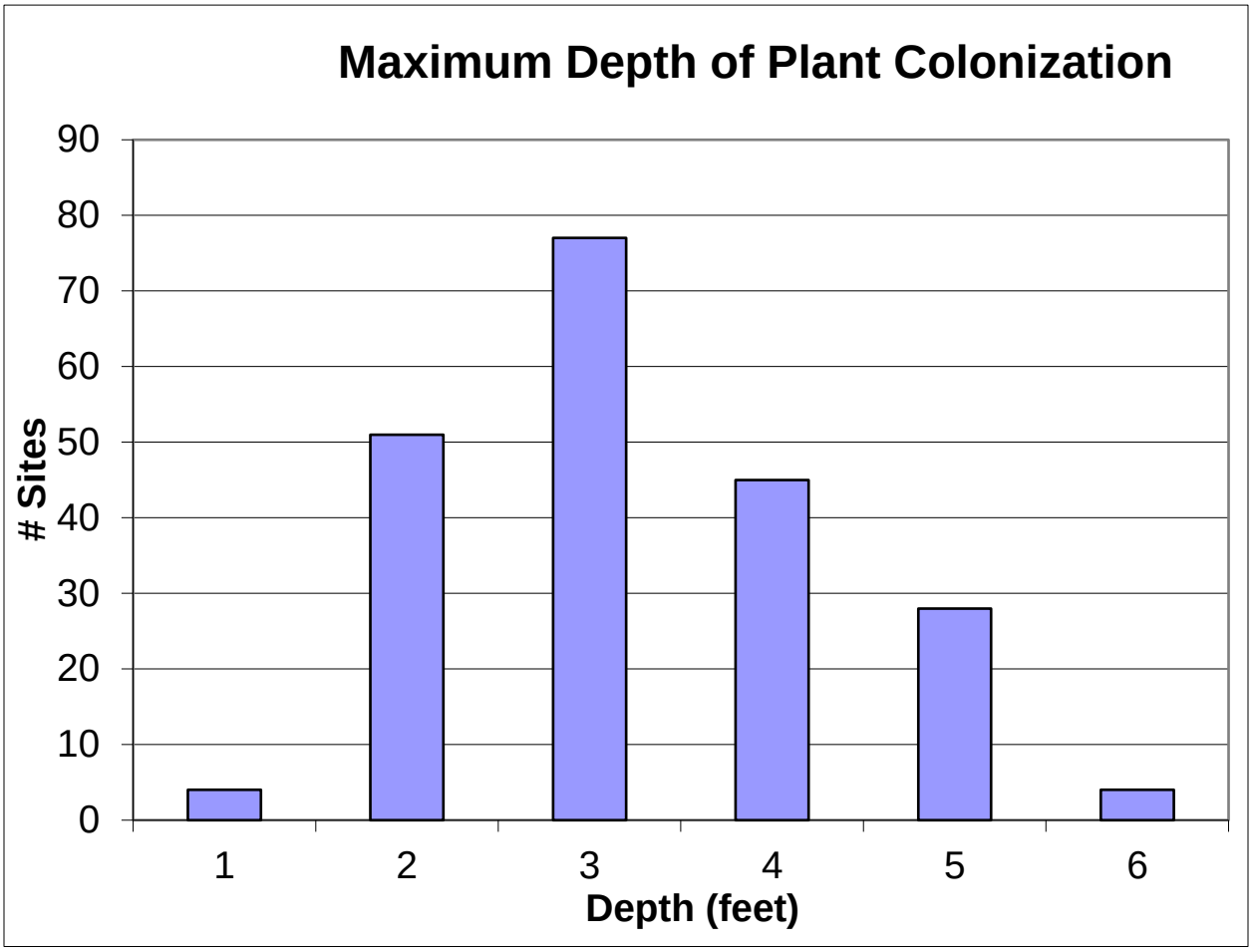


Figure 16: Plant depth graph for Cravath Lake.

Plant Depth Graph for Tripp Lake

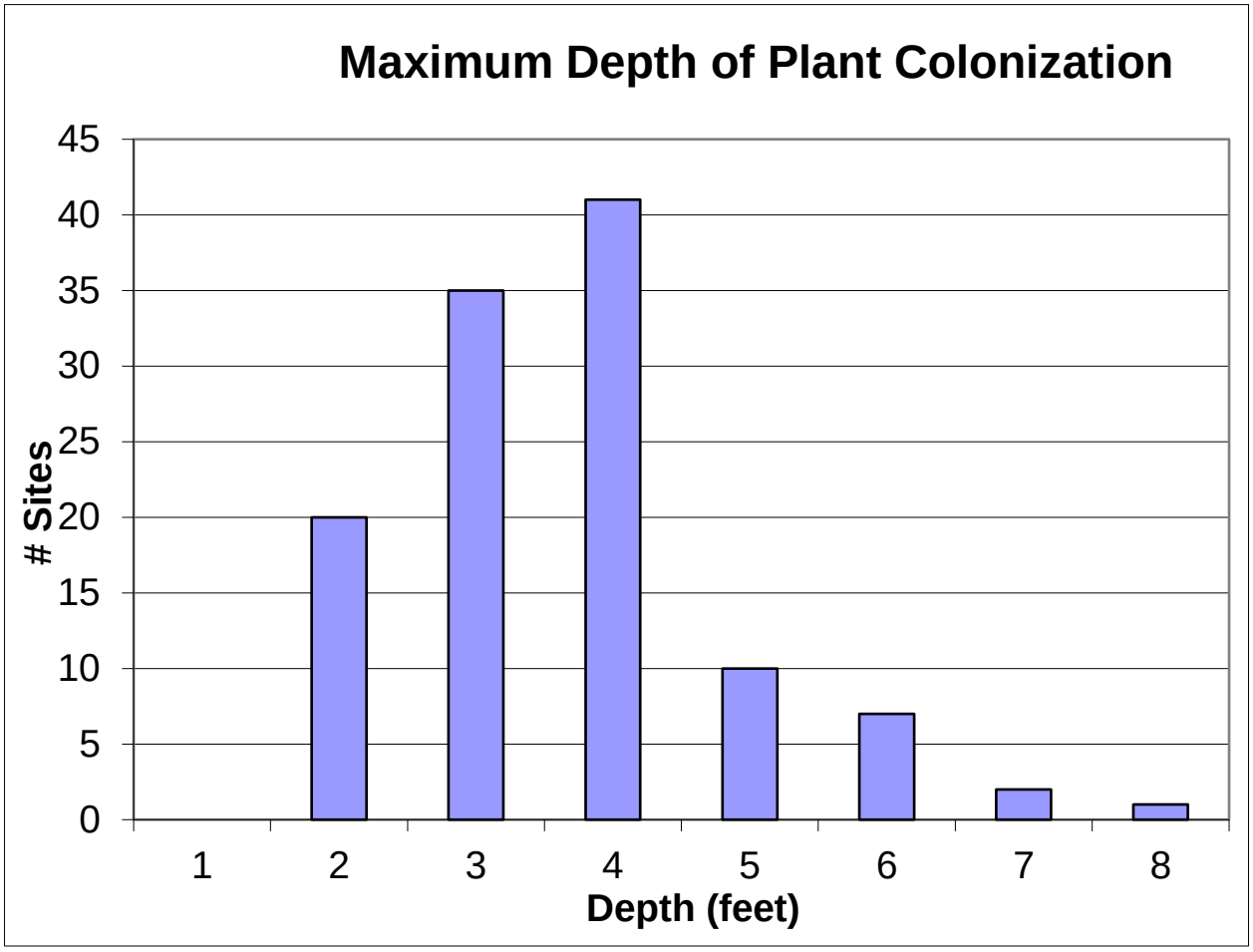


Figure 17: Plant depth graph for Tripp Lake.

