Aquatic invasive species survey of lakes with public access in Barron, Chippewa, Dunn, Eau Claire, and Rusk counties

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Acknowledgements

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Introduction

Beaver Creek Reserve is a nature reserve and environmental education center located in Eau Claire County. The Beaver Creek Citizen Science Center (BCCSC), established in 2003, has collaborated with scientific professionals on a local, state, and national level while promoting the importance of citizen science with the general public, school groups, and local organizations.

Aquatic invasive species (AIS) are quickly becoming an important issue in waters in west central Wisconsin. Eurasian water milfoil (EWM) and zebra mussels threaten the thousands of lakes and miles of rivers in Wisconsin including the Mississippi and St. Croix Rivers and AIS-infested lakes of the Twin Cities region, which are in close proximity. There are 1,108 lakes, along with thousands of miles of streams and rivers and thousands of acres of wetlands, in the five-county (Barron, Chippewa, Dunn, Eau Claire, and Rusk) region of Wisconsin close to the BCCSC. Of these 1,108 lakes, only nine were documented with infestations of Eurasian water milfoil and zero were documented with infestations of zebra mussels or spiny waterfleas at the start of the project in 2007. Purple loosestrife was documented in all five counties and rusty crayfish populations had been documented at a total of thirteen sites in three of the counties before the survey began. As of spring 2007, curly-leaf pondweed was documented in 25 lakes across all five counties. Although information available through Wisconsin Department of Natural Resources (WDNR), University of Wisconsin-Extension (UWEX), and Wisconsin Association of Lakes indicated this region had low occurrences of AIS, the actual extent of the problem was unknown. Often, the discovery of a new infestation was by accident or documented while conducting research for another purpose. For example, the BCCSC carried out an aquatic plant survey to assess the post-winter drawdown reduction effects on aquatic plant communities in Lake Wissota, Chippewa County. During this scientific survey, Eurasian water milfoil (EWM) was discovered, which was the first confirmed EWM infestation in the lower Chippewa River Basin.

This discovery prompted the WDNR to urge the BCCSC to lead a five-county AIS assessment, education, prevention, and control project, for three years (from 2007 through 2009) on 126 lakes. Six aquatic invasive species were surveyed for, including spiny waterflea (*Bythotrephes longimanus*), zebra mussels (*Dreissena polymorpha*), purple loosestrife (*Lythrum salicaria*), Eurasian water milfoil (*Myriophyllum spicatum*), rusty crayfish (*Orconectes rusticus*), and curly-leaf pondweed (*Potamogeton crispus*). Additional species, Chinese mystery snails (*Bellamya japonica*) and banded mystery snails (*Viviparus georgianus*), were added to the survey scope during the project.

The objective of the project was to assess the five-county region for the presence of AIS and increase awareness of AIS through education. This project had four goals 1) **assess** which lakes in the five-county region were infested with AIS, through monitoring and the involvement of WDNR, county conservationists, university, UW-Extension, school groups, lake associations, organized sportsman's groups, and other citizens; 2) **educate** lakeshore residents and lake users about aquatic invasive species; 3) **prevent** the spread of AIS, as proper assessment and education would help prevent the continued spread of AIS; 4) **monitor and control** AIS infestations by assisting lake associations and districts with AIS suppression or eradication. This report will demonstrate that the BCCSC succeeded in accomplishing the four goals of this project.

Methods

To carry out the goals of the project, an AIS coordinator was hired, as well as an AIS technician to assist with fieldwork and conduct watercraft inspections under the Clean Boats, Clean Waters program. In addition, the BCCSC Director oversaw operations.

Goals 1 & 4: assessment, monitoring, and control

Lakes with public access are more likely to have transient boaters, which are considered the major preventable transmission vector of AIS (UWEX, 2009). The 126 lakes that were surveyed were chosen from the 1,108 lakes in the five-county region based upon the status of their public access points (Table 1). Only those lakes (122 lakes) that were listed as having a BR (Boat Ramp; a defined public boat launching facility which may or may not have parking), BF (Barrier-free Boat Ramp; sites have a boarding dock or means of wheelchair access to boats), or a P (Barrier-free pier; piers were designed to accommodate wheelchairs) according to the publication "*Wisconsin Lakes*" were considered to have public access and therefore included in the study (WDNR, 2005). Four lakes were added to the total after word of mouth confirmed that public boat launches were present. A complete list of the lakes surveyed or attempted to be surveyed are laid out by county in Table 5 (in *Appendix A*). This list of 126 lakes contains fewer lakes than the original proposal of 130 lakes, due to duplication of lakes in the original list that fall within two separate counties (i.e. Holcombe Flowage, Chain Lake and Elk Creek Lake), along with five lakes that were not listed as having public access, and were therefore removed from the survey list.

Table 1. Total number of lakes in five counties in West Central Wisconsin and number of those lakes that have boat launches and lake associations or districts (WDNR, 2005, and UWEX, 2009).

County	Number of Lakes	Lakes with Public Boat Launches	Lakes with Associations or Districts
Eau Claire	20	8 (40%)	4 (20%)
Chippewa	449	40 (9%)	13 (3%)
Dunn	20	4 (20%)	2 (10%)
Barron	369	50 (14%)	18 (5%)
Rusk	250	24 (10%)	8 (3%)
Total	1,108	126	45

Methods used for sampling the six AIS were those that are used by the WDNR (Herman, 2007) for monitoring of these species, unless otherwise noted. This allowed for consistency when entering the survey results into online databases and report forms that were sent to the WDNR. In the initial project proposal, the focus was to be on lakes that had not been monitored since 2005, leaving an estimated 100 lakes to be assessed for EWM and zebra mussels, with additional monitoring to be done for curly-leaf pondweed, purple loosestrife, rusty crayfish and spiny waterfleas on high-risk lakes (i.e. lakes with high recreational use and numerous boat launches). These lakes were to be surveyed once during the duration of the project. Upon further consideration, the BCCSC original lead researcher decided to survey all of the lakes for all of the six species to the best of the survey crew's ability, with the time allotted, to obtain more

comprehensive presence/absence results. Each lake was visited three times during one season and one season over the duration of the project. For example, some lakes were sampled three times during 2007, and other lakes were sampled three times during 2008, etc. Sampling occurred during June, July, and August of each year. In June, the researcher and technician conducted a plant survey for EWM and curly-leaf pondweed and tow samples for spiny waterfleas and zebra mussel veligers. In July, the researcher and technician conducted tow samples for spiny waterfleas and zebra mussel veligers and set traps for rusty crayfish if the lake was sampled at the end of the month. In August, the researcher and technician conducted tows for spiny waterfleas, zebra mussel veligers, set traps for rusty crayfish for those lakes sampled at the beginning of the month, and looked for purple loosestrife along the lake edge (Table 2).

Table 2. Frequency at which species were surveyed on each lake over the course of a summer. Each column represents one sampling event.

Surveyed Species	June Sampling	July sampling	August Sampling
curly-leaf pondweed	curly-leaf pondweed		
Eurasian water milfoil	Eurasian water milfoil		
purple loosestrife			purple loosestrife
rusty crayfish		rusty crayfish	
spiny waterflea	spiny waterflea	spiny waterflea	spiny waterflea
zebra mussels	zebra mussels	zebra mussels	zebra mussels

Order in which lakes were surveyed

The lakes sampled during the first year were chosen based on their geographic proximity to known infested lakes (i.e. Wissota, Holcombe and others). The lakes sampled in the second year of the project were those lakes that were not in Barron County and not already surveyed. The third year of the project the lakes sampled consisted of mainly Barron and half of the Rusk County lakes. Barron County was sampled during the last field season because an intern of the Barron County Soil & Water Conservation Department had surveyed 32 of the lakes in the county in 2006. The intern surveyed for curly-leaf pondweed (present in eight lakes), purple loosestrife (present in nine lakes), Eurasian water milfoil (present in seven lakes), and rusty crayfish (present in three lakes). The intern used snorkeling for a visual inspection at the boat landings and a hand rake for sampling along the rest of the lake shoreline (SWCD, 2006).

Secchi disk readings

Secchi disk readings were taken at zebra mussel veliger and spiny waterflea tow sites (described in the corresponding report sections). Once at each of the sites, the boat anchors were lowered into the water to prevent movement and Global Positioning System (GPS) coordinates were recorded. The Secchi disk, an eight inch circular disk with alternating black and white quarters, attached to a marked rope (in foot increments) was lowered into the water on the shady side of the boat. The depth at which the black and white pattern was no longer visible was marked on the rope and then the disk was further lowered and then brought back up until the pattern was again visible and again the rope was marked. The distance half way between the two marked

points was considered the Secchi disk reading. Measurements were rounded to the nearest quarter foot.

Zebra mussel veligers

Three samples for zebra mussel veligers (larvae in the planktonic stage) were taken on three separate dates over the course of one summer for each lake. Samples were taken on an evenly spaced monthly basis after the water reached 54° F, as this is the temperature at which female zebra mussels are able to reproduce. Sample sites were determined by the size and bathymetry of the lake. The preferred method is to sample three sites per lake but that was not always possible or reasonable. Zebra mussel veliger samples and spiny waterflea samples were collected at the same points on each lake. Both samples require that the water depth is at least 15 to 20 ft, and additionally, spiny waterflea samples require a 100 m horizontal tow. If a lake only had one or two sections that allowed for the 100 m tows in areas with 15 to 20 feet of water without overlapping, then only those sites were sampled for zebra mussel veligers.

After sites had been selected, a standard net with a 0.5 m mouth, a 5:1 length to diameter ratio and with 64-micron mesh, a 0.5 m towing ring with a single point bridle, and a 3.5" PVC 2-piece collecting bucket, was used to collect veliger samples. At each sample point, a Secchi disk reading was taken to determine what the vertical length of the tow would be. An oligotrophic lake with a Secchi disk reading of 10-20 ft would warrant two, 2 m tows. A mesotrophic lake with a Secchi disk reading of 7-10 ft would equal one, 2 m tow and a eutrophic lake with a Secchi disk reading of less than 7 ft would result in one, 1 m tow. These values were determined by combining Tables 3 and 4 and the recommendations of the WDNR (2006), as specific Secchi disk readings were not listed in the protocol used. Vertical samples were taken over the appropriate distance, taking care to not create waves on the surface of the water, which would lower the sample volume. The net was rinsed from the outside by using a hand pump to force debris down to the plankton collection cup. As much water was filtered out as possible to reduce the sample's volume by swirling the sample. The sample was then transferred to a sample jar and preserved with a 4:1 ratio of 91% isopropyl alcohol or 100% Ethyl Alcohol, depending on availability, to sample. The process was repeated at all of the sample sites on the lake (up to three sites). The samples were placed in a cooler and then put in a refrigerator until processed.

Table 3. Trophic status classification of Wisconsin lakes based on chlorophyll-a, water clarity measurements, and total phosphorus values (Lillie and Mason, 1983).

Trophic Status	Chlorophyll-a (ug/L)	Total Phosphorus (ug/L)	Secchi Disk (ft)
Oligotrophic	3	2	12
	10	5	8
Mesotrophic	18	8	8
	27	10	6
Eutrophic	30	11	5
	50	15	4

Table 4. Trophic status classification of Wisconsin lakes based on chlorophyll-a, water clarity measurements, and total phosphorus values (Carlson, R.E. and J. Simpson, 1996).

Trophic Status	Trophic Status Index	Chlorophyll-a (ug/L)	Secchi Disk (ft)	Total Phosphorus (ug/L)
Oligotrophic	<30	<0.95	>26	<6
	30-40	0.95-2.6	26-13	6-12
Mesotrophic	40-50	2.6-7.3	13-6.75	12-24
Eutrophic	50-60	7.3-20	6.75-3.25	24-48
	60-70	20-56	1.75-3.25	48-96
Hyper Eutrophic	70-80	56-155	0.75-1.75	96-192
	>80	>155	<0.75	192-384

Once in the lab, a microscope equipped with cross-polarized filters was used to determine the presence or absence of veligers in the sample. The cross-polarization produces an illuminated "cross" on the shells of organisms that contain crystalline calcite material, including zebra mussel veligers. A few zooplankton, such at ostracods, produce the same "cross" but are easily separated from veligers by distinguishing features such as protruding legs and antennae and a dark eye spot. Samples were taken from the refrigerator where suspended material in the sample had time to settle to the bottom of the jar. Samples were left striated so that a 10 ml sample could be pipetted from the bottom, settled material of the sample. The 10 ml was placed in a petri dish and analyzed under the microscope for veligers. The process was repeated five times per sample, totaling 50 ml analyzed. If veligers were suspected, the samples were returned to the sample jar for enumeration. Steve Galarnaue of the WDNR adapted the lab identification procedures used by the survey crew from Wetzel and Likens (1979).

For the 2009 field season, zebra mussel veliger samples were not processed in house. Samples were sent to the WDNR Plymouth office where they were analyzed by the state expert Jim Steinke. Samples were sent in plastic shipping bottles with proper labeling for samples with hazardous liquid (alcohol) in them.

Rusty crayfish

Samples for rusty crayfish were taken in late July and early August, when rusty crayfish were most active. Each lake was sampled once over the duration of the project. Two transects were placed to the right and to the left of the boat launch used by the sampling crew. Minnow traps (16" long x 8.5" wide) with a 2" opening were used to collect the crayfish. Each trap had floats with labels. A ¼ lb of beef liver was used as bait in each of the traps instead of natural fish bait (due to the presence of Viral Hemorrhagic Septicemia (VHS) in Wisconsin). Five traps total were used, with two placed to one side and three to the other side of the boat launch. Traps were placed approximately 10 m apart from each other at water depths of 0.5-1.5 m. Traps were set in a variety of habitat types if available. The substrate composition and depth below the water's surface were noted. Crayfish traps were deployed in the morning and were left in the water for no more than 24 hours. Traps were collected the following day and the crayfish, if any, were counted and then preserved. No more than 30 crayfish were collected from each lake to prevent over trapping. Even if the crayfish trapped appeared to be a species other than rusty crayfish, they were collected anyway to assist The Center for Limnology, located in Madison, Wisconsin,

with tracking the species present in Wisconsin. For preservation, crayfish were packed in a Whirl-Pak with a ratio of three parts 91% isopropyl alcohol or 100% Ethyl alcohol to one part crayfish. Crayfish were stored in the freezer until the end of the season and then sent to The Center for Limnology for identification.

Aquatic plants

Plant surveys were conducted in the end of May and the start of June when the water reached 54º F, as this is the temperature at which native plants start new growth for the season. It was important to finish plant sampling before July when curly-leaf pondweed often began to breakdown and die. The plant survey design was based primarily on the rake-sampling method developed by Jessen and Lound (1962), but with a few modifications on the distance between transects and the number of rake samples within each transect for the sake of available sampling time. Transects were used to identify the presence or absence of invasive plants. The number of transects was determined by the size (in acreage) of the lake. For those lakes that were 20 acres or less, transects were sampled every 500 ft around the perimeter of the lake. For lakes over 20 acres, transects were sampled every 1,500 ft. Maps were made using the online Surface Water Data Viewer provided by the WDNR (2009). This web mapping program allowed transects to be delineated on aerial photos provided through the website. The first transect was drawn at the boat landing and the rest were drawn following the 500 or 1,500 ft placement around the perimeter. Transects were drawn radiating out from the shore towards the center of the lake. Along each transect, two rake samples were taken from each depth zone (0-1.5, 1.5-5, 5-10, and 10-20 ft). A True Temper® Thatch Rake was used with a 15" wide head, 54" wood handle, and 19 self-cleaning tines. In waters deeper than five feet, a rake with the same style of head was used, but the handle was detached and a rope was attached in its place. A weight was added to the rake to ensure that it fell to the lake bottom. All native species found using the rake were listed as present. All invasive species found were measured for approximate plant bed size, and three voucher specimens per lake were collected, along with GPS coordinates of the plant bed. Voucher specimens were placed in a plastic bag with water and later pressed onto mounting paper. A sample was collected of all specimens that were unable to be identified in the field and taken back to the lab to key out, according to Crow and Hellquist (2000), or to be identified by a botanist at UWSP Freckmann Herbarium. Purple loosestrife was monitored during the August sampling. Purple loosestrife was not part of the transect monitoring but instead was monitored by surveying the perimeter of the lake with the boat, looking at the shoreland for blooms of the plant. If identified, coordinates were taken and reporting sheets were filled out.

Spiny waterfleas

Sampling methods followed those prescribed by the WDNR (2007). Three samples for spiny waterfleas were taken on three separate dates over the course of one summer for each lake. Samples were taken on an evenly spaced monthly basis after the water reached 54° F. Sample sites were spread over the lake and were the same sites as those used for zebra mussel sampling. The water depth needed to be at least 15-20 ft to allow for the length of the sample net. The sample net was the same style as the zebra mussel veliger net, with a 0.5 m mouth, but had a 250-micron mesh rather than 64-micron mesh. Because the tows required a longer distance than the zebra mussel tows, a larger mesh size of 250-micron was needed to lower the chances of the net becoming clogged from suspended material in the water, while still being selective enough for spiny waterfleas. An electric trolling motor was used to tow the net below the water's surface

for 100 m at approximately 3 mph. Distance was estimated using a handheld GPS unit. A trolling motor allowed for a lower speed than that provided by the gas-powered motor, which often caused the net to pop up out of the water. After the 100 m tow was complete, a hand pump was used to rinse debris and plankton down into the plankton collection cup. The sample was reduced to about 0.5 L by swirling the collection cup, filtering out excess water. The sample was then poured into a white pan. The AIS coordinator visually inspected the sample to determine the presence or absence of spiny waterfleas, as they are large enough to be seen by the naked eye (up to 1 cm) (UWEX, 2007).

Additional monitoring

Although there was no initial intention to monitor for additional aquatic invasive species, samples of species other than the six identified for this survey were collected if found. The WDNR has started to record the presence of invasive snails in the state. Therefore, if any snails were seen that resembled the species that they were looking for (Chinese mystery snails (*Bellamya japonica*), and banded mystery snails (*Viviparus georgianus*)), then a sample snail was taken of each type. If the snail was still alive it was preserved with a ratio of one part snail to three parts alcohol in a labeled bag, and put in the freezer until it was sent to the Center for Limnology for analysis. Empty snail shells were kept in labeled, plastic bags until they were sent in as well. Upon positive identification of Chinese or banded mystery snails, the information was added to the SWIMS database. SWIMS is a new water division data system designed to ensure that staff and management have access to high quality surface water, sediment and aquatic invasives data in an accessible format. Individuals can run quieries to access the statewide data or look at whatever they have entered themselves.

Decontamination

To do their part to stop the spread of aquatic invasive species, the survey crew sanitized everything that came into contact with lake water after sampling each lake, including nets and equipment, boat, trailer, ropes, and anchors. A backpack sprayer was filled with water and chlorine bleach added to obtain a 5% chlorine solution. According to the WDNR (2009), the 5% solution is strong enough to kill zooplankton such as spiny waterfleas and zebra mussel veligers. It also kills VHS. The solution was allowed a contact time of ten minutes. Sampling nets were then rinsed with fresh water from another backpack sprayer to slow the breakdown of the fragile, mesh netting from the acidic chlorine solution. Three nets were purchased over the course of the project as a result of the chlorine deteriorated mesh netting. In addition to sanitization, a visual inspection was conducted on the boat and trailer to look for attached plants and other aquatic hitch-hikers. Trailer rungs and motor props were common places for aquatic plants to become entangled. Also, all water was drained from the live well and the boat plug was removed.

Goals 2 & 3: prevention and education

Trainings and workshops were used as the main tools of prevention and education about AIS. The intention was that when citizens were taught about an invasive species, how they could prevent the spread of invasive species, and how to conduct watercraft inspections, they would be less likely to spread AIS and more likely to tell a friend about what they had learned. Trainings and workshops were advertised through the Beaver Creek Reserve Woodprints Newsletter, by calling lake groups to personally invite them to the events, and through online sites like the UW-Extension Clean Boats, Clean Waters website (http://www.uwsp.edu/cnr/uwexlakes/cbcw/).

AIS trainings
Participants at AIS trainings learned the basic skills of how to identify the common aquatic invasive species in their area, including zebra mussels, spiny waterflea, rusty crayfish, curly-leaf pondweed, Eurasian water milfoil, and purple loosestrife. Participants learned the definition of invasive species, how they are harmful, and how they can prevent their spread to other sites. They were also shown native species that were similar and how they could be distinguished from invasive species. Invasive species Watch Cards were handed out to all participants as well as other resource materials and details about where they could get more information. Trainings lasted an average of three hours.

Clean Boats, Clean Waters training workshops
Clean Boats, Clean Waters (CBCW) training workshops were geared specifically towards training individuals to participate in the Clean Boats, Clean Waters program. The citizen-based CBCW program trains individuals to stand at boat landings and inform boaters about AIS, the current laws in WI, and to conduct interactive watercraft inspections. Participants received an overview of AIS, the common AIS they might see at the landings, and instructions on how to conduct watercraft inspections. Participants also practiced mock-boater encounters. If weather and location permitted, individuals practiced at a real boat landing. They then learned how to enter the data they collected online into the SWIMS database. Each lake group present at the trainings received a Clean Boats, Clean Waters kit with all of the necessary informational material and forms to conduct watercraft inspections. Trainings lasted an average of three hours.

Aquatic plant identification workshops
Aquatic plant identification workshops were geared towards developing the aquatic plant identification skills of volunteers. Many of the common aquatic plants seen in the area were placed in trays with water so that individuals could see live plants versus pressed specimens (which are harder to learn from) and compare them to what is commonly seen in the field. Participants were shown how to group plants to genera to more easily identify them. The training also focused on how to identify which species are invasive and which are considered native by comparing those that most closely resembled each other. Trainings lasted an average of three hours.

AIS lake monitoring workshops
AIS lake monitoring is part of the Citizen Lake Monitoring Network (CLMN). The CLMN is a citizen based program that aims to have volunteers collect data on organisms in the lake and water quality parameters of the lake. At workshops, participants were shown how to monitor for five invasive species on their own lakes. These species included adult zebra mussels, rusty crayfish, purple loosestrife, Eurasian water milfoil, and curly-leaf pondweed. The sampling procedures for each species were explained and demonstrated as best as possible when indoors. Participants learned how to fill out all of the appropriate paper work for each type of monitoring and then how to enter it in the SWIMS online database. Possible forms include: Aquatic Invasives Presence/Absence Report, Aquatic Invasive Animal Incident Report, Plant Bed Density Report, Purple Loosestrife Cultivation Authorization and Biocontrol Insect Applications, Purple Loosestrife Watch, Aquatic Invasive Plant Incident Report, Crayfish Report, Zebra Mussel (Quantitative) Report, or the Water Flea Tow Monitoring Report. Trainings lasted an average of three hours.

Results

The AIS Coordinator worked 800 hours per summer on the project collecting data, entering data, coordinating volunteers, and writing reports. The AIS technician worked 560 hours over a 14 week summer for each of the three years. Twenty hours of the technician's week were devoted to assisting the AIS coordinator with surveying lakes and the other 20 hours per week involved conducting watercraft inspections.

Goals 1 & 4: assessment, monitoring, and control

AIS infestations

Table 6 (2007), Table 7 (2008), and Table 8 (2009) summarize the survey data for six invasive species along with the two species of mystery snail collected over the last three years. No new locations for rusty crayfish, zebra mussels, spiny water flea, or Eurasian water milfoil were documented in the lakes surveyed in 2007 according to comparisons of the survey results and the invasive species distributions lists that the WDNR provides on its website (a compilation of data uploaded onto the SWIMS database). Curly-leaf pondweed was found in 12 lakes where it was not previously documented. The new populations of curly-leaf were well integrated in the native plant population and appear to have been established for a while. In 2008, several new AIS findings were documented. The survey crew found twelve occurrences of AIS, eight of which were new sightings. The greatest numbers of new occurrences were recorded in 2009, with a staggering 92 occurrences of AIS. Fifty five of them were new.

As of September 30, 2009, 114 lakes were sampled for one to eight species. Of the sampled lakes, zero contained zebra mussels, zero contained spiny waterfleas, 17 contained rusty crayfish, 13 contained purple loosestrife, 53 contained curly-leaf pondweed, 15 contained Eurasian water milfoil, 35 contained Chinese mystery snails, and four contained banded mystery snails. Of these, 83 were considered new occurrences. The results displayed in Tables 6, 7, and 8 are also shown in Figures 1, 2, 3, 4, and 5.

The lake maps included in this report vary from 2007-2009 in what information they contain due to availability (or lack thereof) of hard copy data at the time of compilation. GPS points of transects were not recorded for 2007 or 2008 but they were in 2009. Data points/transects visible on 2009 maps correspond to the GPS points taken while conducting the plant surveys. In 2008, maps made using the Surface Water Data Viewer were used as guidelines for plant survey transects but do not necessarily reflect exact transect placement. Therefore, those seen on 2008 maps are approximate transect locations. The 2007 crew did not create Surface Water Data Viewer maps or record GPS points, therefore any transects shown on 2007 maps are those that were hand drawn on maps by the first survey crew and are approximate. Several lakes from 2007 have invasive plants present but locations of these plants were not recorded, and as a result were not placed on the maps. Tables 6, 7, and 8 should be used to verify the presence or absence of AIS in all of the lakes.

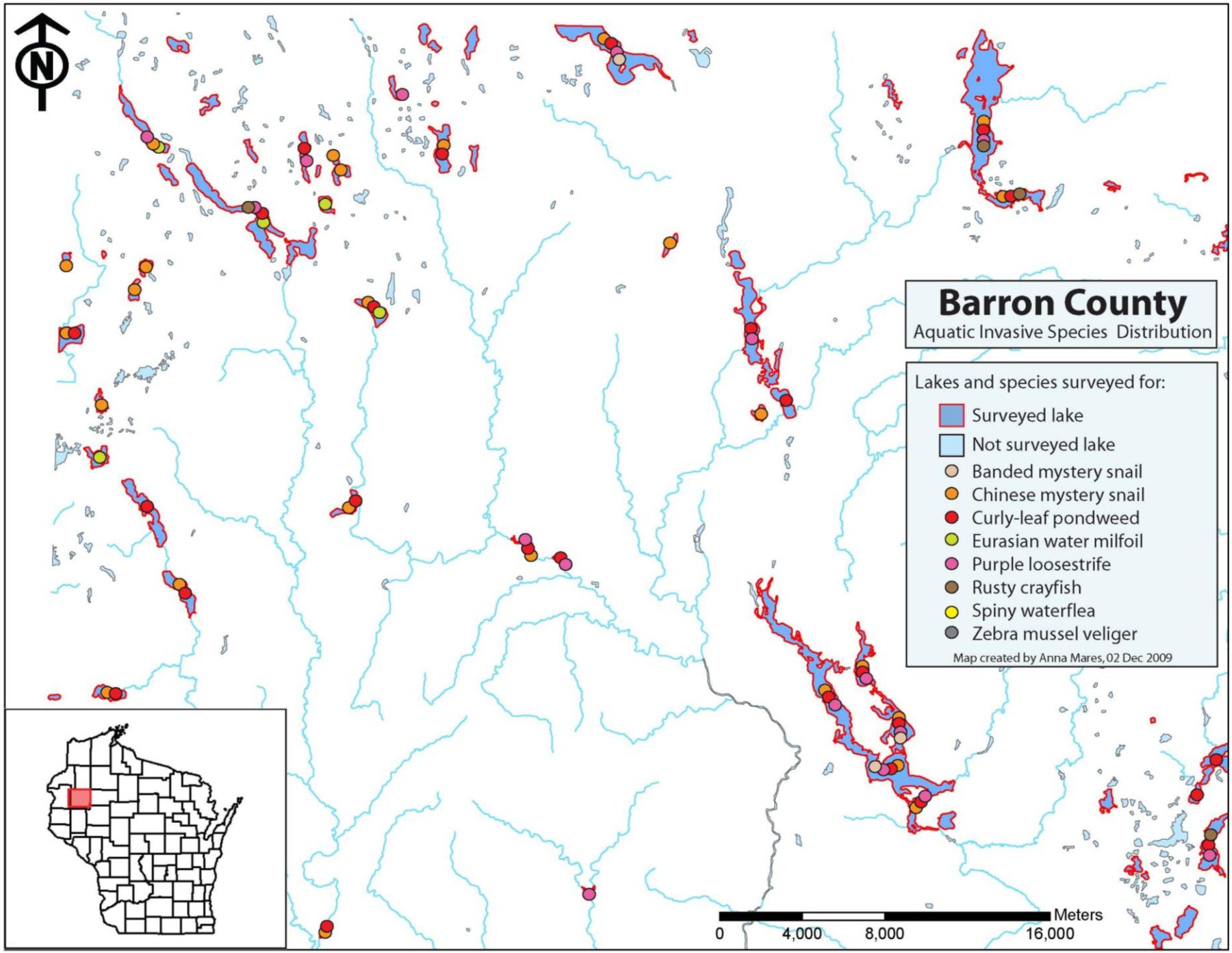

Figure 1. Distribution of eight aquatic invasive species across Barron County in lakes that were part of the five-county survey.

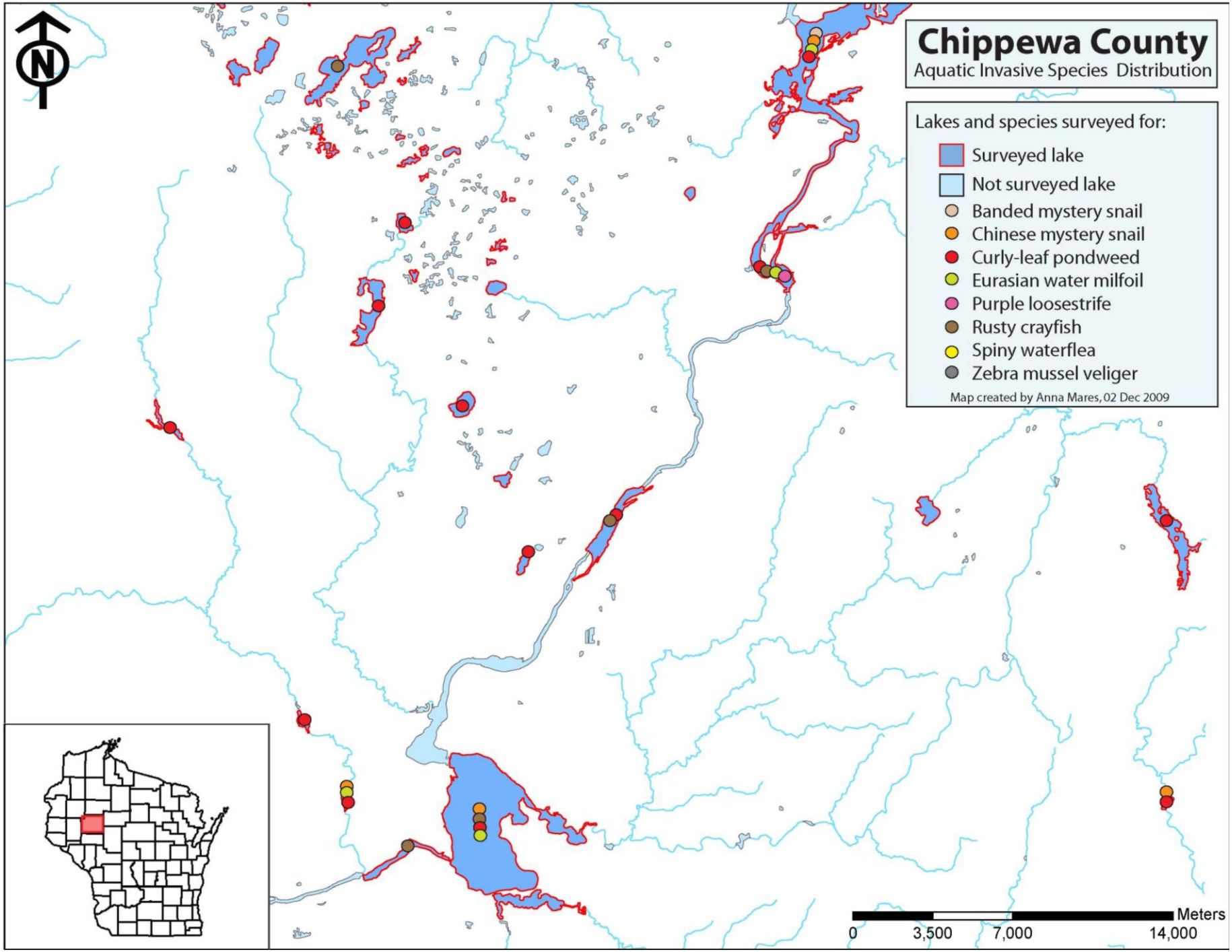

Figure 2. Distribution of eight aquatic invasive species across Chippewa County in lakes that were part of the five-county survey.

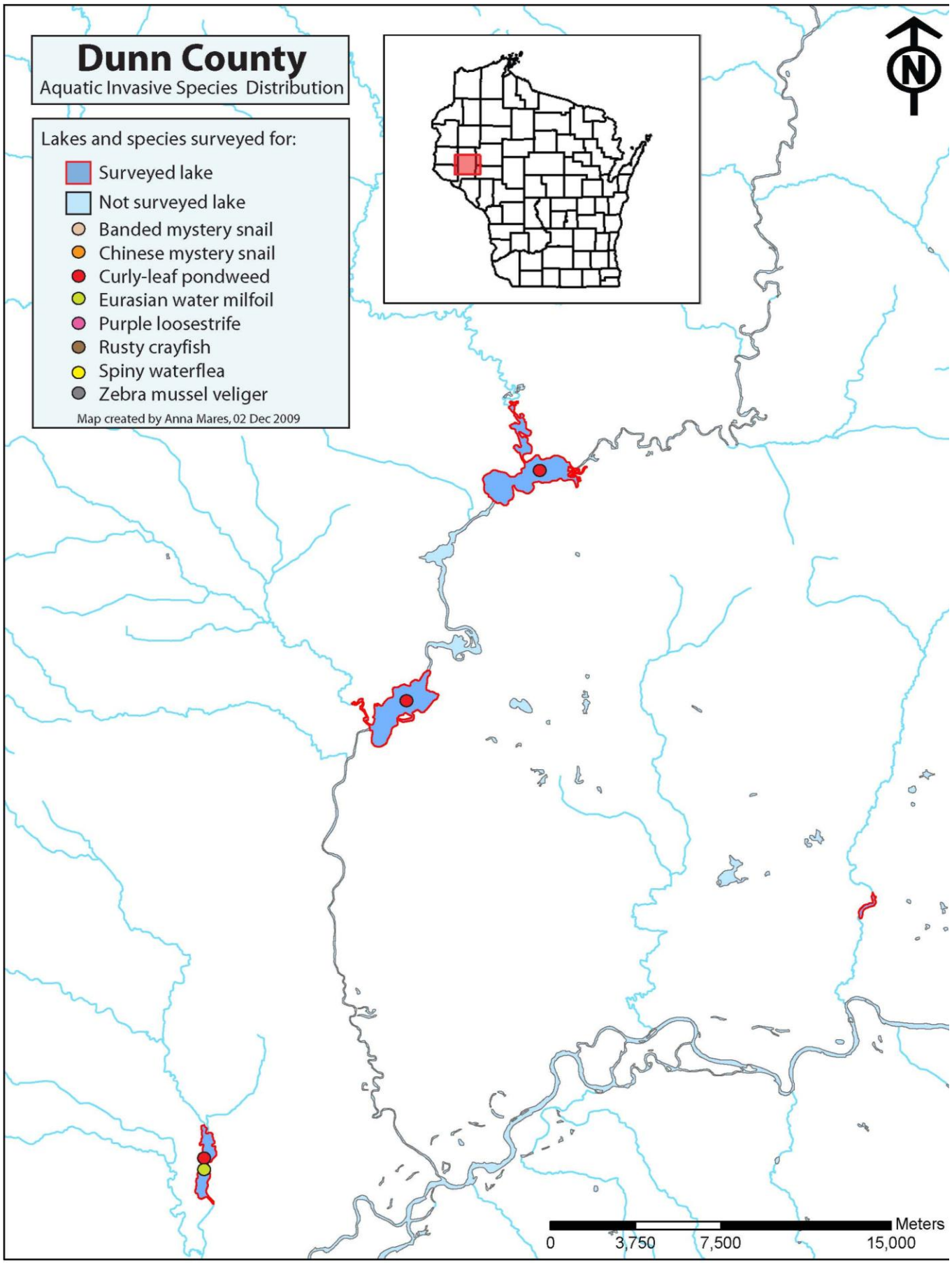

Figure 3. Distribution of eight aquatic invasive species across Dunn County in lakes that were part of the five-county survey.

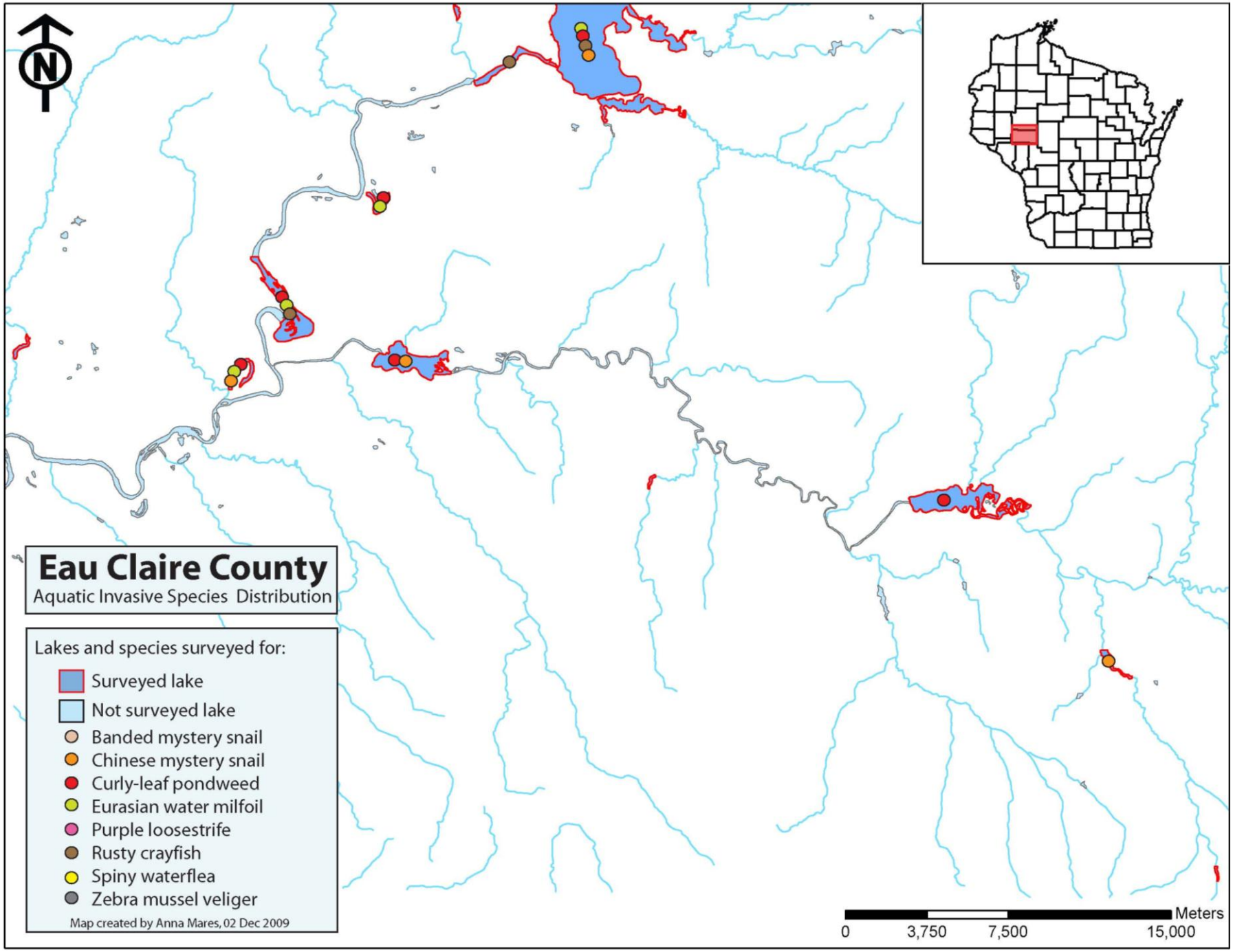

Figure 4. Distribution of eight aquatic invasive species across Eau Claire County in lakes that were part of the five-county survey.

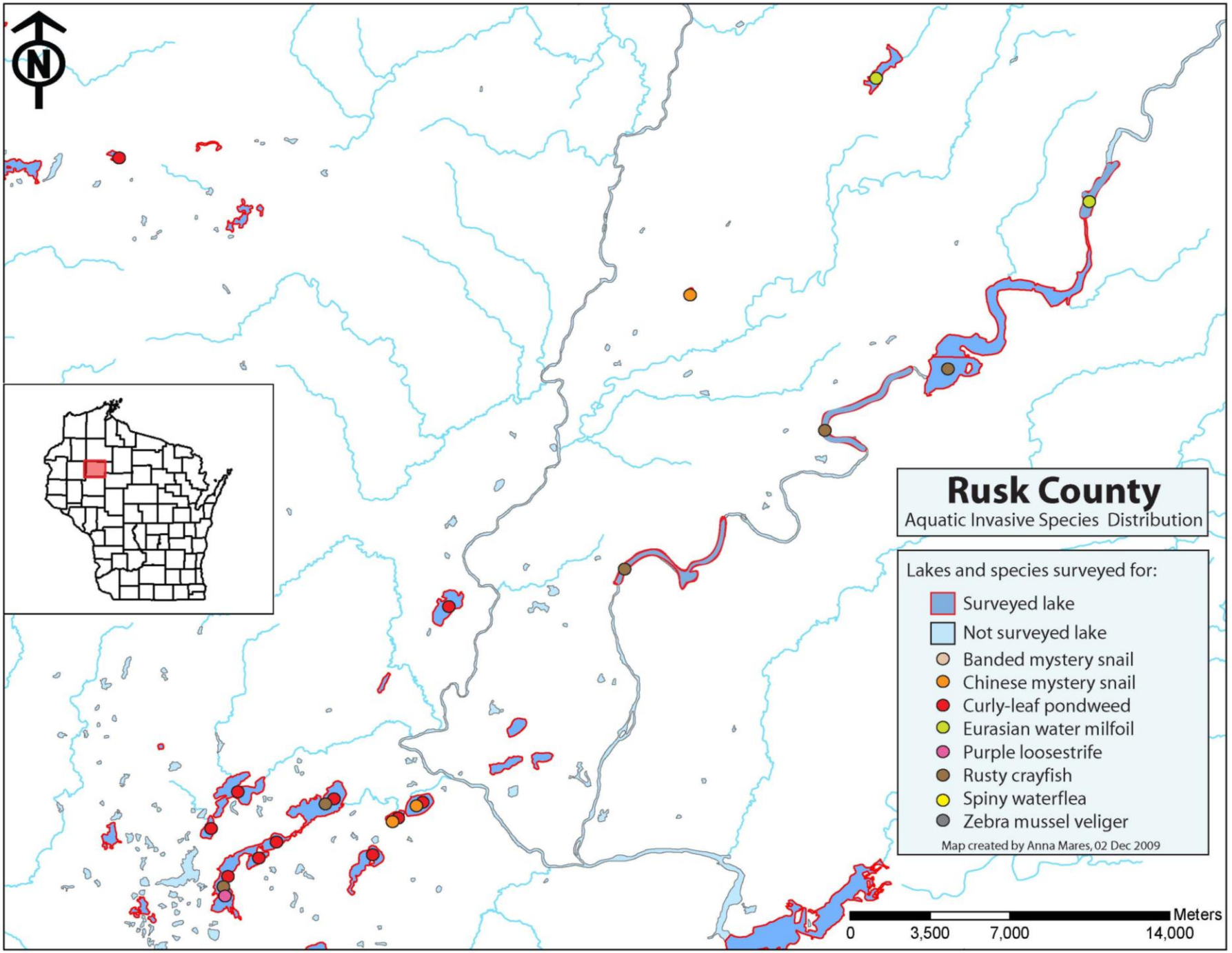

Figure 5. Distribution of eight aquatic invasive species across Rusk County in lakes that were part of the five-county survey.

At the start of the project, the survey crew took pictures of the AIS infestations from the boat. They also took pictures of the boat landings. It became evident that the photos were of no use as they did not clearly show the extent of the infestations and the photos did not hold any identity as to which lake they belonged. All of these photos were scraped and not included in the report.

Personnel changes

In the first year of the project BCCSC staff encountered several setbacks, including the CSC Director at the time leaving the project to attend graduate school and numerous boat, trailer, and vehicle problems, which slowed the progress of the project. The AIS team was able to survey 26 lakes three separate times over the course of the first summer. Sarah Braun was hired as the new CSC Director in August of 2007. In the summer of 2008, the AIS team was able to completely survey 28 lakes. Attempts were made to survey four other lakes, but the quality or lack of boat landings prohibited them from being surveyed. This left 68 lakes to be surveyed in the summer of 2009. There was also a change in personnel in August of 2008. Deborah Jo Heuschele left the AIS Coordinator position to pursue a PhD on August 12, 2008 and Anna Mares replaced her as the lead researcher. The AIS technician changed each of the three years of the project (Shelby Happe in 2007, Kevin Mesiar in 2008, and Zoe Hastings in 2009).

2009 sampling strategies

Several strategies were employed to make sampling more efficient and less time consuming in the third year of the project so that all 68 remaining lakes could be sampled. The survey crew camped out during the summer near the lakes that were to be surveyed each week. This saved over 72 hours on travel time (about 4344 miles) and increased the amount of available sampling time, as 40 hours per week was the maximum work week. Still, approximately 212 hours were spent driving (about 4134 miles) to and from lakes or sanitizing equipment while approximately 321.5 hours were spent surveying for AIS. Crayfish traps were placed only near the boat landings to allow for easy pick up the day following deployment. That way the boat was not needed to retrieve the traps. Another time saver was the off site processing of the zebra mussel veliger tow samples. By not processing the samples at Beaver Creek Reserve, the survey team was able to save 80 hours of lab time (157 samples x 0.5 hr per sample = 80 hours).

Exceptions as to why some portions or whole lakes were not surveyed

A number of lakes in the region have very active lake associations or districts that received grants through the DNR to fund AIS management and full aquatic plant surveys. The survey team wanted to be as efficient with their time as possible and did not want to duplicate work that had been done recently by lake associations and other groups on lakes in the study area. As a result, not all of the 126 lakes were surveyed for all six species.

BCCSC staff did not conduct plant surveys on the following lakes: Beaver Dam Lake, Echo Lake, Half Moon Lake, Lake Holcombe, Lake Wissota, Long Lake, and Rice Lake. Beaver Dam Lake is a 1,112-acre lake that was not surveyed for aquatic plants by BCCSC in the summer of 2009 because the lake is currently managing Eurasian water milfoil (EWM). Each year a private contractor is hired to conduct a 1,100-point survey on the lake's entire littoral zone before the chemical treatment commences on the approximate 200 acres of EWM. From these surveys they have also become aware of approximately 10 acres of scattered curly-leaf pondweed. This management is scheduled to continue into the future. The WDNR conducted a full point

intercept plant survey on Echo Lake in the summer of 2007. From 2008-2012 the Echo Lake Association will be conducting spring pre- and post-treatment surveys for Eurasian water milfoil management. The association also conducts a fall survey to identify where management will take place in the following spring. Half Moon Lake did not have an aquatic plant survey completed by the BCCSC due to the discovery of Eurasian water milfoil in 2008. The lake now contains both curly-leaf pondweed and Eurasian water milfoil. As a result of these discoveries, the lake was being heavily monitored before and after the early spring chemical treatment in 2009. Rice Lake had a full point intercept survey by a private contractor in the summer of 2008 as part of Rice Lake Protection and Rehabilitation District's Lake Management Plan. Rice Lake is currently managing for large populations of curly-leaf pondweed. Sand Lake Association had a full point intercept survey conducted in the summer of 2005 and is scheduled to have another in 2010. In the mean time, 408 locations are surveyed yearly for the presence of aquatic invasive plants. Although plant surveys were not conducted on the above lakes, rusty crayfish, purple loosestrife, zebra mussel veligers and spiny water-flea were sampled by the BCCSC.

The following lakes, Blueberry Lake, Bog Lake, Dallas Flowage, Fairchild Pond, Fish Lake, Half Moon Lake, Hay Meadow Flowage #2, Knickerbocker Lake, Little Dummy Lake, Lowland Lake, Pickerel Lake, and Upper Devil's Lake were not surveyed for any of the six invasive species during the project. Blueberry Lake did not have an access road leading to the lake. Bog Lake did not have an accessible boat launch either. Dallas Flowage's unmaintained boat launch was over grown with 15 ft of vegetation out from the shore. Fairchild Pond does not have a maintained boat landing. The dock is present in front of the Rod and Gun Club but the boat would need to be launched over a grassy berm into thickly vegetated muck. Fish Lake's water level was at least five feet lower than normal and it also did not have a boat landing that was visible. Half Moon Lake was not surveyed for spiny waterflea or zebra mussel veligers because of its shallow depth and because it is already being intensely monitored for EWM and curly-leaf pondweed, as it has both. Hay Meadow Flowage #2 did not have a visible boat ramp from the trail. Knickerbocker Lake had a poorly constructed landing that was unsafe to launch a boat into. Little Dummy Lake had a public boat landing but the water level was so low that it was impossible to launch a boat. Lowland Lake did not have a boat landing. Stones had been placed as a barrier where there once had been a landing, and now only a canoe or kayak could be launched from the spot. There was also no turn around space at the end of the very winding and narrow access road. Pickerel Lake's access road was blockaded by a large wooden debris pile, purposefully placed. Lastly, Upper Devil´s water level was too low, leaving the boat launch over 100 m from the waters edge.

Loon Lake, Chapman Lake, Barron Flowage #3, Barron Flowage #1, Lea Lake Flowage, Tenmile Lake, Spring Lake, Prairie Farm Flowage, and Moon Lake were not surveyed for spiny waterfleas or zebra mussel veligers because the water was not deep enough in the lake/flowage and or the aquatic plants were hindering the collection of a good sample. Loon Lake´s boat launch was not deep enough for our boat to be launched. Spring Lake had a boat launch that was in disrepair, so the boat could not be launched onto the lake.

Additional monitoring

In addition to surveying for AIS using the transect method, BCCSC also conducted pre- and post- treatment surveys on Lake Wissota and Lake Holcombe from 2007 to 2009 for the

management of Eurasian water milfoil as part of public outreach. Maps were made from the survey data using Geographic Information Systems to assist the lake associations in best assessing which areas should be considered for chemical treatment and plant management. Maps of curly-leaf pondweed beds were made for Marsh Miller Lake and Amacoy Lake. See *Appendix E* for maps.

Goals 2 & 3: education and prevention

A large portion of this grant project dealt with education of the public through talks, trainings and volunteers assisting with monitoring and office work. Beaver Creek Reserve was able to provide a total of 27 educational programs to lake associations and lake districts to encourage citizen monitoring of invasive species. Presentations included basic background information about the six aquatic invasive species in the area, and hands on education with the invasive species. Beaver Creek Reserve's Aquatic Invasive Species Coordinator was asked to speak at, and accepted, seven engagements, including a presentation at the August 2007 Northwest Lakes Conference on Invasive Species in Cable, WI. A project board was exhibited at seven events across Wisconsin. A poster was also presented at the Wisconsin Association of Lakes annual conference in April of 2009 on the most current findings of the survey. Through the generous support of the WDNR, Xcel Energy, and Wisconsin Environmental Education Board grants, the Citizen Science Center staff was able to conduct 14 formal workshops to train volunteers to monitor for aquatic invasive species and to conduct Clean Boats, Clean Waters watercraft inspections at area boat landings. It was difficult to properly devote enough time to lake groups to host as many workshops as previously hoped due to the amount of time required for thorough sampling of the lakes. Individual trainings were also given to volunteers who assisted staff with AIS monitoring and watercraft inspections. One after-school biology club from Hudson was trained to conduct Eurasian water milfoil surveys. Another group of youth from Eau Claire surveyed the Lake Wissota Beach for AIS, identifying and pressing whatever aquatic plants they found. A summer girl's camp (ages 9-12) conducted aquatic plant surveys from a pontoon on Lake Wissota in July of 2009.

A total of 187 volunteers were trained and contributed 1,820 hours of monitoring and inspections to date. These volunteers and staff also talked to a documented 2,136 people (data available from WDNR SWIMS database) while conducting watercraft inspections. In addition, educational exhibits were displayed at five local and state wide events, the Chippewa Valley Outdoor Games, which reached several hundred people and the first ever Lake Fair at Lake Wissota State Park, which reached an estimated 1,000 adults and kids from around WI and other states. The booth was also displayed at the 2008 NW Wisconsin Lakes Conference (200 people), the 2009 WAL Conference (400 people), and the Community Action Fair at UWEC in fall 2008, spring 2009 and fall 2009 (300 people). The number of people reached about aquatic invasive species thus far, 5,730 (through speaking engagements, events, and CBCW), and the number of volunteers we now work with, 187, is a measure of the success of this program. Many of our volunteers recruit new volunteers for Beaver Creek Reserve, expanding the program and the message exponentially. Two service learning volunteers from the University of Wisconsin-Eau Claire provided 30 hours each of volunteer service and three additional service learning volunteers committed 40 hours each.

Dissemination of survey results

It was important that the information collected during this project was shared with as many interested individuals and groups as possible. Individual lake reports and maps were sent to the respective lake organizations upon completion of the project. All of the invasive species presence data collected was entered into the online database called SWIMS (Surface Water Integrated Monitoring System), where individuals can view the data and set queries for specific interests. In SWIMS, the dates of the surveys were recorded, along with surveyor's names, hours spent on the lake, presence of invasive species, sampling strategies employed, infestation location, and approximate distribution within the lake, whether or not samples were vouchered and where the specimen samples are located for permanent storage. All of the aquatic plant voucher specimens collected for this project are located at the Stevens Point Herbarium and the University of Wisconsin Madison Museum (if they were an animal specimen). Over the 2009 summer, a monthly newsletter was created to update lake users and groups about the progress of the AIS Five-County Survey Project (see *Appendix F*). Tables 6, 7, and 8 were sent to the email list-serv of AIS coordinators across the state so that they were up to date on the findings in this region. A spreadsheet of all of the lakes, along with a list of the native plants found in each of them, was sent to the Natural Heritage Foundation and the WDNR for a permanent record, as some of the plants documented were considered to be species of special concern. A spreadsheet of all Secchi disk readings (Tables 9, 10, and 11 in *Appendix C*) for each of the lakes was entered into the SWIMS database. The full final report for this project will be added to the Beaver Creek Reserve website, as well as given to the WDNR, Xcel Energy, Barron County Soil and Water Conservation Department and the Rusk County AIS Coordinator. An article about this AIS project was written by the survey crew and published on The Citizen Scientist website (http://www.sas.org/tcs/weeklyIssues_2009/2009-09-04/feature2/index.html), operated by the Society for Amateur Scientists. Three press releases were issued to update citizens about the new findings of AIS in the region. Another way that survey information reached people was through personal contact. Many lake users and homeowners were curious as to what the survey crew was doing on their lake when they would see them in the boat or at the boat launches. This resulted in encounters with 50+ individuals that asked questions about the project and invasive species in general, giving the survey crew the opportunity to discuss the project goals of assessment and stopping the spread of AIS. A large majority of the volunteers that came out onto the lakes with the survey crew were members of lake associations or districts. They would go back to their lake organizations and tell them about the work that they had done out on the boat with staff and some of the new facts that they had learned.

Project deliverables

BCCSC was able to create as complete of a list as possible (Tables 6, 7, and 8 in *Appendix B*) of the presence/absence of AIS in the five-county region. These tables also double as a list of lakes with true (easily accessible) public boat launches. *Appendix G* contains individual lake reports, including: descriptions of the boat launch(es), maps of each of the lakes surveyed, aquatic plant transect locations (where available), and locations of spiny waterflea tows/zebra mussel veliger tows/Secchi disk readings. The maps and reports were sent to corresponding lake groups at the end of the project. *Appendix E* contains maps of pre/post surveys of Holcombe Flowage and Lake Wissota used for assistance with managing EWM, and maps of Amacoy Lake and Marsh Miller curly-leaf pondweed beds. Tables 9, 10, and 11 (in *Appendix C*) contain Secchi disk

readings taken while surveying the lakes for zebra mussel veligers. The BCCSC was also able to create a network of professionals and citizens by working with University of Wisconsin-Extension, University of Wisconsin-Eau Claire, WDNR, Xcel Energy, Beaver Creek Reserve, Lake Holcombe Marina, Wisconsin Environmental Education Board, Barron County Parks and Forestry Department, Barron County Soil & Water Conservation Department, UW-Extension Basin Educators, 38 lake associations or individuals that live on the lake, non-lake dwelling citizens, school groups, and day camps. There were 29 lake groups that were involved with the Clean Boats, Clean Waters volunteer watercraft inspection program before the start of the project and now there are 30 lake groups involved. Sixty two groups are participating in CLMN and will hopefully continue to do so after the end of this project.

Discussion

Invasive species distributions

Although the number of newly discovered (83) and total number of AIS (137) discovered during the course of this project is disconcerting, it cannot be used as an indicator of the speed of the spread of AIS. Many of these populations of AIS may have been in the lakes for years, if not decades. Citizens and groups like BCCSC have just begun to formally document and voucher AIS specimens. Monitoring for invasive species must continue in order to ascertain whether or not populations are changing within these lakes and spreading to other lakes. This survey provides a baseline of AIS in the five-county region.

When looking at the distributions of the invasive species across the five-county region (Figures 1-5), it is evident that rivers are providing a conduit for AIS to move across the region effectively. If a lake in the upper reaches of a river system has an AIS, the lakes further down the system also have that AIS. For example in Barron County Lower Lake Vermillion has curly-leaf pondweed present. This lake is upstream of Poskin Lake, Barron Flowage #1, Barron Flowage #3, Tainter Lake, and Lake Menomin (in that order) and all have curly-leaf pondweed present. Similarly, Lake Holcombe in Chippewa County has curly-leaf pondweed, Eurasian water milfoil, Chinese mystery snails, and banded mystery snails. Curly-leaf pondweed is present in the lower reaches of the Cornell Flowage, Old Abe Flowage, Lake Wissota, and Dells Pond. Eurasian water milfoil is present in Cornell Flowage, Lake Wissota, and Dells Pond. It can be considered inevitable that the impoundments further downstream from the aforementioned lakes will soon harbor curly-leaf pondweed and Eurasian water milfoil, if they don't already.

Impoundments

Forty five of the lakes in this survey that are part of river systems are considered impoundments (man-made lakes). Johnson and Vander Zanden (2008) conducted a study to answer questions such as: are impoundments more frequently invaded compared to natural lakes…what combination of factors account for observed differences…and has the widespread creation of impoundments facilitated species invasions in freshwater ecosystems? They found that impoundments are significantly more likely to be invaded than natural lakes possibly due to combining factors of lower water clarity, higher conductivity, higher numbers of boat landings, more surface area, larger watersheds, and higher accessibility by humans, and/or more hydrologic connections (Johnson, 2008). They also found that "these results also suggest that

impoundments increase the risk of invasion into natural lakes by both decreasing inter-lake distance and by increasing the total number of invaded water bodies on the landscape" (Johnson, 2008). These results are significant when 45 (36%) out of 126 lakes in the five-county survey are impoundments and 39 of those impoundments have at least one invasive species present. These invaded impoundments should be considered the largest threat for the spread of AIS in the five-county region.

"Super spreaders"

"Super spreaders" are lakes that pose the greatest risk of causing AIS invasions to neighboring lakes, due to the large number of AIS present in the lake and the large number of boaters that use the lake (Rothlisberger, 2008). Researchers at the University of Notre Dame (UND) coined the phrase "super spreaders" while looking at the number of AIS, the number of boats, and lakes across the whole state of Wisconsin. According to their research, three of the lakes in the five-county region are "super spreaders". These are Holcombe Flowage of Chippewa County, Island Lake of Rusk County and Lake Wissota of Chippewa County (Rothlisberger, 2008).

All of the counties have multiple invasive species present and those that are present are widely dispersed across the counties. Both highly frequented and less frequented lakes have AIS present. This is most likely due to having several high traffic lakes that are scattered across the county that are popular locally with recreational users, who in turn also use the smaller, lower traffic lakes. Regionally, the AIS are probably entering the heavy use lakes first and then spreading to the smaller, close-proximity lakes. Based upon casual observations (number of vehicles at boat landings and number of boats on the lake) from being at the lakes over the last three years, some lakes are more heavily used than others. For Barron County more heavily used lakes include: Bear Lake, Beaver Dam Lake, Chetek Chain of Lakes, Red Cedar Lake, Rice Lake, Sand Lake and Staples Lake. The busiest lakes in Chippewa County appear to be: Lake Holcombe Flowage, Lake Wissota, Long Lake, and Marsh Miller Lake. Dunn County has three lakes, Eau Galle, Menomin, and Tainter Lake, which are used frequently. In Eau Claire County there are substantially fewer lakes than in Barron or Chippewa, and of these, Dells Pond, Half Moon Lake, Lake Altoona and Lake Eau Claire could be considered equally popular lakes. Lastly, Dairyland Reservoir, Fireside Lakes, Island Chain of Lakes, Potato Lake, and Sand Lake seem to be the heaviest used lakes in Rusk County. All of the above lakes could be considered "super spreaders".

Part of the reason that more lakes from the five-county region were not considered "super spreaders" in the UND study could be that the study did not have the most current data of the five-county region. The UND study was published in 2008 when the survey data from this project had not been entered into the statewide database, resulting in extremely low AIS numbers compared to the actual AIS numbers for this region. More of the lakes, especially the heavy use lakes, that were studied in the five-county AIS project could be considered "super spreaders" based upon the criteria set forth in the UND study. Those listed as heavy use lakes in this study all contain at least one, and upwards of four, AIS. These lakes provide many possibilities for the spread of AIS across the region and the state.

Smart prevention
In the same breath, it is important to note that just because an AIS is introduced to a new environment, does not mean that the AIS will become successful. Vander Zanden states that in order for a species to become invasive, it must be able to get to a new location, survive and proliferate, and then have adverse impacts on the new location or species that are native to it (2008). Different habitat characteristics make some lakes more desirable to AIS than others. Using the criteria set forth by Vander Zanden (2008), certain lakes may be designated as highly vulnerable to zebra mussel, or spiny waterflea, etc. and therefore should be monitored more frequently for AIS than other lakes in the region. This idea is known as smart prevention. The idea of "super spreaders" has helped change the CBCW focus from a stance of protecting pristine lakes to that of keeping the AIS already present in lakes contained to those lakes. In the near future, state agencies, lake organizations, and programs such as Clean Boats, Clean Waters may be switching the focus of AIS monitoring efforts with this idea of smart prevention in mind to make the best use of money and time.

Programs such as Clean Boats, Clean Waters are important because they are the first line of defense against the spread of AIS. Scientists at UND have shown that "preventing transport of AIS away from these 'super-spreader' lakes can make the greatest difference in slowing the [lake to lake] spread of AIS" by recreational boaters (Rothlisberger, 2008). Numerous accounts have been given of watercraft inspectors finding an AIS on a boat trailer coming from another lake as it was about to be backed into a different, uninfested lake. These lakes could have easily been invaded without the efforts of watercraft inspectors. On the questionnaire used at the boat landings by the watercraft inspectors, 39% of people say that they heard about AIS through a watercraft inspector, the largest percentage (UWEX, 2009). Looking at the statistics available from SWIMS, it is possible to see that the watercraft inspectors are playing a crucial role in presenting the AIS message to lake recreationists.

Interlake variations
The 126 lakes sampled for this report appeared to be different from one another in several ways. Some lakes in the study had high plant species diversity (see *Appendix D*), like Hemlock Lake of Barron County that contained 34 species of native plants and one invasive species while other lakes such as Dells Pond only had four native species and two invasive species. Prairie Farm Flowage in Barron County had few plant species and extremely low densities of those species even though it has a shallow mucky (the sediment type that most plants prefer) bottom. Similar to plants, the lakes had varying numbers of genera, species and abundance of zooplankton. Lake Desair of Barron County had only one observed species from the genus *Leptodora*, in very low quantities, during each of the three sample dates in 2009. This could possibly be due to algaecide applications for nuisance algae in 2006 in Lake Desair or natural variations. On the other end of the spectrum, Lake Altoona of Eau Claire County had multiple genera, multiple species of each genera and the individuals of a species were also very large in size compared to some other lakes where the same species would have been about ¼- ½ the size. These could be yearly variations or a sign that some lakes are better able to support healthy and diverse life forms.

Boat landings
The list of lakes with boat landings should be updated to reflect which type of boat landings are at each lake, which boat landings actually exist, and where the boat landings are located. Some

were not easy to find. Barron County provided the best signage among the counties, indicating which roads led to boat landings, although improvements could still be made in that county. Some of the boat landings should be improved to make it easier to enter and leave the landing without getting stuck. Horseshoe Lake (Chippewa County) has a muck landing that should be improved with crushed rock. Two Island Lake's landing should be improved as well. Deep gullies have formed on the access road leading to the landing. The gullied and unkempt landing on Spring Lake, in Barron County, needs to drastically be improved so that the public can use it. The "Wisconsin Lakes" booklet should also be updated to reflect true public access points.

Management

Of the 50 lakes that have curly-leaf pondweed, not all of them require management activity at this time. A large percentage of the populations of curly-leaf seem to have integrated themselves into the native plant communities and do not appear to be creating a monoculture. There are a small number of lakes that should be considered for management or intensive monitoring. Marsh Miller Lake has a large stand of curly-leaf in the center of the lake. There are also small pockets of it scattered around the lakes edge. It is recommended that Marsh Miller Lake Association considers managing for this invasive species. Amacoy Lake also has a dense population of curly-leaf in the northeast bay of the lake, but it was not found anywhere else in the lake, indicating that it is containing itself to the bay area or that it is a relatively recent addition to the community and has not had time to spread. Amacoy Lake Association should heavily monitor this area for the spread of the species, and should it spread, consider managing for it. Otter Lake has multiple beds of curly-leaf on each side of the lake with the largest being in a shallow bay in the center portion of the lake on the east side. The plant density in this particular curly-leaf bed obstructed boat maneuverability. It is highly recommend that curly-leaf be managed on Otter Lake to improve habitat and recreation. The Chetek Chain of Lakes has hundreds of acres of curly-leaf pondweed that impedes navigation. Potato Lake contains curly-leaf pondweed at nearly every transect. All of the transects in Staples Lake had curly-leaf pondweed in them. In Marsh Miller, Otter Lake, Potato Lake, Staples Lake and the Chetek Chain of Lakes, the very poor water quality could possibly be improved with less curly-leaf pondweed in the plant community, which contributes to algal blooms when it dies off in early summer. Curly-leaf pondweed was also found in all four Island Chain of Lakes. The plant has currently integrated itself into the native plant community. In Island Lake, during 2007, the population of curly-leaf pondweed was large possibly due to the lack of snow on the ice in 2006. It is recommended that the curly-leaf pondweed beds be monitoried for any growth in size and that management options are re-evaluated if there is a population explosion. Granite Lake's curly-leaf population could be eradicated with diligent harvesting as soon as it appears in spring, as only three plants were seen and pulled during the study. The aquatic plants of Hemlock Lake (Barron County) should be monitored as there is high species diversity but also an invasive species, curly-leaf pondweed. It is important that curly-leaf pondweed does not displace some of the native species.

All lakes with *Myriophyllum spicatum* present should be monitored to establish growth rates and then assess what type of management is appropriate. CBCW should be employed at the landings of lakes with *M. spicatum* so that boaters are not leaving the water with *M. spicatum* attached.

Fortunately spiny waterfleas and zebra mussel veligers were not found in any of the lakes within the project scope. That does not mean that the five-county region is immune to them. Future

monitoring could be focused on lakes that are considered more vulnerable or more likely to be invaded by each of the species according to Vander Zanden (2008). That way the region is still being monitored for spiny waterfleas and zebra mussel veligers but not in all 126 lakes, saving time and resources.

Purple loosestrife was not detected as often as was anticipated by the survey crew around the shores of lakes. Only thirteen lakes contained purple loosestrife. Bear Lake, Beaver Dam Lake, and Sand Lake had the largest populations present and will require significant efforts to reduce and/or eliminate the populations. Lakes such as Sylvan and Granite had fewer than ten plants present and could be removed manually or with chemical treatment with little effort.

Once present in a water body, rusty crayfish are nearly impossible to eradicate. Long Lake of Chippewa County has had rusty crayfish present since at least 1980 when the lake district began to monitor them. Although there has been intense trapping over the last three decades, rusty crayfish are still present but in diminished numbers. Seventeen water bodies contain rusty crayfish. They appear to prefer river systems as that is where they are most frequently found, possibly due to the rocky nature of flowages. Rusty crayfish were collected on Chain Lake and Island Lake of Island Chain of Lakes, and because McCann and Clear are connected it is safe to assume that they are present in all four lakes. Monitoring is recommended. On lakes where the populations have become too large or where native species are being crowded out, rusty crayfish should be trapped to lower numbers.

Some lakes needed additional surveys for invasive species as part of their management plans. In order to properly assess these lakes, a whole day was needed to conduct the surveys for the locations of the AIS and another day for data analysis. The best days for AIS surveying for these purposes, were in early summer (sometime in May, depending upon water temperatures) and these prime days fell during the hectic preseason prep time and orientation days of new summer employees. Free days were infrequent during the summer of 2009, making it difficult to give adequate attention to lake groups needing additional survey work for their management plans.

Volunteers

Although the pace of work can be slightly slowed with the addition of volunteers, the volunteers assisting the crews proved to be a valuable asset to this project. Volunteers contributed 1,820 hours to assisting with this project, the equivalent of 4 full time summer staff (12 weeks, 40 hrs/week). Sometimes surveying could not have been completed without the volunteers assistance, as the field technician was only paid for 20 hours per week of survey work and surveying was conducted by the lead researcher (who needed an assistant) 40 hours per week. Fortunately, a few dedicated individuals were available to help fill the 20 hour voids on a consistent basis. Five service learning volunteers helped immensely over the 2009 summer. Working with volunteers also provided a great opportunity to connect with younger citizens that might share what they learned out on the boat with classmates or pursue professions in biological sciences related to invasive species. Volunteers from the lakes that were surveyed also seemed to enjoy the research crew's visits to their lake. The volunteers had a sense that they got to help with something vital to the health of their lake and that their lake was important, because it was included in the survey. Not once did the volunteers walk away from the boat without saying "Thank you for letting us come along, it was very interesting and fun", or something to that

effect. It was a mutually positive experience for the crew and the volunteers. In the future, however, it is recommended that a field technician be paid to work 30 of the 40 hours per week versus 20 hours per week as this will increase the efficiency of the crew. Volunteers would still be a valuable asset to the team even with the increased hours of a paid field technician.

Conclusion

The BCCSC was able to accomplish all four goals set forth for this project, including assessment, education, prevention, and monitoring and control. Through the efforts of the survey crew, 126 lakes were surveyed, resulting in 83 newly discovered and 137 total aquatic invasive species that were formally documented to provide a baseline set of data for the five-county region. Approximately 1,453 volunteer hours were contributed to make that possible. Twenty eight educational meetings, events, and trainings were attended to help educate the general public as well as lake organizations about AIS. Through these trainings and continued efforts on behalf of the lake organizations, 30 lake groups contributed an additional 367 hours towards the Clean Boats, Clean Waters program to help slow the spread of AIS in the region. The BCCSC was also able to assist lake groups from Marsh Miller Lake, Lake Amacoy, Holcombe Flowage, and Lake Wissota with monitoring for AIS on their lakes for the management of established AIS. Continued monitoring for invasive species is essential in order to ascertain whether or not populations are changing within lakes and/or spreading to other lakes. It is unclear whether or not funding will be available to continue monitoring efforts such as this and that is why it is crucial that citizens continue to be trained to conduct monitoring on their lakes.

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Appendix A

Table 5. List of lakes included in the aquatic invasive species five-county survey from 2007-2009, along with the corresponding physical attributes of the lake, the geographic location and if it was listed as having a public boat landing in WDNR (2005).

County	Lake Name	Acres	Max Depth ft	WBIC	Township	Range	Section	qq_section	q_section	boat landing in book
BARRON	ANDERSON LAKE	14	17	1832100	T36N	R13W	13	NW	SW	Yes
	BARRON FLOWAGE # 1	47	12	2096700	T34N	R12W	27	NW	SE	Yes
	BARRON FLOWAGE # 3	65	10	2097100	T34N	R12W	28	NE	NW	Yes
	BASS LAKE	118	14	1832800	T33N	R10W	34	SW	SW	Yes
	BEAR LAKE	1358	87	2105100	T36N	R11W	18	NW	NE	Yes
	BEAVER DAM LAKE	1112	106	2081200	T35N	R13W	7	SE	SE	Yes
	BIG DUMMY LAKE	111	54	1835100	T36N	R13W	28	NE	SW	Yes
	BIG MOON LAKE	191	48	2079000	T33N	R14W	16	NW	SW	**No**
	BLUEBERRY LAKE	8	6	2632400	T35N	R14W	8	SW	NW	Yes
	BUTTERNUT LAKE	141	15	2105800	T36N	R12W	6	SE	NW	Yes
	CHAIN LAKE	107	19	1840100	T36N	R10W	7	SE	SE	Yes
	DALLAS FLOWAGE	27	9	2088000	T32N	R12W	14	NW	SE	Yes
	DESAIR LAKE	81	33	2104500	T35N	R11W	6	NW	NE	Yes
	DEVILS LAKE, UPPER	86	10	2043500	T36N	R11W	6	NE	NE	Yes
	DUCK LAKE	100	26	2100300	T36N	R13W	33	SW	SW	Yes
	ECHO LAKE	161	41	2630200	T34N	R14W	7	NE	NE	Yes
	GRANITE LAKE	154	34	2100800	T36N	R13W	29	SE	SW	Yes
	HEMLOCK LAKE	357	21	2109800	T36N	R10W	27	SE	SE	Yes
	HORSESHOE LAKE	115	19	2469800	T36N	R14W	3	SE	SW	Yes
	KIRBY LAKE	92	19	1858200	T36N	R14W	14	NE	SW	Yes
	LAKE CHETEK	770	22	2094000	T33N	R10W	30	NE	SE	Yes
	LAKE OF THE WOODS	46	55	2632100	T35N	R14W	7	SW	SW	**No**
	LAKE THIRTY	73	27	2099900	T36N	R12W	30	NE	SW	Yes
	LITTLE DUMMY LAKE	31	44	1861400	T36N	R13W	28	NW	NW	Yes
	LITTLE GRANITE LAKE	22	56	1861600	T36N	R13W	29	NW	SE	Yes
	LITTLE MOON LAKE	27	30	2079100	T33N	R14W	18	SE	SW	Yes
	LITTLE SAND LAKE	101	36	2661600	T36N	R14W	27	NW	SW	Yes
	LOON LAKE	94	26	2478600	T35N	R14W	32	SE	SW	Yes
	LOWER VERMILLION LAKE	208	55	2098200	T35N	R13W	22	SW	NE	**No**
	MONTANIS, LAKE	200	14	2103200	T35N	R11W	34	NE	SE	Yes
	MOON LAKE	84	5	1867600	T35N	R11W	34	NW	SW	Yes

Table 5
continued

County	Lake Name	Acres	Max Depth ft	WBIC	Township	Range	Section	qq_section	q_section	boat landing in book
BARRON	MUD LAKE	577	15	2094600	T33N	R10W	7	SE	SE	Yes
	NORTH LAKE	89	21	2630800	T35N	R14W	9	SE	SW	Yes
	PICKEREL LAKE	37	25	1874400	T36N	R10W	3	NW	SW	Yes
	POKEGAMA LAKE	506	19	2094300	T33N	R10W	20	NW	SE	Yes
	POSKIN LAKE	150	30	2098000	T34N	R13W	15	NW	SW	Yes
	PRAIRIE FARM FLOWAGE	29	8	2080000	T32N	R13W	21	SE	SW	Yes
	PRAIRIE LAKE	1534	16	2094100	T33N	R10W	19	SW	SE	yes
	RED CEDAR LAKE	1841	53	2109600	T36N	R10W	21	SE	NE	Yes
	RICE LAKE	939	19	2103900	T35N	R11W	21	NW	SE	Yes
	SAND LAKE	322	57	2661100	T36N	R14W	17	NW	NE	Yes
	SCOTT LAKE	81	26	2630700	T35N	R14W	16	NW	SW	Yes
	SILVER LAKE	337	91	1881100	T36N	R13W	24	SE	SW	Yes
	SPIDER LAKE	40	13	1882000	T36N	R13W	1	SW	SW	Yes
	SPRING LAKE	60	67	1882800	T36N	R14W	25	NW	NE	Yes
	STAPLES LAKE	305	17	2631200	T35N	R14W	30	SW	NW	Yes
	SYLVAN LAKE (Pipe)	67	37	1884800	T36N	R13W	15	NE	NE	Yes
	TENMILE LAKE	376	12	2089500	T33N	R10W	32	SE	SE	Yes
	TURTLE LAKE, LOWER	276	24	2079700	T33N	R14W	2	NW	NW	Yes
	TURTLE LAKE, UPPER	438	25	2079800	T34N	R14W	27	NE	NW	Yes
CHIPPEWA	AXHANDLE LAKE	84	70	2092500	T32N	R09W	4	SW	SE	Yes
	BASS LAKE #2	12	26	1833600	T31N	R08W	2	SE	NE	**No**
	BASS LAKE # 3	9	23	2347400	T31N	R08W	1	SW	NW	Yes
	BOB LAKE #1	97	68	2178400	T31N	R08W	23	NE	NE	Yes
	CHAIN LAKE	468	74	2350500	T33N	R08W	31	NW	NW	Yes
	CHAPMAN LAKE	34	13	2147200	T29N	R05W	26	SE	SE	Yes
	CHIPPEWA FALLS FLOWAGE	282	29	2152600	T28N	R08W	6	SE	SE	Yes
	CORNELL FLOWAGE	836	54	2181400	T31N	R06W	18	SW	SE	Yes
	CORNELL LAKE	194	39	2171000	T31N	R08W	34	SE	SE	Yes
	DARK LAKE	13	62	2092700	T32N	R09W	10	NW	NW	Yes
	FIRTH LAKE	51	18	2176200	T31N	R07W	3	NW	SW	Yes
	GLEN LOCH FLOWAGE	39	17	2151000	T29N	R08W	30	SE	SW	yes
	HAY MEADOW Fl. # 1	24	40	2178900	T31N	R08W	14	SW	NE	Yes

Table 5
continued

County	Lake Name	Acres	Max Depth ft	WBIC	Township	Range	Section	qq_section	q_section	boat landing in book
CHIPPEWA	HAY MEADOW Fl. # 2	40	9	2180100	T31N	R08W	11	SW	SE	Yes
	HEMLOCK LAKE	28	17	1853400	T31N	R08W	16	NW	SE	yes
	HENNEMAN LAKE	64	60	2352500	T32N	R08W	16	NW	SW	Yes
	HOLCOMBE FLOWAGE	3890	61	2184900	T32N	R06W	28	NW	SW	Yes
	HORSESHOE LAKE	24	23	1854300	T32N	R08W	33	NE	NE	Yes
	HOWE LAKE	68	39	1855100	T30N	R08W	14	NW	NE	Yes
	KNICKERBOCKER LAKE	14	24	1858300	T32N	R08W	28	SW	SW	Yes
	LAKE COMO	98	6	2152100	T30N	R09W	8	NW	NE	Yes
	LAKE HALLIE	79	13	2150200	T28N	R09W	27	NE	NE	Yes
	LAKE WISSOTA	6300	72	2152800	T28N	R08W	3	SE	NW	Yes
	LONG LAKE	1052	96	2351400	T32N	R08W	18	NE	SW	Yes
	LOON LAKE	125	5	1863000	T32N	R09W	22	NW	NE	Yes
	LOWLAND LAKE	11	24	2173400	T32N	R08W	33	SE	SE	Yes
	MARSH-MILLER LAKE (Mill Pond)	436	14	2171200	T31N	R08W	29	NW	SW	Yes
	OLD ABE LAKE	1072	36	2174700	T30N	R07W	20	SW	SW	Yes
	OTTER LAKE	661	43	2157000	T30N	R05W	11	SW	SE	Yes
	PIKE LAKE	192	37	2157900	T30N	R06W	14	SE	NW	Yes
	PLUMMER LAKE	41	28	2348700	T32N	R08W	34	NE	NE	Yes
	POPPLE LAKE	90	25	2173900	T30N	R08W	25	SE	NW	Yes
	ROCK LAKE	94	35	2171600	T31N	R08W	9	SW	NW	Yes
	ROUND LAKE	216	18	2169200	T32N	R09W	23	NW	NW	Yes
	SHATTUCK LAKE, NORTH	39	52	1869300	T32N	R09W	25	NE	SE	Yes
	SHATTUCK LAKE, SOUTH	59	25	1879300	T32N	R08W	31	NW	NW	Yes
	TILDEN MILL POND	61	11	2151200	T29N	R09W	24	NE	NW	Yes
	TOWN LINE LAKE	48	26	2172600	T32N	R08W	33	NE	SW	Yes
	TRIPLE LAKE, WEST	15	21	2044700	T32N	R08W	21	SW	NW	Yes
	TWO ISLAND LAKE	29	18	1887500	T32N	R08W	20	SW	SW	Yes
DUNN	EAU GALLE, LAKE	351	18	2056600	T26N	R13W	31	SW	NW	Yes
	ELK CREEK LAKE	54	17	2121000	T27N	R11W	13	SE	SE	Yes
	MENOMIN, LAKE	1405	34	2065900	T28N	R13W	26	NE	NW	Yes
	TAINTER LAKE	1752	37	2068000	T28N	R12W	6	NW	SW	Yes

Table 5
continued

County	Lake Name	Acres	Max Depth ft	WBIC	Township	Range	Section	qq section	q section	boat landing in book
EAU CLAIRE	ALTOONA LAKE	840	25	2128100	T27N	R09W	14	NW	SW	Yes
	COON FK LAKE (FL)	75	20	2135600	T26N	R05W	29	SE	SW	Yes
	DELLS POND	739	30	2149900	T27N	R09W	18	NE	NE	Yes
	EAU CLAIRE, LAKE	860	25	2133200	T26N	R06W	5	SW	SW	Yes
	FALL CREEK POND	17	10	2130100	T26N	R07W	6	NE	NW	Yes
	FAIRCHILD POND	18	9	2136200	T25N	R05W	35	NW	NE	Yes
	HALFMOON LAKE	132	9	2125400	T27N	R10W	24	SE	SE	Yes
RUSK	AMACOY LAKE	278	20	2359700	T34N	R08W	25	NW	NE	Yes
	AUDIE LAKE	128	32	2368700	T36N	R09W	36	SW	SE	Yes
	BASS LAKE	22	19	1833000	T35N	R07W	12	SW	SE	Yes
	BIG FALLS FLOWAGE	369	45	2230100	T36N	R05W	35	SE	SW	Yes
	BOG LAKE	37	8	2356800	T33N	R08W	3	SW	NE	Yes
	BOOT LAKE	87	44	1836700	T33N	R07W	17	NE	SE	Yes
	BUCKS LAKE	83	18	2111700	T36N	R09W	26	SW	NW	Yes
	CLEAR LAKE	95	74	2350600	T33N	R09W	36	SE	NE	Yes
	DAIRYLAND RESERVOIR (Flambeau)	1745	70	2229200	T35N	R05W	30	NW	NW	Yes
	FIRESIDE LAKES (Mud)	81.1	15	2349700	T33N	R08W	26	NW	NW	Yes
	FIRESIDE LAKES (Rice)	211.2	30	2349600	T33N	R08W	23	SW	SW	Yes
	FISH LAKE	115	40	1849100	T33N	R09W	32	NE	NE	Yes
	ISLAND LAKE	526	54	2350200	T33N	R08W	21	SE	SW	Yes
	LADYSMITH FLOWAGE	288	19	2228700	T34N	R06W	2	NE	NW	Yes
	LEA FLOWAGE	232	9	2361900	T36N	R06W	14	NE	NW	Yes
	MCCANN LAKE	133	38	2350400	T33N	R08W	30	SE	SE	Yes
	MURPHY FLOWAGE	171	14	2110900	T36N	R09W	29	SW	NE	Yes
	PERCH LAKE (Bass)	23	40	2368500	T35N	R09W	1	NE	NE	Yes
	POTATO LAKE	534	40	2355300	T33N	R08W	19	SW	NW	Yes
	PULASKI LAKE	126	40	1875900	T33N	R07W	18	SE	SE	Yes
	ROUND LAKE	105	5	1878200	T33N	R07W	8	SW	SW	Yes
	RUSK LAKE	12	71	1878800	T33N	R09W	15	NE	SW	Yes
	SAND LAKE	262	100	2353600	T33N	R08W	34	NW	NW	Yes
	THORNAPPLE FLOWAGE	268	19	2227500	T34N	R07W	22	NE	SE	Yes

Appendix B

Table 6. The presence and absence of eight invasive species in lakes sampled in 2007.

		Invasive Species							
Lake Name	**County**	**Spiny Waterflea**	**Zebra Mussel**	**Purple Loosestrife**	**Curly-leaf Pondweed**	**Eurasian Water Milfoil**	**Rusty Crayfish**	**Chinese Mystery Snail**	**Banded Mystery Snail**
Bass Lake #2	Chippewa	no	no	no	no	no	no	no	no
Bass Lake #3	Chippewa	no	no	no	no	no	no	no	no
Bob Lake	Chippewa	no	no	no	no	no	no	no	no
Chain Lake	Chippewa	no	no	YES	YES	no	YES	no	no
Chippewa Falls Flowage	Chippewa	no	no	no	no	no	YES	no	no
Cornell Flowage	Chippewa	no	no	YES	YES	no 07, Yes 09	YES	no	no
Cornell Lake	Chippewa	no	no	no	YES	no	no	no	no
Firth Lake	Chippewa	no	no	no	no	no	no	no	no
Hallie Lake	Chippewa	no	no	no	YES	YES	no	no	no
Hay Meadow Flowage No. 1	Chippewa	no	no	no	no	no	no	no	no
Hay Meadow Flowage No. 2	Chippewa	NO BOAT LAUNCH		NS	NS	NS	NS	NS	NS
Holcombe Flowage	Chippewa	no	no	no	YES	YES	YES	YES	YES
Howe Lake	Chippewa	no	no	no	no	no	no	no	no
Long Lake	Chippewa	no	no	no	NS	NS	YES	no	no
Old Abe Lake	Chippewa	no	no	no	YES	no	YES	no	no
Pike Lake	Chippewa	no	no	no	no	no	no	no	no
Popple Lake	Chippewa	no	no	no	YES	no	no	no	no
Tilden Pond	Chippewa	no	no	no	YES	no	no	no	no
Wissota Lake	Chippewa	no	no	no	YES	YES	YES	YES 08	no
Menomin Lake	Dunn	no	no	no	YES	no	no	no	no
Tainter Lake	Dunn	no	no	no	Yes	no	no	no	no
Eau Claire Lake	Eau Claire	no	no	no	YES	no	no	no	no
Amacoy Lake	Rusk	no	no	no	YES 08	no	no	no	no
Clear Lake	Rusk	no	no	no	YES	no	no	no	no
Island Lake	Rusk	no	no	no	YES	no	YES	no	no
McCann Lake	Rusk	no	no	no	YES	no	no	no	no
TOTAL	**33**	**0**	**0**	**2**	**16**	**4**	**8**	**2**	**1**
NEW	**20**	**0 new**	**0 new**	**2 new**	**12 new**	**1 new**	**4 new**	**0 new**	**1 new**

Table 7. The presence and absence of eight invasive species in lakes sampled in 2008.

		Invasive Species							
Lake Name	**County**	**Spiny Waterflea**	**Zebra Mussel**	**Purple Loosestrife**	**Curly-leaf Pondweed**	**Eurasian Water Milfoil**	**Rusty Crayfish**	**Chinese Mystery Snail**	**Banded Mystery Snail**
Rice Lake	Barron	no	no	no 08, Yes 09	YES	no	no	no	no
Axhandle Lake	Chippewa	no	no	no	no	no	no	no	no
Dark Lake	Chippewa	no	no	no	no	no	no	no	no
Hemlock Lake	Chippewa	no	no	no	no	no	no	no	no
Henneman Lake	Chippewa	no	no	no	no	no	no	no	no
Horseshoe Lake	Chippewa	no	no	no	no	no	no	no	no
Knickerbocker Lake	Chippewa	NO LAUNCH		NS	NS	NS	NS	NS	NS
Lake Como	Chippewa	no	no	no	YES	no	no	no	no
Loon Lake	Chippewa	no	no	no	no	no	no	no	no
Lowland Lake	Chippewa	NO LAUNCH		NS	NS	NS	NS	NS	NS
Marsh-Miller Lake	Chippewa	no	no	no	YES	no	no	no	no
North Shattuck	Chippewa	no	no	no	no	no	no	no	no
Otter Lake	Chippewa	no	no	no	YES	no	no	no	no
Plummer Lake	Chippewa	no	no	no	no	no	no	no	no
Rock Lake	Chippewa	no	no	no	YES	no	no	no	no
Round Lake	Chippewa	no	no	no	no	no	no	no	no
South Shattuck	Chippewa	no	no	no	no	no	no	no	no
Town Line Lake	Chippewa	no	no	no	no	no	no	no	no
Two Island Lake	Chippewa	no	no	no	no	no	no	no	no
Eau Galle	Dunn	no	no	no	YES	YES	no	no	no
Coon Fork Flowage	Eau Claire	no	no	no	no	no	no	Yes 09	no
Dells Pond	Eau Claire	no	no	no	YES	YES	YES	no	no
Elk Creek Lake	Eau Claire	no	no	no	no	no	no	no	no
Fairchild Pond	Eau Claire	NO LAUNCH		NS	NS	NS	NS	NS	NS
Fall Creek Pond	Eau Claire	no	no	no	no	no	no	no	no
Audie Lake	Rusk	no	no	no	no	no	no	no	no
Bog Lake	Rusk	NO LAUNCH		NS	NS	NS	NS	NS	NS
Boot Lake	Rusk	no	no	no	no	no	no	no	no
Bucks Lake	Rusk	no	no	no	no	no	no	no	no
Perch Lake	Rusk	no	no	no	no	no	no	no	no
Pulaski Lake	Rusk	no	no	no	no	no	no	no	no
Round Lake	Rusk	no	no	no	no	no	no	no	no
TOTAL **12**		**0**	**0**	**1**	**7**	**2**	**1**	**1**	**0**
NEW **8**		**0 new**	**0 new**	**1 new**	**4 new**	**1 new**	**1 new**	**1 new**	**0 new**

Table 8. The presence and absence of eight invasive species in lakes sampled in 2009.

		Invasive Species							
Lake Name	**County**	**Spiny Waterflea**	**Zebra Mussel**	**Purple Loosestrife**	**Curly-leaf Pondweed**	**Eurasian Water Milfoil**	**Rusty Crayfish**	**Chinese Mystery Snail**	**Banded Mystery Snail**
Anderson Lake	Barron	no	no	no	no	no	no	no	no
Barron Flowage #1	Barron	no	no	Yes 06	Yes	no	no	no	no
Barron Flowage #2	Barron	WATER TOO	LOW FOR	SAMPLING	NS	NS	NS	NS	NS
Barron Flowage #3	Barron	NS	NS	Yes 06	Yes	no	no	Yes	no
Bass Lake	Barron	no	no	no	no	no	no	no	no
Bear Lake	Barron	no	no	Yes 06, Yes 09	Yes	no	no	Yes	Yes
Beaver Dam Lake	Barron	no	no	Yes 06, Yes 09	Yes	Yes 06, Yes	Yes 06	no	no
Big Dummy Lake	Barron	no	no	no	no	no	no	Yes	no
Big Moon Lake	Barron	no	no	no	Yes 06, Yes 09	no	no	Yes	no
Blueberry Lake	Barron	NO BOAT	LAUNCH	NS	NS	NS	NS	NS	NS
Butternut Lake	Barron	no	no	no	no	no	no	no	no
Chain Lake	Barron	no	no	no	no	no	no	no	no
Dallas Flowage	Barron	NO BOAT	LAUNCH	Yes 06,	NS	NS	NS	NS	NS
Desair Lake	Barron	no	no	no	no	no	no	Yes	no
Devil's Lake, Upper	Barron	WATER TOO	LOW FOR	SAMPLING	NS	NS	NS	NS	NS
Duck Lake	Barron	no	no	no	no	Yes 06, Yes 09	no	no	no
Echo Lake	Barron	no	no	NS	NS	Yes 06, Yes 09	NS	no	NS
Granite Lake	Barron	no	no	Yes	Yes	no	no	no	no
Hemlock Lake	Barron	no	no	no	Yes 06, Yes 09	no	Yes	Yes	no
Horseshoe Lake	Barron	no	no	no	no	no	no	no	no
Kirby Lake	Barron	no	no	no	no	no	no	no	no
Lake Chetek	Barron	no	no	Yes 06,	Yes	no	no	Yes	Yes
Lake of the Woods	Barron	no	no	no	no	no	no	Yes	no
Lake Thirty	Barron	no	no	no	no	no	no	no	no
Little Dummy Lake	Barron	WATER TOO	LOW FOR	SAMPLING	NS	NS	NS	Yes	NS
Little Granite Lake	Barron	no	no	no	no	no	no	no	no
Little Moon Lake	Barron	no	no	no	no	no	no	no	no
Little Sand Lake	Barron	no	no	no	no	no	no	no	no
Loon Lake	Barron	WATER TOO	LOW FOR	SAMPLING	NS	NS	NS	Yes	NS
Lower Vermillion Lake	Barron	no	no	no	Yes 06	Yes	no	Yes	no
Montanis Lake	Barron	no	no	no	Yes 06, Yes 09	no	no	no	no
Moon Lake	Barron	NS	NS	no	no	no	no	Yes	no
Mud Lake	Barron	no	no	no	Yes	no	no	Yes	no
North Lake	Barron	no	no	no	no	no	no	Yes	no
Pickerel Lake	Barron	NO BOAT	LAUNCH	NS	NS	NS	NS	NS	NS
Pokegama Lake	Barron	no	no	no	Yes	no	no	Yes	Yes

Table 8 continued

Lake Name	County	Invasive Species							
		Spiny Waterflea	Zebra Mussel	Purple Loosestrife	Curly-leaf Pondweed	Eurasian Water Milfoil	Rusty Crayfish	Chinese Mystery Snail	Banded Mystery Snail
Poskin Lake	Barron	no	no	no	Yes 06, Yes 09	no	no	Yes	no
Prairie Farm Flowage	Barron	NS	NS	no	Yes	no	no	Yes	no
Red Cedar Lake	Barron	no	no	Yes 06,	Yes	no	Yes 06, Yes 09	Yes	no
Sand Lake	Barron	no	no	Yes 06, Yes 09	no	Yes 06, Yes 09	Yes	Yes	no
Scott Lake	Barron	no	no	no	no	no	no	Yes	no
Silver Lake	Barron	no	no	no	Yes 06	no	no	Yes	no
Spider Lake	Barron	no	no	no	no	no	no	no	no
Spring Lake	Barron	POOR BOAT	LAUNCH	NS	NS	NS	no	NS	NS
Staples Lake	Barron	no	no	no	Yes 06, Yes 09	no	no	Yes	no
Sylvan Lake	Barron	no	no	Yes	no	no	no	no	no
Tenmile Lake	Barron	NS	NS	no	Yes	no	no	Yes	no
Turtle Lake, Upper	Barron	no	no	no	Yes	no	no	no	no
Turtle Lake, Lower	Barron	no	no	no	Yes	no	no	Yes	no
Chapman Lake	Chippewa	NS	NS	no	Yes	no	no	Yes	no
Glen Loch Flowage	Chippewa	no	no	no	Yes	Yes	Yes	Yes	no
Triple Lake West	Chippewa	no	no	no	no	no	no	no	no
Altoona Lake	Eau Claire	no	no	no	Yes	no	no	Yes	no
Half Moon Lake	Eau Claire	no	no	no	Yes	Yes	no	Yes	no
Bass Lake	Rusk	no	no	no	no	no	no	Yes	no
Big Falls Flowage	Rusk	no	no	no	no	Yes	no	no	no
Dairyland Reservoir	Rusk	no	no	no	no	no	Yes	no	no
Fireside Lakes (Mud Lake)	Rusk	no	no	no	Yes	no	no	Yes	no
Fireside Lakes (Rice Lake)	Rusk	no	no	no	Yes	no	no	Yes	no
Fish Lake	Rusk	NO BOAT	LAUNCH	NS	NS	NS	NS	NS	NS
Ladysmith Flowage	Rusk	no	no	no	no	no	Yes	no	no
Lea Flowage	Rusk	NS	NS	no	no	Yes	no	no	no
Murphy Flowage	Rusk	no	no	no	Yes	no	no	no	no
Potato Lake	Rusk	no	no	no	Yes	no	no	no	no
Rusk Lake	Rusk	no	no	no	no	no	no	no	no
Sand Lake	Rusk	no	no	no	Yes	no	no	no	no
Thornapple Flowage	Rusk	no	no	no	no	no	Yes	no	no
TOTAL **92**		**0**	**0**	**10**	**30**	**9**	**8**	**32**	**3**
NEW **55**		**0 new**	**0 new**	**3 new**	**21 new**	**3 new**	**3 new**	**23 new**	**2 new**

Key for Tables 6, 7, and 8

Key	
	Present but already documented
	Not previously documented
	Not all species sampled (for various reasons)
Yes	Species present during survey
No	Species not seen during survey
06, 07, 08, 09	Year found if not survey year (2006-2009)
NS	Not Sampled For

Appendix C

Table 9. Secchi disk readings taken at tow site locations on lakes surveyed in 2007. Colors indicate different GPS locations for Secchi disk readings, and dashes indicate that a second and/or third GPS location was not sampled.