Management

The figure shown below illustrates the difference between different management approaches. These are rough estimates that depend on many project variables. Each method has advantages and disadvantages, as explained in further detail. Possible methods of control include herbicide application and mechanical harvesting and whole-lake drawdown. Diver Assisted Suction Harvesting (DASH) is described below but is not considered a viable control option for either lake.

	Rough Estimates for Contract Work		
	Dash*	Chemical (2,4-D)	Harvester**
Cost to treat 1 acre / time	$12,000 / 4-7 days	$800 / 1.50 hours	$100-400 / 30 min.
Cost to treat 5 acres	$60,000 / 1 Month	$3,000 / 3 hours	$600-$2,400 / 3 hours
Cost to treat 20 acres	$240,000 / 1 Season	$10,000 / 7.5 Hours	$3,200 - $12,800 / 2 day
Cost to treat 100 acres	$1,200,000 / Several Years	$44,000 / 3 Days	$24,000 - $96,000 / 3+ weeks

* Based on www.aquaticinvasivecontrol.com and local contractors
** Based on www.ecy.wa.gov and local contractors, All prices do not include shipping, post cleaning, or other fees.

Table 5: Contract work estimates.

DASH

Dash is a process where a certified diver maintains control of a hydraulic pump and pulls selected plants by the root, feeding them into the intake hose. The plant is transferred to a collection station that can range from a mesh onion-sack to large on-shore drainage bags. The advantage of DASH includes the ability to select the target plant for removal. The disadvantage is the slow nature of the process and high cost due to specially trained staff and equipment. Also, as operations begin in a DASH location, underwater visibility rapidly diminishes, further reducing the speed of removal. Low visibility and human error also contribute to missed plants or improper removal (not removing the roots). It is also common to do relative damage to non-target species through the tangled nature of aquatic plants and the hydraulic hose flattening areas as the diver(s) are searching for target plants. Mollusks, crustaceans, insects and other species that live in and around the lake bottom, on or within the plants are also inevitable bycatch. DASH should be used in instances of very small and relatively dense patches of invasive plant species that are ideally located on a dense bottom. Deeper patches of target plants on a sand or gravel substrate with few native species is ideal.

Herbicide

Treatments using state and EPA regulated herbicides and algaecides are typically applied by injection, spraying or spreading of granular product. Herbicide treatments are relatively inexpensive when compared to other management strategies. Herbicide labels are the law and they indicate target species and whether they are selective or non-selective in the type of plants that they affect. The success of an herbicide application is the result of three main components; 1) proper product choice 2) appropriate concentration and 3) timing of application.

The "risk-reward" of herbicide use must be carefully considered. The use of this technology is heavily regulated, requiring knowledgeable, licensed professionals. Many hours, days, even weeks of preparation are necessary. There is always the potential for damage to non-target aquatic plant and the void created by eliminating one species could be filled by another, equally undesirable weed.

Mechanical Harvesting

Mechanical harvesting is a management strategy aimed for the maintenance of plant densities rather than eliminating target species. Mechanical harvesting is costly, with new harvesting boats ranging from $80,000 to well over $200,000; with high operating costs associated with them. Approved disposal sites for the removed weeds are required. These sites are chosen to ensure the species removed and the nutrients they contain are not returned to the lake or wetland. Harvesters can provide short-term relief where plant growth prohibits boating or fishing. Harvesting also helps alleviate competition in areas with high density plant populations. Harvesters will not eliminate the cause of a plant imbalance. Furthermore, harvesters can promote species that spread through fragmentation (i.e. *Eurasian Watermilfoil*). "By-catch" must also be considered when using mechanical harvesting as a means of weed removal. *"Harvesting removes large numbers of macro-invertebrates, semi-aquatic vertebrates, forage fishes, young-of-the-year fishes, and even adult gamefishes".* [2]

[2] Engel, S., 1990. Ecological impacts of harvesting macrophytes in Halverson Lake, Wisconsin. *Journal of Aquatic Plant Management*, 28(1), pp.41-45.

Drawdown

Lake drawdown may prevent or retard unwanted growth by allowing otherwise littoral areas to dry and freeze, which adversely affects rooting structures. Studies have also shown, in lakes with substantial ground-water influence, upwelling may increase as hydrologic pressure is relieved. In agriculturally-dominated areas, nutrients, especially nitrogen, can become excessive in shallow-water aquifers. The introduction of nutrient-rich water may encourage additional plant growth. Careful study of the hydrology surrounding a water-body is essential to lake drawdown success.

Recommendations

Harvesting

Continue harvesting navigation channels as illustrated in the maps below (*Figures 22* and *23*). Harvesting within navigation channels may be non-selective as native invasive species can become problematic in the same manner as exotics. Boating impediments are not species-specific.

Harvesting operations must consider each of the following while functioning within the lake.

- Safely return all captured fish
- Maximum cutting depth is limited to ONE-foot above the sediment
- Contracted harvesters must follow all disinfection protocols

Herbicide Treatment

Herbicide / algaecide applications can provide conditional control of the problematic species present. Treatment plans must take into consideration; target species, area and depth of proposed control. Control within navigation channels are non-selective as native invasive species can become problematic in the same manner as exotics. Finally, proper timing ensures success.

All treatments should take place while growth is near, but preferably not at the lake surface. Application may occur when vegetation has become or threatens to become a boating impediment. “Threaten” as used herein indicate target plants are within 12” of the surface within

the navigation channels and seasonal temperatures, sunlight and overall conditions indicate continued growth is imminent.

Dissolved oxygen must be closely monitored prior to any application. Concentrations below 4.00 PPM are not acceptable for treatment.

Cravath Lake:

EWM, CLP, Coontail and Common waterweed are the species preventing lake usage. Non-selective control is an acceptable treatment method for the navigation channels illustrated below. Such treatment regimens may include; Diquat-based products, Endothall, Flumioxazin and 2,4-D. Tank-mixes may include a combination of herbicides, including WDNR-approved algaecides.

The following herbicide rates should be used:

Endothall (Aquathol K)	3.0 – 4.0 PPM
Diquat	0.691 PPM (maximum label rate)
AquaStrike (Diquat/Endothall)	1.5-1.8 PPM Endothall / 0.3-0.36 PPM Diquat
Flumioxazin (Clipper)	200 – 400 PPB
2, 4-D	3.5 – 4 PPM
Algaecides (alone for algal control)	0.6 – 0.8 PPM
(when mixed with herbicides)	0.3 – 0.6 PPM

Tripp Lake:

Coontail, Lotus and Water Lily are the main species preventing lake usage. Non-selective control is an acceptable treatment method for the navigation channels illustrated below. Such treatment regimens may include; Diquat-based products, Endothall and 2,4-D, however Flumioxazin is the favored product for these target species. Tank-mixes may include a combination of herbicides, including WDNR-approved algaecides.

The following herbicide rates should be used:

Endothall (Aquathol K)	3.0 – 4.0 PPM
Diquat	0.691 PPM (maximum label rate)
AquaStrike (Diquat/Endothall)	1.5-1.8 PPM Endothall / 0.3-0.36 PPM Diquat
Flumioxazin (Clipper)	300 – 400 PPB
2, 4-D	3.5 – 4 PPM
Algaecides (alone for algal control)	0.6 – 0.8 PPM
(when mixed with herbicides)	0.3 – 0.6 PPM

Goals

The goal of this document is to provide current data to better manage both Cravath and Tripp lakes. All methods of management are aimed at the total eradication of any invasive species in or near the lake to promote a healthy, native ecosystem that complements the objectives of all lake-users, with emphasis placed on recreation and the fishery.

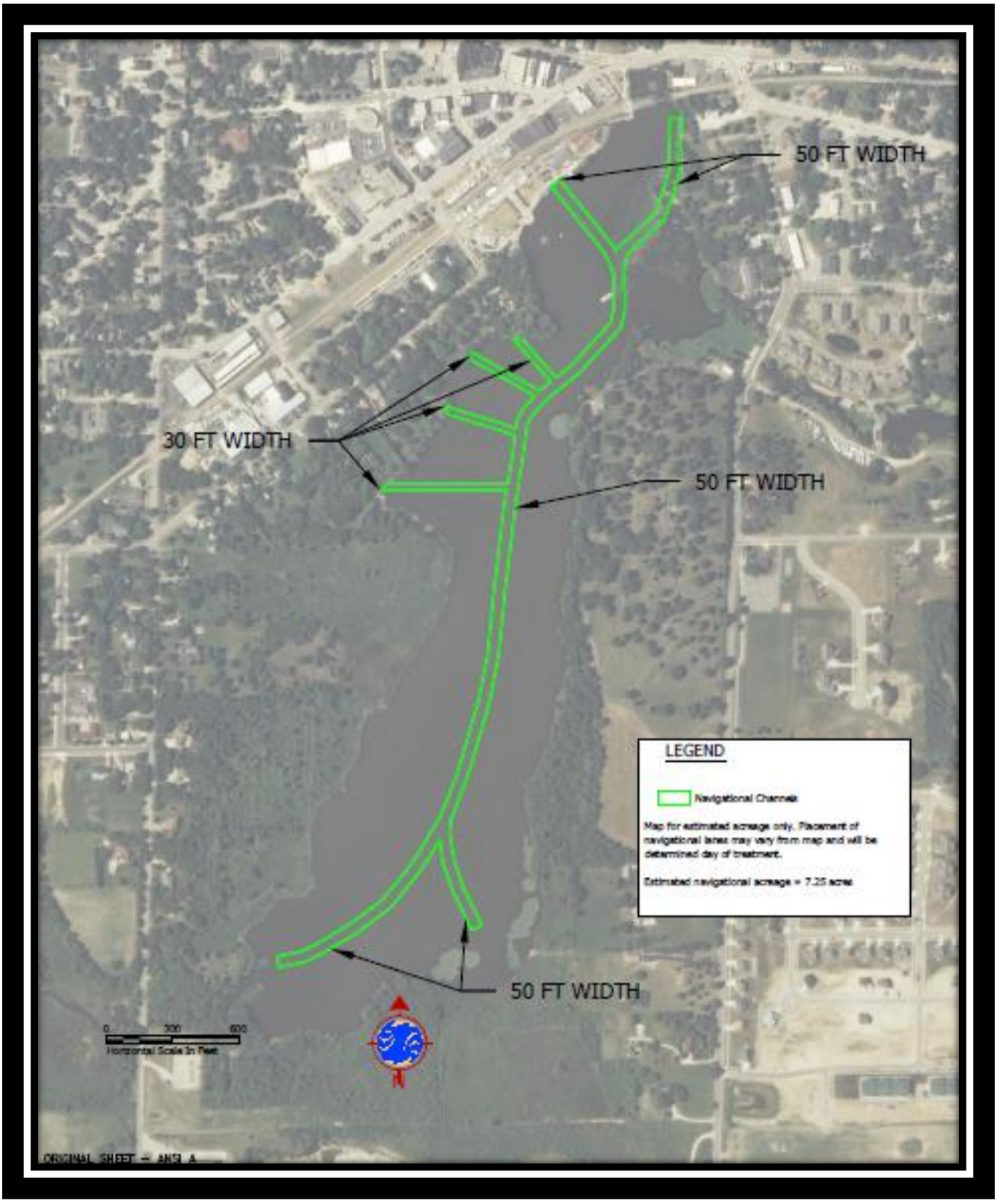


Figure 18: Lake Cravath harvesting map.

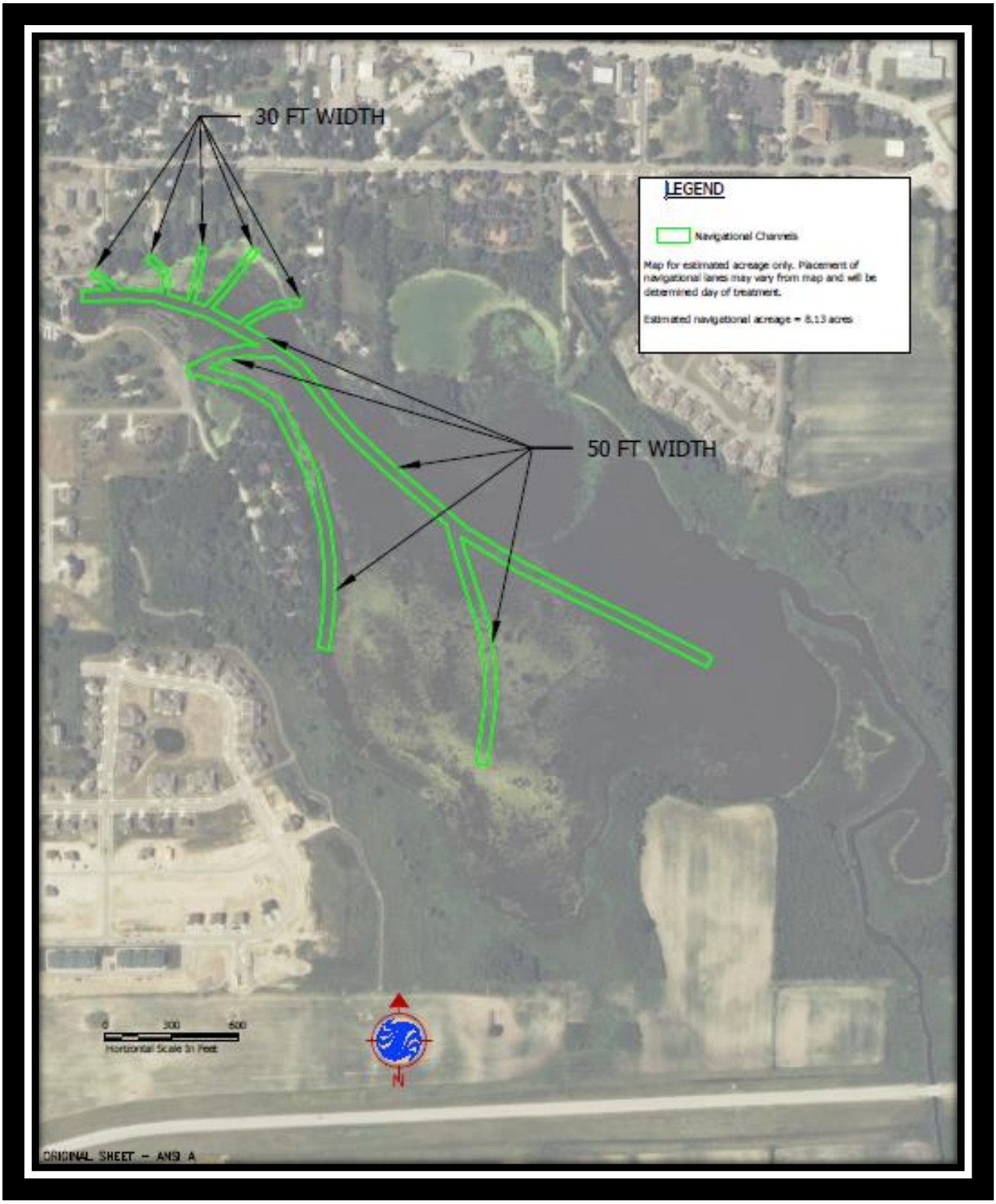


Figure 19: Tripp Lake harvesting map.