Lake Name	WBIC	Data Collector(s)	Date Collected	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Amacoy Lake	2359700	Jo Heuschele	7/12/2007	631769	5027922	4.5	ft	No	632127	5028374	4.5	ft	No	631942	5028871	4.5	ft	No
Amacoy Lake	2359700	Jo Heuschele	7/31/2007	631769	5027922	3.5	ft	No	632127	5028374	4	ft	No	631942	5028871	4	ft	No
Bass Lake (3)	2347400	Jo Heuschele	6/19/2007	632590	5006226	5.25	ft	No	-	-	-	-	-	-	-	-	-	-
Bass Lake (3)	2347400	Jo Heuschele	7/20/2007	632590	5006226	9.25	ft	No	-	-	-	-	-	-	-	-	-	-
Bass Lake (3)	2347400	Jo Heuschele	08/09/0007	632590	5006226	10.25	ft	No	-	-	-	-	-	-	-	-	-	-
Bass Lake (2)	1833600	Jo Heuschele	6/19/2007	632180	5006625	13	ft	No	632155	5006388	13	ft	No	-	-	-	-	-
Bass Lake (2)	1833600	Jo Heuschele	7/20/2007	632180	5006625	10.5	ft	No	632155	5006388	10.5	ft	No	-	-	-	-	-
Bass Lake (2)	1833600	Jo Heuschele	8/9/2007	632180	5006625	11.75	ft	No	632155	5006388	12.75	ft	No	-	-	-	-	-
Bob Lake	2178400	Jo Heuschele	6/20/2007	632252	5002426	9.5	ft	No	631738	5002325	9	ft	No	-	-	-	-	-
Bob Lake	2178400	Jo Heuschele	7/17/2007	632252	5002426	7.5	ft	No	631738	5002325	7	ft	No	-	-	-	-	-
Bob Lake	2178400	Jo Heuschele	8/7/2007	632252	5002426	10	ft	No	631738	5002325	11.5	ft	No	-	-	-	-	-
Chain Lake	2350500	Jo Heuschele	6/25/2007	623585	5017408	8.5	ft	No	622608	5015242	9.25	ft	No	622873	5016725	9	ft	No
Chain Lake	2350500	Jo Heuschele	7/22/2007	623585	5017408	8.5	ft	No	622608	5015242	6	ft	No	622873	5016725	10	ft	No
Chain Lake	2350500	Jo Heuschele	8/6/2007	623585	5017408	6	ft	No	622608	5015242	6	ft	No	622873	5016725	6.5	ft	No
Chippewa Falls Flowage	2152600	Jo Heuschele	7/6/2007	629642	4977826	4	ft	No	628761	4977419	4.75	ft	No	627816	4976743	3	ft	No
Chippewa Falls Flowage	2152600	Jo Heuschele	7/27/2007	629642	4977826	6	ft	No	628761	4977419	6	ft	No	627816	4976743	5	ft	No
Chippewa Falls Flowage	2152600	Jo Heuschele	8/14/2007	629642	4977826	6	ft	No	628761	4977419	5	ft	No	627816	4976743	4	ft	No
Clear Lake	2350600	Jo Heuschele	6/26/2007	624265	5017309	10	ft	No	623823	5017011	10.5	ft	No	-	-	-	-	-
Clear Lake	2350600	Jo Heuschele	7/27/2007	624265	5017309	13	ft	No	623823	5017011	13	ft	No	-	-	-	-	-
Clear Lake	2350600	Jo Heuschele	8/6/2007	624265	5017309	13.25	ft	No	623823	5017011	13.25	ft	No	-	-	-	-	-
Cornell Flowage	2181400	Jo Heuschele	7/9/2007	643732	5003559	3.75	ft	No	644680	5003475	4	ft	No	644721	5002828	4.75	ft	No
Cornell Flowage	2181400	Jo Heuschele	7/28/2007	643732	5003559	4	ft	No	644680	5003475	3.75	ft	No	644721	5002828	4	ft	No
Cornell Lake	2171000	Jo Heuschele	7/2/2007	630460	4997317	10	ft	No	630534	4996958	9.5	ft	No	630997	4997636	10.5	ft	No
Cornell Lake	2171000	Jo Heuschele	7/25/2007	630460	4997317	12.5	ft	No	630534	4996958	12.5	ft	No	630997	4997636	11	ft	No
Cornell Lake	2171000	Jo Heuschele	8/15/2007	630460	4997317	7.25	ft	No	630534	4996958	7.5	ft	No	630997	4997636	7.25	ft	No
Eau Claire Lake	2133200	Jo Heuschele	7/9/2007	649022	4958131	1.75	ft	No	648034	4957747	2	ft	No	650210	4957980	1.5	ft	No
Eau Claire Lake	2133200	Jo Heuschele	8/2/2007	649022	4958131	2.25	ft	No	648034	4957747	2.25	ft	No	650210	4957980	2.25	ft	No
Hay Meadow Flowage	2178900	Jo Heuschele	6/18/2007	631772	5003420	4	ft	No	-	-	-	-	-	-	-	-	-	-
Hay Meadow Flowage	2178900	Jo Heuschele	7/20/2007	631772	5003420	4.5	ft	No	-	-	-	-	-	-	-	-	-	-
Hay Meadow Flowage	2178900	Jo Heuschele	8/9/2007	631772	5003420	6	ft	No	-	-	-	-	-	-	-	-	-	-
Firth Lake	2176200	Jo Heuschele	6/20/2007	640401	5006907	3	ft	No	-	-	-	-	-	-	-	-	-	-
Firth Lake	2176200	Jo Heuschele	7/2/2007	640401	5006907	2.75	ft	No	-	-	-	-	-	-	-	-	-	-
Firth Lake	2176200	Jo Heuschele	8/9/2007	640401	5006907	1.25	ft	No	-	-	-	-	-	-	-	-	-	-
Holcombe Flowage	2184900	Jo Heuschele	7/9/2007	647572	5009534	5	ft	No	645045	5010822	5.75	ft	No	645939	5013890	3.75	ft	No
Holcombe Flowage	2184900	Jo Heuschele	7/25/2007	647572	5009534	5.5	ft	No	645045	5010822	5.5	ft	No	645939	5013890	5.5	ft	No
Holcombe Flowage	2184900	Jo Heuschele	8/20/2007	647572	5009534	5.75	ft	No	645045	5010822	4	ft	No	645939	5013890	3.75	ft	No
Howe Lake	1855100	Jo Heuschele	6/14/2007	632768	4993712	8.2	ft	No	632360	4994034	9.5	ft	No	632820	4994091	8.5	ft	No
Howe Lake	1855100	Jo Heuschele	7/20/2007	632768	4993712	11.75	ft	No	632360	4994034	10.5	ft	No	632820	4994091	10	ft	No
Howe Lake	1855100	Jo Heuschele	8/7/2007	632768	4993712	10	ft	No	632360	4994034	11	ft	No	632820	4994091	12	ft	No
Island Lake	2350200	Jo Heuschele	7/2/2007	627596	5020115	10	ft	No	625435	5019130	7.5	ft	No	627013	5019469	10	ft	No
Island Lake	2350200	Jo Heuschele	7/21/2007	627596	5020115	10	ft	No	625435	5019130	7.5	ft	No	627013	5019469	10.75	ft	No
Island Lake	2350200	Jo Heuschele	8/6/2007	627596	5020115	6.75	ft	No	625435	5019130	7	ft	No	627013	5019469	7	ft	No
Lake Hallie	2150200	Jo Heuschele	7/6/2007	622823	4970297	4.5	ft	No	622683	4970845	7	ft	No	-	-	-	-	-
Lake Hallie	2150200	Jo Heuschele	7/27/2007	622823	4970297	6	ft	No	622683	4970845	8	ft	No	-	-	-	-	-
Lake Hallie	2150200	Jo Heuschele	8/14/2007	622823	4970297	6.5	ft	No	622683	4970845	5	ft	No	-	-	-	-	-
Lake Wissota	2152800	Jo Heuschele	7/6/2007	631723	4981342	6	ft	No	632754	4978840	4.5	ft	No	633105	4976462	4.5	ft	No

Table 9 continued

Lake Name	WBIC	Data Collector(s)	Date Collected	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Lake Wissota	2152800	Jo Heuschele	7/26/2007	631723	4981342	3	ft	No	632754	4978840	4	ft	No	633105	4976462	5.25	ft	No
Lake Wissota	2152800	Jo Heuschele	8/15/2007	631723	4981342	4.25	ft	No	632754	4978840	4.5	ft	No	633105	4976462	4.5	ft	No
Long Lake	2351400	Jo Heuschele	7/12/2007	625509	5012503	6	ft	No	623860	5010729	12.5	ft	No	624388	5011451	11.5	ft	No
Long Lake	2351400	Jo Heuschele	7/30/2007	625509	5012503	6.25	ft	No	623860	5010729	11.25	ft	No	624388	5011451	10.75	ft	No
Long Lake	2351400	Jo Heuschele	8/23/2007	625509	5012503	6.25	ft	No	623860	5010729	11.5	ft	No	624388	5011451	11	ft	No
McCann Lake	2350400	Jo Heuschele	6/26/2007	625397	5019332	7.75	ft	No	626989	5019661	10	ft	No	627560	5020312	6	ft	Yes
McCann Lake	2350400	Jo Heuschele	7/21/2007	625397	5019332	7	ft	No	626989	5019661	7.25	ft	No	627560	5020312	6	ft	Yes
McCann Lake	2350400	Jo Heuschele	8/6/2007	625397	5019332	5.75	ft	No	626989	5019661	6.25	ft	No	627560	5020312	6	ft	Yes
Menomin Lake	2065900	Jo Heuschele	7/11/2007	585016	4970565	3	ft	No	586864	4972524	2.5	ft	No	586014	4971582	2.75	ft	No
Menomin Lake	2065900	Jo Heuschele	8/3/2007	585016	4970565	3	ft	No	586864	4972524	1.5	ft	No	586014	4971582	2.75	ft	No
Menomin Lake	2065900	Jo Heuschele	8/23/2007	585016	4970565	1.75	ft	No	586864	4972524	no reading	ft	No	586014	4971582	3	ft	No
Old Abe Lake	2174700	Jo Heuschele	6/12/2007	637095	4991446	3.75	ft	No	637360	4992244	3.5	ft	No	637699	4992999	3.5	ft	No
Old Abe Lake	2174700	Jo Heuschele	7/17/2007	637095	4991446	3.5	ft	No	637360	4992244	3.5	ft	No	637699	4992999	3.5	ft	No
Old Abe Lake	2174700	Jo Heuschele	8/7/2007	637095	4991446	4	ft	No	637360	4992244	4	ft	No	637699	4992999	4	ft	No
Pike Lake	2157900	Jo Heuschele	7/12/2007	651044	4993774	8	ft	No	651453	4993283	8	ft	No	651290	4992835	8	ft	No
Pike Lake	2157900	Jo Heuschele	8/3/2007	651044	4993774	7.5	ft	No	651453	4993283	7.25	ft	No	651290	4992835	6	ft	No
Pike Lake	2157900	Jo Heuschele	8/20/2007	651044	4993774	5.75	ft	No	651453	4993283	6	ft	No	651290	4992835	5.75	ft	No
Popple Lake	2173900	Jo Heuschele	6/11/2007	633800	4990810	7.5	ft	No	633640	5499042	8	ft	No	633459	4989987	8.25	ft	No
Popple Lake	2173900	Jo Heuschele	7/17/2007	633800	4990810	7	ft	No	633640	5499042	7	ft	No	633459	4989987	7	ft	No
Popple Lake	2173900	Jo Heuschele	8/7/2007	633800	4990810	4.5	ft	No	633640	5499042	5	ft	No	633459	4989987	4.75	ft	No
Tainter Lake	2068000	Jo Heuschele	7/11/2007	591445	4981994	2	ft	No	590823	4982835	3	ft	No	589542	4981808	no reading	ft	No
Tainter Lake	2068000	Jo Heuschele	8/6/2007	591445	4981994	2.25	ft	No	590823	4982835	2	ft	No	589542	4981808	2	ft	No
Tainter Lake	2068000	Jo Heuschele	8/23/2007	591445	4981994	2.25	ft	No	590823	4982835	3	ft	No	589542	4981808	3.5	ft	No
Tilden Mill Pond	2151200	Jo Heuschele	6/18/2007	624437	4983014	5	ft	No	-	-	-	-	-	-	-	-	-	-
Tilden Mill Pond	2151200	Jo Heuschele	7/20/2007	624437	4983014	2	ft	No	-	-	-	-	-	-	-	-	-	-
Tilden Mill Pond	2151200	Jo Heuschele	8/9/2007	624437	4983014	3	ft	No	-	-	-	-	-	-	-	-	-	-

Table 10. Secchi disk readings taken at tow site locations on lakes surveyed in 2008. Colors indicate different GPS locations for Secchi disk readings, and dashes indicate that a second and/or third GPS location was not sampled.

Lake Name	WBIC	Data Collector(s)	Date Collected	Time	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Audie	2368700	Anna Brady	6/26/2008	10:00 AM	621908	5044862	4.75	ft	No	622531	5045470	6.1	ft	No	622502	5045005	5.5	ft	No
Audie	2368700	Anna Brady	8/14/2008	10:30 AM	621908	5044862	5	ft	No	622531	5045470	7	ft	No	622502	5045005	6.25	ft	No
Axhandle	2092500	Jo Heuschele	6/10/2008	9:00 AM	618694	5014660	11.5	ft	No	619202	5014731	11	ft	No	-	-	-	-	-
Axhandle	2092500	Jo Heuschele	7/7/2008	-	618694	5014660	10	ft	No	619202	5014731	10.25	ft	No	-	-	-	-	-
Axhandle	2092500	Anna Brady	7/31/2008	8:00 AM	618694	5014660	13.25	ft	No	619202	5014731	12.25	ft	No	-	-	-	-	-
Boot Lake	1836700	Jo Heuschele	6/17/2008	-	636347	5022059	7	ft	No	636075	5021567	6	ft	No	-	-	-	-	-
Boot Lake	1836700	Jo Heuschele	7/14/2008	-	636347	5022059	5.5	ft	No	636075	5021567	4.75	ft	No	-	-	-	-	-
Boot Lake	1836700	Jo Heuschele	8/5/2008	11:30 AM	636347	5022059	4.8	ft	No	636075	5021567	5.25	ft	No	-	-	-	-	-
Bucks Lake	2111700	Anna Brady	6/26/2008	2:00 PM	621095	5048094	4.75	ft	No	-	-	-	-	-	-	-	-	-	-
Bucks Lake	2111700	Jo Heuschele	7/23/2008	-	621095	5048094	7	ft	No	-	-	-	-	-	-	-	-	-	-
Bucks Lake	2111700	Anna Brady	8/14/2008	9:00 AM	621095	5048094	8	ft	No	-	-	-	-	-	-	-	-	-	-
Coon Fork Flowage	2135600	Jo Heuschele	6/2/2008	-	657362	4950792	2.25	ft	No	657071	4951170	2.5	ft	No	-	-	-	-	-
Coon Fork Flowage	2135600	Anna Brady	7/23/2008	2:00 PM	657362	4950792	3.5	ft	No	657071	4951170	3.25	ft	No	-	-	-	-	-
Coon Fork Flowage	2135600	Jo Heuschele	8/4/2008	-	657362	4950792	3.25	ft	No	657071	4951170	3	ft	No	-	-	-	-	-
Dark Lake	2092700	Jo Heuschele	6/10/2008	10:30 AM	619563	5014216	9.5	ft	No	-	-	-	-	-	-	-	-	-	-
Dark Lake	2092700	Jo Heuschele	7/7/2008	-	619563	5014216	7.75	ft	No	-	-	-	-	-	-	-	-	-	-
Dark Lake	2092700	Anna Brady	7/31/2008	9:00 AM	619563	5014216	7.75	ft	No	-	-	-	-	-	-	-	-	-	-
Dells Pond Lake	2149900	Anna Brady	6/9/2008	11:30 AM	617554	4965057	3.5	ft	No	619186	4965395	3.5	ft	No	618407	4966500	3.75	ft	No
Dells Pond Lake	2149900	Jo Heuschele	7/23/2008	-	617554	4965057	2.25	ft	No	619186	4965395	2.25	ft	No	618407	4966500	2.5	ft	No
Dells Pond Lake	2149900	Jo Heuschele	8/5/2008	8:30 AM	617554	4965057	4.25	ft	No	619186	4965395	3.75	ft	No	618407	4966500	5	ft	No
Eau Galle Lake	2056600	Jo Heuschele	6/4/2008	-	578009	4951286	3	ft	No	577956	4949917	4	ft	No	-	-	-	-	-
Eau Galle Lake	2056600	Jo Heuschele	7/10/2008	-	578009	4951286	2.25	ft	No	577956	4949917	2.5	ft	No	-	-	-	-	-
Eau Galle Lake	2056600	Anna Brady	8/18/2008	10:30 AM	578009	4951286	1	ft	No	577956	4949917	2.5	ft	No	-	-	-	-	-
Elk Creek	2121000	Jo Heuschele	6/4/2008	8:00 AM	606443	4962986	2.5	ft	No	-	-	-	-	-	-	-	-	-	-
Elk Creek	2121000	Jo Heuschele	7/10/2008	7:30 AM	606443	4962986	2.5	ft	No	-	-	-	-	-	-	-	-	-	-
Elk Creek	2121000	Jo Heuschele	8/5/2008	12:30 PM	606443	4962986	2.75	ft	No	-	-	-	-	-	-	-	-	-	-
Fall Creek Pond	2130100	Jo Heuschele	6/2/2008	8:00 AM	635868	4957985	1.75	ft	No	635929	4958263	1.75	ft	No	-	-	-	-	-
Fall Creek Pond	2130100	Jo Heuschele	7/23/2008	-	635868	4957985	1.75	ft	No	635929	4958263	2.5	ft	No	-	-	-	-	-
Fall Creek Pond	2130100	Jo Heuschele	8/4/2008	-	635868	4957985	5	ft	No	635929	4958263	6.5	ft	No	-	-	-	-	-
Hemlock Lake	1853400	Anna Brady	6/24/2008	9:30 AM	628272	5002937	8.25	ft	No	628363	5002568	7.5	ft	Yes	-	-	-	-	-
Hemlock Lake	1853400	Jo Heuschele	7/28/2008	-	628272	5002937	10	ft	No	628363	5002568	6	ft	No	-	-	-	-	-
Hemlock Lake	1853400	Anna Brady	8/11/2008	11:00 AM	628272	5002937	9	ft	No	628363	5002568	6.75	ft	Yes	-	-	-	-	-
Henneman Lake	2352500	Anna Brady	6/24/2008	11:00 AM	627448	5012247	5.33	ft	No	627667	5012482	5.6	ft	No	-	-	-	-	-
Henneman Lake	2352500	Jo Heuschele	7/16/2008	-	627448	5012247	4	ft	No	627667	5012482	4	ft	No	-	-	-	-	-
Henneman Lake	2352500	Jo Heuschele	8/7/2008	-	627448	5012247	2.75	ft	No	627667	5012482	2.75	ft	No	-	-	-	-	-
Horseshoe Lake	1854300	Jo Heuschele	6/23/2008	-	628573	5008347	8	ft	No	628677	5008127	7	ft	No	-	-	-	-	-
Horseshoe Lake	1854300	Anna Brady	7/17/2008	9:00 AM	628573	5008347	5.5	ft	No	628677	5008127	5.5	ft	No	-	-	-	-	-
Horseshoe Lake	1854300	Jo Heuschele	8/7/2008	-	628573	5008347	9.5	ft	No	628677	5008127	8	ft	No	-	-	-	-	-
Lake Como	2152100	Jo Heuschele	6/25/2008	11:00 AM	617433	4996241	2	ft	No	618358	4995345	2.5	ft	No	-	-	-	-	-
Lake Como	2152100	Jo Heuschele	7/21/2008	-	617433	4996241	1.75	ft	No	618358	4995345	2.5	ft	No	-	-	-	-	-
Lake Como	2152100	Anna Brady	8/13/2008	12:45 PM	617433	4996241	3	ft	No	618358	4995345	2	ft	No	-	-	-	-	-
Loon Lake	1863000	Jo Heuschele	6/15/2008	12:00 PM	619997	5011609	6	ft	No	620337	5011331	5	ft	No	-	-	-	-	-
Loon Lake	1863000	Jo Heuschele	7/7/2008	-	619997	5011609	6	ft	No	620337	5011331	6	ft	No	-	-	-	-	-
Loon Lake	1863000	Anna Brady	7/31/2008	10:00 AM	619997	5011609	6	ft	No	620337	5011331	6.5	ft	No	-	-	-	-	-

Table 10 continued

Lake Name	WBIC	Data Collector(s)	Date Collected	Time	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Marsh Miller Lake	2171200	Jo Heuschele	6/5/2008	12:30 PM	626212	4999933	5	ft	No	626853	5001379	5	ft	No	626648	5002222	5	ft	No
Marsh Miller Lake	2171200	Jo Heuschele	7/28/2008	-	626212	4999933	1.25	ft	No	626853	5001379	1.25	ft	No	626648	5002222	0.75	ft	No
Marsh Miller Lake	2171200	Anna Brady	8/11/2008	1:00 PM	626212	4999933	1.5	ft	No	626853	5001379	1.25	ft	No	626648	5002222	1.5	ft	No
North Shattuck Lake	1869300	Anna Brady	6/24/2008	2:00 PM	623896	5008805	8.25	ft	No	623973	5009105	8.75	ft	No	-	-	-	-	-
North Shattuck Lake	1869300	Anna Brady	7/17/2008	12:15 PM	623896	5008805	8	ft	No	623973	5009105	7.5	ft	No	-	-	-	-	-
North Shattuck Lake	1869300	Anna Brady	8/11/2008	8:30 AM	623896	5008805	9.5	ft	No	623973	5009105	9	ft	No	-	-	-	-	-
Otter Lake	2157000	Anna Brady	6/3/2008	1:00 PM	662518	4991148	2.75	ft	No	661842	4993178	3.5	ft	No	661057	4994320	3.5	ft	No
Otter Lake	2157000	Anna Brady	7/9/2008	10:30 AM	662518	4991148	2	ft	No	661842	4993178	1.5	ft	No	661057	4994320	1.5	ft	No
Otter Lake	2157000	Jo Heuschele	8/4/2008	9:00 AM	662518	4991148	2	ft	No	661842	4993178	1.75	ft	No	661057	4994320	1.75	ft	No
Perch Lake	2368500	Anna Brady	6/24/2008	12:30 PM	623074	5045509	6.5	ft	No	623120	5045256	6.25	ft	No	-	-	-	-	-
Perch Lake	2368500	Jo Heuschele	7/23/2008	-	623074	5045509	5.5	ft	No	623120	5045256	5.5	ft	No	-	-	-	-	-
Perch Lake	2368500	Anna Brady	8/14/2008	12:00 PM	623074	5045509	5.25	ft	No	623120	5045256	5.25	ft	No	-	-	-	-	-
Plummer Lake	2348700	Jo Heuschele	6/22/2008	-	629615	5008387	6.5	ft	No	630026	5008473	5.5	ft	No	-	-	-	-	-
Plummer Lake	2348700	Anna Brady	7/17/2008	8:30 AM	629615	5008387	6.25	ft	No	630026	5008473	6	ft	No	-	-	-	-	-
Plummer Lake	2348700	Jo Heuschele	8/7/2008	-	629615	5008387	4.25	ft	No	630026	5008473	4.75	ft	No	-	-	-	-	-
Pulaski Lake	1875900	Jo Heuschele	6/18/2008	-	635257	5022152	6.5	ft	No	634365	5021444	7	ft	No	-	-	-	-	-
Pulaski Lake	1875900	Jo Heuschele	7/14/2008	-	635257	5022152	5.5	ft	No	634365	5021444	5.5	ft	No	-	-	-	-	-
Pulaski Lake	1875900	Jo Heuschele	8/6/2008	10:30 AM	635257	5022152	5.75	ft	No	634365	5021444	8	ft	No	-	-	-	-	-
Rice Lake	2103900	Jo Heuschele	6/25/2008	9:00 AM	599205	5041035	4.5	ft	No	599408	5039539	5.5	ft	No	600348	5037836	8.5	ft	No
Rice Lake	2103900	Jo Heuschele	7/21/2008	-	599205	5041035	3	ft	No	599408	5039539	3.25	ft	No	600348	5037836	5.5	ft	No
Rice Lake	2103900	Anna Brady	8/13/2008	9:00 AM	599205	5041035	3.25	ft	No	599408	5039539	3.5	ft	No	600348	5037836	3.75	ft	No
Rock Lake	2171600	Jo Heuschele	6/5/2008	-	627759	5005429	6	ft	No	627931	5005000	No reading	ft	No	627854	5004716	7	ft	No
Rock Lake	2171600	Jo Heuschele	7/28/2008	-	627759	5005429	3.25	ft	No	627931	5005000	3.5	ft	No	627854	5004716	3.5	ft	No
Rock Lake	2171600	Anna Brady	8/11/2008	11:30 AM	627759	5005429	3.25	ft	No	627931	5005000	3.5	ft	No	627854	5004716	3.25	ft	No
Round Lake (Rusk)	1878200	Jo Heuschele	6/18/2008	-	635226	5023301	2.75	ft	No	-	-	-	-	-	-	-	-	-	-
Round Lake (Rusk)	1878200	Jo Heuschele	7/14/2008	-	635226	5023301	2	ft	No	-	-	-	-	-	-	-	-	-	-
Round Lake (Rusk)	1878200	Jo Heuschele	8/6/2008	8:00 AM	635226	5023301	2.75	ft	No	-	-	-	-	-	-	-	-	-	-
Round Lake (Chip)	2169200	Jo Heuschele	6/15/2008	-	621417	5011679	4.5	ft	No	-	-	-	-	-	-	-	-	-	-
Round Lake (Chip)	2169200	Jo Heuschele	7/7/2008	-	621417	5011679	4.5	ft	No	621724	5012097	4.5	ft	No	-	-	-	-	-
Round Lake (Chip)	2169200	Anna Brady	7/31/2008	10:45 AM	621417	5011679	5.75	ft	No	621724	5012097	5.75	ft	No	-	-	-	-	-
South Shattuck Lake	1879300	Jo Heuschele	6/18/2008	-	624426	5007991	9.5	ft	No	624363	5008327	11.5	ft	No	-	-	-	-	-
South Shattuck Lake	1879300	Jo Heuschele	8/11/2008	9:45 AM	624426	5007991	13.25	ft	No	624363	5008327	12.5	ft	No	-	-	-	-	-
Townline Lake	2172600	Jo Heuschele	6/22/2008	-	627689	5007521	6.5	ft	No	628275	5007760	8	ft	No	-	-	-	-	-
Townline Lake	2172600	Anna Brady	7/17/2008	10:00 AM	627689	5007521	5.5	ft	No	628275	5007760	6	ft	No	-	-	-	-	-
Townline Lake	2172600	Jo Heuschele	8/7/2008	-	627689	5007521	6	ft	No	628275	5007760	6	ft	No	-	-	-	-	-
Two Island Lake	1887500	Jo Heuschele	5/25/2008	12:30 PM	625923	5010047	17.5	ft	No	626080	5010222	16.75	ft	No	-	-	-	-	-
Two Island Lake	1887500	Jo Heuschele	7/28/2008	-	625923	5010047	17.25	ft	No	626080	5010222	16.25	ft	No	-	-	-	-	-
Two Island Lake	1887500	Jo Heuschele	8/13/2008	11:00 AM	625923	5010047	16.75	ft	No	626080	5010222	17.25	ft	No	-	-	-	-	-

Table 11. Secchi disk readings taken at tow site locations on lakes surveyed in 2009. Colors indicate different GPS locations for Secchi disk readings, and dashes indicate that a second and/or third GPS location was not sampled.

Lake Name	WBIC	Data Collector(s)	Date Collected	Time	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Anderson Lake	1832100	Anna Mares	06/22/09	4:00 PM	583745	5050494	5	ft	N	-	-	-	-	-	-	-	-	-	-
Anderson Lake	1832100	Anna Mares	07/15/09	1:00 PM	583745	5050494	5.5	ft	N	-	-	-	-	-	-	-	-	-	-
Anderson Lake	1832100	Anna Mares	08/11/09	11:30 AM	583745	5050494	2.75	ft	N	-	-	-	-	-	-	-	-	-	-
Barron Flowage #1	2096700	Anna Mares	06/18/09	2:30 PM	590858	5028162	5	ft	N	-	-	-	-	-	-	-	-	-	-
Bass Lake	1832800	Anna Mares	7/13/2009	11:30 AM	609793	5016839	8.75	ft	N	-	-	-	-	-	-	-	-	-	-
Bass Lake	1832800	Anna Mares	8/5/2009	2:30 PM	609793	5016839	11.75	ft	N	-	-	-	-	-	-	-	-	-	-
Bear Lake	2105100	Anna Mares	06/16/09	11:30 AM	593853	5052853	8	ft	N	591120	5054625	8	ft	N	592817	5053357	8.5	ft	N
Bear Lake	2105100	Anna Mares	07/15/09	9:00 AM	593853	5052853	9	ft	N	591120	5054625	9	ft	N	592817	5053357	8	ft	N
Bear Lake	2105100	Anna Mares	08/10/09	11:30 AM	593853	5052853	6.75	ft	N	591120	5054625	7.25	ft	N	592817	5053357	7.5	ft	N
Beaver Dam Lake	2081200	Anna Mares	06/29/09	15:00	572375	5046884	14.75	ft	N	573652	5045266	15	ft	N	575673	5044466	13	ft	N
Beaver Dam Lake	2081200	Anna Mares	07/28/09	3:30 PM	572375	5046884	13	ft	N	573652	5045266	12	ft	N	575673	5044466	14	ft	N
Beaver Dam Lake	2081200	Anna Mares	08/18/09	9:00	572375	5046884	13.5	ft	N	573652	5045266	13.5	ft	N	575673	5044466	12.25	ft	N
Big Dummy Lake	1835100	Anna Mares	06/24/09	15:00	579453	5047281	8	ft	N	579631	5047007	8.75	ft	N	-	-	-	-	-
Big Dummy Lake	1835100	Anna Mares	07/21/09	10:00 AM	579453	5047281	9.5	ft	N	579631	5047007	9.5	ft	N	-	-	-	-	-
Big Dummy Lake	1835100	Anna Mares	08/17/09	1:00 PM	579453	5047281	9.75	ft	N	579631	5047007	8	ft	N	-	-	-	-	-
Big Moon Lake	2079000	Anna Mares	07/02/09	9:00	568571	5021433	8	ft	N	569080	5021186	8	ft	N	569597	5021264	7.5	ft	N
Big Moon Lake	2079000	Anna Mares	07/28/09	9:45 AM	568571	5021433	6.75	ft	N	569080	5021186	6.5	ft	N	569597	5021264	6	ft	N
Big Moon Lake	2079000	Anna Mares	08/19/09	2:00 PM	568571	5021433	9.25	ft	N	569080	5021186	11.5	ft	N	569597	5021264	10.5	ft	N
Butternut Lake	2105800	Anna Mares	06/17/09	11:30 AM	585475	5053875	4	ft	N	585467	5053422	4	ft	N	-	-	-	-	-
Butternut Lake	2105800	Anna Mares	07/15/09	15:00	585475	5053875	4.25	ft	N	585467	5053422	4.5	ft	N	-	-	-	-	-
Butternut Lake	2105800	Anna Mares	08/11/09	9:00 AM	585475	5053875	2.75	ft	N	585467	5053422	3	ft	N	-	-	-	-	-
Chain Lake	1840100	Anna Mares	06/17/09	15:45	605904	5051594	3.5	ft	N	-	-	-	-	-	-	-	-	-	-
Chain Lake	1840100	Anna Mares	07/14/09	3:00 PM	605904	5051594	2.25	ft	N	-	-	-	-	-	-	-	-	-	-
Chain Lake	1840100	Anna Mares	08/10/09	2:30 PM	605904	5051594	0.75	ft	N	-	-	-	-	-	-	-	-	-	-
Duck Lake	2100300	Anna Mares	06/25/09	9:00	578399	5045608	4.5	ft	N	578736	5045368	5.5	ft	N	-	-	-	-	-
Duck Lake	2100300	Anna Mares	07/23/09	9:30 AM	578399	5045608	4	ft	N	578736	5045368	3.75	ft	N	-	-	-	-	-
Duck Lake	2100300	Anna Mares	08/17/09	11:00	578399	5045608	3	ft	N	578736	5045368	3	ft	N	-	-	-	-	-
Echo lake	2630200	Anna Mares	07/01/09	17:30	567543	5033175	14	ft	N	568332	5032956	10.5	ft	N	567957	5032576	11.5	ft	N
Granite Lake	2100800	Anna Mares	06/23/09	4:00 PM	577393	5048681	4.5	ft	N	577339	5047967	5	ft	N	577479	5047171	5	ft	N
Granite Lake	2100800	Anna Mares	07/23/09	11:45 AM	577393	5048681	5.75	ft	N	577339	5047967	6	ft	N	577479	5047171	4.75	ft	N
Granite Lake	2100800	Anna Mares	08/17/09	2:30 PM	577393	5048681	6.5	ft	N	577339	5047967	7	ft	N	577479	5047171	8	ft	N
Hemlock Lake	2109800	Anna Mares	06/15/09	4:00 PM	612536	5047301	8.5	ft	N	611370	5046812	8.75	ft	N	612055	5047231	8.75	ft	N
Hemlock Lake	2109800	Anna Mares	07/14/09	11:00 AM	612536	5047301	4	ft	N	611370	5046812	4.75	ft	N	612055	5047231	3.25	ft	N
Hemlock Lake	2109800	Anna Mares	08/06/09	10:00	612536	5047301	3	ft	N	611370	5046812	3.25	ft	N	612055	5047231	3	ft	N
Horseshoe Lake	2469800	Anna Mares	06/23/09	11:00	571541	5052890	11	ft	N	570984	5053125	11.5	ft	N	-	-	-	-	-
Horseshoe Lake	2469800	Anna Mares	07/23/09	3:30 PM	571541	5052890	8.5	ft	N	570984	5053125	7.75	ft	N	-	-	-	-	-
Horseshoe Lake	2469800	Anna Mares	08/12/09	10:45	571541	5052890	8.75	ft	N	570984	5053125	7.5	ft	N	-	-	-	-	-
Kirby Lake	1858200	Anna Mares	06/23/09	1:30 PM	572708	5050263	7.5	ft	N	-	-	-	-	-	-	-	-	-	-
Kirby Lake	1858200	Anna Mares	07/23/09	2:00 PM	572708	5050263	6	ft	N	-	-	-	-	-	-	-	-	-	-
Kirby Lake	1858200	Anna Mares	08/12/09	9:30	572708	5050263	7.25	ft	N	-	-	-	-	-	-	-	-	-	-
Lake Chetek	2094000	Anna Mares	06/09/09	13:00	607248	5018328	2.5	ft	N	607279	5019782	2.5	ft	N	-	-	-	-	-
Lake Chetek	2094000	Anna Mares	07/13/09	12:45	607248	5018328	2	ft	N	607279	5019782	2	ft	N	-	-	-	-	-
Lake Chetek	2094000	Anna Mares	08/05/09	10:00 AM	607248	5018328	1.5	ft	N	607279	5019782	1.25	ft	N	-	-	-	-	-
Lake Desair	2104500	Anna Mares	06/17/09	13:00	595066	5043681	3.25	ft	N	595424	5044056	3.25	ft	N	595600	5044364	3.25	ft	N
Lake Desair	2104500	Anna Mares	07/14/09	4:00 PM	595066	5043681	5.75	ft	N	595424	5044056	8.25	ft	N	595600	5044364	7.25	ft	N
Lake Desair	2104500	Anna Mares	08/10/09	8:30	595066	5043681	5.5	ft	N	595424	5044056	5.25	ft	N	595600	5044364	5.5	ft	N
Lake Montanis	2103200	Anna Mares	06/18/09	9:30 AM	601274	5036829	2.25	ft	N	-	-	-	-	-	-	-	-	-	-

Table 11 continued

Lake Name	WBIC	Data Collector(s)	Date Collected	Time	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Lake Montanis	2103200	Anna Mares	07/21/09	4:00 PM	601274	5036829	2	ft	N	-	-	-	-	-	-	-	-	-	-
Lake Montanis	2103200	Anna Mares	08/12/09	15:00	601274	5036829	1.75	ft	N	-	-	-	-	-	-	-	-	-	-
Lake of the Woods	2632100	Anna Mares	06/24/09	9:00 AM	566107	5042222	2	ft	N	-	-	-	-	-	-	-	-	-	-
Lake of the Woods	2632100	Anna Mares	07/27/09	3:00 PM	566107	5042222	1.25	ft	N	-	-	-	-	-	-	-	-	-	-
Lake of the Woods	2632100	Anna Mares	08/18/09	11:00	566107	5042222	1.25	ft	N	-	-	-	-	-	-	-	-	-	-
Lake Thirty	2099900	Anna Mares	06/22/09	9:30 AM	585701	5047891	6	ft	N	585809	5048406	6	ft	N	-	-	-	-	-
Lake Thirty	2099900	Anna Mares	07/15/09	4:30 PM	585701	5047891	4.25	ft	N	585809	5048406	5.25	ft	N	-	-	-	-	-
Lake Thirty	2099900	Anna Mares	08/11/09	2:30 PM	585701	5047891	4.75	ft	N	585809	5048406	4.5	ft	N	-	-	-	-	-
Little Granite Lake	1861600	Anna Mares	06/24/09	5:00 PM	578130	5046973	12.5	ft	N	-	-	-	-	-	-	-	-	-	-
Little Granite Lake	1861600	Anna Mares	07/20/09	6:00 PM	578130	5046973	11	ft	N	-	-	-	-	-	-	-	-	-	-
Little Granite Lake	1861600	Anna Mares	08/12/09	8:00 AM	578130	5046973	11.5	ft	N	-	-	-	-	-	-	-	-	-	-
Little Moon Lake	2079100	Anna Mares	07/02/09	10:00 AM	566226	5021119	4	ft	N	-	-	-	-	-	-	-	-	-	-
Little Moon Lake	2079100	Anna Mares	07/28/09	11:30 AM	566226	5021119	2	ft	N	-	-	-	-	-	-	-	-	-	-
Little Moon Lake	2079100	Anna Mares	08/19/09	13:00	566226	5021119	3	ft	N	-	-	-	-	-	-	-	-	-	-
Little Sand Lake	2661600	Anna Mares	06/25/09	3:00 PM	571250	5046271	8	ft	N	570714	5046993	7.5	ft	N	-	-	-	-	-
Little Sand Lake	2661600	Anna Mares	07/24/09	14:30	571250	5046271	4.75	ft	N	570714	5046993	4.5	ft	N	-	-	-	-	-
Little Sand Lake	2661600	Anna Mares	08/18/09	12:15 PM	571250	5046271	3	ft	N	570714	5046993	3.75	ft	N	-	-	-	-	-
Lower Turtle Lake	2079700	Anna Mares	06/30/09	10:30	572415	5026277	6	ft	N	571742	5027190	7.5	ft	N	572355	5026892	6.75	ft	N
Lower Turtle Lake	2079700	Anna Mares	07/29/09	12:30	572415	5026277	3	ft	N	571742	5027190	3.25	ft	N	572355	5026892	3.25	ft	N
Lower Turtle Lake	2079700	Anna Mares	08/20/09	11:30	572415	5026277	3	ft	N	571742	5027190	3.25	ft	N	572355	5026892	3	ft	N
Lower Vermillion Lake	2098200	Anna Mares	06/29/09	10:00 AM	581508	5040160	9.25	ft	N	580984	5040878	9	ft	N	580353	5040905	9	ft	N
Lower Vermillion Lake	2098200	Anna Mares	07/21/09	12:40 PM	581508	5040160	8	ft	N	580984	5040878	8.5	ft	N	580353	5040905	7.25	ft	N
Lower Vermillion Lake	2098200	Anna Mares	08/17/09	10:00	581508	5040160	11.75	ft	N	580984	5040878	13.5	ft	N	580353	5040905	8.75	ft	N
Mud Lake	2094600	Anna Mares	06/04/09	1:30 PM	605755	5023483	2.5	ft	N	-	-	-	-	-	-	-	-	-	-
Mud Lake	2094600	Anna Mares	07/13/09	14:00	605755	5023483	1.25	ft	N	-	-	-	-	-	-	-	-	-	-
Mud Lake	2094600	Anna Mares	08/05/09	12:30	605755	5023483	1.25	ft	N	-	-	-	-	-	-	-	-	-	-
North Lake	2630800	Anna Mares	06/24/09	11:00 AM	569991	5042149	4.5	ft	N	-	-	-	-	-	-	-	-	-	-
North Lake	2630800	Anna Mares	08/19/09	9:00	569991	5042149	5.25	ft	N	-	-	-	-	-	-	-	-	-	-
Pokegama Lake	2094300	Anna Mares	06/09/09	2:00	607126	5021807	2	ft	N	607268	5020850	2.25	ft	N	-	-	-	-	-
Pokegama Lake	2094300	Anna Mares	07/13/09	2:30 PM	607126	5021807	2	ft	N	607268	5020850	2.5	ft	N	-	-	-	-	-
Pokegama Lake	2094300	Anna Mares	08/05/09	11:30	607126	5021807	1.25	ft	N	607268	5020850	1.25	ft	N	-	-	-	-	-
Poskin Lake	2098000	Anna Mares	07/01/09	15:15	580412	5030692	5.5	ft	N	579804	5030662	4.5	ft	N	580501	5031241	6	ft	N
Poskin Lake	2098000	Anna Mares	07/29/09	2:00 PM	580412	5030692	2	ft	N	579804	5030662	2.5	ft	N	580501	5031241	2.25	ft	N
Poskin Lake	2098000	Anna Mares	08/20/09	13:00	580412	5030692	3	ft	N	579804	5030662	3	ft	N	580501	5031241	3	ft	N
Prairie Lake	2094100	Anna Mares	06/10/09	9:00 AM	605269	5020120	2.5	ft	N	603440	5023412	3.75	ft	N	600946	5026269	2.75	ft	N
Prairie Lake	2094100	Anna Mares	07/13/09	15:30	605269	5020120	1.75	ft	N	603440	5023412	2	ft	N	600946	5026269	2.5	ft	N
Prairie Lake	2094100	Anna Mares	08/05/09	9:00 AM	605269	5020120	1.5	ft	N	603440	5023412	1.75	ft	N	600946	5026269	2.25	ft	N
Red Cedar Lake	2109600	Anna Mares	06/11/09	14:00	609902	5049258	9.25	ft	N	609680	5051359	8.5	ft	N	609519	5052911	9.5	ft	N
Red Cedar Lake	2109600	Anna Mares	07/14/09	10:00 AM	609902	5049258	13.75	ft	N	609680	5051359	13.75	ft	N	609519	5052911	9.5	ft	N
Red Cedar Lake	2109600	Anna Mares	08/06/09	12:30	609902	5049258	11.5	ft	N	609680	5051359	11	ft	N	609519	5052911	12.25	ft	N
Sand Lake	2661100	Anna Mares	06/25/09	2:00 PM	568519	5050421	13	ft	N	569394	5049239	14	ft	N	570458	5048073	15	ft	N
Sand Lake	2661100	Anna Mares	07/24/09	12:15 PM	568519	5050421	10.5	ft	N	569394	5049239	13	ft	N	570458	5048073	11.5	ft	N
Sand Lake	2661100	Anna Mares	08/18/09	15:00	568519	5050421	6.5	ft	N	569394	5049239	6	ft	N	570458	5048073	6	ft	N
Scott Lake	2630700	Anna Mares	06/29/09	14:30	569465	5040692	9	ft	N	-	-	-	-	-	-	-	-	-	-
Scott Lake	2630700	Anna Mares	07/28/09	1:00 PM	569465	5040692	2.75	ft	N	-	-	-	-	-	-	-	-	-	-
Scott Lake	2630700	Anna Mares	08/18/09	16:30	569465	5040692	3	ft	N	-	-	-	-	-	-	-	-	-	-
Silver lake	1881100	Anna Mares	06/22/09	13:00	584172	5049343	13.5	ft	N	584343	5047945	14	ft	N	584390	5047347	16.25	ft	N
Silver lake	1881100	Anna Mares	07/15/09	11:00 AM	584172	5049343	10.5	ft	N	584343	5047945	12.5	ft	Y	584390	5047347	13.5	ft	N

Table 11 continued

Lake Name	WBIC	Data Collector(s)	Date Collected	Time	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Silver lake	1881100	Anna Mares	08/11/09	13:30	584172	5049343	12	ft	N	584343	5047945	11.25	ft	N	584390	5047347	11.5	ft	N
Spider Lake	1882000	Anna Mares	06/17/09	9:00 AM	583551	5053448	8	ft	N	-	-	-	-	-	-	-	-	-	-
Spider Lake	1882000	Anna Mares	07/15/09	14:00	583551	5053448	7.75	ft	N	-	-	-	-	-	-	-	-	-	-
Spider Lake	1882000	Anna Mares	08/11/09	10:30 AM	583551	5053448	6.75	ft	N	-	-	-	-	-	-	-	-	-	-
Staples Lake	2631200	Anna Mares	06/30/09	13:00	566731	5038841	8	ft	N	566274	5038499	8	ft	N	-	-	-	-	-
Staples Lake	2631200	Anna Mares	07/27/09	1:30 PM	566731	5038841	4.5	ft	N	566274	5038499	4.25	ft	N	-	-	-	-	-
Staples Lake	2631200	Anna Mares	08/19/09	11:00	566731	5038841	1.5	ft	N	566274	5038499	2.25	ft	N	-	-	-	-	-
Sylvan Lake	1884800	Anna Mares	06/23/09	8:30 AM	581493	5051554	1	ft	N	581836	5050765	1	ft	N	-	-	-	-	-
Sylvan Lake	1884800	Anna Mares	07/20/09	4:00 PM	581493	5051554	4.5	ft	N	581836	5050765	4	ft	N	-	-	-	-	-
Sylvan Lake	1884800	Anna Mares	08/12/09	13:30	581493	5051554	8	ft	N	581836	5050765	5.75	ft	N	-	-	-	-	-
Upper Turtle Lake	2079800	Anna Mares	07/01/09	11:45	570789	5030164	8.75	ft	N	569985	5030861	12.25	ft	N	571219	5029505	10	ft	N
Upper Turtle Lake	2079800	Anna Mares	07/29/09	11:00 AM	570789	5030164	4.75	ft	N	569985	5030861	6	ft	N	571219	5029505	4.5	ft	N
Upper Turtle Lake	2079800	Anna Mares	08/20/09	10:00	570789	5030164	3.25	ft	N	569985	5030861	3.25	ft	N	571219	5029505	2.75	ft	N
Glen Loch Flowage	2151000	Anna Mares	07/06/09	10:00	626217	4979633	3	ft	N	-	-	-	-	-	-	-	-	-	-
Glen Loch Flowage	2151000	Anna Mares	07/30/09	10:00 AM	626217	4979633	6.75	ft	N	-	-	-	-	-	-	-	-	-	-
Glen Loch Flowage	2151000	Anna Mares	08/25/09	9:30	626217	4979633	8.5	ft	N	-	-	-	-	-	-	-	-	-	-
Triple Lake West	2044700	Anna Mares	7/13/2009	8:30 AM	627670	5011382	12	ft	N	-	-	-	-	-	-	-	-	-	-
Triple Lake West	2044700	Anna Mares	8/3/2009	8:00	627670	5011382	8	ft	N	-	-	-	-	-	-	-	-	-	-
Triple Lake West	2044700	Anna Mares	8/24/2009	11:00 AM	627670	5011382	8.25	ft	N	-	-	-	-	-	-	-	-	-	-
Altoona Lake	2128100	Anna Mares	07/06/09	15:30	625127	4963193	2	ft	N	623384	4963816	3	ft	N	624108	4963388	3	ft	N
Altoona Lake	2128100	Anna Mares	07/30/09	12:00 PM	625127	4963193	2.75	ft	N	623384	4963816	3.25	ft	N	624108	4963388	4.5	ft	N
Altoona Lake	2128100	Anna Mares	08/25/09	14:00	625127	4963193	2.5	ft	N	623384	4963816	2	ft	N	624108	4963388	2.25	ft	N
Bass Lake	1833000	Anna Mares	06/02/09	9:00 AM	642025	5042896	11.25	ft	N	-	-	-	-	-	-	-	-	-	-
Bass Lake	1833000	Anna Mares	07/09/09	8:00 AM	642025	5042896	10	ft	N	-	-	-	-	-	-	-	-	-	-
Bass Lake	1833000	Anna Mares	08/03/09	16:30	642025	5042896	7	ft	N	-	-	-	-	-	-	-	-	-	-
Big Falls Flowage	2230100	Anna Mares	05/28/09	10:00	660208	5048874	6.75	ft	N	659698	5048012	5	ft	N	659086	5046847	4	ft	N
Big Falls Flowage	2230100	Anna Mares	07/07/09	5:00 PM	660208	5048874	5	ft	N	659698	5048012	6	ft	N	659086	5046847	6	ft	N
Big Falls Flowage	2230100	Anna Mares	08/04/09	10:00	660208	5048874	8.25	ft	N	659698	5048012	6	ft	N	659086	5046847	6	ft	N
Dairyland Reservoir	2229200	Anna Mares	05/29/09	13:00	657848	5043006	4	ft	N	654645	5040956	5.25	ft	N	652993	5039761	4	ft	N
Dairyland Reservoir	2229200	Anna Mares	07/07/09	3:30 PM	657848	5043006	10.25	ft	N	654645	5040956	7.5	ft	N	652993	5039761	6.5	ft	N
Dairyland Reservoir	2229200	Anna Mares	08/03/09	15:00	657848	5043006	5.5	ft	N	654645	5040956	7	ft	N	652993	5039761	7.5	ft	N
Fireside Lakes	2349500	Anna Mares	05/27/09	9:30 AM	629818	5019266	5.5	ft	N	631101	5020202	5.5	ft	N	-	-	-	-	-
Fireside Lakes	2349500	Anna Mares	07/08/09	13:00	629818	5019266	3	ft	N	631101	5020202	8.5	ft	N	-	-	-	-	-
Fireside Lakes	2349500	Anna Mares	08/04/09	13:30:00 AM	629818	5019266	4.25	ft	N	631101	5020202	8	ft	N	-	-	-	-	-
Ladysmith Flowage	2228700	Anna Mares	06/01/09	14:00	649557	5036426	4.25	ft	N	648860	5037891	4	ft	N	648197	5037295	4.25	ft	N
Ladysmith Flowage	2228700	Anna Mares	07/08/09	11:00 AM	649557	5036426	5	ft	N	648860	5037891	6	ft	N	648197	5037295	4.25	ft	N
Ladysmith Flowage	2228700	Anna Mares	08/03/09	12:15	649557	5036426	5	ft	N	648860	5037891	5	ft	N	648197	5037295	5.5	ft	N
Murphy Flowage	2110900	Anna Mares	06/15/09	8:45 AM	616528	5047937	8	ft	N	-	-	-	-	-	-	-	-	-	-
Murphy Flowage	2110900	Anna Mares	07/14/09	2:00 PM	616528	5047937	5	ft	N	-	-	-	-	-	-	-	-	-	-
Murphy Flowage	2110900	Anna Mares	08/06/09	11:00	616528	5047937	8.5	ft	N	-	-	-	-	-	-	-	-	-	-
Potato Lake	2355300	Anna Mares	05/26/09	14:00	621751	5018491	10	ft	N	623333	5020187	10	ft	N	623182	5020683	9	ft	N
Potato Lake	2355300	Anna Mares	07/09/09	12:15 PM	621751	5018491	1	ft	N	623333	5020187	1	ft	N	623182	5020683	1	ft	N
Potato Lake	2355300	Anna Mares	08/04/09	17:00	621751	5018491	1.5	ft	N	623333	5020187	1.25	ft	N	623182	5020683	4.5	ft	N
Rusk Lake	1878800	Anna Mares	05/28/09	16:00	619492	5022093	12	ft	N	-	-	-	-	-	-	-	-	-	-
Rusk Lake	1878800	Anna Mares	07/09/09	9:00 AM	619492	5022093	9	ft	N	-	-	-	-	-	-	-	-	-	-
Rusk Lake	1878800	Anna Mares	08/04/09	18:00	619492	5022093	7.5	ft	N	-	-	-	-	-	-	-	-	-	-

Table 11 continued

Lake Name	WBIC	Data Collector(s)	Date Collected	Time	Northing	Easting	Secchi Reading 1	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 2	Secchi Units	Hit Bottom?	Northing	Easting	Secchi Reading 3	Secchi Units	Hit Bottom?
Sand Lake	2353600	Anna Mares	05/27/09	3:00 PM	628183	5015963	11.5	ft	N	628233	5016695	13	ft	N	629022	5017529	12	ft	N
Sand Lake	2353600	Anna Mares	07/09/09	15:00	628183	5015963	11.25	ft	N	628233	5016695	12.5	ft	N	629022	5017529	12.5	ft	N
Sand Lake	2353600	Anna Mares	08/04/09	2:30 PM	628183	5015963	12.5	ft	N	628233	5016695	16	ft	N	629022	5017529	18	ft	N
Thornapple Flowage	2227500	Anna Mares	06/02/09	14:00	642013	5030432	5.25	ft	N	640345	5051181	3.5	ft	N	639582	5030590	3.75	ft	N
Thornapple Flowage	2227500	Anna Mares	07/07/09	9:00 AM	642013	5030432	5	ft	N	640345	5051181	4.5	ft	N	639582	5030590	5	ft	N
Thornapple Flowage	2227500	Anna Mares	08/03/09	10:00 AM	642013	5030432	6.5	ft	N	640345	5051181	5.5	ft	N	639582	5030590	6.5	ft	N

Appendix D

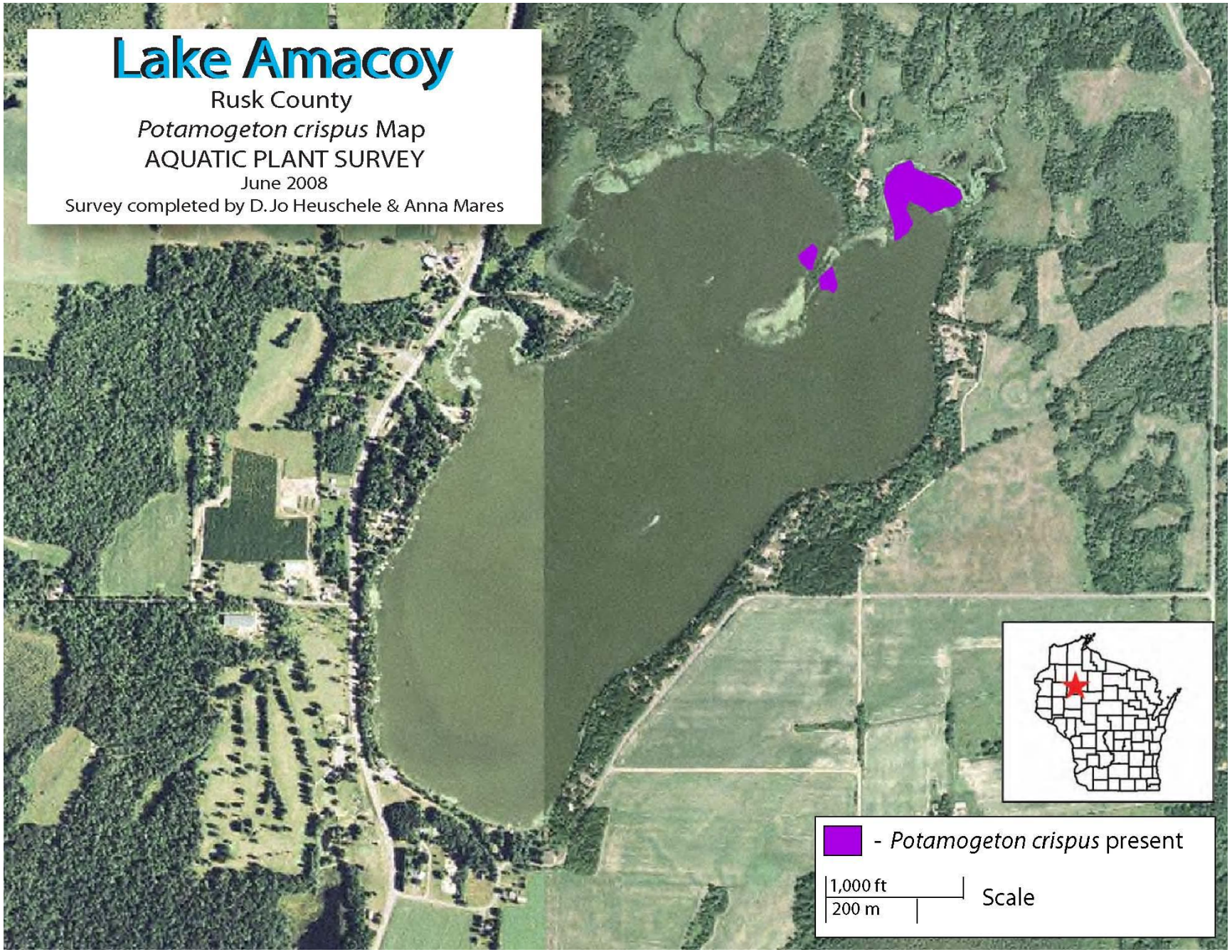
Table 12. List of lakes surveyed for aquatic plants and the approximate Floristic Quality Index (FQI) of each of those lakes. Lakes are listed in descending order from left to right, and greatest to smallest FQI, with a greater FQI indicating better water quality and less disturbance in the lake. Duplicate named lakes (i.e. Loon Lake and Loon Lake) are differentiated by the county that they are in, in parentheses. FQI values are considered approximate because only the plants listed in the individual lake reports were used to determine the FQI value and the plant sampling methods used to obtain those species lists are not considered full aquatic plant survey methods, which are necessary to receive a completely accurate FQI.

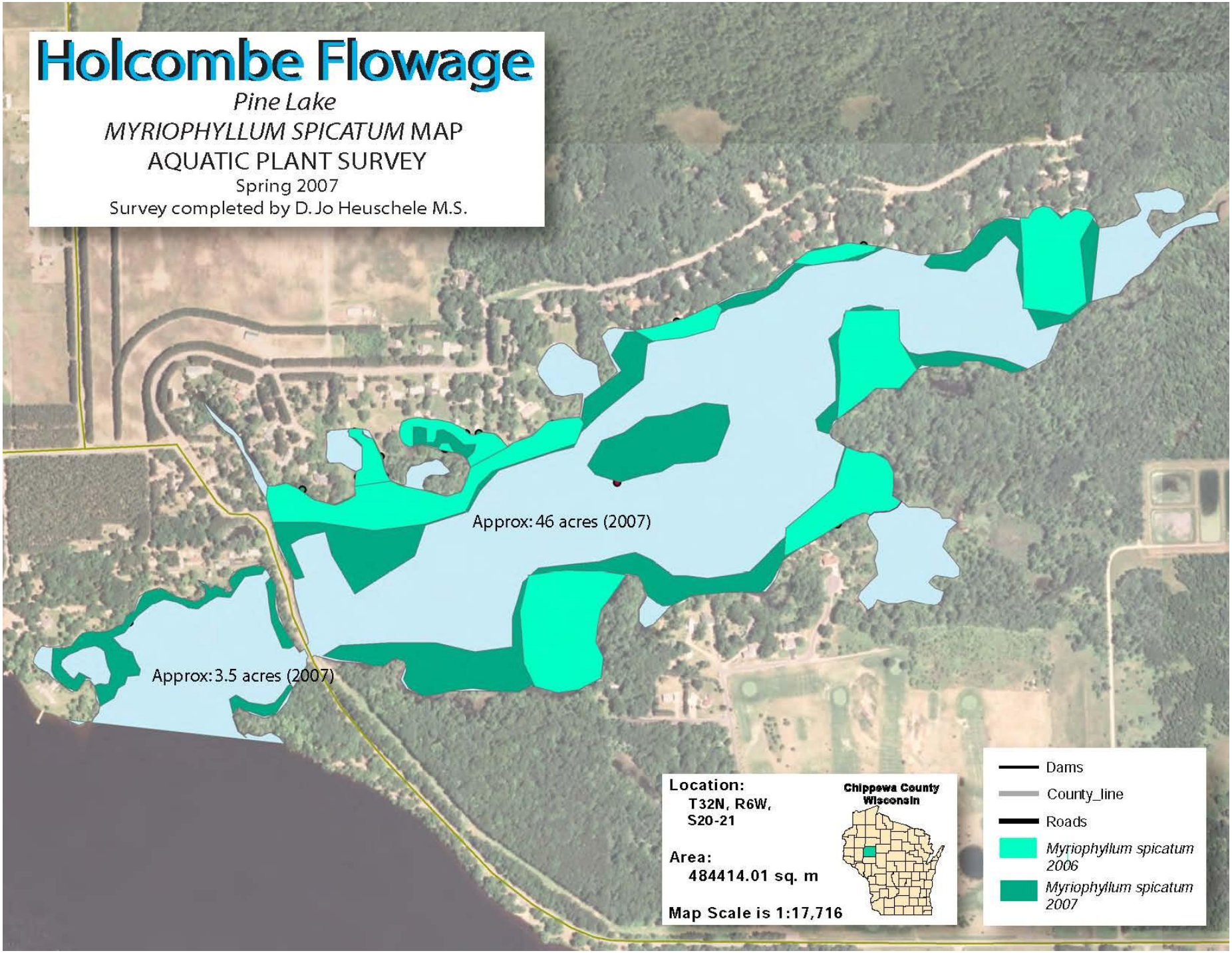
Lake Name (county if duplicate)	FQI
HORSESHOE LAKE (Barron)	36.66
NORTH LAKE	35.6
BEAR LAKE	34.64
HEMLOCK LAKE (Barron)	33.77
TRIPLE LAKE, WEST	33.7
SPIDER LAKE	33.47
KIRBY LAKE	32.52
LOON LAKE (Barron)	31.42
LAKE THIRTY	31.2
LEA FLOWAGE	31.2
MOON LAKE	30.97
RED CEDAR LAKE	30.82
LOWER VERMILLION LAKE	30.79
SAND LAKE (Barron)	30.79
SHATTUCK LAKE, NORTH	30.4
SCOTT LAKE	30.28
HEMLOCK LAKE (Chippewa)	30.25
BASS LAKE (Rusk)	29.96
BIG DUMMY LAKE	29.83
MCCANN LAKE	29.4
FIRESIDE LAKES	28.78
CHAIN LAKE (Chippewa)	28.56
CLEAR LAKE	28.39
TWO ISLAND LAKE	28.28
SILVER LAKE	28.14
BASS LAKE (Barron)	27.52
LITTLE SAND LAKE	27.34
MUD LAKE	27.27
MURPHY FLOWAGE	27.27
SAND LAKE (Rusk)	27.05
POPPLE LAKE	26.15
AUDIE LAKE	25.81
ROUND LAKE (Chippewa)	25.79
TURTLE LAKE, UPPER	25.49
ANDERSON LAKE	25.23

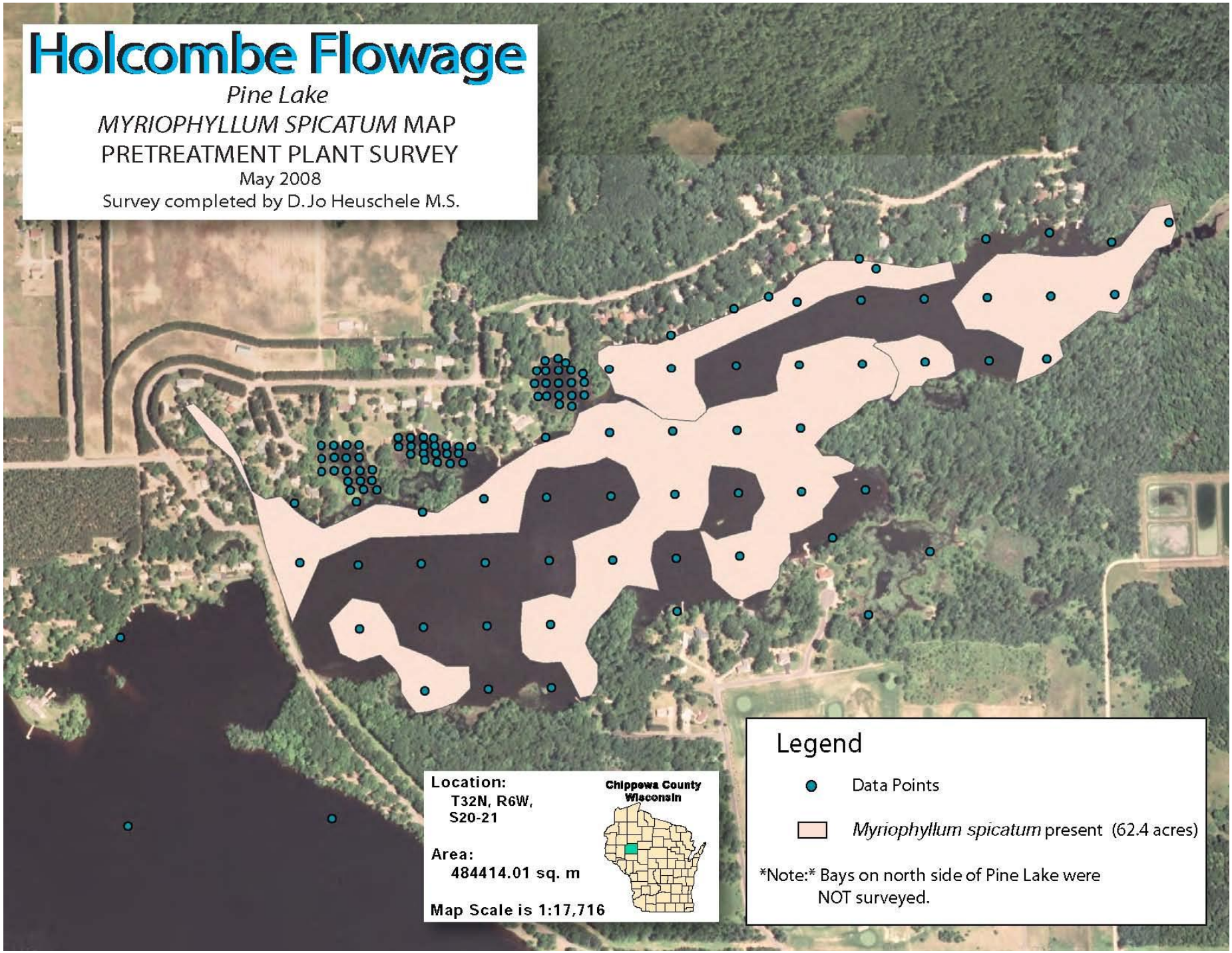
Lake Name (county if duplicate)	FQI
TENMILE LAKE	25.04
AXHANDLE LAKE	25.02
ISLAND LAKE	24.98
CORNELL LAKE	24.52
BUCKS LAKE	24.27
LITTLE GRANITE LAKE	24.24
SHATTUCK LAKE, SOUTH	24.12
TOWN LINE LAKE	24.12
PERCH LAKE	24.12
BUTTERNUT LAKE	24.05
MONTANIS, LAKE	24.04
BOOT LAKE	23.85
DUCK LAKE	23.75
PULASKI LAKE	23.67
SYLVAN LAKE	23.51
LAKE CHETEK	23.5
PIKE LAKE	23.25
LAKE OF THE WOODS	23.23
BIG MOON LAKE	23.09
AMACOY LAKE	23.02
ROCK LAKE	22.61
BOB LAKE #1	22.25
POTATO LAKE	22.25
POKEGAMA LAKE	22.2
EAU CLAIRE, LAKE	21.91
BARRON FLOWAGE # 1	21.68
THORNAPPLE FLOWAGE	21.63
PRAIRIE LAKE	21.5
POSKIN LAKE	21.25
STAPLES LAKE	21.25
GRANITE LAKE	21.17
BASS LAKE # 3	20.85
ROUND LAKE (Rusk)	20.85
TURTLE LAKE, LOWER	20.65
DARK LAKE	20.5

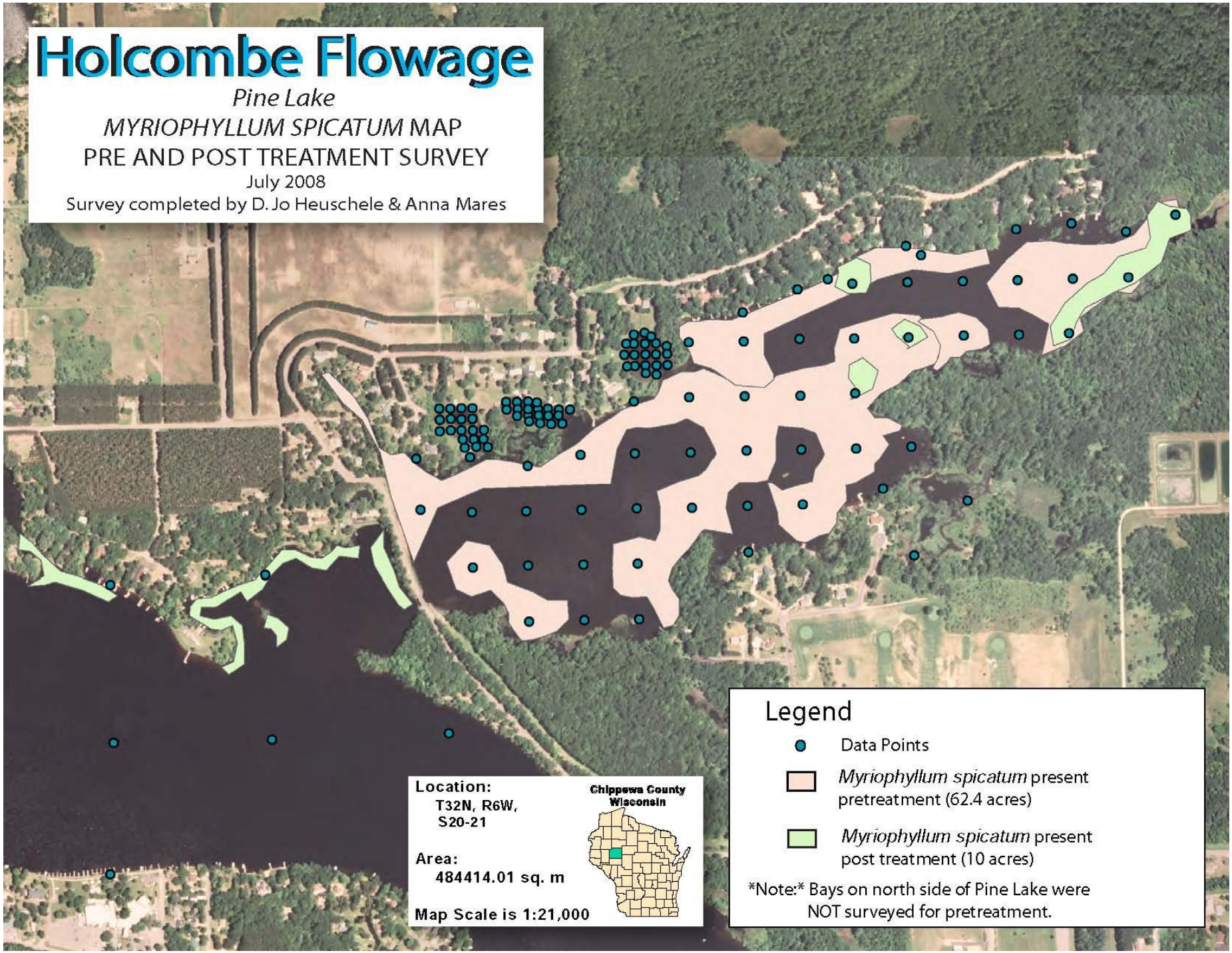
Lake Name (county if duplicate)	FQI
RUSK LAKE	20.49
MARSH-MILLER LAKE	19.96
DAIRYLAND RESERVOIR	19.96
BASS LAKE #2	19.79
PLUMMER LAKE	19.62
GLEN LOCH FLOWAGE	19.41
LAKE HALLIE	19.34
BARRON FLOWAGE # 3	19.24
CORNELL FLOWAGE	18.99
PRAIRIE FARM FLOWAGE	18.76
HENNEMAN LAKE	18.76
MENOMIN, LAKE	18.76
FIRTH LAKE	18.39
OLD ABE LAKE	18.39
LOON LAKE (Chippewa)	18.37
DESAIR LAKE	18.18
TILDEN MILL POND	18.02
ALTOONA LAKE	17.78
BIG FALLS FLOWAGE	17.33
HAY MEADOW Fl. # 1	17.32
LADYSMITH FLOWAGE	17.18
HORSESHOE LAKE (Chippewa)	17.00
TAINTER LAKE	16.88
CHAPMAN LAKE	16.83
HOWE LAKE	16.33
COON FORK FLOWAGE	16.26
CHIPPEWA FALLS FLOWAGE	15.55
OTTER LAKE	15.17
FALL CREEK POND	14.74
CHAIN LAKE (Barron)	13.08
EAU GALLE, LAKE	11.56
LAKE COMO	8.94
ELK CREEK LAKE	8.94
DELLS POND	8.5
LITTLE MOON LAKE	8.48

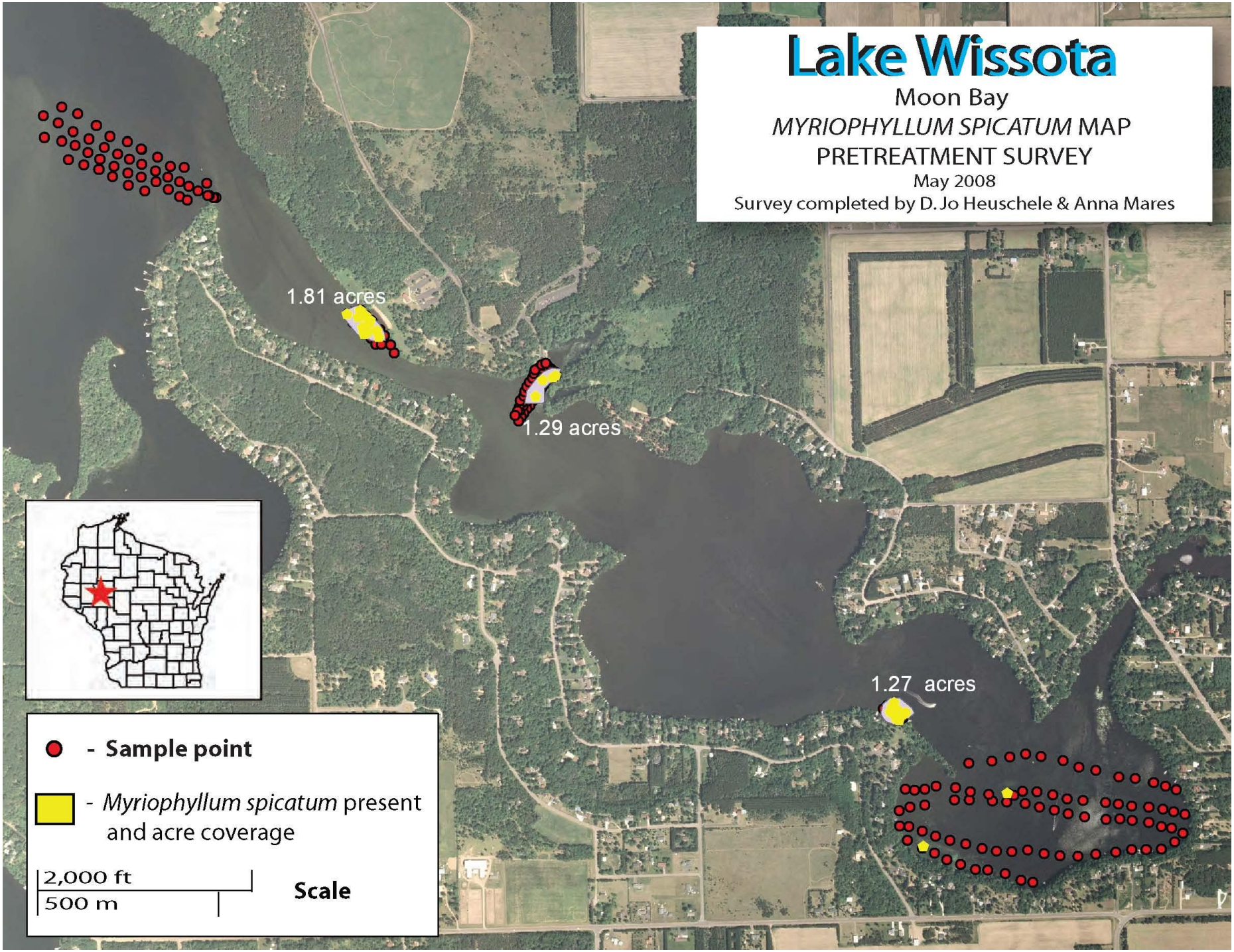
Appendix E

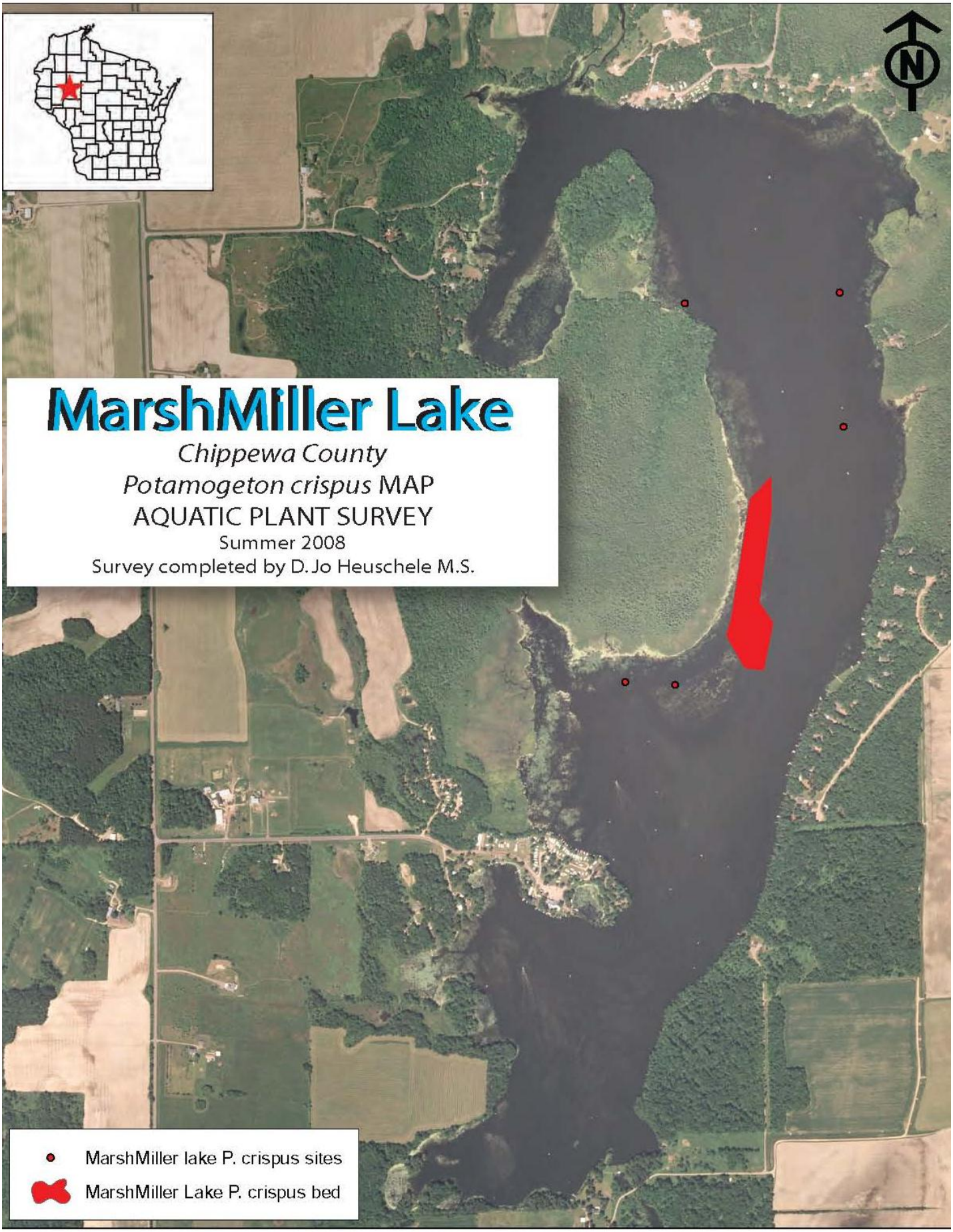

Lake Amacoy
Rusk County
Potamogeton crispus Map
AQUATIC PLANT SURVEY
June 2008
Survey completed by D. Jo Heuschele & Anna Mares
- Potamogeton crispus present
1,000 ft
200 m
Scale


Holcombe Flowage
Pine Lake
MYRIOPHYLLUM SPICATUM MAP
AQUATIC PLANT SURVEY
Spring 2007
Survey completed by D. Jo Heuschele M.S.
Approx: 46 acres (2007)
Approx: 3.5 acres (2007)
Location:
T32N, R6W,
S20-21
Area:
484414.01 sq. m
Map Scale is 1:17,716
Chippewa County
Wisconsin
Dams
County_line
Roads
Myriophyllum spicatum
2006
Myriophyllum spicatum
2007


Holcombe Flowage
Pine Lake
MYRIOPHYLLUM SPICATUM MAP
PRETREATMENT PLANT SURVEY
May 2008
Survey completed by D.Jo Heuschele M.S.
Location:
T32N, R6W,
S20-21
Area:
484414.01 sq. m
Map Scale is 1:17,716
Chippewa County
Wisconsin
Legend
Data Points
Myriophyllum spicatum present (62.4 acres)
Note: Bays on north side of Pine Lake were
NOT surveyed.


Holcombe Flowage
Pine Lake
MYRIOPHYLLUM SPICATUM MAP
PRE AND POST TREATMENT SURVEY
July 2008
Survey completed by D. Jo Heuschele & Anna Mares
Location:
T32N, R6W,
S20-21
Area:
484414.01 sq. m
Map Scale is 1:21,000
Chippewa County
Wisconsin
Legend
Data Points
Myriophyllum spicatum present
pretreatment (62.4 acres)
Myriophyllum spicatum present
post treatment (10 acres)
Note: Bays on north side of Pine Lake were
NOT surveyed for pretreatment.


Lake Wissota
Moon Bay
MYRIOPHYLLUM SPICATUM MAP
PRETREATMENT SURVEY
May 2008
Survey completed by D. Jo Heuschele & Anna Mares
1.81 acres
1.29 acres
1.27 acres
- Sample point
- Myriophyllum spicatum present and acre coverage
2,000 ft
500 m
Scale


MarshMiller Lake
Chippewa County
Potamogeton crispus MAP
AQUATIC PLANT SURVEY
Summer 2008
Survey completed by D. Jo Heuschele M.S.
N
MarshMiller lake P. crispus sites
MarshMiller Lake P. crispus bed
Meters
0
275
550
1,100

Appendix F

Lake Monitoring Newsletter

Beaver Creek Reserve Citizen Science Center

October 7, 2009 Volume 1, Issue 5 http://www.beavercreekreserve.org/CSC.

News from the Boat!

We are happy to report that the survey crew has finished up their field work for the summer. This brings an end to the third and final year of the Five County Aquatic Invasive Species Survey (AIS) in Barron, Dunn, Rusk, Chippewa and Eau Claire Counties. Over the 2009 summer, many AIS were found, but some of them had already been documented with the WI DNR, who keeps track of AIS distributions across the state. Of those that were new AIS listings for the lakes, 23 were Chinese mystery snails, two banded mystery snails, one rusty crayfish, zero spiny waterflea, zero zebra mussels, 20 curly-leaf pondweed, three Eurasian water milfoil, and three purple loostrife. These occurences were added to the online data base called SWIMS (Surface Water Integrated Monitoring System) with synthesized results on the DNR's website (http://dnr.wi.gov/lakes/ais/).

Over the course of the summer, we had numerous volunteers help us conduct our lake surveys. Without them, we would not have been able to complete our work or fulfill our grant requirements. Thank you! Approximately 920 hours were contributed to the project this past summer and 1,760 during the three years of the grant!!! A special thanks to Rollie Johnson and Bob and Dorthy Moe for the use of their watercraft to complete surveys, even while it was pouring out. Another thank you to Ted Ludwig for giving up an entire summer to volunteer with us.

The remainder of the fall will be spent on data entry, map making, and report writing. Each lake in the survey project will have a map and mini report available upon request by the beginning of December. I look forward to working with you all on future lake projects.

--Anna Mares

You're receiving this newsletter because you are either a volunteer for the Clean Boats, Clean Waters Project; a volunteer for the Aquatic Invasive Species (AIS) Monitoring Project; or a landowner / resident of one of the listed lakes. This newsletter, produced biweekly by Beaver Creek Reserve Citizen Science Center, is designed to keep you updated throughout the summer about these projects, whether as a volunteer or an interested party.

Larry Johnson and Jerry Johnson of Red Cedar Lake collecting a plankton net sample and rinsing the net off.

Lake Spotlight ~Lakes Menomin and Tainter~

This week's Lake Spotlight shines on Lakes Menomin and Tainter in Dunn County. Both lakes are a part of the Red Cedar River watershed and have one lake association that works with both lakes. Volunteers from the Lake Association have focused their efforts recently on water quality issues, especially the excess phosphorous in the lakes and the blue-green algae blooms that plague both lakes for much of the summer. Volunteers also contributed many hours to conducting watercraft inspections at area boat landings this summer and to monitoring streams that flow into their lakes! You can learn more about the Tainter/Menomin Lake Association through their website: http://www.tmlia.org.

Announcements

Thanks to your hard work, we made it through a successful first season of the Watercraft Inspection Project in Dunn, St. Croix, Eau Claire and Chippewa Counties! Volunteers contributed 1,038.25 hours to conducting watercraft inspections at boat landings! We nearly met our goal of 1,720 hours this summer and feel confident that we will surpass our goal of another 1,720 hours next year!

Volunteer Needs

We are already scheduling Watercraft Inspection Training Workshops for the 2010 summer season! Many groups like to schedule spring training sessions in March and April so that they are ready for the fishing opener in May! Call Anna at 715-877-2212 to schedule a training for your lake group and get a jump start on next summer!

Contact Information:
Anna Mares, AIS Project Coordinator, 715-877-2212, anna@beavercreekreserve.org
Sarah Braun, Citizen Science Director, 715-877-2212, sarah@beavercreekreserve.org
Beaver Creek Reserve, Citizen Science Center, 51 County Road K, Fall Creek WI 54742

Appendix G

Lake reports and corresponding lake maps in alphabetical order:

1. Altoona Lake
2. Amacoy Lake
3. Anderson Lake
4. Audie Lake
5. Axhandle Lake
6. Barron Flowage #1
7. Barron Flowage #3
8. Bass Lake #2
9. Bass Lake #3
10. Bass Lake (Barron)
11. Bass Lake (Rusk)
12. Bear Lake
13. Beaver Dam Lake
14. Big Dummy Lake
15. Big Falls Flowage
16. Big Moon Lake
17. Bob Lake
18. Boot Lake
19. Bucks Lake
20. Butternut Lake
21. Chain Lake (Barron)
22. Chain Lake (Chippewa)
23. Chapman Lake
24. Chippewa Falls Flowage
25. Clear Lake
26. Coon Fork Flowage
27. Cornell Flowage
28. Cornell Lake
29. Dairyland Reservoir
30. Dark Lake
31. Dells Pond
32. Duck Lake
33. Eau Claire Lake
34. Eau Galle Lake
35. Echo Lake
36. Elk Creek Lake
37. Fall Creek Pond
38. Fireside Lakes
39. Firth Lake
40. Glen Loch Flowage
41. Granite Lake
42. Haymeadow Flowage #1
43. Hemlock Lake (Barron)
44. Hemlock Lake (Chippewa)
45. Henneman Lake
46. Holcombe Flowage
47. Horseshoe Lake (Barron)
48. Horseshoe Lake (Chippewa)
49. Howe Lake
50. Island Lake
51. Kirby Lake
52. Ladysmith Flowage
53. Lake Chetek
54. Lake Como
55. Lake Desair
56. Lake Hallie
57. Lake Montanis
58. Lake of the Woods
59. Lake Thirty
60. Lake Wissota
61. Lea Flowage
62. Little Granite Lake
63. Little Moon Lake
64. Little Sand Lake
65. Long Lake
66. Loon Lake (Barron)
67. Loon Lake (Chippewa)
68. Lower Vermillion Lake
69. Marsh Miller Lake
70. McCann Lake
71. Menomin Lake
72. Moon Lake
73. Mud Lake
74. Murphy Flowage
75. North Lake
76. Old Abe Flowage
77. Otter Lake
78. Perch Lake
79. Pike Lake
80. Plummer Lake
81. Pokegama Lake
82. Popple Lake
83. Poskin Lake
84. Potato Lake
85. Prairie Farm Flowage
86. Prairie Lake
87. Pulaski Lake
88. Red Cedar Lake
89. Rice Lake
90. Rock Lake
91. Round Lake (Chippewa)
92. Round Lake (Rusk)
93. Rusk Lake
94. Sand Lake (Barron)
95. Sand Lake (Rusk)
96. Scott Lake
97. Shattuck Lake, North
98. Shattuck Lake, South
99. Silver Lake
100. Spider Lake
101. Staples Lake
102. Sylvan Lake
103. Tainter Lake
104. Tenmile Lake
105. Thornapple Flowage
106. Tilden Mill Pond
107. Town Line Lake
108. Triple Lake West
109. Turtle Lake, Lower
110. Turtle Lake, Upper
111. Two Island Lake

***Lakes not included in this list do not have reports or maps. For specific reasons, consult the section of this paper titled "Exceptions to why some portions or whole lakes were not surveyed" on page 21.**

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Ted Ludwig and Zoe Hastings

Altoona Lake (Waterbody Identification Code # 2128100)

Eau Claire County (T27N, R09W, S14 NW ¼ SW ¼)

Dates of Survey

Altoona Lake was surveyed on July 6, July 30, and August 25, 2009.

Boat Launch

There are two boat launches on Lake Altoona. The first is an unimproved launch on the northwest side of the lake, accessible from Indian Hills Dr. There is limited turnaround space and parking. There are no fees, a dock, or bathrooms. The second boat launch is at the Lake Altoona County Park, accessible from Kewin St. A fee of $3.00 per visit or a $25.00 annual pass is required for admittance to the park. There are flush toilets and running water with picnic areas for lunch. There is ample parking with around 15 truck and trailer stalls and 75 car stalls. There are two launch lanes with a wooden dock for each. The launches are asphalt to cement slabs that extend into the water. Signs request that boats do not power load onto trailers.

Native Plant List*

Common Name	**Scientific Name**
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Slender Naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Narrowleaf	*Potamogeton sp.*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 07/06/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Altoona was found to have an

approximate (as a full aquatic plant survey was not completed) FQI value of 17.78, lower than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Lake Altoona during the 2009 field season. *P. crispus* has already been documented as being in Lake Altoona. The largest beds of *P. crispus* were found in the northeast bay of the lake, near where County Road QS and QQ join, and the other was at the inlet of the Eau Claire river into Lake Altoona. *P. crispus* was found at only two of 23 transects used for sampling aquatic plants, set at 1,500 ft intervals around the perimeter of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 30, 2009 sampling. The invasive Chinese mystery snail was found in Lake Altoona.

Secchi Disk Readings

Filamentous algae kept Secchi disk readings low throughout the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 6, 2009	July 30, 2009	August 24, 2009
Site #1	15T 0625127 4963193	2 ft	2.75	2.5 ft
Site #2	15T 0623384 4963816	3 ft	3.25	2 ft
Site #3	15T 624108 49963388	3 ft	4.5	2.25 ft

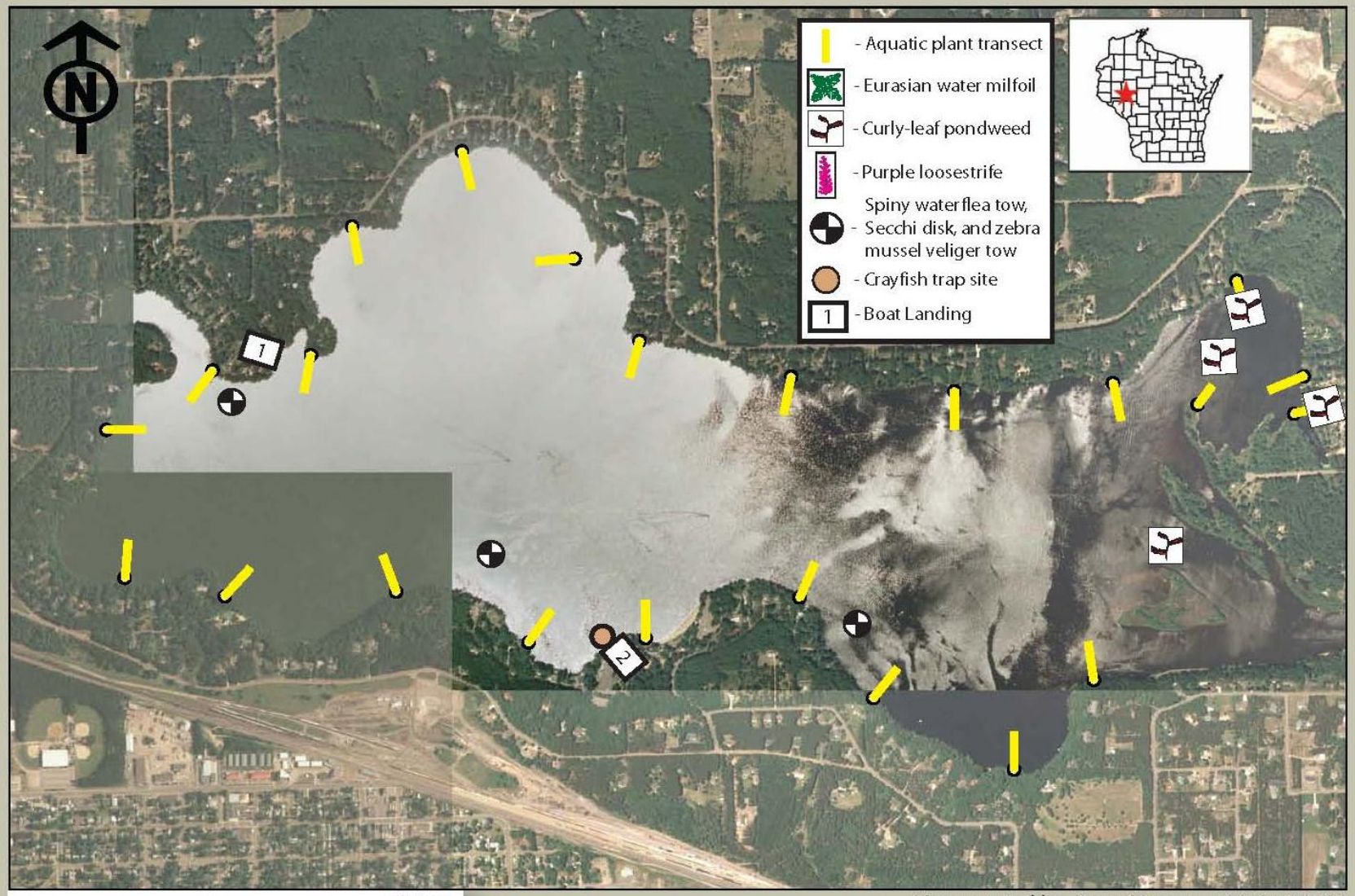
Lake and Shoreline Conditions

The only areas that are not developed are the shallow/low lying sand bars on the east side of the lake. They are kept natural. Lake Altoona's shoreline is approximately 95% developed with almost every house having a dock. About 75% of the homes have a section of poor buffer or no buffer at all in the permitted viewing space. Lake Altoona appeared to have a healthy zooplankton population of various species. The zooplankton that was present was large in size.