Rapid Response Plan

Wisconsin's Rapid Response Framework for Aquatic Invasive Species

http://dnr.wi.gov/lakes/invasives/WIAISRapidResponseFramework2012.pdf

- Early Detection and Reporting
- Verification of species
- Notification (relavant resource managers, news media, public)
- Rapid Assessment (threats posed by invasion, resources available)
- Planning
- Rapid Response (the action or series of actions taken to contain and control)
- Monitoring & Evaluation (post-action assessments of actions taken for control)
- Restoration (improve disturbed areas when possible)

Rapid response to a new aquatic invasive is imperative. The first step of which is ensuring an invasive species was not previously found within the waterbody. This APM plan shall serve as this record.

If a suspected invasive species is found:

- Take a digital photo of the plant in the setting where it was found and mark with a GPS (if possible). Then collect 5 – 10 intact specimens. Try to get the root system, all leaves as well as seed heads and flowers when present. Place in a Ziploc bag with no water. Place on ice and transport to refrigerator.

- Fill out form http://dnr.wi.gov/lakes/forms/3200-125-plantincident.pdf.

- Contact the WDNR Aquatic Invasive Species Coordinator (currently Heidi Bunk, WDNR Lakes Biologist) and deliver the specimens, report, digital photo and coordinates (if available). Do this as soon as possible; but no later than 4 days after the plant is discovered. The

waterbody management entity and current lake consultant should also be notified. Digital photographs may also serve as a faster means of communication. All pictures should be taken within 12" of the plant in question, with care taken to fully illustrate leaf structure, stem and flower (if present).

WIDNR
Attn: Heidi Bunk, AIS Coordinator
141 NW Barstow St., Room 180
Waukesha, WI 53188
262-574-2130 Heidi.Bunk@Wisconsin.gov

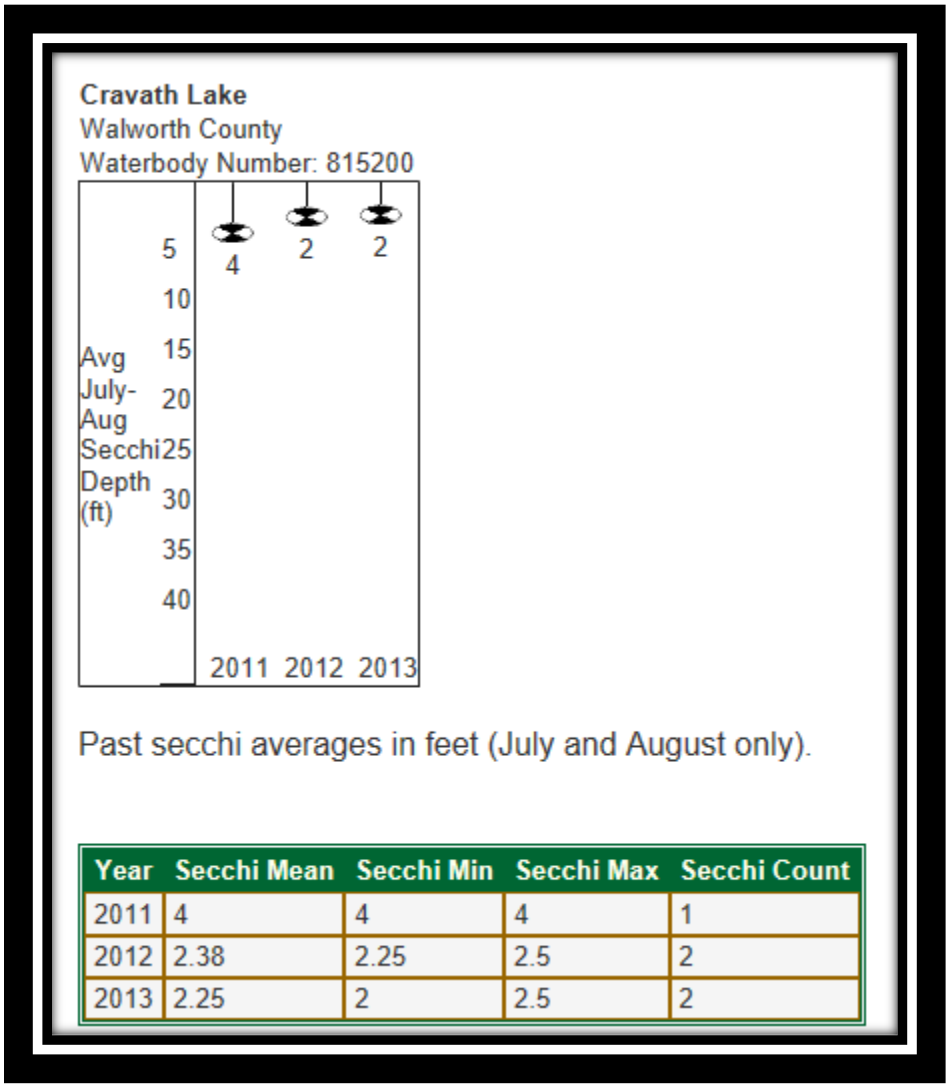
If a new invasive species has been verified, a coordinated response plan should be developed in consultation with the WDNR, the governing townships, local lake managing body and lake consultant(s) as needed. Limit or restrict lake access immediately, to include boat landing closures whenever possible. Post signage at all access points with color photographs and species description. Notify all area lake associations and districts immediately.

References

Engel, S., 1990. Ecological impacts of harvesting macrophytes in Halverson Lake, Wisconsin. *Journal of Aquatic Plant Management*, 28(1), pp.41-45.

Nichols, SA. 1999. Floristic Quality Assessment of Wisconsin Lake Plant Communities with Example Applications. Journal of Lake and Reservoir Management, 15(2):133-141.

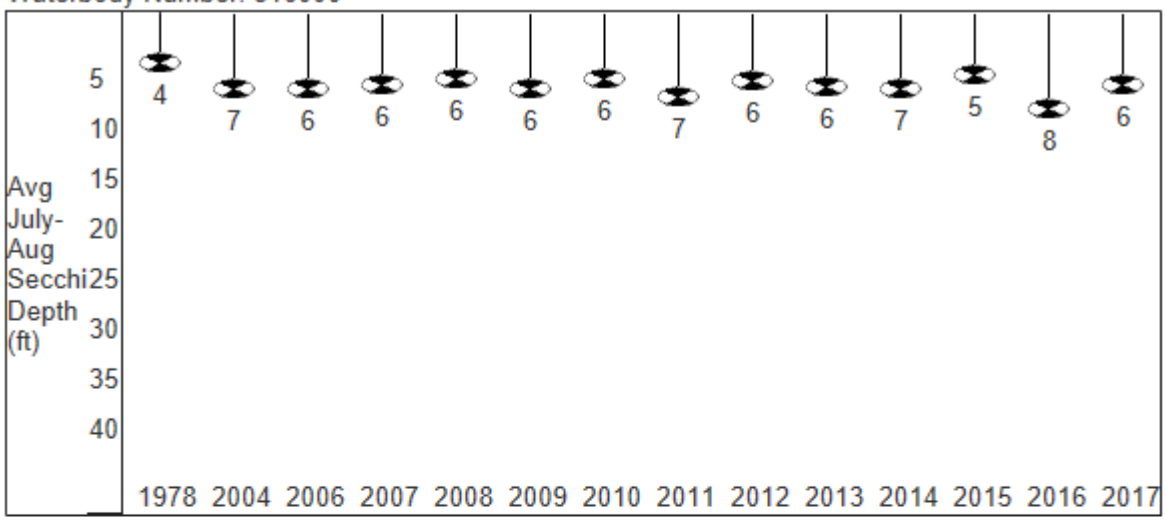
Appendix A



Year	Secchi Mean	Secchi Min	Secchi Max	Secchi Count
2011	4	4	4	1
2012	2.38	2.25	2.5	2
2013	2.25	2	2.5	2

Figure 20: Historical secchi disk data, Lake Cravath. Source www.dnr.wi.gov

Tripp Lake (Trapp)
Walworth County
Waterbody Number: 816000



Past secchi averages in feet (July and August only).