Aquatic Invasive Species Survey of

Lake Altoona, Eau Claire County

Data collected by Anna Mares, Ted Ludwig and Zoe Hastings on July 6, July 30, and August 24, 2007



Map created by Anna Mares on 19-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Amacoy Lake (Waterbody Identification Code # 2359700)

Rusk County (T34N R08W S25 NW ¼ NE ¼)

Dates of Survey

Amacoy Lake was surveyed on July 12, and July 31, 2007.

Boat Launch

The boat launch is located on the western shore of the lake off of Highway 40. The landing is unimproved. The launch is dirt/gravel to the water. No restrooms are present and no fees are required.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Fern Pondweed	*Potamogeton robbinsii*
Narrowleaf Pondweed	*Potamogeton sp.*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Soft-stem Bulrush	*Scirpus validus*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 7/31/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Amacoy Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 23.02, slightly higher than the state average.

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Amacoy Lake during the 2008 field season. A large bed of *P. crispus* was found in the northeast bay of the lake, but at no other locations.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 31, 2007 sampling.

Secchi Disk Readings

Readings decreased slightly throughout the summer. Blue green algae were present in the water during the summers of 2007, 2008, and 2009. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 12, 2007	July 31, 2007
Site #1	15T 0631769 5027922	4.5 ft	3.5 ft
Site #2	15T 0632127 5028374	4.5 ft	4.0 ft
Site #3	15T 0631942 5028871	4.5 ft	4.0 ft

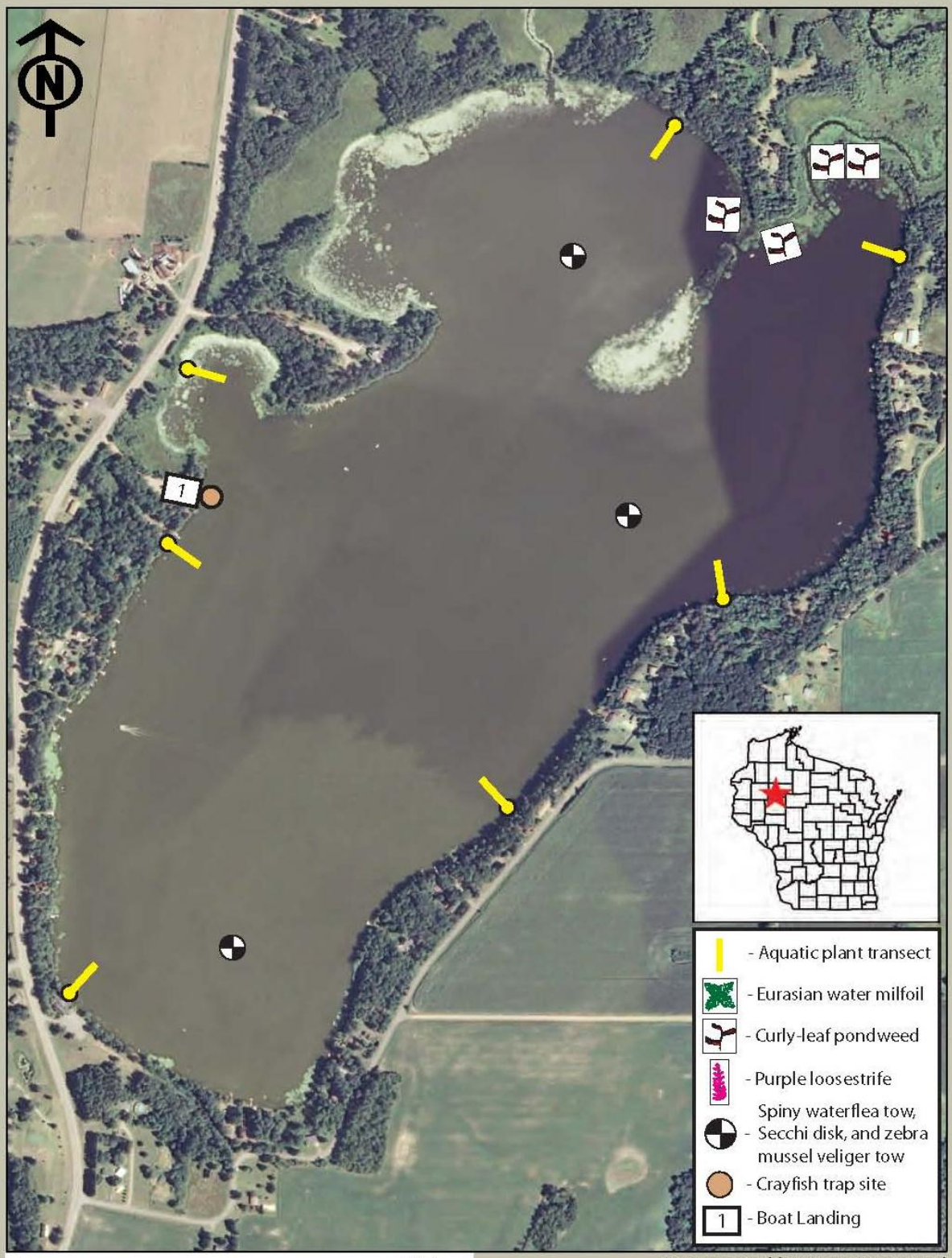
Lake and Shoreline Conditions

The majority of the shoreline is privately owned in lots ranging from 45’ to > 500’ of frontage. Most properties along Lake Amacoy with permanent structures, i.e. homes, parks, campgrounds, have at least a 10ft buffer of tall grasses and forbs. The north shore and the West shore north of the landing have natural shorelines a minimum of 30ft from the waterline, the recommended distance by the Wisconsin Department of Natural Resources for a buffer zone. Sections of the shoreline have been left wild, providing a great buffer and habitat for wildlife.

Aquatic Invasive Species Survey of

Lake Amacoy, Rusk County

Data collected by Jo Heuschele and Shelby Happe on July 12, and July 31, 2007



Map created by Anna Mares and Jacob Sutherland on 23-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Ted Ludwig, Christine Preist, Jenny Pomeroy
and Judy Schwarzmeier

Anderson Lake (Waterbody Identification Code # 1832100)

Barron County (T36N R13W S13 NW ¼ SW ¼)

Dates of Survey

Anderson Lake was surveyed on June 22, July 15, and August 11, 2009

Boat Launch

Anderson Lake has one boat launch accessible from 27 ½ Ave. on the west side of the lake. The launch is short, less than a boat length, from the road to the water's edge. There is no turnaround space, bathrooms, fees, dock, or parking. The launch is made of gravel. There were "Help prevent the spread" and "Please stop" signs posted at the landing.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Sedge	*Carex comosa*
Spiny hornwort	*Ceratophyllum echinatum*
Three-way sedge	*Dulichium arundinaceum*
Creeping spikerush	*Eleocharis palustris*
Northern blue flag	*Iris versicolor*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Water-thread pondweed	*Potamogeton diversifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Marsh cinquefoil	*Potentilla palustris*
Common arrowhead	*Sagittaria latifolia*
Creeping bladderwort	*Utricularia gibba*
Common bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/22/2009.

Anderson Lake contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be

measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Anderson Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 25.23, higher than the state average.

Invasive Species

No invasive plants were found in Anderson Lake during the 2009 field season. One plant seen on Anderson Lake, *Iris pseudacorus*, is thought to be potentially invasive in the state of Wisconsin.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 11, 2009 sampling. No invasive snails were seen during the three summer samplings.

Secchi Disk Readings

Readings declined in August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 22, 2009	July 15, 2009	August 11, 2009
Site #1	15T 0583745 5050494	5 ft	5.5 ft	2.75 ft

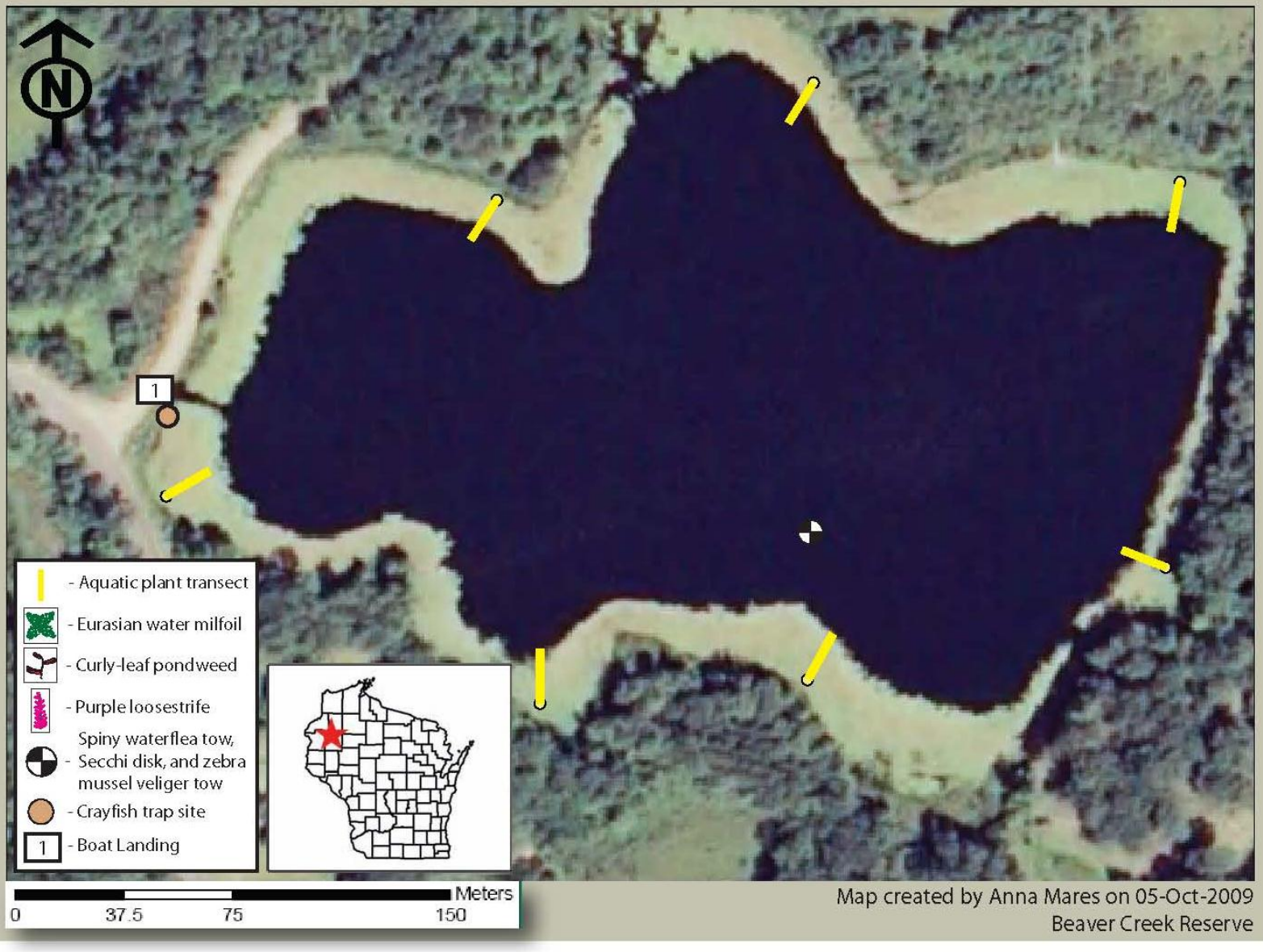
Lake and Shoreline Conditions

There is a good buffer around the entire perimeter of the lake. The east side of the lake is short grass with oak trees above. It appears that this area is used for grazing pasture. The shoreline vegetation is approximately 50% deciduous and 50% coniferous. Less than 5% of the land is developed. There are two docks present on the whole lake and only one of the homes that they belong to is visible from the water. A beaver dam is present on the north side of the lake, but it was unclear whether it was being used by beavers.

Aquatic Invasive Species Survey of

Anderson Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Christine Preist, Jenny Pomeroy, and Judy Schwarzmeier on June 22, July 15, and August 11, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
August 28, 2008
Data collected by Jo Heuschele, Kevin Mesiar, Anna Mares, and Ted Ludwig

Audie Lake (Waterbody Identification Code # 2368700)

Rusk County (T36N R09W S36 SW ¼ SE ¼)

Dates of Survey

Audie Lake was surveyed on June 26, July 23 and August 14, 2008.

Boat Launch

There is one official boat launch on Audie Lake that is located in the SE corner of the lake located off of Perch Lake Rd. adjacent to Bucks Lake Road. It has a cement launching pad into the lake. There is a turnaround and a parking lot. The landing is owned by the county. No fee is required. The site has no bathroom. There is another launch site in the NE corner of the lake. It provides no parking, little/no maneuvering space and is very shallow.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Northern St. John's Wort	*Hypericum boreale*
Spiny Hornwort	*Ceratophyllum echinatum*
Three-way Sedge	*Dulichium arundinaceum*
Feather Moss, Brown	*Drepanocladus sp.*
Northern Blue Flag	*Iris versicolor*
Farwell's Milfoil	*Myriophyllum farwellii*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Illinois pondweed	*Potamogeton illinoensis*
Sago Pondweed	*Potamogeton pectinatus*
White-stem pondweed	*Potamogeton praelongus*
Marsh Cinquefoil	*Potentilla palustris*
Swaying-rush	*Schoenoplectus subterminalis*
Common Arrowhead	*Sagittaria latifolia*
Broad-leaved Cattail	*Typha latifolia*
Large Purple Bladderwort	*Utricularia purpurea*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/26/2008.

Audie lake contains two plants, *Utricularia purpurea* and *Ceratophyllum echinatum*, that are listed as species of Special Concern. "Special Concern" means that experts suspect the species are rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Audie Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 25.81, higher than the state average.

Invasive Species

No invasive plants were found in Audie Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 14, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. No readings were taken on July 23, 2009 as the appropriate equipment was unavailable. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 26, 2008	July 23, 2008	August 14, 2008
Site #1	15T 0621908 5044862	4.75 ft	No Reading Taken	5.0 ft
Site #2	15T 0622531 5045470	6.1 ft	No Reading Taken	7.0 ft
Site #3	15T 0622502 5045005	5.5 ft	No Reading Taken	6.25 ft

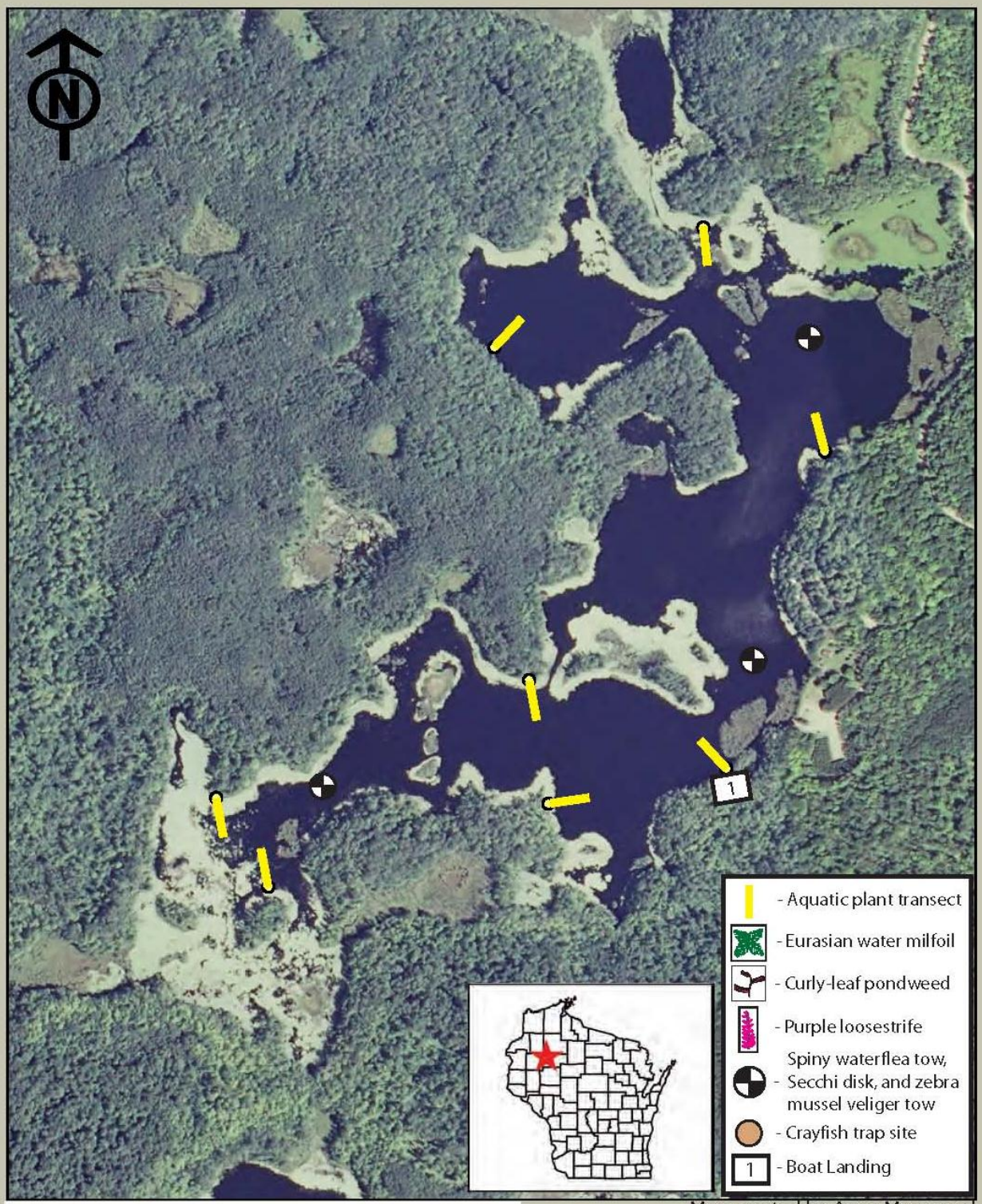
Lake and Shoreline Conditions

Trees and natural shoreline vegetation line the entire lake. There are no houses on the lake. It is surrounded by Rusk County Forest land that is composed of tamaracks, birches, oaks and maples. Two campsites have access to the lake along with docking space for boats. Audie Lake has several floating vegetation mats with small trees, shrubs, arrowhead, pitcher plants and marsh cinquefoil on them that give the appearance of sturdy islands. These mats moved a couple of feet over the course of the summer making it difficult to get the boat out of the landing area and onto the main body of water during the last sampling.

Aquatic Invasive Species Survey of

Audie Lake, Rusk County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar and Ted Ludwig
on June 26, July 23, and August 14, 2008



Map created by Anna Mares and
Jacob Sutherland on 19-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
August 28, 2008
Data Collected by Jo Heuschele, Anna Mares, Ted Ludwig & Kevin Mesiar

Axe-Handle Lake (Waterbody Identification Code # 2092500)

Chippewa County (T32N R09W S10 NW ¼ NW ¼)

Date of Survey

Axe-Handle Lake was surveyed on June 10, July 7, and July 31, 2008.

Boat Launch

There is one main public boat launch off of 100th Street in the south east corner of the lake. The path leading down to the lake is gravel with a sandy/gravel launch pad. The launch is shallow. There is no dock at the launch and it has little room for parking on the side of the path. It is best to back the boat down the path from the road since there is little to no turn around space. No fee is required for parking at the launch.

Native Plant List*

Common Name	**Scientific Name**
Water Shield	*Brasenia schreberi*
Marsh Calla	*Calla palustris*
Pipewort	*Eriocaulon aquaticum*
Feather Moss, Brown	*Drepanocladus sp.*
Quillworts	*Isoetes sp.*
Dwarf Water Milfoil	*Myriophyllum tenellum*
Nitellas	*Nitella sp.*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Floating Lead Pondweed	*Potamogeton natans*
Small Pondweed	*Potamogeton pusillus*
Flat-stem Pondweed	*Potamogeton zosteriformis*

*Plant list is not comprehensive and contains only those species observed on 06/10/08.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Axhandle Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 25.02, higher than the state average.

Written by Anna Mares
August 28, 2008
Data Collected by Jo Heuschele, Anna Mares, Ted Ludwig & Kevin Mesiar

Invasive Species

No invasive plants were found in Axe-handle Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish were detected during the July 31, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively high throughout the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 10, 2008	July 7, 2008	July 31, 2008
Site #1	15T 0618694 5014660	11.5 ft	10.0 ft	13.25 ft
Site #2	15T 0619202 5014731	11.0 ft	10.25 ft	12.25 ft

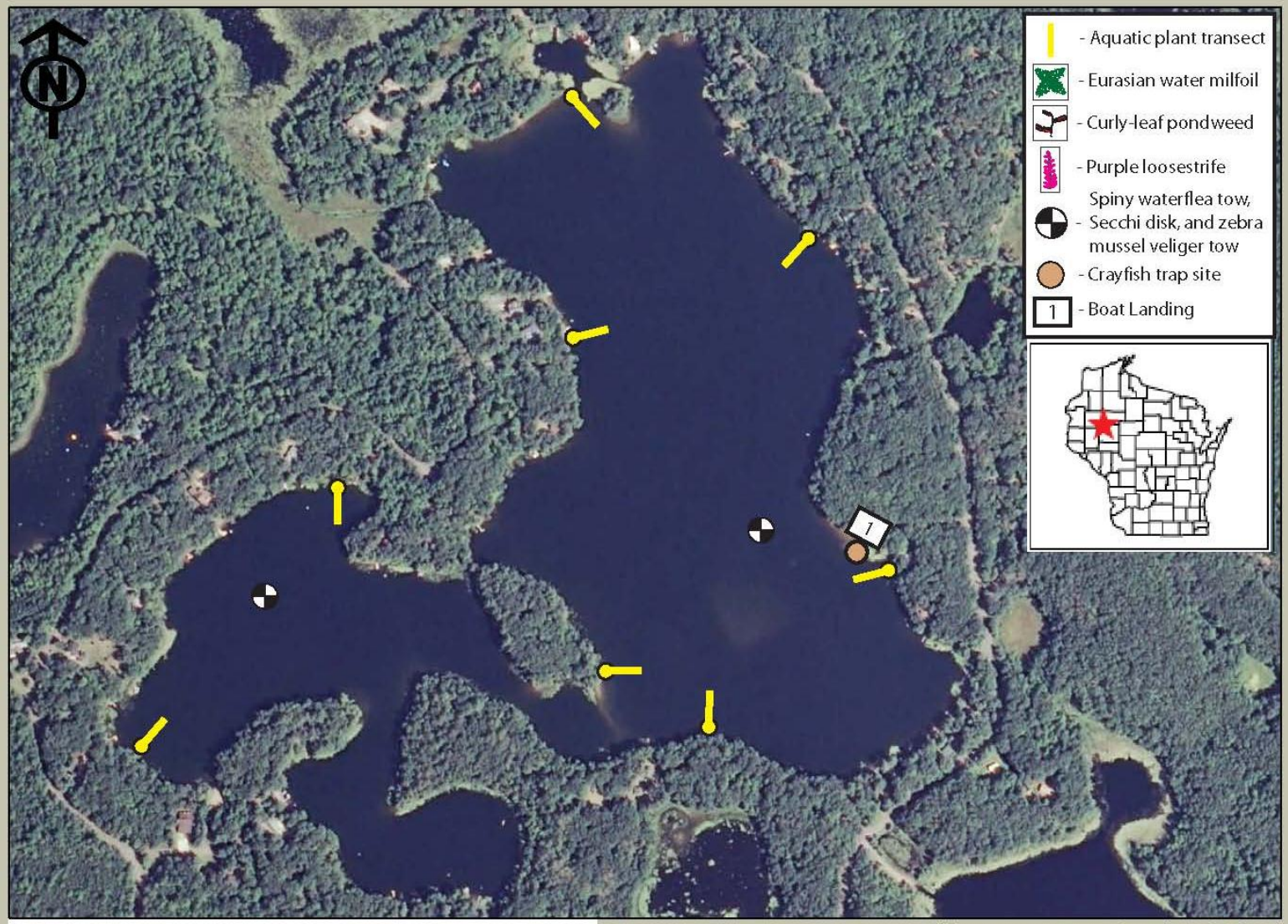
Lake and Shoreline Conditions

The shoreline is moderately developed with homes and cabins covering 75% of the lake shore property. The properties have at least 15 ft of grassy buffer zones.

Aquatic Invasive Species Survey of

Axe Handle Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, and Kevin Mesiar on June 10, July 7, and July 31, 2008



Map created by Anna Mares and Jacob Sutherland
23-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Barron Flowage #1 (Waterbody Identification Code # 1832100)

Barron County (T34N R12W S27 NW ¼ SE ¼)

Dates of Survey

Barron Flowage #1 was surveyed June 18, and July 21, 2009

Boat Launch

Barron Flowage #1 has one boat launch, accessible from 14th St. in Barron. It is located on the south side of the flowage by the control structure. "Stop and Remove" and "Please help prevent" signs are present at the landing. The Kiwanis Club maintains the boat launch. The launch lane is grassy/gravel to concrete slabs in the water. The launch is next to a picnic area but does not have restrooms, parking or a dock. Turning around to back down the launch can be tricky with the proximity to the home across the road from the launch. The Wisconsin Gazetteer indicated that the boat launch was on the east side of the flowage, near the railroad tracks. There is no launch there, but it appears that the area may be used for fishing from shore.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Water stargrass	*Heteranthera dubia*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Flat-stem pondweed	*Potamogeton zosteriformis*
White-water crowfoot	*Ranunculus trichophyllus*
Common arrowhead	*Sagittaria latifolia*
Three-square	*Scirpus americana*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 6/18/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Barron Flowage #1 was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 21.68, lower than the state average.

Invasive Species

One invasive plant species, curly-leaf pondweed (*Potamogeton crispus*), was found in Barron Flowage #1 during the 2009 field season. Of the nine transects used for sampling aquatic vegetation, seven of them contained *P. crispus* in dense quantities. Purple loosestrife was noted as present in 2006, but it was not documented in 2009.

No spiny waterflea or zebra mussel veligers were detected during the one summer sampling. One crayfish was collected from the July 21, 2009 sampling and it has been sent in for identification as to whether or not it is invasive. No invasive snail species were seen during the two samplings of Barron Flowage #1.

Secchi Disk Readings

Barron Flowage #1 had only one site that was over 10 ft in water depth, the lowest amount needed to successfully use the plankton nets, and thus requiring a Secchi disk that determines the tow length. As the summer progressed, aquatic vegetation obscured the plankton net tow path and it was no longer possible to do a tow. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 18, 2009
Site #1	15T 0590858 5028162	5 ft

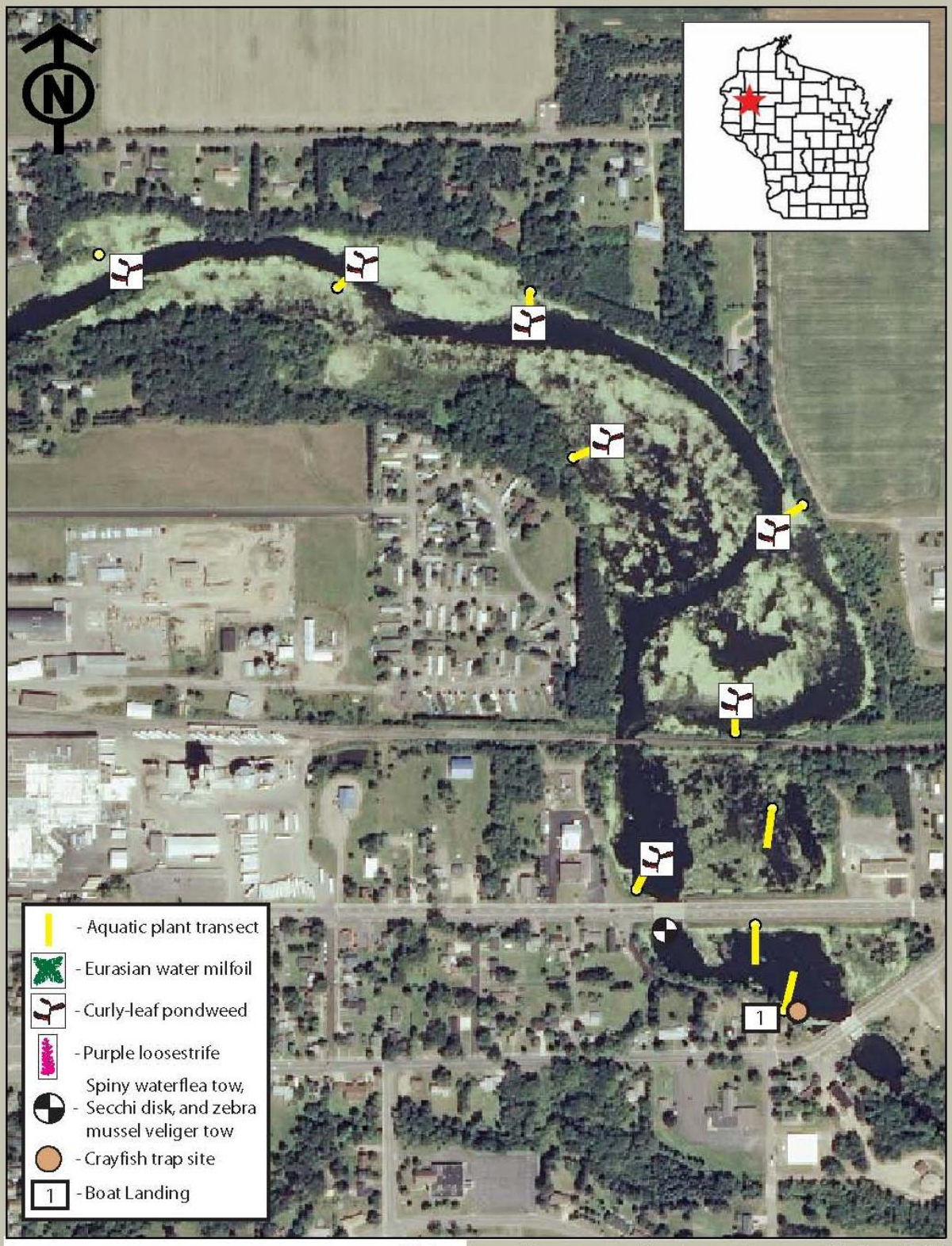
Lake and Shoreline Conditions

In general, Barron Flowage #1 has adequate buffers long both sides of the flowage, even though there are a few homes scattered throughout it. Improvement is needed by the mobile-home community as there is a section of about 350 ft that has little to no buffering.

Aquatic Invasive Species Survey of

Barron Flowage #1, Barron County

Data collected by Anna Mares, Ted Ludwig and Zoe Hastings on June 18, and July 21, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Ted Ludwig and Zoe Hastings

Barron Flowage #3 (Waterbody Identification Code # 2097100)

Barron County (T34N R12W S28 NE ¼ NW ¼)

Dates of Survey

Barron Flowage #3 was surveyed on June 18, and July 21, 2009

Boat Launch

Barron Flowage #3 has one boat launch, accessible from North Mill Street in the City of Barron. It is located on the south side of the flowage by the control structure. The launch lane is gravel to concrete slabs in the water. The launch drops off quickly in the water. The boat landing does not have a restroom, a dock, or required fees. There is a large turnaround and parking for five to six vehicles with trailers on the surrounding grass.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Sedge	*Carex comosa*
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Flat-stem pondweed	*Potamogeton zosteriformis*
White-water crowfoot	*Ranunculus trichophyllus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 6/18/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Barron Flowage #3 was found to have

an approximate (as a full aquatic plant survey was not completed) FQI value of 19.24, lower than the state average.

Invasive Species

One invasive plant species, Curly-leaf pondweed (*Potamogeton crispus*), was found in Barron Flowage #3 during the 2009 field season. Of the ten transects used for sampling aquatic vegetation, all ten of them contained *P. crispus* in dense quantities. *P. crispus* impeded navigation throughout much of the flowage. Purple loosestrife was noted as present in 2006, but it was not documented in 2009.

Spiny water flea and zebra mussel veligers were not sampled on Barron Flowage #3 due to the shallow water depth and presence of thick aquatic vegetation on the surface of the water. No rusty crayfish or any native crayfish species were detected from the July 21, 2009 sampling. One invasive snail species, the Chinese mystery snail, was seen during the two samplings of Barron Flowage #3.

Secchi Disk Readings

Barron Flowage #3 did not have any tows conducted on it, or any Secchi disk readings that would have determined the length of the tows to be completed. The deepest section of water in Barron Flowage #3 was found to be 8.4 ft, which is less water than is needed to successfully use the plankton nets.

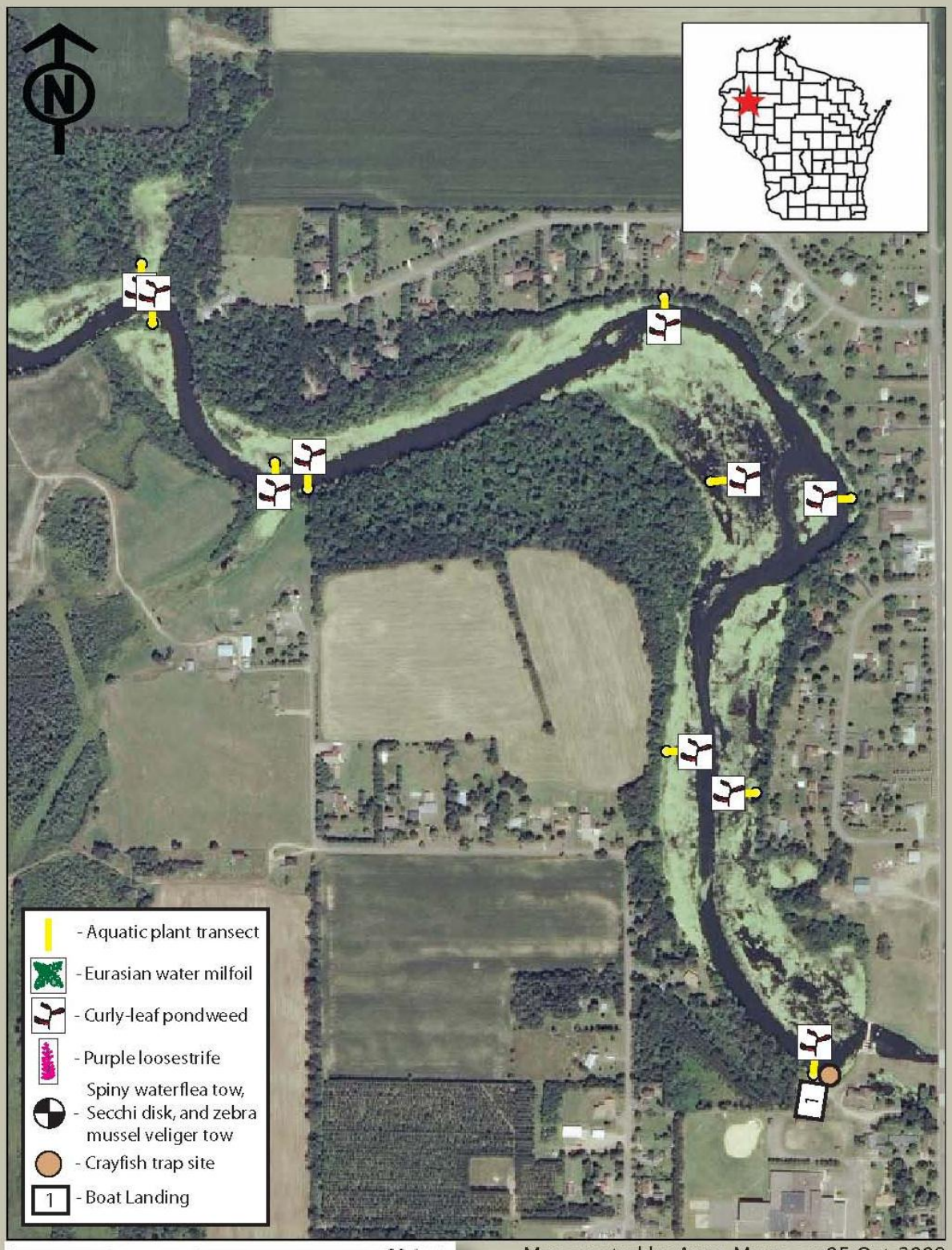
Lake and Shoreline Conditions

Barron Flowage #3 has at least a 15 ft buffer of trees, shrubs and grasses all the way around the shoreline. The only exceptions to the good buffers are the two homes that have cleared their shorelines that are closest to the flowage outlet. There are about 10-15 docks along the flowage.

Aquatic Invasive Species Survey of

Barron Flowage #3, Barron County

Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig on June 18, and July 21, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
October 6, 2009
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

Bass Lake #2 (Waterbody Identification Code # 1833600)

Chippewa County (T31N R08W S2 SE ¼ NE ¼)

Dates of Survey

Bass Lake #2 was surveyed on June 19, July 20, and August 9, 2007

Boat Launch

The location of the boat ramp is on the southeast side of the lake, off of Deer Fly/Ice Age Trail. The landing is gravel with no dock, aquatic invasive species awareness signs, or fees. Pit toilets are available on the other side of the road, at the Bass Lake #3 boat launch. With low water levels, the launch became obsolete and hand carry was the only watercraft option.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Spikerush	*Eleocharis ativans*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Water Milfoil	*Myriophyllum sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Stiff Arrowhead	*Sagittaria rigida*

*Plant list is not comprehensive and contains only those species observed on 06/19/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Bass Lake #2 was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 19.79, lower than the state average.

Invasive Species

No invasive plants were found in Bass Lake #2 during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 9, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 central datum.

	GPS (UTMs)	June 19, 2007	July 20, 2007	August 9, 2007
Site #1	15 T 632180 5006625	13 ft	10.5 ft	11.75 ft
Site #2	15 T 632155 5006388	13 ft	10.5 ft	12.75 ft

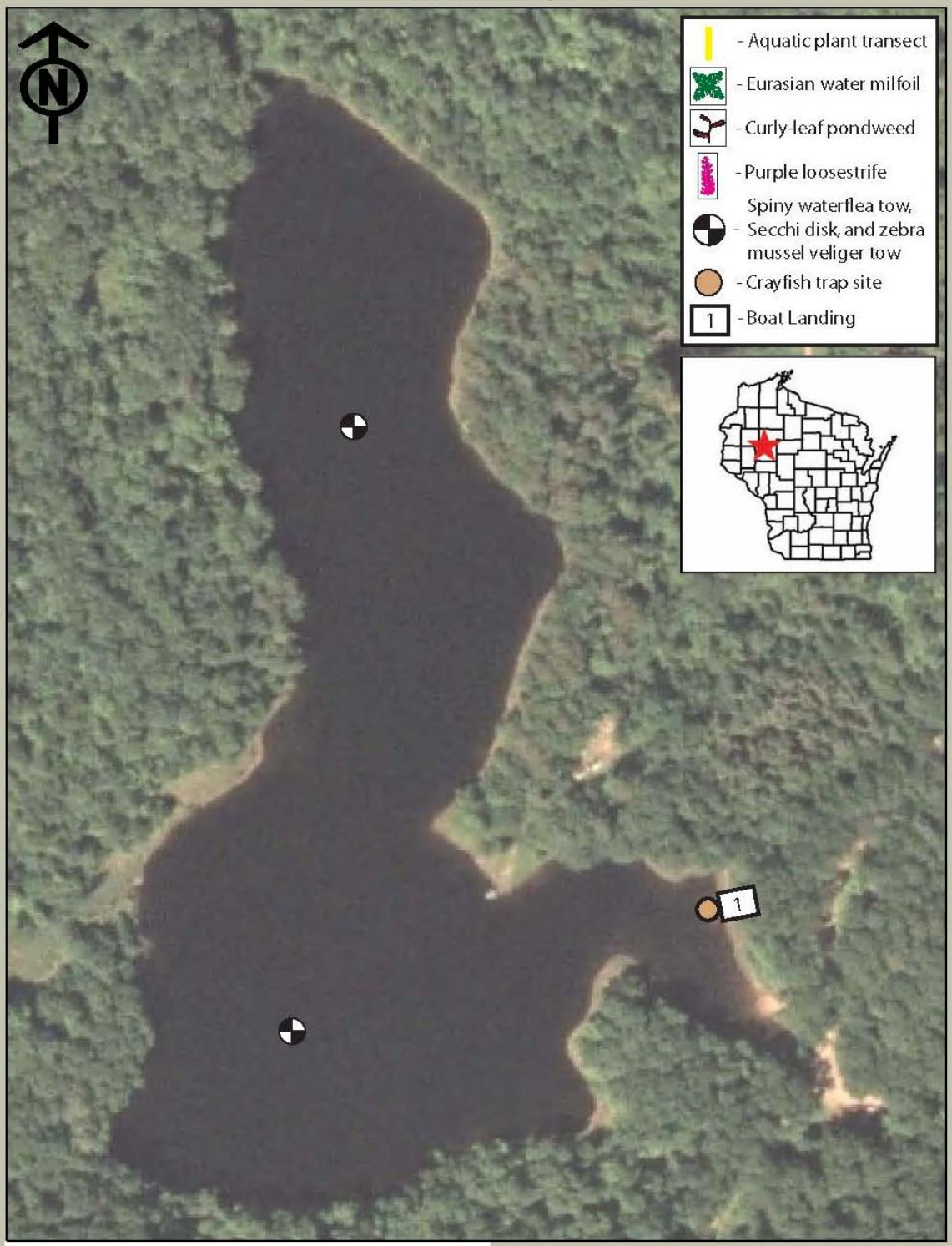
Lake and Shoreline Conditions

Bass Lake #2 is considered to be undeveloped, except for the boat launch trail. The shoreline is approximately 60% coniferous and 40% deciduous. Low water levels made sampling possible only from a canoe.

Aquatic Invasive Species Survey of

Bass Lake #2, Chippewa County

Data collected by Jo Heuschele, Shelby Happe, and Anna Mares
on June 19, July 20, and August 9, 2007



Map created by Anna Mares and
Jacob Sutherland on 23-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

Bass Lake #3 (Waterbody Identification Code # 2347400)

Chippewa County (T31N R08W S1 SW ¼ NW ¼)

Dates of Survey

Bass Lake #3 was surveyed on June 19, July 20, and August 9, 2007.

Boat Launch

The boat ramp is composed of gravel, and is without a boarding dock. The parking lot is gravel with room to turnaround and 1-5 parking spaces for vehicles with trailers. The boat launch has pit toilets. The location of the boat ramp is on the west side of the lake off of Deer Fly/Ice Age Trail.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Sedges	*Carex sp.*
Waterwort	*Elatine sp.*
Pipewort	*Eriocaulon aquaticum*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Long-leaf pondweed	*Potamogeton nodosus*
Fern Pondweed	*Potamogeton robbinsii*

*Plant list is not comprehensive and contains only those species observed on 06/20/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Bass Lake #3 was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 20.85, lower than the state average.

Invasive Species

No invasive plants were found in Bass Lake #3 during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 9, 2007 sampling.

Secchi Disk Readings

Readings increased through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 19, 2007	July 20, 2007	August 9, 2007
Site #1	15T 0632590 5006226	5.25 ft	9.25 ft	10.25 ft

Lake and Shoreline Conditions

Bass Lake #3 is considered to be undeveloped, except for the public boat launch. The shoreline vegetation is approximately 75% coniferous and 25% deciduous.

Aquatic Invasive Species Survey of

Bass Lake #3, Chippewa County

Data collected by Jo Heuschele, Shelby Happe, and Anna Mares
on June 19, July 20, and August 9, 2007

Map created by Anna Mares and
Jacob Sutherland on 23-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Jenny Pomeroy

Bass Lake (Waterbody Identification Code # 1832800)

Barron County (T33N R10W S34 SW ¼ SW ¼)

Dates of Survey

Bass Lake was surveyed on June 10, July 13, and August 5, 2009.

Boat Launch

There is one boat launch on Bass Lake. It is accessible from 27 1/4th St. on the north side of the lake. The launch is unimproved with a sand launch pad, which is shallowly sloped. The boat landing has a turnaround with room for four to five trucks with trailers to park. The launch does not have a dock and no fee is required. There is a port-a-potty available for use. There are "Stop and remove" and "Help prevent the spread" aquatic invasive species signs at the landing, as well as a large sign that states that Bass Lake is an "Electric Motors Only" lake. The public boat launch is a popular spot for local citizens to go swimming and lounge on the shoreline.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Creeping Spikerush	*Eleocharis palustris*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Dwarf Water Milfoil	*Myriophyllum tenellum*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
Pickerelweed	*Pontederia cordata*
Fern Pondweed	*Potamogeton robbinsii*
Bladderwort	*Utricularia sp.*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/10/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values

correlating to greater lake quality (UWEX, 2009). Bass Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 27.52, higher than the state average.

Invasive Species

No invasive plants were found in Bass Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the two summer samplings. No rusty crayfish or any native crayfish species were detected from the June 10, 2009 sampling.

Secchi Disk Readings

Readings were high over the course of the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 10, 2009	July 13, 2009	August 5, 2009
Site #1	15T 0609793 5016839	No reading taken	8.75	11.75 ft

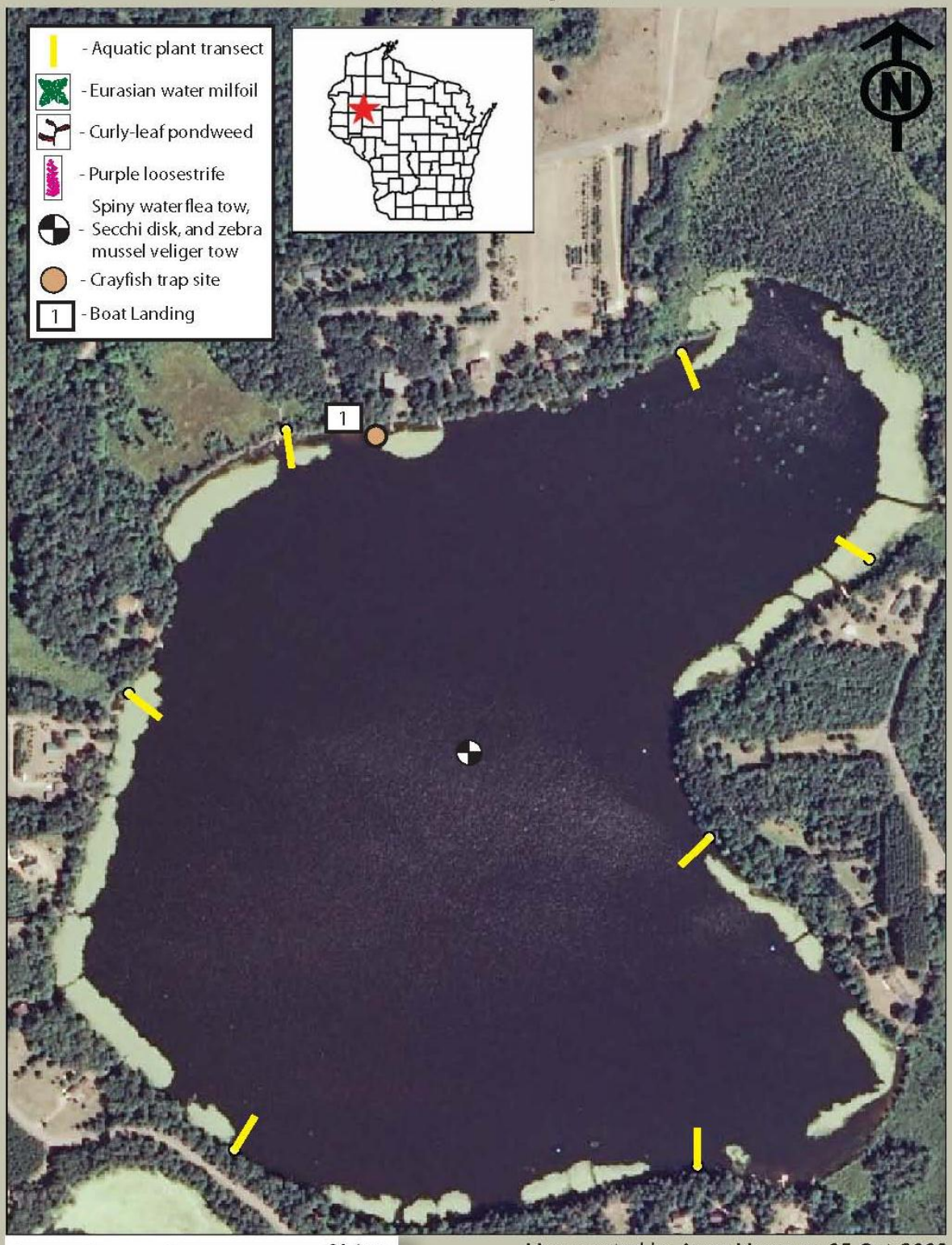
Lake and Shoreline Conditions

The shoreline vegetation appears to be 60% deciduous and 40% coniferous with very little marshland. The lake has adequate buffers except for the five lawns on the western shore that have little to no buffers. The survey team's boat batteries died at the end of the June 10, 2009 sampling, before plankton net tows could be conducted. As a result, no Secchi disk reading was taken on June 10, 2009. The water appeared to be six inches lower than normal.

Aquatic Invasive Species Survey of

Bass Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Jenny Pomeroy
on June 10, July 13, and August 5, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Jenny Pomeroy

Bass Lake (Waterbody Identification Code # 1833000)

Rusk County (T35N R07W S12 SW ¼ SE ¼)

Dates of Survey

Bass Lake was surveyed on June 2, July 9, and August 3, 2009

Boat Launch

There are two boat launches on Bass Lake. The first boat landing (marked on DNR map) is gravel, shallow, and relatively unmaintained. There are no restrooms, a turnaround, parking or fees. It is accessible from Bass Lake Road on the west side of the lake. There are no signs posted for AIS or anything else. The second launch is not shown on any maps but is accessible from the east side of the lake via Bass Lake Road. It is gravel, steep, and possibly private with no signs posted.

Native Plant List*

Common Name	Scientific Name
Water marigold	*Bidens beckii*
Water shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Spiny hornwort	*Ceratophyllum echinatum*
Musk grass	*Chara sp.*
Three-way sedge	*Dulichium arundinaceum*
Needle spikerush	*Eleocharis acicularis*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Water horsetail	*Equisetum fluviatile*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Fern pondweed	*Potamogeton robbinsii*
Narrowleaf pondweed	*Potamogeton sp.*
Water bulrush	*Schoenoplectus subterminalis*
Hardstem bulrush	*Scirpus acutus*
Soft-stem bulrush	*Scirpus validus*
Broad-leaved cattail	*Typha latifolia*
Twin-stemmed bladderwort	*Utricularia geminiscapa*
Creeping bladderwort	*Utricularia gibba*
Common bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/02/2009.

Bass Lake contains two plants, *Ceratophyllum echinatum*, and *Utricularia geminiscapa*, which are listed as species of Special Concern. "Special Concern" means that experts suspect the species are rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Bass Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 29.96, higher than the state average.

Invasive Species

No invasive plants were found in Bass Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 3, 2009 sampling. One invasive snail species, the Chinese mystery snail, was present in Bass Lake.

Secchi Disk Readings

Water clarity declined over the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 2, 2009	July 9, 2009	August 3, 2009
Site #1	15T 0619492 5022093	12 ft	9 ft	7.5 ft

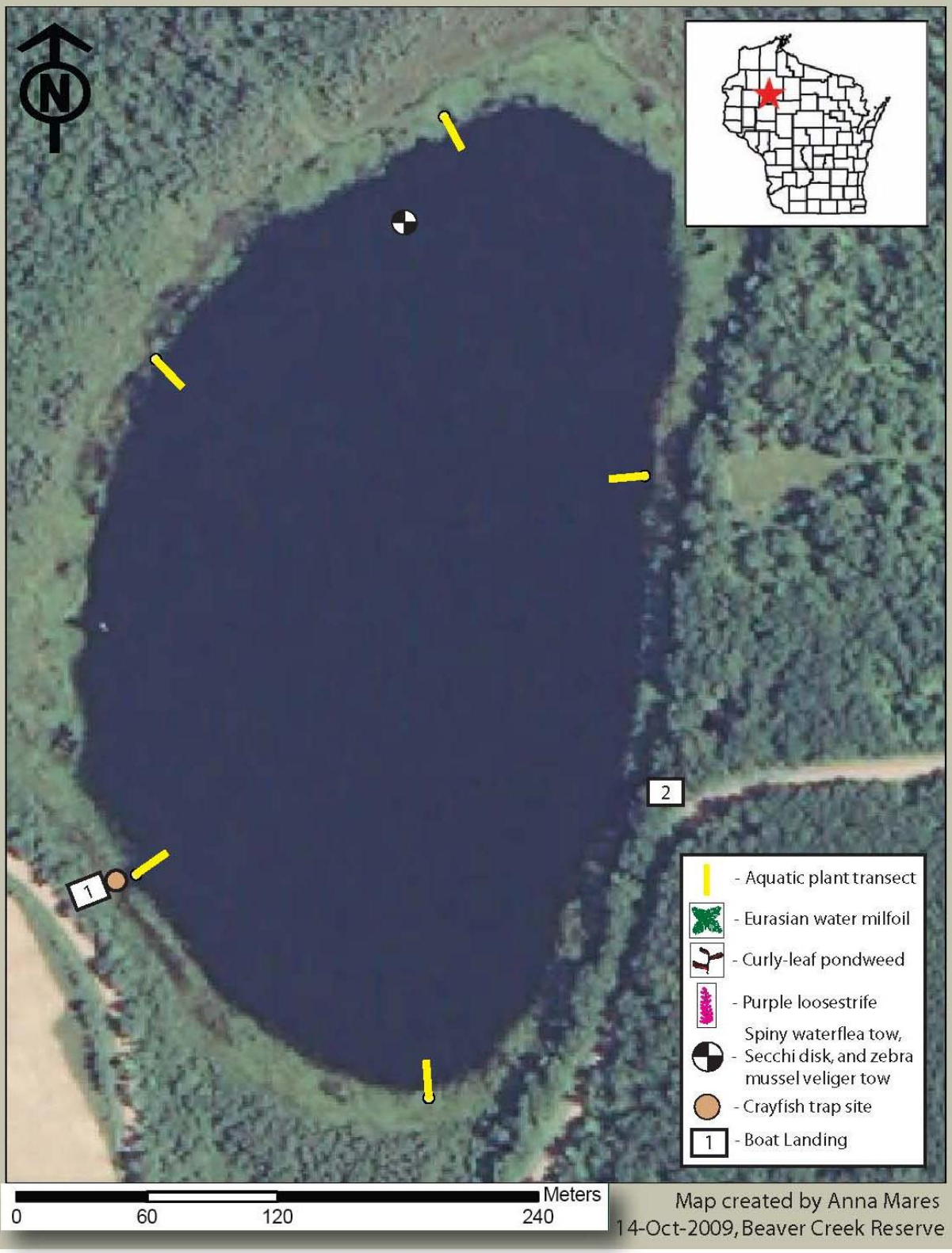
Lake and Shoreline Conditions

The shoreline is 99% deciduous and 1% coniferous with 1% developed, having a dock. Excellent buffers are present around the entire perimeter of the lake. Bass Lake is a bowl shaped basin with shallow edges. Due to its small acreage, only five transects were used for aquatic plant sampling and only one site was selected for spiny waterflea and zebra mussel tows. Loons were present during each of the sample days

Aquatic Invasive Species Survey of

Bass Lake, Rusk County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings, and Phil Rynish
on June 2, July 8, and August 3, 2009



Map created by Anna Mares
14-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Christine Preist, Bob Moe and Dorothy Moe

Bear Lake (Waterbody Identification Code # 2105100)

Barron County (T36N R11W S18 NW ¼ NE ¼)

Dates of Survey

Bear Lake was surveyed on June 16, July 15, and August 10, 2009

Boat Launch

Six boat launches were listed for Bear Lake. The launch on 17 ¼ St./17 ½ St. East, and the two launches that are supposed to be accessible from Bear Lake Rd. (near the Bear Creek inlet) on the north side of the lake are no longer functioning boat landings. They appear to have been launches at one point where a boat was backed up over the roadside ditch and into the water. The most heavily used boat launch is on the southeast side of the lake and is accessible from 17 ¼ St./17 ½ St. West. It has a paved launch lane, turning to a cement launch pad. There are three docks for the one launch lane. There is ample parking with 15 stalls and one handicap stall. There are no restrooms, or fees required. There are bulletin boards with "Stop and Remove", "Help prevent the Spread", Barron County ordinances, Eurasian water milfoil, and wild rice alerts signs. The second launch is accessible from 29 1/4th Ave. on north side of the lake. It has a sand/gravel launch with limited parking (one to two vehicles), no boat dock, or restrooms. There is enough room to turnaround. "Stop and Remove" and "Please Help" signs are present. The launch is cared for by Barron County. The third launch is on the northwest side of the lake, accessible from Bear Landing Rd .The launch is an unimproved gravel launch with no dock, limited parking, adequate turnaround space, no fees and no restrooms. Wild rice alert, viral hemorrhagic septicemia (VHS) distribution, and Clean Boats, Clean Waters (CBCW) signs are present.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Water Shield	*Brasenia schreberi*
Sedge	*Carex sp.*
Coontail	*Ceratophyllum demersum*
Musk grass	*Chara sp.*
Needle Spikerush	*Eleocharis acicularis*
Creeping Spikerush	*Eleocharis palustris*
Common Waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Christine Preist, Bob Moe and Dorothy Moe

Common Name	Scientific Name
Northern Blue Flag	*Iris versicolor*

Common Name	Scientific Name
Lesser Duckweed	*Lemna minor*
Forked Duckweed	*Lemna trisulca*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
White Water Lily	*Nymphea odorata*
Bullhead Pond Lily	*Nuphar variegata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Lead Pondweed	*Potamogeton natans*
White-stem pondweed	*Potamogeton praelongus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Small Pondweed	*Potamogeton pusillus*
Fern Pondweed	*Potamogeton robbinsii*
Spiral-fruited pondweed	*Potamogeton spirillus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Crowfoot	*Ranunculus sp.*
Arum-leaved Arrowhead	*Sagittaria cuneata*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Common Bladderwort	*Utricularia vulgaris*
Bladderwort	*Utricularia sp.*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 6/16/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Bear Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 34.64, higher than the state average.

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Christine Preist, Bob Moe and Dorothy Moe

Invasive Species

Two invasive plants, purple loosestrife (*Lythrum salicaria*) and curly-leaf pondweed (*Potamogeton crispus*) were found in Bear Lake during the 2009 field season. *L. salicaria* had already been documented for Bear Lake in 1997. It was found at six locations during the August 10, 2009 survey. The patches ranged in size from one plant to several hundreds of feet. Coordinates (UTMs, NAD 83, Central, 15T N) with plant bed size approximations:
0594261, 5052739 – 10 plants
0594592, 5052887 – 3 plants
0592610, 5053746 – 150 m of shore by 50 m back from the water
0591729, 5054543 – 30 m x 30 m in inlet
Roadside by Bear creek inlet – scattered all along roadside
0590166, 5055270 – one plant by downed tree

P. crispus was found at 18 of 39 transects placed at 1,500 intervals to sample for aquatic plants. The largest beds of *P. crispus* are located in Boyer Bay and just outside of it and then also at the south east outlet of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 10, 2009 sampling. Two species of invasive snail, Chinese mystery snails and Banded mystery snails, were found in Bear Lake.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 16, 2009	July 15, 2009	August 10, 2009
Site #1	15T 0593853 5052853	8 ft	9 ft	6.75 ft
Site #2	15T 0591120 5054625	8 ft	9 ft	7.25 ft
Site #3	15T 0592817 5053357	8.5 ft	8 ft	7.5 ft

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Christine Preist, Bob Moe and Dorothy Moe

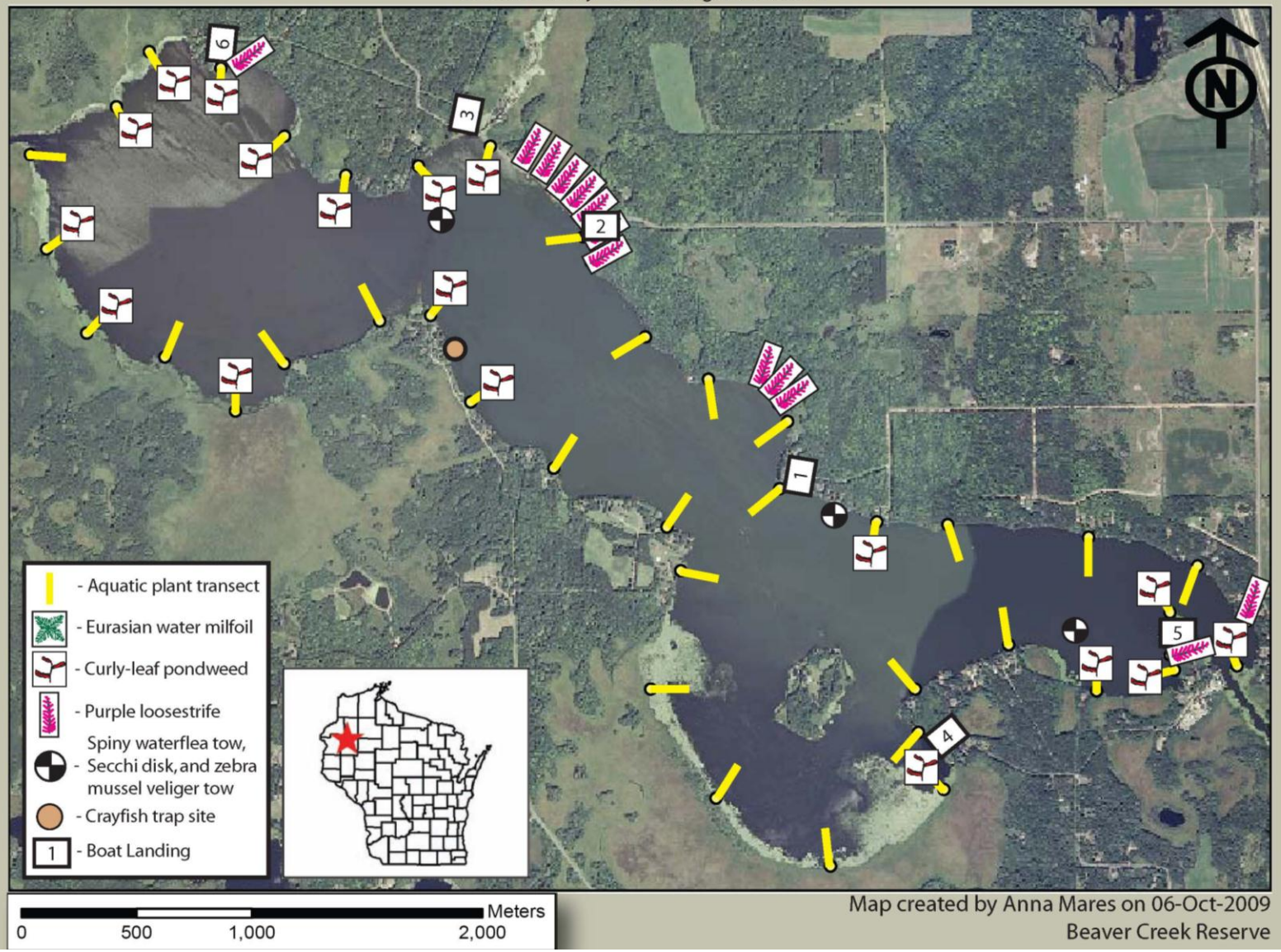
Lake and Shoreline Conditions

Approximately 35% of the shoreline is made up of marshland, surrounding Boyer Bay and the southern most bay of Bear Lake. Around 40% of the shoreline is deciduous and the remaining 25% is coniferous. About 50% of Bear Lake is developed with those homes having an equal mix of poor buffers of less than 10 ft and adequate buffers of more an 10 ft The water level appears to be about 1-1.5 ft lower than average.

Aquatic Invasive Species Survey of

Bear Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Jenny Pomeroy, Zoe Hastings, Christine Preist, Bob Moe and Dorothy Moe
on June 6, July 15, and August 10, 2009



Map created by Anna Mares on 06-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Claire Bailey

Beaver Dam Lake (Waterbody Identification Code # 2081200)

Barron County (T35N R13W S7 SE ¼ SE ¼)

Dates of Survey

Beaver Dam Lake was surveyed on June 29, July 28, and August 18, 2009

Boat Launch

There are two public boat launches on the southeast side of the lake. The first (1 on the map) is right off of Highway 63 and is a Barron County launch while the second is a City of Cumberland Park launch. Both of the landings are in parks, have a dock, have cement launch pads into the water and have restrooms. The Barron County launch has limited parking on the road and little turnaround room. The City launch (2 on the map) has better turnaround space and more parking. The City launch's cement pads are breaking up and should be repaired. Both launches have very large "Clean Boats, Clean Waters" signs. There is a private launch on the north side of the lake out of Brigadoon Campground. The launch fee is $5.00. There is turnaround space with limited parking, a dock, and no available restrooms.

Native Plant List

Due to Beaver Dam Lake Associations thorough aquatic plant surveying as part of their management strategy for controlling Eurasian water milfoil, a plant survey was not conducted by the BCCSC survey team. The surveys being done by the Association contain more than double the number of survey transects that would have been done under this project.

Invasive Species

Two invasive plant species curly-leaf pondweed (*Potamogeton crispus*) and Eurasian water milfoil (*Myriophyllum spicatum*) were found in Beaver Dam Lake during the 2009 field season through incidental observation. *M. spicatum* has already been documented by the WI DNR but *P. crispus* has not been vouchered yet. A sample has been sent to the UW-Stevens Point herbarium.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Several crayfish were collected from the July 28, 2009 sampling. They were sent in for identification and found to be the native species *Orconectes virilis*. The

invasive rusty crayfish were documented in 2006 but were not found by the survey crew in 2009.

Secchi Disk Readings

Beaver Dam Lake has high water clarity that stayed consistent over the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 29, 2009	July 28, 2009	August 18, 2009
Site #1	15T 0572375 5046884	14.75 ft	13 ft	13.5 ft
Site #2	15T 0573652 5045266	15.0 ft	12.0 ft	13.5 ft
Site #3	15T 0575673 5044466	13 ft	14 ft	12.25 ft

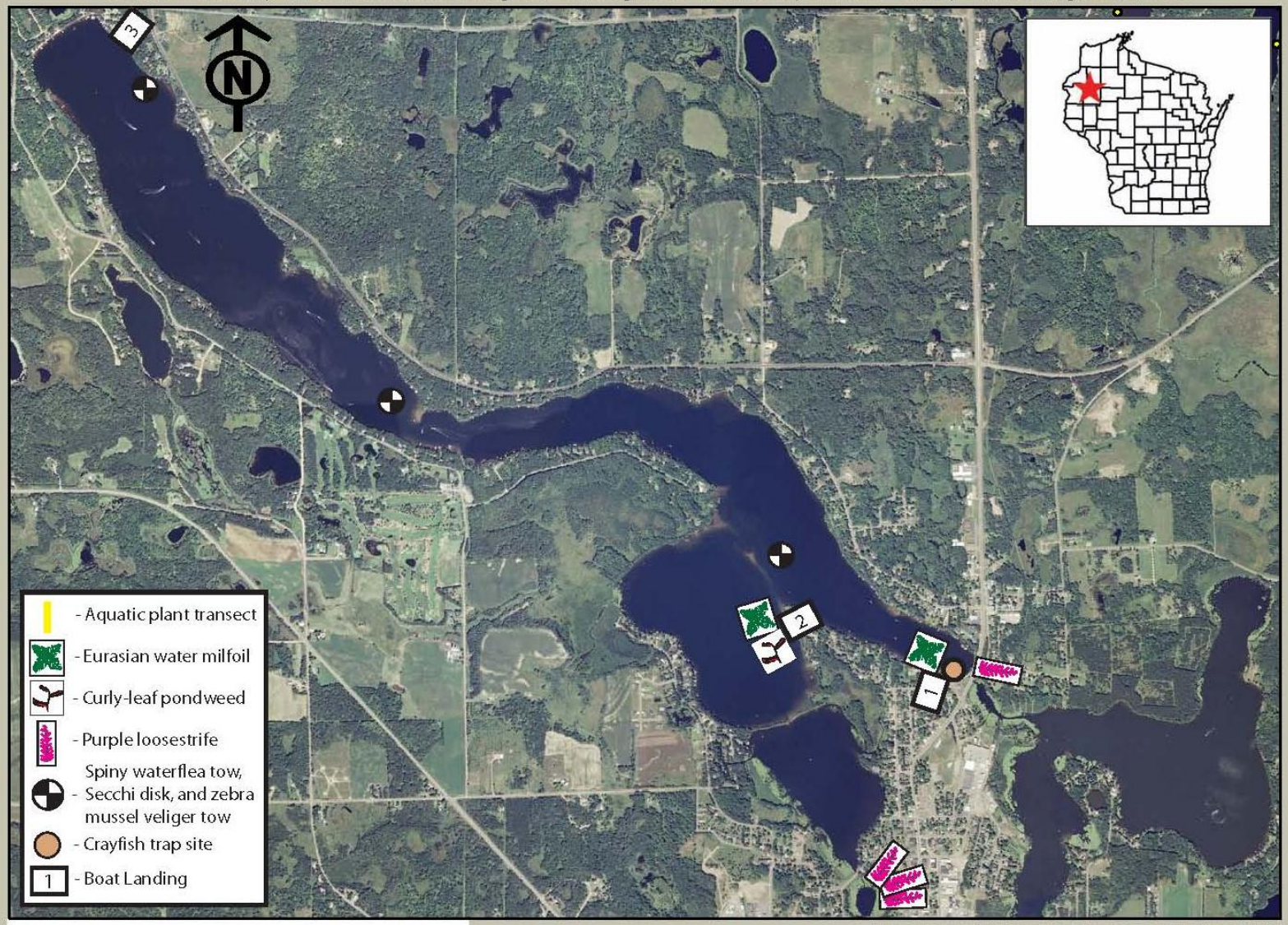
Lake and Shoreline Conditions

The shoreline is 70% deciduous and 30% coniferous. Beaver Dam Lake is adjacent to the city of Cumberland on its northwest side. The shoreline condition of this lake is very poor as it is very developed with large houses, brick retaining walls, and lawns. Very few buffers of the recommended 30 ft exist on the lake. There are no visible water level fluctuations.

Aquatic Invasive Species Survey of

Beaver Dam Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings and Claire Bailey on June 29, July 28, and August 18, 2009



Map created by Anna Mares on 06-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Katrina Smith

Big Dummy Lake (Waterbody Identification Code # 1835100)

Barron County (T36N RR13W S28 NE ¼ SW ¼)

Dates of Survey

Big Dummy Lake was surveyed June 24, July 21, and August 17, 2009

Boat Launch

Big Dummy Lake has one boat launch (1 on the map) in the northeast corner of the lake accessible from 25 ½ Ave. The launch is gravel and then sand near the shore to the water. There is no dock and no fees are required. There is turnaround space and room for 8-10 vehicles with trailers to park. "Help prevent" and "Stop and remove" aquatic invasive species signs are present. It is a Barron County launch. Another boat launch (2 on the map) was listed as being usable in the northwest corner of the lake. That boat launch does not exist.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Needle spikerush	*Eleocharis acicularis*
Creeping spikerush	*Eleocharis palustris*
Pipewort	*Eriocaulon aquaticum*
Northern blue flag	*Iris versicolor*
Quillworts	*Isoetes sp.*
Farwell's water milfoil	*Myriophyllum farwellii*
Dwarf water milfoil	*Myriophyllum tenellum*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Fern pondweed	*Potamogeton robbinsii*
Water bulrush	*Schoenoplectus subterminalis*
Broad-leaved cattail	*Typha latifolia*
Flat-leaf bladderwort	*Utricularia intermedia*
Large Purple bladderwort	*Utricularia purpurea*

*Plant list is not comprehensive and contains only those species observed on 06/24/2009

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Katrina Smith

Big Dummy Lake contains one plant, *Utricularia purpurea,* which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Big Dummy Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 29.83, higher than the state average.

Invasive Species

No invasive plants were found in Big Dummy Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One native crayfish species, *Cambarus diogenes*, was detected from the July 21, 2009 sampling. One invasive snail species, the Chinese mystery snail, was present. It had already been documented for Big Dummy Lake.

Secchi Disk Readings

Readings stayed relatively steady through out the summer and with good water clarity. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2009	July 21, 2009	August 17, 2009
Site #1	15T 0579453 5047281	8 ft	9.5 ft	9.75 ft
Site #2	15T 0579631 5047007	8.75 ft	9.5 ft	8 ft

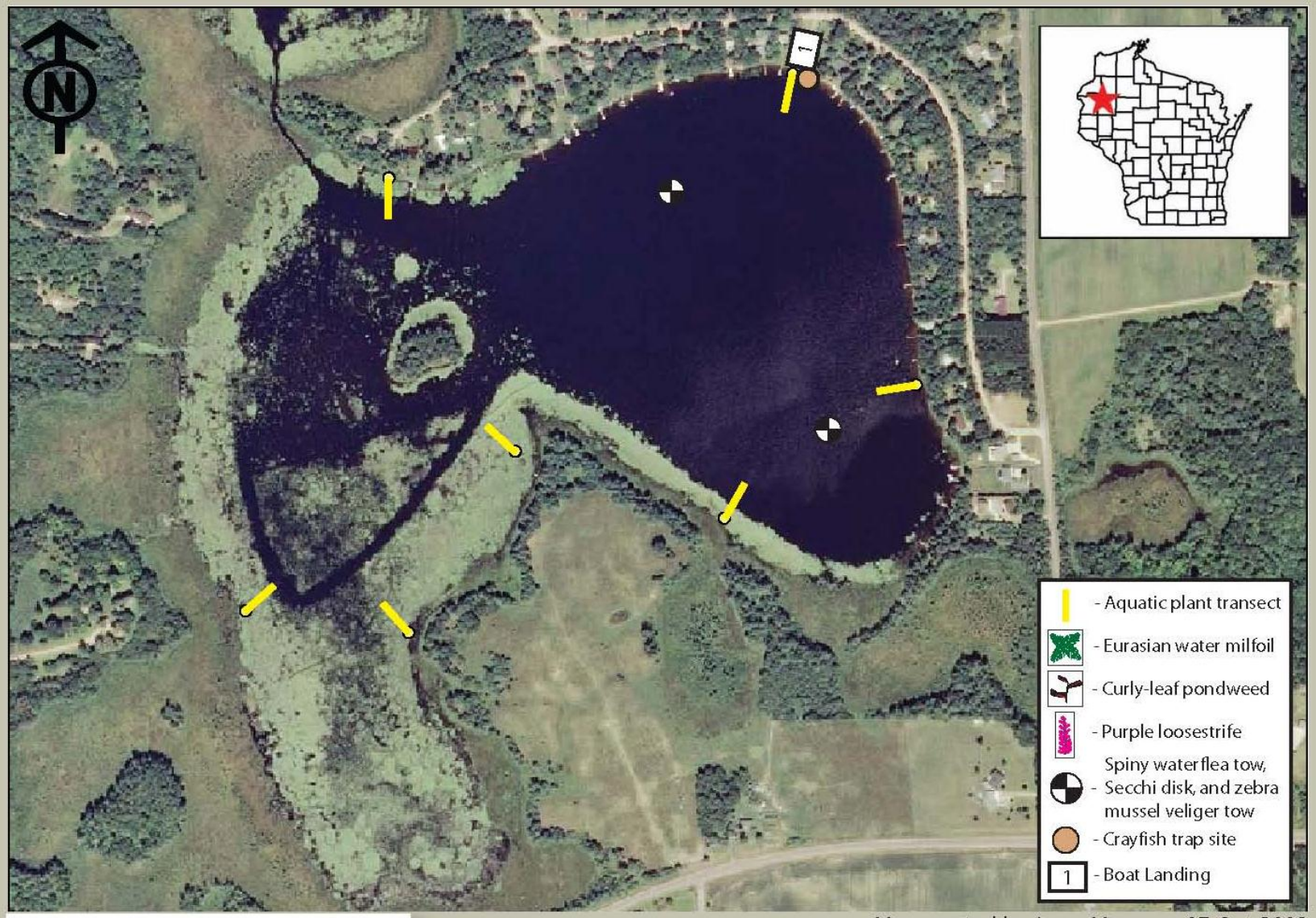
Lake and Shoreline Conditions

The shoreline vegetation is approximately 60% coniferous and 40% deciduous. Lawns are cleared for 33 ft+ of viewing space. In between each of these viewing areas are good buffers, but they are small. The south half of the lake is less developed. The southwest corner of the lake is marshy and/or heavily vegetated from the island all the way south, severely limiting navigation. Horses from a nearby farm on the south side of the lake can wander to the water's edge, contributing a source of waste to the lake.

Aquatic Invasive Species Survey of

Big Dummy Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings and Katrina Smith on June 24, July 21, and August 17, 2009



Map created by Anna Mares on 07-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Ted Ludwig, and Zoe Hastings

Big Falls Flowage (Waterbody Identification Code # 2230100)

Rusk County (T36N R05W S35 SE ¼ SW ¼)

Dates of Survey

Big Falls Flowage was surveyed on May 28, July 7, and August 4, 2009

Boat Launch

The boat launch can be accessed from County Highway X from the east side of the lake only. The landing is very near the control structures for the dam owned by Northern States Power. The landing has three parking stalls, ample turn around space, requires no fees, has a wooden dock, and pit toilets. A paved launch turns to gravel a few feet into the water. Signs at the landing include the "Stop and remove aquatic plants and invasive species" and the yellow aquatic invasive species advisory sign with tags for rusty crayfish and purple loosestrife.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Water horsetail	*Equisetum fluviatile*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*

*Plant list is not comprehensive and contains only those species observed on 5/28/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Big Falls Flowage was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 17.33, lower than the state average.

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Ted Ludwig, and Zoe Hastings

Invasive Species

One invasive plant species, *Myriophyllum spicatum*, was found in the Big Falls Flowage during the 2009 field season. *M. spicatum* was found at three of 14 transects used for sampling aquatic plants at 1,500 ft intervals. There were two homogenous plants beds of *M. spicatum* measuring 120 ft x 150 ft and 75 ft x 100 ft *M. spicatum* is also spread in among native plants near the boat landing.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One crayfish was collected from the August 4, 2009 sampling and has been identified as a native species, *Orconectes virilis*. Five traps were set, two were retrieved, and three were either stolen or misplaced by wildlife.

Secchi Disk Readings

Readings stayed relatively steady throughout the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	May 28, 2009	July 7, 2009	August 4, 2009
Site #1	15T0660208 5048874	6.75 ft	5 ft	8.25 ft
Site #2	15T 0659698 5048012	5 ft	6 ft	6.0 ft
Site #3	15T 0659086 5046847	4 ft	6 ft	6 ft

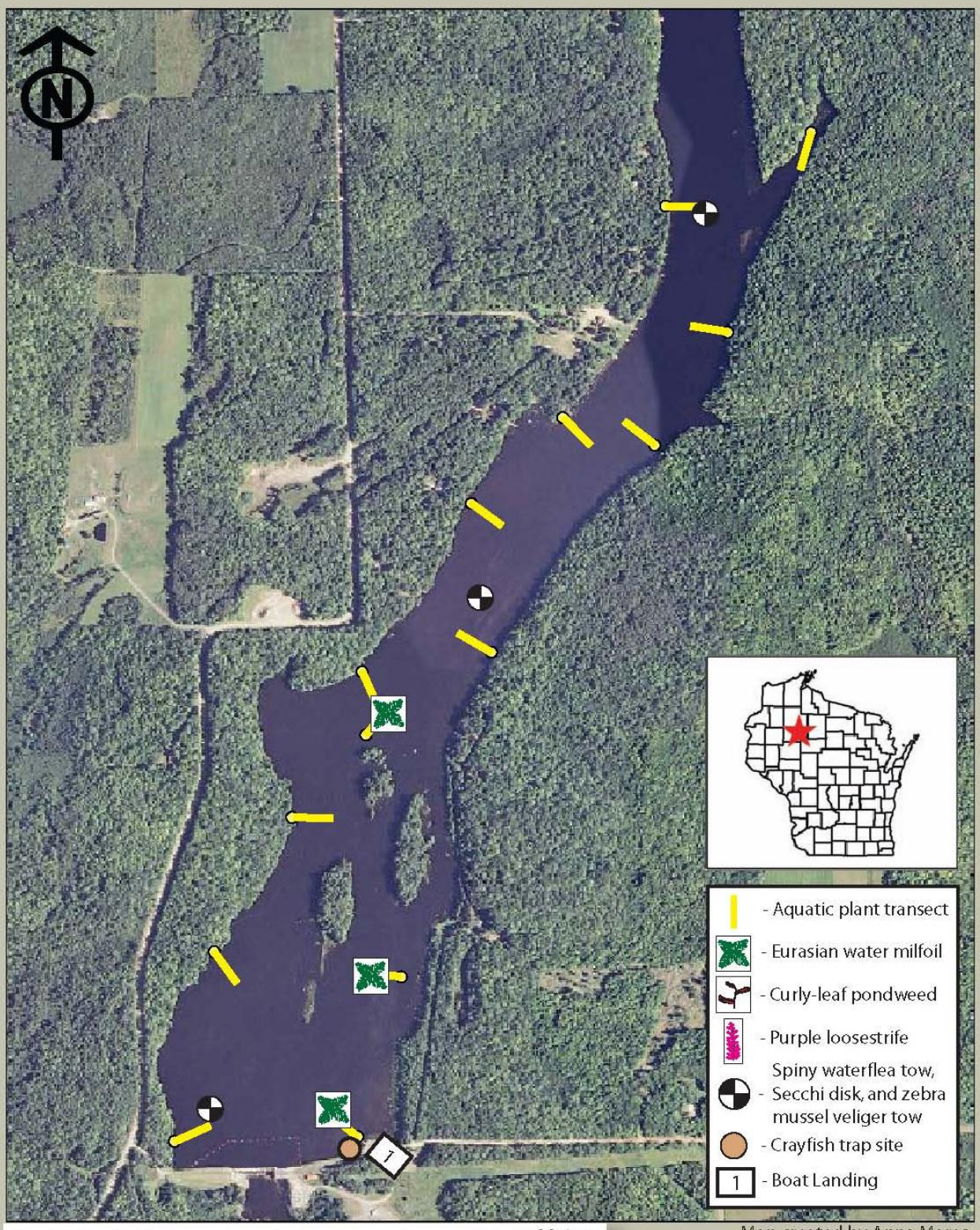
Lake and Shoreline Conditions

The shoreline vegetation is approximately 90% deciduous and 10% coniferous with very few marshy areas. The shoreline is approximately 1-2% developed/docked. Where it is developed, lawns go all the way to the water. The water level is controlled by the dam and therefore any changes in the water level are hard to monitor. Also, the flowage is very rocky, especially on the eastern shoreline, so boaters should take caution when navigating near there.

Aquatic Invasive Species Survey of

Big Falls Flowage, Rusk County

Data collected by Anna Mares, Ted Ludwig, and Zoe Hastings on May 28, July 7, and August 4, 2009



Map created by Anna Mares
on 07-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Rollie Johnson, and Claire Bailey

Big Moon Lake (Waterbody Identification Code # 2079000)

Barron County (T33N R14W S16 NW ¼ SW ¼)

Dates of Survey

Big Moon Lake was surveyed on July 2, July 28, and August 19, 2009

Boat Launch

The only public landing is accessible on the east side of the lake from 9 ¼ Ave. next to the Big Moon Lake Tavern. The launch pad is asphalt, leading to a cement slab launch. There is turnaround space with parking only along the side of the road. There are no docks or restrooms. There is a suggested donation of $3.00 for the use of the boat landing.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Forked Duckweed	*Lemna trisulca*
Water Milfoil	*Myriophyllum sp.*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Sago Pondweed	*Potamogeton pectinatus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Soft-stem bulrush	*Scirpus validus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Common Bladderwort	*Utricularia vulgaris*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 07/02/2009

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Rollie Johnson, and Claire Bailey

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Big Moon Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 23.09, slightly higher than the state average.

Invasive Species

One invasive plant species, *Potamogeton crispus*, was found in Big Moon Lake during the 2009 field season. *P. crispus* was found at eight of ten transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One native crayfish species, *Orconectes virilis*, was detected from the July 28, 2009 sampling. The invasive Chinese mystery snails are present in Big Moon.

Secchi Disk Readings

Secchi disk readings declined into the end of July and increased towards the end of August. The August sampling was conducted during a downpour. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 2, 2009	July 28, 2009	August 19, 2009
Site #1	15T 0568571 5021433	8 ft	6.75 ft	9.25 ft
Site #2	15T 0569080 5021186	8 ft	6.5 ft	11.5 ft
Site #3	15T 0569597 5021264	7.5 ft	6 ft	10.5 ft

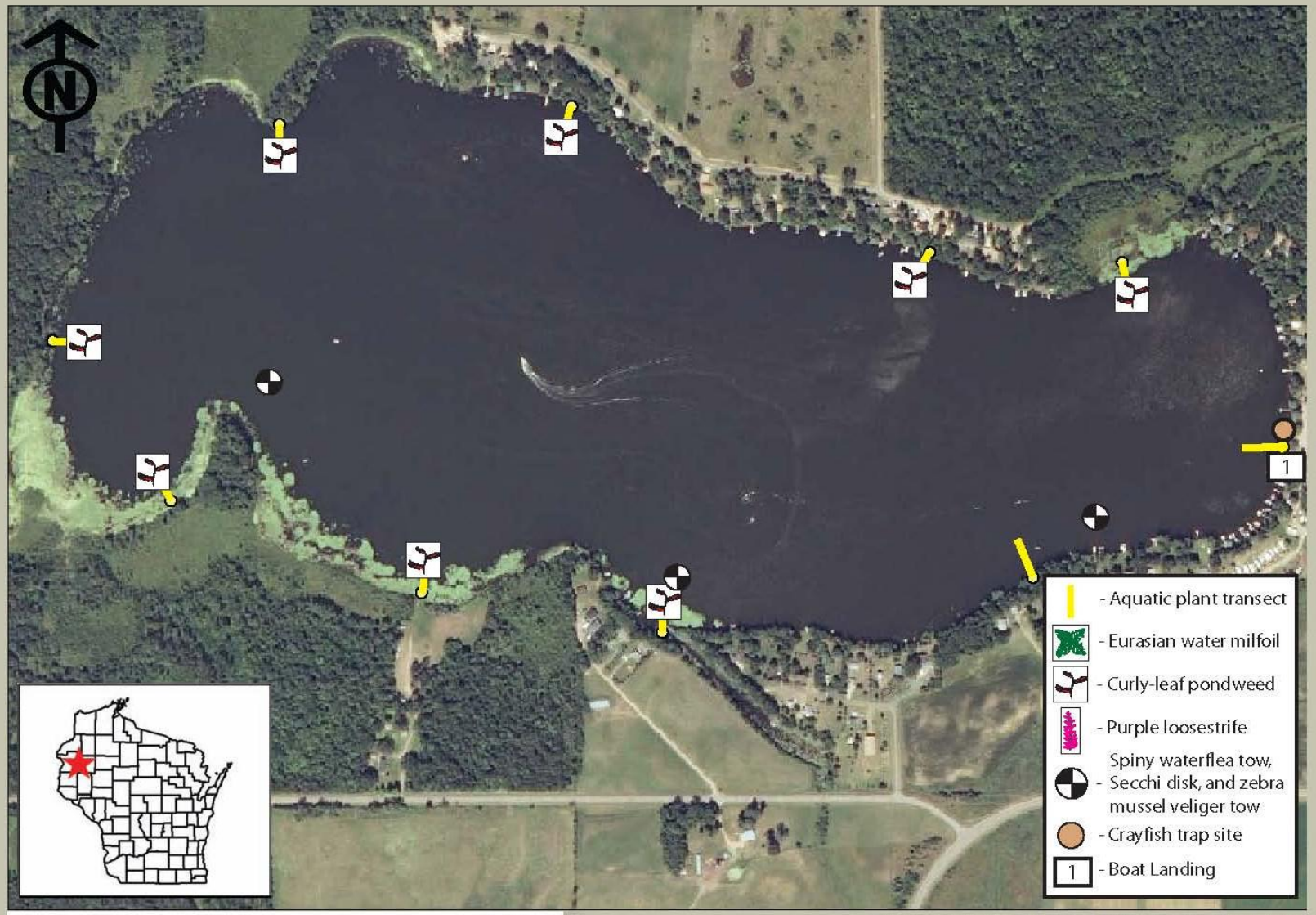
Lake and Shoreline Conditions

The shoreline is 70% developed with poor or no buffers. The other 30% of the shoreline is marshland on the west side of the lake with great buffering. There is a township ordinance in place on Big Moon Lake to the effect of Slow No Wake with a speed limit of less than 10 mph from 4pm until 10am.

Aquatic Invasive Species Survey of

Big Moon Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Rollie Johnson, and Claire Bailey on July 2, July 28, and August 19, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele, Shelby Happe, and Chris Lind

Bob Lake (Waterbody Identification Code # 2178400)

Chippewa County, Town of Cleveland (T31N R08W S23 NE ¼ NE ¼)

Dates of Survey

Bob Lake was surveyed on June 20, July 17, and August 7, 2007

Boat Launch

There is one boat launch on Bob Lake that is located off of 218th Avenue, on the southwest side of the lake. The boat ramp has one launch lane that's surface is composed of gravel, extending to a water depth of three feet. Parking is available for 1-5 vehicles with trailers. There are no restrooms or a launch dock available.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Needle Spikerush	*Eleocharis acicularis*
Spikerush	*Eleocharis sp.*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Slender Naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Lead Pondweed	*Potamogeton natans*
Fern Pondweed	*Potamogeton robbinsii*
Narrowleaf pondweed	*Potamogeton sp.*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Soft-stem Bulrush	*Scirpus validus*
Bur-reed	*Sparganium sp.*
Narrow-leaved Cattail	*Typha angustifolia*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 06/20/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Bob Lake was found to have an approximate (as a

full aquatic plant survey was not completed) FQI value of 22.25, slightly higher than the state average.

Invasive Species

No invasive plants were found in Bob Lake during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 7, 2007 sampling.

Secchi Disk Readings

Readings increased through out the summer. All GPS points were collected in the NAD 83 central datum.

	GPS (UTMs)	June 20, 2007	July 17, 2007	August 7, 2007
Site #1	15T 0632252 5002426	7.5 ft	9.5 ft	10.0 ft
Site #2	15T 0631738 5002325	7.0 ft	9.0 ft	11.5 ft

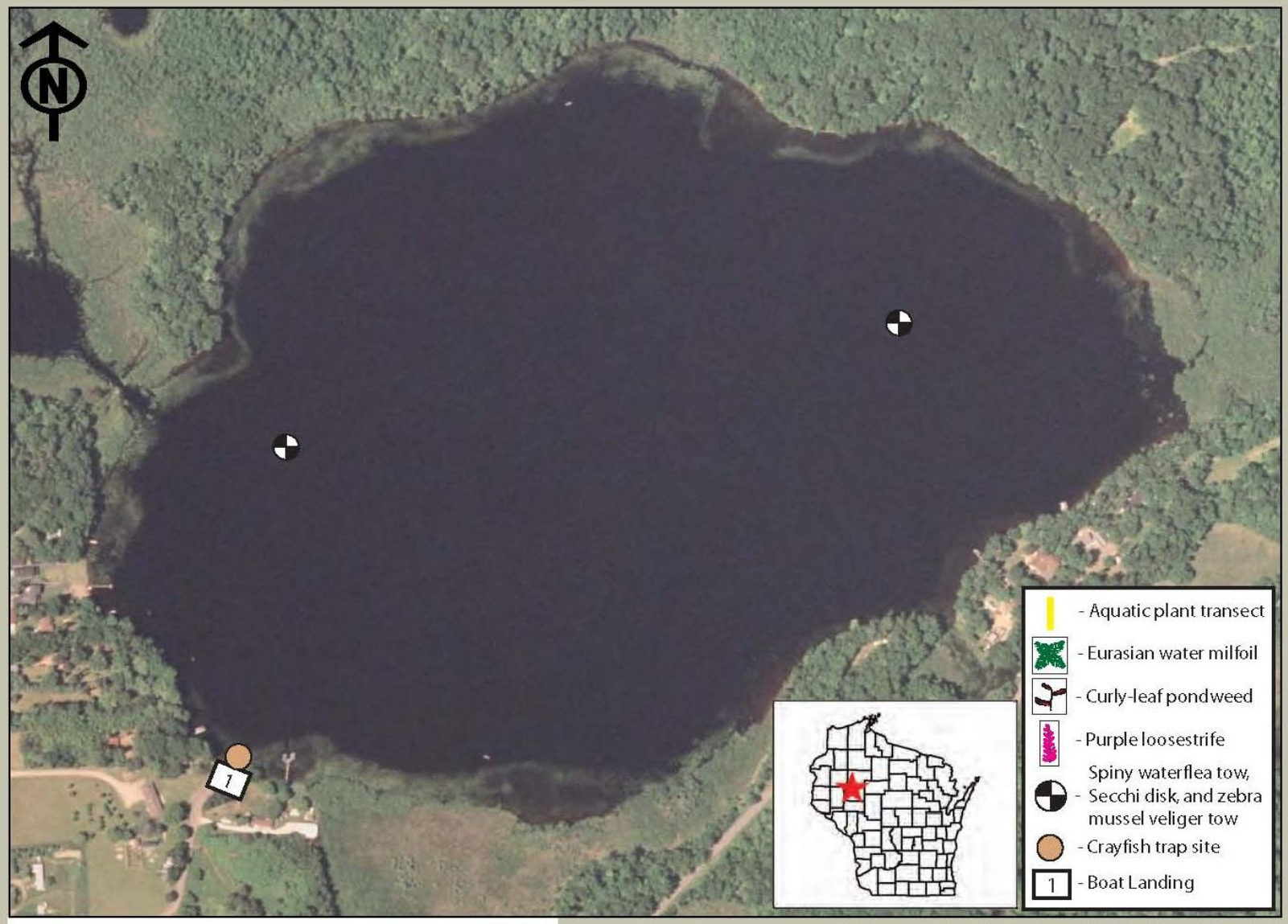
Lake and Shoreline Conditions

Bob Lake is approximately 25% developed, with most of the homes being on the southwest side of the lake and a few being on the east side of the lake. The surrounding shoreline is a mix of hardwood trees, tag alder, and birch trees. There are also sections of marsh off to the northwest, south and east. Freshwater sponges were found in the lake during the aquatic plant survey.

Aquatic Invasive Species Survey of

Bob Lake, Chippewa County

Data collected by Jo Heuschele, Shelby Happe, and Chris Lind on June 20, July 1, and August 7, 2007



Map created by Anna Mares and Jacob Sutherland
09-Nov-2009, Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 23, 2008
Data collected by Jo Heuschele, Jim Weishoff, Ted Ludwig, Anna Mares, and Rick Helgemo

Boot Lake (Waterbody Identification Code # 1836700)

Rusk County (T33N R07W S17 NE ¼ SE ¼)

Dates of Survey

Boot Lake was surveyed on June 17, July 14, and August 5, 2008

Boat Launch

The one launch on Boot Lake is an average sloping gravel pad into the lake located off Boot Lake Road adjacent to Sawdust Road. There is no turnaround and the only parking is next to a property line fence. The landing is owned by the county. No fee is required. The site has no bathroom.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Needle Spikerush	*Eleocharis acicularis*
Quillworts	*Isoetes sp.*
Water Lobelia	*Lobelia dortmanna*
Dwarf Water Milfoil	*Myriophyllum tenellum*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Sago Pondweed	*Potamogeton pectinatus*
Pondweed	*Potamogeton sp.*
Broad-leaved Cattail	*Typha latifolia*
Common Bladderwort	*Utricularia vulgaris*
Wild Rice	*Zizania sp.*

*Plant list is not comprehensive and contains only those species observed on 06/17/08.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Boot Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 23.85, slightly higher than the state average.

Written by Jo Heuschele & Anna Mares
August 23, 2008
Data collected by Jo Heuschele, Jim Weishoff, Ted Ludwig, Anna Mares, and Rick Helgemo

Invasive Species

No invasive plants were found in Boot Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 5, 2008 sampling.

Secchi Disk Readings

Clarity readings dropped over the course of the summer due to algal growth. All GPS points were collected in the NAD 83 Central Datum

	GPS (UTMs)	June 17, 2008	July 14, 2008	August 5, 2008
Site #1	15T 0636347 5022059	7.0 ft	5.5 ft	4.8 ft
Site #2	15T 0636075 5021567	6.0 ft	4.75 ft	5.25 ft

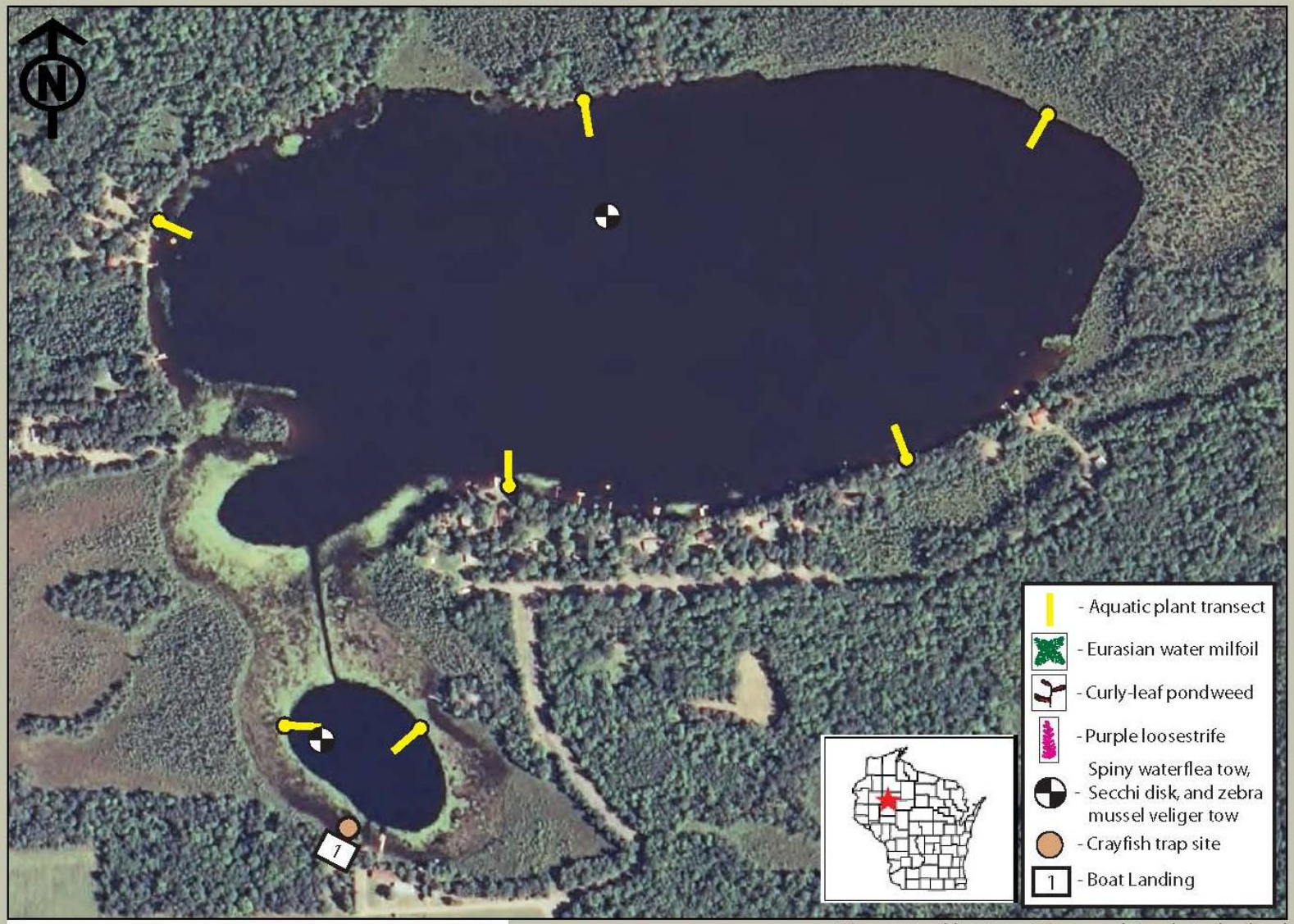
Lake and Shoreline Conditions

Houses line the south and east shorelines. Most of them have lawns mowed to the water's edge greater than 30 ft wide. The north and west shores are spruce and tamarack bog. The southern bay of the lake is heavily vegetated with primarily water shield. There is a small free path leading to the main body of the lake. Boot Lake is a seepage lake surrounded partially with bog. Pulaski, Round, and Boot are represented by the Sawdust Lake Association. Large quantities of zooplankton from the genus *Holopedium* were seen while collecting samples with the plankton nets for spiny waterflea and zebra mussel veligers.

Aquatic Invasive Species Survey of

Boot Lake, Rusk County

Data collected by Jo Heuschele, Jim Weishoff, Ted Ludwig, and Rick Helgemo on June 17, July 14, and August 5, 2008



Map created by Anna Mares and Jacob Sutherland
16-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
August 28, 2008
Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar & Briana Murphy

Bucks Lake (Waterbody Identification Code # 2111700)

Rusk County (T36N R09W S26 SW ¼ NW ¼)

Dates of Survey

Bucks Lake was surveyed on June 26, July 24, and August 14, 2008.

Boat Launch

There is one launch on Bucks Lake in the southwest corner, next to the control structure. It can be accessed by way of N Bucks Lake Road. The path down to the launch provides turn around space and enough parking for two trailers. The launch pad is paved down to the waters edge where it turns to gravel and is lined by larger rocks. The landing is run by the County. No fee is required. There are no bathrooms present.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Three-way Sedge	*Dulichium arundinaceum*
Northern St. John's Wort	*Hypericum boreale*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Northern water milfoil	*Myriophyllum sibiricum*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Water smartweed	*Polygonum amphibium*
Alpine Pondweed	*Potamogeton alpinus*
Long-leaf Pondweed	*Potamogeton nodosus*
Sago Pondweed	*Potamogeton pectinatus*
Small Pondweed	*Potamogeton pusillus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Marsh Cinquefoil	*Potentilla palustris*
Swaying-rush	*Schoenoplectus subterminalis*
Hardstem bulrush	*Scirpus acutus*
Great duckweed	*Spirodela polyrhiza*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/26/2008.

Written by Anna Mares
August 28, 2008
Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar & Briana Murphy

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Bucks Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 24.27, higher than the state average.

Invasive Species

No invasive plant species were found in Bucks Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 23, 2008 sampling.

Secchi Disk Readings

Readings steadily improved over the course of the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 26, 2008	July 23, 2008	August 14, 2008
Site #1	15T 0621095 5048094	4.75 ft	7.0 ft	8.0 ft

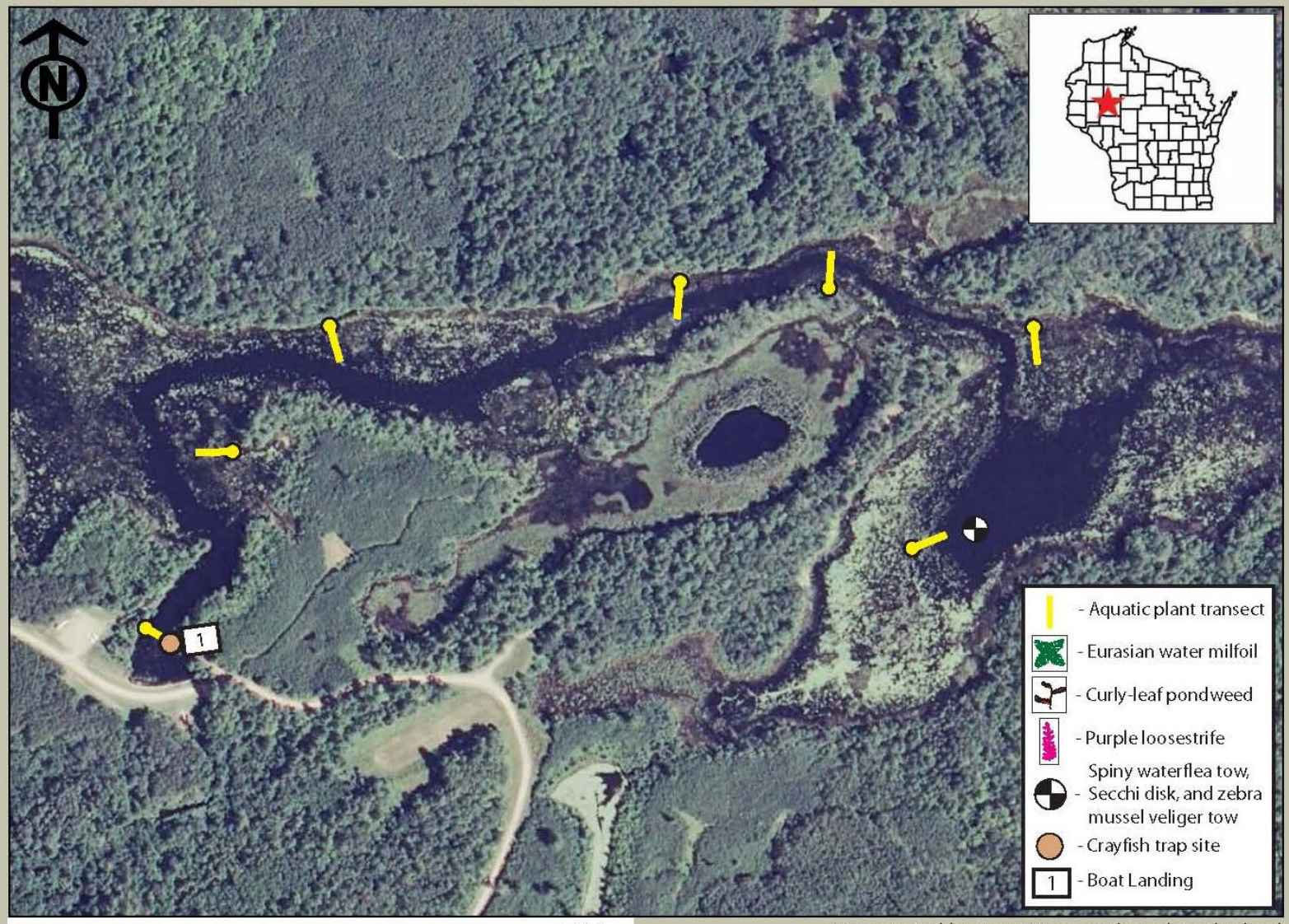
Lake and Shoreline Conditions

There are no houses on Bucks Lake. It is completely surrounded by County Forest Land, creating a natural shore line. There are large numbers of stumps 10-20 yards out from the shore on both sides of the channel, creating numerous hazards. The lake is not over 9.5 ft deep until the main body of the lake in the south east portion. Due to the shallowness, only one tow sample site was used for this lake. Straw/dead grass covers the sediment in the main body of the lake. During the last sampling, the channel leading to the main body of the lake had noticeably larger amounts of emergent vegetation such as white water lily, covering the water's surface.

Aquatic Invasive Species Survey of

Bucks Lake, Rusk County

Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar, and Briana Murphy on June 26, July 24, and August 14, 2008



Map created by Anna Mares and Jacob Sutherland
23-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Christine Preist

Butternut Lake (Waterbody Identification Code # 2105800)

Barron County (T36N R12W S6 SE ¼ NW ¼)

Dates of Survey

Butternut Lake was surveyed on June 17, July 15, and August 11, 2009

Boat Launch

There are two boat launches on Butternut Lake. Both are accessible from 29th Ave., the first launch from the west and the second from the east on 29th Avenue. 29th Ave. East and 29th Ave. West do not connect, but rather dead end at the waters edge as boat landings. The first launch is made of sand and gravel with a gentle slope to the water and then a steep drop off in the water. There are no restrooms or a dock. There is plenty of turnaround space and parking is provided along the turnabout and the roadside. "Stop and remove" and "Help prevent" signs are present. The second launch on the east side is also made of sand and gravel. There is space to turn around but parking is only along the roadside. There are no bathrooms. "Stop and remove" and "Help prevent" signs are present. Neither launch requires a fee.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Marsh Calla	*Calla palustris*
Bottle-brush sedge	*Carex comosa.*
Green Moss	*Drepanocladus sp.*
Three-way Sedge	*Dulichium arundinaceum*
Creeping Spikerush	*Eleocharis palustris*
Water horsetail	*Equisetum fluviatile*
Pipewort	*Eriocaulon aquaticum*
Northern Blue Flag	*Iris versicolor*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Floating Leaf Pondweed	*Potamogeton natans*
Arrowhead	*Sagitarria sp.*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 06/17/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Butternut Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 24.05, higher than the state average.

Invasive Species

No invasive plants were found in Butternut Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the 8/11/2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 17, 2009	July 15, 2009	August 11, 2009
Site #1	15T 0585475 5053875	4 ft	4.25 ft	2.75 ft
Site #2	15T 0585467 5053422	4 ft	4.5 ft	3 ft

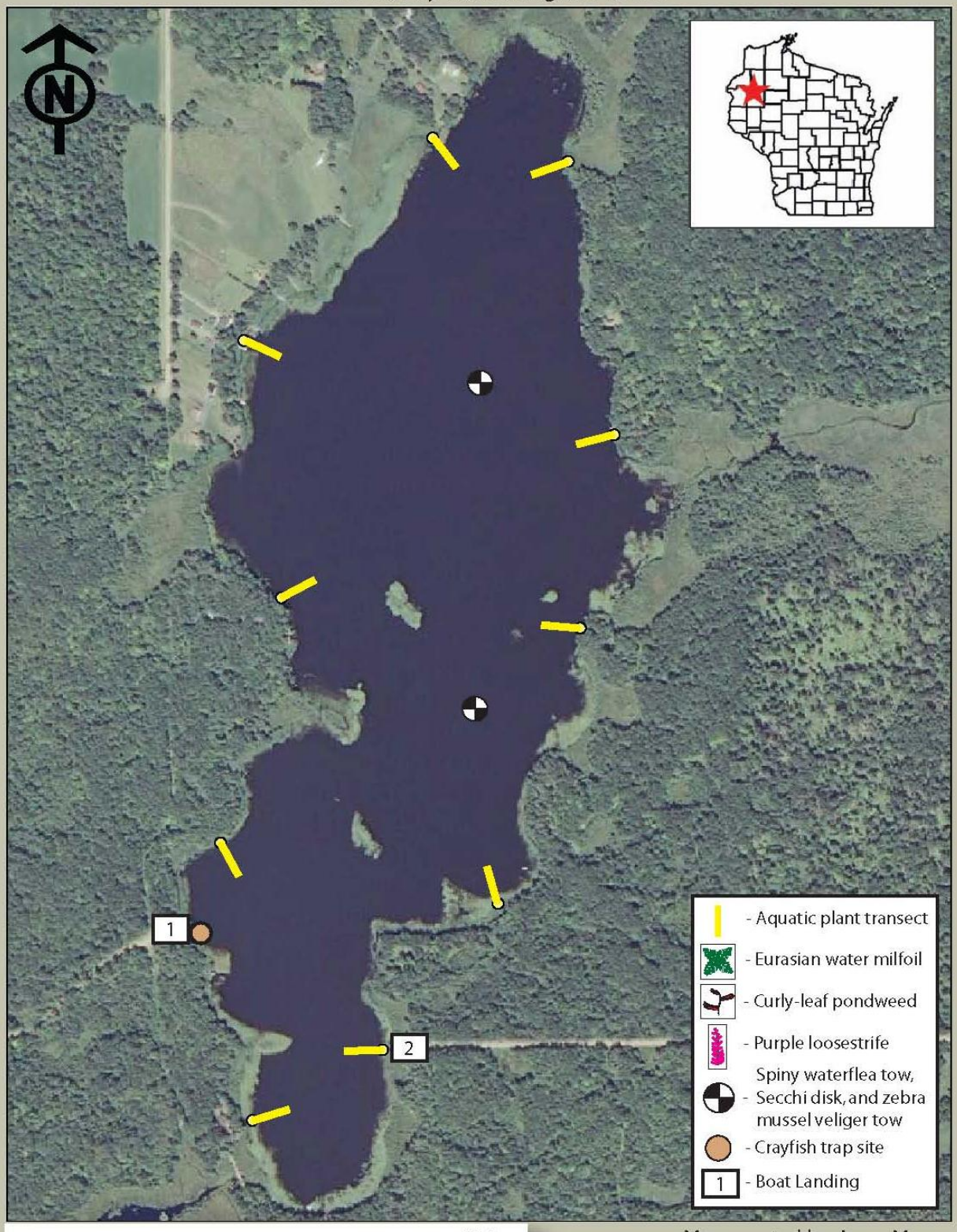
Lake and Shoreline Conditions

The water appeared to be down six inches from the normal water level during the first visit to the lake and by the third visit, it appeared to be down by one foot. The center of the lake has beds of lilies that pop up and are mixed with reeds. The shoreline vegetation is 95% deciduous and around 5% coniferous. The bays have anywhere from 10-75 ft of marsh as the near shore vegetation. There are about 10-15 homes on the lake. Of those, only one home on the north side of the lake has clear cut their land, creating a poor buffer. While conducting the plankton net tows for spiny waterflea and zebra mussel veligers, it was observed that Butternut Lake had a diverse zooplankton population.

Aquatic Invasive Species Survey of

Butternut Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Christine Preist, and Zoe Hastings
on June 17, July 15, and August 11, 2009



Map created by Anna Mares
07-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy and Christine Preist

Chain Lake (Waterbody Identification Code # 1840100)

Barron County (T36N R10W S7 SE ¼ SE ¼)

Dates of Survey

Chain Lake was surveyed on June 17, July 14, and August 10, 2009

Boat Launch

There is one boat launch on Chain Lake. It is located off of County Highway V in the southwest corner of the northern portion of Chain Lake. It is an unimproved landing made of sand and gravel. It is very steep and requires four-wheel drive to get back up the slope. It is a Barron County landing, requiring no fee, with "Stop and remove" and "Help prevent" signs present. The landing does not have a dock. There is a turnaround and parking for four vehicles with trailers. There is another landing listed in the northwest corner of the lake portion south of County Hwy V. It is a strip of gravel about 20 ft long at a steep angle to shallow water. It would require that the boater turn around and back up on the busy County Highway V. This "launch" seems better suited to canoe access.

Native Plant List*

Common Name	Scientific Name
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Lesser duckweed	*Lemna minor*
Nitellas	*Nitella sp.*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Common arrowhead	*Sagittaria latifolia*
Hardstem bulrush	*Scirpus acutus*
Broad-leaved cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 06/17/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Chain Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 13.08, much lower than the state average.

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy and Christine Preist

Invasive Species

No invasive plants were found in Chain Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 10, 2009 sampling.

Secchi Disk Readings

Clarity readings were poor and continued to decrease over the summer from fine algae suspended in the water column. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 17, 2009	July 14, 2009	August 10, 2009
Site #1	15T 0605904 5051594	3.5 ft	2.25 ft	0.75 ft

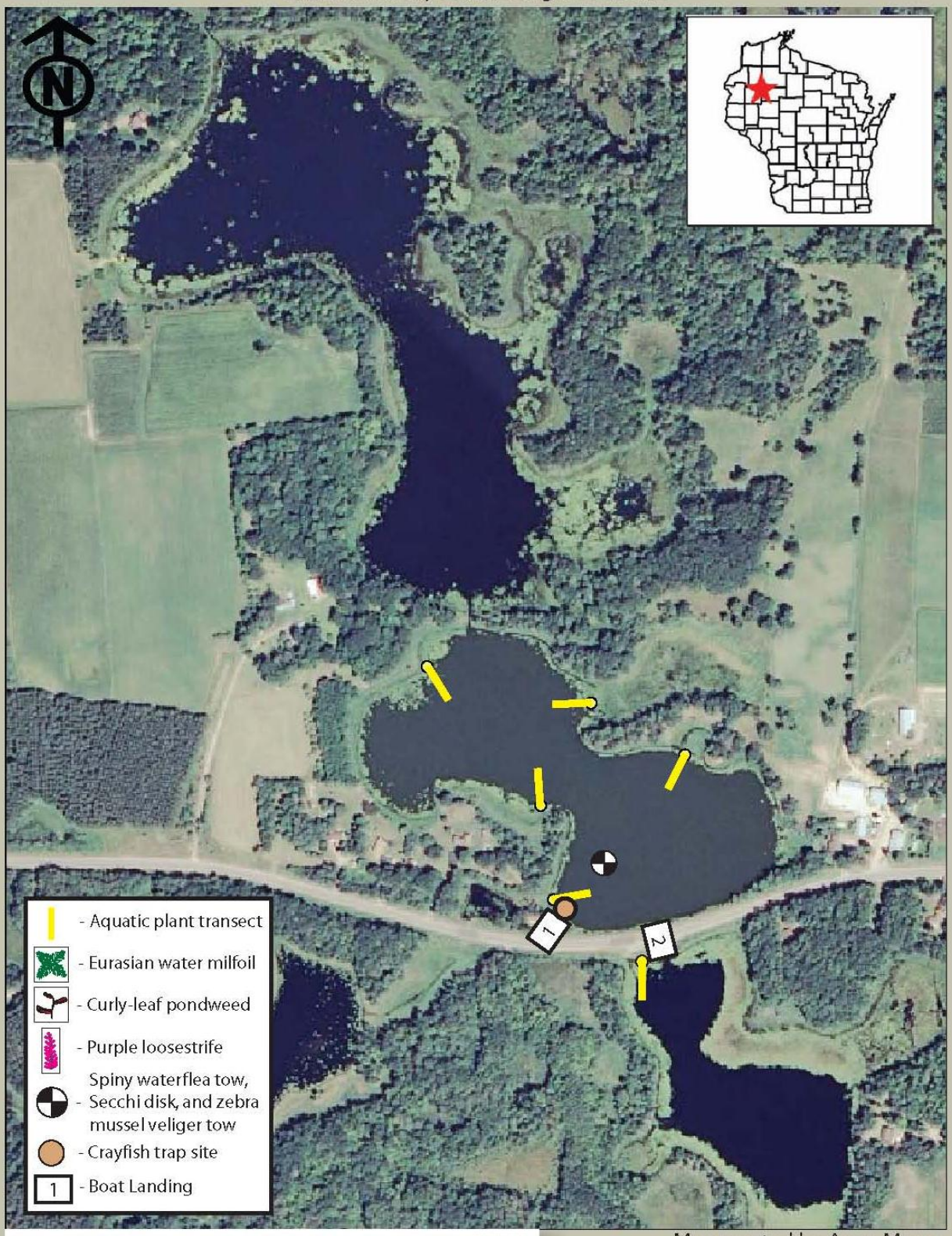
Lake and Shoreline Conditions

Several bays of the lake have begun to fill in with vegetation from the reduced water level. The water appears to be 1.5 ft lower than the normal water level. Chain Lake has a solid 30 ft+ buffer around the entire lake. There is a farm on the east side of the middle section of the lake. Locally, Chain Lake is called Twin Lakes. All three larger sections of the lake are cut off from one another. The northern portion is separated from the central section by a sand bar that filled in with vegetation. An unknown type of blue green algae was present at the north end of the lake.

Aquatic Invasive Species Survey of

Chain Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy and Christine Preist
on June 17, July 14, and August 10, 2009



Map created by Anna Mares
07-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele, Shelby Happe and Chris Lind

Chain Lake (Waterbody Identification Code # 2350500)

Chippewa / Rusk Counties (T33N R08W S31 NW ¼ NW ¼)

Dates of Survey

Chain Lake was surveyed on June 25, July 22, and August 6, 2007

Boat Launch

The boat launch is located on the north shore of the lake off of County Road D and Plummer Road.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Spikerush	*Eleocharis sp.*
Common Waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Lesser Duckweed	*Lemna minor*
Forked Duckweed	*Lemna trisulca*
Water Marigold	*Megalodonta beckii*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Narrowleaf	*Potamogeton sp.*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Great duckweed	*Spirodela polyrhiza*
Narrow-leaved Cattail	*Typha angustifolia*
Common Bladderwort	*Utricularia vulgaris*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/25/2007.

The most commonly seen aquatic plants were *Potamogeton zosteriformis, Potamogeton amplifolius, Ceratophyllum demersum,* and *Potamogeton crispus*. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be

measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Chain Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 28.56, higher than the state average.

Invasive Species

Two invasive plants were found in Chain Lake during the 2007 field season. *Potamogeton crispus* was collected on June 25, 2007. It was located in 10 of 20 transects used for sampling aquatic plants, placed at 1,500 ft intervals around the perimeter of the lake. The total acreage was estimated to be only ½ to one acre of *P. crispus*. *Lythrum salicaria*, purple loosestrife, is known to be present around the lake, according to residents on Chain Lake, but it was not collected during the 2007 surveys.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Rusty crayfish were collected on Chain Lake during the August 6, 2007 sampling.

Secchi Disk Readings

Readings declined into August with mild algae blooms occurring. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 25, 2007	July 22, 2007	August 6, 2007
Site #1	15T 0623585 5017408	8.5 ft	8.5 ft	6.0 ft
Site #2	15T 0622608 5015242	9.25 ft	6.0 ft	6.0 ft
Site #3	15T 0622873 5016725	9.0 ft	10.0 ft	6.5 ft

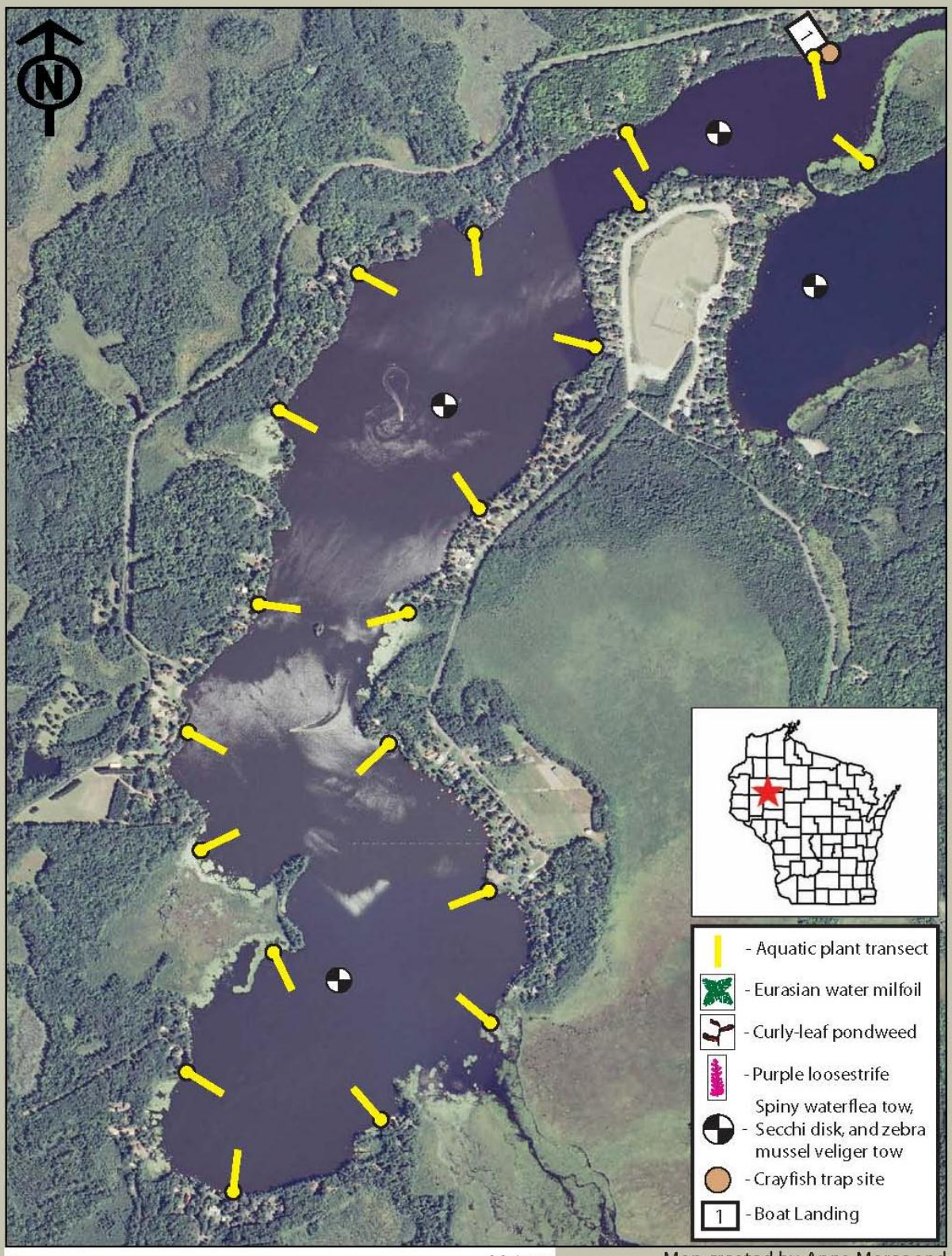
Lake and Shoreline Conditions

The shoreline of Chain Lake is approximately 80% developed with homes being closely spaced along Plummer Road, Chain Lake Road, and Park Drive. The poorest buffers are along Chain Lake Road and Park Drive where many of the lots have cleared lawns to the water. More trees and shoreline plants have been left on the northern and western side of the lake. Thirty feet of buffering is recommended on all lake shore properties. There is a large bog/marshland to the east of Chain Lake. The map of Chain Lake does not accurately reflect the locations of *P. crispus* in Chain Lake as none are shown on the map but it was found at 10 of 20 transects. This is due to improper documentation.

Aquatic Invasive Species Survey of

Chain Lake, Rusk County

Data collected by Jo Heuschele, Shelby Happe, and Chris Lind on June 25, July 22, and August 6, 2007



Map created by Anna Mares and Jacob Sutherland on 16-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Chapman Lake Flowage (Waterbody Identification Code # 21407200)

Chippewa County (T29N R05W S26 SE ¼ SE ¼)

Dates of Survey

Chapman Lake Flowage was surveyed on June 6, and July 31, 2009

Boat Launch

There is one unmarked, unmaintained boat launch on the west side of the lake in Chapman Park. The launch is made of grass and sand to the water and is right next to the beach. The launch is very shallow and does not have a dock. There is turnaround space and restrooms in the park. No fees are required.

Native Plant List*

Common Name	Scientific Name
Sweet flag	*Acorus calamus*
Coontail	*Ceratophyllum demersum*
Needle Spikerush	*Eleocharis acicularis*
Common Waterweed	*Elodea canadensis*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Bullhead Pond Lily	*Nuphar variegata*
Water smartweed	*Polygonum amphibium*
Sago Pondweed	*Potamogeton pectinatus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Common Arrowhead	*Sagittaria latifolia*
Soft-stem bulrush	*Scirpus validus*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed 07/06/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Chapman Lake was found to have an approximate

(as a full aquatic plant survey was not completed) FQI value of 16.83, lower than the state average.

Invasive Species

One invasive plant species, *Potamogeton crispus*, was found in Chapman Lake during the 2009 field season. *P. crispus* was found at six of six transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake. It was abundant at each of the transects, but was mixed in with native vegetation.

Spiny waterflea and zebra mussel veligers were not sampled for during the two summer samplings due to low water. No rusty crayfish or any native crayfish species were detected from the July 31, 2009 sampling.

Secchi Disk Readings

No tow sites were selected on Chapman Lake due to the shallow water depth and the abundance of aquatic plants over the entire lake surface. As a result, no Secchi disk readings were taken.

Lake and Shoreline Conditions

Chapman Lake is within the city of Stanley and is developed on all sides. Poor buffers exist on all sides of the lake, with small portions of 10 ft buffers on the eastern shore. It is encouraged that the banks of the park are left to grow instead of being mowed, to provide a better buffer. Homes are present on the north side of the lake.

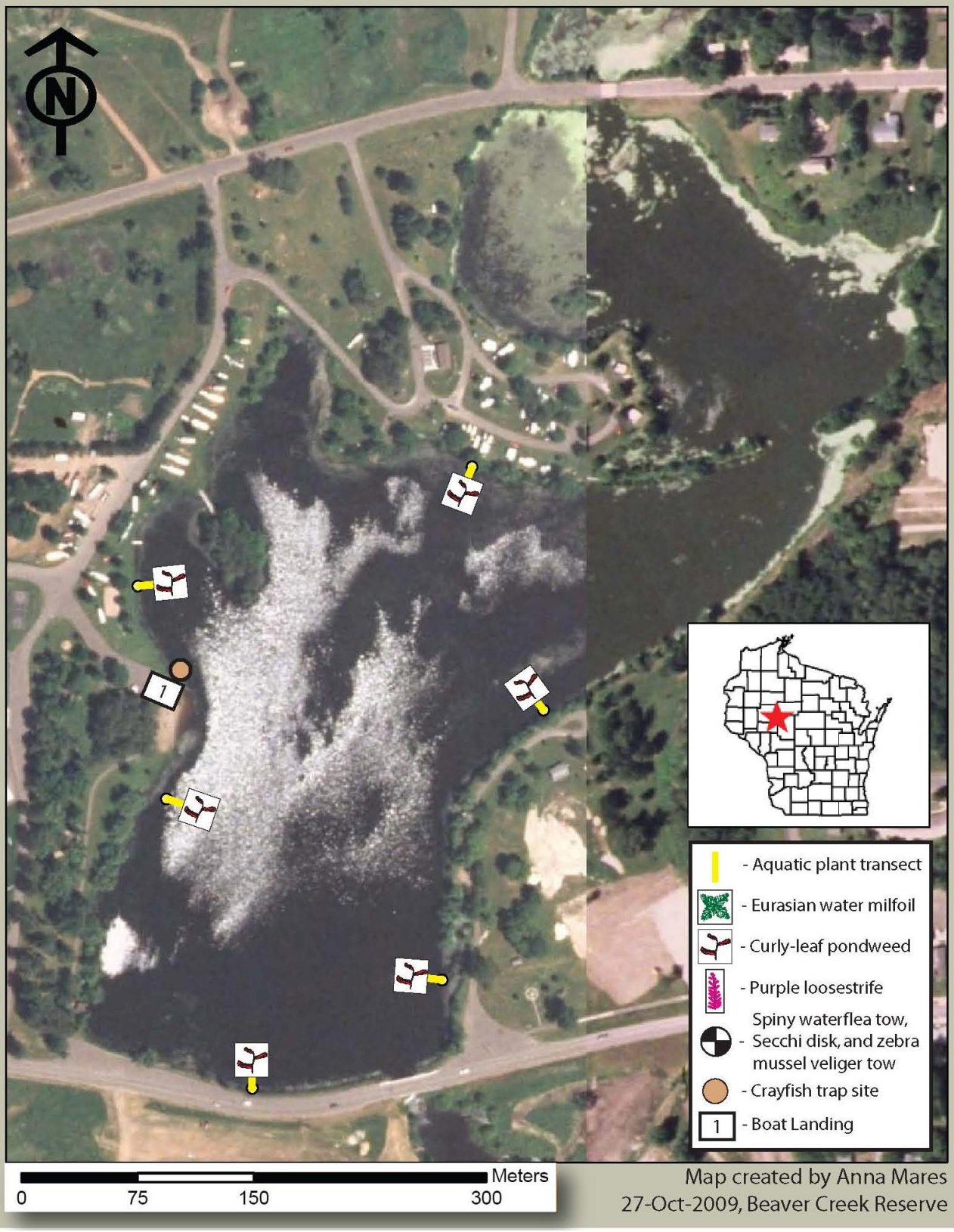
General Comments

On the two dates that the survey crew visited Chapman Lake, the water appeared to be almost 2.5 ft lower than the normal water level of the impoundment. It was later learned that the lake was being drained at a rate of no more than six inches per day to fix the failing Stanley Mill Dam and County Highway O bridge on the south side of the lake. The project was scheduled to start in August and be completed by the winter of 2009. The lake may not be refilled until the spring of 2011, after the lake bottom has been dredged. Dredging may help lower the *P. crispus* population. Canada geese seem to be a nuisance on the beach area of Chapman Park, leaving large amounts of fecal matter on the sand.

Aquatic Invasive Species Survey of

Chapman Lake, Chippewa County

Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig on July 6, and July 31, 2009



Map created by Anna Mares
27-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Chippewa Falls Flowage (Waterbody Identification Code # 2152600)

Chippewa County (T28N R08W S6 SE ¼ SE ¼)

Dates of Survey

Chippewa Falls Flowage was surveyed on July 6, July 24, and August 14, 2007

Boat Launch

An access ramp with available parking is off of Pumphouse Road on north side of the flowage. The ramp is paved to a water depth of 2 feet. There is a turnaround and 11-15 parking stalls for vehicles and trailers. Potable restrooms are available. No launching docks are present.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Slender Naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
White Water Lily	*Nymphea odorata*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Stiff Arrowhead	*Sagittaria rigida*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 07/24/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). The Chippewa Falls Flowage was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 15.55, lower than the state average.

Invasive Species

No invasive plants were found in Chippewa Falls Flowage during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Multiple crayfish were detected from the July 24, 2007 sampling on both the right and left side of the boat launch. They were sent to the Center for Limnology and it was confirmed that they were rusty crayfish.

Secchi Disk Readings

Readings increased slightly through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 6, 2007	July 24, 2007	August 14, 2007
Site #1	15T 0629642 4977826	4.0 ft	6.0 ft	6.0 ft
Site #2	15T 0628761 4977419	4.75 ft	6.0 ft	5.0 ft
Site #3	15T 0627816 4976743	3.0 ft	5.0 ft	4.0 ft

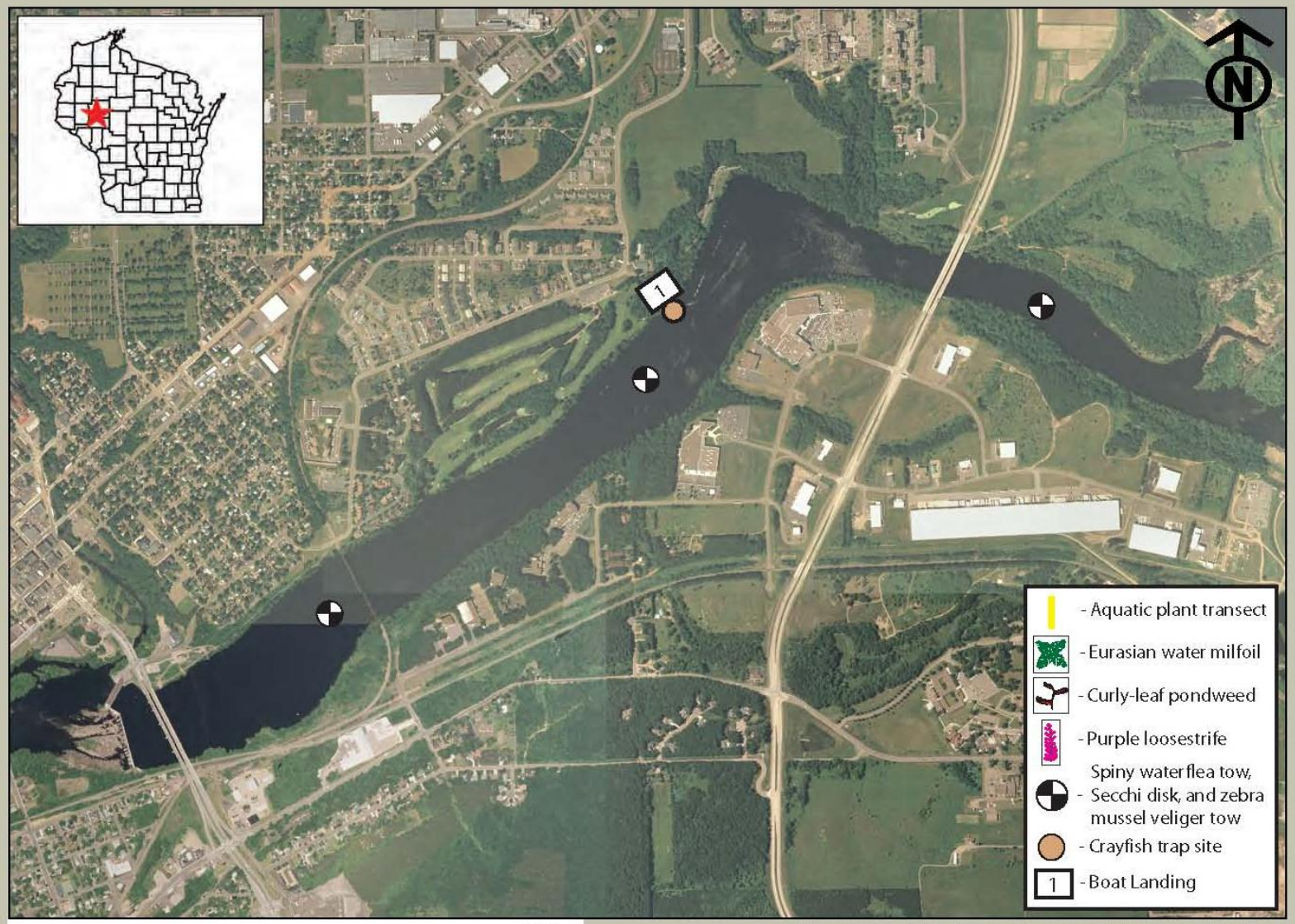
Lake and Shoreline Conditions

The Chippewa Falls Flowage is situated between the dam on Lake Wissota and the dam near Highway 53. The Chippewa Falls Flowage is vulnerable to infestations of curly-leaf pondweed and Eurasian water milfoil because the upstream Lake Wissota contains both, along with Chinese mystery snails, an invasive species of snail.

Aquatic Invasive Species Survey of

Chippewa Falls Flowage, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on July 6, July 24, and August 14, 2007



Map created by Anna Mares and Jacob Sutherland
23-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Clear Lake (Waterbody Identification Code # 2350600)

Rusk County (T33N R09W S36 SE ¼ NE ¼)

Dates of Survey

Clear Lake was surveyed on June 26, July 21, and August 6, 2007

Boat Launch

The boat launch is located on the southwest shore of the lake, off Highway 40 and 136th Street, next to Sunny's Clear Lake Resort. The boat ramp is paved and is accompanied by a dock. There is turnaround space and parking for 10 vehicles with trailers. No restrooms are available and no fees are required.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Water Marigold	*Megalodonta beckii*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Fries' pondweed	*Potamogeton friesii*
Floating Lead Pondweed	*Potamogeton natans*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Crowfoot	*Ranunculus sp.*
Common Bladderwort	*Utricularia vulgaris*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/27/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Clear Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 28.39, higher than the state average.

Invasive Species

One invasive plant was found in Clear Lake during the 2007 field season. *Potamogeton crispus* was found on June 26, 2007. *P. crispus* was located at two of six transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake. No large monoculture beds of *P. crispus* were found.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 6, 2007 sampling. Rusty crayfish were collected on Chain Lake and Island Lake, and because Clear Lake is connected, it is safe to assume that they are present in Clear Lake.

Secchi Disk Readings

Readings stayed relatively steady through out the summer, with a slight increase in August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 26, 2007	July 21, 2007	August 6, 2007
Site #1	15T 0624265 5017309	10.0 ft	13.0 ft	13.25 ft
Site #2	15T 0623823 5017011	10.5 ft	13.0 ft	13.25 ft

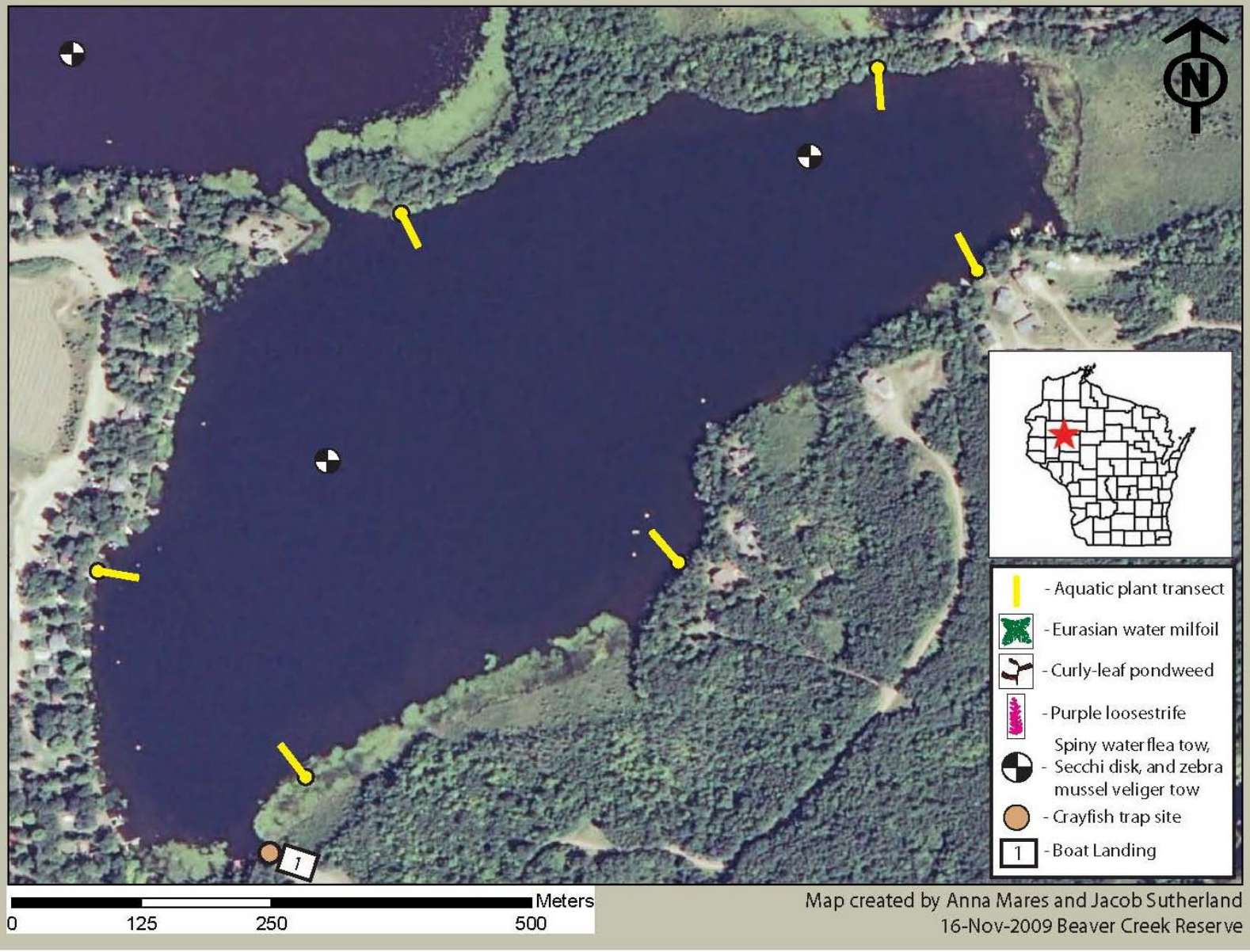
Lake and Shoreline Conditions

The shoreline of Clear Lake is approximately 50% developed with homes. Marsh plants have begun to fill in some of the bays on the south side of the lake, and the large lobe on the northeast side of the lake. The map of Clear Lake is not reflective of the locations of *P. crispus*, as it was found at two of six transects, but poor documentation made it unclear at which two transects it was found.

Aquatic Invasive Species Survey of

Clear Lake, Rusk County

Data collected by Jo Heuschele and Shelby Happe on June 26, July 21, and August 6, 2007



Map created by Anna Mares and Jacob Sutherland
16-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Sarah Graves

Coon Fork Flowage (Waterbody Identification Code # 2135600)

Eau Claire County (T26N R05W S29 SE ¼ SW ¼)

Dates of Survey

Coon Fork Flowage was surveyed on June, July 23, and August 4, 2008

Boat Launch

There is one boat launch in the southwest corner of the lake. It is accessible from County Road CF. The launch is well maintained with a paved launch pad leading to sandy sediment. Ample parking is available as well as turn-about space. The boat launch is run by the County. A fee is required to park.

List Native Plant *

Common Name	Scientific Name
Spiny Hornwort	*Ceratophyllum echinatum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Lead Pondweed	*Potamogeton natans*
Small Pondweed	*Potamogeton pusillus*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Rice	*Zizania sp.*

*Plant list is not comprehensive and contains only those species observed on 06/02/2008.

Coon Fork Flowage contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Coon Fork Flowage was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 16.26, lower than the state average.

Written by Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Sarah Graves

Invasive Species

No invasive plants were found in Coon Fork Flowage during the 2008 field season.

No spiny water flea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 4, 2008 sampling. One invasive snail species, the Chinese mystery snail, was found in the flowage.

Secchi Disk Readings

Readings stayed consistently poor throughout the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 2, 2008	July 23, 2008	August 4, 2008
Site #1	15T 0657362 4950792	2.25 ft	3.5 ft	3.25 ft
Site #2	15T 0657071 4951170	2.5 ft	3.25 ft	3.0 ft

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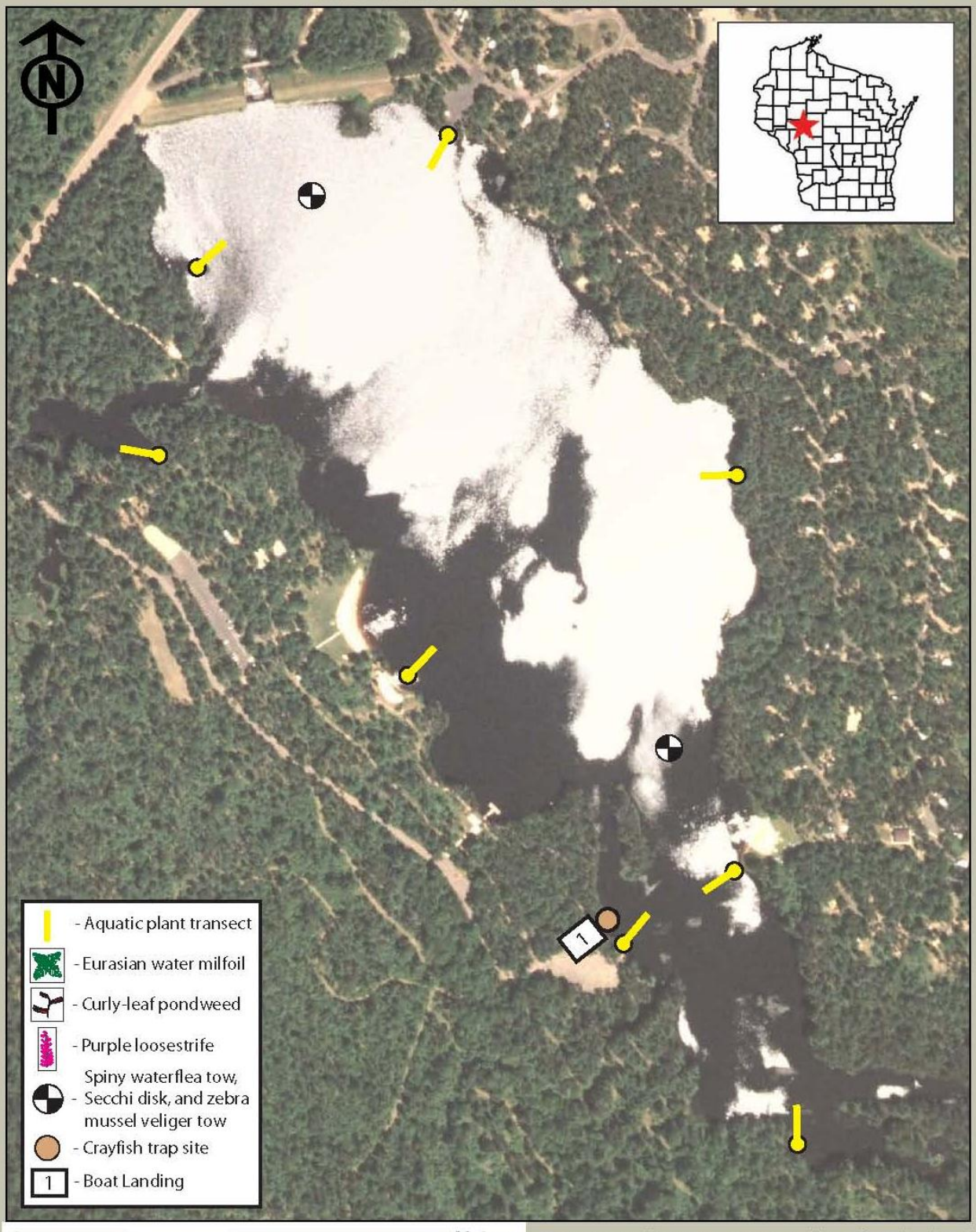
Lake and Shoreline Conditions

The Lake is completely surrounded by County Forest land; therefore nearly all of the shoreline is naturally buffered. There is a large area cleared on the west side to allow for 100 m of sandy beach. The eastern side has a few campsites that peek out from the campgrounds. The east side also has some wooden terraced slopes. The Southern half of the lake is much wilder in appearance than the northern half. The control structure is located at the northern most point of the lake. Coon Fork Flowage is designated as a No Gasoline Powered Engine Lake.

Aquatic Invasive Species Survey of

Coon Fork Flowage, Eau Claire County

Data collected by Jo Heushele, Anna Mares, Kevin Mesiar and Sarah Graves
on June 2, July 23, and August 4, 2008



Map created by Anna Mares and Jacob Sutherland
on 26-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Cornell Flowage (Waterbody Identification Code # 2181400)

Chippewa County (T31N R06W S18 SW ¼ SE ¼)

Dates of Survey

Cornell Flowage was surveyed on July 9, and July 25, 2007

Boat Launch

The boat ramp is paved to a depth of 3 feet; there is a boarding dock present. The available parking area has 16-20 stalls for vehicles and trailers. The ramp is located in Brunet Island State Park. Another boat ramp is the Cornell Boat Ramp off of Bay Road. Conditions and details are unknown.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Joe-Pye Weed	*Eupatorium sp.*
Slender Naiad	*Najas flexilis*
White Water Lily	*Nymphea odorata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Spiral-fruited pondweed	*Potamogeton spirillus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Common Arrowhead	*Sagittaria latifolia*
Wool grass	*Scirpus cyperinus*
Soft-stem Bulrush	*Scirpus validus*
Bur-reed	*Sparganium sp.*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 7/25/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Cornell Flowage was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 18.99, lower than the state average.

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Invasive Species

Two invasive plants were found during the 2007 field season. *Potamogeton crispus* and *Lythrum salicaria* were found on June 25, 2007. Several large beds of *P. crispus* were documented throughout the flowage in 2007. In the summer of 2009, *Myriophyllum spicatum* was collected on the west side of Brunet Island. *M. spicatum* was not seen during the 2007 sampling. It most likely arrived in the Cornell Flowage from the up stream Holcombe Flowage that contains *M. spicatum*.

No spiny waterflea or zebra mussel veligers were detected during the summer samplings. Multiple crayfish were found to the right and left of the boat launch on July 25, 2007. They were sent to the State laboratory and it was confirmed that they were rusty crayfish.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 central Datum.

	GPS (UTMs)	July 9, 2007	July 25, 2007
Site #1	15T 0643732 5003559	3.75 ft	4 ft
Site #2	15T 0644680 5003475	4 ft	3.75 ft
Site #3	15T 0644721 5002828	4.75 ft	4 ft

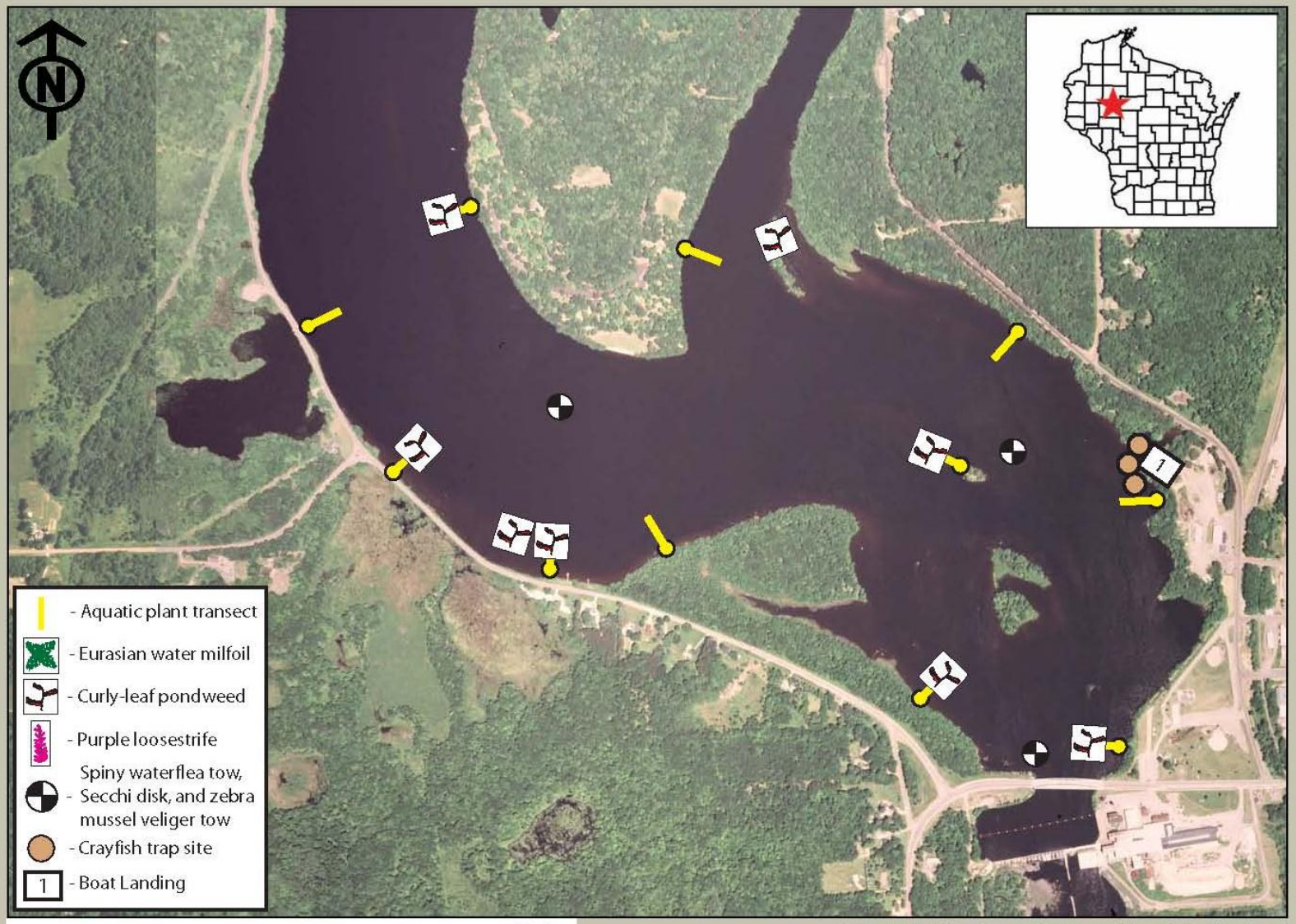
Lake and Shoreline Conditions

Cornell Flowage has poor buffering along the southeastern shore and along County Highway CC on the west side of the flowage. Much of the other shores have been left in their natural state.

Aquatic Invasive Species Survey of

Cornell Flowage, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on July 9, and July 25, 2007



Map created by Anna Mares and Jacob Sutherland
09-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Cornell Lake (Waterbody Identification Code # 2171000)

Chippewa County (T31N R08W S34 SE ¼ SE ¼)

Dates of Survey

Cornell Lake was surveyed on July 2, July 25, and August 15, 2007

Boat Launch

The boat launch is located on southwest shore of the lake off Hwy. 64 & 190th Avenue. It is a gravel ramp with no boarding dock. There is turnaround space and limited parking along the launch. There are no available restrooms or required fees.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Marsh Calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Musk Grass	*Chara sp.*
Common Waterweed	*Elodea canadensis*
Joe-pye Weed	*Eutrochium sp.*
Water Marigold	*Megalodonta beckii*
Northern Water Milfoil	*Myriophyllum sibiricum*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 07/02/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Cornell Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 24.52, higher than the state average.

Written by Anna Mares
October 6, 2008
Data collected by Jo Heuschele and Shelby Happe

Invasive Species

One invasive plant was found in Cornell Lake during the 2007 field season. *Potamogeton crispus* was found on July 2, 2007. The extent of the infestation is unknown but monitoring should continue to track population growth.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 15, 2007 sampling.

Secchi Disk Readings

Readings increased in the end of July and then decreased into August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 2, 2007	July 25, 2007	August 15, 2007
Site 114	15 T 0630460 4997317	10.0 ft	12.5 ft	7.25 ft
Site 116	15 T 0630534 4996958	9.5 ft	12.5 ft	7.5 ft
Site 117	15 T 0630997 4997636	10.5 ft	11.0 ft	7.25 ft

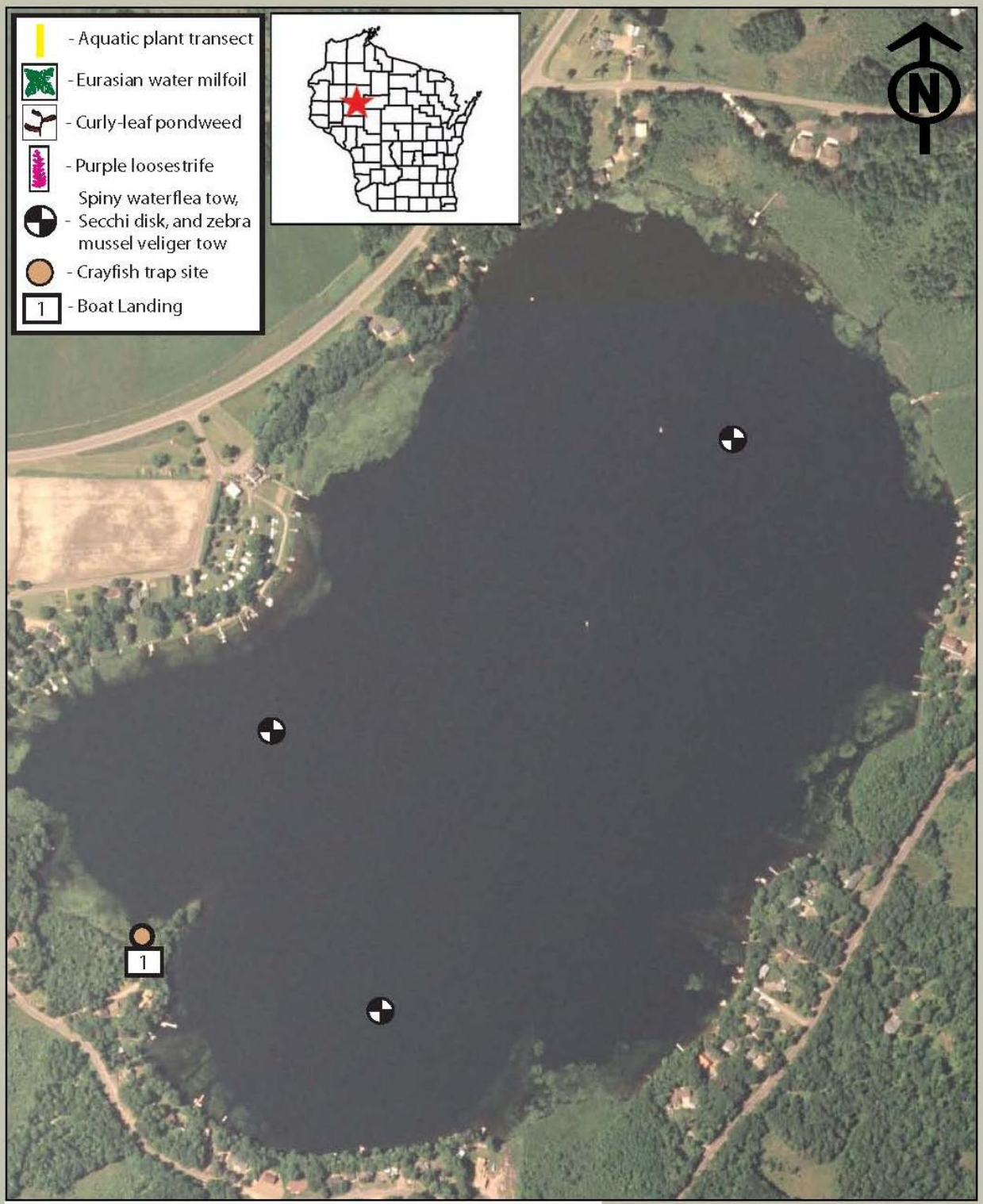
Lake and Shoreline Conditions

Over 80% of the lake is developed by homes. The only shoreline areas that are not developed are those that are considered to be marshland. Buffers of 30 ft are recommended up from the shoreline. Areas along the northern and eastern shores have lawns that are mowed down to the water.

Aquatic Invasive Species Survey of

Cornell Lake, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on July 2, July 25, and August 15, 2007



Map created by Anna Mares and Jacob Sutherland on 04-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Phil Rynish

Dairyland Reservoir (Waterbody Identification Code # 2229200)

Rusk County (T35N R05W S30 NW ¼ NW ¼)

Dates of Survey

Dairyland Reservoir was surveyed on May 29, July 7, and August 3, 2009

Boat Launch

In total the reservoir has five boat landings. The first launch (1) is at Josie Creek County Campground. It is paved, has two launch pads with a dock each, has pit toilets in the campground, does not require a fee, and has two aquatic invasive species (AIS) signs (the yellow AIS advisory sign with rusty crayfish and purple loosestrife tags and the "stop aquatic hitchhikers" sign). The second landing (2) is made of gravel, does not have a dock or any AIS signs, has room for one trailer to park, and does not have restrooms or require a fee. The third landing (3) is located to the south of the dam. It is large and has a concrete pad to the water, has a dock, restrooms, and a picnic area with a large sign including a map of the lake. There is ample parking for cars and vehicles with trailers. This launch does not require a fee and no AIS signs are present. The fourth landing (4) is located just north of the dam. It has a paved parking area, concrete launch pad, and has a dock. The landing does not have any AIS signs, restrooms, or required fees. The fifth landing (5) is gravel, does not have a dock, has a tight turnaround space, and does not have any AIS signs present.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Lesser duckweed	*Lemna minor*
Various-leaved water milfoil	*Myriophyllum heterophyllum*
Slender naiad	*Najas flexilis*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Spiral-fruited pondweed	*Potamogeton spirillus*
Flat-stem pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Broad-leaved cattail	*Typha latifolia*
Wild celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 05/29/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Dairyland Flowage was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 19.96, lower than the state average.

Invasive Species

No rooted invasive plants were found in Dairyland Reservoir during the 2009 field season. A handful of Eurasian water milfoil fragments were found in the very upper reaches of the Dairyland Reservoir. These fragments were floating on the surface and no rooted plants were found in the reservoir. The fragments are most likely from the Big Falls Flowage, which contains healthy populations of Eurasian water milfoil (EWM). Dairyland Reservoir should be watched for new rooting populations of EWM.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Traps were not set for rusty crayfish in the Dairyland Flowage because rusty crayfish presence had already been documented in the flowage.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	May 29, 2009	July 7, 2009	August 3, 2009
Site #1	15T 0657848 5043006	4 ft	10.25	5.5 ft
Site #2	15T 0654645 5040956	5.25 ft	7.5 ft	7.0 ft
Site #3	15T 0652993 5039761	4.0 ft	6.5	7.5 ft

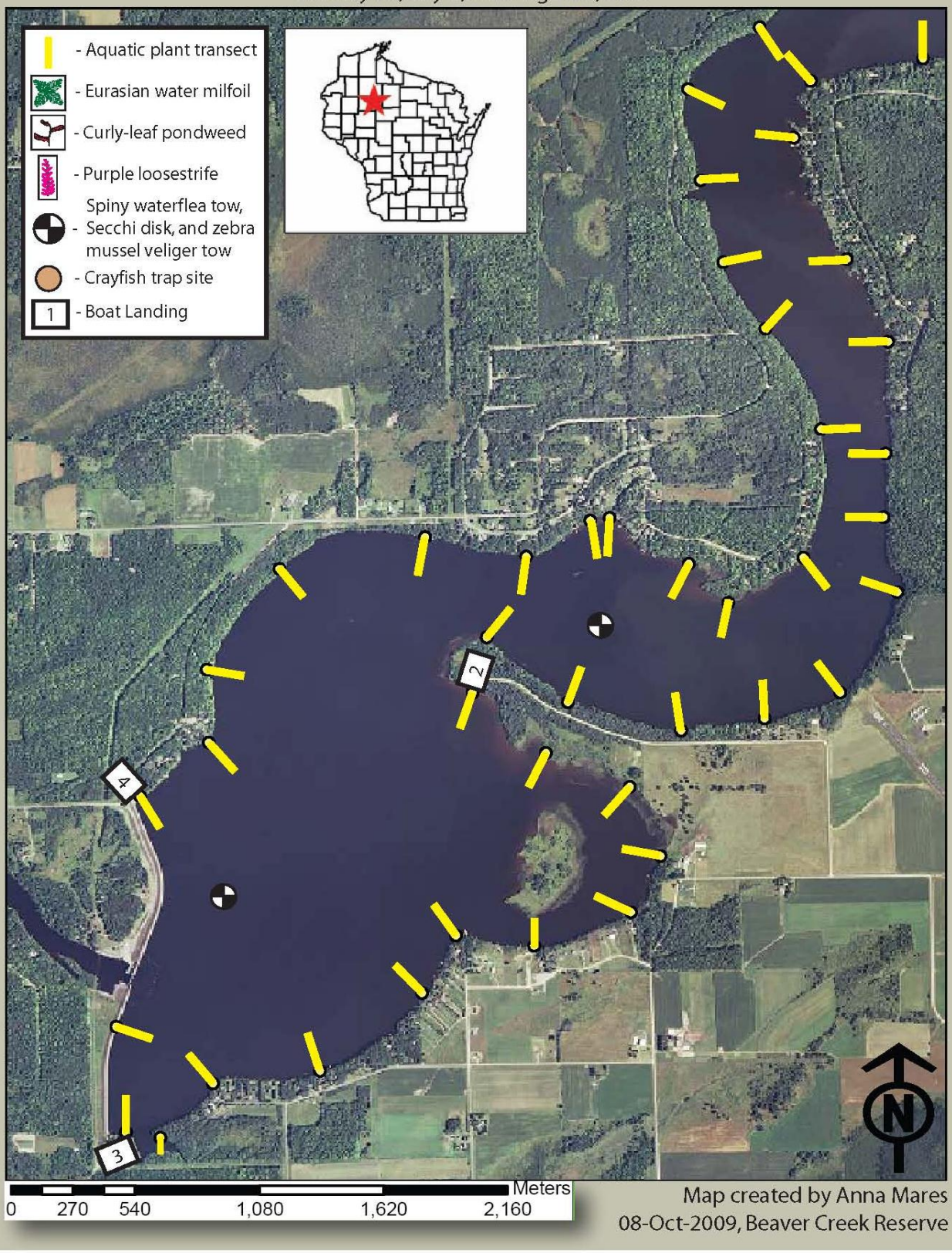
Lake and Shoreline Conditions

The shoreline vegetation is approximately 85% deciduous and 15% coniferous. The south side of the water body near the County Highway I bridge has very good buffers (heavily wooded). Overall, approximately 40% is developed; there are long stretches of undeveloped areas and good buffers and many areas that are docked/developed. The shoreline seems to alternate in that if one side of the flowage has homes on it, the area directly across from it has been left wild. Plants were mostly confined to sheltered bays and very slow moving waters. Raptor platforms were present on the large island in the flowage. No water fluctuations were apparent.

Aquatic Invasive Species Survey of

Dairyland Flowage (South), Rusk County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings and Phil Rynish
on May 29, July 7, and August 3, 2009

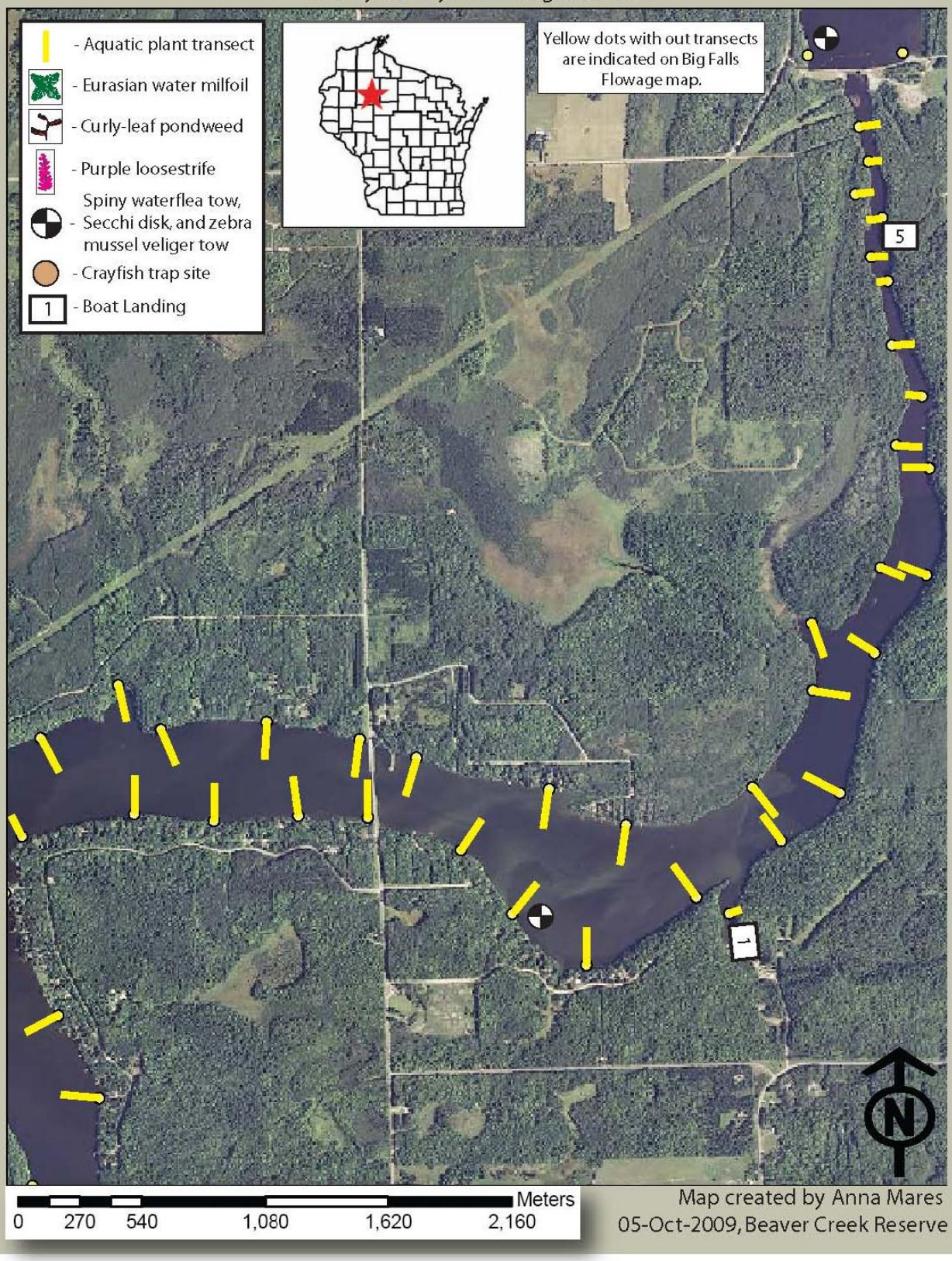


Map created by Anna Mares
08-Oct-2009, Beaver Creek Reserve

Aquatic Invasive Species Survey of

Dairyland Flowage (North), Rusk County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings and Phil Rynish
on May 29, July 7, and August 3, 2009



Map created by Anna Mares
05-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
August 26, 2008
Data Collected by Jo Heuschele, Anna Mares, Ted Ludwig & Kevin Mesiar

Dark Lake (Waterbody Identification Code # 2092700)

Chippewa County (T32N R09W S10 NW ¼ NW ¼)

Date of Survey

Dark Lake was sampled on June 10, July 7 and July 31, 2008

Boat Launch

There is only one public boat launch off of 100th Street on the west side of the lake. The path leading down to the lake is flattened grass and dirt. The launch pad is made of silt and is shallow. There is no dock at the launch and it has little room for parking on the side of the path. It is best to back the boat down the path from the road since there is no turn around space, which is slightly dangerous. No fee is required for parking at the launch.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Marsh Calla	*Calla palustris*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Small Pondweed	*Potamogeton pusillus*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those seen on 06/10/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Dark Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 20.50, lower than the state average.

Invasive Species

No invasive plants were found in Dark Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish were detected during the July 31, 2008 sampling.

Secchi Disk Readings

Secchi disk readings dropped during the month of July. The lake appears to have high concentrations of tannins giving it a darker brown tint. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 9, 2008	July 8 2008	July 31, 2008
Site #1	15T 0619563 5014216	9.5 ft	7.75 ft	7.75 ft

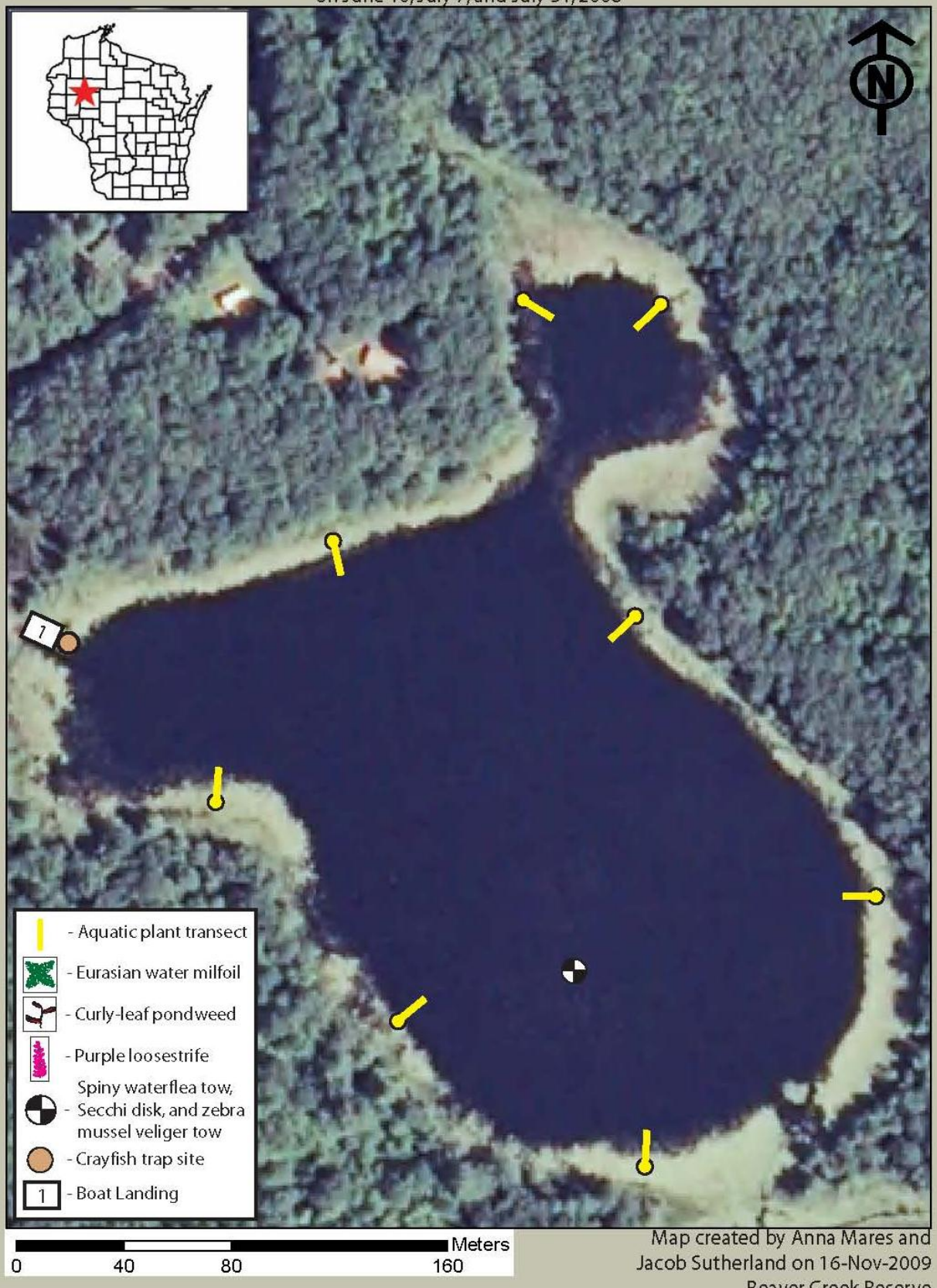
Lake and Shoreline Conditions

The entire lake has a natural buffer zone since there are no houses directly on the lake or are at least they are not visible from the water. The steep slopes that surround the lakes are covered with upland hardwoods. Emergent and submergent vegetation line the lakes edge, especially pickerel weed.

Aquatic Invasive Species Survey of

Dark Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, and Kevin Mesiar
on June 10, July 7, and July 31, 2008



Map created by Anna Mares and
Jacob Sutherland on 16-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data Collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Ted Ludwig

Dells Pond Lake (Waterbody Identification Code # 2149900)

Eau Claire County (T27N R09W S18 NE ¼ NE ¼)

Dates of Survey

Dells Pond Lake was surveyed on June 9, July 23, and August 5, 2008

Boat Launch

There are two launches on Dells Pond, one at Mt. Simon Park and the other at Riverside Park; both locations are owned by the city of Eau Claire. The launch area at Riverside Park is handicap accessible (i.e. multiple floating docks that are well maintained). The launches themselves are paved with a smooth transition into a concrete pad under the water. A large parking lot and turnaround are available for use. No fee is required. The site has a bathroom located close to the docks.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
White Water Lily	*Nymphea odorata*
Lesser Duckweed	*Lemna minor*

*Plant list is not comprehensive and contains only those species observed on 06/09/2008.

Dells Pond has low plant diversity. Half of the 24 transect sites for the June 9, 2008 plant survey had no plants present at any of the four depths. The other 12 sites had a mix of six plants, two of which are invasive. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Dells Pond was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 8.5, the lowest in the study.

Invasive Species

Curly-leaf pondweed (*Potamogeton crispus*) and Eurasian water milfoil (*Myriophyllum spicatum*) were found during the 2008 field season. Curly-leaf pondweed was found at the following GPS points:

15 T 0620025 4965122	15T 0618843 4966286	15 T 0619125 4965784

Eurasian water-milfoil was found at the following GPS points:

15 T 0617837 4966853	15 T 0618039 4967213

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One crayfish was pulled during the August 5, 2008 sampling and was confirmed to be an invasive rusty crayfish.

Secchi Disk Readings

Readings improved slightly in August after the filamentous algae died back. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 9, 2008	July 23, 2008	August 5, 2008
Site #1	15T 0617554 4965057	3.5 ft	2.25 ft	4.25 ft
Site #2	15T 0619186 4965395	3.5 ft	2.25 ft	3.75 ft
Site #3	15T 0618407 4966500	3.75 ft	2.5 ft	5.0 ft

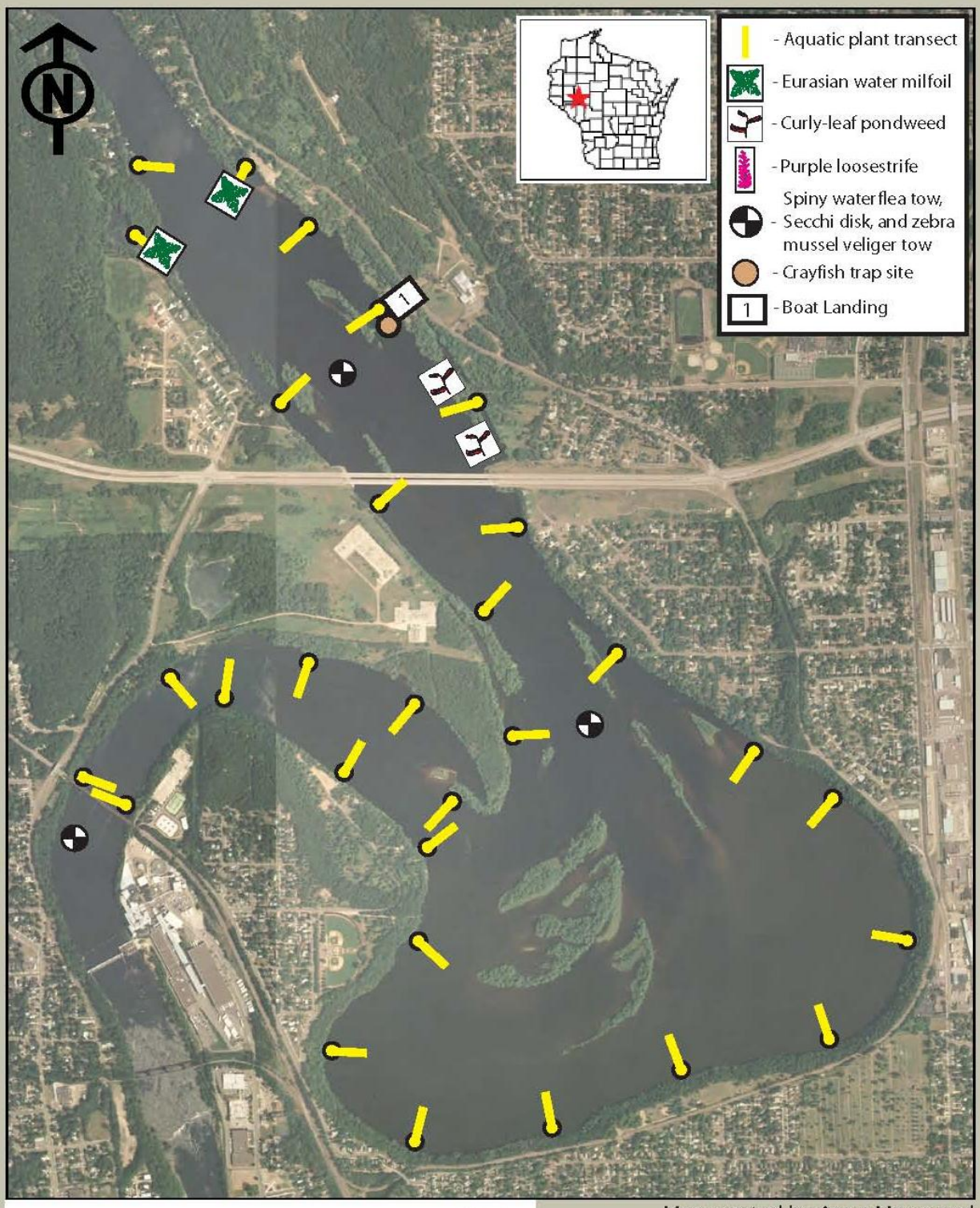
Lake and Shoreline Conditions

A large portion of the shoreline of Dell's Pond is mixed hardwoods right up to the water's edge. The northwest portion of the pond has houses with mowed lawns that lead right up to the water's edge. Dells Pond is a shallow impoundment, except for right in front of the dam. There are warning signs about stumps and pilings impeding navigation.

Aquatic Invasive Species Survey of

Dells Pond Lake, Eau Claire County

Data Collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Ted Ludwig
on June 9, July 23, and August 5, 2008



Map created by Anna Mares and
Jacob Sutherland on 26-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Katrina Smith

Duck Lake (Waterbody Identification Code # 2100300)

Barron County (T36N R13W S33 SW ¼ SW ¼)

Dates of Survey

Duck Lake was surveyed on June 25, July 23, and August 17, 2009

Boat Launch

There is one boat launch on Duck Lake on the north side by way of 8th Street, right next to the road. It is a loop turnaround that doubles as a parking area and the launch. The launch is paved halfway to the water and then turns to sand, requiring 4-wheel drive to get out. The landing doesn't have any docks, fees, restrooms, or parking stalls. There are "Eurasian Water-milfoil Alert" and "This Lake Contains EWM" signs present.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Sedge	*Carex comosa*
Coontail	*Ceratophyllum demersum*
Three-way Sedge	*Dulichium arundinaceum*
Creeping Spikerush	*Eleocharis palustris*
Pipewort	*Eriocaulon aquaticum*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Bullhead Pond Lily	*Nuphar variegata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Lead Pondweed	*Potamogeton natans*
Fern Pondweed	*Potamogeton robbinsii*
Narrowleaf	*Potamogeton sp.*
Arrowhead	*Sagittaria sp.*
Soft-stem bulrush	*Scirpus validus*
Broad-leaved Cattail	*Typha latifolia*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/25/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state

average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Duck Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 23.75, higher than the state average.

Invasive Species

One invasive plant species, *Myriophyllum spicatum*, was found in Duck Lake during the 2009 field season. *M. spicatum* has already been documented in Duck Lake, but it is unclear as to whether or not a management plan has been made and put in place. Two very large beds were present on the lake during the June 25, 2009 sampling. One was from the right of the stream that comes into Duck Lake at the northwest corner, and continues east, half way to the boat launch. The other large bed of *M. spicatum* was at the lake outlet in the southeast corner, continuing into the small bay on the southeast side of the lake. *M spicatum* was found at six of the seven transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 23, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 25, 2009	July 23, 2009	August 17, 2009
Site #1	15T 0578399 5045608	4.5 ft	4.0 ft	3 ft
Site #2	15T 0578736 5045368	5.5 ft	3.75 ft	3.0 ft

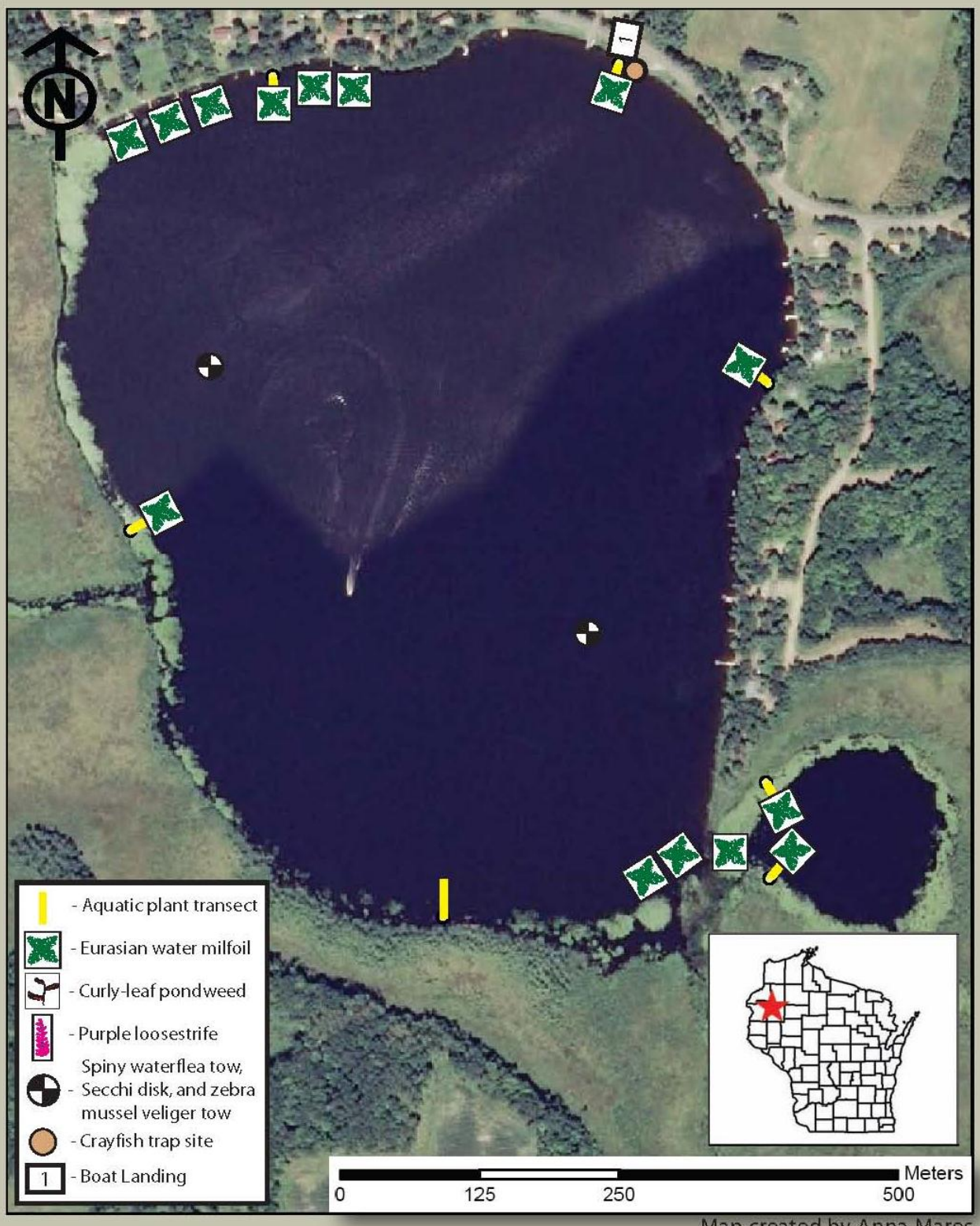
Lake and Shoreline Conditions

Approximately 60% of Duck Lake is surrounded by boggy marshland on the west, south and southeast sides. The remaining 40% of surrounding land is comprised of 90% deciduous and 10% coniferous vegetation. A very minimal buffer is kept by homeowners and should be increased to the recommended 30 ft buffers in front of homes.

Aquatic Invasive Species Survey of

Duck Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Katrina Smith and Ted Ludwig
on June 25, July 23, and August 17, 2009



Map created by Anna Mares
08-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Eau Claire Lake (Waterbody Identification Code # 2133200)

Eau Claire County (T26N R06W S5 SW ¼ SW ¼)

Dates of Survey

Lake Eau Claire was surveyed on July 9, August 1, and August 22, 2007

Boat Launch

Lake Eau Claire has three boat launches, two on the south side and one on the north side of the lake. There are two public beaches, both of which are on the north side of the lake. There is also one park near the dam outlet. Public restrooms are at all of the boat launches, the park and the west beach. The boat launch, in the southwest corner of the lake, used for access to lake during the survey has a paved launch surface with one launch lane. No boarding dock is present. A launch fee is required.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Spiny Hornwort	*Ceratophyllum echinatum*
Common Waterweed	*Elodea canadensis*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Lead Pondweed	*Potamogeton natans*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Narrowleaf Pondweed	*Potamogeton sp.*
Spiral-fruited pondweed	*Potamogeton spirillus*
Softstem Bulrush	*Scirpus validus*
Bur-reed	*Sparganium sp.*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 08/01/2007.

Eau Claire Lake contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of

Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Eau Claire was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 21.91, lower than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Eau Claire Lake during the 2007 field season. *P. crispus* was found at five of 12 transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake. *P. crispus* was also found near the islands on the west side of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 1, 2007 sampling.

Secchi Disk Readings

Secchi disk readings were very poor for most of the summer due to thick algal blooms. Readings increased slightly in August. All GPS points were taken in the NAD 83 Central Datum.