Year	Secchi Mean	Secchi Min	Secchi Max	Secchi Count
1978	4	4	4	1
2004	6.53	6.5	6.56	2
2006	6.5	6.5	6.5	1
2007	6.13	5.25	7.25	4
2008	5.67	5	6	3
2009	6.5	6	7	2
2010	5.6	3.5	7	5
2011	7.35	6.5	8.3	4
2012	5.87	4	7.3	3
2013	6.38	5	7.75	2
2014	6.63	6	7.25	2
2015	5.1	3.5	6.3	3
2016	8.5	8.5	8.5	1
2017	6.25	4.5	8	2

Figure 21: Historical secchi disk data, Tripp Lake. Source www.dnr.wi.gov

Appendix B

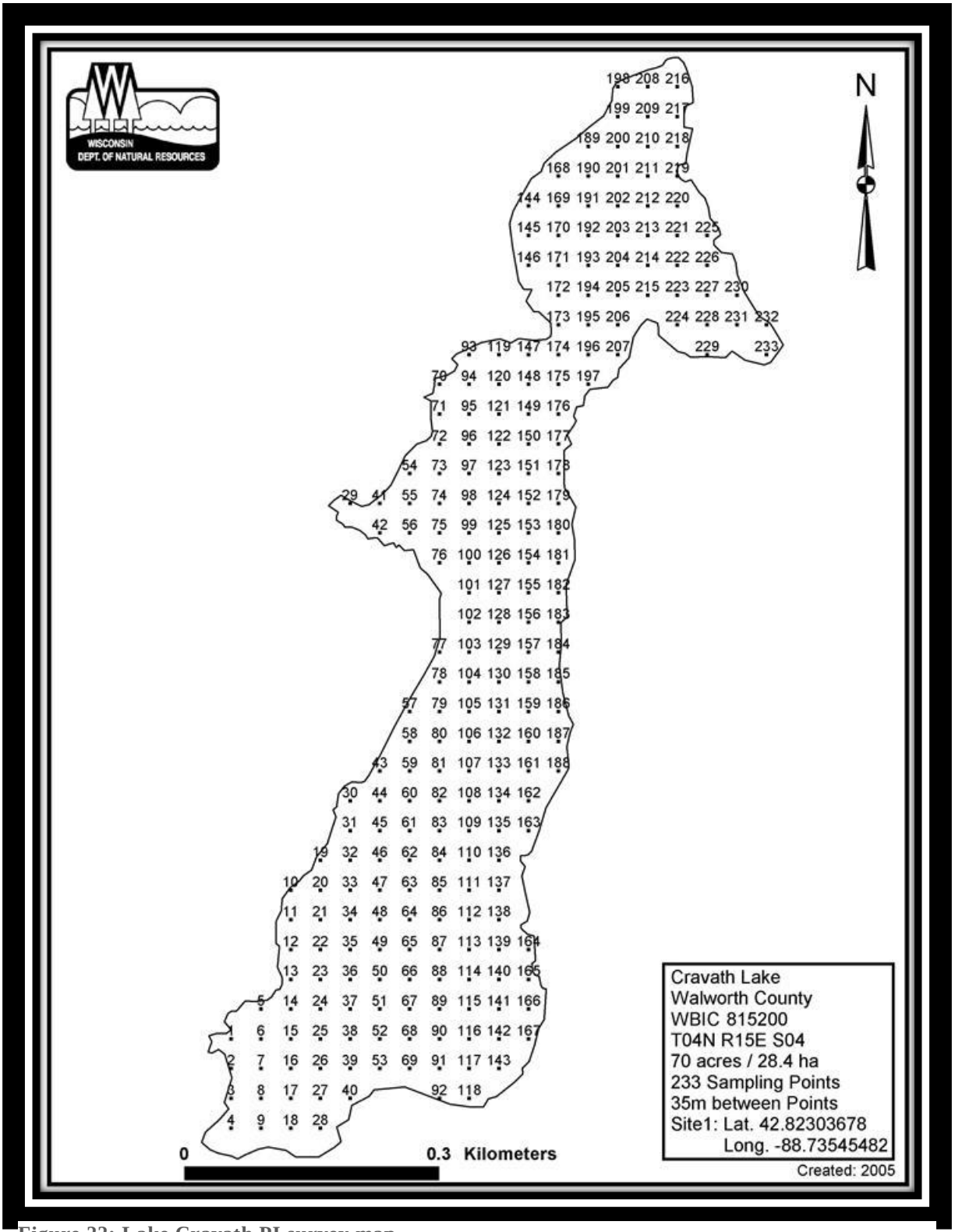


Figure 22: Lake Cravath PI survey map.