	GPS (UTMs)	July 9, 2007	August 1, 2007	August 22, 2007
Site #1	15T 0649022 4958131	1.75 ft	2.25 ft	1.25 ft
Site #2	15T 0648034 4957747	2.0 ft	2.25 ft	2.25 ft
Site #3	15T 0650210 4957980	1.5 ft	2.25 ft	2.5 ft

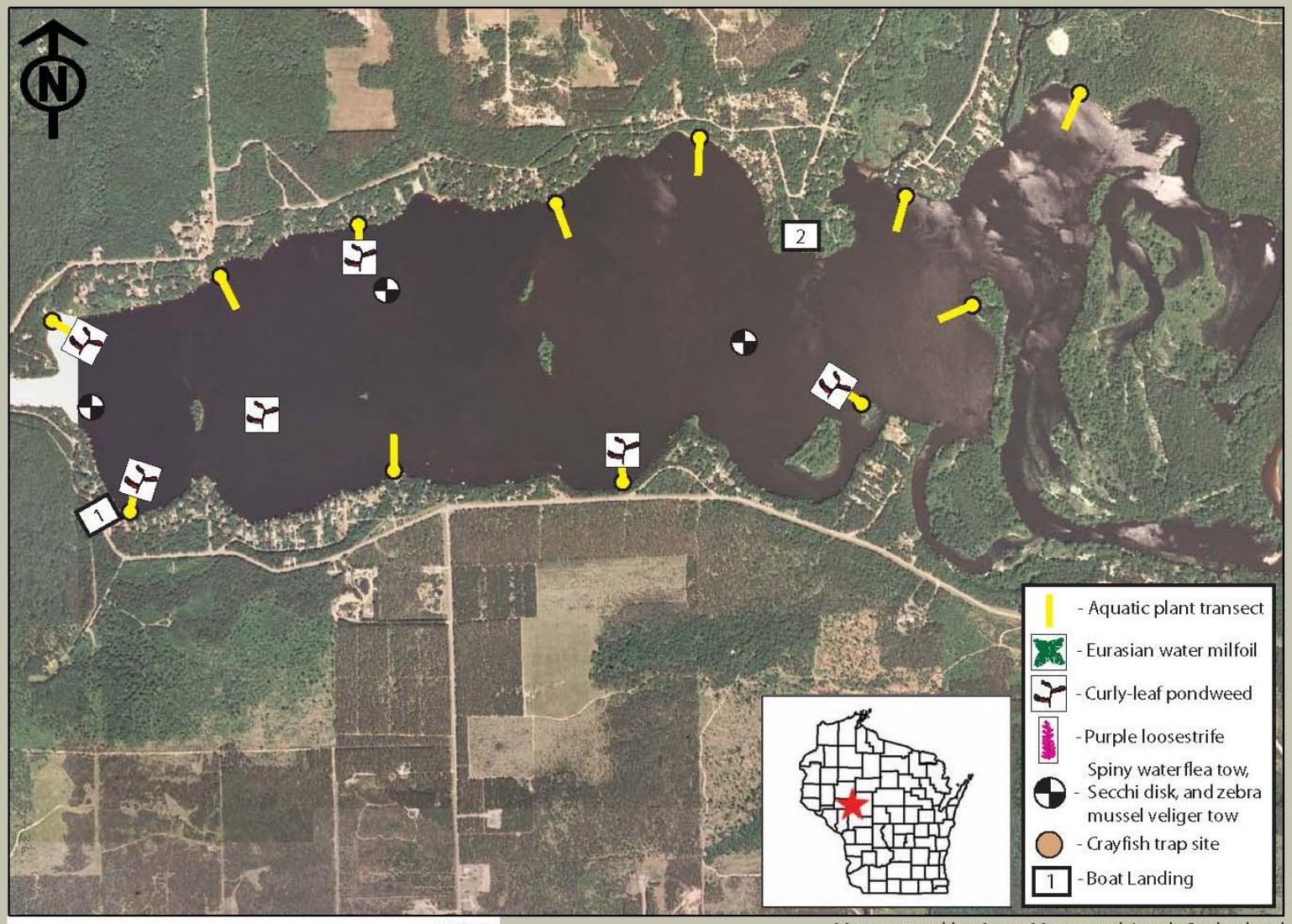
Lake and Shoreline Conditions

The southwest portion of the lake is a highly developed residential area. Much of the natural vegetation has been removed and well kept lawns are common on the northwest and southwest portions of the lake. The southeast and east sides of the lake have the most natural landscape. Even if homes are present, an adequate buffer is provided to limit runoff and create suitable habitat. The northeast portion of the lake has steep banks with heavy erosion. Lake Eau Claire is creating a lake management plan (in 2009) that includes water quality improvements, a plant survey, sociological survey, and sedimentation monitoring.

Aquatic Invasive Species Survey of

Lake Eau Claire, Eau Claire County

Data collected by Jo Heuscele and Shelby Happe on June 9, August 1, and August 22, 2007



Map created by Anna Mares and Jacob Sutherland
09-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Ted Ludwig

Eau Galle Lake (Waterbody Identification Code # 2056600)

Dunn County (T26N R13W S31 SW ¼ NW ¼)

Dates of Survey

Eau Galle Lake was surveyed on June 4, July 10, and August 18, 2008

Boat Launch

There are two boat launches on Lake Eau Galle. Pineview Landing has large parking stalls, pit toilets, and garbage cans. The launch is paved with a cement pad next to a loading dock. The second launch is on the south side of the lake near the dam and its conditions are unknown.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Lesser Duckweed	*Lemna minor*
American Lotus	*Nelumbo lutea*
Small Pondweed	*Potamogeton pusillus*

*Plant list is not comprehensive and contains only those species observed on 06/04/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Eau Galle Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 11.56, lower than the state average.

The American Lotus was located at the GPS point:
15T 0577917 4951382
The American Lotus is uncommon for this area of Wisconsin.

Invasive Species

Two invasive plant species were found on Lake Eau Galle. Curly-leaf pondweed, *Potamogeton crispus*, was found at two locations on the northeast side of the lake with the following GPS coordinates:

15T 0577887 4951112 15T 0577837 4951390

Eurasian water milfoil, *Myriophyllum spicatum*, was also found in the north east corner of the lake at the following GPS point:
15T 0578428 4951434

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native species of crayfish were detected during the August 18, sampling.

Secchi Disk Readings

Readings declined slightly over the course of the summer due to algal growth. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 4, 2008	July 10, 2008	August 18, 2008
Site #1	15T 0578009 4951286	3.0 ft	2.25 ft	1.0 ft
Site #2	15T 0577956 4949917	4.0 ft	2.5 ft	2.5 ft

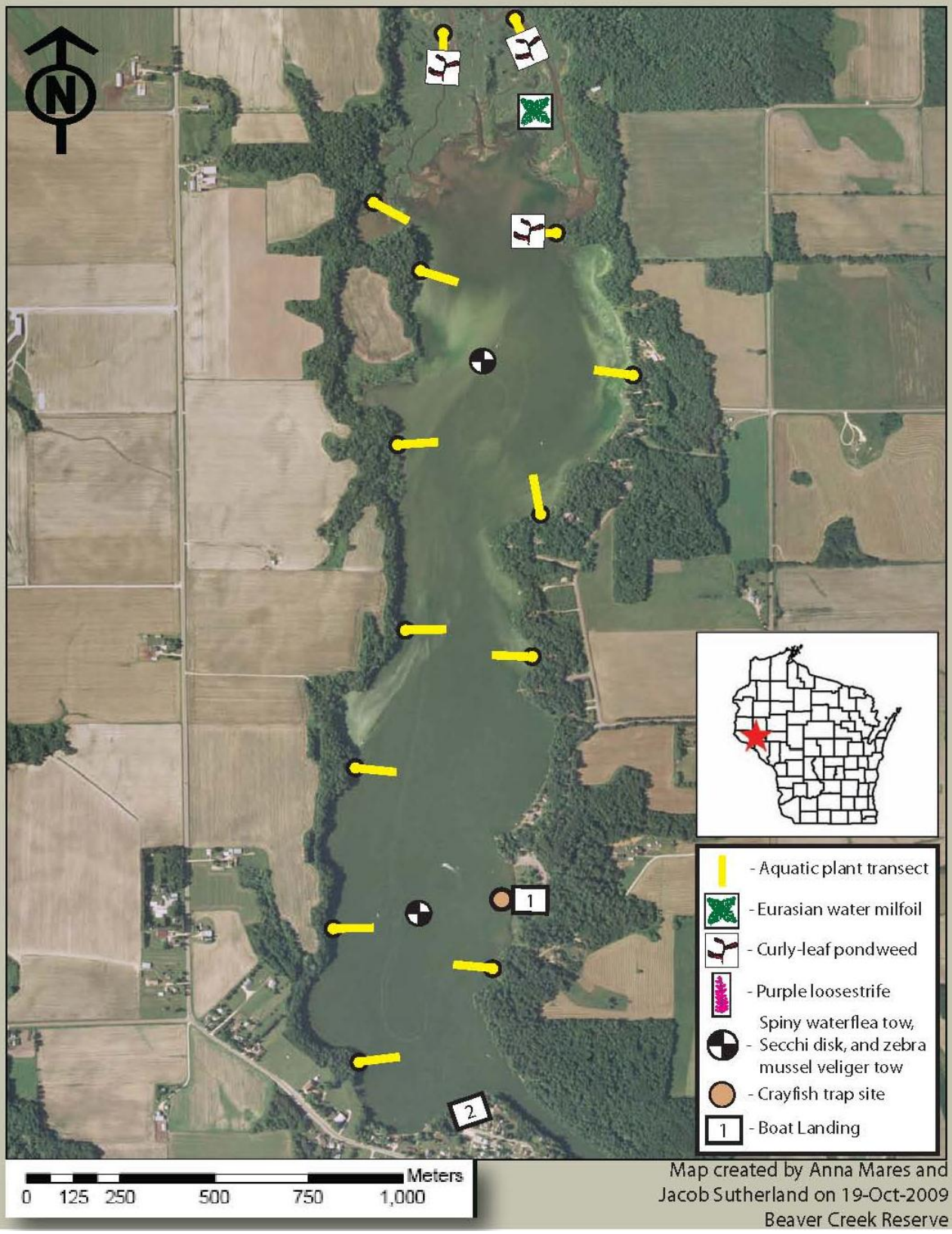
Lake and Shoreline Conditions

There is a marsh on the very north side of Lake Eau Galle. Over 90% of the shoreline is wooded with a combination of hardwoods on the west side and mostly evergreens on the east side. Of the 10% of the lakeshore that is developed, one half of those homes have lawns that are manicured right to the water's edge. The town of Eau Galle is adjacent to the lake on its south side. The dam is located at the southeast corner of the lake.

Aquatic Invasive Species Survey of

Eau Galle Lake, Dunn County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Ted Ludwig
on June 4, July 10, and August 18, 2008



Map created by Anna Mares and
Jacob Sutherland on 19-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Echo Lake (Waterbody Identification Code # 2630200)

Barron County (T34N R14W S7 NE ¼ NE ¼)

Dates of Survey

Echo Lake was surveyed on July 1, and July 28, 2009

Boat Launch

The boat landing is in very poor condition due to the low water level; starting from the road moving toward the lake, the surface changes from cement pad to rock to the water's edge where it becomes a rock/sand and mostly muck bottom. There are no restrooms, a turnaround, or designated parking. No fees are required and no AIS signs are present.

Native Plant List

A native plant list was not obtained for Echo Lake in the summer of 2009. Eurasian water milfoil (EWM; *Myriophyllum spicatum*) had previously been found in Echo Lake, and as a result, plant surveys have been conducted on the lake to assess where the EWM is located. These surveys are more comprehensive than the one that would have been carried out by the current survey crew.

Invasive Species

One invasive plant species, *Myriophyllum spicatum*, was found in Echo Lake during the 2009 field season. Fragments could be seen at the boat landing and floating in the water all around the lake.

No spiny waterflea or zebra mussel veligers were detected during the early summer sampling. One crayfish was collected from the July 28, 2009 sampling and was identified to be a native species, *Cambarus diogenes.*

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Secchi Disk Readings

All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 1, 2009
Site #1	15T 0567543 5033175	14.0 ft
Site #2	15T 0568332 5032956	10.5 ft
Site #3	15T 0567957 5032576	11.5 ft

Lake and Shoreline Conditions

The shoreline consists of 90% deciduous and 10% coniferous vegetation although the water is around three feet lower than normal, leaving many feet of sand exposed on the shoreline. The exposed lake bed appears to have been raked by residents as very little vegetation exists, giving the entire lake a very unnatural appearance. Because of the low water level, the survey crew was unable to launch the boat to sample the other two desired times throughout the summer

Aquatic Invasive Species Survey of

Echo Lake, Barron County

Data collected by Anna Mares, Zoe Hastings and Ted Ludwig on July 1, and July 28, 2009

Map created by Anna Mares on 08-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares & Kevin Mesiar

Elk Creek (Waterbody Identification Code # 2121000)

Eau Claire County (T27N R11W S13 SE ¼ SE ¼)

Dates of Survey

Elk Creek was surveyed on June 4, July 10, and August 5, 2008

Boat Launch

The one launch on Elk Creek Pond is located adjacent to County Road E on the east side of the lake. The launch area is set up like a small park with a pavilion, picnic tables and a dock. There is a paved turnaround and parking area, but there is a seven inch drop from the asphalt launch to the concrete pad in the water. No fee is required. The site has no bathroom.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Lesser Duckweed	*Lemna minor*
White Water Lily	*Nymphea odorata*
Broad-leaved Cattail	*Typha latifolia*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 06/04/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Elk Creek Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 8.94, one of the lowest in the study.

Invasive Species

No invasive plants were found in Elk Creek during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 5, 2008 sampling.

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares & Kevin Mesiar

Secchi Disk Readings

Readings stayed consistently low over the course of the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 4, 2008	July 10, 2008	August 5, 2008
Site #1	15T 0606443 4962986	2.5 ft	2.5 ft	2.75 ft

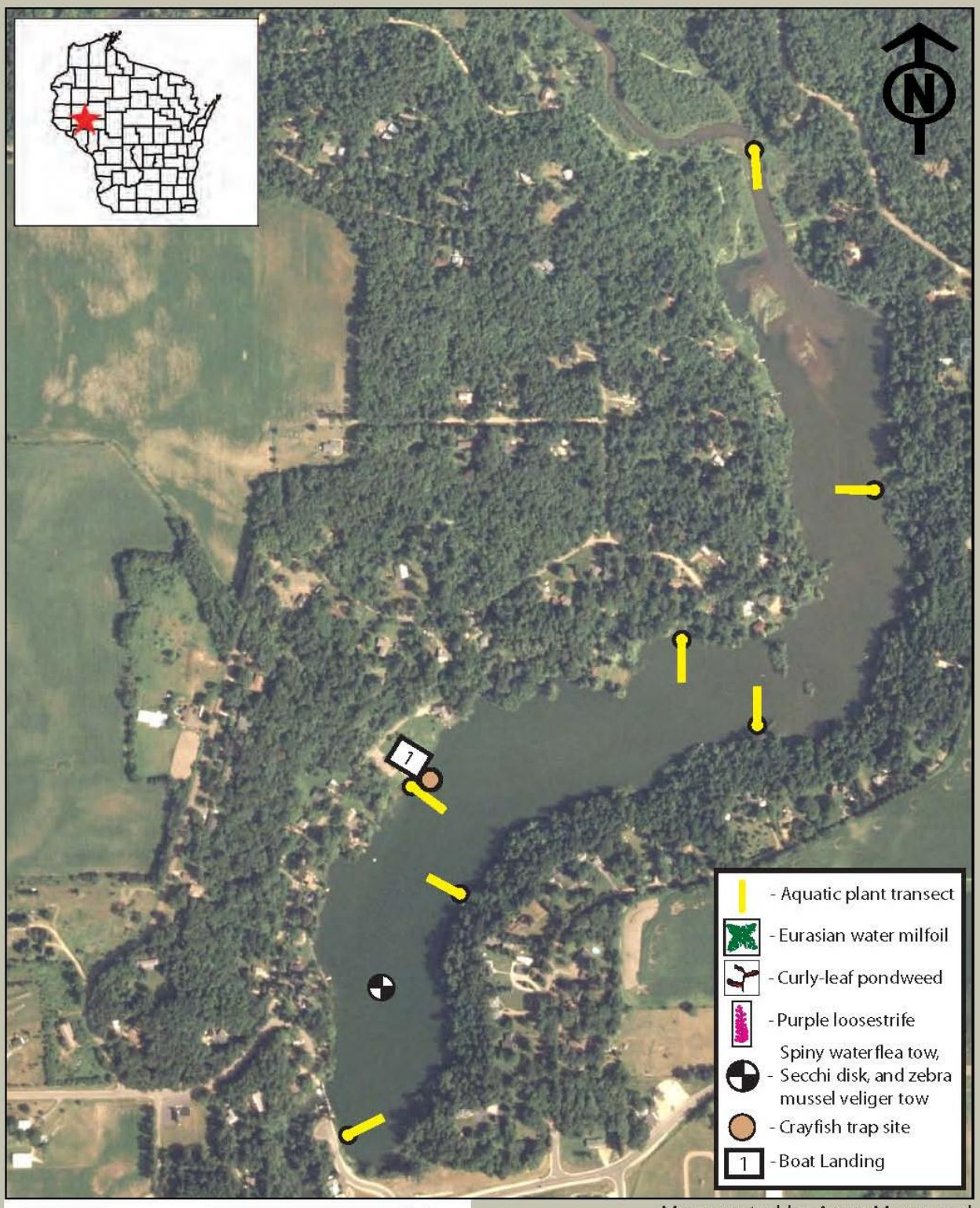
Lake and Shoreline Conditions

Small cottages line the Dunn County line of the lake (west shore). Most mow to water's edge if able to due to contours of the impoundment. The east shore is mixed hardwood forest for at least 100 m along the shore. Water quality advisory for algae was posted during the months of July and August. It was light brownish/green in color. Elk Creek is a shallow impoundment.

Aquatic Invasive Species Survey of

Elk Creek Lake, Eau Claire County

Data collected by Jo Heuschele, Anna Mares & Kevin Mesiar on June 4, July 10, and August 5, 2008



Map created by Anna Mares and Jacob Sutherland on 26-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele & Kevin Mesiar

Fall Creek Pond (Waterbody Identification Code # 2125400)

Eau Claire County (T26N R07W S06 NE ¼ NW ¼)

Dates of Survey

Fall Creek Pond was surveyed on June 2, July 23, and August 4, 2008

Boat Launch

The one launch on Fall Creek Pond is located in the city park just off of County Rd. K. There is a turnaround and minimal parking next to launch, but more in other areas of the park. The landing is owned by the city of Fall Creek. No fee is required. The site has a bathroom located in the park.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*

*Plant list is not comprehensive and contains only those species observed on 06/02/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Fall Creek Pond was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 14.74, lower than the state average.

Invasive Species

No invasive plants were found in Fall Creek Pond during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 4, 2008 sampling.

Secchi Disk Readings

Readings became much higher during the August reading after large amounts of the filamentous algae died off. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 2, 2008	July 23, 2008	August 4, 2008
Site #1	15T 0635868 4957985	1.75ft	1.75 ft	5.0 ft
Site #2	15T 0635929 4958263	1.75 ft	2.5 ft	6.5 ft

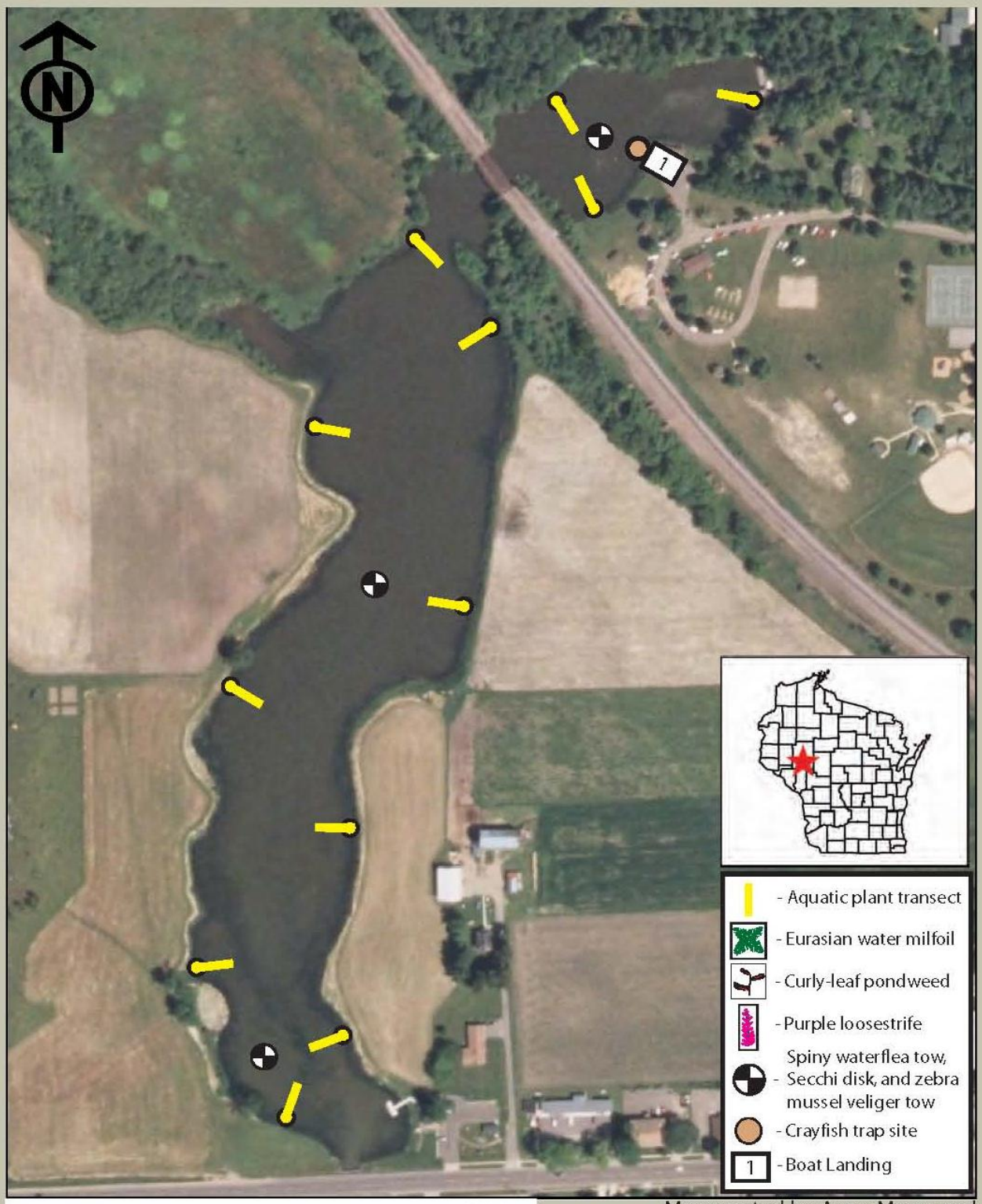
Lake and Shoreline Conditions

The city of Fall Creek has two parks, one at the dam in the northwest corner and the other on Hwy 12, which are mowed all the way to the water's edge. The rest of the pond is surrounded by farm fields with a 40 ft tall grass buffer. Fall Creek Pond is designated as a No Gasoline Powered Engine Lake.

Aquatic Invasive Species Survey of

Fall Creek Pond, Eau Claire County

Data collected by Jo Heushele and Kevin Mesiar on June 2, July 23, and August 4. 2008



Map created by Anna Mares and Jacob Sutherland on 02-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Fireside Lakes (Waterbody Identification Code # 2349500)

Rusk County (T33N R08W S23 SW ¼ SW ¼)

Dates of Survey

Fireside Lakes were surveyed on May 27, July 8, and August 4, 2009

Boat Launch

Fireside Lakes (Mud and Rice Lakes) have one boat launch between the two lakes. It is on the east side of Rice Lake and is accessible from Indian Point Road. There is turn around space leading to one paved launch lane with a loading dock. The launch is shallow and sandy. There are no restrooms or fees required. There is parking available for 6-10 vehicles and another 6-10 stalls for vehicles with trailers.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Marsh Calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Water horsetail	*Equisetum fluviatile*
Lesser Duckweed	*Lemna minor*
Forked Duckweed	*Lemna trisulca*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Sago Pondweed	*Potamogeton pectinatus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Great duckweed	*Spirodela polyrhiza*
Common Bladderwort	*Utricularia vulgaris*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 05/27/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Fireside Lakes was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 28.78, higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Fireside Lakes during the 2009 field season. *P. crispus* was found at six of 13 transects used for sampling aquatic plants placed at 1,500ft intervals. The largest beds of *P. crispus* were found in Mud Lake and in the area where the two lakes connect.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 4, 2009 sampling. One invasive snail species, the Chinese mystery snail, was found in Fireside Lakes during the May 27, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	May 27, 2009	July 8, 2009	August 4, 2009
Site #1	15T 0629818 5019266	5.5 ft	3.0	4.25 ft
Site #2	15T 0631101 5020202	5.5 ft	8.5	8.5 ft

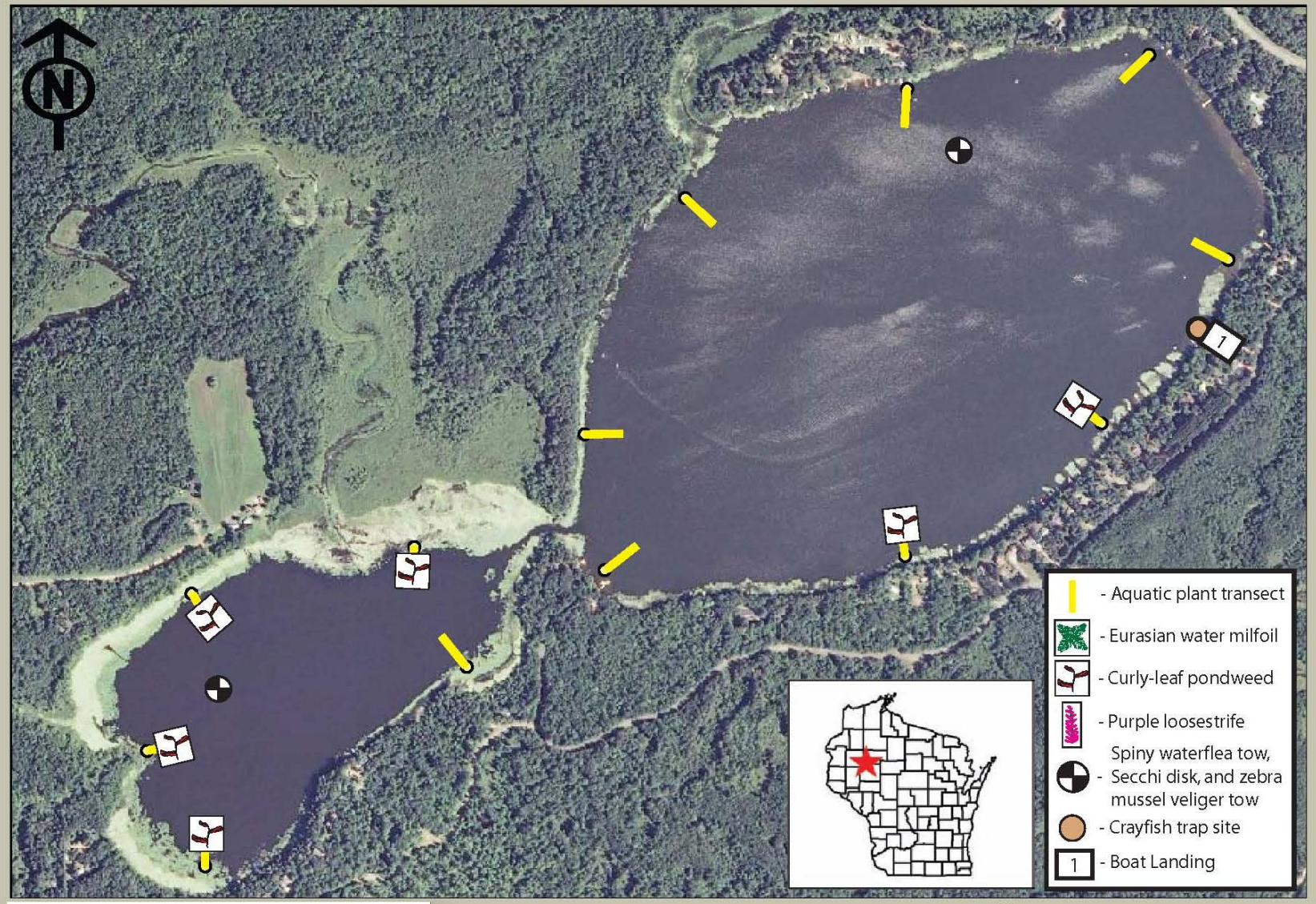
Lake and Shoreline Conditions

The shoreline vegetation is approximately 90% deciduous and 10% coniferous. There is a section of marsh (up to 20% of the shoreline in Mud Lake) in the northeast corner of Mud Lake. The lakes are about 40% developed. Houses that do exist have lawns and kept beaches, providing little in the way of buffer zones. The water level appeared to be one foot low during the first survey of the season and then by the end of the season, it looks as though the water was nearly two feet lower than the average water level.

Aquatic Invasive Species Survey of

Fireside Lakes (Mud and Rice), Rusk County

Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig on May 27, July 8, and August 4, 2009



Map created by Anna Mares on 08-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

Firth Lake (Waterbody Identification Code # 2176200)

Chippewa County (T31N R07W S3 NW ¼ SW ¼)

Dates of Survey

Firth Lake was sampled on June 20, July 2, and August 9, 2007

Boat Launch

Boat ramp is unimproved and located on northwest lake shore off of Moses Lake Road / 250th Avenue. The launch surface was a mix of sand, gravel and muck. There is little turnaround space and no designated parking. Aquatic invasive species awareness signs are present.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Sedges	*Carex sp.*
Coontail	*Ceratophyllum demersum*
Spikerush	*Eleocharis sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Common Arrowhead	*Sagittaria latifolia*
Wool grass	*Scirpus cyperinus*
Soft-stem Bulrush	*Scirpus validus*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/20/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Firth Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 18.39, lower than the state average.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

Invasive Species

No invasive plants were found in Firth Lake during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 9, 2007 sampling.

Secchi Disk Readings

Readings decreased through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 20, 2007	July 2, 2007	August 9, 2007
Site #1	15T 0640401 5006907	3.0 ft	2.75 ft	1.25 ft

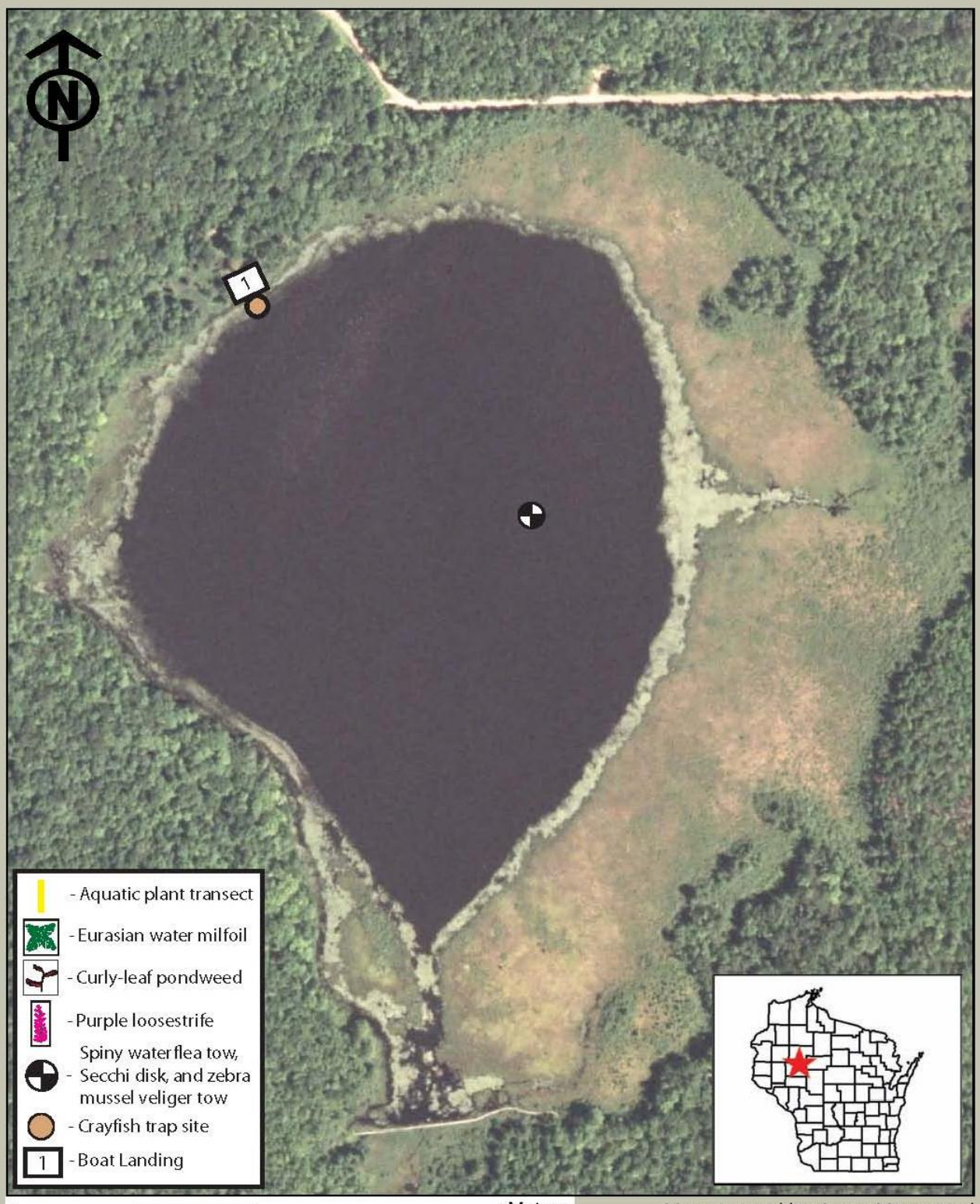
Lake and Shoreline Conditions

Firth Lake is 100% undeveloped by homes, farming, or industry. The eastern half of the lake has nearly 1,000 feet of bog/marsh that butts up to the lake shoreline. Beyond that and on the western half of the lake is forest land composed of popple, birch, hemlock, and elm. Canoe was used to sample Firth Lake because the boat launch was better suited for hand carry only.

Aquatic Invasive Species Survey of

Firth Lake, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on June 20, July 2, and August 9, 2007



Map created by Anna Mares and Jacob Sutherland on 04-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings and Ted Ludwig

Glen Loch Flowage (Waterbody Identification Code # 2151000)

Chippewa County (T29N R08W S30 SW ¼ SW ¼)

Dates of Survey

Glen Loch Flowage was surveyed on July 6, July 30, and August 24, 2009

Boat Launch

Glen Loch Flowage has one boat launch located in the southeast corner of the flowage, accessible form Ashley Lane. The launch is moderately steep gravel with some gullies, depending upon the weather. There are no restrooms, launching fees, AIS signs, or loading dock present.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Nitellas	*Nitella sp.*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Narrowleaf	*Potamogeton sp.*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Common Arrowhead	*Sagittaria latifolia*
Common bur-reed	*Sparganium eurycarpum*
Floating-leaf bur-reed	*Sparganium fluctuans*
Little bur-reed	*Sparganium minima*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 07/06/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Glen Loch Flowage was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 19.41, lower than the state average.

I

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings and Ted Ludwig

Invasive Species

Two invasive plant species, *Potamogeton crispus* and *Myriophyllum spicatum*, were found on the July 6, 2009 plant sampling. *P. crispus*, found at one of eight transects used for aquatic plant sampling at 1,500 ft intervals, was more heavily located in the shallow bay on the north side of the flowage. *M. spicatum*, found at three of eight transects, was located primarily in the southern portion of the flowage with the largest patch in the center shallows. Considerably more *M. spicatum* (intermixed plants in a 300 x 300 ft area) was visible at the later sampling dates than what was seen on June 6, 2009 (intermixed plants in a 50 x 100 ft area).

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One crayfish was collected from the July 30, 2009 sampling and was identified to be an invasive, rusty crayfish.

Secchi Disk Readings

Readings increased over the summer as the algae bloom began to dissipate. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 6, 2009	July 30, 2009	August 24, 2009
Site #1	15T 0626217 4979633	3.0 ft	6.75 ft	8.5 ft

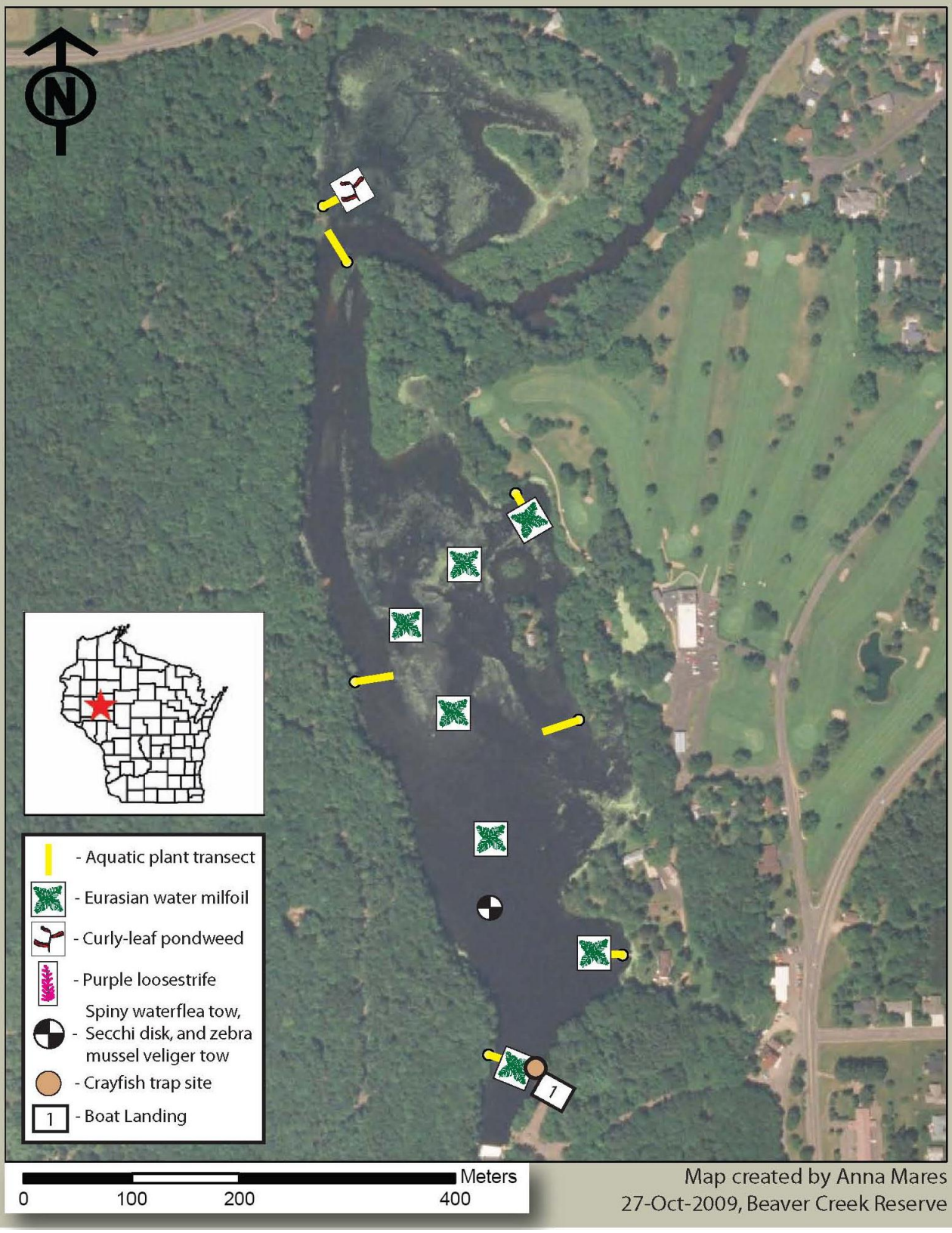
Lake and Shoreline Conditions

The shoreline is approximately 50% deciduous and 50% coniferous with approximately 10% of the shoreline being developed. Five homes are visible, with three of them having acceptable buffers of 15-20 ft or more. The west side of the flowage has no homes. The Ojibwa Golf Course butts up to the flowage on the east side. The northern lobe of the flowage is very shallow and heavily vegetated making it very difficult for boats to navigate. The dam is within 50 m of the boat landing. There are no buoys or wires strung across to stop accidental travel over the top of the dam that is about a 15 ft drop.

Aquatic Invasive Species Survey of

Glen Loch Flowage, Chippewa County

Data collected by Anna Mares, Zoe Hastings and Ted Ludwig on July 6, July 30, and August 24, 2009



Map created by Anna Mares
27-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
October 28, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Claire Bailey

Granite Lake (Waterbody Identification Code # 2100800)

Barron County (T36N R13W S29 SE ¼ SW ¼)

Dates of Survey

Granite Lake was surveyed on June 23, July 23, and August 17, 2009

Boat Launch

There is one boat launch on Granite Lake off of 25 ¾ St. on the west side of the lake. It is a gravel launch with turn around space. There are no restrooms, fees or a dock. Aquatic invasive species signs are present including "Stop and remove", "Help prevent" and Association signs saying that they would like Granite Lake to stay Eurasian water milfoil free. There is a live well dump site available for those carrying organisms or water from another lake.

Native Plant List*

Common Name	Scientific Name
Bottle brush sedge	*Carex comosa*
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Water horsetail	*Equisetum fluviatile*
Pipewort	*Eriocaulon aquaticum*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Northern naiad	*Najas gracillima*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf pondweed	*Potamogeton amplifolius*
Narrowleaf pondweed	*Potamogeton sp.*
Common arrowhead	*Sagittaria latifolia*
Hardstem bulrush	*Scirpus acutus*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 06/23/2009.

Written by Anna Mares
October 28, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Claire Bailey

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Granite Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 21.17, slightly lower than the state average.

Invasive Species

Two invasive plants, *Lythrum salicaria* and *Potamogeton crispus*, were found in Granite Lake during the 2009 field season. *P. crispus* was found at one of 14 transects used for sampling aquatic plants at 1,500 ft intervals. Two rooted plants were found at this site located at the outlet on the south side of the lake. Both plants were harvested during the June 23, 2009 sampling. Another two plants were seen in the same area during the August 17, 2009 sampling and were collected as well. *L. salicaria* was seen at two locations in the southeastern corner of the lake. The northern site had six plants that were hand pulled by the crew, but they will most likely grow again next spring. The second site had two plants at it and they were left because they were on private property.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 23, 2009 sampling.

Secchi Disk Readings

Readings slightly increased during the month of August from the readings of earlier summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 23, 2009	July 23, 2009	August 17, 2009
Site #1	15T 0577393 5048681	4.5 ft	4.75 ft	6.5 ft
Site #2	15T 0577339 5047967	5.0 ft	5.75 ft	7.0 ft
Site #3	15T 0577479 5047171	5.0 ft	6.0 ft	8.0 ft

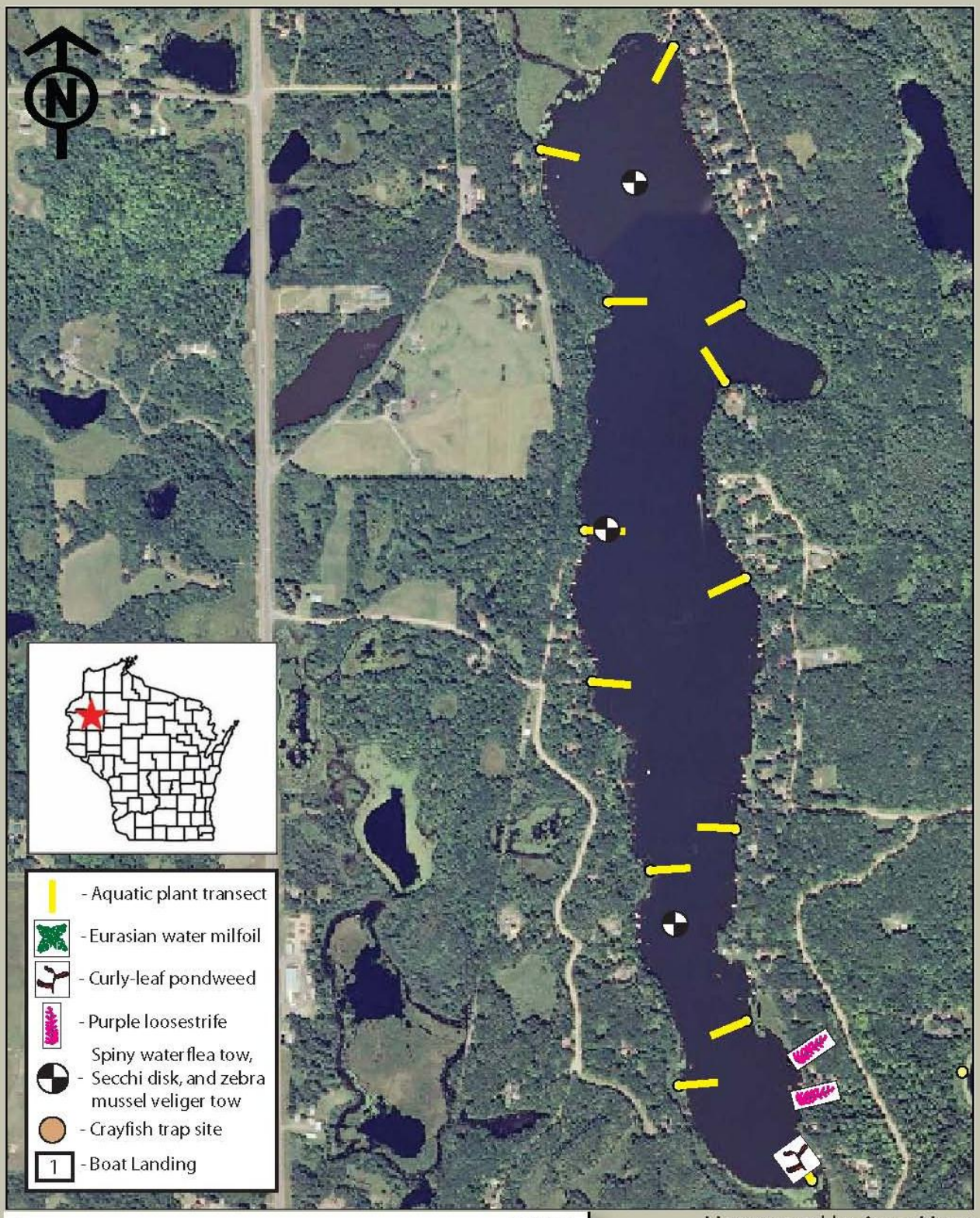
Lake and Shoreline Conditions

The shoreline vegetation is approximately 65% deciduous and 35% coniferous. Around 80% of the shoreline is developed with homes. Only about 30% of those homes have adequate buffers on the property, and the other 70% have little to no buffer zone present. The *P. crispus* population could be kept in check, or eradicated, by diligently pulling plants as soon as they are seen in the spring before they can form any more turions (a structure that can grow new plants).

Aquatic Invasive Species Survey of

Granite Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Claire Bailey
on June 23, July 23, and August 17, 2009



Map created by Anna Mares
08-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

Hay Meadow Flowage # 1 (Waterbody Identification Code # 2178900)

Chippewa County (T31N R08W S14 SW ¼ NE ¼)

Dates of Survey

Hay Meadow Flowage #1 was surveyed on June 18, July 20, and August 9, 2007

Boat Launch

The access road to the boat launch is east off of Hay Meadow Flowage Trail. The ramp is an unimproved gravel launch. There is turnaround space and parking for 3-4 vehicles with trailers around the turnaround. No restrooms were available. Aquatic invasive species awareness signs were present.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Spikerush	*Eleocharis sp.*
Common Waterweed	*Elodea canadensis*
Joe Pye Weed	*Eutrochium sp.*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Sago Pondweed	*Potamogeton pectinatus*
Fern Pondweed	*Potamogeton robbinsii*
Great Duckweed	*Spirodela polyrhiza*
Narrow-leaved Cattail	*Typha angustifolia*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/18/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Hay Meadow Flowage #1 was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 17.32, lower than the state average.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

Invasive Species

No invasive plants were found in Hay Meadow Flowage # 1 during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 9, 2007 sampling.

Secchi Disk Readings

Readings increased slightly into the month of August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 18, 2007	July 20, 2007	August 9, 2007
Site #1	15T 0631772 5003420	4.0 ft	4.5 ft	6.0 ft

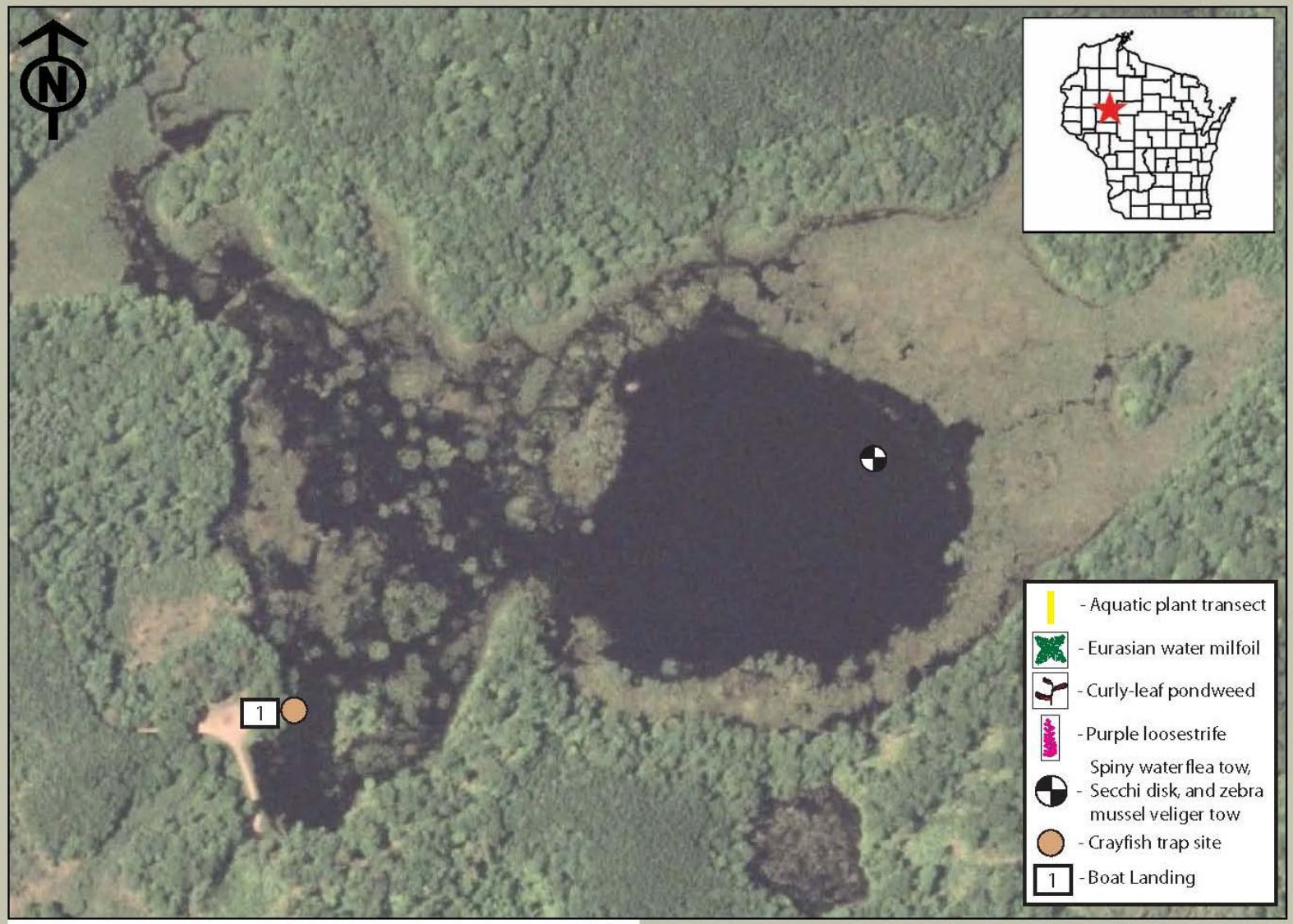
Lake and Shoreline Conditions

The western half of the lake is heavily vegetated with open water only on the eastern half of the lake. The eastern third of the lake has turned to bog/marsh. Hay Meadow Flowage #1 is undeveloped without homes and the only disturbance to the shoreline is the boat launch.

Aquatic Invasive Species Survey of

Hay Meadow Flowage, Chippewa County

Data collected by Jo Heuschele, Shelby Happe, and Anna Mares on June 18, July 20, and August 9, 2007



Map created by Anna Mares and Jacob Sutherland
09-Nov-2009, Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson

Hemlock Lake (Waterbody Identification Code # 2109800)

Barron County (T36N R10W S27 SE ¼ SE ¼)

Dates of Survey

Hemlock Lake was surveyed on June 15, July 14, and August 6, 2009

Boat Launch

There is one public boat launch on the south side of Hemlock Lake (1), and is accessible from 28 ½ Street. It is maintained by Barron County and requires no fees. The launch is paved to sand/gravel. There is a wooden dock, parking for six vehicles with trailers and there are no restrooms. "Stop and remove" and "Help prevent" signs were present.

Native Plant List*

Common Name	Scientific Name
Water marigold	*Bidens beckii*
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Needle spikerush	*Eleocharis acicularis*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Northern St. John's wort	*Hypericum boreale*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Forked duckweed	*Lemna trisulca*
Various-leaved water milfoil	*Myriophyllum heterophyllum*
Nitellas	*Nitella sp.*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Floating leaf pondweed	*Potamogeton natans*
White-stem pondweed	*Potamogeton praelongus*
Small pondweed	*Potamogeton pusillus*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Fern pondweed	*Potamogeton robbinsii*
Narrowleaf pondweed	*Potamogeton sp.*
Flat-stem pondweed	*Potamogeton zosteriformis*

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson

Common Name	Scientific Name
Stiff water crowfoot	*Ranunculus longirostris*
Slender riccia	*Riccia fluvitans*
Stiff arrowhead	*Sagittaria rigida*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Bladderwort sp.	*Utricularia sp.*
Common bladderwort	*Utricularia vulgaris*
Wild celery	*Vallisneria americana*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 06/15/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Hemlock Lake was found to have an approximate (two plants were not keyed to species and two were not listed in the FQI) FQI value of 33.77, higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Hemlock Lake during the 2009 field season. *P. crispus* had not been documented in Hemlock Lake until this survey. A voucher specimen was collected. *P. crispus* was found in 16 of 21 transects used for sampling aquatic plants placed at 1,500 ft intervals around the perimeter of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Rusty crayfish were detected from the August 6, 2009 sampling. Rusty crayfish have not been documented for Hemlock Lake and a voucher specimen has been sent in. One invasive species of snail, the Chinese mystery snail, was found in Hemlock Lake.

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 15, 2009	July 14, 2009	August 6, 2009
Site #1	15T 0612536 5047301	8.5 ft	3.25 ft	3.0 ft
Site #2	15T 0611370 5046812	8.75 ft	4.75 ft	3.25 ft
Site #3	15T 0612055 5047231	8.75 ft	4.0 ft	3.0 ft

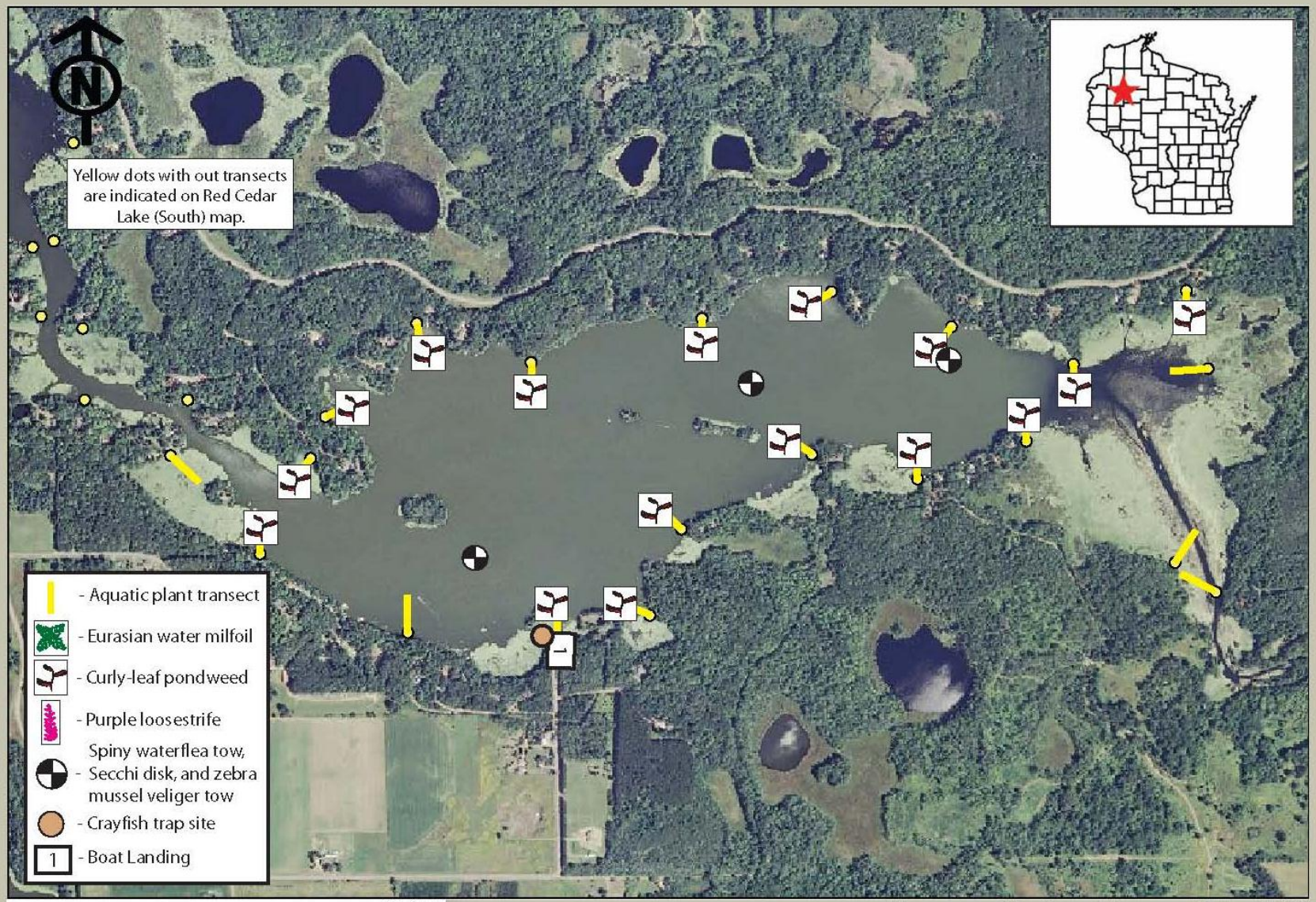
Lake and Shoreline Conditions

There were no apparent water level fluctuations from the normal water level. Roughly 40% of the shoreline is developed. Homes on Hemlock Lake tend to be set further back in the woods than those on Red Cedar Lake. Most of the homes have excellent buffers. Hemlock Lake has one of the largest plant lists out of all of the lakes surveyed under this project with 34 native plants. It may be important to monitor the aquatic plant community to watch for changes due to the presence and possible spread of *P. crispus*, which could out-compete native species, possibly lowering the FQI of Hemlock Lake.

Aquatic Invasive Species Survey of

Hemlock Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson on June 15, July 14, and August 6, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
August 25, 2008
Data Collected by Anna Mares, Jo Heuschele, Ted Ludwig, Kevin Mesiar & Judy Schwarzmeier

Hemlock Lake (Waterbody Identification Code # 1853400)

Chippewa County (T31N R08W S16 NW ¼ SE ¼)

Dates of Survey

Hemlock Lake was surveyed on June 24, July 28, and August 11, 2008

Boat Launch

There is one main public boat launch off of a small dead end road adjacent to 225th Avenue. The launch is a very steep with an uneven concrete drive that stops 2 ft from waters edge. The launch pad is made of coarse gravel over soft peat. The sediment becomes softer with distance out from shore. Caution should be used when stepping into the water. Parking is on the road side. Due to the steepness of launch, squaring of the vehicle tires is imperative. There is no dock at the launch.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Sedges	*Carex sp.*
Three-way Sedge	*Dulichium arundinaceum*
Needle spike-rush	*Eleocharis acicularis*
Northern St. John's Wort	*Hypericum boreale*
Lesser Duckweed	*Lemna minor*
Plantain shoreweed	*Littorella uniflora*
Water horehound	*Lycopus americanus*
Various-leaved Water Milfoil	*Myriophyllum heterophyllum*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Ribbon-leaf Pondweed	*Potamogeton epihydrus*
Sago Pondweed	*Potamogeton pectinatus*
Stiff Arrowhead	*Sagittaria rigida*
Swaying-rush	*Schoenoplectus subterminalis*
Hardstem bulrush	*Scirpus acutus*
Creeping Bladderwort	*Utricularia gibba*
Flat-leaf Bladderwort	*Utricularia intermedia*
Small Bladderwort	*Utricularia minor*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/24/2008.

Hemlock Lake contains one plant species, *Utricularia gibba*, which is uncommon for this area of Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Hemlock Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 30.25, higher than the state average.

Invasive Species

No invasive plants were found in Hemlock Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 11, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All readings at site #2 are the readings while touching the bottom of the lake. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2008	July 28, 2008	August 11, 2008
Site #1	15T 0628272 5002937	8.25 ft	10 ft	9.0 ft
Site #2	15T 0628363 5002568	7.5 ft	6.0 ft	6.75 ft

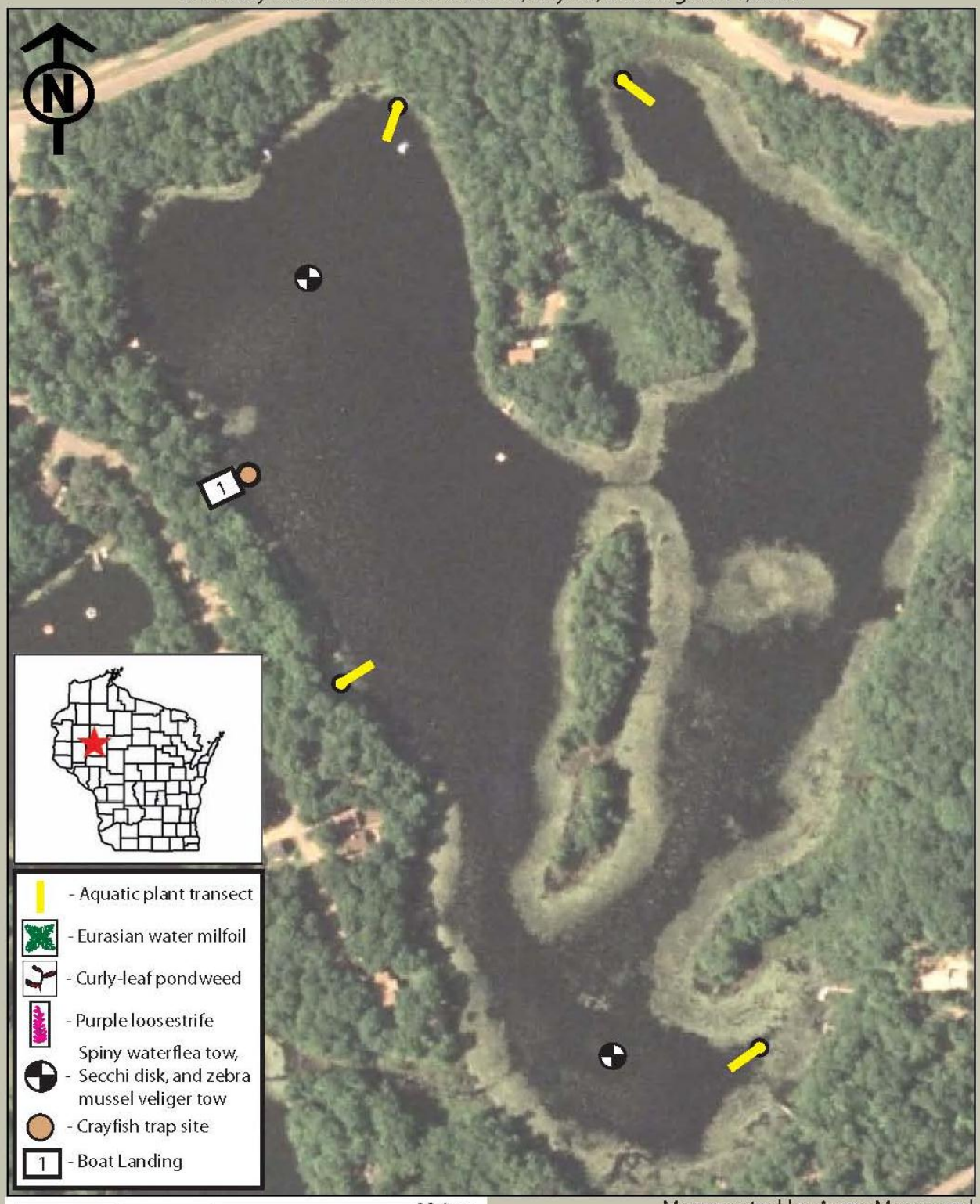
Lake and Shoreline Conditions

Hemlock Lake is very quiet, with little to no boat traffic. A few houses dot the shoreline but all have adequate buffer zones. The south bay is heavily vegetated with emergent vegetation such as water shield and white water lily.

Aquatic Invasive Species Survey of

Hemlock Lake, Chippewa County

Data Collected by Anna Mares, Jo Heuschele, Ted Ludwig, Kevin Mesiar, and Judy Schwarzmeier on June 24, July 28, and August 11, 2008



Map created by Anna Mares and Jacob Sutherland on 26-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 28, 2008
Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar & Judy Schwarzmeier

Henneman Lake (Waterbody Identification Code # 2352500)

Chippewa County (T32N R08W S16 NW ¼ SW ¼)

Dates of Survey

Henneman Lake was surveyed on June 24, July 16, and August 7, 2008

Boat Launch

The one launch on Henneman is gently sloping gravel into the lake off of Henneman Lake Road adjacent to Basswood Road. The launch is shallow with compacted sand. There is a turnaround and gravel parking area. The landing is owned by the county with no required fee. There are no bathrooms on site.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Sedges	*Carex sp.*
Moss	*Drepanocladus sp.*
Needle Spikerush	*Eleocharis acicularis*
Northern St. John's Wort	*Hypericum boreale*
Northern Blue Flag	*Iris versicolor*
Rush	*Juncus sp.*
False Pimpernel	*Lindernia anagallidea*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Common Reed	*Phragmites australis*
Pickerelweed	*Pontederia cordata*
Floating Lead Pondweed	*Potamogeton natans*
Common Arrowhead	*Sagittaria latifolia*
Stiff Arrowhead	*Sagittaria rigida*
Hardstem bulrush	*Scirpus acutus*
Broad-leaved Cattail	*Typha latifolia*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/24/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state

average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Henneman Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 18.76, lower than the state average.

Invasive Species

No invasive plant species were found in Henneman Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 7, 2008 sampling.

Secchi Disk Readings

Readings steadily declined over the course of the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2008	July 16, 2008	August 7, 2008
,Site #1	15T 0627448 5012247	5.33 ft	4 ft	2.75 ft
Site #2	15T 0627667 5012482	5.6 ft	4 ft	2.75 ft

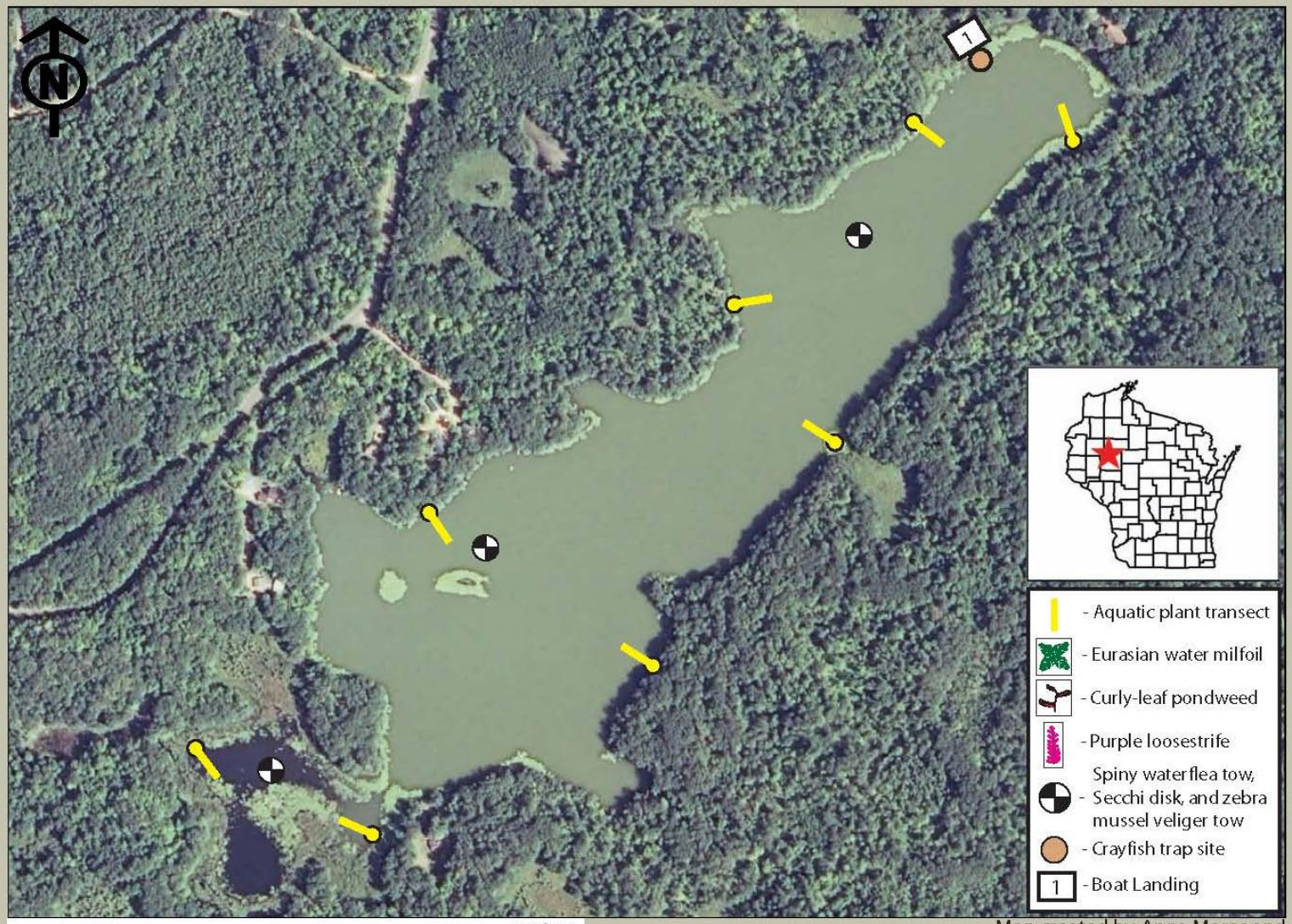
Lake and Shoreline Conditions

There are approximately 15 homes on the lake. Only one of these homes has a lawn to the water's edge, equaling about 2% of shoreline. All of the other properties have native vegetation that extends 40 ft or greater up the shore. The natural vegetation is a hardwood forest (about 98%). Many of the bays that are shown on maps are slowly filling in with emergent vegetation and are no longer accessible. This is a quiet glacial fishing lake. Henneman Lake has trout, panfish, and largemouth bass. There is a nesting pair of loons on the south side of the lake behind the island.

Aquatic Invasive Species Survey of

Henneman Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar, and Judy Schwarzmeier on June 24, July 16, August 7, 2008



Map created by Anna Mares and
Jacob Sutherland on 09-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Holcombe Flowage (Waterbody Identification Code # 2184900)

Chippewa County (T32N R06W S28 NW ¼ SW ¼)

Dates of Survey

Holcombe Flowage was surveyed on July 9, July 25, and August 20, 2007

Boat Launch

There are seven boat launches that provide almost direct access to Holcombe Flowage, plus two resorts with boat landings. The launch at the northeastern tip of the flowage is paved to a depth of 3 feet with 2 launch lanes and 16-20 parking stalls available. The second launch can be accessed off of 279th Street. This launch, in the northwest corner of the flowage, has 1 launch lane paved to the depth of 3 feet and 1-5 parking stalls. The third launch can be accessed off of 271st Street. The fourth boat launch located on the west side of the flowage has one gravel launch lane extending to the depth of 3 feet. All other information is unavailable. Access to this launch is on 282nd Avenue off of Park Road. The Pine Point Country Park Boat Landing has one paved launch lane extending to the depth of 3 feet with 16-20 parking stalls. Access is off of 256th Street / Pine Point Road. The sixth boat launch off of Highway County M on the south end of the lake has one gravel launch lane extending to the depth of 3 feet with 1-5 parking stalls. This boat launch is associated with a resort. The seventh boat launch is on 263rd Street off of County M on the south side of the lake. It is paved and associated with a resort. The eighth boat launch off of County M provides access to the start of the Chippewa River flowing out of the flowage. This launch has one gravel launch lane and 1-5 parking stalls. The ninth boat launch off of 273rd Street is paved. The tenth boat launch of 267th Street has 2 launch lanes paved to the depth of 3 feet.

Native Plant List*

A complete plant survey was conducted in 2006 by Beaver Creek Reserve staff on Lake Holcombe. There was no need to survey again in 2007.

Invasive Species

Two invasive plants, *Myriophyllum spicatum* and *Potamogeton crispus*, were found in Holcombe Flowage during the 2007 field season. The largest populations of *M. spicatum* are located in and near Pine Lake of Holcombe.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 20, 2007 sampling. Lake Holcombe has two species of invasive snail, the Chinese mystery and the banded mystery snails.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. Lake Holcombe can have very poor Secchi Disk readings due to heavy algae growth. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 9, 2007	July 25, 2007	August 20, 2007
Site #1	15T 0647572 5009534	5.0 ft	5.5 ft	5.75 ft
Site #2	15T 0645045 5010822	5.75 ft	5.5 ft	4.0 ft
Site #3	15T 0645939 5013890	3.75 ft	5.5 ft	3.75 ft

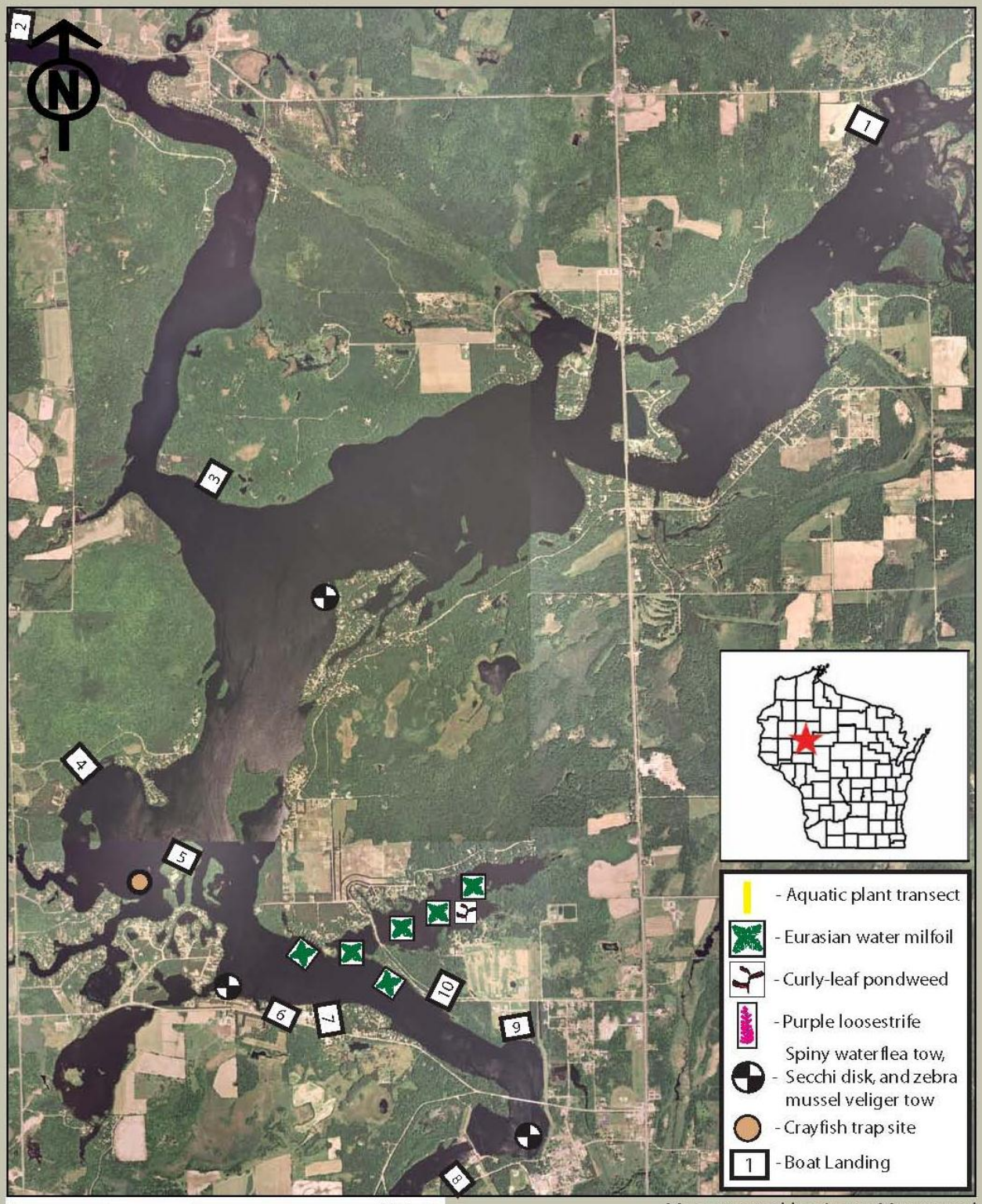
Lake and Shoreline Conditions

Lake Holcombe has been chemically treating *M. spicatum* since 2007 in Pine Lake of Holcombe and the area right before entering Pine Lake. *M. spicatum* has now reached further up and down the river channel than it did in 2007.

Aquatic Invasive Species Survey of

Holcombe Flowage, Chippewa County

Data collected by Jo Heuschele, Shelby Happe, Tom Marek, and Doc Dougherty
on July 9, July 25, and August 20, 2007



Map created by Anna Mares and
Jacob Sutherland on 26-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Christine Preist

Horseshoe Lake (Waterbody Identification Code # 2469800)

Barron County (T36N R14W S3 SE ¼ SW ¼)

Dates of Survey

Horseshoe Lake was surveyed on June 23, July 23, and August 12, 2009

Boat Launch

Horseshoe Lake has one boat launch on the west side, accessible from County Highway H. It is a gravel launch with turnaround space and parking for 10 vehicles with trailers. The "Stop and remove" and "Help prevent" aquatic invasive species signs are present. There are no restrooms, fees required or a dock.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Spiny hornwort	*Ceratophyllum echinatum*
Three-way sedge	*Dulichium arundinaceum*
Waterwort	*Elatine minima*
Needle spikerush	*Eleocharis acicularis*
Creeping spikerush	*Eleocharis palustris*
Pipewort	*Eriocaulon aquaticum*
Northern blue flag	*Iris versicolor*
Quillworts	*Isoetes sp.*
Brown-fruited rush	*Juncus pelocarpus*
Plantain shoreweed	*Littorella uniflora*
Dwarf water milfoil	*Myriophyllum tenellum*
Nitellas	*Nitella sp.*
White water lily	*Nymphea odorata*
Water smartweed	*Polygonum amphibium*
Large-leaf pondweed	*Potamogeton amplifolius*
Water-thread pondweed	*Potamogeton diversifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Creeping spearwort	*Ranunculus flammula*
Water bulrush	*Schoenoplectus subterminalis*
Hardstem bulrush	*Scirpus acutus*
Creeping bladderwort	*Utricularia gibba*
Large Purple bladderwort	*Utricularia purpurea*
Common bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/23/2009

Horseshoe Lake contains two plants, *Ceratophyllum echinatum* and *Utricularia purpurea,* which are listed as a species of Special Concern. "Special Concern" means that experts suspect the species are rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Horseshoe Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 36.66, higher than the state average.

Invasive Species

No invasive plants were found in Horseshoe Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 23, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 23, 2009	July 23, 2009	August 12, 2009
Site #1	15T 0571541 5052890	11 ft	8.5 ft	8.75 ft
Site #2	15T 0570984 5053125	11.5 ft	7.75 ft	7.5 ft

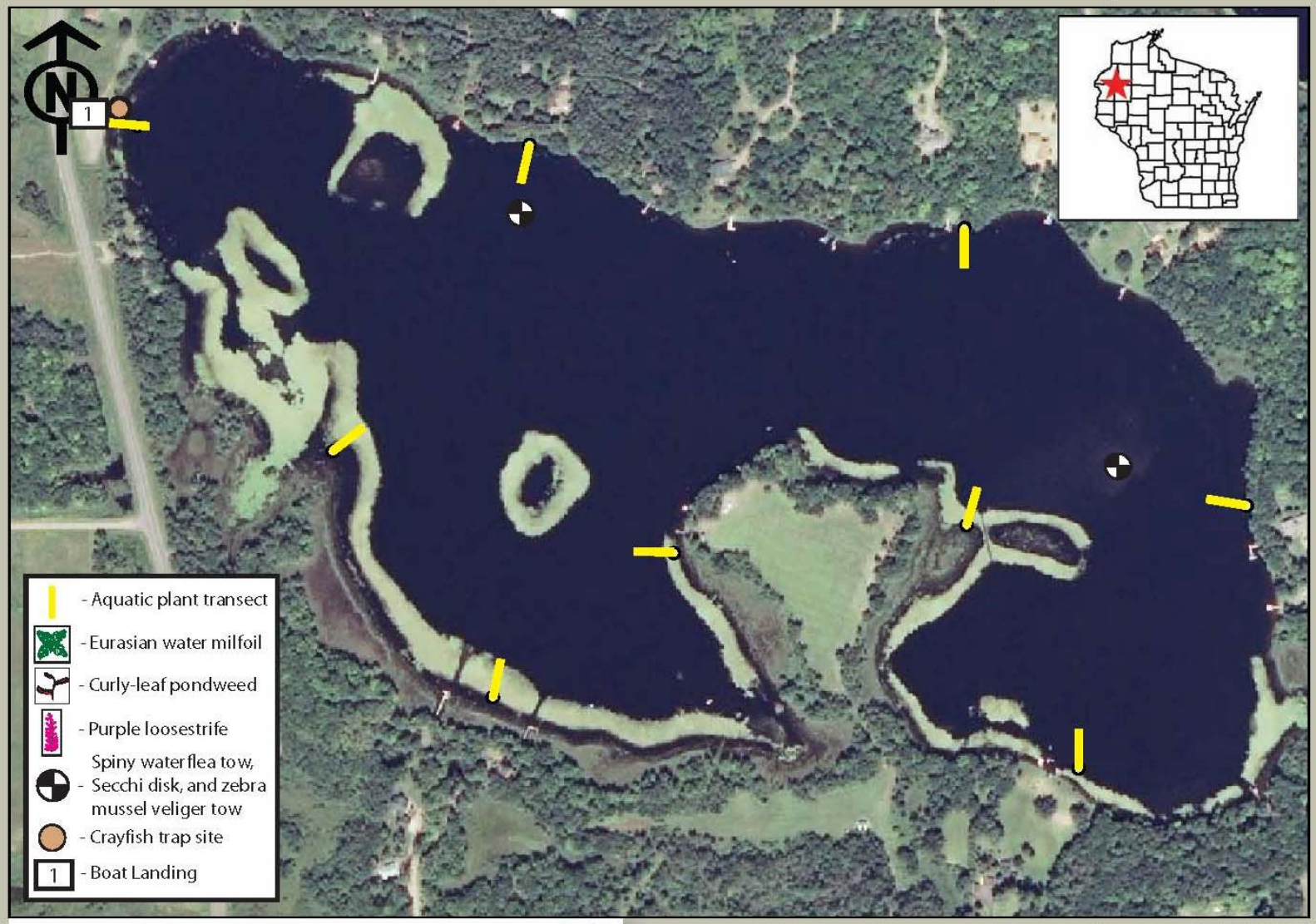
Lake and Shoreline Conditions

The shoreline vegetation is approximately 50% deciduous and 50% coniferous. Around 65% of the shoreland is developed with homes. Upwards of 50 m in front of the homes to the waters edge are mowed. Areas between houses are kept wild to act as buffers. The southwest corner of the lake is the most undisturbed portion of habitat. The water level appears to be one foot lower than normal. Large quantities of zooplankton from the genus *Holopedium* were seen while collecting samples with the plankton nets for spiny waterflea and zebra mussel veligers.

Aquatic Invasive Species Survey of

Horseshoe Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Christine Priest on June 23, July 23, and August 12, 2009



Map created by Anna Mares on 08-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 22, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Judy Schwarzmeier

Horseshoe Lake (Waterbody Identification Code # 1854300)

Chippewa County (T32N R08W S33 NE ¼ NE ¼)

Dates of Survey

Horseshoe Lake was surveyed on June 23, July 17, and August 7, 2008

Boat Launch

The only launch on Horseshoe Lake is sloping gravel into the lake off of 160th St. adjacent to 260th Avenue. The launch is of average depth with very loose sand that turns into sticky muck. Caution should be used when pulling the trailer out of the water. Keep to the right side when entering the launch. There is a turnaround with a moderate size parking area. The landing contains a primitive campsite (most likely for ATVs). Landing is owned by the state and is located in the Ice Age State Scientific Area. No fee is required. There are no bathrooms at the site.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Feather Moss, Green	*Drepanocladus sp.*
Pipewort	*Eriocaulon aquaticum*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*

*Plant list is not comprehensive and represents only what was observed on 06/23/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Horseshoe Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 17.00, lower than the state average.

Written by Jo Heuschele & Anna Mares
August 22, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Judy Schwarzmeier

Invasive Species

No invasive plants were found in Horseshoe Lake during the 2008 field season.

No spiny water flea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish along with any native crayfish species were detected from the August 7, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady throughout the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 23, 2008	July 17, 2008	August 7, 2008
Site #1	15T 0628573 5008347	8.0 ft	5.5 ft	9.5 ft
Site #2	15T 0628677 5008127	7.0 ft	5.5 ft	8.0 ft

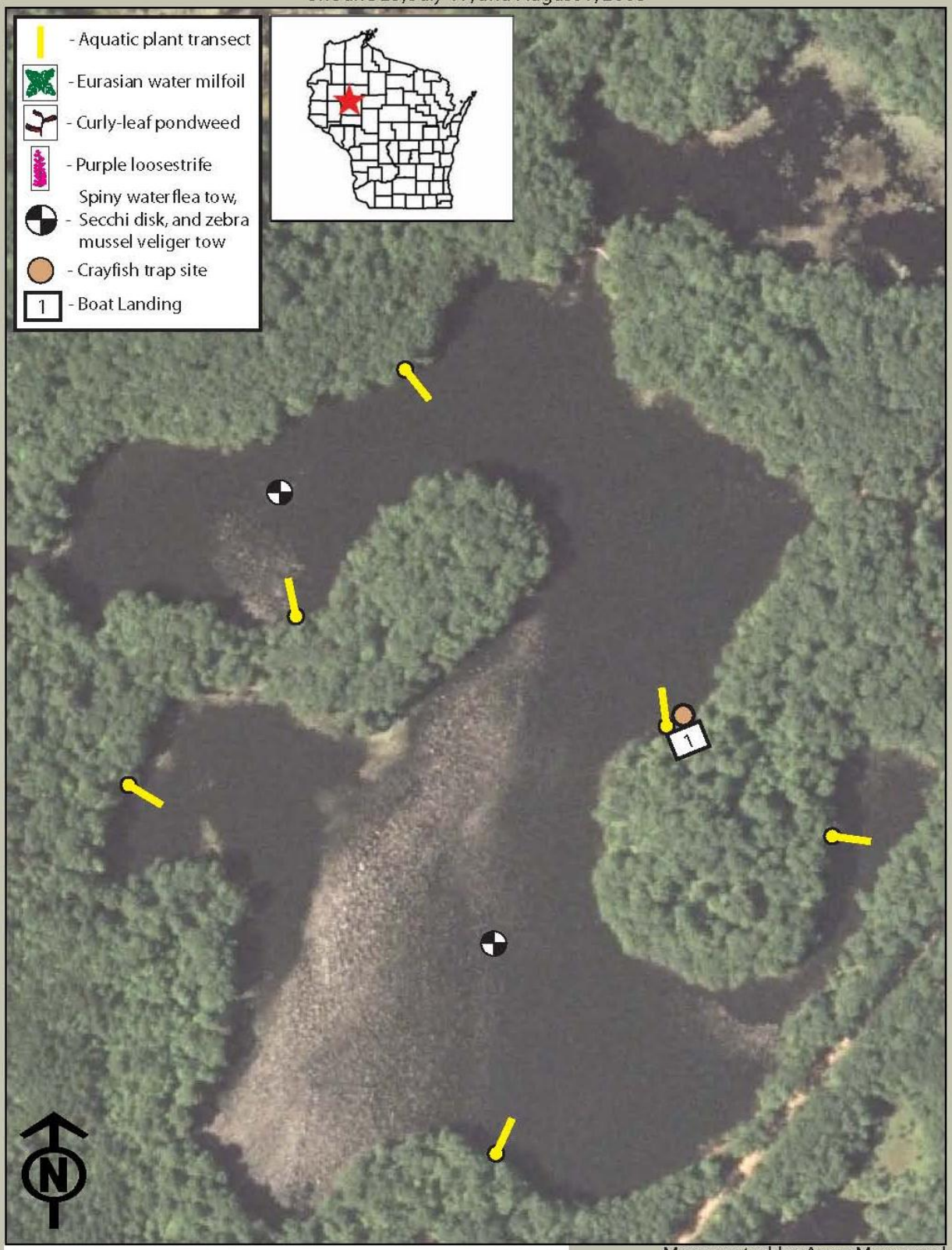
Lake and Shoreline Conditions

There are no houses on Horseshoe Lake. Approximately 2.3-3 m of grass, rushes, and sedges line the shoreline and then turn into hardwoods. The vegetation indicates that this use to be the high water mark before the drought during the early 2000's. This lake is a kettle, seepage lake. Mink frogs were found in great numbers at the boat launch.

Aquatic Invasive Species Survey of

Horseshoe Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, and Judy Schwarzmeier
on June 23, July 17, and August 7, 2008



Map created by Anna Mares and
Jacob Sutherland on 23-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Howe Lake (Waterbody Identification Code # 1855100)

Chippewa County (T30N R08W S14 NW ¼ NE ¼)

Dates of Survey

Howe Lake was surveyed on June 14, July 20, and August 7, 2007

Boat Launch

Access to the Howe Lake boat launch is from Howe Road/175th Street on the south side of the lake. There is parking at the boat launch. No restrooms are present.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Spikerush	*Eleocharis sp.*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Floating Lead Pondweed	*Potamogeton natans*
Common Arrowhead	*Sagittaria latifolia*
Narrow-leaved Cattail	*Typha angustifolia*

*Plant list is not comprehensive and contains only those species observed on 06/14/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Howe Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 16.33, lower than the state average.

Invasive Species

No invasive plants were found in Howe Lake during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 7, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 14, 2007	July 20, 2007	August 7, 2007
Site #1	15T 0632768 4993712	8.2 ft	11.75 ft	10.0 ft
Site #2	15T 0632360 4994034	9.5 ft	10.5 ft	11.0 ft
Site #3	15T 0632820 4994091	8.5 ft	10.0 ft	12.0 ft

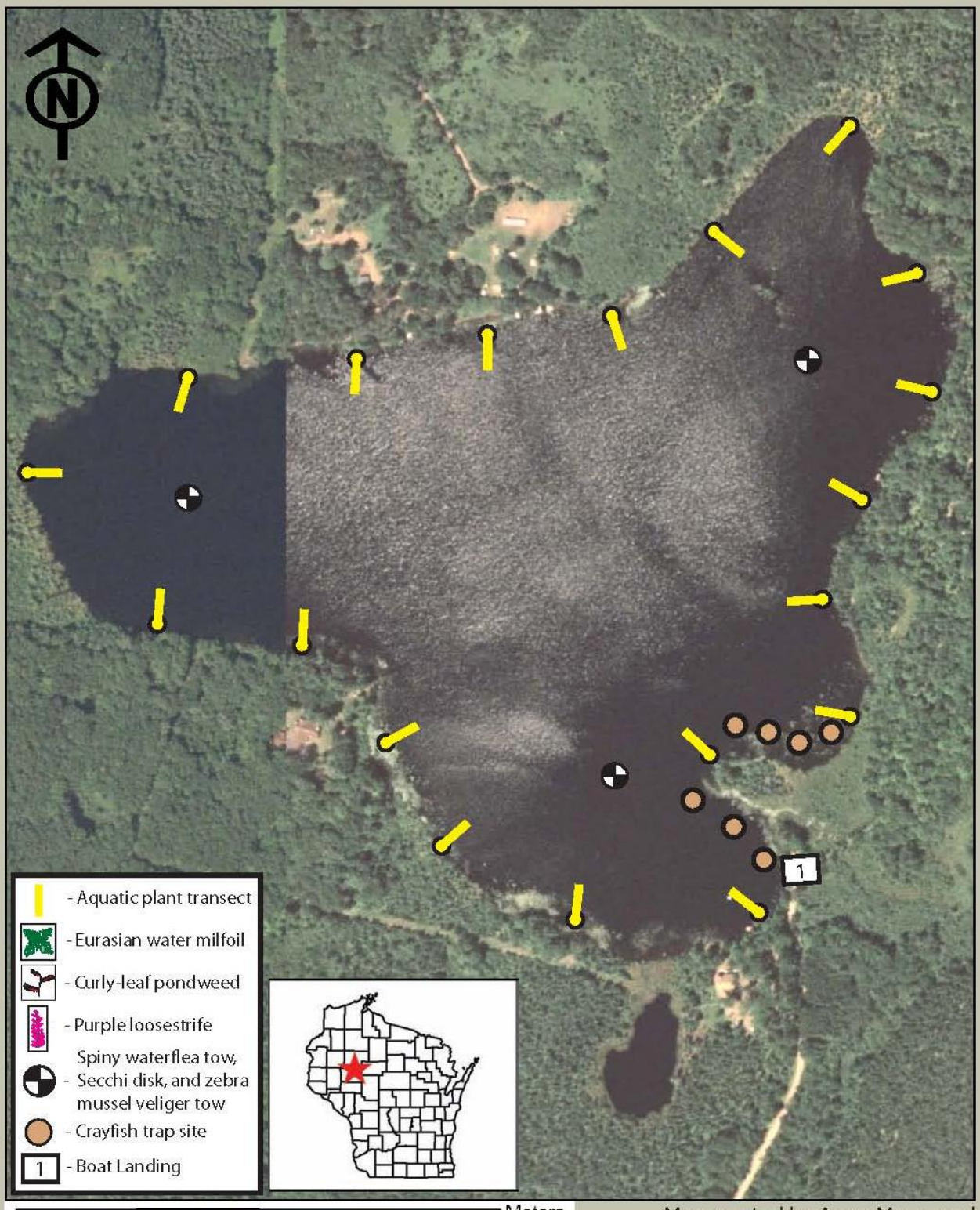
Lake and Shoreline Conditions

Approximately 5% of the shoreline of Howe Lake is developed. Only two houses are visible on the lake. The rest of the shoreline around the lake has been left natural forest, providing a great buffer for the lake.

Aquatic Invasive Species Survey of

Howe Lake, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on June 14, July 20, and August 7, 2007



Map created by Anna Mares and Jacob Sutherland on 04-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Island Lake (Waterbody Identification Code # 2350200)

Rusk County (T33N R08W S21 SE ¼ SW ¼)

Dates of Survey

Island Lake was surveyed on July 2, July 21, and August 6, 2007

Boat Launch

There are two boat launches for Island Lake; one is located at the northernmost tip of the lake, the other on the northwest shore. The Landing Road boat ramp is on the northwest shore, located off of County Road D on Landing Road. The launch has 1 paved launch lane and a dock, and there are 11-15 parking stalls. There are no available restrooms. The second launch is located off of South Right of Way Road with a ramp style launch lane and a dock. There are 6-10 vehicle stalls or 1-5 trailer stalls. There are no restrooms.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Joe-Pye Weed	*Eupatorium sp.*
Water stargrass	*Heteranthera dubia*
Water Marigold	*Megalodonta beckii*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Common Arrowhead	*Sagittaria latifolia*
Stiff Arrowhead	*Sagittaria rigida*
Soft-stem Bulrush	*Scirpus validus*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 07/02/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Island Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 24.98, slightly higher than the state average.

Invasive Species

One invasive plant was found in Island Lake during the 2007 field season. *Potamogeton crispus* was found on July 2, 2007 and the population of curly-leaf pondweed was huge. This was possibly due to the lack of snow on the ice in 2006. The die back of curly leaf in June/July releases large amounts of phosphorus into the water column which increases nuisance aquatic plant growth and algae blooms. It is recommended that the curly-leaf pondweed beds be monitored for any growth in size and reevaluate management options if there is a population explosion.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Rusty crayfish were detected from the August 6, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 2, 2007	July 21, 2007	August 6, 2007
Site #1	15T 0627596 5020115	10.0 ft	10.0 ft	6.75 ft
Site #2	15T 0625435 5019130	7.5 ft	7.5 ft	7.0 ft
Site #3	15T 0627013 5019469	10.0 ft	10.75 ft	7.0 ft

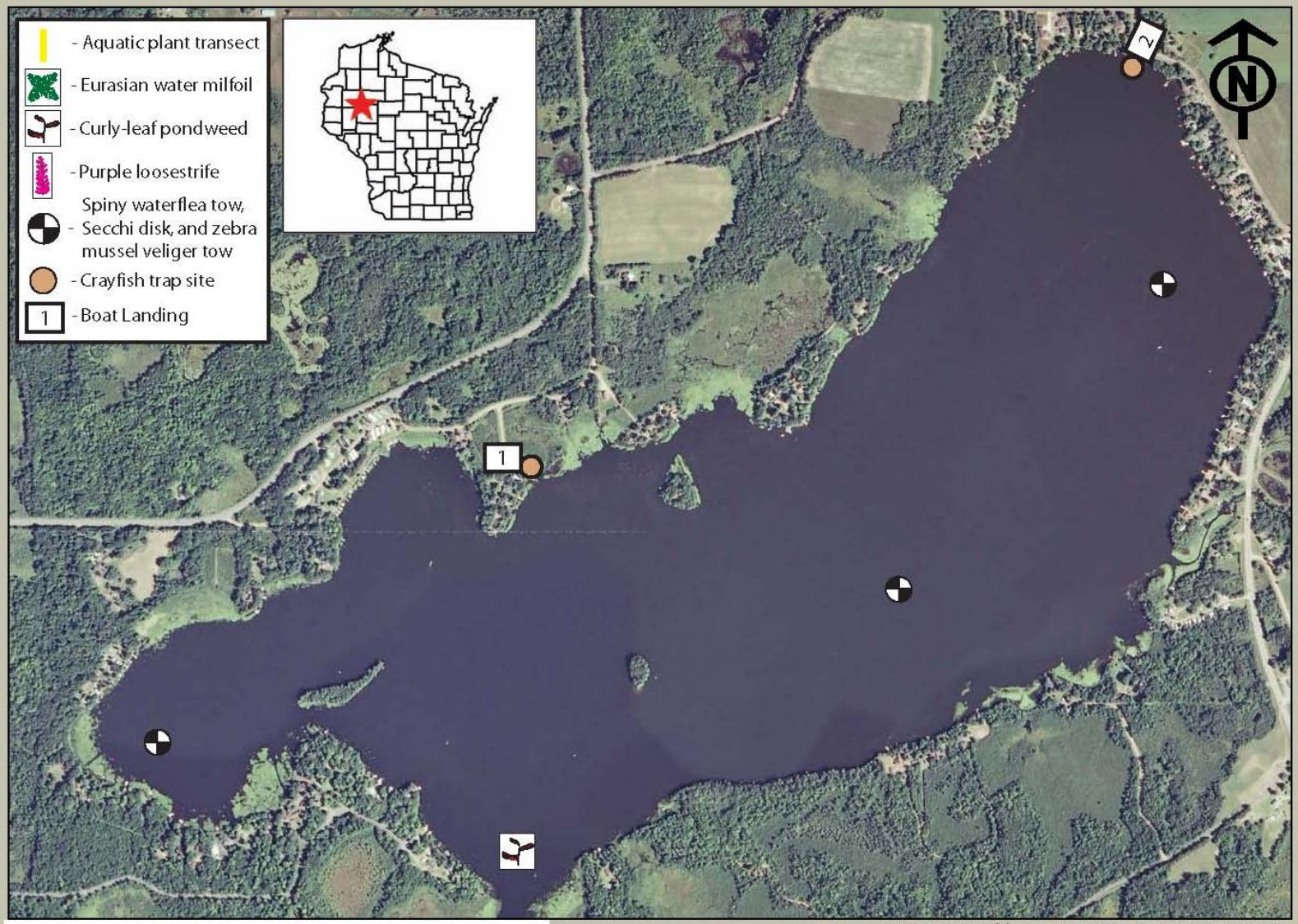
Lake and Shoreline Conditions

Approximately 80% of Island Lake's shoreline is developed by homes, with heavy development and poor buffers along Highway 40 and Right of Way Road. There are small sections of marsh on the northern half of the lake. A larger section of about 600 meters of shoreline has been left natural on the south side of the lake with marsh/bog behind it. The distribution of curly-leaf pondweed throughout the lake is greater than what is shown on the Island Lake Map. The one location indicated on the map is the only one that was properly documented. Transects were used for aquatic plant sampling but the locations were not documented.

Aquatic Invasive Species Survey of

Island Lake, Rusk County

Data collected by Jo Heuschele and Shelby Happe on July 2, July 21, and August 6, 2007



Map created by Anna Mares on 18-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Ted Ludwig, Christine Preist, Katrina Smith, and Claire Bailey

Kirby Lake (Waterbody Identification Code # 1858200)

Barron County (T36N R14W S14 NE ¼ SW ¼)

Dates of Survey

Kirby Lake was surveyed on June 23, July 23, and August 12, 2009

Boat Launch

There is one boat landing on Kirby Lake that is accessible from 27 ¼ Street on the west side of the lake. The launch is steep gravel to the water. There are no restrooms, a dock or fees required. The lake association created a great kiosk with signs for aquatic invasive species signs and slots to hold informational brochures. There is limited turn around space and parking for 3-4 vehicles with trailers.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Waterwort	*Elatine minima*
Needle Spikerush	*Eleocharis acicularis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Soft rush	*Juncus effusus*
Plantain shoreweed	*Littorella uniflora*
Farwell's water Milfoil	*Myriophyllum farwellii*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Water-thread pondweed	*Potamogeton diversifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Common Arrowhead	*Sagittaria sp.*
Water bulrush	*Schoenoplectus subterminalis*
Hardstem bulrush	*Scirpus acutus*
Creeping Bladderwort	*Utricularia gibba*
Large Purple Bladderwort	*Utricularia purpurea*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed 06/23/2009.

Kirby Lake contains one plant, *Utricularia purpurea*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. *Utricularia purpurea* and *Myriophyllum farwellii* are very robust and present everywhere in the lake. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Kirby Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 32.52, higher than the state average.

Invasive Species

No invasive plants were found in Kirby Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 23, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 23, 2009	July 23, 2009	August 12, 2009
Site #1	15T 0572708 5050263	7.5 ft	6.0	7.25 ft

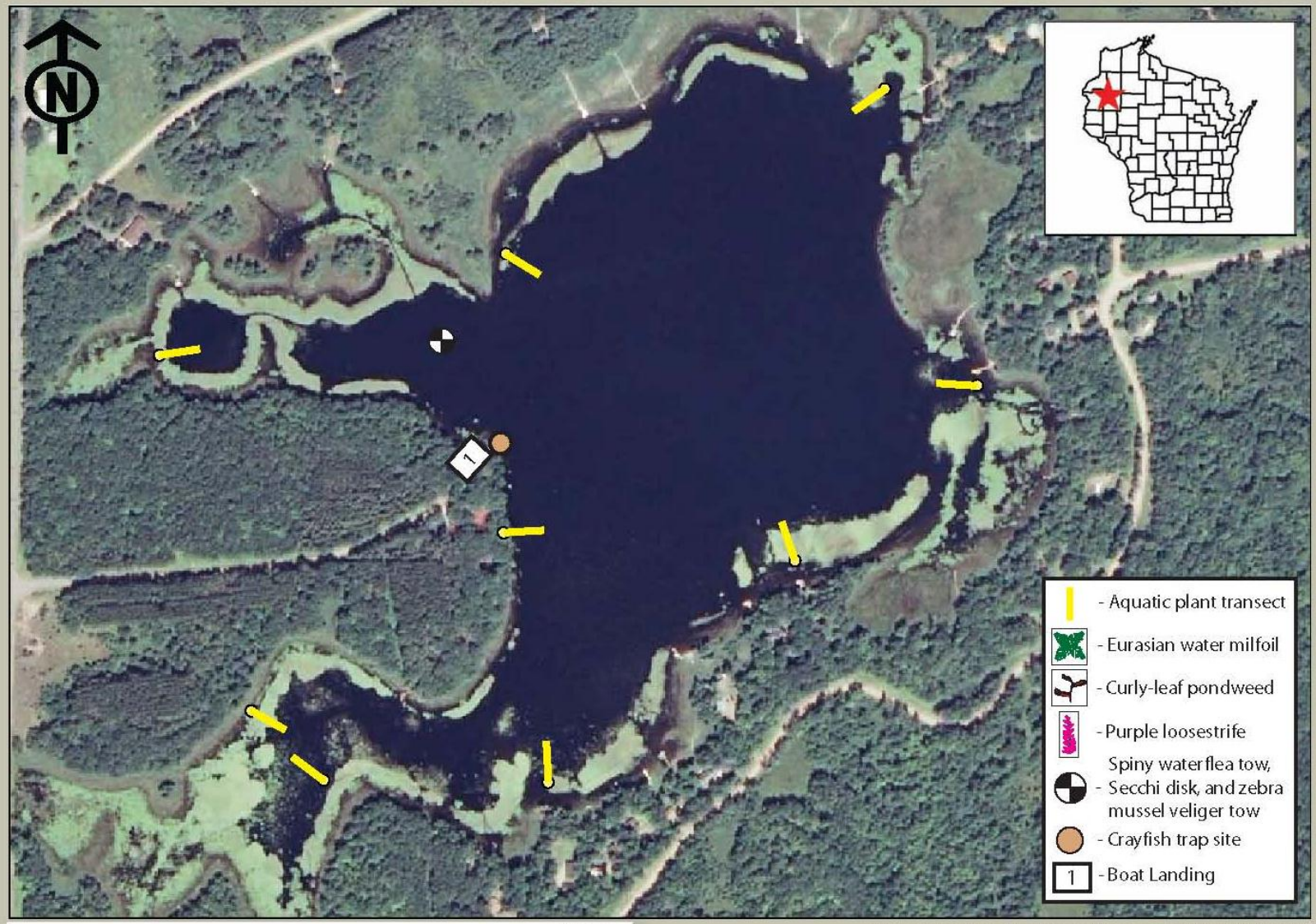
Lake and Shoreline Conditions

The shoreline vegetation is 50% deciduous and 50% coniferous. Approximately 45% of the land around the lake is developed, with most properties having a moderately good buffer zone. Water level is almost 4.5 ft lower than the average level. The surrounding trees would be to the water's edge if the water was at its normal level. This lack of water has caused the southwest portion of the lake to fill in with plants and there is no longer a clearly defined island in that bay. There is a winter aeration system in the deepest portion of the lake to help prevent winter fish kills.

Aquatic Invasive Species Survey of

Kirby Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Christine Preist, Katrina Smith, and Claire Bailey on June 23, July 23, and August 12, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Phil Rynish

Ladysmith Flowage (Waterbody Identification Code # 2228700)

Rusk County (T34N R06W S2 NE ¼ NW ¼)

Dates of Survey

The Ladysmith Flowage was surveyed on June 1, July 8, and August 3, 2009

Boat Launch

The boat landing is well kept, in a city park, with parking for 10 vehicles and room for a turn around. There are flush toilets and running water. The dock is grated, which helps with traction.

Native Plant List*

Common Name	Scientific Name
Sweet flag	*Acorus calamus*
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Various-leaved Water Milfoil	*Myriophyllum heterophyllum*
Bullhead Pond Lily	*Nuphar variegata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Broad-leaved Cattail	*Typha latifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/01/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Ladysmith Flowage was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 17.18, lower than the state average.

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Phil Rynish

Invasive Species

No invasive plants were found in the Ladysmith Flowage during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One invasive crayfish species, rusty crayfish, was detected from the August 3, 2009 sampling. They have been found on the flowage in the past and are document with the WI DNR.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 1, 2009	July 8, 2009	August 3, 2009
Site #1	15T 0649557 5036426	4.25 ft	5.0 ft	5.0 ft
Site #2	15T 0648860 5037891	4 ft	6 ft	5.0 ft
Site #3	15T 0648197 5037295	4.25 ft	4.25 ft	5.5 ft

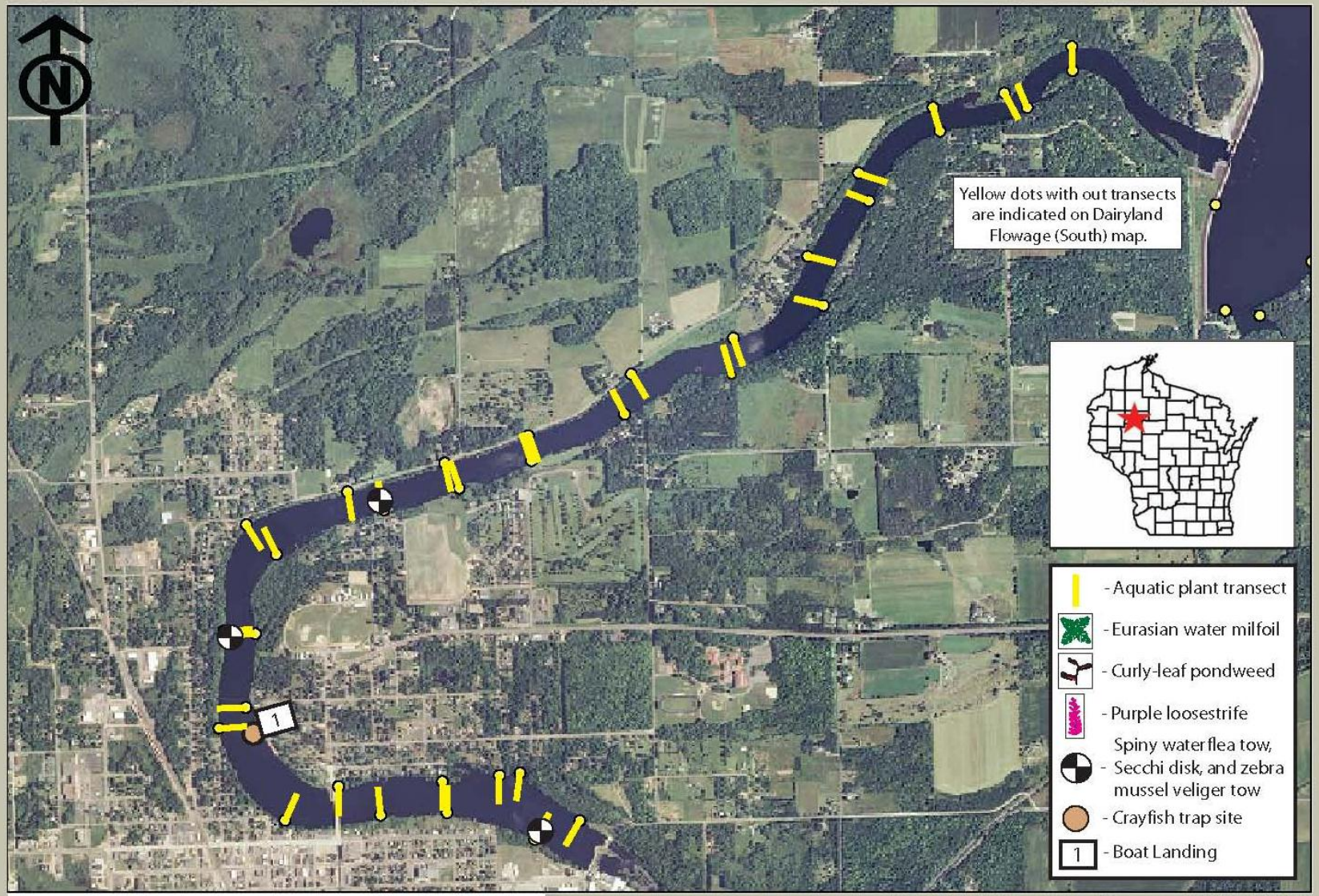
Lake and Shoreline Conditions

The water is very rocky and contains many obstacles by the dam. The flowage has a low diversity and density of plants. There is one section of the river between the boat landing and the Highway 8 Bridge that contains a large bed of aquatic plants, with *Elodea canadensis*, *Potamogeton zosteriformis* and *Potamogeton epihydrus* being the dominant species. Any river front property with a house has a mowed lawn to the shoreline. Although, as visible on the aerial maps, some well buffered areas exist but they are not in front of homes and tend to be on the steeper banks.

Aquatic Invasive Species Survey of

Ladysmith Flowage, Rusk County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Phil Rynish on June 1, July 8, and August 3, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 23, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Phil Rynish, and Jenny Pomeroy

Lake Chetek (Waterbody Identification Code # 2094000)

Barron Count (T33N R10W S30 NE ¼ SE ¼)

Dates of Survey

Chetek Lake was surveyed on June 9, July 13, and August 5, 2009

Boat Launch

Lake Chetek has two boat launches, although six are marked on the DNR aerial map. One of the functional launches (1 on the map) is on the southwest side of the lake and is accessible from Lakeview Drive. It is a very well maintained launch with a large cement pad and two wooden docks. The launch pad is wide enough for two boats to be launched at the same time. There is turnaround space and parking for 10 vehicles with trailers and additional stalls for cars. There is an area to picnic along with flush toilets and running water. It also has the "Help prevent", "Stop and remove", "Eurasian Milfoil alert", and the "Where to look for aquatic hitchhikers" signs present. No fees are required. The second functional boat launch (2 on the map) is improved, but does not appear to be free. The boat launches 3-6 on the map do not exist.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Lesser duckweed	*Lemna minor*
Northern water milfoil	*Myriophyllum sibiricum*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Fern pondweed	*Potamogeton robbinsii*
Flat-stem pondweed	*Potamogeton zosteriformis*
Stiff water crowfoot	*Ranunculus longirostris*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Wild celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/09/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Chetek was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 23.5, slightly higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Lake Chetek during the 2009 field season. *P. crispus* was found at 13 of 27 transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake. Most of the sites with *P. crispus* present were on the eastern half of the lake where it was shallow and had mucky sediment.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 5, 2009 sampling. Two invasive species of snail were found in Lake Chetek during the June 9, 2009 sampling. Chinese mystery snails and banded mystery snails were found in large quantities, covering posts of docks in the water. Samples of each were sent in for vouchering.

Secchi Disk Readings

Readings stayed consistently low through out the summer. Excessive algae impaired clarity readings. The lake association has not yet determined whether the algal blooms are a result of internal or external phosphorus loading. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 9, 2009	July 13, 2009	August 5, 2009
Site #1	15T 0607279 5019782	2.5 ft	2.0 ft	1.25 ft
Site #2	15T 0607248 5018328	2.5 ft	2.0 ft	1.5 ft

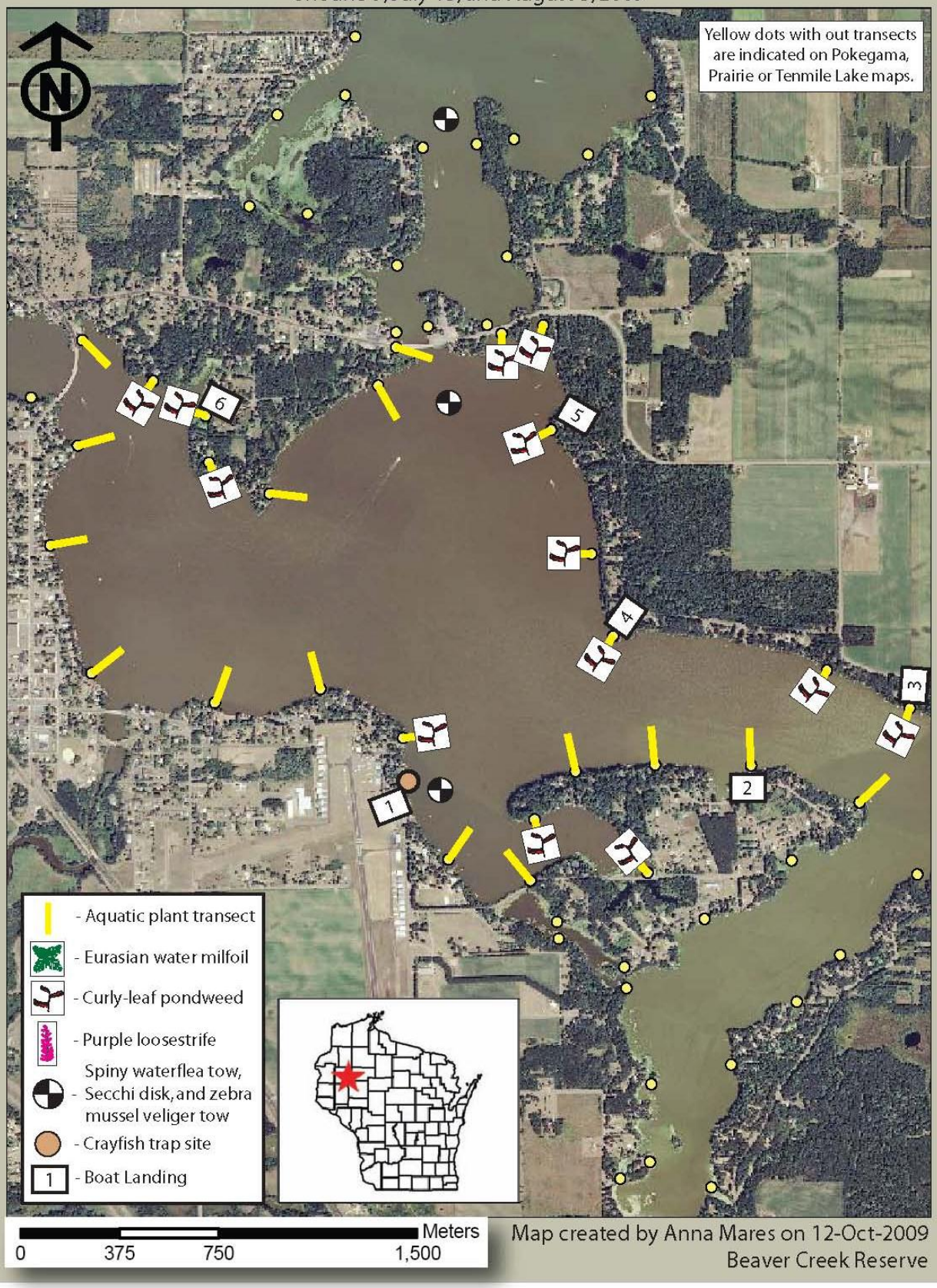
Lake and Shoreline Conditions

The shoreline vegetation is made up of 55% coniferous and 45% deciduous trees. The western shore of Lake Chetek is highly developed (the city of Chetek) with nearly 100% of the homes having an extremely poor or non-existent buffer zone. Buffers tended to be in better condition on the east side of the lake where homes were further apart from one another and more trees were left as part of the landscape.

Aquatic Invasive Species Survey of

Lake Chetek, Barron County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings, Phil Rynish, and Jenny Pomeroy
on June 9, July 13, and August 5, 2009



Map created by Anna Mares on 12-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
August 28, 2008
Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar, Judy Schwarzmeier & Sarah Graves

Lake Como (Waterbody Identification Code # 2152100)

Chippewa County (T30N R09W S08 NW ¼ NE ¼)

Dates of Survey

Lake Como was surveyed on June 25, July 21, and August 13, 2008

Boat Launch

The City of Bloomer reconstructed their boat landing off of Lakeshore Drive on the lake's west side within the last couple of years. The large parking lot is paved as well as the launching pad. A dock is present. No fee is required and there are no bathrooms.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 06/25/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Como was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 8.94, lower than the state average and one of the lowest in the study.

Invasive Species

One invasive plant species was found in Lake Como during the 2008 field season. Curly-leaf pondweed (*Potamogeton crispus*) was found at the following GPS location:
15T 0617517 4995641

Written by Anna Mares
August 28, 2008
Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar, Judy Schwarzmeier & Sarah Graves

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 13, 2008 sampling.

Secchi Disk Readings

Readings were consistently low over the course of the summer due to algal growth. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 25, 2008	July 21, 2008	August 13, 2008
Site #1	15T 0617431 4996239	2.0 ft	1.75 ft	3.0 ft
Site #2	15T 0618357 499350	2.5 ft	2.5 ft	2.0 ft

Lake and Shoreline Conditions

Lake Como is situated in the heart of the city of Bloomer. All of the shoreline of Lake Como is developed with homes. A large majority of the properties have well manicured lawns that lead right to the waters edge with rocky rip rap as the buffer. The surrounding land is flat with a shallow slope. The lawns have a mix of conifers and hardwood trees on them.

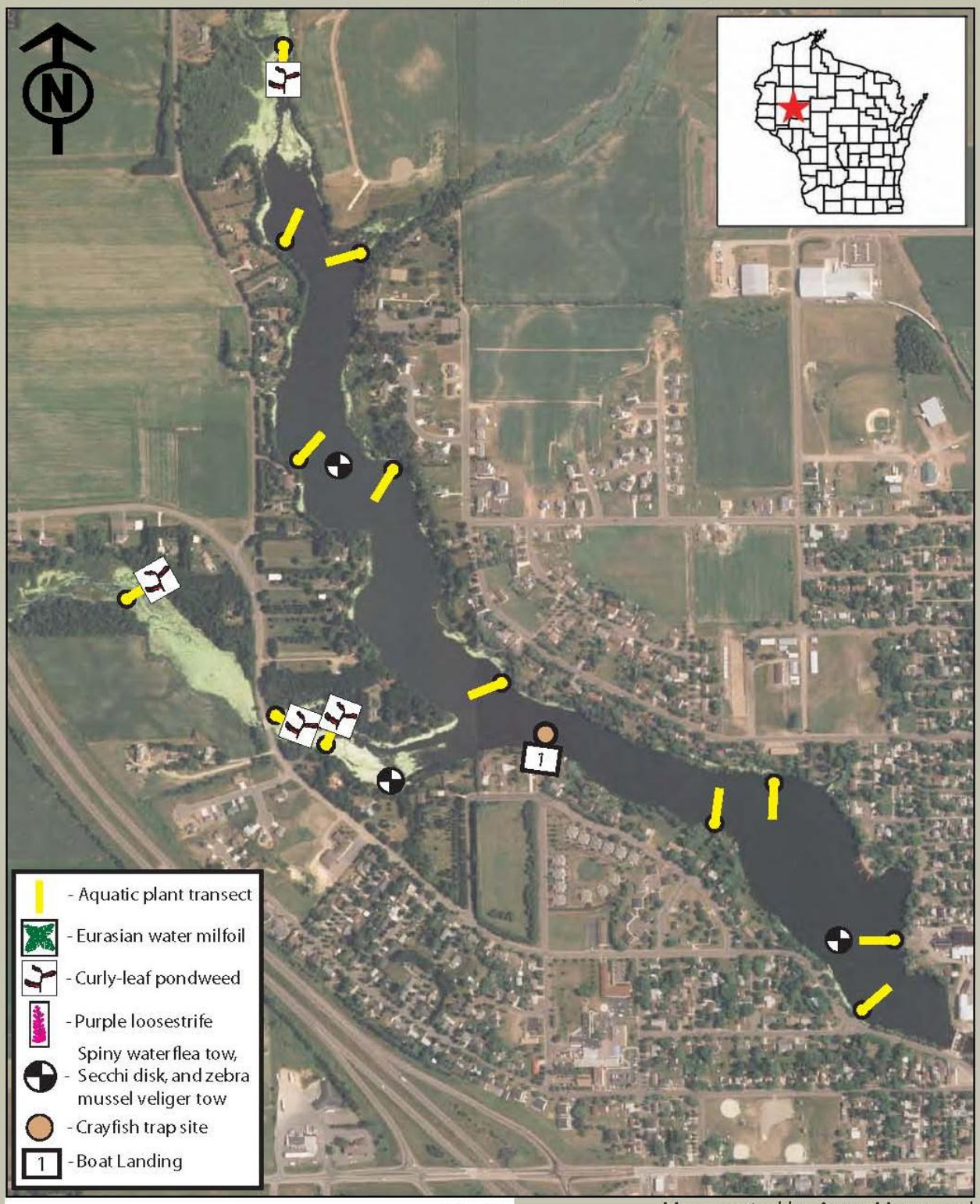
General Comments

Lake Como in Bloomer recently underwent major rehabilitation. The dam was repaired in 2003 and the lake was dredged in 2004. Restocking of largemouth bass and panfish began in 2004. The lake is a 98 acre impoundment of Duncan Creek.

Aquatic Invasive Species Survey of

Como Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar, Judy Schwarzmeier, and Sara Graves on June 25, July 21, and August 13, 2008



Map created by Anna Mares and Jacob Sutherland on 26-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Christine Preist, and Jenny Pomeroy

Lake Desair (Waterbody Identification Code # 2104500)

Barron County (T35N R11W S6 NW ¼ NE ¼)

Dates of Survey

Lake Desair was surveyed on June 17, July 14, and August 10, 2009

Boat Launch

There is one boat launch on Desair Lake accessible from 23 ½ Avenue. The landing is asphalt to the launch pad of large gravel/rock. There is a large turnaround with parking on the grass for four vehicles with trailers and additional parking would be along the roadside. The boat launch has a picnic table, a pit toilet and requires no fee. The launch has no dock. There are "Help prevent" and "Stop and remove" aquatic invasive species signs present.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Sedge	*Carex comosa*
Coontail	*Ceratophyllum demersum*
Spiny hornwort	*Ceratophyllum echinatum*
Common waterweed	*Elodea canadensis*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Small pondweed	*Potamogeton pusillus*
Marsh cinquefoil	*Potentilla palustris*
Common arrowhead	*Sagittaria latifolia*
Soft-stem bulrush	*Scirpus validus*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed 06/17/2009.

Lake Desair contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of

Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Desair was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 18.18, lower than the state average.

Invasive Species

No invasive plants were found in Desair Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 10, 2009 sampling. One invasive snail, a Chinese mystery snail, was collected from Desair Lake during the June 17, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 17, 2009	July 14, 2009	August 10, 2009
Site #1	15T 0595066 5043681	3.25 ft	7.25 ft	5.5 ft
Site #2	15T 0595424 5044056	3.25 ft	8.25 ft	5.25 ft
Site #3	15T 0595600 5044364	3.25ft	5.75 ft	5.5 ft

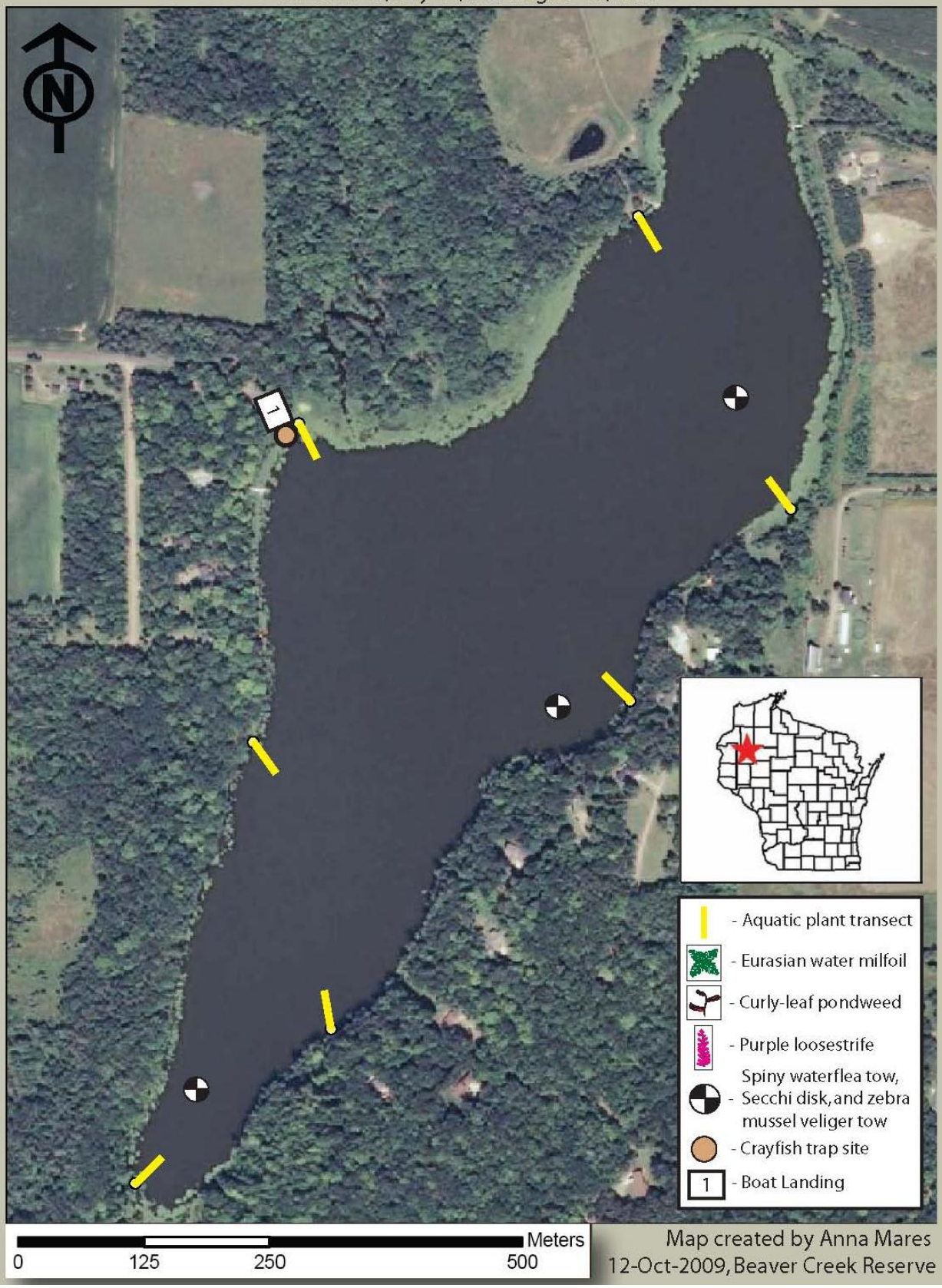
Lake and Shoreline Conditions

The shoreline vegetation was 85% deciduous, 10% coniferous and 5% marshland. There were 3-4 houses with large lawns and poor buffers. The other houses around the lake were hard to see because they were so far off of the lake or they had good buffers to hide them. The steep shoreline mostly likely aids in retaining the vegetation that is present. Desair Lake is a Slow No Wake Lake with a speed limit of 15 mph. The water level was down about 1-2 inches from the normal water level. The survey crew saw a muted swan on August 10, 2009. While conducting plankton net tows for spiny waterfleas and zebra mussel veligers, it was seen that there are very few (total number of individuals) zooplankton present of the only observed genus *Leptodora*. Several years earlier the lake was treated with algaecides, which could have affected the zooplankton populations.

Aquatic Invasive Species Survey of

Desair Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Christine Preist, and Jenny Pomeroy
on June 17, July 14, and August 10, 2009



Map created by Anna Mares
12-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Lake Hallie (Waterbody Identification Code # 2150200)

Chippewa County (T28N R09W S27 NE ¼ NE ¼)

Dates of Survey

Lake Hallie was surveyed on July 6, July 24, and August 14, 2007

Boat Launch

The boat launch for Lake Hallie has one launch lane paved to a water depth of three feet, accompanied by a dock. There are 16-20 parking stalls and vault restrooms are available. Access for the launch is off of 109th Street.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Rush	*Juncus sp.*
Lesser Duckweed	*Lemna minor*
Forked Duckweed	*Lemna trisulca*
Nitellas	*Nitella sp.*
Blunt-leaf Pondweed	*Potamogeton obtusifolius*
Fern Pondweed	*Potamogeton robbinsii*
Stiff Arrowhead	*Sagittaria rigida*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 07/24/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Hallie was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 19.34, lower than the state average.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Invasive Species

Two invasive plants were found in Lake Hallie during the 2007 field season. *Potamogeton crispus* and *Myriophyllum spicatum* were found on July 24, 2007, both of which were already formally documented as being present. Densities and locations of *P. crispus* and *M. spicatum* were not recorded. *M. spicatum* is in large enough quantities that a mechanical harvester is used to thin the population.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 14, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady throughout the summer but were slightly higher towards the end of July. The July 6, 2007 reading at Site #3 could not occur due to the obstruction of Eurasian water milfoil. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 6, 2007	July 24, 2007	August 14, 2007
Site #1	15T 0623235 4970691	No reading	6.0 ft	5.5 ft
Site #2	15T 0622823 4970297	4.0 ft	8.0 ft	5.0 ft
Site #3	15T 0622683 4970845	7.0 ft	8.0 ft	6.5 ft

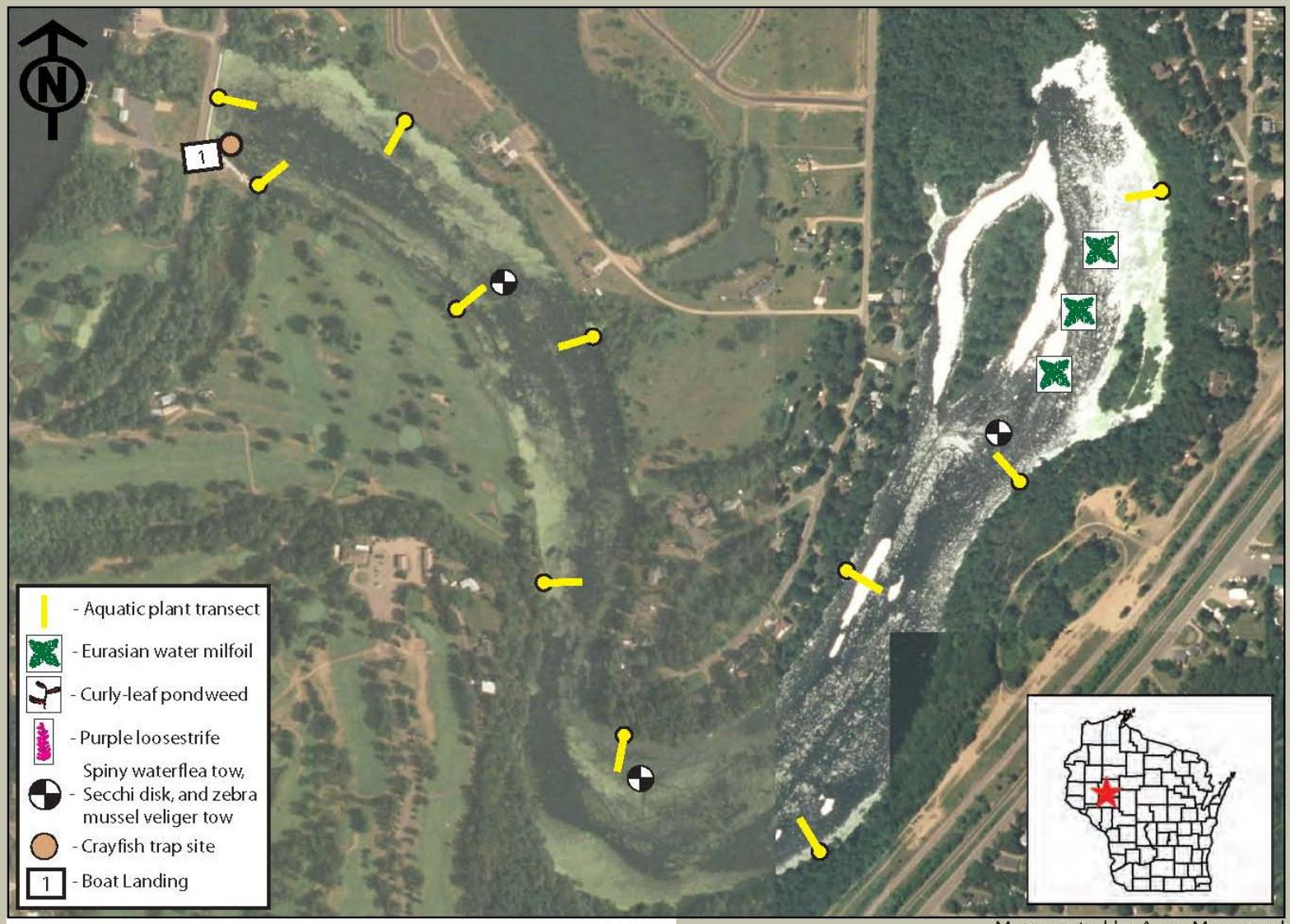
Lake and Shoreline Conditions

Lake Hallie is an oxbow lake of the east side of the Chippewa River. Lake Hallie is a shallow lake with a maximum depth of 13 ft. The eastern lobe of the lake is the shallowest with a maximum depth of 10 ft. A concrete drop log connects Lake Hallie to the Chippewa River. This creates an easy conduit for the spread of the present Eurasian water milfoil to water bodies further down stream. The greatest concentration of homes is on the north side and center of the oxbow. There is substantial buffering on the south, east and northeast sides of the lake. The buffer zone size could be increased on the west and north side of the lake.

Aquatic Invasive Species Survey of

Lake Hallie, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on June 6, July 24, and August 14, 2007



Map created by Anna Mares and
Jacob Sutherland on 09-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Christine Preist

Lake Montanis (Waterbody Identification Code # 2103200)

Barron County (T35N R11W S34 NE ¼ SE ¼)

Dates of Survey

Lake Montanis was surveyed on June 18, July 21, and August 12, 2009

Boat Launch

There are two boat launches on Lake Montanis. The first (1 on the map) is located in the southwest corner of the lake off of 22nd St. near Meadow Creek. It is maintained and owned by the Town of Rice Lake. The launch is paved asphalt to concrete slab in the water with a wooden dock. There is a large turnaround that provides enough parking for four vehicles with trailers. There are no restrooms present and no fees required. "Stop and remove" and "Help prevent the spread" aquatic invasive species (AIS) signs are present. Garbage and broken glass were on the turnaround each of the three visits to Lake Montanis. The second boat landing (2 on the map) is located off of 22-22/14th St. on the east side of the lake. This launch is also a Town of Rice Lake landing. The launch is asphalt to crushed gravel, with a big turnaround, and no parking except along the roadside. There are no restrooms or a dock. A "Stop and remove" AIS sign was present. No fees are required.

Native Plant List*

Common Name	Scientific Name
Water marigold	*Bidens beckii*
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Northern water milfoil	*Myriophyllum sibiricum*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Floating leaf pondweed	*Potamogeton natans*
Small pondweed	*Potamogeton pusillus*
Fern pondweed	*Potamogeton robbinsii*
Common arrowhead	*Sagittaria latifolia*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Christine Preist

Common Name	Scientific Name
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Wild celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/18/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Montanis was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 24.04, higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Lake Montanis during the 2009 field season. *P. crispus* was found at seven of ten transects used for sampling aquatic plants set at 1,500 ft intervals. Large beds of *P. crispus* were found in the southern bay of the lake. The entire northwestern bay of Lake Montanis contained *P. crispus* as well.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 21, 2009 sampling.

Secchi Disk Readings

One site was chosen for tow sampling instead of three due to the lake's shallow depth except for one region. Reading stayed low and consistent throughout the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 18, 2009	July 21, 2009	August 12, 2009
Site #1	15T 0601274 5036829	2.5 ft	2.0 ft	1.75 ft

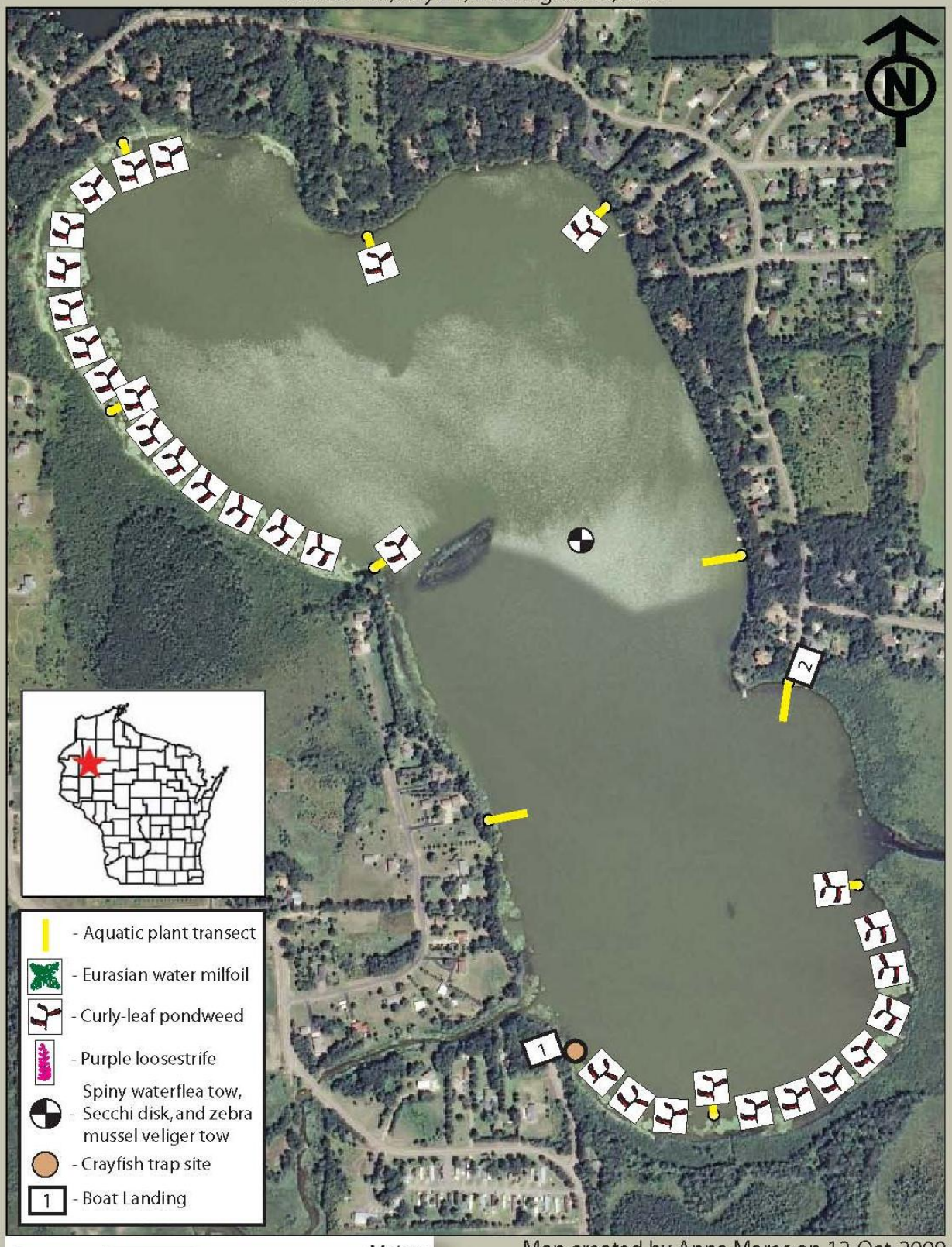
Lake and Shoreline Conditions

Approximately 50% of the shoreline vegetation is marshland to the south/southeast and on the west side of the lake. The remaining 50% is developed with mixed hardwood for cover. Developed area is a combination of poor buffers of retaining walls and some moderately good buffers with shoreline vegetation intact. It is popular for local citizens to come and fish off of the dock.

Aquatic Invasive Species Survey of

Lake Montanis, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Christine Preist
on June 18, July 21, and August 12, 2009



Map created by Anna Mares on 12-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Claire Bailey

Lake of the Woods (Waterbody Identification Code # 2632100)

Barron County (T35N R14W S7 SW ¼ SW ¼)

Dates of Survey

Lake of the Woods was surveyed on June 24, July 27 and August 18, 2009

Boat Launch

There is one private boat launch on the west side of Lake of the Woods, accessible from Polk/Barron Avenue. There is a suggested donation box that appears to be used fairly infrequently. There is a turn around area and space for 2-3 parking stalls. No restrooms are present. The launch is sand and gravel to the water without a dock.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Bottle brush sedge	*Carex comosa*
Three-way sedge	*Dulichium arundinaceum*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Nitellas	*Nitella sp.*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Narrowleaf	*Potamogeton sp.*
Common arrowhead	*Sagittaria latifolia*
Common bur-reed	*Sparganium eurycarpum*
Little bur-reed	*Sparganium minima*
Broad-leaved cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 06/24/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake of the Woods was found to have an

approximate (as a full aquatic plant survey was not completed) FQI value of 23.23, slightly higher than the state average.

Invasive Species

No invasive plants were found in Lake of the Woods during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the June 27, 2009 sampling. One invasive species, the Chinese mystery snail, was found in Lake of the Woods during the June 24, 2009 sampling.

Secchi Disk Readings

Readings declined slightly over the course of the summer dramatically with the July and August readings being impaired by large amounts of fine algae in the water with a light, greenish-brown color. Only one site was chosen for plankton tow sampling due to the lake's small size. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2009	July 27, 2009	August 18, 2009
Site #1	15T 0566107 5042222	2.0 ft	1.25 ft	1.25 ft

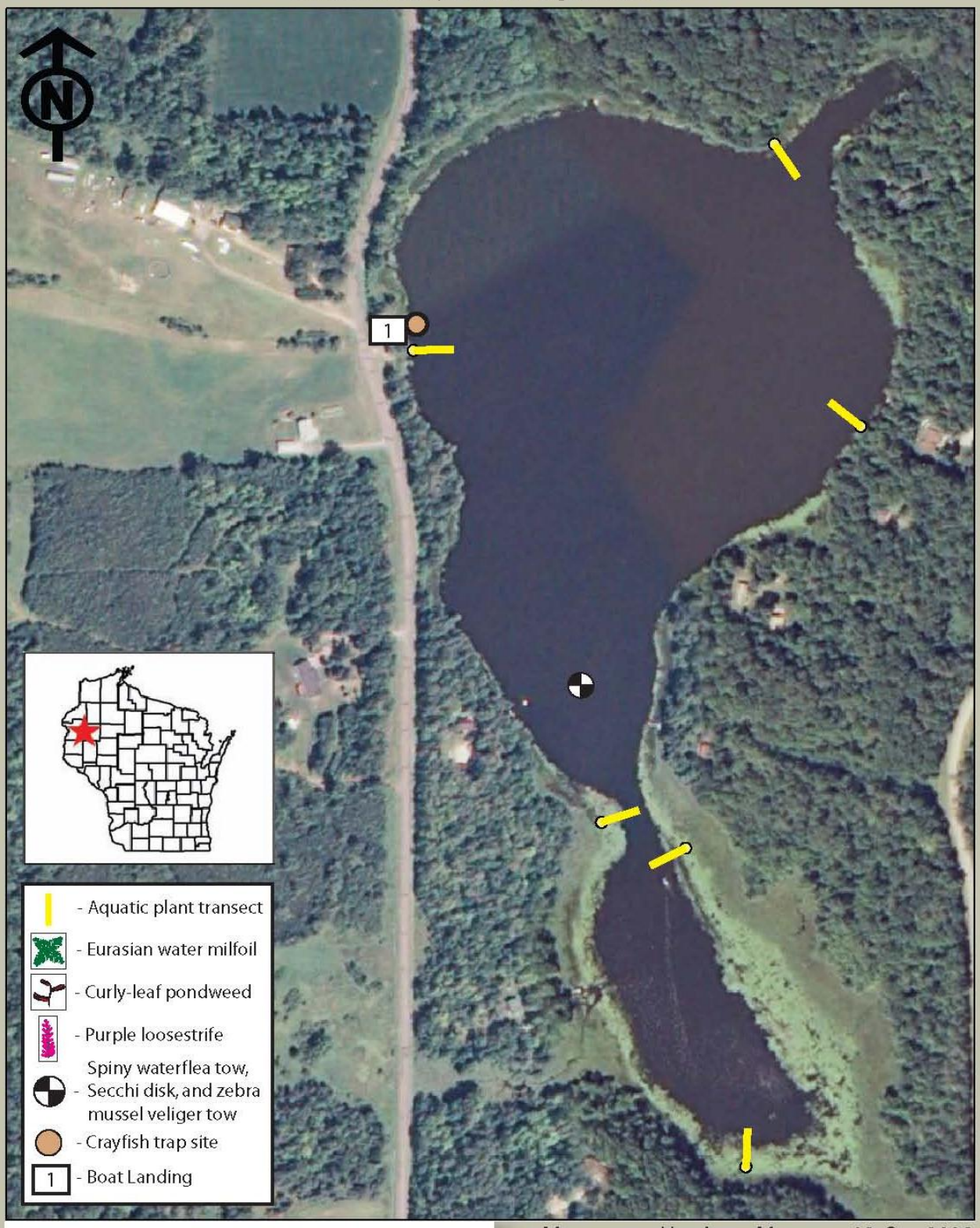
Lake and Shoreline Conditions

Lake of the Woods is wooded on all sides of the lake. There are 10-15 homes on the lake and all of them have excellent buffers in front of their homes. The shoreline has crept out 15-30 ft around the perimeter, with many emergent plants present. It has grown up so much that signs for "Slow, loon habitat" are barely visible from the water. The water level appears to be 1 ft below average. A beaver lodge is present on the south end of the lake.

Aquatic Invasive Species Survey of

Lake of the Woods, Barron County

Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Claire Bailey
on June 24, July 27, and August 18, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Ted Ludwig, Jenny Pomeroy, Katrina Smith, Christine Preist, and Judy Schwarzmeier

Lake Thirty (Waterbody Identification Code # 2099900)

Barron County (T36N R12W S30 NE ¼ SW ¼)

Dates of Survey

Lake Thirty was surveyed on June 22, July 15, and August 11, 2009

Boat Launch

There is one boat launch on Lake Thirty on the east side off of 26th Avenue. The landing has a turnaround that leads to a steep gravel launch. There is parking available for two vehicles with trailers. There are no docks, aquatic invasive species signs, or restrooms present and no fees are required. The landing is maintained by Barron County.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Spiny Hornwort	*Ceratophyllum echinatum*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Creeping Spikerush	*Eleocharis palustris*
Water horsetail	*Equisetum fluviatile*
Pipewort	*Eriocaulon aquaticum*
Northern Blue Flag	*Iris versicolor*
Quillworts	*Isoetes sp.*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Floating Leaf Pondweed	*Potamogeton natans*
Common Arrowhead	*Sagittaria latifolia*
Common bur-reed	*Sparganium eurycarpum*
Little bur-reed	*Sparganium minima*
Broad-leaved Cattail	*Typha latifolia*
Creeping Bladderwort	*Utricularia gibba*
Common Bladderwort	*Utricularia vulgaris*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/22/2009.

Lake Thirty contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Thirty Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 31.20, higher than the state average.

Invasive Species

No invasive plants were found in Lake Thirty during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 21, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 22, 2009	July 15, 2009	August 11, 2009
Site #1	15T 0585701 5047891	6.0 ft	4.25 ft	4.5 ft
Site #2	15T 0585809 5048406	6.0 ft	5.25 ft	4.75 ft

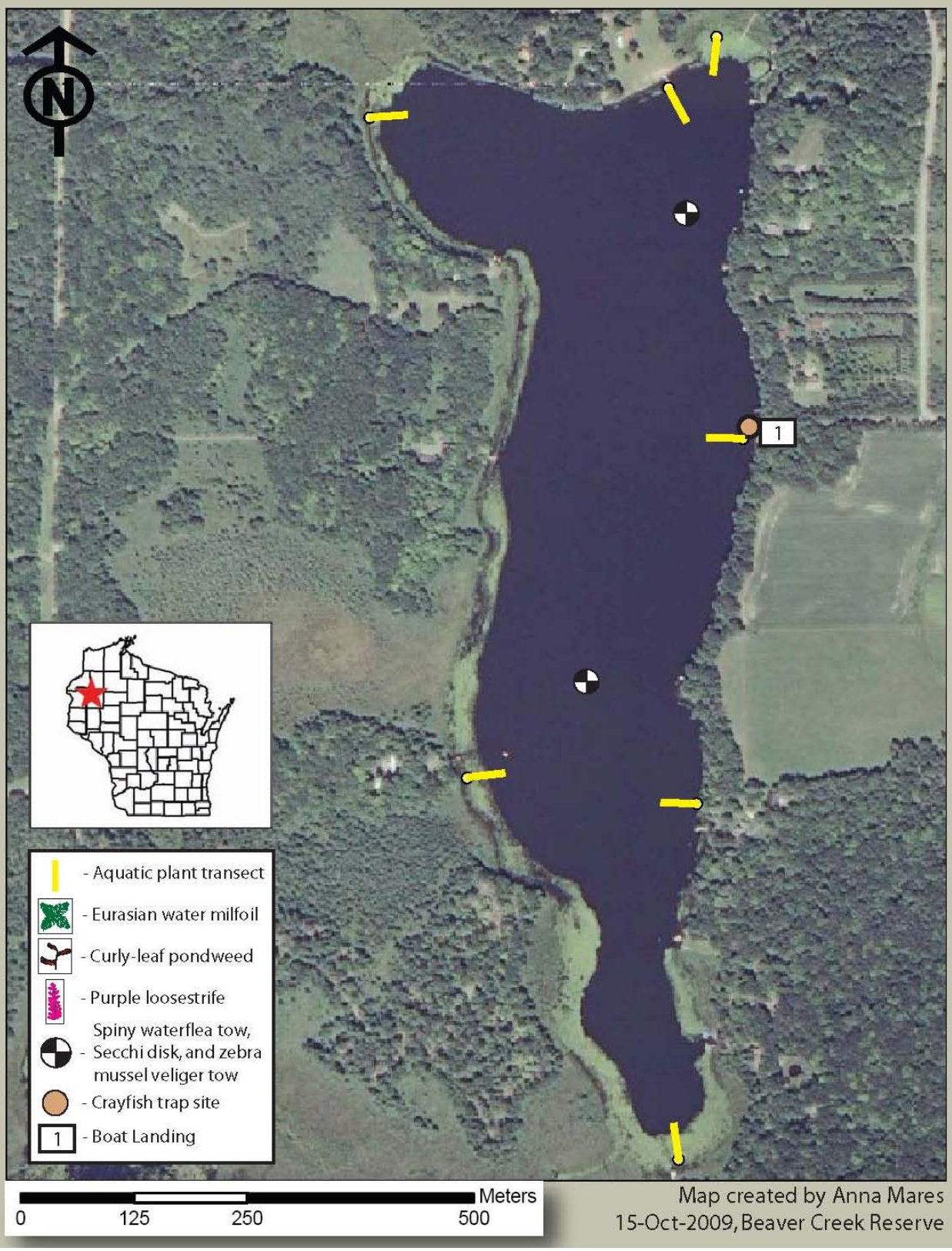
Lake and Shoreline Conditions

The shoreline vegetation is approximately 95% deciduous and 5% coniferous. The lake is around 10% developed with most of the homes having a fair buffer on their property. One home has a poor buffer, a mowed lawn. The water level is apparently normal or within inches of average.

Aquatic Invasive Species Survey of

Thirty Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Jenny Pomeroy, Katrina Smith, Christine Preist, and Judy Schwarzmeier on June 22, July 15, and August 11, 2009



Map created by Anna Mares
15-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Lake Wissota (Waterbody Identification Code # 2152800)

Chippewa County (T28N R08W S6 SE ¼ NW ¼)

Dates of Survey

Lake Wissota was surveyed on July 6th, July 26th, and August 15th 2007

Boat Launch

There are 4 boat launches that access Lake Wissota. Lafayette Landing, on the south shore of the lake off of 176th Street, has two launch lanes that are paved to a water depth of three feet with a boarding dock. There are 16-20 parking stalls and portable toilets. The Little Lake Wissota access has one gravel launch lane that extends to a water depth of three feet. There are 1-5 parking stalls available but no restrooms. This launch is located off 195th Street. The Yellow River access has one launch lane paved to a water depth of three feet. There are 1-5 parking stalls but no dock or restrooms. The launch is located off of 196th Street/West Lake Shore Drive. The Lake Wissota State Park Boat Ramp has two launch lanes paved to a water depth of three feet with a dock present. There are 21-25 parking stalls, but a daily fee is charged without a State Park sticker. There are vault bathrooms and potable water is available in the picnic area. The launch is located off of 79th Avenue/Kenwood Drive.

Native Plant List*

Full point intercept plant surveys were conducted in the summers of 2005 and 2009 on Lake Wissota by an aquatic plant researcher at the Beaver Creek Reserve Citizen Science Center. As a result, a native plant list was not compiled by the this survey crew.

Invasive Species

Two invasive plants, *Myriophyllum spicatum* and *Potamogeton crispus,* were found in Lake Wissota during the 2007 field season. Both of them have already been documented in Lake Wissota. *P. crispus* is not managed for, while *M. spicatum* is being treated by chemicals to reduce populations

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Rusty crayfish and one native crayfish (*Orconectes immunis*) species were detected from the August 15, 2007 sampling. One invasive snail species, the Chinese mystery snail, was found in the summer of 2008.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 6, 2007	July 26, 2007	August 15, 2007
Site #1	15T 0631723 4981342	6.0 ft	3.0 ft	4.25 ft
Site #2	15T 0632754 4978840	4.5 ft	4.0 ft	4.5 ft
Site #3	15T 0633105 4976462	4.5 ft	5.25 ft	4.5 ft

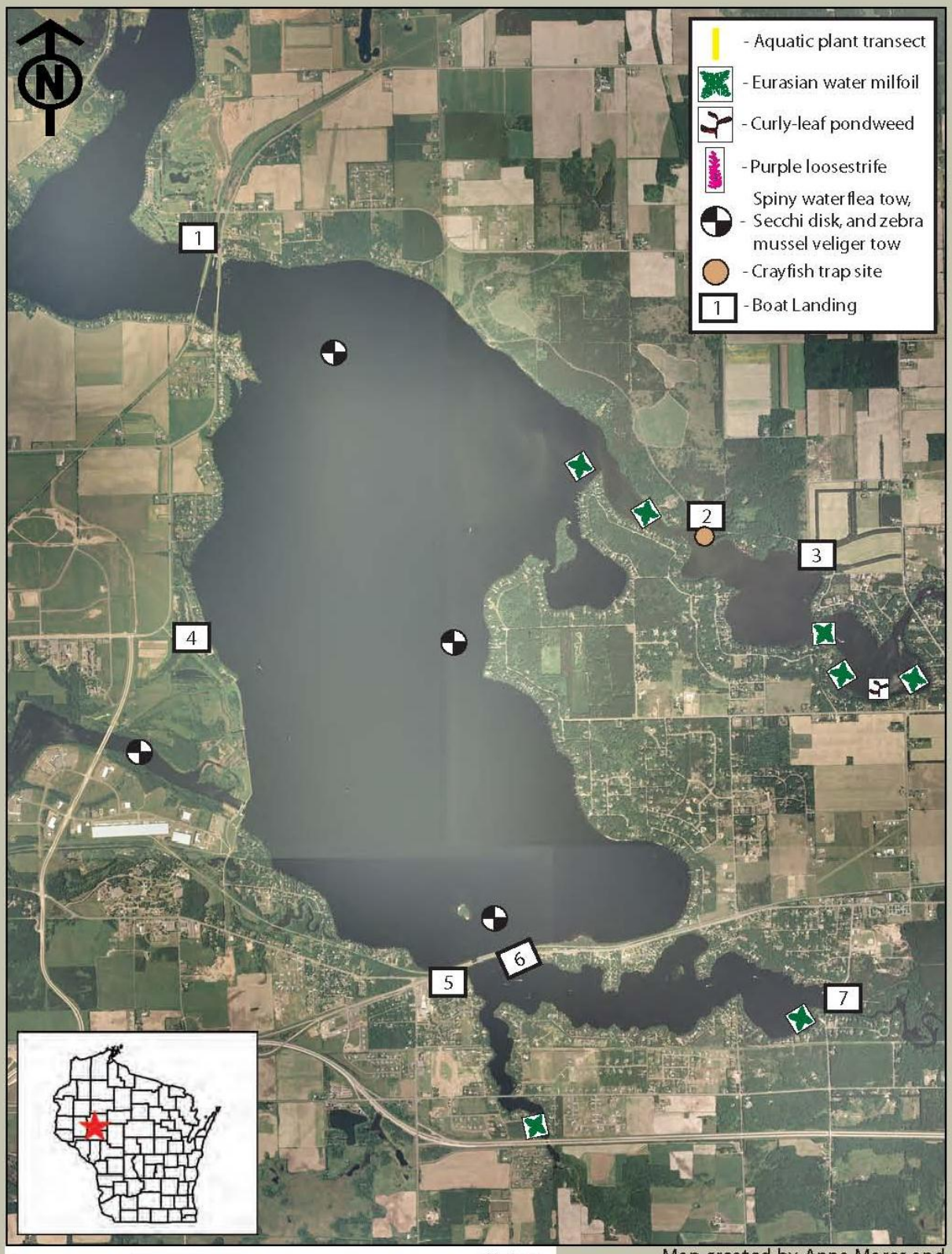
Lake and Shoreline Conditions

Approximately 90% of the shoreline on Lake Wissota is developed. The largest swath of land that has been left natural is the State Park on the north side of the lake. There is a great mix in the quality of shoreline buffers around the lake. Some homes have more than the recommended 30 ft of buffering while others have no buffers at all. The Lake Wissota Improvement and Protection Association is in the process of writing a Lake Wissota Aquatic Plant Management Plan to address issues with water quality and the health of the aquatic plant community.

Aquatic Invasive Species Survey of

Lake Wissota, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on July 6, July 26, and August 15 2007



Map created by Anna Mares and Jacob Sutherland on 23-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Lea Flowage (Waterbody Identification Code # 2361900)

Barron County (T36N R06W S14 NE ¼ NW ¼)

Dates of Survey

Lea Flowage was surveyed on May 28, and August 3, 2009

Boat Launch

There are two boat landings on Lea Lake Flowage. The first (1 on the map) boat launch is accessible from Lea Lake Road South, on the southwest side of the lake. It has a concrete launch pad with a dock. There is a turnaround with parking in the turnaround for 6-8 vehicles. There are signs for "Alert, native swans present" and the lake restoration project on Lea Lake. The second landing (2 on the map) is on the upper west side of the lake off of Lea Lake Road North. The launch is unmaintained, with a gravel launch pad and no dock. No fees are required at either launch.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Three-way sedge	*Dulichium arundinaceum*
Common waterweed	*Elodea canadensis*
Northern St. John's wort	*Hypericum boreale*
Lesser duckweed	*Lemna minor*
Nitellas	*Nitella sp.*
Bullhead pond lily	*Nuphar variegata*
Flat-stem pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Broad-leaved cattail	*Typha latifolia*
Common bladderwort	*Utricularia vulgaris*
Wild rice	*Zizania sp.*

*Plant list is not comprehensive and contains only those species observed on 05/28/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lea Lake Flowage was found to have

an approximate (as a full aquatic plant survey was not completed) FQI value of 31.20, higher than the state average.

Invasive Species

One invasive plant species, *Myriophyllum spicatum*, was found in Lea Lake Flowage during the 2009 field season. *M. spicatum* was found at seven of 15 transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake.

Spiny waterflea and zebra mussel veligers were not sampled for over the 2009 summer. The flowage was too shallow to conduct the necessary tows for sampling. No rusty crayfish or any native crayfish species were detected from the August 3, 2009 sampling.

Secchi Disk Readings

No Secchi disk readings were taken over the summer because no tows were conducted on the flowage.

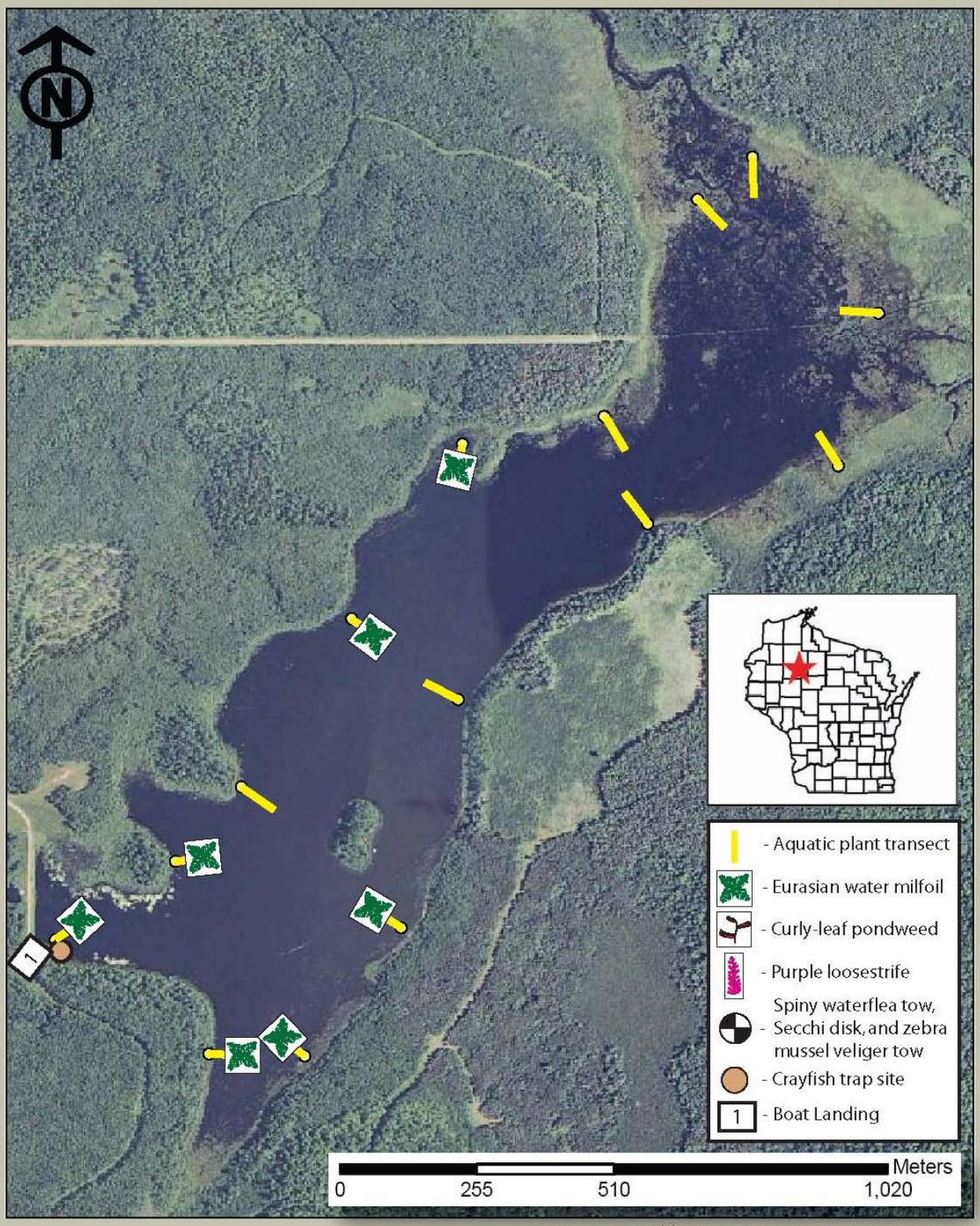
Lake and Shoreline Conditions

Lea Lake Flowage can be considered almost 100% undeveloped, except for the boat landings and the flowage outlet. There are no houses on the lake, or within a mile. Almost all of the shoreline is made up of marshland plants, anywhere from 15 to 1,600 ft around the lake. Beyond the marshland lies an approximate mix of 90% deciduous trees and 10% coniferous. Native swans were seen on the May 28, 2009 sampling date.

Aquatic Invasive Species Survey of

Lea Lake Flowage, Barron County

Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig on May 28, and August 3, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Katrina Smith, and Christine Preist

Little Granite Lake (Waterbody Identification Code # 1861600)

Barron County (T36N R13W S29 NW ¼ SE ¼)

Dates of Survey

Little Granite Lake was surveyed on June 24, July 20, and August 12, 2009

Boat Launch

Little Granite Lake has one boat launch on the north side of the lake off of 25 ½ Avenue. The launch is made of gravel and sand, with a u-shaped turnaround. There is little parking space for more than one vehicle with trailer. The launch is Barron County run, with no restrooms or launch fees. Little Granite Lake is a no wake lake during all hours of the day.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Northern Blue Flag	*Iris versicolor*
Quillworts	*Isoetes sp.*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Water-thread Pondweed	*Potamogeton diversifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Arrowhead	*Sagittaria sp.*
Broad-leaved Cattail	*Typha latifolia*
Creeping Bladderwort	*Utricularia gibba*
Large Purple Bladderwort	*Utricularia purpurea*

*Plant list is not comprehensive and contains only those species observed on 06/24/2009**.**

Little Granite Lake contains one plant species, *Utricularia purpurea*, which is listed as a species of Special Concern. “Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as being uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can

be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Little Granite Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 24.24, slightly higher than the state average.

Invasive Species

No invasive plants were found in Little Granite Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the June 24, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady and high through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2009	July 20, 2009	August 12, 2009
Site #1	15T 0578130 5046973	12.5 ft	11.0	11.5 ft

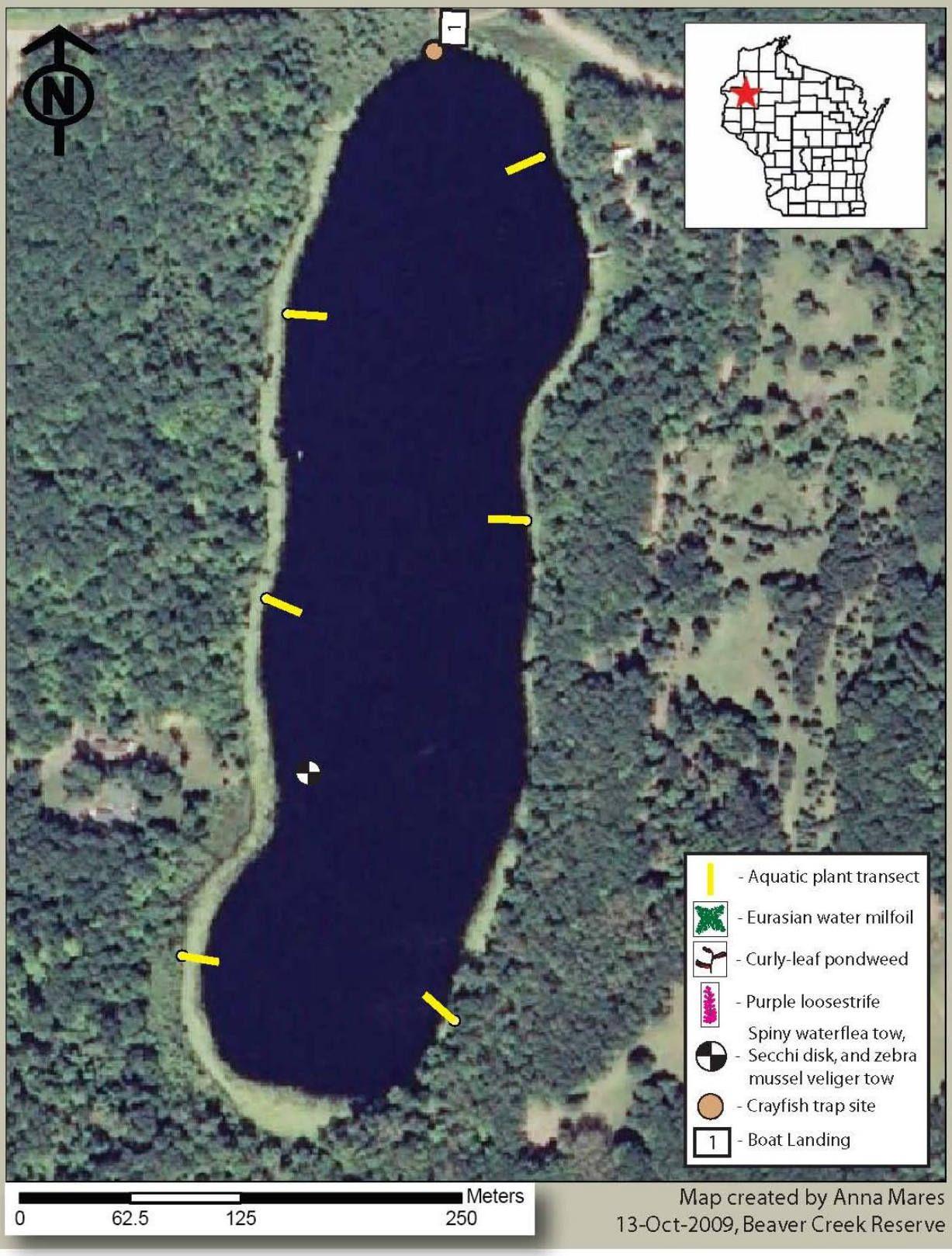
Lake and Shoreline Conditions

The shoreline vegetation is approximately 65% deciduous and 35% coniferous. There are six homes on Little Granite Lake. They are barely visible from the water due to the good buffers between the homes and the shore around entire lake. Although Little Granite Lake is small, it has a maximum water depth of 52 ft.

Aquatic Invasive Species Survey of

Little Granite Lake, Barron County

Data collected by Anna Mares, Katrina Smith, Zoe Hastings, and Christine Preist
on June 24, July 20, and August 12, 2009



Map created by Anna Mares
13-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Rollie Johnson, Jeff Mares, and Claire Bailey

Little Moon Lake (Waterbody Identification Code # 2079100)

Barron County (T33N R14W S18 SE ¼ SW ¼)

Dates of Survey

Little Moon Lake was surveyed on July 2, July 28, and August 19, 2009

Boat Launch

There is one boat launch on Little Moon Lake, accessible from ½ Street. The launch is on the southeast side of the lake. There is a staging area and room to turn around, along with 4-5 spaces for vehicles with trailers to park along the launch and the road. The shallow launch is sand/gravel to the water. Trailers must be backed in at an angle away from the l-shaped wooden dock so that the boat is not blocked in upon launching. There are no restrooms, fees required, or aquatic invasive species signs present at the launch. Launch is ideal for smaller boats (less than 16 ft).

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Bottle-brush Sedge	*Carex comosa*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Water Smartweed	*Polygonum amphibium*
Sago Pondweed	*Potamogeton pectinatus*
Hardstem Bulrush	*Sagittaria sp.*
Narrow-leaved Cattail	*Typha angustifolia*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed 07/02/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Little Moon Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 8.48, much lower than the state average and one of the lowest in the entire survey.

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Rollie Johnson, Jeff Mares, and Claire Bailey

Invasive Species

No invasive plants were found in Little Moon Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 28, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively low through out the summer. A filamentous algae bloom was the cause of the lowest reading taken in the end of July. Some of the algae were present in August but in much lower quantities. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 2, 2009	July 28, 2009	August 19, 2009
Site #1	15T 0566226 5021119	4.0 ft	2.0 ft	3.0 ft

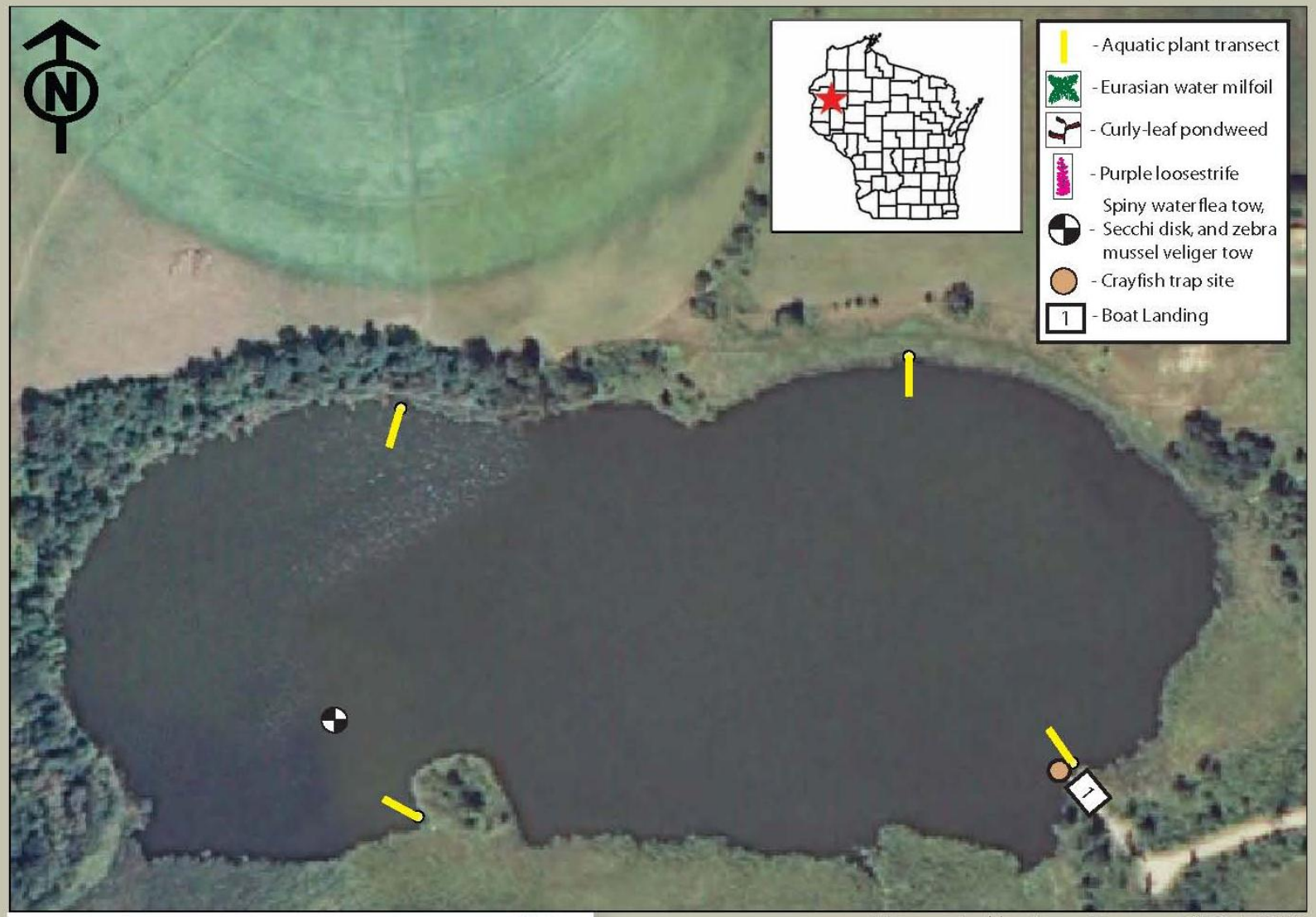
Lake and Shoreline Conditions

The shoreline is composed of 40% marsh that is to the south of the lake, 5% cultivated on the north side and the rest is made up of 70% deciduous trees and 30% coniferous trees. The lake is 0% developed to the water (farmland 100m from shore) except the launch and dock. On the August 19, 2009 visit to Little Moon Lake, large carp up to three feet in size were dead on the surface of the water. Over 100 fish were found dead and it appeared that they had been dead for several days. No other species of fish were seen dead at that time. Local fishermen had no ideas for the cause of the large die-off. The water level appeared to be one ft lower than normal.

Aquatic Invasive Species Survey of

Little Moon Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings, Rollie Johnson, Jeff Mares, and Claire Bailey on June 2, July 28, and August 19, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Claire Bailey

Little Sand Lake (Waterbody Identification Code # 2661600)

Barron County (T36N R14W S27 NW ¼ SW ¼)

Dates of Survey

Little Sand Lake was surveyed on June 25, July 24, and August 18, 2009

Boat Launch

There is one boat launch on the north east side of the lake off of 3rd Street. The boat landing is made of gravel to cement slabs into the water. There is a large turnaround with parking for six vehicles with trailers. There are no restrooms, docks or launching fees. "Stop and remove" and "Help prevent" aquatic invasive species signs are present at the launch.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Three-way sedge	*Dulichium arundinaceum*
Needle spikerush	*Eleocharis acicularis*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Slender naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Small pondweed	*Potamogeton pusillus*
Spiral-fruited pondweed	*Potamogeton spirillus*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Broad-leaved cattail	*Typha latifolia*
Creeping bladderwort	*Utricularia gibba*
Common bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/25/2009.

Utricularia gibba is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Little Sand Lake was found to have an approximate (as a full aquatic plant survey was not completed) FQI value of 27.34, higher than the state average.

Invasive Species

No invasive plants were found in Little Sand Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 24, 2009 sampling.

Secchi Disk Readings

Readings steadily declined through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 25, 2009	July 24, 2009	August 18, 2009
Site #1	15T 0571250 5046271	8.0 ft	4.75 ft	3.0 ft
Site #2	15T 0570714 5046993	7.5 ft	4.5 ft	3.75 ft

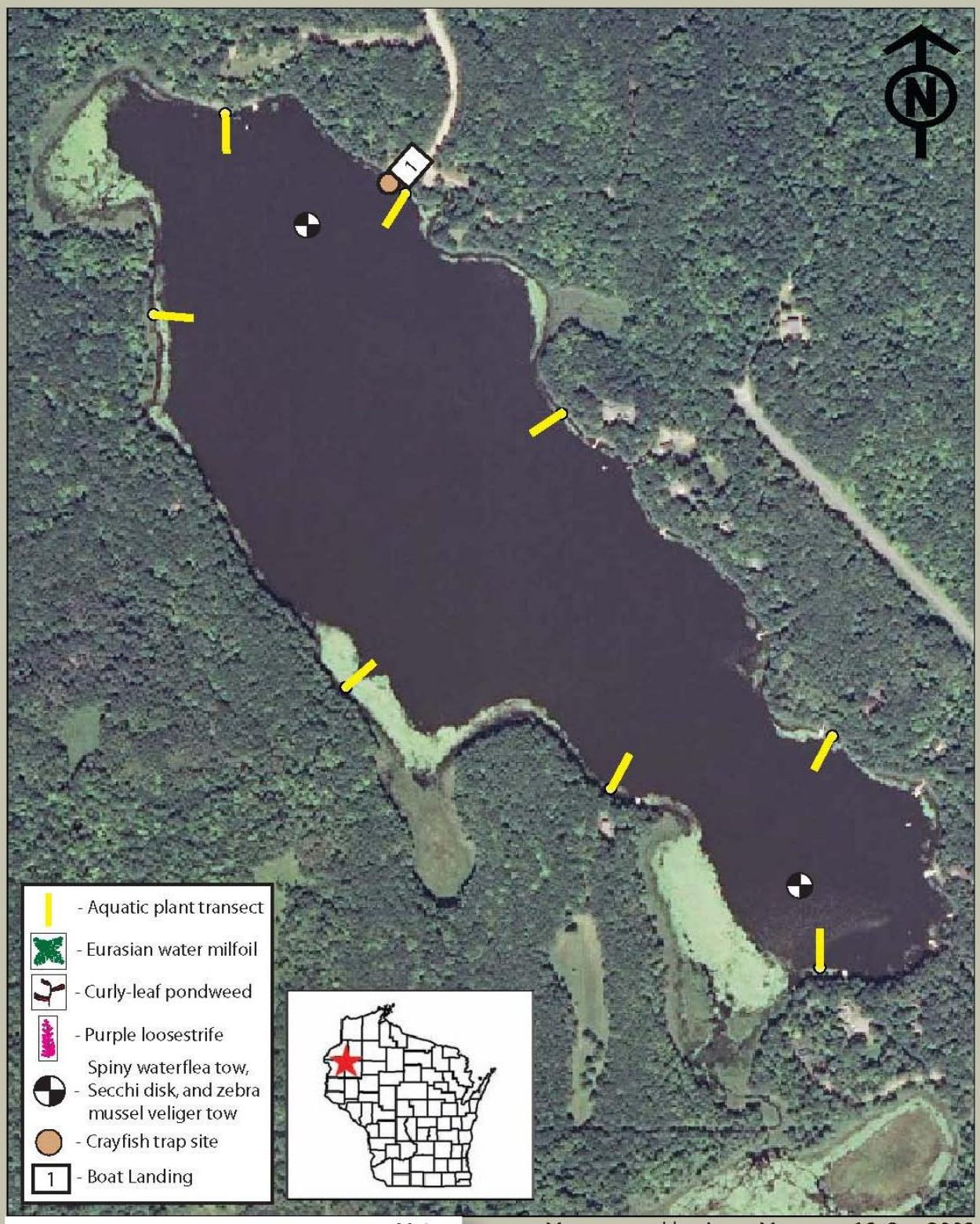
Lake and Shoreline Conditions

The shoreline vegetation was approximately 55% deciduous and 45% coniferous. Many of the bays were beginning to have a marsh-like appearance due to the low water level. The water level in Little Sand Lake was almost down 2.5 feet. There are between 15 and 20 homes on the lake. Almost all of the homes have moderately sized buffers of 15 ft or more, except for two homes on the south end of the lake that have poor buffers of five feet or less.

Aquatic Invasive Species Survey of

Little Sand Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Katrina Smith, and Claire Bailey
on June 25, July 24, and August 18, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Long Lake (Waterbody Identification Code # 2152800)

Chippewa County (T32N R08W S18 NE ¼ SW ¼)

Dates of Survey

Long Lake was surveyed on July 12, July 30, and August 23, 2007

Boat Launch

There is one main public boat launch off of Hwy 40. The launch is a concrete pad with large amount of paved parking area adjacent to a county campground. The boat launch is always full during the weekend and during the weekdays, with at least three trailers parked at the launch.

Native Plant List*

A list of native plants was not collected due to Long Lake being a Trend Lake for the West Central DNR Region. The aquatic plant community will continue to be monitored by the WDNR as described in the 2007 Lower Long Lake Management Plan.

Invasive Species

No invasive plants were seen near the boat landing during the summer of 2007.

Wisconsin DNR has been tracking Rusty Crayfish (*Orconectes rusticus*) populations on Long Lake between 1966 and 1990. Between 1981 and 1990 a slow reduction in crayfish was noted (2,136 to 1,313). Using the same protocols as conducted in the 80's, only 96 crayfish were trapped in 2007. Dissolved oxygen readings were also recorded at each of the sites. The population as been drastically reduced over a 40 year time frame, but continual monitoring of the population is recommended for a possible population explosion or disease outbreak.

Site #	Dissolved Oxygen	Crayfish
1	7.60	24
2	7.82	12
3	7.93	27
4	8.50	7
5	7.60	10
6	7.52	11
7	7.50	5
Total		96

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No invasive snails, Chinese mystery or banded mystery, were seen during the survey.

Secchi Disk Readings

Readings stayed relatively steady through out the summer, with consistently lower readings at Site #1. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 12, 2007	July 30, 2007	August 23, 2007
Site #1	15T 0625509 5012503	6 ft	6.25 ft	6.25 ft
Site #2	15T 0623860 5010729	12.5 ft	11.25 ft	11.5 ft
Site #3	15T 0624388 5011451	11.5 ft	10.75 ft	11 ft

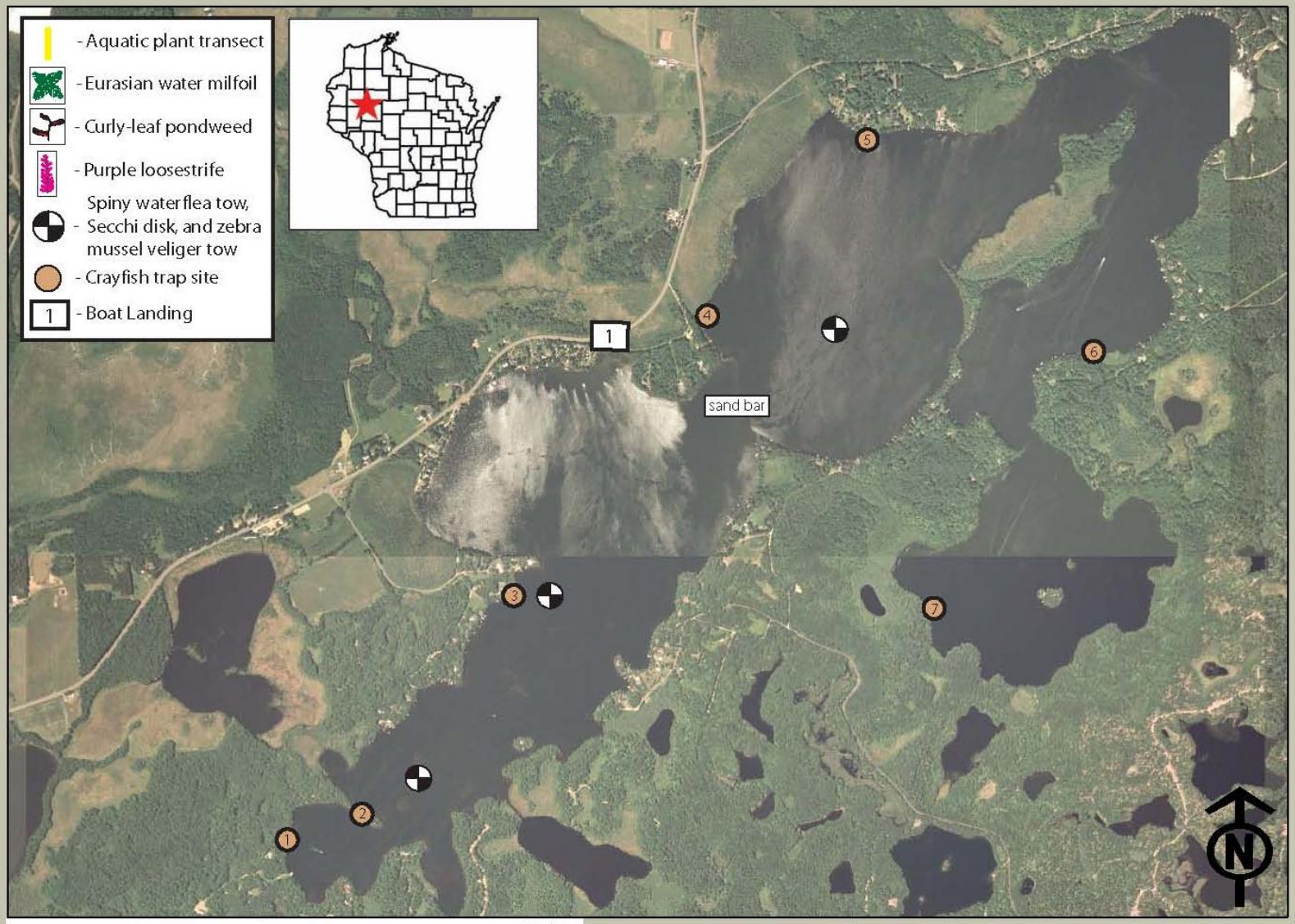
Lake and Shoreline Conditions

Long Lake is very deep in some places, but it has a shallow sand/rock bar separating the lake into two halves (see map for location). Care needs to be taken so that the boat motor does not hit the bottom. Approximately 60% of the lake is developed, with the heaviest development along Highway 40 and directly across the lake from the public boat landing. The lake contains an excellent bass fishery. Due to popularity, this lake is at risk for invasive species, as transient boaters are thought to be the main vector for AIS transportation from one lake to another. There is a Lake District that monitors the lake and they have created a lake management plan.

Aquatic Invasive Species Survey of

Long Lake, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on July 12, July 30, and August 23, 2007



Map created by Anna Mares and Jacob Sutherland
09-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Loon Lake (Waterbody Identification Code # 2478600)

Barron County (T35N R14W S32 SE ¼ SW ¼)

Dates of Survey

Loon Lake was surveyed on June 30, and July 27, 2009

Boat Launch

Loon Lake has one public boat landing on the south side of the lake, off of 1 ¼ Street. The launch is made of gravel/sand to the water and the gravel appears to be newly laid. There is no dock present or restrooms available. The turnaround space is large, but there is little parking space, for perhaps one vehicle with trailer. Aquatic invasive species signs were present, including "Stop and remove", "Help prevent" and "Emergency alert – Milfoil, we don't have it, we don't want it".