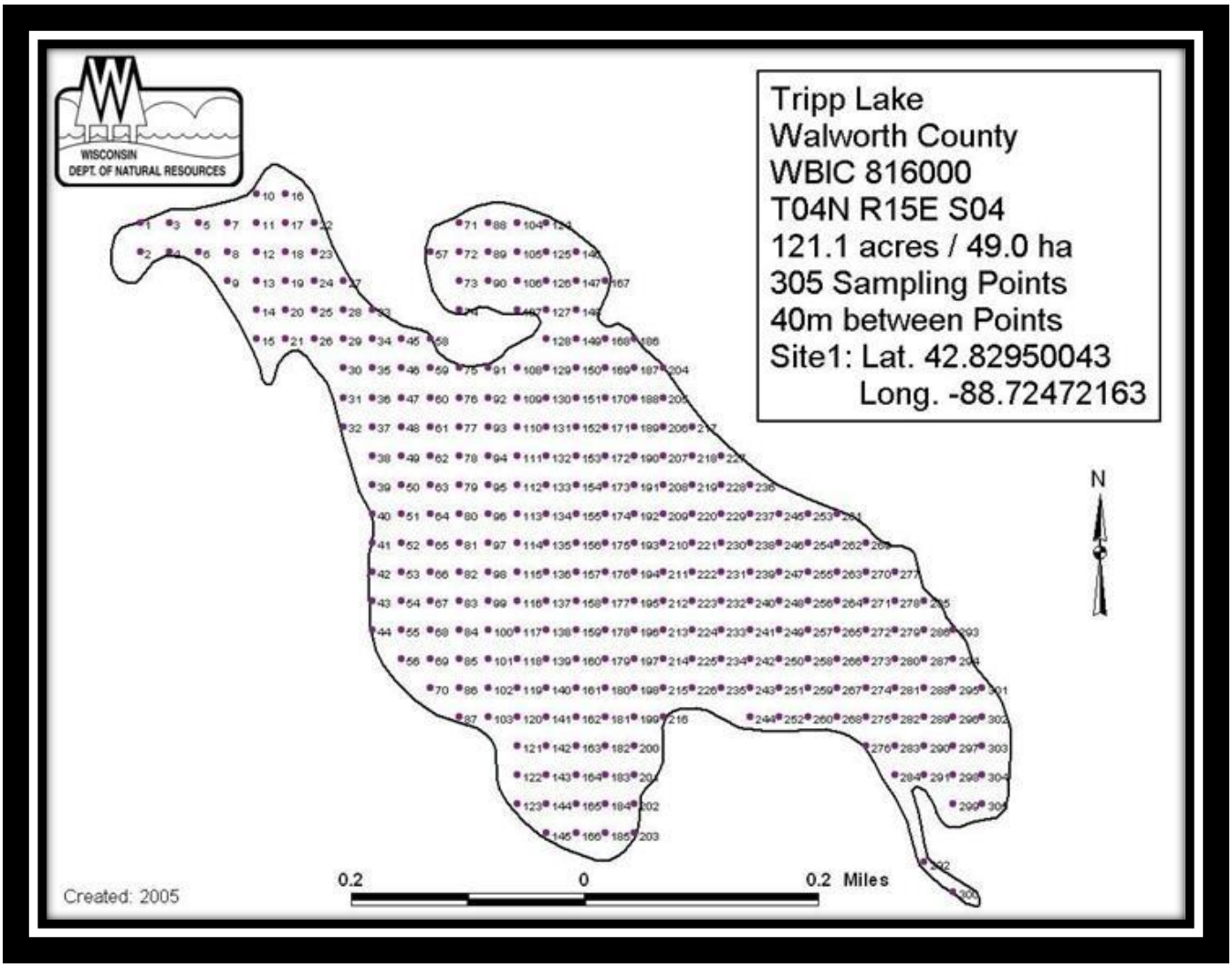
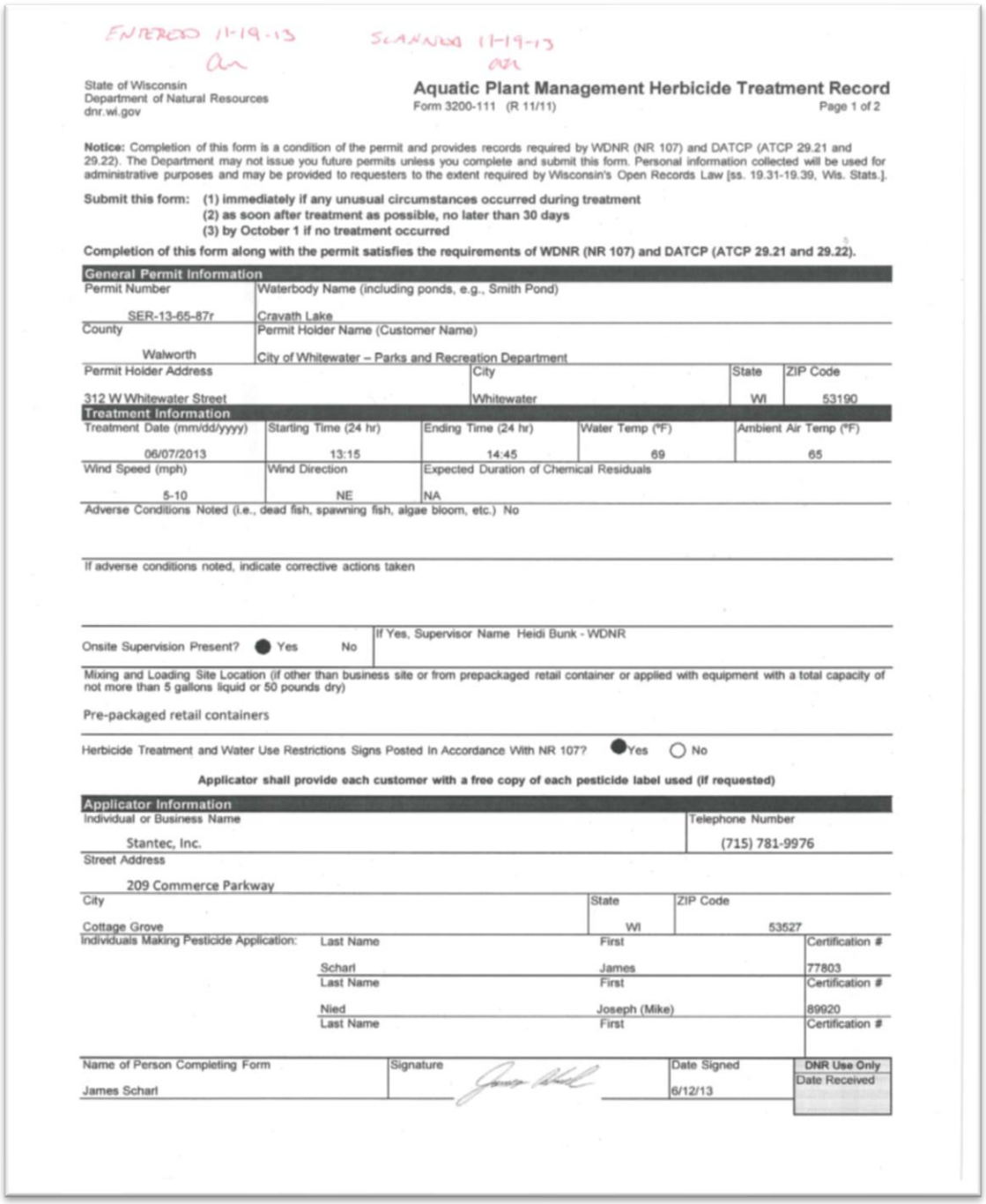


Figure 23: Tripp Lake PI survey map.

Appendix C

Lake Cravath – Past Chemical Treatments

*Please note in the documents within Appendix C that the concentration of product is listed incorrectly, and it is assumed that the correct target concentrations were applied under the supervision of WDNR staff.



ENTERED 11-19-13 AM

SCANNED 11-19-13 AM

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Aquatic Plant Management Herbicide Treatment Record
Form 3200-111 (R 11/11) Page 1 of 2

Notice: Completion of this form is a condition of the permit and provides records required by WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22). The Department may not issue you future permits unless you complete and submit this form. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Submit this form: **(1) immediately if any unusual circumstances occurred during treatment**
(2) as soon after treatment as possible, no later than 30 days
(3) by October 1 if no treatment occurred

Completion of this form along with the permit satisfies the requirements of WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22).

General Permit Information

Permit Number	Waterbody Name (including ponds, e.g., Smith Pond)		
SER-13-65-87r	Cravath Lake		
County	Permit Holder Name (Customer Name)		
Walworth	City of Whitewater – Parks and Recreation Department		
Permit Holder Address	City	State	ZIP Code
312 W Whitewater Street	Whitewater	WI	53190

Treatment Information

Treatment Date (mm/dd/yyyy)	Starting Time (24 hr)	Ending Time (24 hr)	Water Temp (°F)	Ambient Air Temp (°F)
06/07/2013	13:15	14:45	69	65

Wind Speed (mph)	Wind Direction	Expected Duration of Chemical Residuals
5-10	NE	NA

Adverse Conditions Noted (i.e., dead fish, spawning fish, algae bloom, etc.) No

If adverse conditions noted, indicate corrective actions taken

Onsite Supervision Present? ● Yes ○ No — If Yes, Supervisor Name Heidi Bunk - WDNR

Mixing and Loading Site Location (if other than business site or from prepackaged retail container or applied with equipment with a total capacity of not more than 5 gallons liquid or 50 pounds dry)

Pre-packaged retail containers

Herbicide Treatment and Water Use Restrictions Signs Posted In Accordance With NR 107? ●Yes ○ No

Applicator shall provide each customer with a free copy of each pesticide label used (if requested)

Applicator Information

Individual or Business Name			Telephone Number
Stantec, Inc.			(715) 781-9976
Street Address			
209 Commerce Parkway			
City	State	ZIP Code	
Cottage Grove	WI	53527	

Individuals Making Pesticide Application:	Last Name	First	Certification #
	Scharl	James	77803
	Last Name	First	Certification #
	Nied	Joseph (Mike)	89920
	Last Name	First	Certification #

Name of Person Completing Form	Signature	Date Signed	DNR Use Only
James Scharl		6/12/13	Date Received

Sheet 2 of 2 Date: 06/12/2013

Aquatic Plant Management Herbicide Treatment Record

Form 3200-111 (R 11/11) Page 2 of 2

Treatment Site and Chemical Information (attach additional sheets if necessary)