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Creeping Spikerush	*Eleocharis palustris*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Dwarf Water Milfoil	*Myriophyllum tenellum*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Fern Pondweed	*Potamogeton robbinsii*
Spiral-fruited pondweed	*Potamogeton spirillus*
Arrowhead sp.	*Sagittaria sp.*
Floating-leaf bur-reed	*Sparganium fluctuans*
Creeping Bladderwort	*Utricularia gibba*
Large Purple Bladderwort	*Utricularia purpurea*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/30/2009

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Loon Lake contains one plant, *Utricularia purpurea,* which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Loon Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 31.42, higher than the state average.

Invasive Species

No invasive plants were found in Loon Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were sampled for during the two summer samplings. No rusty crayfish or any native crayfish species were detected from the July 27, 2009 sampling.

Secchi Disk Readings

No Sechhi disk readings were taken on Loon Lake during the 2009 summer.

Lake and Shoreline Conditions

Loon Lake is highly developed on the east, south and west side of the lake. There are scattered buffers on those shores, but the largest and most continuous buffers lay on northwest corner of the lake.

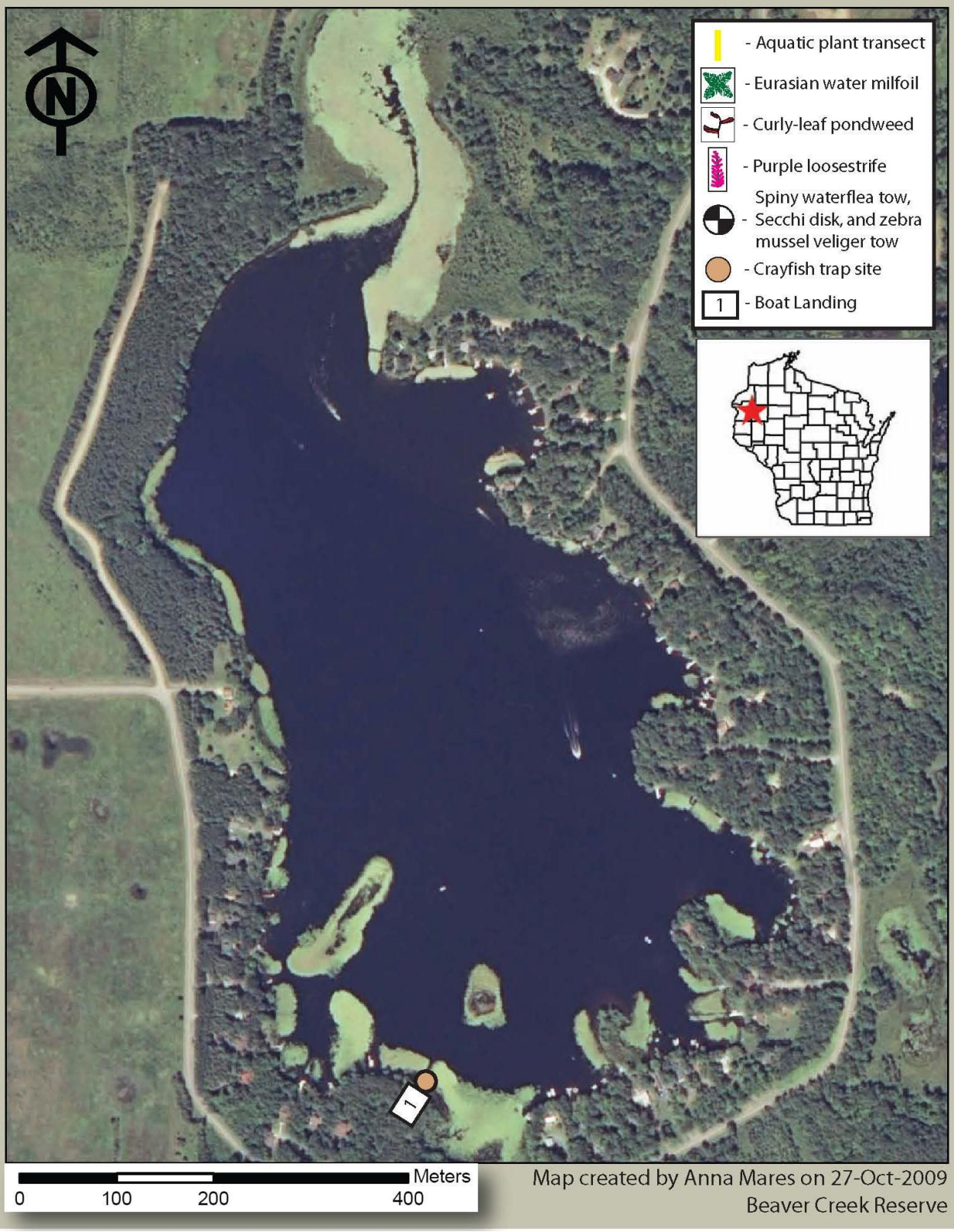
General Comments

The survey boat was unable to be launched during either of the two survey dates. This was due to the low water level, which appeared to be 1.5-2 ft below normal high water marks. The survey crew was in turn unable to conduct tows for spiny waterflea and zebra mussel veligers, or take Secchi disk measurements. The plant survey was modified into a walking survey of the shoreline near the boat landing and bay to the south. It would be expected that the native plant list is larger than what was observed at the boat landing. The lake water level did not affect crayfish sampling methods.

Aquatic Invasive Species Survey of

Loon Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig on June 30, and July 27, 2009



Map created by Anna Mares on 27-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Ted Ludwig

Loon Lake (Waterbody Identification Code # 1863000)

Chippewa County (T32N R09W S22 NW ¼ NE ¼)

Dates of Survey

Loon Lake was surveyed on June 15, July 7, and July 31, 2008.

Boat Launch

There is one boat launch in the NW corner of Loon Lake by way of 280th Avenue. There is a turn around area but little parking for the boat and trailer. The landing is sand and muck leading into a thick bead of *Brasenia schreberi.* No fee is required.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Farwell's water Milfoil	*Myriophyllum farwellii*
Northern Water Milfoil	*Myriophyllum sibiricum*
White Water Lily	*Nymphea odorata*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/15/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Loon Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 18.37, lower than the state average.

Invasive Species

No invasive plants were found in Loon Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or native crayfish species were detected during the July 31, 2008 sampling.

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Ted Ludwig

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 15, 2008	July 7, 2008	July 31, 2008
Site #1	15T 0619997 5011609	6.0 ft	6.0 ft	6.0 ft
Site #2	15T 0620337 5011331	5.0 ft	6.0 ft	6.5 ft

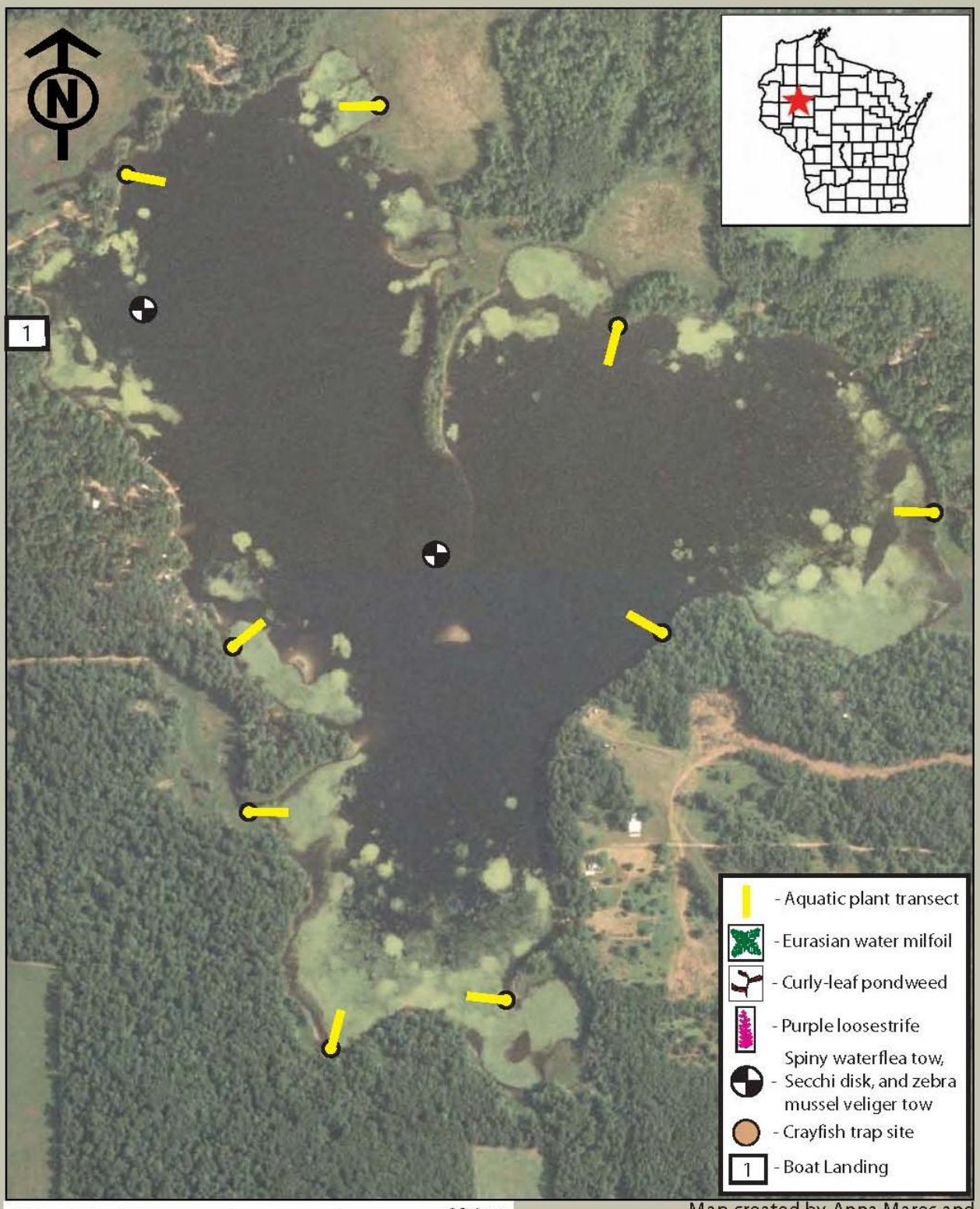
Lake and Shoreline Conditions

The water level appears to be down 1.5-2 ft from the average. Many of the rocks were showing that could not be seen during the first sampling. Houses are scattered around the west and south east sides of the lake. There is also a camp ground on the west side. Though the lawns are kept short, there is a buffer zone covering the steeper slopes that lead up to the lawns. The first round of sampling was cut short due to an impending thunderstorm. It is unclear whether or not the plant survey was completed that day or if one was done at all.

Aquatic Invasive Species Survey of

Loon Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Ted Ludwig
on June 15, July 7, and July 31, 2008



Map created by Anna Mares and
Jacob Sutherland on 19-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Claire Bailey

Lower Vermillion Lake (Waterbody Identification Code # 2098200)

Barron County (T35N R13W S22 SW ¼ NE ¼)

Dates of Survey

Lower Vermillion Lake was surveyed on June 29, July 21, and August 17, 2009

Boat Launch

There is one boat launch on Lower Vermillion Lake right on 9th Street. The street divides the parking on west side and the launch on the east side. This makes backing up on the landing slightly dangerous with oncoming traffic. The launch is gravel with mucky sediment in the water. There is no dock or restrooms and the launch is fairly shallow. Aquatic invasive species awareness signs are present. No fee is required.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Sedge	*Carex comosa*
Coontail	*Ceratophyllum demersum*
Musk grass	*Chara sp.*
Waterwort	*Elatine minima*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Water stargrass	*Heteranthera dubia*
Quillworts	*Isoetes sp.*
Lesser duckweed	*Lemna minor*
Forked duckweed	*Lemna trisulca*
Northern water milfoil	*Myriophyllum sibiricum*
Slender naiad	*Najas flexilis*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Illinois pondweed	*Potamogeton illinoensis*
Sago pondweed	*Potamogeton pectinatus*
White-stem pondweed	*Potamogeton praelongus*
Small pondweed	*Potamogeton pusillus*
Flat-stem pondweed	*Potamogeton zosteriformis*
Stiff water crowfoot	*Ranunculus longirostris*
Common arrowhead	*Sagittaria latifolia*
Hardstem bulrush	*Scirpus acutus*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Wild celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/29/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lower Vermillion Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 30.79, higher than the state average.

Invasive Species

Two invasive plants were found in Lower Vermillion Lake during the 2009 field season, *Potamogeton crispus* and *Myriophyllum spicatum*. *P. crispus* was found at nine of eleven transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake. Although it was found at nearly all of the transects, it wasn't at levels that impeded navigation. *M. spicatum* was not found during the initial plant survey in June. It was seen during the July 21, 2009 sampling near the boat landing. There were less than ten plants visible and several were removed as best as possible.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 21, 2009 sampling. One invasive snail, the Chinese mystery snail, was found in Lower Vermillion Lake

Secchi Disk Readings

Readings declined into July and then increased in the month of August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 29, 2009	July 21, 2009	August 17, 2009
Site #1	15T 0581508 5040160	9.25 ft	8.0 ft	11.75 ft
Site #2	15T 0580984 5040878	9.0 ft	8.5 ft	13.5 ft
Site #3	15T 0580353 5040905	9.0 ft	7.25 ft	8.75 ft

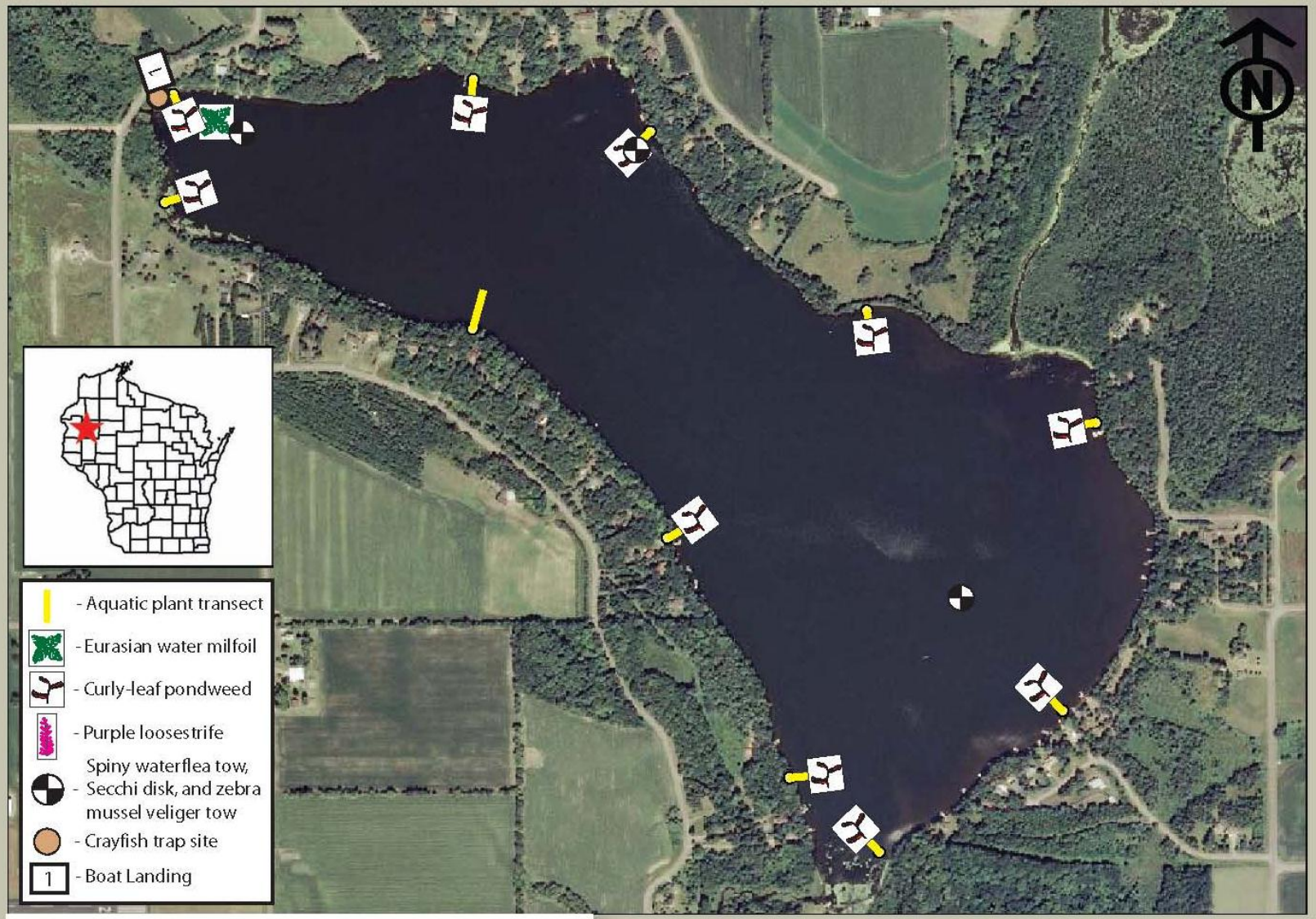
Lake and Shoreline Conditions

The shoreline vegetation is approximately 90% deciduous and 10% coniferous. Most of the homes have good buffers of 20 feet or more. Only one home has an extensive lawn that goes right to the water. One farm is next to the lake and it has a buffer. No water fluctuations are apparent.

Aquatic Invasive Species Survey of

Lower Vermillion Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Claire Bailey on June 29, July 21, and August 17, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
August 28, 2008
Data collected by: Jo Heuschele, Anna Mares, Ted Ludwig & Kevin Mesiar

Marsh-Miller Lake (Waterbody Identification Code # 2171500)

Chippewa County (T31N R08W S29 NW ¼ SW ¼)

Dates of Survey

Marsh-Miller Lake was surveyed on June 5, July 28, and August 11, 2008

Boat Launch

There are no public launches on Marsh-Miller. There are two launches owned by private resorts, Cedar Bay and Birch Point. Birch Point Resort launch was used for this study. A fee is required for use. The launch has ample parking and turn around space. The path leading down to the launch is packed gravel. The launch pad is sand. A dock is present.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Forked Duckweed	*Lemna trisulca*
Various-leaved Water Milfoil	*Myriophyllum heterophyllum*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Blunt-leaf Pondweed	*Potamogeton obtusifolius*
Small Pondweed	*Potamogeton pusillus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Soft-stem Bulrush	*Scirpus validus*
Common bur-reed	*Sparganium eurycarpum*
Broad-leaf cattail	*Typha latifolia*
Wild Rice	*Zizania sp.*

*Plant list is not comprehensive and contains only those species observed on 06/05/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Marsh-Miller Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 19.96, lower than the state average.

Written by Anna Mares
August 28, 2008
Data collected by: Jo Heuschele, Anna Mares, Ted Ludwig & Kevin Mesiar

Invasive Species

One invasive plant species, *Potamogeton crispus*, was found in Marsh-Miller during the 2008 field season. The largest bed of it was present on the west side in the middle portion of the lake. Curly-leaf pondweed (*Potamogeton crispus*) was found at the following GPS locations:

15T 0626539 5000963	15T 0626951 5001996	15T 0626403 5000968
15T 0626549 5001952	15T 0626960 5001626	

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 28, 2008 sampling.

Secchi Disk Readings

Clarity readings were consistently poor in July and August due to the large algal blooms that occurred on the lake. All GPS points were collected in the NAD 27 Central Datum.

	GPS (UTMs)	June 5, 2008	July 28, 2008	August 11, 2008
Site #1	15T 0626212 4999933	5.0 ft	1.25 ft	1.5 ft
Site #2	15T 0626853 5001379	5.0 ft	1.25 ft	1.25 ft
Site #3	15T 0626648 5002222	5.0 ft	.75 ft	1.5 ft

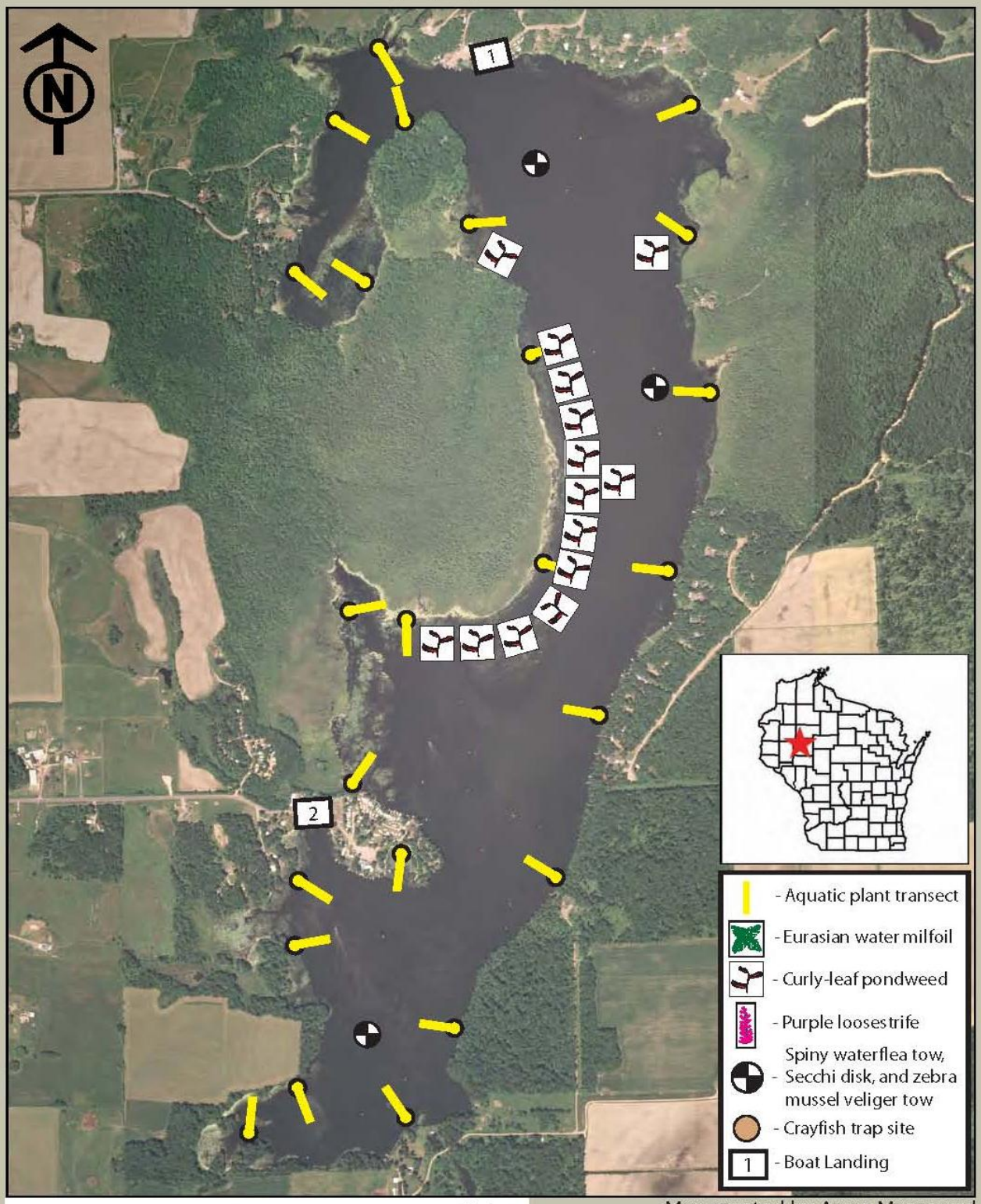
Lake and Shoreline Conditions

The northern portion of the lake and the area close to Birch Point are developed. These areas are surrounded by mixed hardwood and pine. At least 15 ft of buffer zone is provided. The middle section of the lake is undeveloped with low lying land covered with tamaracks, tag alder, spruce and birch. This same area has emergent vegetation lining the shore. Secchi disk readings become poorer the closer they were taken to the control structure on the southeast end of the lake. GPS readings were taken using UTMs 15T N, in the NAD 1927 coordinate system. The Secchi disk locations are the same sites where spiny water flea and zebra mussel veligers were sampled.

Aquatic Invasive Species Survey of

Marsh-Miller Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, and Kevin Mesiar
on June 5, July 28, and August 11, 2008



Map created by Anna Mares and
Jacob Sutherland on 02-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

McCann Lake (Waterbody Identification Code # 2350400)

Rusk County (T33N R08W S30 SE ¼ SE ¼)

Dates of Survey

McCann Lake was surveyed on June 26, July 21, and August 6, 2007

Boat Launch

The boat ramp is located on western shore of the lake off of County Road D and Plummer Road. Access to McCann Lake is possible from Clear Lake to the south. The boat launch on Clear Lake has a paved surface and is accompanied by a dock. Qualities and conditions of the McCann boat launch were not recorded by the research crew.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Wild Calla	*Calla sp.*
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Forked Duckweed	*Lemna trisulca*
Water Marigold	*Megalodonta beckii*
Northern Water Milfoil	*Myriophyllum sibiricum*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Fries' pondweed	*Potamogeton friesii*
Floating Lead Pondweed	*Potamogeton natans*
Long-leaf pondweed	*Potamogeton nodosus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Narrowleaf	*Potamogeton sp.*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Common Arrowhead	*Sagittaria latifolia*
Narrow-leaved Cattail	*Typha angustifolia*
Common Bladderwort	*Utricularia vulgaris*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/26/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). McCann Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 29.40, higher than the state average.

Invasive Species

One invasive plant was found in McCann Lake during the 2007 field season. *Potamogeton crispus* was found on June 26, 2007 at three of six transects used for sampling aquatic plants, set at 1,500 ft intervals around the perimeter of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 6, 2007 sampling. Rusty crayfish were collected on Chain Lake and Island Lake, and because McCann Lake is connected, it is safe to assume that they are present in McCann Lake.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. The Secchi disk hit the bottom of the lake on all three sample dates. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 26, 2007	July 21, 2007	August 6, 2007
Site #1	15 T 0625397 5019332	7.75 ft	7.0 ft	5.75 ft
Site #2	15T 0626989 5019661	10.0 ft	7.25 ft	6.25 ft
Site #3	15 T 0627560 5020312	6.0 ft (bottom)	6.0 ft (bottom)	6.0 ft(bottom)

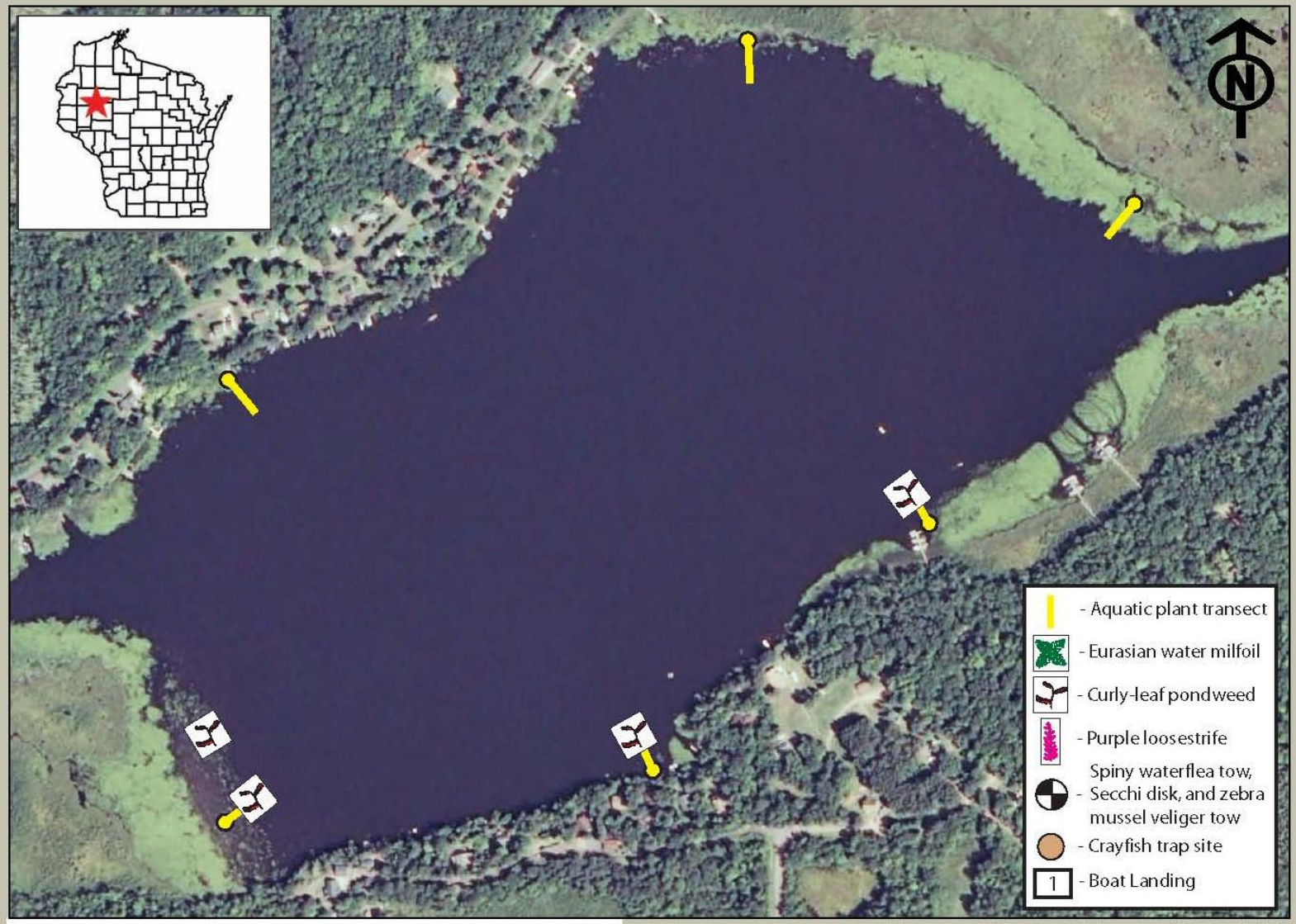
Lake and Shoreline Conditions

McCann's shoreline is approximately 60% developed by homes. Most of the homes are concentrated along Plummer Road on the north side and also along Rusty Nail Road on the south side of the lake. The homes on the north side of the lake tend to have poorer buffers than those on the south. Areas on the west and east side of the lake have been left natural, mostly due to the bog quality of the shoreline. McCann Lake has the most diverse plant community of the Island Chain of Lakes.

Aquatic Invasive Species Survey of

McCann Lake, Rusk County

Data collected by Jo Heuschele and Shelby Happe on June 26, July 21, and August 6, 2007



Map created by Anna Mares on 09-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

Menomin Lake (Waterbody Identification Code # 2065900)

Dunn County (T28N R13W S26 NE ¼ NW ¼)

Dates of Survey

Menomin Lake was surveyed on July 11, August 3, and August 23, 2007

Boat Launch

There are four boat launches for Menomin Lake. The Wakanda Park Boat Ramp is located on the north shore of the lake and can be accessed from Landing Avenue. There are 2 launch lanes paved to a depth greater then 3 feet, and a dock present. There are 1-5 vehicle stalls and 6-10 trailer/vehicle stalls available. There are no restrooms available. There is a lunch fee and the facilities are ADA accessible. The Lakeside Park Boat Ramp on the western shore of the lake is accessible from North Shore Drive. There is one boat launch lane paved to a depth greater than 3 feet and a dock present. There are 16-20 vehicle stalls and 25 more trailer/vehicle stalls. Vault restrooms are available and a launch fee is charged. The second boat launch on the western side of the lake can be accessed by 2nd Street NW off of Highway 12. There is one gravel launch lane that extends deeper than 3 feet. The Point Comfort Boat Launch on the east side of the lake can be accessed by 21st Street North and Point Comfort Road. There are 2 paved launch lanes and a boarding dock present. There are also 6-10 vehicle stalls and flush toilets available.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Lesser Duckweed	*Lemna minor*
Slender Naiad	*Najas flexilis*
White Water Lily	*Nymphea odorata*
Long-leaf pondweed	*Potamogeton nodosus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Narrowleaf	*Potamogeton sp.*
Great duckweed	*Spirodela polyrhiza*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 08/03/2007.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, and Anna Mares

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Menomin was found to have an approximate (as a full plant survey was not conducted) FQI value of 18.76, lower than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus,* was found in Menomin Lake during the 2007 field season. *P. crispus* was located near just north of the dam

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 3, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum. August 23, 2007 has no reading at site #3 due to the data sheet being torn and the data lost.

	GPS (UTMs)	July 11, 2007	August 3, 2007	August 23, 2007
Site #1	15T 0585016 4970565	3.0 ft	3.0 ft	1.75 ft
Site #2	15T 0586864 4972524	2.75 ft	2.75 ft	3.0 ft
Site #3	15T 0586014 4971582	2.5 ft	1.5 ft	no reading

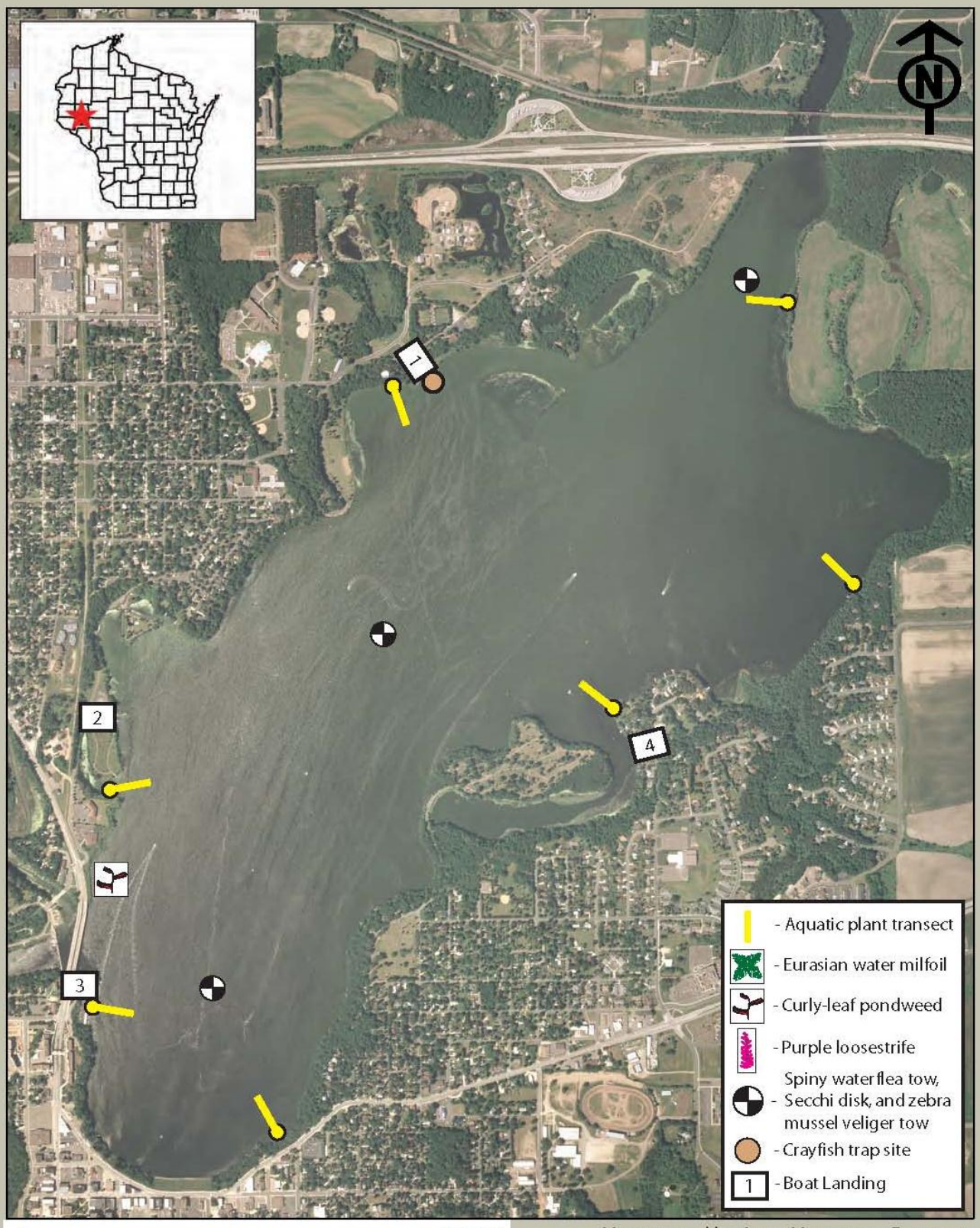
Lake and Shoreline Conditions

Lake Menomin is an impoundment lake with a large control structure on the west/southwest side of the lake. Approximately two thirds of Lake Menomin has city infrastructure as its dominant shoreline habitat. The north-eastern portion of the lake appears to have the most natural vegetative cover. In July water clarity was greatly reduced by thick algae blooms with a pea green color. These blue-green blooms continued into late August.

Aquatic Invasive Species Survey of

Lake Menomin, Dunn County

Data collected by Jo Heuschele, and Shelby Happe on July 11, August 3, and August 23, 2007



Map created by Anna Mares on 7-Dec-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Moon Lake (Waterbody Identification Code # 1867600)

Barron County (T35N R11W S34 NW ¼ SW ¼)

Dates of Survey

Moon Lake was surveyed on June 17, and July 21, 2009

Boat Launch

There is one boat launch on Moon Lake off of 21 3/8th Street on the east side of the lake. The launch pad is sand/gravel to water. There is no dock present, restrooms, fees required or parking stalls. "Stop and remove" and "Help prevent the spread" aquatic invasive species signs present. Turnaround space is available.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Spiny hornwort	*Ceratophyllum echinatum*
Three-way sedge	*Dulichium arundinaceum*
Needle spikerush	*Eleocharis acicularis*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Farwell's water milfoil	*Myriophyllum farwellii*
Nitellas	*Nitella sp.*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Water bulrush	*Schoenoplectus subterminalis*
Soft-stem bulrush	*Scirpus validus*
Broad-leaved cattail	*Typha latifolia*
Large purple bladderwort	*Utricularia purpurea*
Common bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/17/2009

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Moon Lake contains two plants, *Ceratophyllum echinatum,* and *Utricularia purpurea,* which are listed as a species of Special Concern. "Special Concern" means that experts suspect the species are rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. Brasenia schreberi and Elodea canadensis were the dominant vegetation in Moon Lake. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Moon Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 30.97, higher than the state average.

Invasive Species

No invasive plants were found in Moon Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 21, 2009 sampling. One invasive snail species was found in Moon Lake, the Chinese mystery snail.

Secchi Disk Readings

No secchi disk readings were taken from Moon Lake during 2009. The lake was less than 10 ft in depth and was heavily vegetated throughout, leaving no locations for plankton net tows to be conducted.

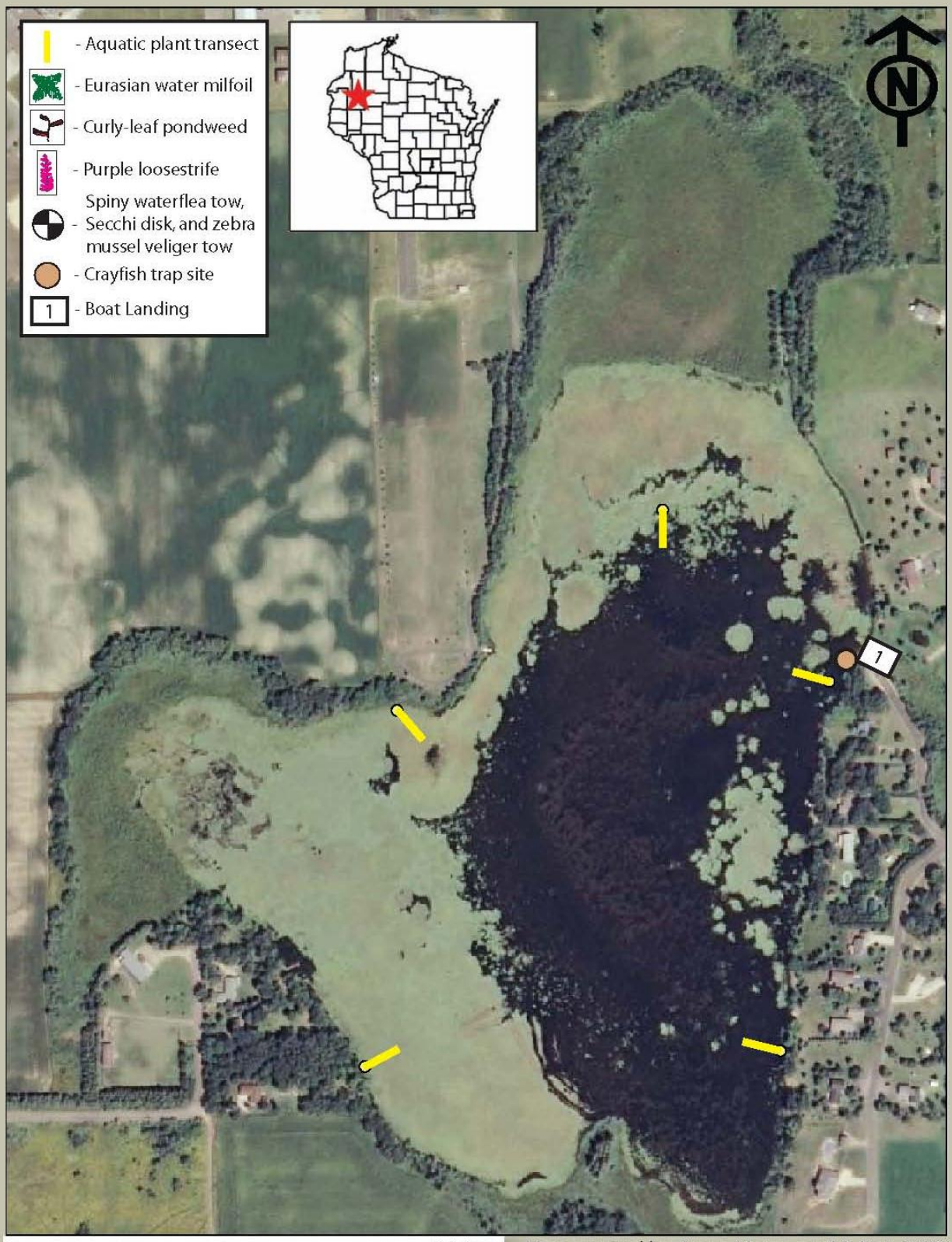
Lake and Shoreline Conditions

The shoreline vegetation is 90% deciduous and 10% coniferous. The bays of the lake are heavily vegetated and could almost be considered marsh, up to 30% of the shoreline. The lake is 70% developed with homes and farmland. Some properties have very poor buffers of mowed lawn near the boat landing where Canada geese congregate. Water level appears to be four inches lower than average.

Aquatic Invasive Species Survey of

Moon Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig on June 17, and July 21, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Ted Ludwig, Zoe Hastings, Phil Rynish, and Jenny Pomeroy

Mud Lake (Waterbody Identification Code # 2094600)

Barron County (T33N R10W S7 SE ¼ SE ¼)

Dates of Survey

Mud Lake was surveyed on June 4, July 13, and August 5, 2009

Boat Launch

There are two boat launches on Mud Lake. The first (1 on the map) is on the eastern side of the lake. It appears to be at a resort with a possible launching fee required. It has a cement launch with no docks or AIS signs. The second launch (2 on the map) is on the south side of the lake off of 10 1/8th Avenue. It is made of cement slabs, and has no dock. There is little turnaround space and no official parking. "Stop and remove" and "Help prevent" aquatic invasive species signs are present. No fee is required.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Bottle brush sedge	*Carex comosa*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Water stargrass	*Heteranthera dubia*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Forked duckweed	*Lemna trisulca*
Northern water milfoil	*Myriophyllum sibiricum*
Slender naiad	*Najas flexilis*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Fern pondweed	*Potamogeton robbinsii*
Flat-stem pondweed	*Potamogeton zosteriformis*
White water crowfoot	*Ranunculus trichophyllus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Common bladderwort	*Utricularia vulgaris*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 06/04/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Mud Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 27.27, higher than the state average.

Invasive Species

One invasive plant species, *Potamogeton crispus*, was found in Mud Lake during the 2009 field season. *P. crispus* was found at 16 of 17 transects used for sampling aquatic plants set at 1,500ft intervals around the perimeter of the lake. Large, dense mats were in the central portion of the lake. These mats impeded boat navigation.

No spiny water flea or zebra mussel veligers were detected during the three summer samplings. No crayfish traps were set on Mud Lake in the thought that if crayfish were found in the traps set in Prairie, Chetek or Pokegama, they would be in Mud Lake as well. One invasive snail species was found in Mud Lake, the Chinese mystery snail.

Secchi Disk Readings

Readings stayed steady and poor through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 4, 2009	July 13, 2009	August 5, 2009
Site #1	15T 0605755 5023483	2.5 ft	1.25 ft	1.25 ft

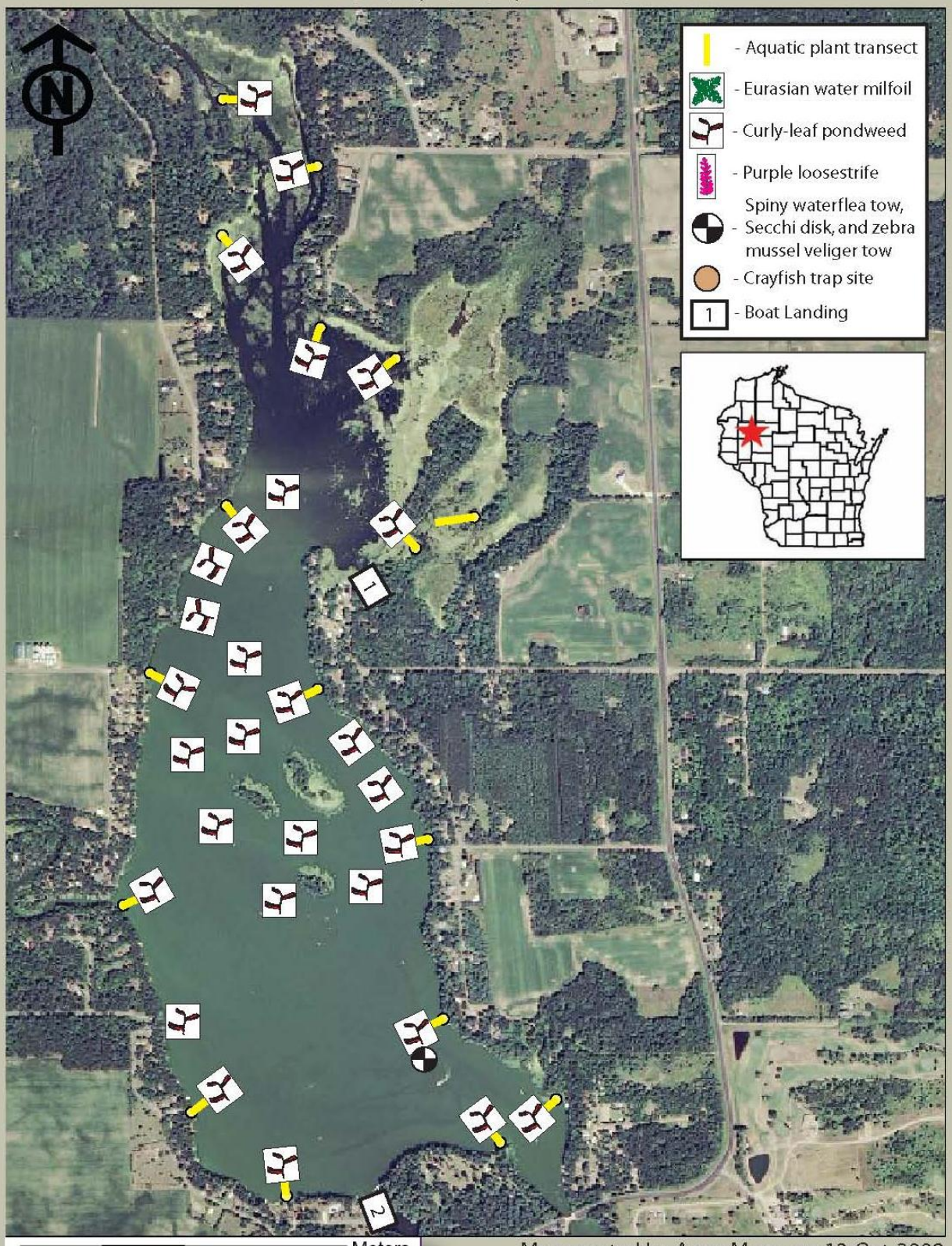
Lake and Shoreline Conditions

Except for the very north and northeastern portions of the lake, Mud Lake is highly developed like the rest of the Chetek Chain of Lakes. These northern portions have the best buffers due to low house density and inaccessibility. The three northern tributaries coming into Mud Lake have begun to fill in and are no longer navigable for boats. Mud Lake has the greatest native plant diversity of the chain of lakes. Most of the native plants were found in the least developed portions of the lake.

Aquatic Invasive Species Survey of

Mud Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, and Phil Rynish
on 06/04/09, 07/13/09, and 08/05/09



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Ted Ludwig, Zoe Hastings and Jenny Pomeroy

Murphy Flowage (Waterbody Identification Code # 2110900)

Rusk County (T36N R09W S29 SW ¼ NE ¼)

Dates of Survey

Murphy Flowage was surveyed on June 15, July 14, and August 6, 2009

Boat Launch

There is one boat launch on Murphy Flowage on the northwest side, near the outflow. It is accessible from County Road F. The launch is located in a County campground. The launch pad is paved to cement slab. A wooden dock is present, along with men's and women's pit toilets and aquatic invasive species prevention signs ("Stop and remove" and "Help prevent the spread"). No fees are required. Signs present prohibiting dumping in dumpsters.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Water Shield	*Brasenia schreberi*
Sedge	*Carex comosa*
Sedges	*Carex sp.*
Coontail	*Ceratophyllum demersum*
Spiny Hornwort	*Ceratophyllum echinatum*
Creeping Spikerush	*Eleocharis palustris*
Common Waterweed	*Elodea canadensis*
Northern St. John's wort	*Hypericum boreale*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Water Milfoil	*Myriophyllum sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Water smartweed	*Polygonum amphibium*
Large-leaf Pondweed	*Potamogeton amplifolius*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Stiff water crowfoot	*Ranunculus longirostris*
Crowfoot	*Ranunculus sp.*
Arum-leaved Arrowhead	*Sagittaria cuneata*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 06/15/2009.

Murphy Flowage contains one plant, *Ceratophyllum echinatum,* which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Murphy Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 27.27, higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus,* was found in Murphy Flowage during the 2009 field season. *P. crispus* was found at six of fifteen transects used for sampling aquatic plants at 1,500 ft intervals. The *P. crispus* was mixed in with native plants and was not found in dense stands. *P. crispus* was found in the western half of the flowage.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 6, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 15, 2009	July 14, 2009	August 6, 2009
Site #1	15T 0616528 5047937	8.0 ft	5.0 ft	8.5 ft

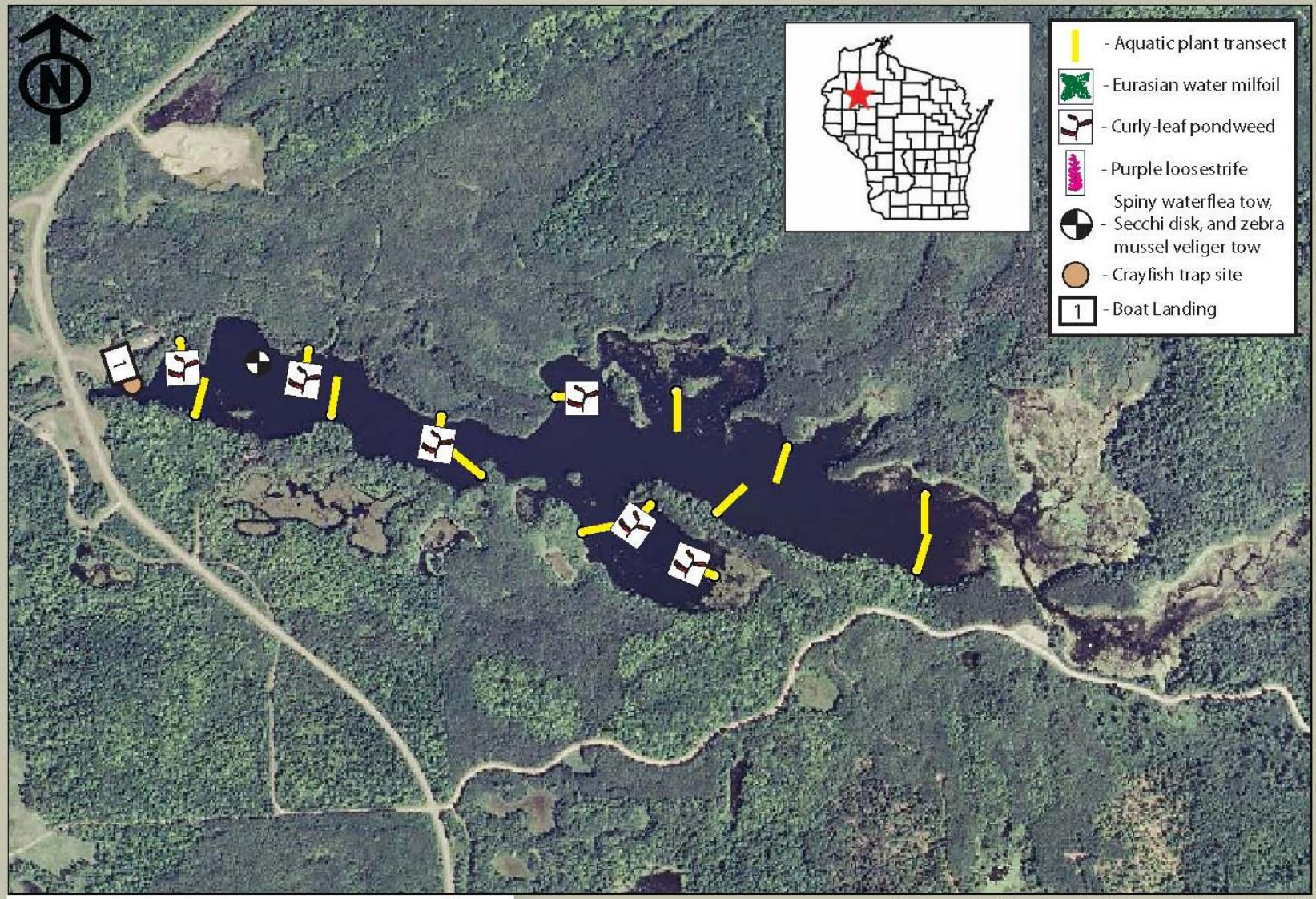
Lake and Shoreline Conditions

The shoreline vegetation is composed of approximately 40% coniferous and 60% deciduous trees. The flowage is undeveloped, except for the nearby campground that is not adjacent to the shore. Navigation became more difficult the further up in the flowage that the crew went due to hidden and exposed stumps of trees. These stumps may be remnants of trees that grew when the dam went out in the 1970's and was repaired years later. There was no noticeable change in water level from the average. Loons were present on the flowage. Fern-leaf pondweed was the most commonly found plant during the survey.

Aquatic Invasive Species Survey of

Murphy Flowage, Rusk County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings and Jenny Pomeroy on June 15, July 14, and August 6, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Ted Ludwig, Claire Bailey, Jeff Mares and Katrina Smith

North Lake (Waterbody Identification Code # 2630800)

Barron County (T35N R14W S9 SE ¼ SW ¼)

Dates of Survey

North Lake was surveyed on June 24, July 28, and August 19, 2009

Boat Launch

There is one boat launch on North Lake, located on the east side of the lake off of 22 5/8th Avenue. The launch is gravel to the water, where it becomes mucky with thick vegetation. There is a turnaround with little parking for up to three vehicles with trailers. The boat launch does not require a fee. "Help prevent" and "Stop and remove" aquatic invasive species signs are present.

Native Plant List*

Common Name	Scientific Name
Water shield	*Brasenia schreberi*
Three-way sedge	*Dulichium arundinaceum*
Waterwort	*Elatine minima*
Needle spikerush	*Eleocharis acicularis*
Creeping spikerush	*Eleocharis palustris*
Pipewort	*Eriocaulon aquaticum*
Lake quillwort	*Isoetes lacustris*
Farwell's water milfoil	*Myriophyllum farwellii*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf pondweed	*Potamogeton amplifolius*
Water-thread pondweed	*Potamogeton diversifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Spiral-fruited pondweed	*Potamogeton spirillus*
Hardstem bulrush	*Scirpus acutus*
Soft-stem bulrush	*Scirpus validus*
Short-stemmed bur-reed	*Sparganium chlorocarpum*
Little bur-reed	*Sparganium minima*
Broad-leaved cattail	*Typha latifolia*
Creeping bladderwort	*Utricularia gibba*
Flat-leaf bladderwort	*Utricularia intermedia*
Large Purple bladderwort	*Utricularia purpurea*
Common bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/24/2009.

North Lake contains one plant, *Utricularia purpurea*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). North Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 35.60, much higher than the state average.

Invasive Species

No invasive plants were found in North Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 19, 2009 sampling. One invasive snail species, the Chinese mystery snail, was collected from North Lake, but it has already been documented with the DNR.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. No reading was taken on July 28, 2009 due to a thunderstorm. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2009	July 28, 2009	August 19, 2009
Site #1	15T 0569991 5042149	4.5 ft	no reading taken	5.25 ft

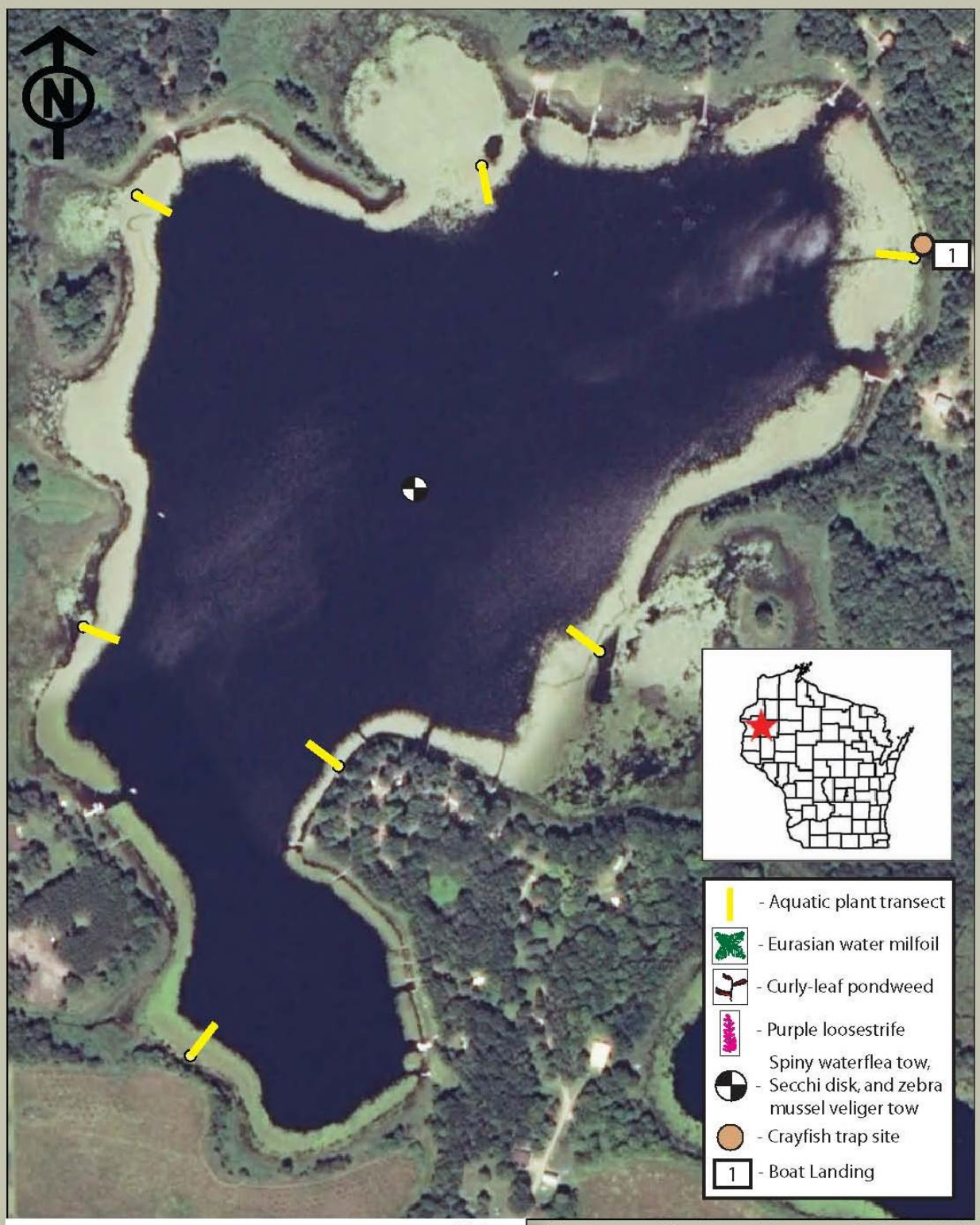
Lake and Shoreline Conditions

The shoreline vegetation is approximately 70% deciduous and 30% coniferous. About 35% of the lake is developed, with most of those properties having poor buffers. There is a large RV park on the southeast side of the lake. The shoreline is composed of many emergent aquatic plants that extend 20-100 ft out from shore and have begun to fill in bays of the lake. This may in part be due to the low lake water level. North Lake is a Slow No Wake Lake from 4pm until 11am everyday.

Aquatic Invasive Species Survey of

North Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Claire Bailey, Jeff Mares and Katrina Smith
on June 24, July 28, and August 19, 2009



Map created by Anna Mares on 14-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Old Abe Lake (Waterbody Identification Code # 2174700)

Chippewa County (T30N R07W S20 SW ¼ SW ¼)

Dates of Survey

Old Abe Lake was surveyed June 12, July 17, and August 7, 2007

Boat Launch

The boat launch is located on the western shore of the lake and can be accessed from Highway 178. There is one launch lane paved to a water depth of 3 feet. Turnaround space is available and there are 11-15 parking stalls present.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Aquatic moss	*Drepanocladus sp.*
Common Waterweed	*Elodea canadensis*
White Water Lily	*Nymphea odorata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Spiral-fruited pondweed	*Potamogeton spirillus*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Stiff Arrowhead	*Sagittaria rigida*
Wool grass	*Scirpus cyperinus*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/12/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Old Abe Flowage was found to have an approximate (as a full plant survey was not conducted) FQI value of 18.39, lower than the state average.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Old Abe Lake during the 2007 field season. *P. crispus* was found at seven of 21 transects used for sampling aquatic plants set at 1, 500 ft intervals around the perimeter of the flowage.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. Rusty crayfish were detected from the June 13, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 12, 2007	July 17, 2007	August 7, 2007
Site #1	15T 0637095 4991446	3.75 ft	3.5 ft	4.0 ft
Site #2	15T 0637360 4992244	3.5 ft	3.5 ft	4.0 ft
Site #3	15T 0637699 4992999	3.5 ft	3.5 ft	4.0 ft

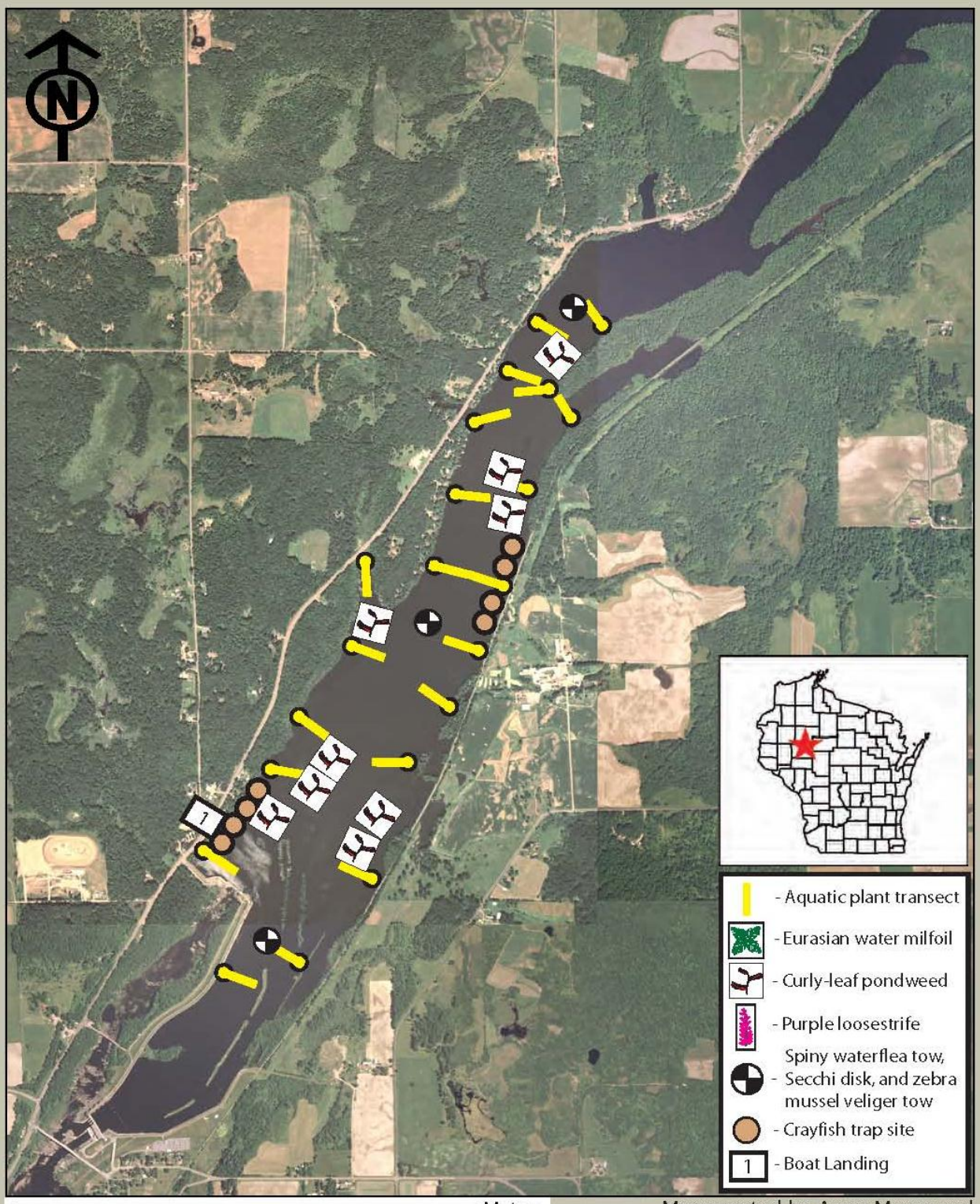
Lake and Shoreline Conditions

Approximately 80% of the shoreline is developed by homes, road right next to shore, ore farmland. The best buffer zones are along the upper northeast and western shores. One very large bed of curly-leaf pondweed was found just to the north of the boat landing, but overall, only a few acres of curly-leaf are scattered throughout the flowage. There is a good chance that Old Abe Flowage could soon contain or already does contain Eurasian water milfoil, as Holcombe Flowage and the Cornell Flowage both contain it, and Old Abe Flowage is down stream from both of them.

Aquatic Invasive Species Survey of

Old Abe Flowage, Chippewa County

Data collected by Jo Heuschele and Shelby Happeon June 12, July 17, and August 7, 2007



Map created by Anna Mares and Jacob Sutherland on 04-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Judy Schwarzmeier and Sarah Graves

Otter Lake (Waterbody Identification Code # 215700)

Chippewa County (T30N R05W S11 SW ¼ SE ¼)

Dates of Survey

Otter Lake was surveyed on June 3, July 9, and August 4, 2008

Boat Launch

There are six launches on Otter Lake. The launch that this crew used was on the east side of the lake off 170th Ave. The launch has pavement to the water's edge then turns to sand. There is an older dock at this landing. The landing is owned by the county and while no fee is required it is requested. Parking is in a large gravel lot. There are no bathrooms on site.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
American Lotus	*Nelumbo lutea*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Common bur-reed	*Sparganium eurycarpum*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 06-03-2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Otter Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 15.17, much lower than the state average.

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Judy Schwarzmeier and Sarah Graves

Invasive Species

One invasive plant species, Curly-leaf pondweed (*Potamogeton crispus*), was found in Otter Lake during the 2008 field season. It was found at 13 different locations around the lake at the following GPS points:

15T 0661114 4994736	15T 0660710 4994491	15T 0661923 4993358
15T 0663027 4992074	15T 0661244 4994459	15T 0660888 4994177
15T 0662078 4993292	15T 0662490 4990756	15T 0660701 4994630
15T 0661513 4993842	15T 0662672 4992195	15T 0662297 4990599
15T 0662571 4990314		

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 4, 2008 sampling.

Secchi Disk Readings

Readings stayed consistently low through out the summer, but worsened in July and August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 3, 2008	July 9, 2008	August 4, 2008
Site #1	15T 0662518 4991148	3.75 ft	2.0 ft	2.0 ft
Site #2	15T 0661842 4993178	3.5 ft	1.5 ft	1.75 ft
Site #3	15T 0661057 4994320	3.5 ft	1.5 ft	1.75 ft

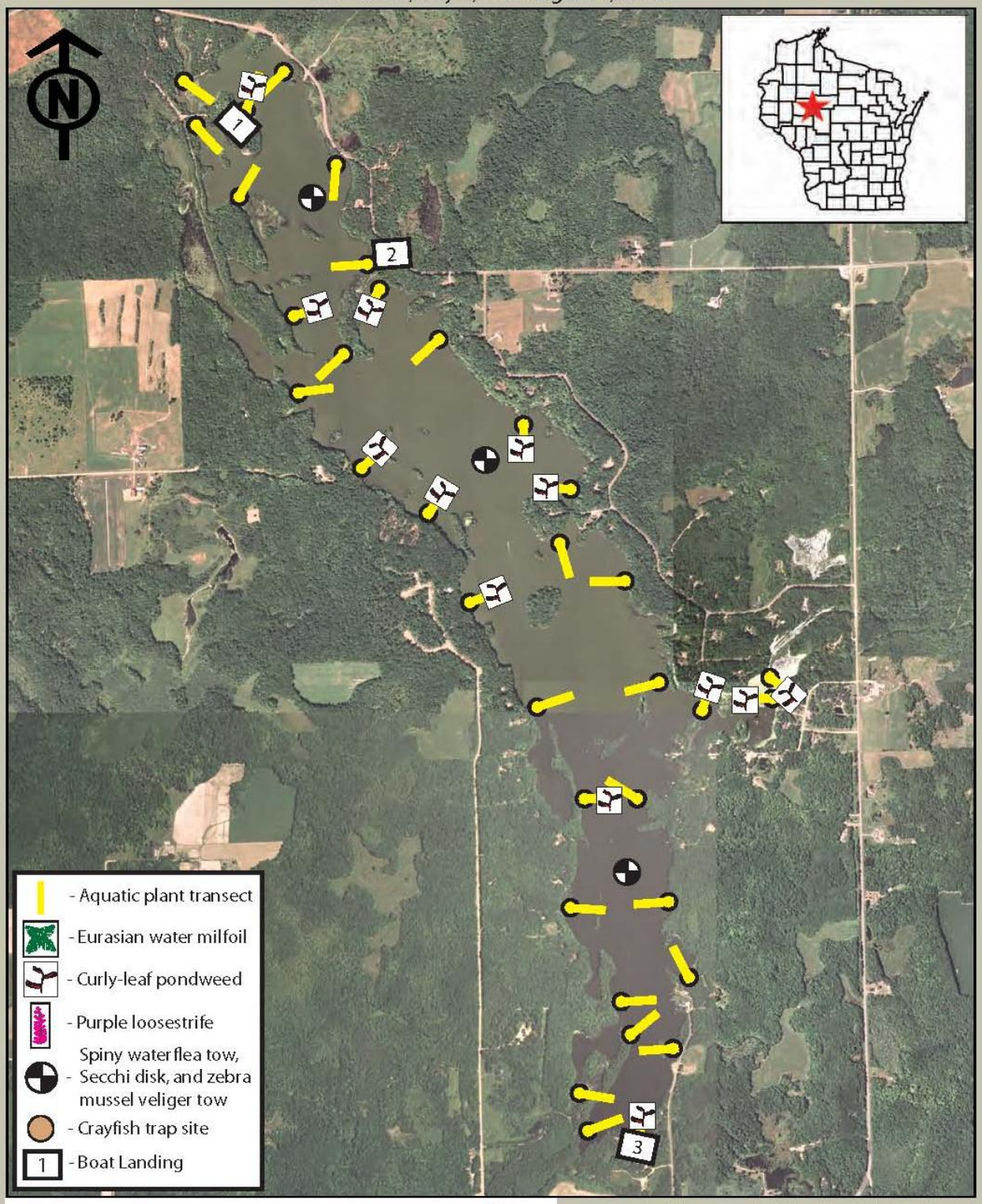
Lake and Shoreline Conditions

There are scattered houses on Otter Lake. On the north end of the lake there is a campground that is part of the County Forest. Other than the scattered parks and boat launches there is a natural buffer zone around the lake with the west side more heavily forested than the east. When the lake was flooded from the building of the dam, numerous trees were stranded in the water, leaving behind a minefield of deadheads and hidden hazards. There are also some irrigation systems installed on the north and west side of the lake that are posted with “No Anchoring” signs.

Aquatic Invasive Species Survey of

Otter Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Judy Schwarzmeier, and Sarah Graves on June 3, July 9, and August 4, 2008



Map created by Anna Mares and Jacob Sutherland on 02-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Ted Ludwig and Briana Murphy

Perch Lake (Waterbody Identification Code # 2368500)

Rusk County (T35N R09W S01 NE ¼ NE ¼)

Dates of Survey

Perch Lake was surveyed on June 24, July 23, and August 14, 2008

Boat Launch

There is one official boat launch on Perch Lake that is located on the south side of the lake. It can be accessed from Perch Lake Road. There is turnaround space as well as parking. The launch pad is composed of sand and gravel. The pad itself is moderately shallow. There is a steep incline down to the launch pad allowing for large amounts of erosion and runoff straight into the lake. The landing is maintained by Rusk County. No fee is required.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Sedges	*Carex sp.*
Three-way Sedge	*Dulichium arundinaceum*
Common Waterweed	*Elodea canadensis*
Northern St. John's Wort	*Hypericum boreale*
Farwell's water Milfoil	*Myriophyllum farwellii*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Variable-leaf Pondweed	*Potamogeton diversifolius*
Marsh Cinquefoil	*Potentilla palustris*
Common Arrowhead	*Sagittaria latifolia*
Common bur-reed	*Sparganium eurycarpum*
Twin-stemmed Bladderwort	*Utricularia geminiscapa*
Small Bladderwort	*Utricularia minor*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/24/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Perch Lake was found to have an

approximate (as a full plant survey was not conducted) FQI value of 24.12, higher than the state average.

Invasive Species

No invasive plants were found in Perch Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 23, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2008	July 23, 2008	August 14, 2008
Site #1	15T 0623074 5045509	6.5 ft	5.5 ft	5.25 ft
Site #2	15T 0623120 5045256	6.25 ft	5.5 ft	5.25 ft

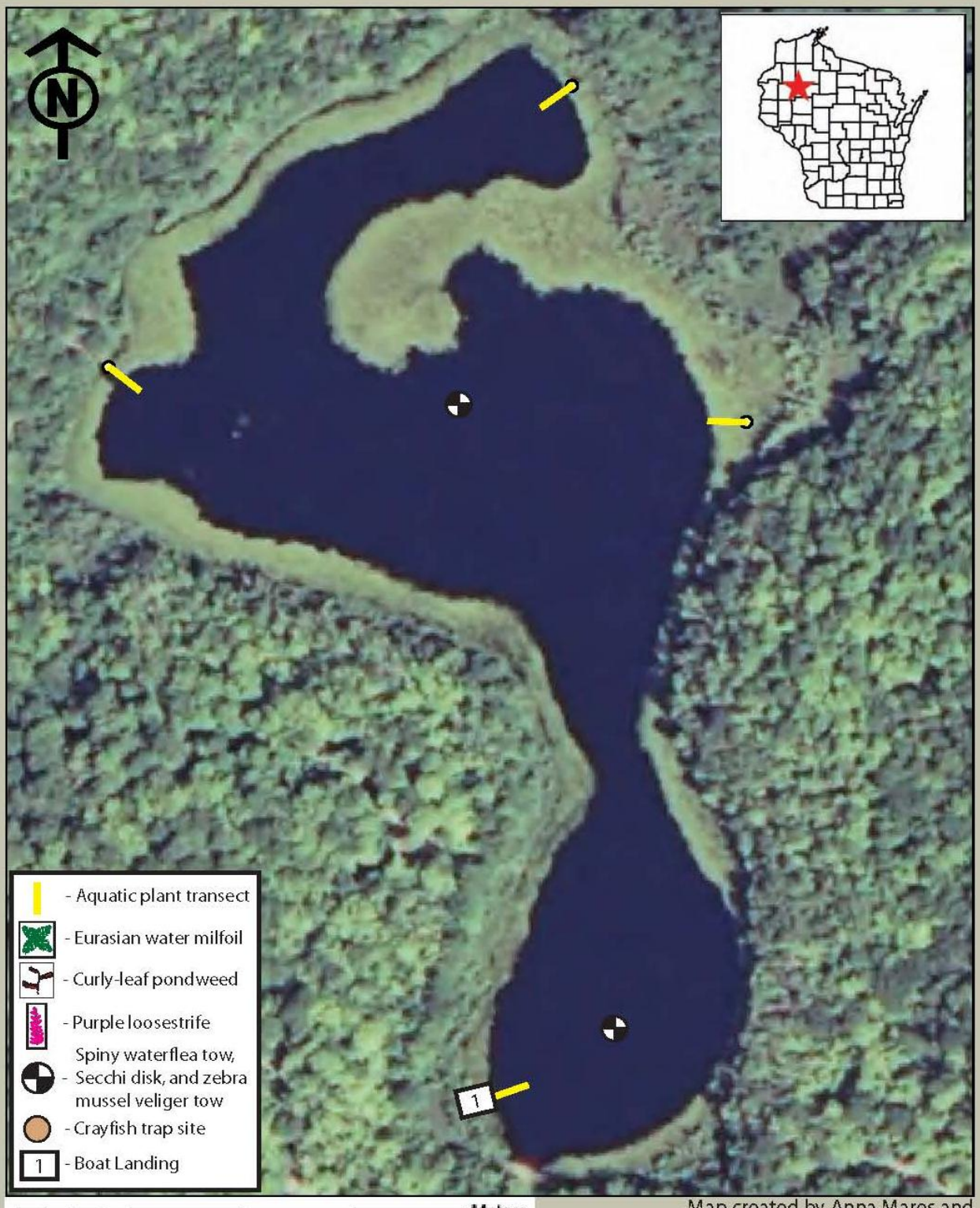
Lake and Shoreline Conditions

There are no houses on the lake. Perch Lake is surrounded by Rusk County Forest land, which provides a natural buffer zone, composed of grasses, for the lake. There is one campsite in the northwest corner of the lake that can be seen from the water. An osprey nest was occupied in June and July, but was empty in August. A loon was seen at the lake on each sampling date.

Aquatic Invasive Species Survey of

Perch Lake, Rusk County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar and Ted Ludwig & Briana Murphy
on June 24, July 6, and August 14, 2008



Map created by Anna Mares and
Jacob Sutherland on 19-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Pike Lake (Waterbody Identification Code # 2157900)

Chippewa County (T30N R06W S14 SE ¼ NW ¼)

Dates of Survey

Pike Lake was surveyed July 12th, August 3rd and August 20th 2007

Boat Launch

Pike Lake has 1 boat launch on the southwestern shore that can be accessed via 282nd Street. The launch has only 1 lane of unknown surface. There are 1-5 parking stalls present.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Spiny Hornwort	*Ceratophyllum echinatum*
Common Waterweed	*Elodea canadensis*
Water Marigold	*Megalodonta beckii*
Slender Naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Fern Pondweed	*Potamogeton robbinsii*
Common Arrowhead	*Sagittaria latifolia*
Soft-stem Bulrush	*Scirpus validus*
Floating-leaf bur-reed	*Sparganium fluctuans*
Bur-reed	*Sparganium sp.*
Narrow-leaved Cattail	*Typha angustifolia*

*Plant list is not comprehensive and contains only those species observed on 08/03/2007.

Pike Lake contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern in the state of Wisconsin. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Pike Lake was

found to have an approximate (as a full plant survey was not conducted) FQI value of 23.25, higher than the state average.

Invasive Species

No invasive plants were found in Pike Lake during the 2007 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 20, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 12, 2007	August 3, 2007	August 20, 2007
Site #1	15T 0651044 4993774	8.0 ft	7.5 ft	5.75 ft
Site #2	15T 0651453 4993283	8.0 ft	7.25 ft	6.0 ft
Site #3	15T 0651290 4992835	8.0 ft	6.0 ft	5.75 ft

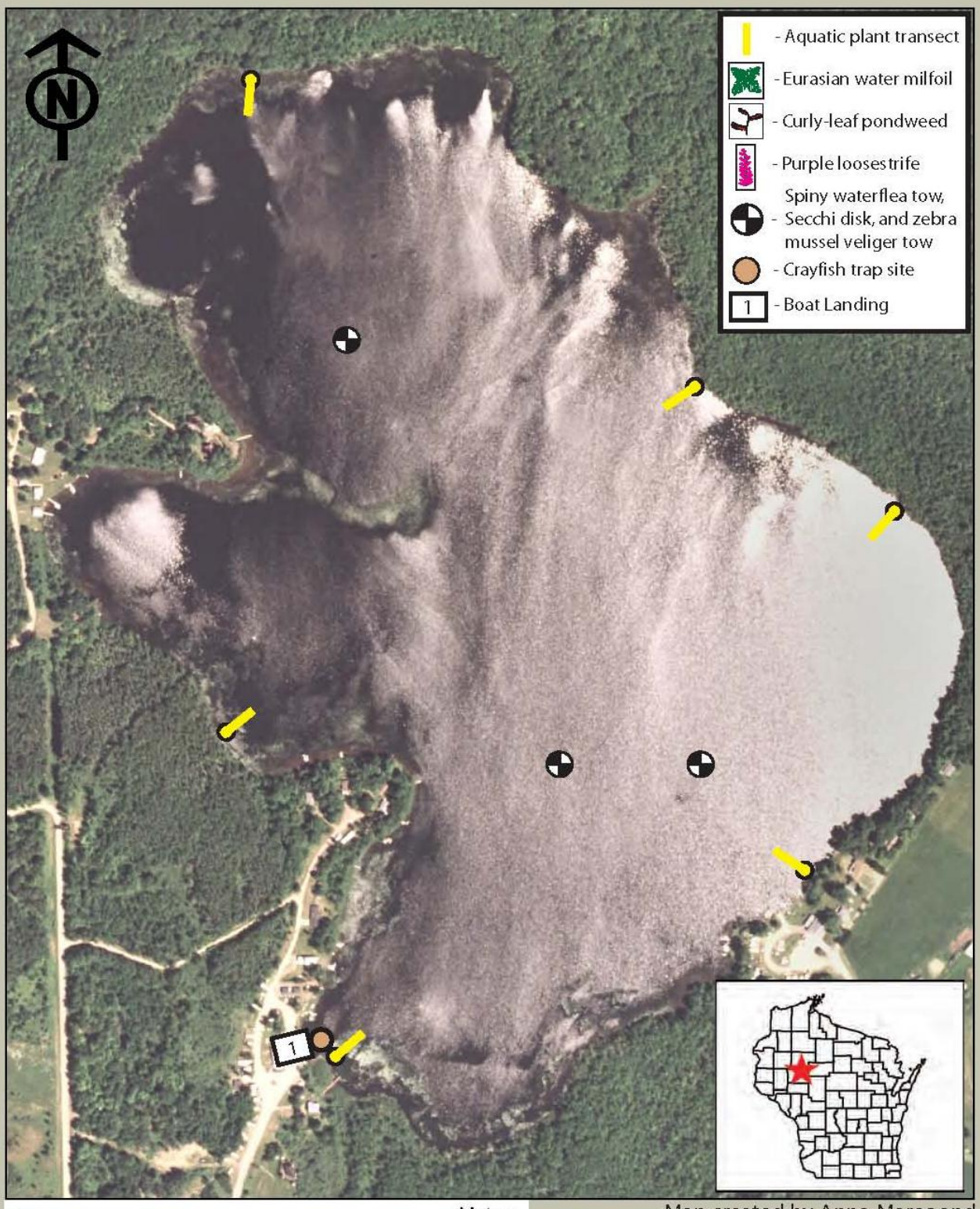
Lake and Shoreline Conditions

The shoreline of Pike Lake is approximately 25% developed by homes and farmland. Half of the properties have good buffers while the other half have little buffering with lawns to the water. The undeveloped portions of the lake have buffers greater than the recommended 30 ft.

Aquatic Invasive Species Survey of

Pike Lake, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on July 12, August 3, and August 20, 2007



Map created by Anna Mares and Jacob Sutherland on 04-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 28, 2008
Data Collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Judy Schwarzmeier

Plummer Lake (Waterbody Identification Code # 2348700)

Chippewa County (T32N R08W S34 NE ¼ NE ¼)

Date of Survey

Plummer Lake was surveyed on June 22, July 17, and August 7, 2008

Boat Launch

The one launch on Plummer Lake is gently sloping gravel into the lake off of Plummer Lake Rd. adjacent to County Rd. M. The launch is average with loose sand. Use caution when pulling the trailer out of the water. There is no turnaround, but it has space for one vehicle to park. All other vehicles need to park along roadside. The landing is owned by the state and is located on the edge of the Ice Age State Scientific Area. No fee is required. There are no bathrooms on site. There is moderate vegetation at the launch.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Sedges	*Carex sp.*
Coontail	*Ceratophyllum demersum*
Lesser duckweed	*Lemna minor*
Northern Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
White Water Lily	*Nymphaea odorata*
Yellow Water Lily	*Nuphar advena*
Illinois Pondweed	*Potamogeton illinoensis*
Small Pondweed	*Potamogeton pusillus*
Flat Stem Pondweed	*Potamogeton zosteriformis*
Softstem Bulrush	*Scirpus validus*
Narrow-leaf Cattail	*Typha angustifolia*

*Plant list is not comprehensive and includes only what was observed on 06/22/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Plummer Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 19.62, lower than the state average.

Written by Jo Heuschele & Anna Mares
August 28, 2008
Data Collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Judy Schwarzmeier

Invasive Species

No invasive plants were found in Plummer Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or native crayfish were detected during the August 7, 2008 sampling.

Secchi Disk Readings

Readings declined slightly over the course of the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 22, 2008	July 17, 2008	August 7 2008
Site #1	15T 0629615 5008387	6.5 ft	6.25 ft	4.25 ft
Site #2	15T 0630026 5008473	5.5 ft	6.00 ft	4.75 ft

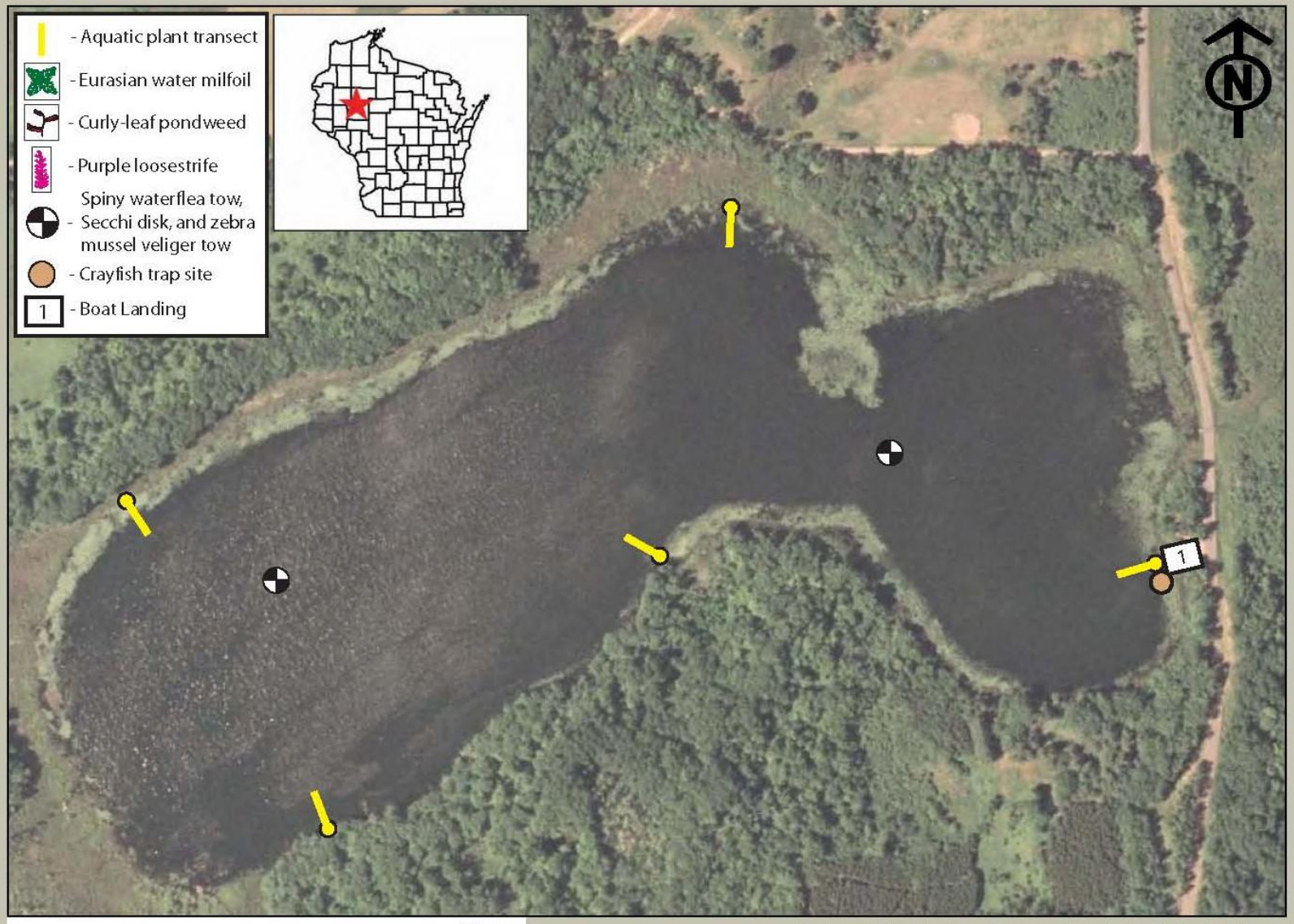
Shoreline Conditions

There are no houses on the lake. The west end of lake is a bog/wetland. The shoreline consists of mixed forest. The entire lake is lined with emergent vegetation that extends 1-2 meters into lake. Fishermen met at the lake have indicated that Coontail overtakes the lake in late summer. The crew did not see this phenomenon during the 2008 season. The lake is a drainage lake connected to Mud Creek.

Aquatic Invasive Species Survey of

Plummer Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, and Judy Schwarzmeier on June 22, July 17, and August 7, 2008



Map created by Anna Mares and Jacob Sutherland
23-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Ted Ludwig, Phil Rynish, Jenny Pomeroy, and Jack Schnell

Pokegama Lake (Waterbody Identification Code # 2094300)

Barron County (T33N R10W S20 NW ¼ SE ¼)

Dates of Survey

Pokegama Lake was surveyed on June 9, July 13, and August 5, 2009

Boat Launch

There are three boat landings on Pokegama Lake. The first (1 on the map) is located on the south side of the lake, off of County Road D. It is a cement launch to the water with a dock. There is ample parking for approximately 20 vehicles and trailers. Numerous aquatic invasive species (AIS) signs are present along with Clean Boats, Clean Waters signs. No fee is required. The second launch (2 on the map) is located off of 25 3/16th Street on the west side of the lake. The launch is made of a crumbling cement launch pad with a wooden dock. There is very little parking. "Stop and remove" and "Help prevent" AIS signs are present. No fee is required. The third launch (3 on the map) is located on the west side of the lake off of County Road D. It did not have a visible boat launch but had docks for mooring, picnic tables, and restrooms. There was also a public fishing pier located there.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Creeping spikerush	*Eleocharis palustris*
Pipewort	*Eriocaulon aquaticum*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Fern pondweed	*Potamogeton robbinsii*
Flat-stem pondweed	*Potamogeton zosteriformis*
Slender riccia	*Riccia fluvitans*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 06/09/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lake Pokegama was found to have an approximate (as a full plant survey was not conducted) FQI value of 22.20, equal to the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Pokegama Lake during the 2009 field season. *P. crispus* was found at four of 35 transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake. There was one large bed of *P. crispus* where Hazel Creek comes into the southeast bay of Pokegama Lake. Another plant was seen on Pokegama Lake, *Iris pseudacorus*, which is thought to be potentially invasive in the state of Wisconsin.

No spiny water flea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 5, 2009 sampling. The invasive Chinese mystery snail was present in Pokegama Lake.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 9, 2009	July 13, 2009	August 5, 2009
Site #1	15T 0607126 5021807	2.0 ft	2.0 ft	1.25 ft
Site #2	15T 0607268 5020850	2.25 ft	2.5 ft	1.25 ft

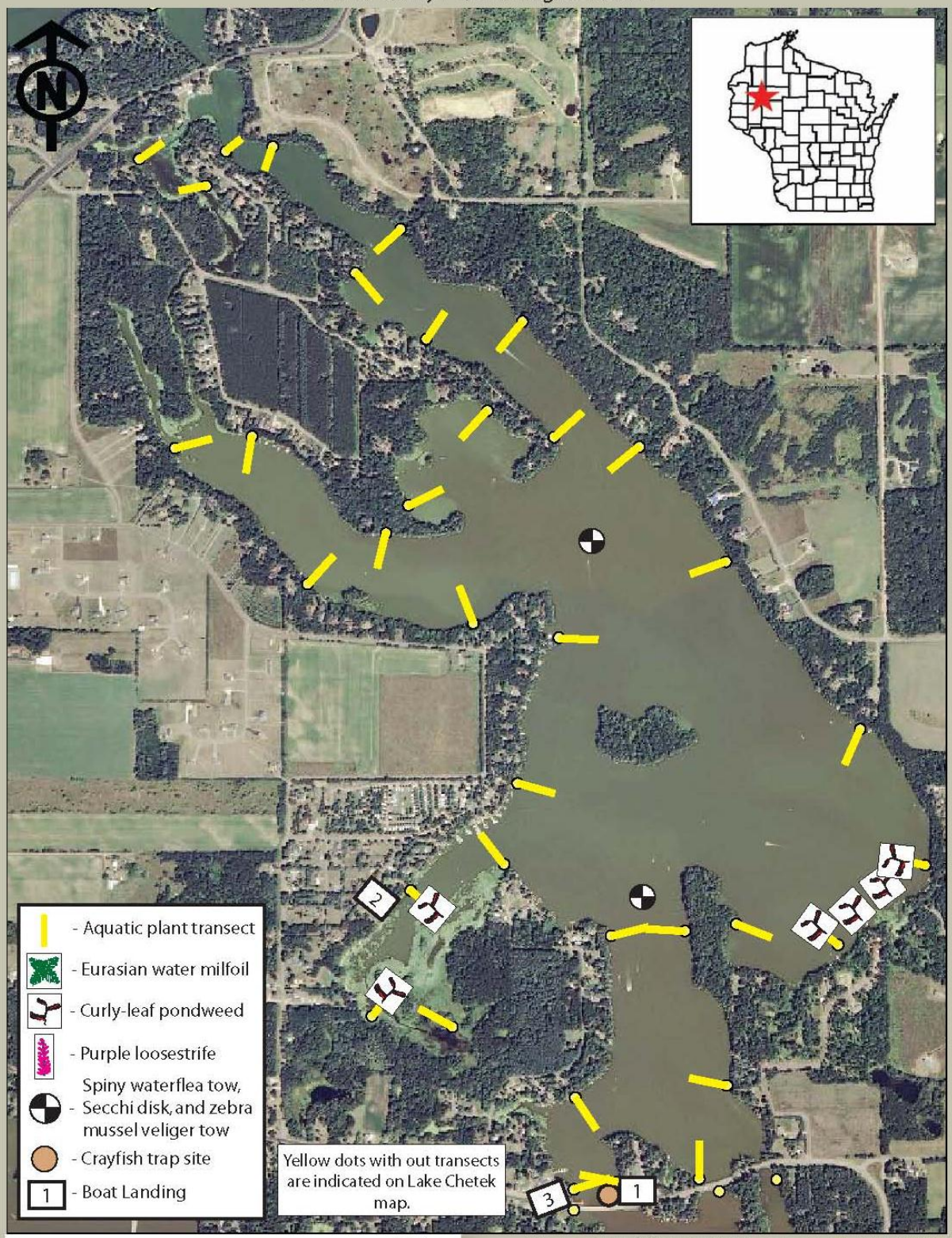
Lake and Shoreline Conditions

The main body of Pokegama Lake was nearly devoid of plant life. Only the shallow bays had plant communities with a few painted turtles. The shoreline vegetation was an equal mix of coniferous and deciduous trees, with no marsh land. The east side of the lake was less developed than the western shore, but both are heavily developed. Many of the resorts have 6-20 mooring stations for pontoons and boats on the shore, with little buffering. Buffers of 30 ft or more up from the water's edge are encouraged for home owners.