Site No, Property Name, Address / Fire No	Treated Acreage	Permitted Acreage	Sensitive Area?	Latitude	Longitude	Herbicide Name: DMA-4 EPA Reg No.: 62719-3 Amount Applied	Concentration (mg/l = ppm)	Herbicide Name: EPA Reg No.: Amount Applied	Concentration (mg/l = ppm)	Herbicide Name: EPA Reg No.: Amount Applied	Concentration (mg/l = ppm)
D	0.5	0.5	☐ Y			3.0 gal	2.5 ppm				
E	0.5	0.5	☐ Y			3.0 gal	2.5 ppm				
F	0.5	0.5	☐ Y			3.0 gal	2.5 ppm				
G	0.5	0.5	☐ Y			3.0 gal	2.5 ppm				
H	0.97	0.97	☐ Y			6.0 gal	2.5 ppm				
I*	2.72	4.12	☐ Y			16.5 gal	2.5 ppm				
J	0.5	0.5	☐ Y			3.0 gal	2.5 ppm				
			☐ Y								
TOTALS	6.09	7.59	☐ Y			37.5 gal					
			☐ Y								
*area reduced due to opt out			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐								
					Totals						

Aquatics at Treatment Site: TS = Target Species SP = Species Present

TS	SP		Site(s)	TS	SP		Site(s)	TS	SP		Site(s)	TS	SP	Other Aquatics	Site(s)
☐	☐	Cattail		☐	☐	Filamentous Algae		☐	☐	Planktonic Algae		☐	☐	White-Stem Pondweed	
☐	☐	Chara		☐	☐	Flat- Stem Pondweed		☐	☐	Purple Loosestrife		☐	☐	Wild Celery	
☐	☐	Coontail		☐	☐	Floating-Leaf Pondweed		☐	☐	Richardson Pondweed		☐	☐		
☐	☐	Curly-Leaf Pondweed		☐	☐	Illinois Pondweed		☐	☐	Robbins Pondweed		☐	☐		
☐	☐	Duckweed Elodea		☐	☐	Large-Leaf Pondweed		☐	☐	Sago Pondweed		☐	☐		
☐	■	Eurasian/hybrid Milfoil	all EWM areas	☐	☐	Northern Milfoil		☐	☐	Watershield		☐	☐		
						Phragmites				White Water Lily					

ENTERED 11-19-13 ajr SCANNED 11-20

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Aquatic Plant Management Herbicide Treatment Record

Form 3200-111 (R 11/11) Page 1 of 2

Notice: Completion of this form is a condition of the permit and provides records required by WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22). The Department may not issue you future permits unless you complete and submit this form. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Submit this form: **(1) immediately if any unusual circumstances occurred during treatment**
(2) as soon after treatment as possible, no later than 30 days
(3) by October 1 if no treatment occurred

Completion of this form along with the permit satisfies the requirements of WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22).

General Permit Information

Permit Number	Waterbody Name (including ponds, e.g., Smith Pond)		
SER-13-65-874	Cravath Lake		
County	**Permit Holder Name (Customer Name)**		
Walworth	City of Whitewater – Parks and Recreation Department		
Permit Holder Address	**City**	**State**	**ZIP Code**
312 W Whitewater Street	Whitewater	WI	53190

Treatment Information

Treatment Date (mm/dd/yyyy)	Starting Time (24 hr)	Ending Time (24 hr)	Water Temp (°F)	Ambient Air Temp (°F)
06/17/2013	11:15	12:45	77	70 inc. to 80

Wind Speed (mph)	Wind Direction	Expected Duration of Chemical Residuals
Calm inc. to 5-10	W to SW	~3 days

Adverse Conditions Noted (i.e., dead fish, spawning fish, algae bloom, etc.) No

If adverse conditions noted, indicate corrective actions taken

Onsite Supervision Present? ○ Yes ● No — If Yes, Supervisor Name

Mixing and Loading Site Location (if other than business site or from prepackaged retail container or applied with equipment with a total capacity of not more than 5 gallons liquid or 50 pounds dry)

Pre-packaged retail containers

Herbicide Treatment and Water Use Restrictions Signs Posted In Accordance With NR 107? ● Yes ○ No

Applicator shall provide each customer with a free copy of each pesticide label used (if requested)

Applicator Information

Individual or Business Name			Telephone Number
Stantec, Inc.			(715) 781-9976
Street Address			
209 Commerce Parkway			
City		**State**	**ZIP Code**
Cottage Grove		WI	53527

Individuals Making Pesticide Application:	Last Name	First	Certification #
	Scharl	James	77803
	Last Name	First	Certification #
	Nied	Joseph (Mike)	89920
	Last Name	First	Certification #

Name of Person Completing Form	Signature	Date Signed	DNR Use Only
James Scharl	James Scharl	6/24/13	Date Received

Sheet 2 of 2 Date: 06/24/2013

Aquatic Plant Management Herbicide Treatment Record

Form 3200-111 (R 11/11) Page 2 of 2

Treatment Site and Chemical Information (attach additional sheets if necessary)

Site No, Property Name, Address / Fire No	Treated Acreage	Permitted Acreage	Sensitive Area?	Latitude	Longitude	Herbicide Name: Captain EPA Reg No.: 67690-9 Amount Applied	Captain Concentration (mg/l = ppm)	Herbicide Name: Tribune EPA Reg No.: 100-1390 Amount Applied	Tribune Concentration (mg/l = ppm)	Herbicide Name: EPA Reg No.: Amount Applied	Concentration (mg/l = ppm)
Navigation Lanes	7.0	7.59	☐ Y			21 gal	3.0 ppm	14 gal	3.0 ppm		
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
TOTALS	7.0	7.59	☐ Y			21 gal		14 gal			
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐								
					Totals						

Aquatics at Treatment Site: TS = Target Species SP = Species Present

TS	SP		Site(s)	TS	SP		Site(s)	TS	SP		Site(s)	TS	SP	Other Aquatics	Site(s)
☐	☐	Cattail		☐	☐	Filamentous Algae		☐	☐	Planktonic Algae		☐	☐	White-Stem Pondweed	
☐	☐	Chara		☐	☐	Flat-Stem Pondweed		☐	☐	Purple Loosestrife		☐	☐	Wild Celery	
☐	■	Coontail		☐	☐	Floating-Leaf Pondweed		☐	☐	Richardson Pondweed		☐	☐		
☐	☐	Curly-Leaf Pondweed		☐	☐	Illinois Pondweed		☐	☐	Robbins Pondweed		☐	☐		
☐	■	Elodea		☐	☐	Large-Leaf Pondweed		☐	☐	Sago Pondweed		☐	☐		
☐	■	Eurasian/hybrid Milfoil		☐	☐	Northern Milfoil		☐	☐	Watershield White Water Lily		☐	☐		

Tripp Lake - Past Chemical Treatments

ENTERED 11-19-13 SCANNED

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Aquatic Plant Management Herbicide Treatment Record
Form 3200-111 (R 11/11) Page 1 of 2

Notice: Completion of this form is a condition of the permit and provides records required by WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22). The Department may not issue you future permits unless you complete and submit this form. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Submit this form: **(1) immediately if any unusual circumstances occurred during treatment**
(2) as soon after treatment as possible, no later than 30 days
(3) by October 1 if no treatment occurred

Completion of this form along with the permit satisfies the requirements of WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22).

General Permit Information

Permit Number	Waterbody Name (including ponds, e.g., Smith Pond)		
SER-13-65-873	Trippe Lake		
County	Permit Holder Name (Customer Name)		
Walworth	City of Whitewater – Parks and Recreation Department		
Permit Holder Address	City	State	ZIP Code
312 W Whitewater Street	Whitewater	WI	53190

Treatment Information

Treatment Date (mm/dd/yyyy)	Starting Time (24 hr)	Ending Time (24 hr)	Water Temp (°F)	Ambient Air Temp (°F)
06/07/2013	11:30	12:30	68	65

Wind Speed (mph)	Wind Direction	Expected Duration of Chemical Residuals
5-10	NE	NA

Adverse Conditions Noted (i.e., dead fish, spawning fish, algae bloom, etc.) YES

If adverse conditions noted, indicate corrective actions taken

Prior to treatment, survey of SEWRPC areas completed with very little / NO EWM present. NO TREATMENT TOOK PLACE

Onsite Supervision Present? ● Yes No — If Yes, Supervisor Name Heidi Bunk - WDNR

Mixing and Loading Site Location (if other than business site or from prepackaged retail container or applied with equipment with a total capacity of not more than 5 gallons liquid or 50 pounds dry)

Herbicide Treatment and Water Use Restrictions Signs Posted In Accordance With NR 107? Yes ● No

Applicator shall provide each customer with a free copy of each pesticide label used (If requested)

Applicator Information

Individual or Business Name			Telephone Number
Stantec, Inc.			(715) 781-9976
Street Address			
209 Commerce Parkway			
City		State	ZIP Code
Cottage Grove		WI	53527

Individuals Making Pesticide Application:	Last Name	First	Certification #
	Scharl	James	77803
	Last Name	First	Certification #
	Nied	Joseph (Mike)	89920
	Last Name	First	Certification #

Name of Person Completing Form	Signature	Date Signed	DNR Use Only
James Scharl		6/12/13	Date Received

Sheet 2 of 2   Date: 06/12/2013

Aquatic Plant Management Herbicide Treatment Record

Form 3200-111 (R 11/11)   Page 2 of 2

Treatment Site and Chemical Information (attach additional sheets if necessary)

Site No, Property Name, Address / Fire No	Treated Acreage	Permitted Acreage	Sensitive Area?	Latitude	Longitude	Herbicide Name: EPA Reg No.: Amount Applied	Concentration (mg/l = ppm)	Herbicide Name: EPA Reg No.: Amount Applied	Concentration (mg/l = ppm)	Herbicide Name: EPA Reg No.: Amount Applied	Concentration (mg/l = ppm)
NO TREATMENT	0.0	9.0	☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐								
					Totals						

Aquatics at Treatment Site: TS = Target Species SP = Species Present

TS SP	Site(s)	TS SP	Site(s)	TS SP	Site(s)	TS SP Other Aquatics	Site(s)
☐ ☐ Cattail		☐ ☐ Filamentous Algae		☐ ☐ Planktonic Algae		☐ ☐ White-Stem Pondweed	
☐ ☐ Chara		☐ ☐ Flat- Stem Pondweed		☐ ☐ Purple Loosestrife		☐ ☐ Wild Celery	
☐ ☐ Coontail		☐ ☐ Floating-Leaf Pondweed		☐ ☐ Richardson Pondweed		☐ ☐	
☐ ☐ Curly-Leaf Pondweed		☐ ☐ Illinois Pondweed		☐ ☐ Robbins Pondweed		☐ ☐	
☐ ☐ Duckweed Elodea		☐ ☐ Large-Leaf Pondweed		☐ ☐ Sago Pondweed		☐ ☐	
☐ ☐ Eurasian/hybrid Milfoil		☐ ☐ Northern Milfoil		☐ ☐ Watershield		☐ ☐	
		Phragmites		White Water Lily			

ENTERED 11-19-13 SCANNED 11-26
AM

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Aquatic Plant Management Herbicide Treatment Record

Form 3200-111 (R 11/11) Page 1 of 2

Notice: Completion of this form is a condition of the permit and provides records required by WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22). The Department may not issue you future permits unless you complete and submit this form. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Submit this form: **(1) immediately if any unusual circumstances occurred during treatment**
(2) as soon after treatment as possible, no later than 30 days
(3) by October 1 if no treatment occurred

Completion of this form along with the permit satisfies the requirements of WDNR (NR 107) and DATCP (ATCP 29.21 and 29.22).

General Permit Information

Permit Number	Waterbody Name (including ponds, e.g., Smith Pond)			
SER-13-65-873	Trippe Lake			
County	Permit Holder Name (Customer Name)			
Walworth	City of Whitewater – Parks and Recreation Department			
Permit Holder Address		City	State	ZIP Code
312 W Whitewater Street		Whitewater	WI	53190

Treatment Information

Treatment Date (mm/dd/yyyy)	Starting Time (24 hr)	Ending Time (24 hr)	Water Temp (°F)	Ambient Air Temp (°F)
06/17/2013	8:00	10:30	77	70

Wind Speed (mph)	Wind Direction	Expected Duration of Chemical Residuals
calm	W	~3 days

Adverse Conditions Noted (i.e., dead fish, spawning fish, algae bloom, etc.) YES

If adverse conditions noted, indicate corrective actions taken

Onsite Supervision Present? ○ Yes ● No If Yes, Supervisor Name

Mixing and Loading Site Location (if other than business site or from prepackaged retail container or applied with equipment with a total capacity of not more than 5 gallons liquid or 50 pounds dry)

Pre-packaged retail containers

Herbicide Treatment and Water Use Restrictions Signs Posted In Accordance With NR 107? ● Yes ○ No

Applicator shall provide each customer with a free copy of each pesticide label used (if requested)

Applicator Information

Individual or Business Name			Telephone Number
Stantec, Inc.			(715) 781-9976
Street Address			
209 Commerce Parkway			
City		State	ZIP Code
Cottage Grove		WI	53527

Individuals Making Pesticide Application:	Last Name	First	Certification #
	Scharl	James	77803
	Last Name	First	Certification #
	Nied	Joseph (Mike)	89920
	Last Name	First	Certification #

Name of Person Completing Form	Signature	Date Signed	DNR Use Only
James Scharl	James Scharl	6/24/13	Date Received

Sheet 2 of 2 Date: 06/24/2013

Aquatic Plant Management Herbicide Treatment Record

Form 3200-111 (R 11/11) Page 2 of 2

Treatment Site and Chemical Information (attach additional sheets if necessary)

Site No, Property Name, Address / Fire No	Treated Acreage	Permitted Acreage	Sensitive Area?	Latitude	Longitude	Herbicide Name: Captain EPA Reg No.: 67690-9 Amount Applied	Captain Concentration (mg/l = ppm)	Herbicide Name: Tribune EPA Reg No.: 100-1390 Amount Applied	Tribune Concentration (mg/l = ppm)	Herbicide Name: EPA Reg No.: Amount Applied	Concentration (mg/l = ppm)
Navigation Lanes	7.0	9.0	☐ Y			21 gal	3.0 ppm	14 gal	3.0 ppm		
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐ Y								
			☐								
			Totals								

Aquatics at Treatment Site: TS = Target Species SP = Species Present

TS	SP		Site(s)	TS	SP		Site(s)	TS	SP		Site(s)	TS	SP	Other Aquatics	Site(s)
☐	☐	Cattail		☐	☐	Filamentous Algae		☐	☐	Planktonic Algae		☐	☐	White-Stem Pondweed	
☐	☐	Chara		☐	☐	Flat- Stem Pondweed		☐	☐	Purple Loosestrife		☐	☐	Wild Celery	
☐	■	Coontail		☐	☐	Floating-Leaf Pondweed		☐	☐	Richardson Pondweed		☐	☐		
☐	☐	Curly-Leaf Pondweed		☐	☐	Illinois Pondweed		☐	☐	Robbins Pondweed		☐	☐		
☐	■	Elodea		☐	☐	Large-Leaf Pondweed		☐	☐	Sago Pondweed		☐	☐		
☐	■	Eurasian/hybrid Milfoil		☐	☐	Northern Milfoil		☐	☐	Watershield		☐	☐		
						Phragmites				White Water Lily					