Aquatic Invasive Species Survey of

Lake Pokegama, Barron County

Data collected by Anna Mares, Ted Ludwig, Phil Rynish, Jenny Pomeroy, and Jack Schnell
on June 9, July 13, and August 5, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

Popple Lake (Waterbody Identification Code # 2173900)

Chippewa County (T30N R08W S25 SE ¼ NW ¼)

Dates of Survey

Popple Lake was surveyed June 11, July 17, and August 7, 2007

Boat Launch

Popple Lake has one boat launch with 1 lane on the north shore of the lake. The ramp can be accessed from 152nd Avenue. It is sponsored by the Popple Lake 4-H Club.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Waterwort	*Elatine sp.*
Spikerush	*Eleocharis sp.*
Pipewort	*Eriocaulon aquaticum*
Joe Pye Weed	*Eutrochium sp.*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Slender Naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Long-leaf pondweed	*Potamogeton nodosus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Wool Grass	*Scirpus cyperinus*
Soft-stem Bulrush	*Scirpus validus*
Great duckweed	*Spirodela polyrhiza*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*
Wild Rice	*Zizania sp.*

*Plant list is not comprehensive and contains only those species observed on 06/11/2007.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele and Shelby Happe

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Popple Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 26.15, higher than the state average.

Invasive Species

One invasive plant was found in Popple Lake during the 2007 field season. *Potamogeton crispus* was found on June 11, 2007 at 13 of 20 transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 7, 2007 sampling.

Secchi Disk Readings

Readings declined in July and more severely into August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 11, 2007	July 17, 2007	August 7, 2007
Site #1	15T 0633800 4990810	7.5 ft	7.0 ft	4.5 ft
Site #2	15T 0633640 5499042	8.0 ft	7.0 ft	5.0 ft
Site #3	15T 0633459 4989987	8.25 ft	7.0 ft	4.75 ft

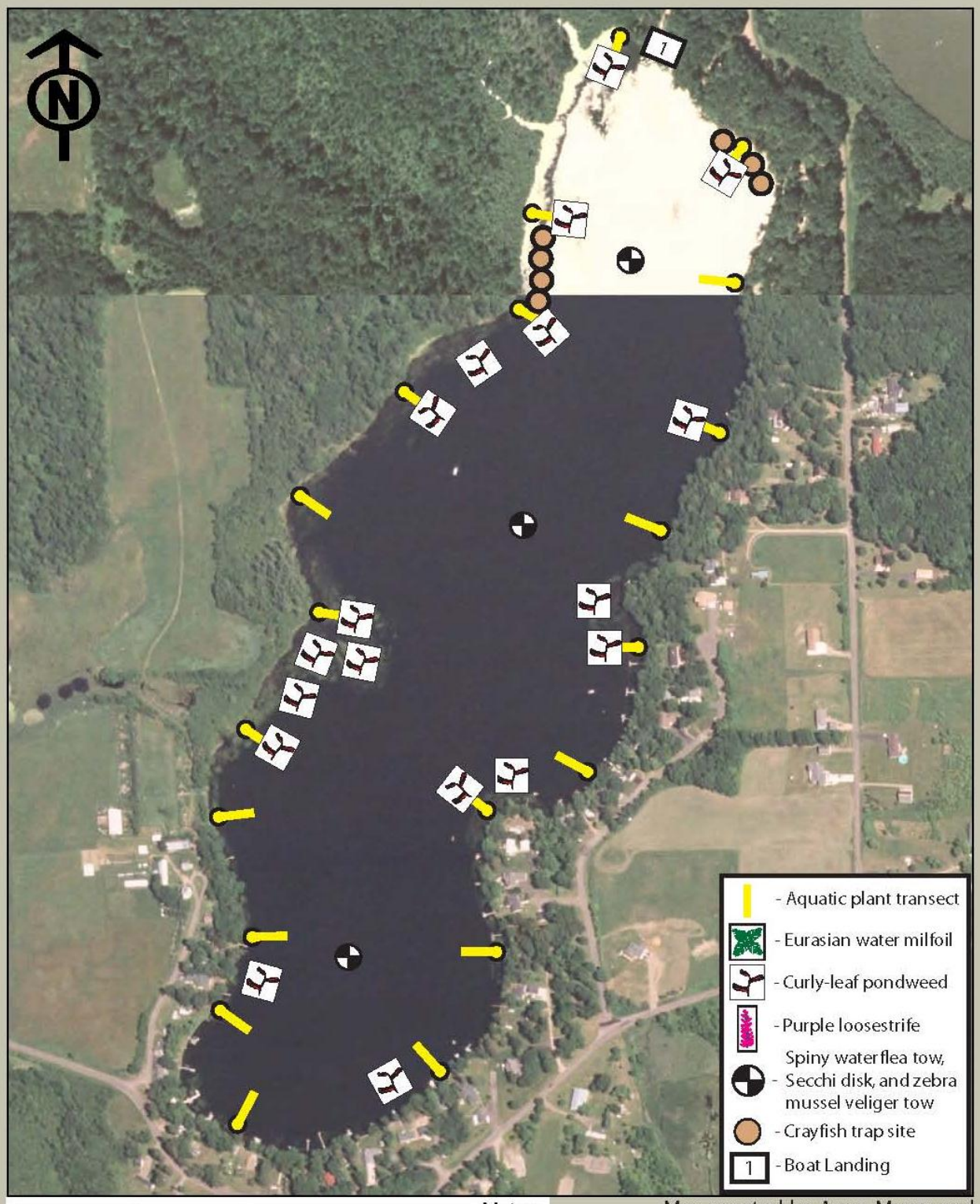
Lake and Shoreline Conditions

Popple Lake is approximately 70% developed by homes and farmland. Many homes have lawns that are mowed down to the water. Thirty feet of buffering is recommended to the shoreline. The quantity of curly-leaf pondweed that was seen during the aquatic plant survey could be considered to be at nuisance levels, especially if they have increased since the survey date. Nearly ten acres of curly-leaf beds were found.

Aquatic Invasive Species Survey of

Popple Lake, Chippewa County

Data collected by Jo Heuschele and Shelby Happe on June 11, July 17, and August 7, 2007



Map created by Anna Mares and Jacob Sutherland on 04-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Claire Bailey

Poskin Lake (Waterbody Identification Code # 2098000)

Barron County (T34N R13W S15 NW ¼ SW ¼)

Dates of Survey

Poskin Lake was surveyed on July 1, July 29, and August 8, 2009

Boat Launch

There is one boat launch on Poskin Lake on the west side off of 15 ½ Avenue. The launch is asphalt to cobble in the water with a dock. There is turnaround space, parking for up to 20 vehicles, and a port-a-potty is available. No fees are required. Aquatic invasive species awareness signs are present.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Slender naiad	*Najas flexilis*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Small pondweed	*Potamogeton pusillus*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Flat-stem pondweed	*Potamogeton zosteriformis*
Stiff water crowfoot	*Ranunculus longirostris*
Soft-stem bulrush	*Scirpus validus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Wild celery	*Vallisneria americana*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 07/01/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values

correlating to greater lake quality (UWEX, 2009). Poskin Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 21.25, slightly lower than the state average.

Invasive Species

One invasive plant was found in Poskin Lake during the 2009 field season. *Potamogeton crispus* was found at seven of 15 transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One species (*Orconectes virilis*) of native crayfish was detected from the July 29, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 1, 2009	July 29, 2009	August 8, 2009
Site #1	15T 0580412 5030692	5.5 ft	2.0 ft	3.0 ft
Site #2	15T 0579804 5030662	4.5 ft	2.5 ft	3.0 ft
Site #3	15T 0580501 5031241	6.0 ft	2.25 ft	3.0 ft

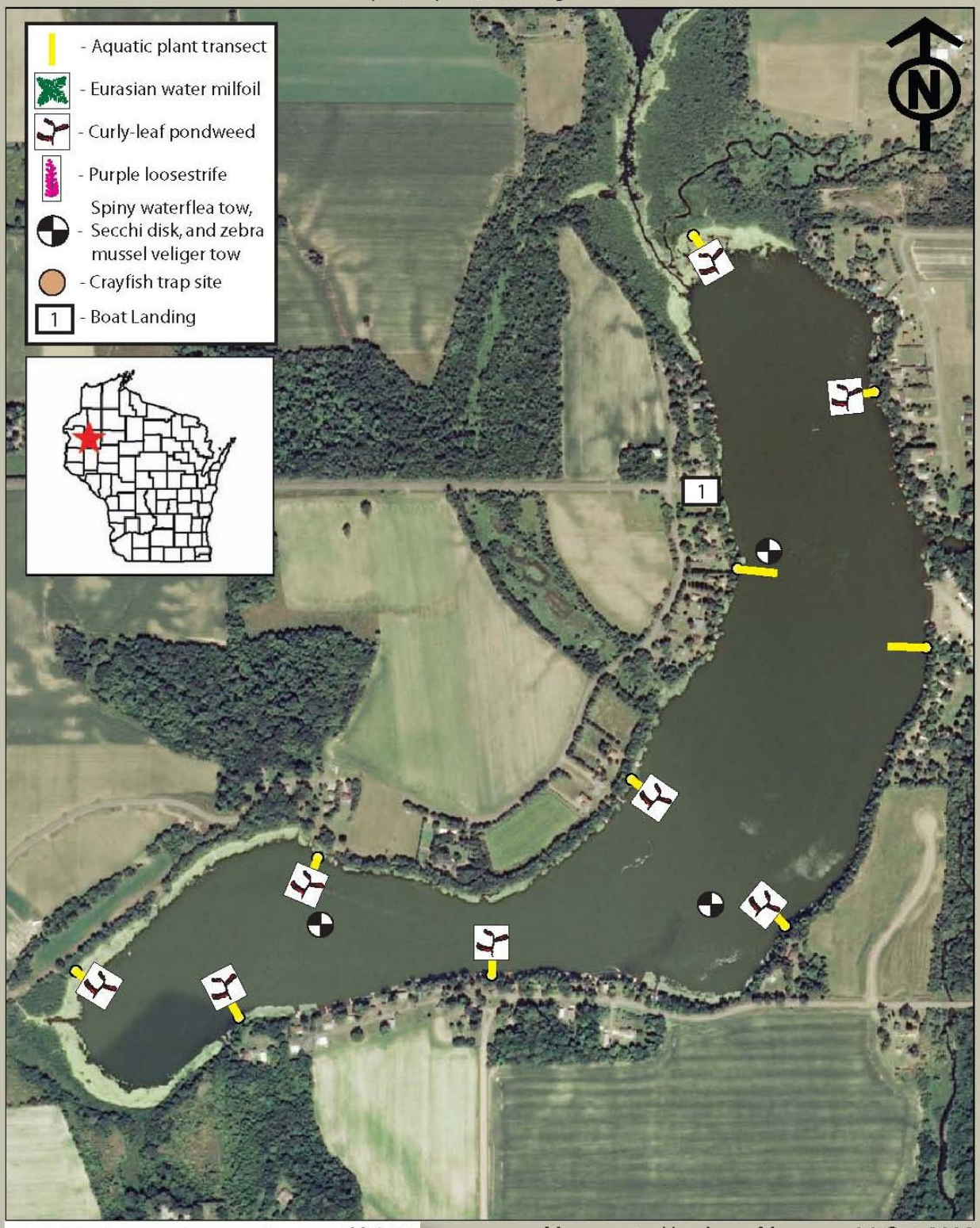
Lake and Shoreline Conditions

The shoreline vegetation is approximately 90% deciduous, 5% coniferous and 5% marsh on the north side of the lake. The lake is about 85% developed with the only buffers being the emergents that are near shore. The water level appears to be 4-6 inches below normal. Poskin Lake has several ordinances that include: no power loading, can't arrive or depart with AIS attached to the vehicle or trailer, slow no wake lake from 6pm-10am, and no personal watercraft within 100 ft of boats and 200 ft of shore.

Aquatic Invasive Species Survey of

Poskin Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings, and Claire Bailey
on July 1, July 29, and August 8, 2009



Map created by Anna Mares on 14-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings and Ted Ludwig

Potato Lake (Waterbody Identification Code # 2355300)

Rusk County (T33N R08W S19 SW ¼ NW ¼)

Dates of Survey

Potato Lake was surveyed on May 26, July 9, and August 4, 2009

Boat Launch

Potato Lake has one launch on the west side of the lake off of Pub Landing/Boat Landing Road. The launch pad is cement to gravel with a dock. There are pit toilets in the woods for men and women. Parking is available on the grass for up to 20 vehicles with trailers, along with turnaround space. No fee is required.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Lesser duckweed	*Lemna minor*
Forked duckweed	*Lemna trisulca*
Northern water milfoil	*Myriophyllum sibiricum*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf pondweed	*Potamogeton amplifolius*
Flat-stem pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Wild celery	*Vallisneria americana*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 05/26/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Potato Lake was found to have an

approximate (as a full plant survey was not conducted) FQI value of 22.25, slightly higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Potato Lake during the 2009 field season. *P. crispus* was found at 17 of 29 transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake. *P. crispus* would be considered to be in nuisance levels throughout the lake, except in the section of the lake south of County Road D.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 4, 2009 sampling.

Secchi Disk Readings

Readings dramatically declined between the end of May and the beginning of July. Large amounts of algae reduced the water clarity. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	May 26, 2009	July 9, 2009	August 4, 2009
Site #1	15T 0621751 5018491	10.0 ft	1.0 ft	1.5 ft
Site #2	15T 0623333 5020187	10.0 ft	1.0 ft	1.25 ft
Site #3	15T 0623182 5020683	9.0 ft	1.0 ft	4.5 ft

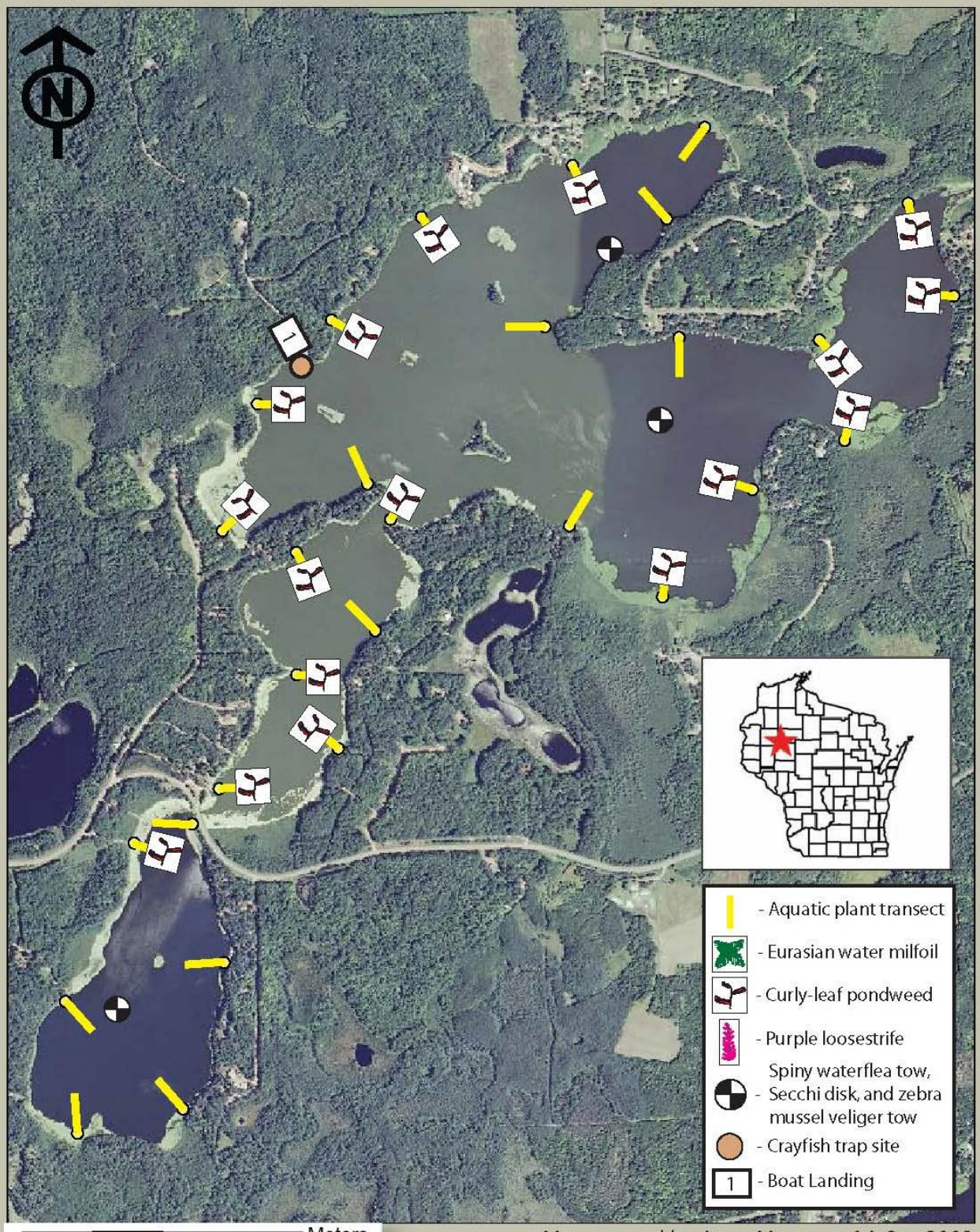
Lake and Shoreline Conditions

Small amounts of blue-green algae slim were seen at the boat landing during the August sampling. The north and northeastern portions of the lake are the most heavily developed areas of the lake. Much of this area has poor buffering. The rest of the lake has better buffering of 15+ ft in front of homes. The southern section of the lake below County Road D is the least developed area of the lake. The water level appears to be six inches below normal.

Aquatic Invasive Species Survey of

Potato Lake, Rusk County

Data collected by Anna Mares, Ted Ludwig, and Zoe Hastings on May 26, July 9, and August 4, 2009



Map created by Anna Mares on 14-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings and Ted Ludwig

Prairie Farm Flowage (Waterbody Identification Code # 2080000)

Barron County (T32N R13W S21 SE ¼ SW ¼)

Dates of Survey

Prairie Farm Flowage was surveyed on July 2, and August 2, 2009

Boat Launch

There is one boat launch on Prairie Farm Flowage in the west side of the flowage in Pioneer Park. The launch is well maintained with a paved launch pad, and dock. Restrooms are available in the park. No fee is required.

Native Plant List*

Common Name	Scientific Name
Sedge	*Carex comosa*
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
White water lily	*Nymphea odorata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Narrowleaf pondweed	*Potamogeton sp.*
Flat-stem pondweed	*Potamogeton zosteriformis*
Common arrowhead	*Sagittaria latifolia*
Soft-stem bulrush	*Scirpus validus*
Common bur-reed	*Sparganium eurycarpum*
Little bur-reed	*Sparganium minima*
Great duckweed	*Spirodela polyrhiza*

*Plant list is not comprehensive and contains only those species observed 07/02/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Prairie Farm Flowage was found to have an approximate (as a full plant survey was not conducted) FQI value of 18.76, lower than the state average.

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings and Ted Ludwig

Invasive Species

One invasive plant species, *Potamogeton crispus*, was found in Lea Lake Flowage during the 2009 field season. *P. crispus* was found at two of eight transects used for sampling aquatic plants at 1,500 ft intervals around the perimeter of the lake. Less than 20 plants were found at the two transects.

Spiny waterflea or zebra mussel veligers were not sampled for over the 2009 summer. The flowage was too shallow to conduct the necessary tows for sampling. No rusty crayfish or any native crayfish species were detected from the August 2, 2009 sampling. One invasive snail, the Chinese mystery snail, was found in Prairie Farm Flowage during the July 2, 2009 sampling.

Secchi Disk Readings

No Secchi disk readings were taken over the summer because no tows were conducted on the flowage.

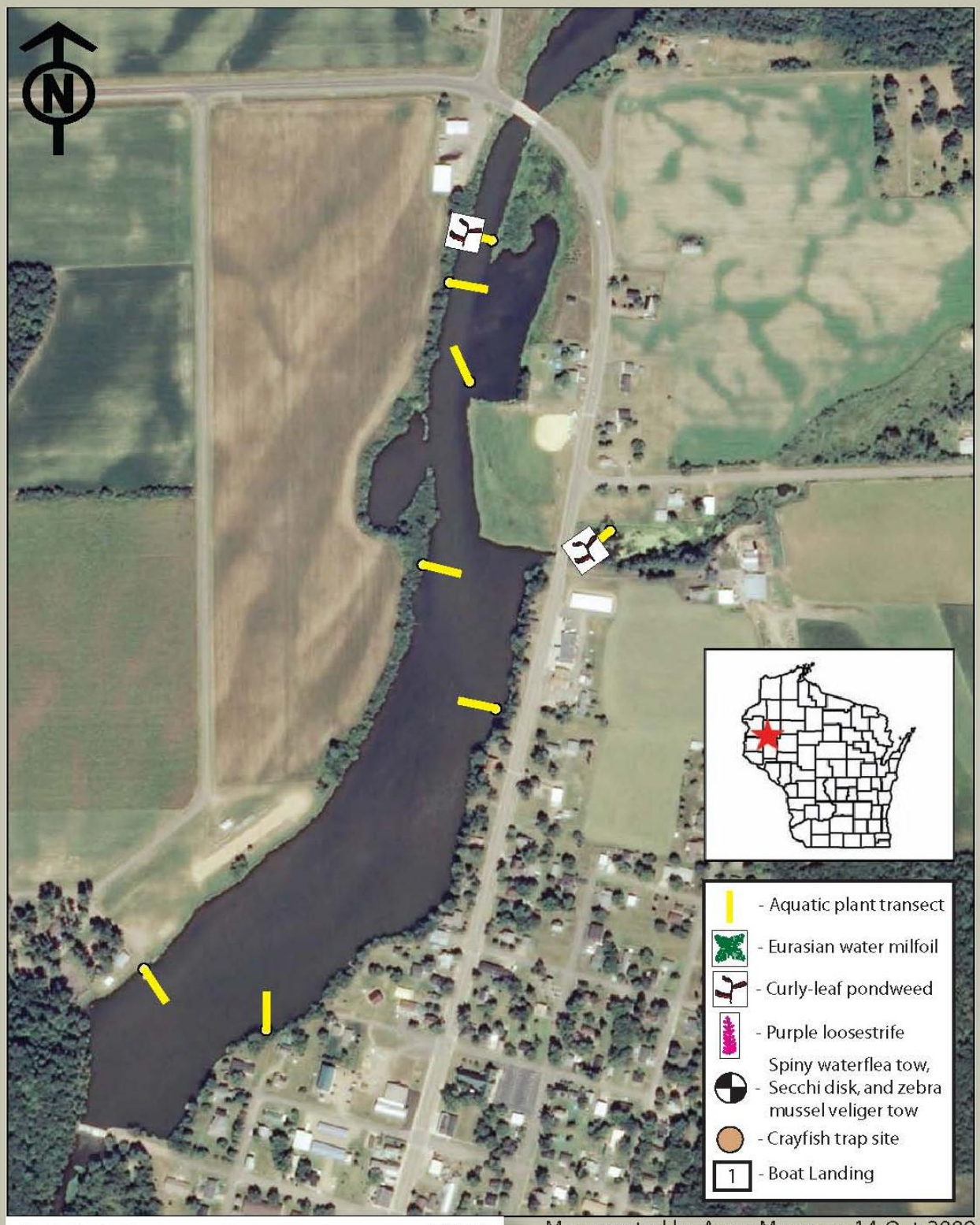
Lake and Shoreline Conditions

Seven feet was found to be the maximum depth in Prairie Farm Flowage. Very few of the plants found during the plant survey were in the main body of the flowage. Most of them were found in the upper reaches of the flowage and in the bay to the east of County Highway F. This was interesting considering the flowage is so shallow and the sediment is mucky. The flowage has farm land on the west side along with Pioneer Park and the City of Prairie Farm on the east side. About 90% of the flowage is developed. Poor buffering of less than 30 ft is common practice along the shoreline.

Aquatic Invasive Species Survey of

Prairie Farm Flowage, Barron County

Data collected by Anna Mares, Zoe Hastings and Ted Ludwig on July 2, and August 2, 2009



Map created by Anna Mares on 14-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Judy Schwarzmeier
and Jenny Pomeroy

Prairie Lake (Waterbody Identification Code # 2094100)

Barron County (T33N R10W S19 SW ¼ SE ¼)

Dates of Survey

Prairie Lake was surveyed on June 9, July 13, and August 5, 2009

Boat Launch

There are eleven boat landings on Prairie Lake. The first landing (1 on the map) is located in Veterans Memorial County Park. It is made of cement slabs in the water. There is a parking lot for up to eight vehicles, is free, has pit toilets, and aquatic invasive species (AIS) awareness signs. The second launch (2 on the map) is at the Wolf's Den RV Campground off of 21 ¾ Street. There is an AIS awareness sign present next to the launching dock and it is unclear what the launch fee is. The third launch is off of 12 7/8th Avenue, with pavement down to the water with a grass berm barrier. This launch would be best suited for hand carry only. No AIS signs are present. The fourth launch (4 on the map), off of 11 ½ Avenue, is a private boat landing that looks inaccessible to the general public. The fifth launch (5 on the map) is located off of 23 3/4th Street on the east side of the lake. It is a cement launch pad with no dock, parking, restrooms, or turnaround space. AIS awareness signs are present. The sixth launch (6 on the map) is located near the intersection of 8 ½ Avenue and County Highway M. The launch is paved to a cement slab and a wood and metal dock. There is parking for up to 18 vehicles, a turnaround, a fishing pier and AIS awareness signs. The seventh launch (7 on the map) is off of 9th Avenue Cartwright on the southwest side of Prairie Lake. The launch is paved to the water and then turns to gravel with little available parking. AIS awareness signs are present. The eighth launch (8 on the map) is located next to the Sunrise Resort on the east side of the lake. The launch is cement to the water and then turns to sand. AIS awareness signs are present and there are no designated parking stalls. The ninth launch (9 on the map) is off of 22 ½ Street. The launch is an unimproved dirt and grass landing with no parking. The tenth launch (10 on the map) is to the north of Lakewood Park on the west side of the lake. The launch is paved to the water's edge where it turns to gravel. The landing has a metal dock, two parking stalls, and AIS awareness signs. The eleventh launch (11 on the map) is south of Veterans Memorial County Park on 13-12 ½ Avenue. The launch is paved to concrete slabs near the water. There is no turnaround, or parking and AIS awareness signs are present.

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Judy Schwarzmeier
and Jenny Pomeroy

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Common waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Forked duckweed	*Lemna trisulca*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Fern pondweed	*Potamogeton robbinsii*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Wild celery	*Vallisneria americana*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 06/09/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Prairie Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 21.5, slightly lower than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Prairie Lake during the 2009 field season. *P. crispus* was found at 51 of 81 transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake. The waterway that connects Prairie Lake and Mud Lake had large beds of *P. crispus*, as well as the upper reaches of Prairie Lake. Another plant, *Iris pseudocarus*, was found in Prairie Lake that is thought to be potentially invasive in the state of Wisconsin.

No spiny water flea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the

August 5, 2009 sampling. One invasive snail species, the Chinese mystery snail, was found in Prairie Lake during the 2009 summer.

Secchi Disk Readings

Readings stayed steady and poor through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 9, 2009	July 13, 2009	August 5, 2009
Site #1	15T 0605269 5020120	2.5 ft	1.75 ft	1.5 ft
Site #2	15T 0603440 5023412	3.75 ft	2.0 ft	1.75 ft
Site #3	15T 0600946 5026269	2.75 ft	2.5 ft	2.25 ft

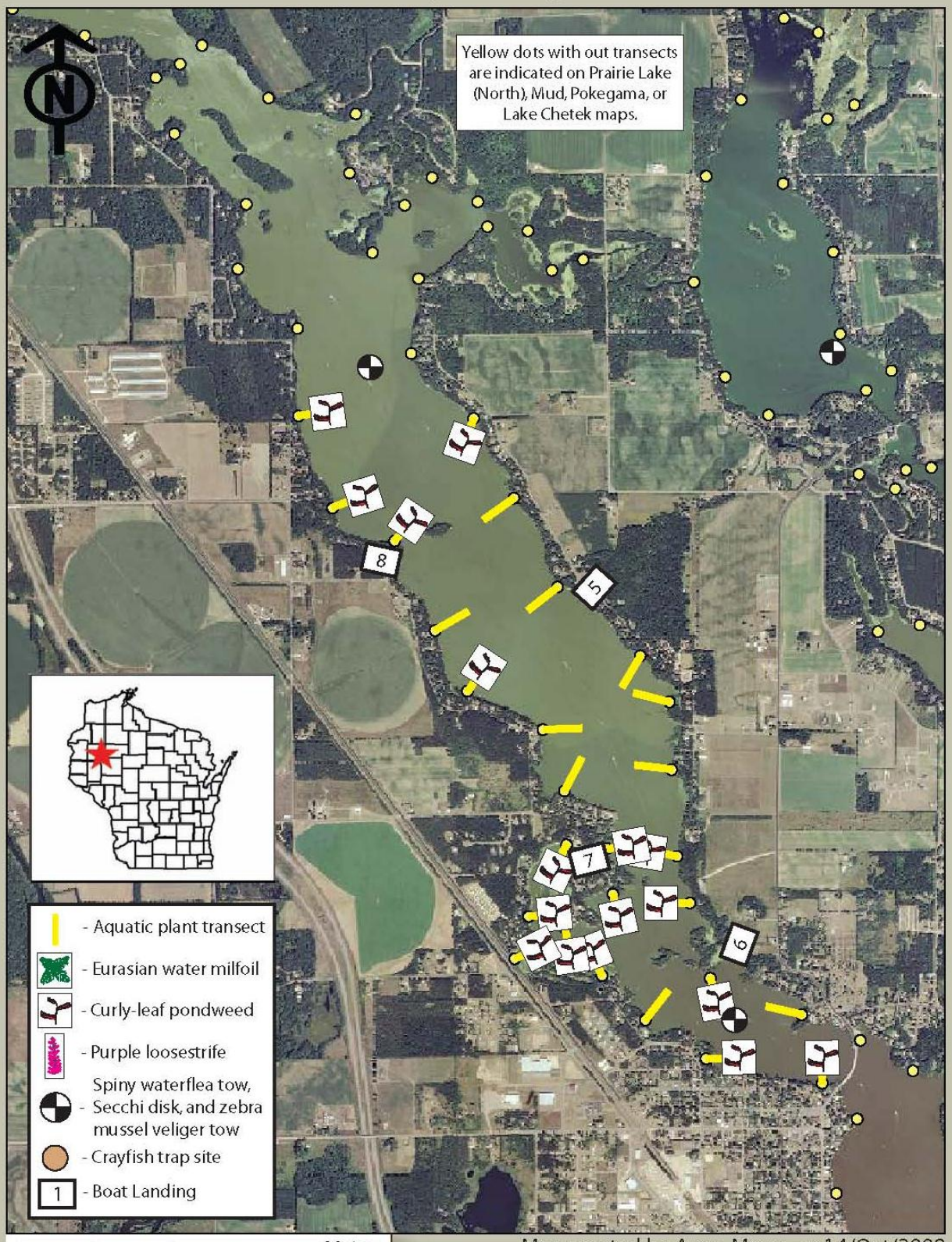
Lake and Shoreline Conditions

Prairie Lake is very heavily developed. Only those bays that are shallower with limited navigation tend to have the plants that make up the native plant list. Those shallow bays are also the areas of the lake that have the best buffers of the recommended 30 ft The rest of the lake tends to have buffers of 0-5 ft

Aquatic Invasive Species Survey of

Prairie Lake (South), Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Judy Schwarzmeier and Jenny Pomeroy on June 10, July 13, and August 5, 2009

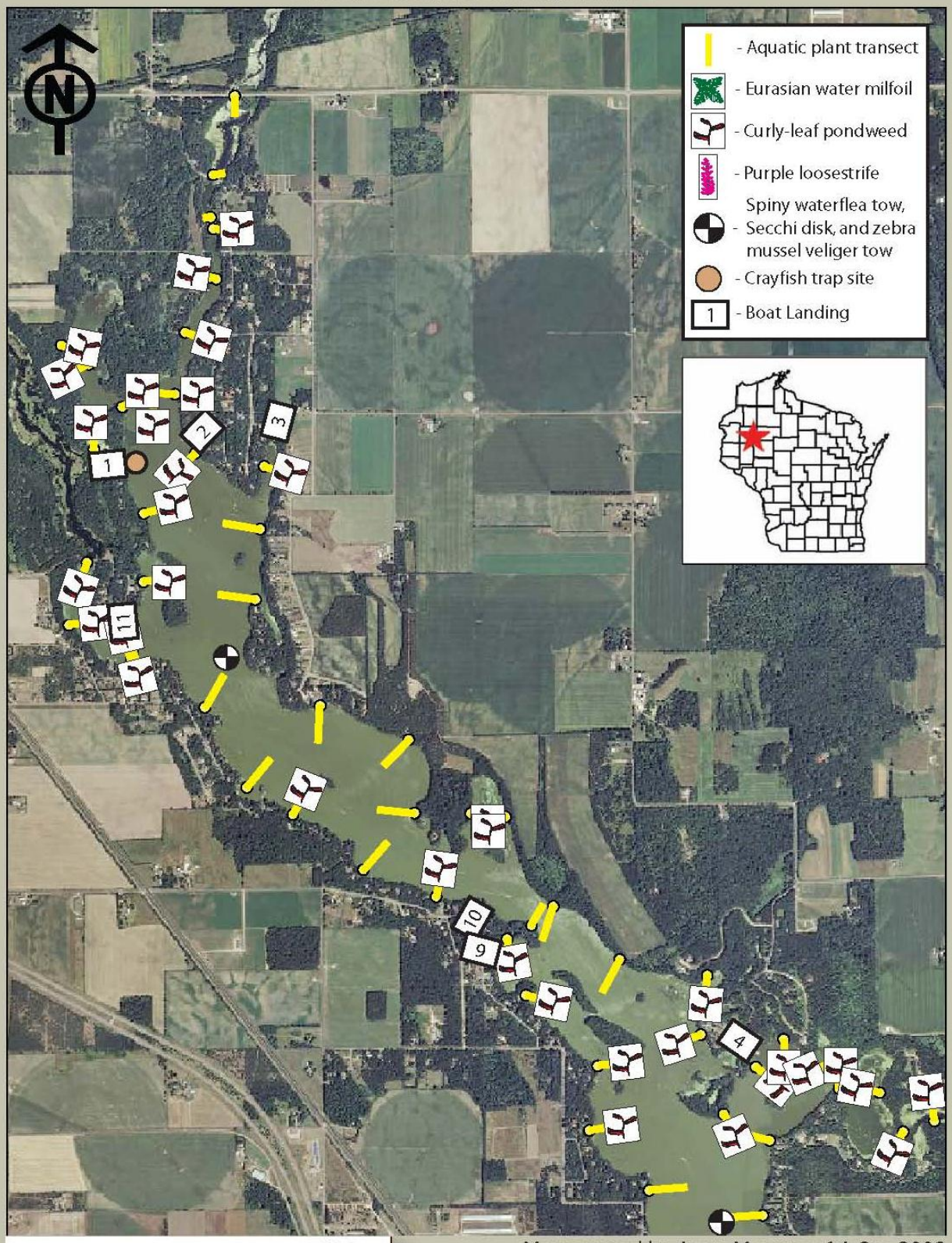


Map created by Anna Mares on 14/Oct/2009
Beaver Creek Reserve

Aquatic Invasive Species Survey of

Prairie Lake (North), Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Judy Schwarzmeier and Jenny Pomeroy
on June 10, July 13, and August 5, 2009



Map created by Anna Mares on 14-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Rick Helgemo and Ted Ludwig

Pulaski Lake (Waterbody Identification Code # 1875900)

Rusk County (T33N R07W S18 SE ¼ SE ¼)

Dates of Survey

Pulaski Lake was surveyed on June 18, July 14, and August 6, 2008

Boat Launch

The one launch on Pulaski Lake is average sloping concrete pad into the lake located off Pulaski Lake Road adjacent to Sawdust Road. There is a gravel turnaround but no designated parking. Vehicles must park on the street. The landing is owned by the county. No fee is required. The site has no bathrooms.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Common Waterweed	*Elodea canadensis*
Dwarf hyssop	*Gratiola aurea*
Northern Blue Flag	*Iris versicolor*
Quillworts	*Isoetes sp.*
Rice Cut-grass	*Leersia oryzoides*
Water horehound	*Lycopus americanus*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Lead Pondweed	*Potamogeton natans*

*Plant list is not comprehensive and contains only those species observed on 06-18-2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Pulaski Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 23.67, higher than the state average.

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Rick Helgemo and Ted Ludwig

Invasive Species

No invasive plants were found in Pulaski Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 6, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 18, 2008	July 14, 2008	August 6, 2008
Site #1	15T 0635257 5022152	6.5 ft	5.5 ft	5.75 ft
Site #2	15T 0634365 5021444	7.0 ft	5.5 ft	8.0 ft

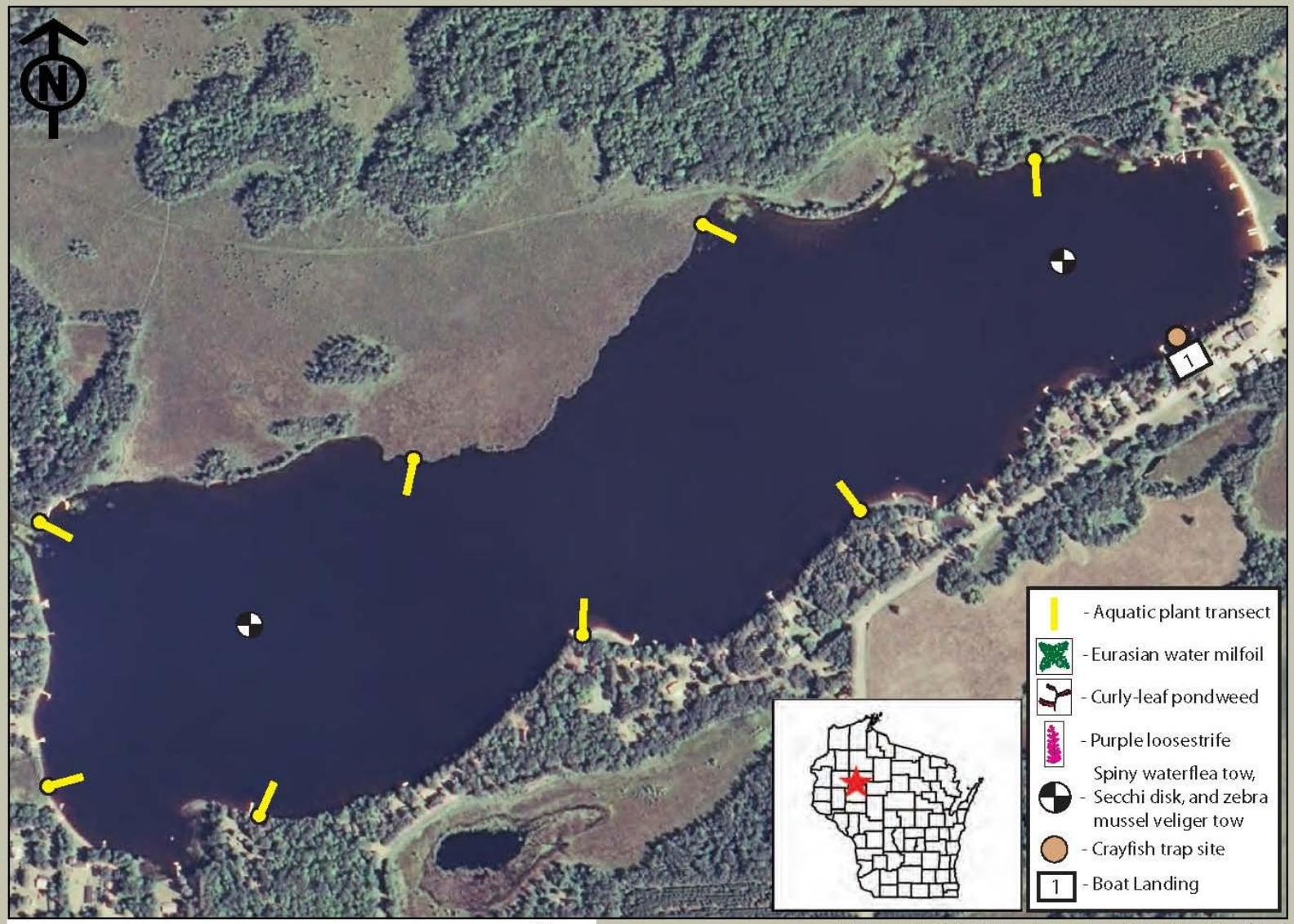
Lake and Shoreline Conditions

Houses line the South shoreline. Most of them have lawns mowed to the water's edge. The North shore is a bog with no houses. During the last sampling, the water appeared to be down one foot. Pulaski is a seepage lake surrounded partially with bog. Pulaski, Round, and Boot are represented by the Sawdust Lake Association.

Aquatic Invasive Species Survey of

Pulaski Lake, Rusk County

Data collected by Jo Heuschele, Anna Mares, Rick Helgemo, and Ted Ludwig on June 18, July 14, and August 6, 2008



Map created by Anna Mares and Jacob Sutherland
16-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson

Red Cedar Lake (Waterbody Identification Code # 2109600)

Barron County (T36N R10W S21 SE ¼ NE ¼)

Dates of Survey

Red Cedar Lake was surveyed on June 11, July 14, and August 6, 2009

Boat Launch

Red Cedar Lake has three boat launches, corresponding to those on the map by number. The first boat launch (1) is at the Barron County Park on the northwest side of the lake. It has a paved turnaround, pit toilets, and parking along the roadside. The launch is a cement pad with two wooden docks. No fee is required for launching there. There are "Help Prevent" and "Stop and Remove" signs. Video surveillance is being used at this landing to ensure that boaters are removing aquatic plants from their trailers before and after entering the water. The second boat launch (2) is in the middle section of the lake on the east side. It is an unimproved launch with a sand/gravel pad and a dock. There is one parking stall. No fee is required. Pit toilets for men and women are available. Signs for "VHS Alert" (viral hemorrhagic septicemia) and Barron County Ordinances were present. The third launch (3) is also in the middle section of the lake but on the west side, accessible from State Hwy 48. It is adjacent to the Stout Island drop off and pick-up lot. It is an unimproved launch of sand/gravel with no dock. There are no fees or restrooms. Space is available for two vehicles with trailers along the side of the launch. VHS Alert, "Stop and Remove," "Help Prevent," and Barron County Ordinances signs were present at the launch. Overflow parking in the Stout Island parking lot is prohibited.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Marsh Calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Three-way Sedge	*Dulichium arundinaceum*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Forked Duckweed	*Lemna trisulca*
Northern Water Milfoil	*Myriophyllum sibiricum*

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson

Common Name	Scientific Name
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
White-stem pondweed	*Potamogeton praelongus*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
White water crowfoot	*Ranunculus trichophyllus*
Arrowhead	*Sagittaria sp.*
Hardstem bulrush	*Scirpus acutus*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Common Bladderwort	*Utricularia vulgaris*
Bladderwort	*Utricularia sp.*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 6/11/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Red Cedar Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 30.82, higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Red Cedar Lake during the 2009 field season. *P. crispus* has already been documented for Red Cedar Lake. It was found at 22 of 56 transects used for plant sampling set at 1,500 ft intervals around the perimeter of the lake. *P. crispus* was heavy in the northern bay near Bass Lake.

No spiny water flea or zebra mussel veligers were detected during the three summer samplings. Rusty crayfish were detected from the August 6, 2009 sampling. They have already been documented in Red Cedar Lake. One species of invasive snail, the Chinese mystery snail, was found in Red Cedar Lake. This is a new invasive species for Red Cedar Lake.

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 11, 2009	July 14, 2009	August 6, 2009
Site #1	15T 0609902 5049258	9.25 ft	9.5 ft	11.5 ft
Site #2	15T 0609680 5051359	8.5 ft	13.75 ft	11.0 ft
Site #3	15T 0609519 5052911	9.5 ft	13.75 ft	12.25 ft

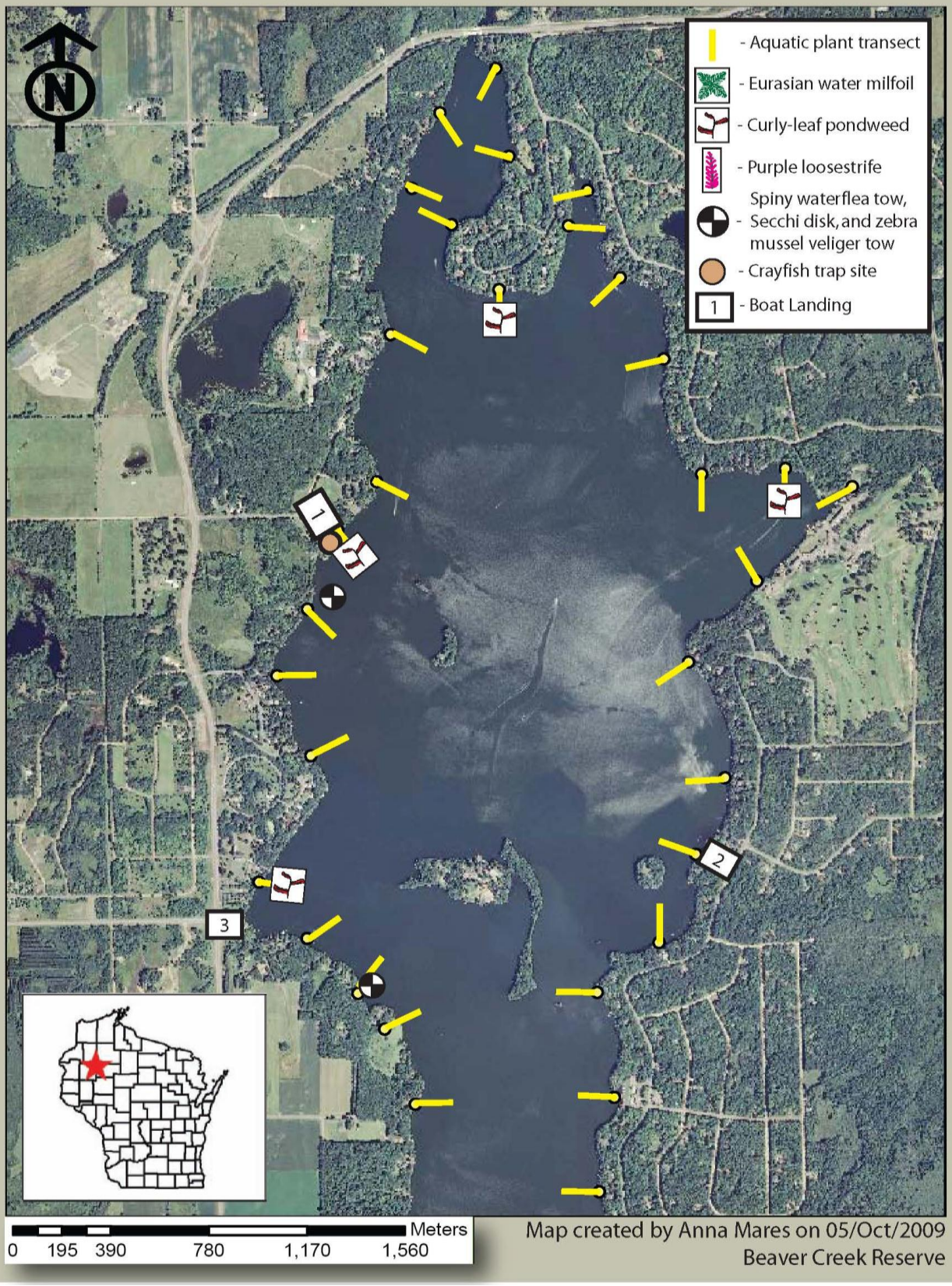
Lake and Shoreline Conditions

The water level appeared to be 3-4 inches lower than normal. The shoreline vegetation is approximately 90% deciduous and 10% coniferous. Around 80% of the lake is developed with homes. In general the lake homes have good buffers. It is encouraged to have 30 ft of buffer before the water's edge. The shoreline is mostly rocky with some sandy spots

Aquatic Invasive Species Survey of

Red Cedar Lake (North), Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson on June 11, July 14, and August 6, 2009

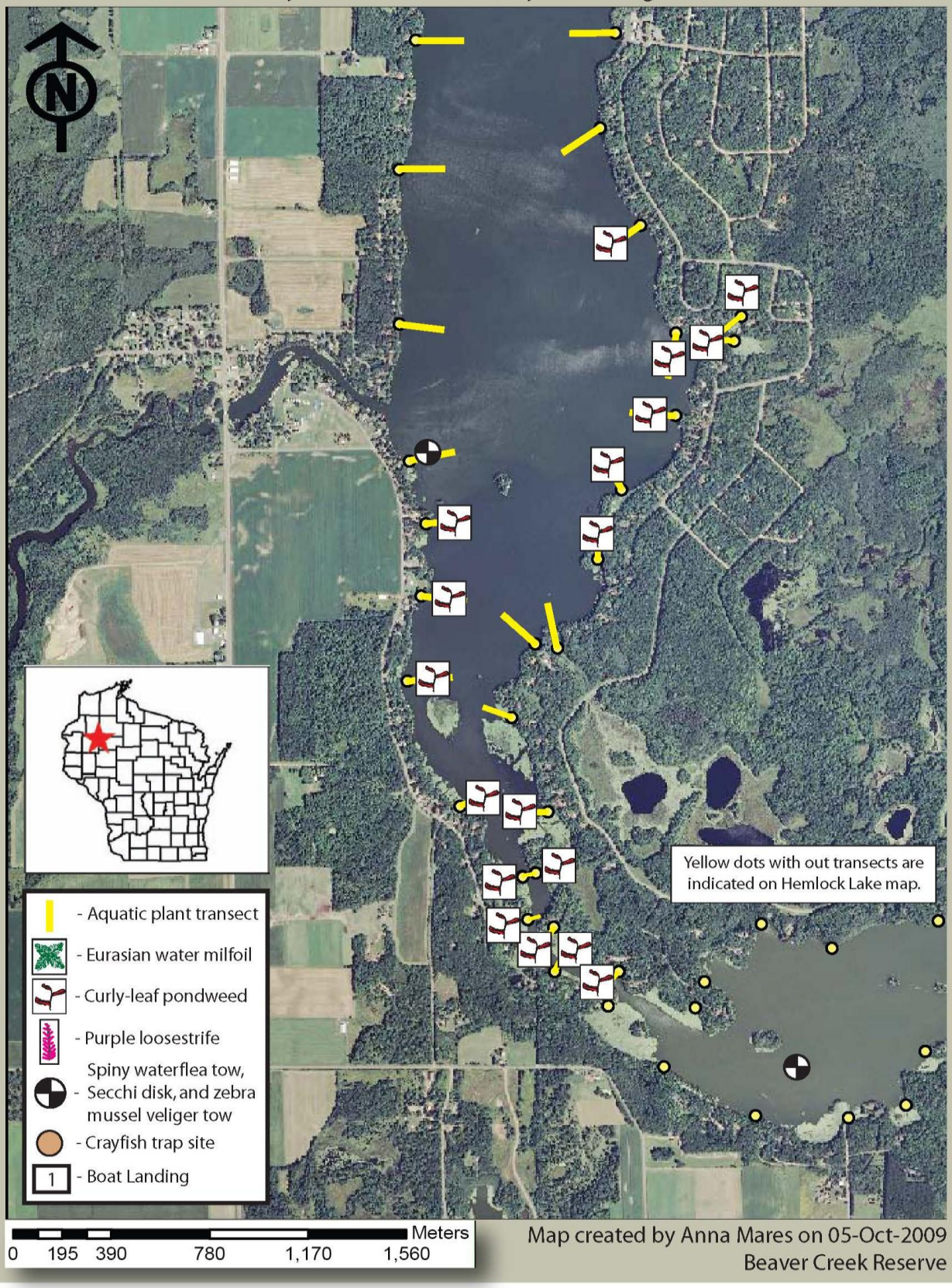


Map created by Anna Mares on 05/Oct/2009
Beaver Creek Reserve

Aquatic Invasive Species Survey of

Red Cedar Lake (South), Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Jenny Pomeroy, Larry Johnson, and Gerry Johnson on June 11, July 14, and August 6, 2009



Map created by Anna Mares on 05-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar and Ted Ludwig

Rice lake (Waterbody Identification Code # 2103900)

Barron County (T35N R11W 21 NW ¼ SE ¼)

Dates of Survey

Rice Lake was surveyed on June 25, July 21, and August 13, 2008

Boat Launch

There are eight boat launches that are spread out around the lake. Veterans Park is where the crayfish traps were set and where the boat was launched. The park has public restrooms, turn around room, and ample parking. The landing is cement with a dock.

Invasive Species

Curly-leaf pond weed was found in Rice Lake during the 2008 field season but was not mapped since a full plant survey was conducted by a private contractor for Rice Lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 21, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 25, 2008	July 21, 2008	August 13, 2008
Site #1	15T 0599205 5041035	4.5 ft	3.0 ft	3.25 ft
Site #2	15T 0599408 5039539	5.5 ft	3.25 ft	3.5 ft
Site #3	15T 0600348 5037836	8.5 ft	5.5 ft	3.75 ft

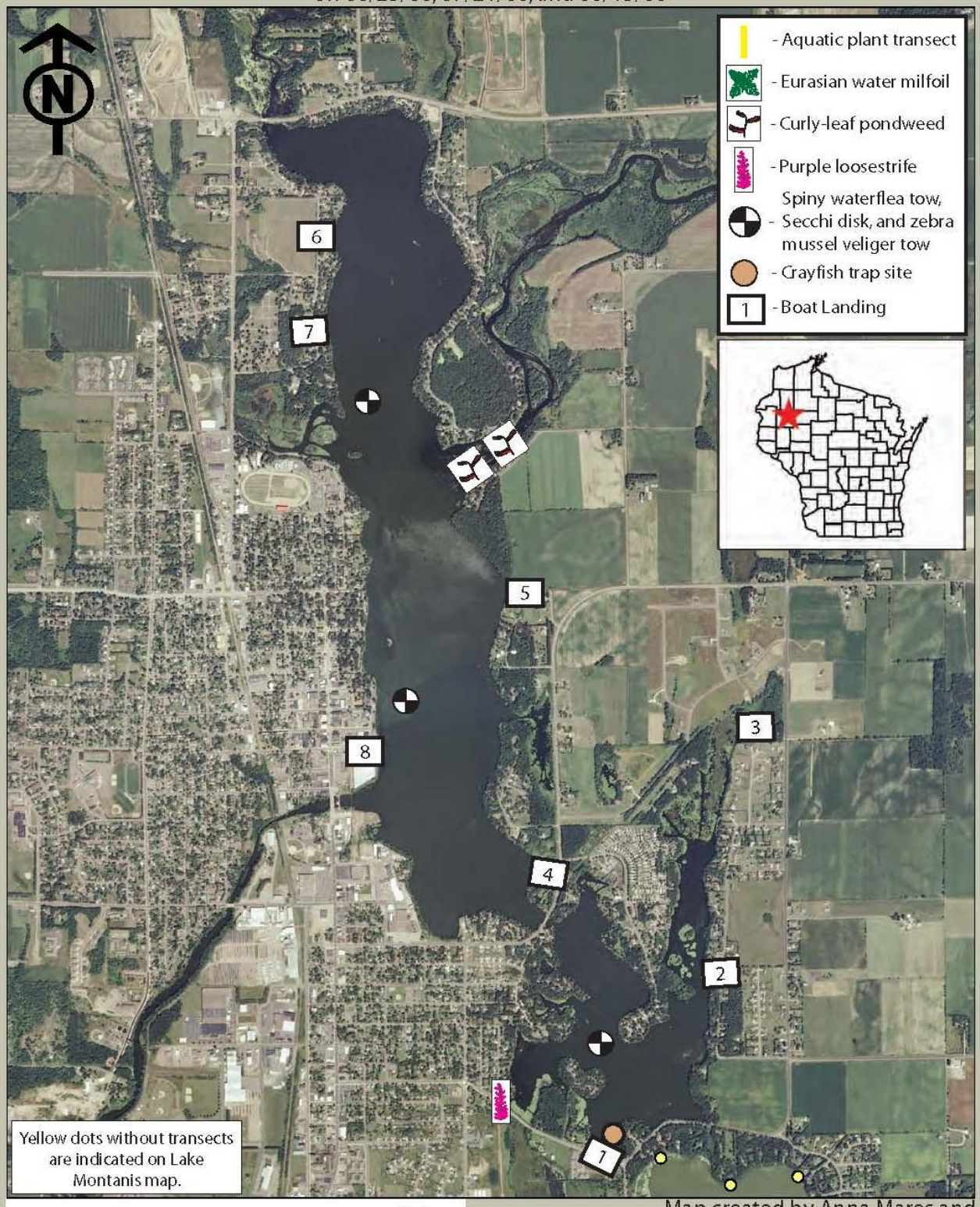
Lake and Shoreline Conditions

The west shore of Rice Lake has a mix of industry and densely packed homes. These both have 5-10 ft of grass as a buffer. The east shore is less heavily developed with good buffer zones. There were plant harvesters running to collect curly-leaf pondweed where the Red Cedar River enters Rice Lake on the last sampling date.

Aquatic Invasive Species Survey of

Rice Lake, Barron County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, and Ted Ludwig
on 06/25/08, 07/21/08, and 08/13/08



Map created by Anna Mares and
Jacob Sutherland on 02-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar and Ted Ludwig

Rock Lake (Waterbody Identification Code # 2171600)

Chippewa County (T31N R08W S9 SW ¼ NW ¼)

Dates of Survey

Rock Lake was surveyed on June 5, July 28, and August 11, 2008

Boat Launch

There is one private boat launch that can be accessed by the public for a $2.00 fee. To get to the campgrounds that houses the boat launch, follow 153rd St. straight to the lake. The launch is paved down to the pad where it butts up to sandy gravel. It has a moderate slope. There is turn around space and parking for up to five trailers.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Spiny Hornwort	*Ceratophyllum echinatum*
Water horsetail	*Equisetum fluviatile*
Lesser Duckweed	*Lemna minor*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
White-stem pondweed	*Potamogeton praelongus*
Fern Pondweed	*Potamogeton Robbinsii*
Soft-stem Bulrush	*Scirpus validus*
Flat-leaf Bladderwort	*Utricularia intermedia*

*Plant list is not comprehensive and contains only those species observed on 06/05/2008.

Rock Lake contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Rock Lake was

found to have an approximate (as a full plant survey was not conducted) FQI value of 22.61, slightly higher than the state average.

Invasive Species

One invasive plant was found in Rock Lake during the 2008 field season.
Curly-leaf Pondweed was found in two locations with the following GPS coordinates:

15T 0627759 5005429 15T 0627549 5004929

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 28, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum. The June 5, 2008 reading at site #2 was taken, but it was illegible at the time of the report compilation.

	GPS (UTMs)	June 5, 2008	July 28, 2008	August 11, 2008
Site #1	15T 0627759 5005429	6.0 ft	3.25 ft	3.25 ft
Site #2	15T 0627931 5005000	No Reading Taken	3.5 ft	3.5 ft
Site #3	15T 0627854 5004716	7.0 ft	3.5 ft	3.25 ft

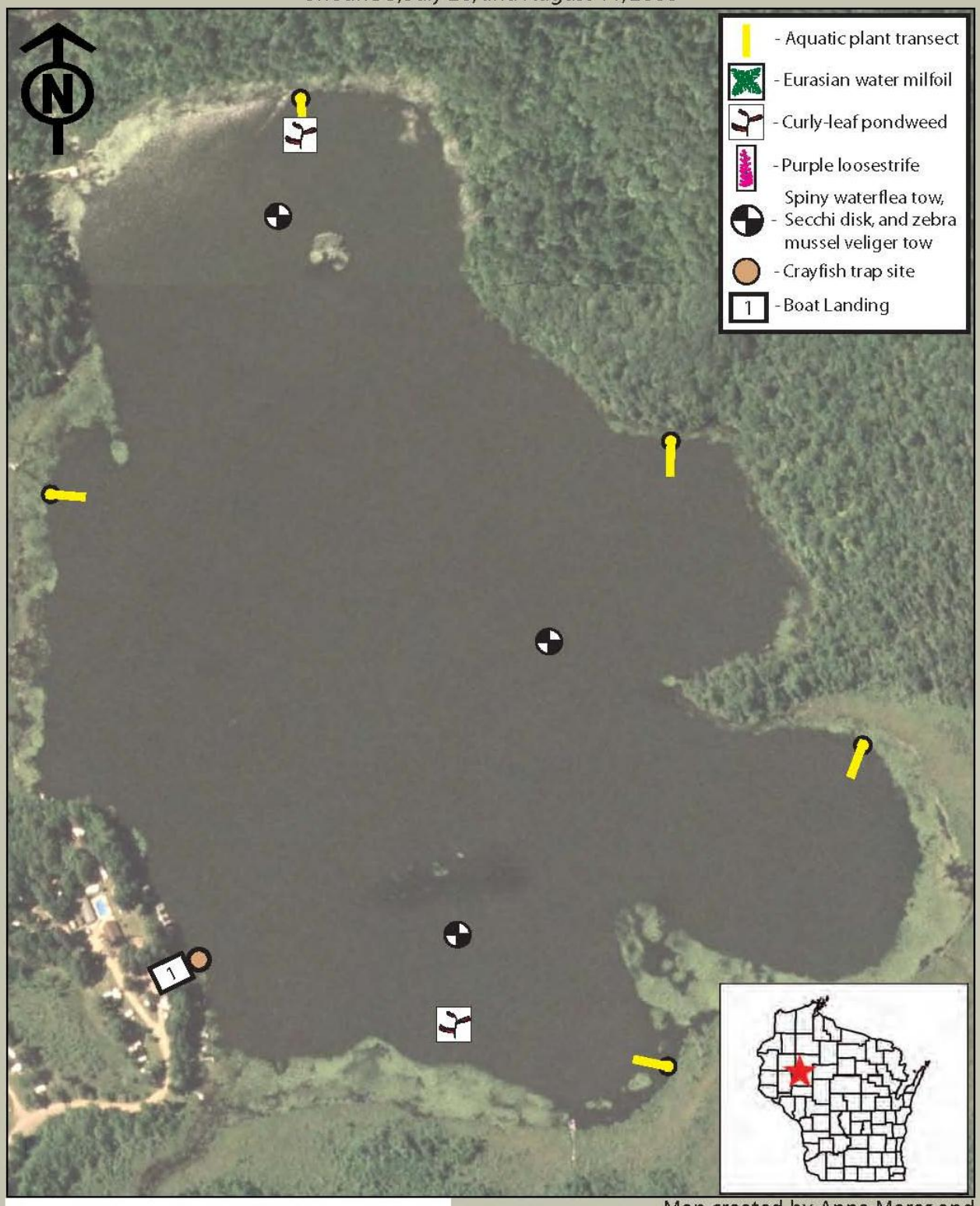
Lake and Shoreline Conditions

Other than the campground, there are few inhabitants on the lake. Even at the campground a good buffer zone is present with natural vegetation left to grow at the boat launch. A majority of the shoreline is forested with marshy areas to the west and the southeast.

Aquatic Invasive Species Survey of

Rock Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, and Ted Ludwig
on June 5, July 28, and August 11, 2008



Map created by Anna Mares and
Jacob Sutherland on 02-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares & Kevin Mesiar

Round Lake (Waterbody Identification Code # 2169200)

Chippewa County (T32N R09W S23 NW ¼ NW ¼)

Dates of Survey

Round Lake was surveyed on June 15, July 7, and July 31, 2008

Boat Launch

Round Lake has one boat launch on the NW side of the lake. It is run by the county and is well kept with frequent mowing. The grass clippings wash right down into the lake. The launch is a cement pad with a fixed dock. The park has ample parking and a fee is required. There are no garbage bins available for disposal of clinging aquatic vegetation.

Native Plant List*

Common Name	Scientific Name
Marsh Calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Needle Spikerush	*Eleocharis acicularis*
Pipewort	*Eriocaulon aquaticum*
Feather Moss, Green	*Drepanocladus sp.*
Milfoil	*Myriophyllum sp.*
Dwarf Water Milfoil	*Myriophyllum tenellum*
Nitellas	*Nitella sp.*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Sago Pondweed	*Potamogeton pectinatus*
Stiff Arrowhead	*Sagittaria rigida*
Floating-leaf bur-reed	*Sparganium fluctuans*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/15/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Round Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 25.79, higher than the state average.

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares & Kevin Mesiar

Invasive Species

No invasive plants were found in Round Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native species of crayfish were detected during the July 31, 2008 sampling.

Secchi Disk Readings

Clarity readings stayed consistent for the last two sample dates. Readings were taken during the June 15, 2008 sampling, but the data sheet fell into the water at a later date and was unable to be retrieved. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 15, 2008	July 7, 2008	July 31, 2008
Site #1	15T 0621417 5011679	No Reading Taken	4.5 ft	5.75 ft
Site #2	15T 0621724 5012097	No Reading Taken	4.5 ft	5.75 ft

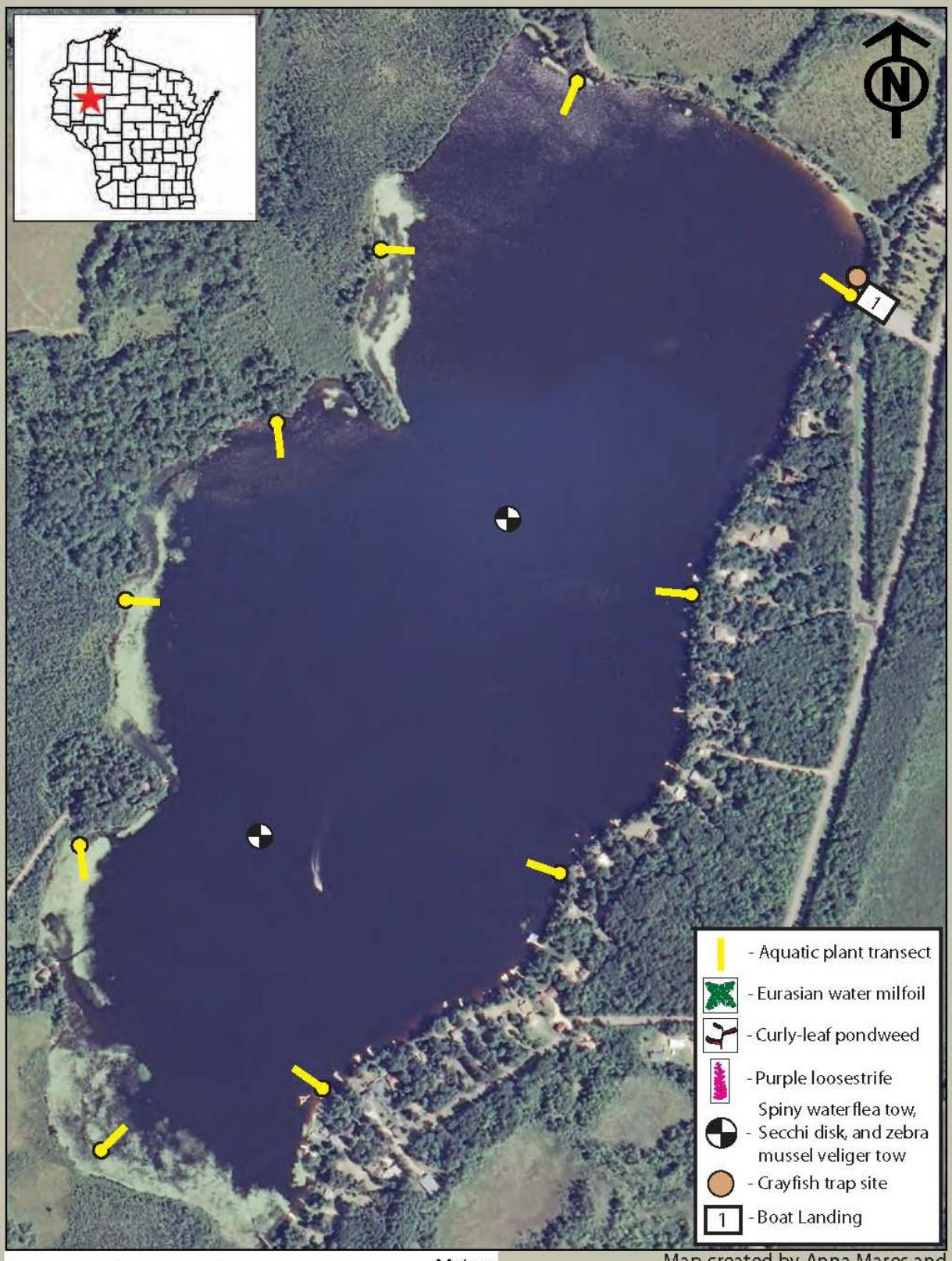
Lake and Shoreline Conditions

The western half of the lake is lined with natural vegetation as a buffer. The eastern portion of the lake is lined with houses that have large docks or multiple docks. Lawns are kept close to the shoreline.

Aquatic Invasive Species Survey of

Round Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, and Kevin Mesiar on June 15, July 7, and July 31, 2008



Map created by Anna Mares and Jacob Sutherland on 16-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Ted Ludwig, & Rick Helgemo

Round Lake (Waterbody Identification Code # 1878200)

Rusk County (T33N R07W S08 SW ¼ SW ¼)

Dates of Survey

Round Lake was surveyed on June 18, July 14, and August 6, 2008

Boat Launch

The only launch on Round Lake is shallow sloping dirt and high grass into the lake off of Round Lake Rd. adjacent to River Road. The launch is shallow with peat sediment. There is no turnaround or designated parking. The landing is owned by the town. No fee is required. The site has no bathroom. Toward the end of summer the vegetation (mostly Pickerelweed) is heavy at the launch.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Various-leaved Water Milfoil	*Myriophyllum heterophyllum*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Floating Lead Pondweed	*Potamogeton natans*
Creeping Bladderwort	*Utricularia gibba*
Twin-stemmed Bladderwort	*Utricularia geminiscapa*
Common Bladderwort	*Utricularia vulgaris*

*

Plant list is not comprehensive and contains only those species observed on 06/18/2008.

Round Lake contains one plant, *Utricularia geminiscapa*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for this region of the state. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Round Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 20.85, slightly lower than the state average.

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Ted Ludwig, & Rick Helgemo

Invasive Species

No invasive plants were found in Round Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One crayfish was collected during the August 6, 2008 sampling. It was sent to the state laboratory for identification and was found to be *Cambarus diogenes*.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 18, 2008	July 14, 2008	August 6, 2008
Site #1	15T 0635226 5023301	2.75 ft	2.0 ft	2.75 ft

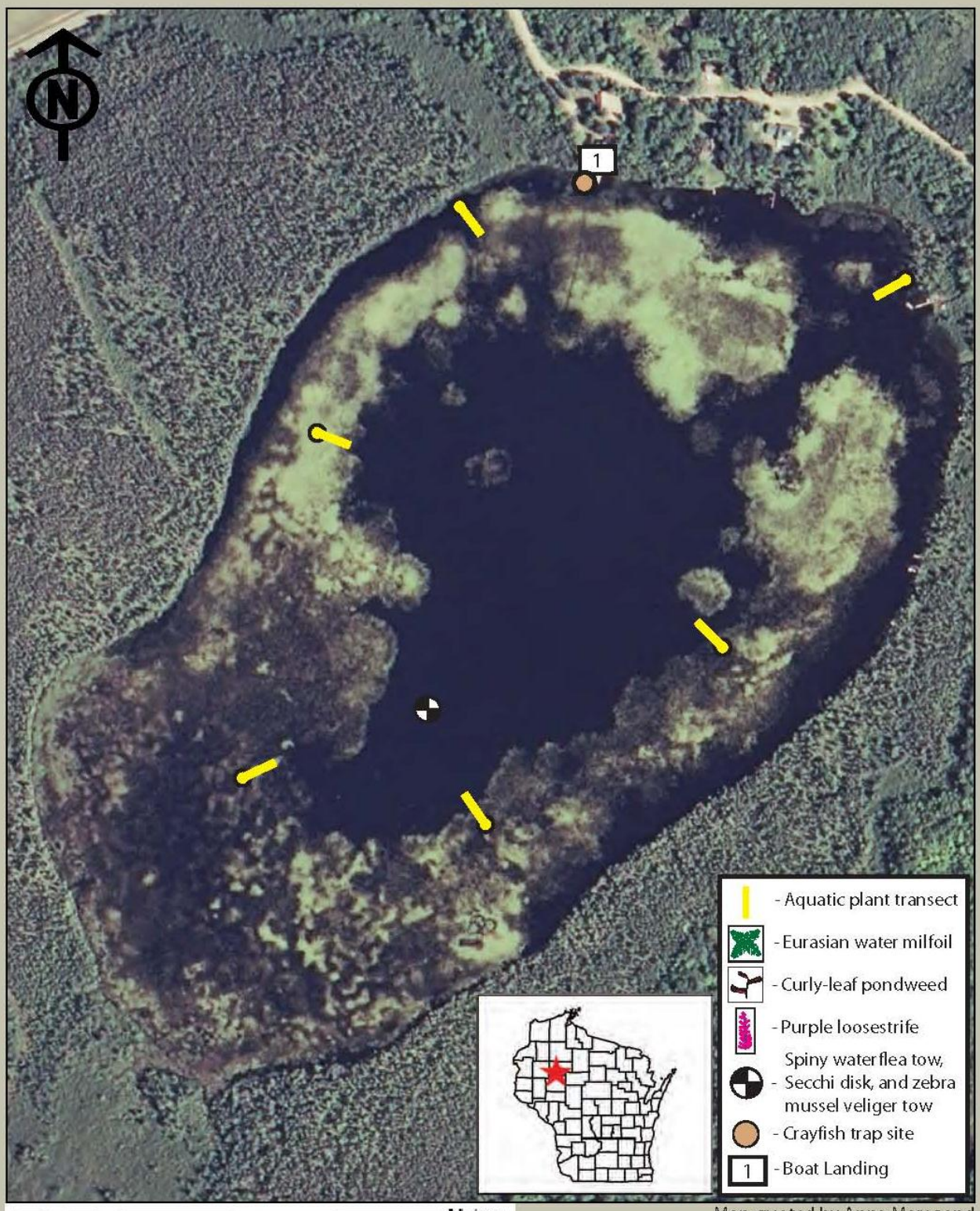
Lake and Shoreline Conditions

There are two houses on Round Lake with lawns up to the water's edge. The rest of the shore is spruce and tamarack bog. The water's edge to the bog is 2 ft deep, but the peat is soft and a push pole sinks into the substrate. Round Lake is a shallow seepage lake surrounded with bog. The max depth is 9 feet. A lake resident indicated that the lake had been "froze out" of all large bass and northern pike. The crew noticed fry swimming near the launch but were unsure which fish species the fry belonged to. A bullhead was caught in a crayfish trap on August 6, 2008.

Aquatic Invasive Species Survey of

Round Lake, Rusk County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Ted Ludwig, and Rick Helgemo
on June 18, July 14, and August 6, 2008



Map created by Anna Mares and
Jacob Sutherland on 19-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Rusk Lake (Waterbody Identification Code # 1878800)

Rusk County (T33N R09W S15 NE ¼ SW ¼)

Dates of Survey

Rusk Lake was surveyed on May 28, July 9, and August 4, 2009

Boat Launch

Rusk Lake has one boat launch located in the southwest corner of the lake off of Buck Lake Rd. next to a volleyball court and recreation/picnic area. The Landing is grass that turns to gravel 20 ft before the water. The launch pad is extremely uneven with potholes and crests. There is a dock but it provided no benefit with the water level so low. There are no restrooms, launch fees, or aquatic invasive species signs.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Spiny Hornwort	*Ceratophyllum echinatum*
Three-way Sedge	*Dulichium arundinaceum*
Common Waterweed	*Elodea canadensis*
Northern St. John's wort	*Hypericum boreale*
Nitellas	*Nitella sp.*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Marsh Cinquefoil	*Potentilla palustris*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Broad-leaved Cattail	*Typha latifolia*
Bladderwort	*Utricularia sp.*

*Plant list is not comprehensive and contains only those species observed on 05/28/2009

Rusk Lake contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of

Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Rusk Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 20.49, slightly lower than the state average.

Invasive Species

No invasive plants were found in Rusk Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 4, 2009 sampling.

Secchi Disk Readings

Readings declined through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	May 28, 2009	July 9, 2009	August 4, 2009
Site #1	15T 0619492 5022093	12.0 ft	9.0 ft	7.5 ft

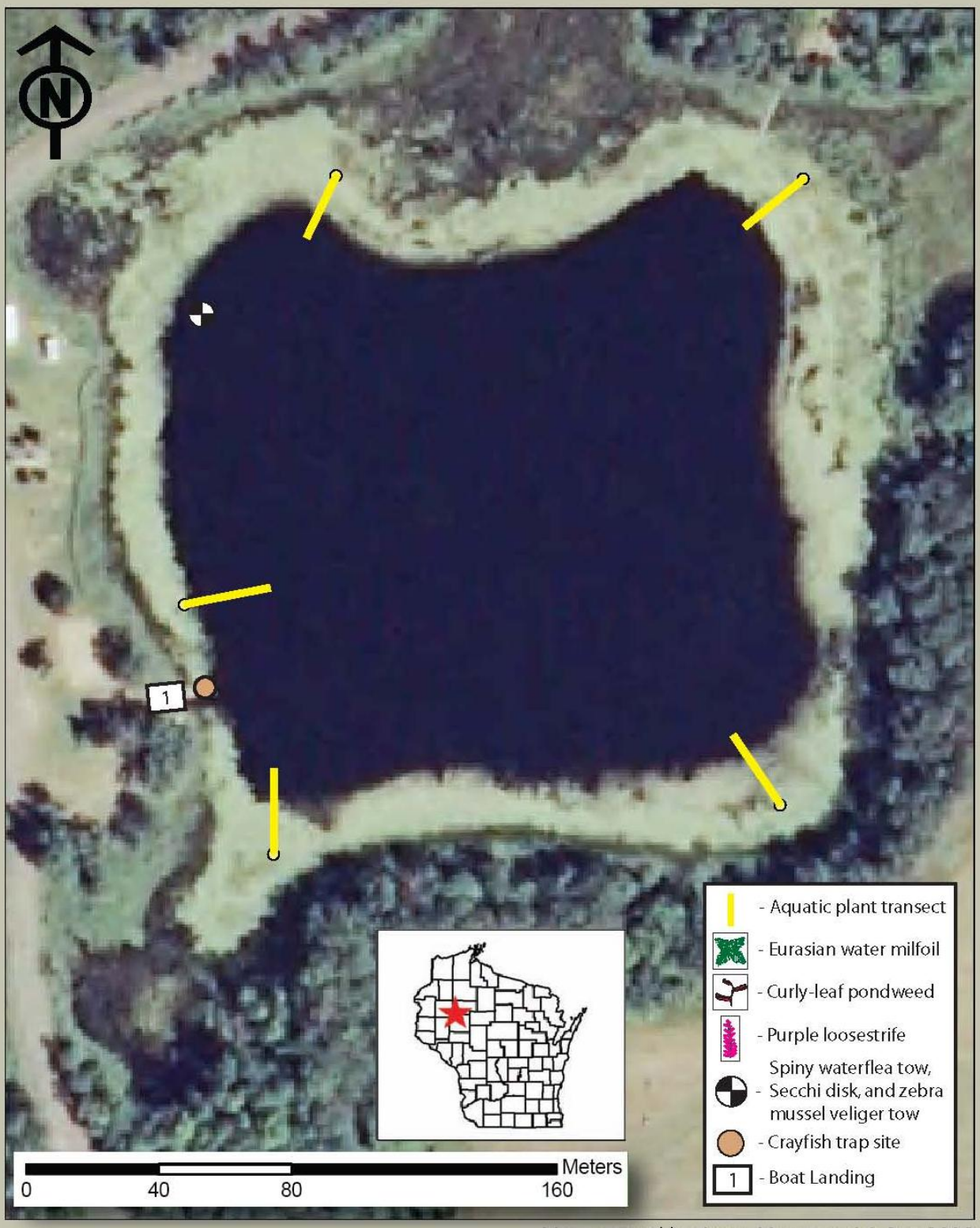
Lake and Shoreline Conditions

The lake is approximately 20% developed with two docks on the entire lake. The picnic area is mowed and has a buffer of about 5 ft. The remainder of the lake has a nice buffer zone. The shoreline vegetation is 95% deciduous and 5% coniferous. All four of the small lobes of the lake have been filled in with vegetation giving the lake a square shape. The lake water was at least one foot low at the first May 28, 2009 visit and at least two feet low at the last visit of August 4, 2009. Rusk Lake is a very small 12 acre lake, yet deep, with a max depth of close to 60 ft.

Aquatic Invasive Species Survey of

Rusk Lake, Rusk County

Data collected by Anna Mares, Ted Ludwig, and Zoe Hastings on May 28, July 9, and August 4, 2009



Map created by Anna Mares on 14-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith and Claire Bailey

Sand Lake (Waterbody Identification Code # 2661100)

Barron County (T36N R14W S17 NW ¼ NE ¼)

Dates of Survey

Sand Lake was surveyed on June 25, July 24, and August 18, 2009

Boat Launch

Sand Lake has one boat launch on the south side of the lake off of 25 ¾ Avenue. The launch is paved to cement slabs into the water. There is a wooden dock and no restrooms or fees required. There is a large turnaround with parking along the side of the turnaround for 8-10 vehicles with trailers. Aquatic invasive species awareness signs are present. Barron County runs the launch.

Native Plant List*

Common Name	Scientific Name
Water marigold	*Bidens beckii*
Water shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Musk grass	*Chara sp.*
Needle spikerush	*Eleocharis acicularis*
Common waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Lesser duckweed	*Lemna minor*
Northern water milfoil	*Myriophyllum sibiricum*
Slender naiad	*Najas flexilis*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Water smartweed	*Polygonum amphibium*
Large-leaf pondweed	*Potamogeton amplifolius*
Water-thread pondweed	*Potamogeton diversifolius*
Illinois pondweed	*Potamogeton illinoensis*
Floating leaf pondweed	*Potamogeton natans*
Sago pondweed	*Potamogeton pectinatus*
White-stem pondweed	*Potamogeton praelongus*
Fern pondweed	*Potamogeton robbinsii*
Spiral-fruited pondweed	*Potamogeton spirillus*
Flat-stem pondweed	*Potamogeton zosteriformis*
Stiff water crowfoot	*Ranunculus longirostris*

Common Name	Scientific Name
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Common bladderwort	*Utricularia vulgaris*
Wild celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/25/2009

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Sand Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 30.79, higher than the state average.

Invasive Species

Two invasive plants were found in Sand Lake during the 2009 field season. *Myriophyllum spicatum* was found at seven of 22 transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake. Two large beds of *M. spicatum* have been sectioned off by buoys on the south and northwest sides of the lake. The other invasive plant found around Sand Lake was purple loosestrife (*Lythrum salicaria*). Eight different patches of *L. salicaria* were scattered along the northern and eastern shore of the lake. Several of the plant's bloom spikes were removed but all the plants were too firmly rooted to pull.

GPS points for *Myriophyllum spicatum*:

15T 0570926 5047844	15T 0569782 5048126	15T 0568675 5050029
15T 0570592 5047731	15T 0569647 5048450	
15T 0570278 5047782	15T 0568616 5049628	

GPS points for *Lythrum salicaria*:

15T 0569166 5049669	15T 0568450 5050658	15T 0569911 5048831
15T 0569138 5049715	15T 0568487 5050708	15T 0569198 5049442
15T 0568791 5050198	15T 0568763 5050213	

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. One crayfish was collected from the July 24, 2009 sampling and has been sent in for identification for whether or not it is an invasive species. One invasive snail, the Chinese mystery snail, was found in Sand Lake during the 2009 summer.

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith and Claire Bailey

Secchi Disk Readings

Readings steadily declined over the course of the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 25, 2009	July 24, 2009	August 18, 2009
Site #1	15T 0568519 5050421	13.0 ft	10.5 ft	6.5 ft
Site #2	15T 0569394 5049239	14.0 ft	13.0 ft	6.0 ft
Site #3	15T 0570458 5048073	15.0 ft	11.5 ft	6.0 ft

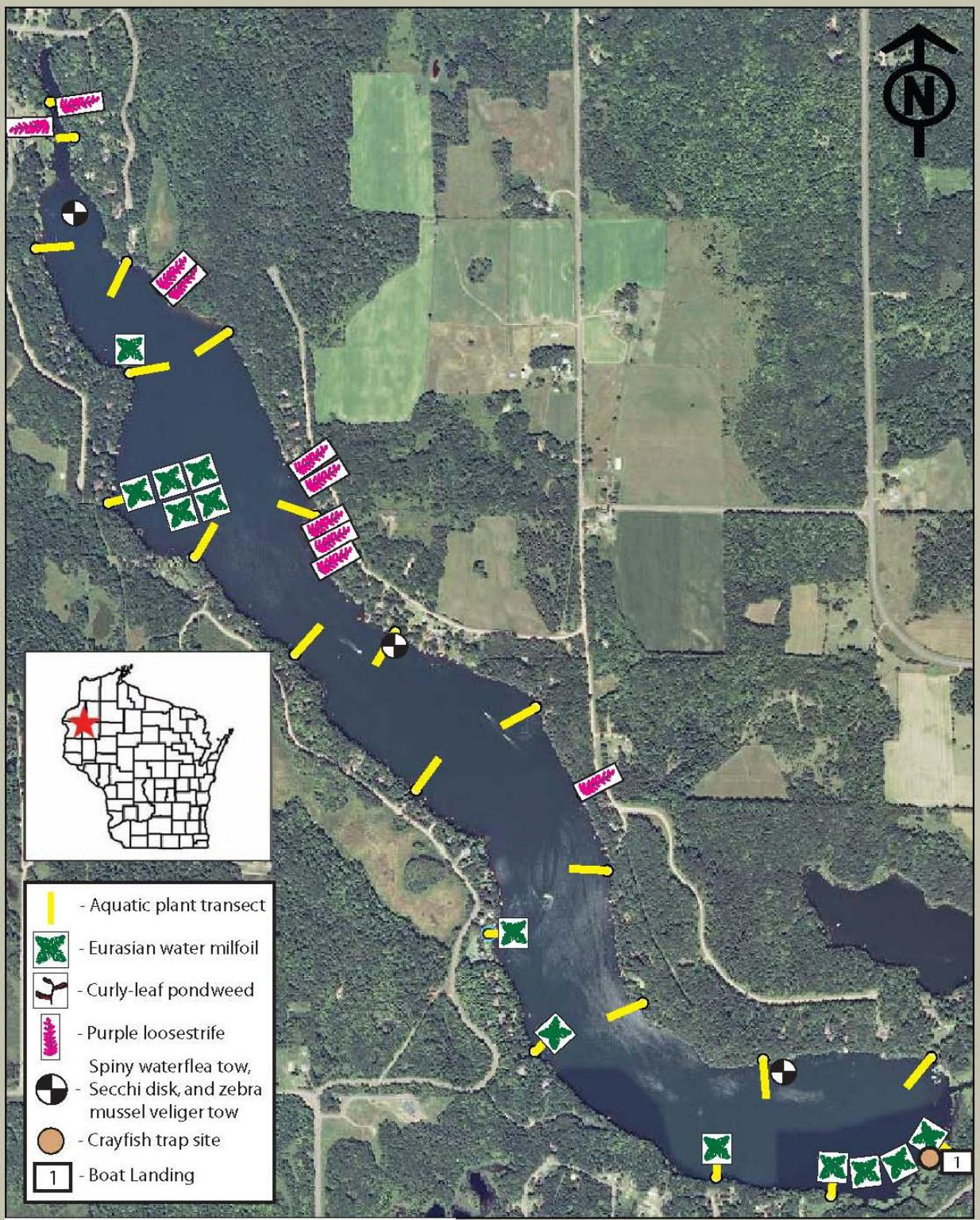
Lake and Shoreline Conditions

The shoreline vegetation is approximately 60% deciduous and 40% coniferous. The lake is about 45% developed. The middle 1/3 of the lake is the most developed with poor buffers of 5 ft or less at many of the homes. The northern 1/3 and southern 1/3 of the lake have better buffers that are over or come close to the desired 30 ft of buffering by shoreline.

Aquatic Invasive Species Survey of

Sand Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Katrina Smith and Claire Bailey
on June 25, July 24, and August 18, 2009



Map created by Anna Mares on 15-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

Sand Lake (Waterbody Identification Code # 2353600)

Rusk County (T33N R08W S34 NW ¼ NW ¼)

Dates of Survey

Sand Lake was surveyed on May 27, July 8, and August 4, 2009

Boat Launch

There is one boat launch on Sand Lake on the west side of the lake on Eau Claire Avenue. The launch is steep down to the lake. The launch lane is paved to the water and a dock is present. There is enough room to turnaround and parking for 3-4 vehicles. There are no restrooms or fees.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Musk grass	*Chara sp.*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Common Waterweed	*Elodea canadensis*
Water horsetail	*Equisetum fluviatile*
Water stargrass	*Heteranthera dubia*
Milfoil	*Myriophyllum sp.*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Leaf Pondweed	*Potamogeton natans*
Fern Pondweed	*Potamogeton robbinsii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 05/27/2009.

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Sand Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 27.05, higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Sand Lake during the 2009 field season. *P. crispus* was found at three of 14 transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake. This plant has already been documented in Sand Lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 4, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. Rain water made the May 27, 2009 site #3 Secchi disk recorded reading illegible. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	May 27, 2009	July 8, 2009	August 4, 2009
Site #1	15T 0628183 5015963	11.5 ft	11.25 ft	12.5 ft
Site #2	15T 0628233 5016695	13.0 ft	12.5 ft	16.0 ft
Site #3	15T 0629022 5017529	no reading taken	12.50 ft	18.0 ft

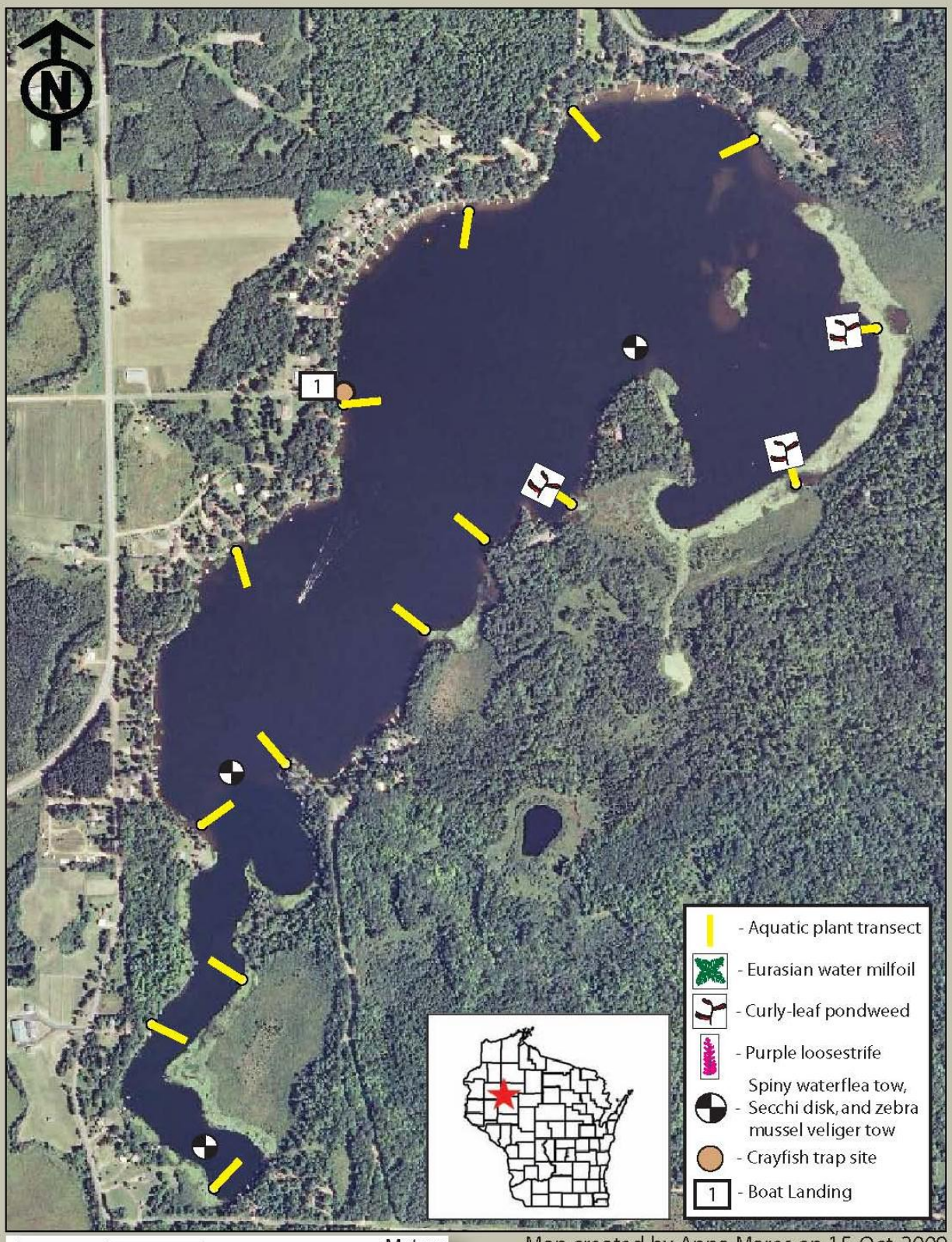
Lake and Shoreline Conditions

Approximately 70% of the shoreline is developed. The western and northern shores are more heavily developed than the eastern shore. The more heavily developed areas have large lawns that are mowed down to the water. Only areas without homes have 30+ ft buffers on the shore. About 10% of the eastern shore has marshland vegetation surrounding the shore.

Aquatic Invasive Species Survey of

Sand Lake, Rusk County

Data collected by Anna Mares, Zoe Hastings, and Ted Ludwig on May 27, July 8, and August 4, 2009



Map created by Anna Mares on 15-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Claire Bailey

Scott Lake (Waterbody Identification Code # 2630700)

Barron County (T35N R14W S16 NW ¼ SW ¼)

Dates of Survey

Scott Lake was surveyed on June 29, July 28, and August 18, 2009

Boat Launch

The boat launch is on the north side of the lake off of 22nd Avenue. It is an unimproved gravel launch with no dock. There is turnaround space and parking for two vehicles with trailers. AIS awareness signs are present. No restrooms are available and no fees are required.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Spiny Hornwort	*Ceratophyllum echinatum*
Waterwort	*Elatine minima*
Needle Spikerush	*Eleocharis acicularis*
Creeping Spikerush	*Eleocharis palustris*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Brown-fruited Rush	*Juncus pelocarpus*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Ribbon-leaf Pondweed	*Potamogeton epihydrus*
Arrowhead	*Sagittaria sp.*
Common Bur-reed	*Sparganium eurycarpum*
Little Bur-reed	*Sparganium minima*
Creeping Bladderwort	*Utricularia gibba*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 6/29/2009.

Scott Lake contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or

declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Scott Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 30.28, higher than the state average.

Invasive Species

No invasive plants were found in Scott Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 28, 2009 sampling. One invasive snail, the Chinese mystery snail, was found in Scott Lake during the 2009 summer. It has already been documented as being present.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 29, 2009	July 28, 2009	August 18, 2009
Site #1	15T 0569465 5040692	9.0 ft	2.75 ft	3.0 ft

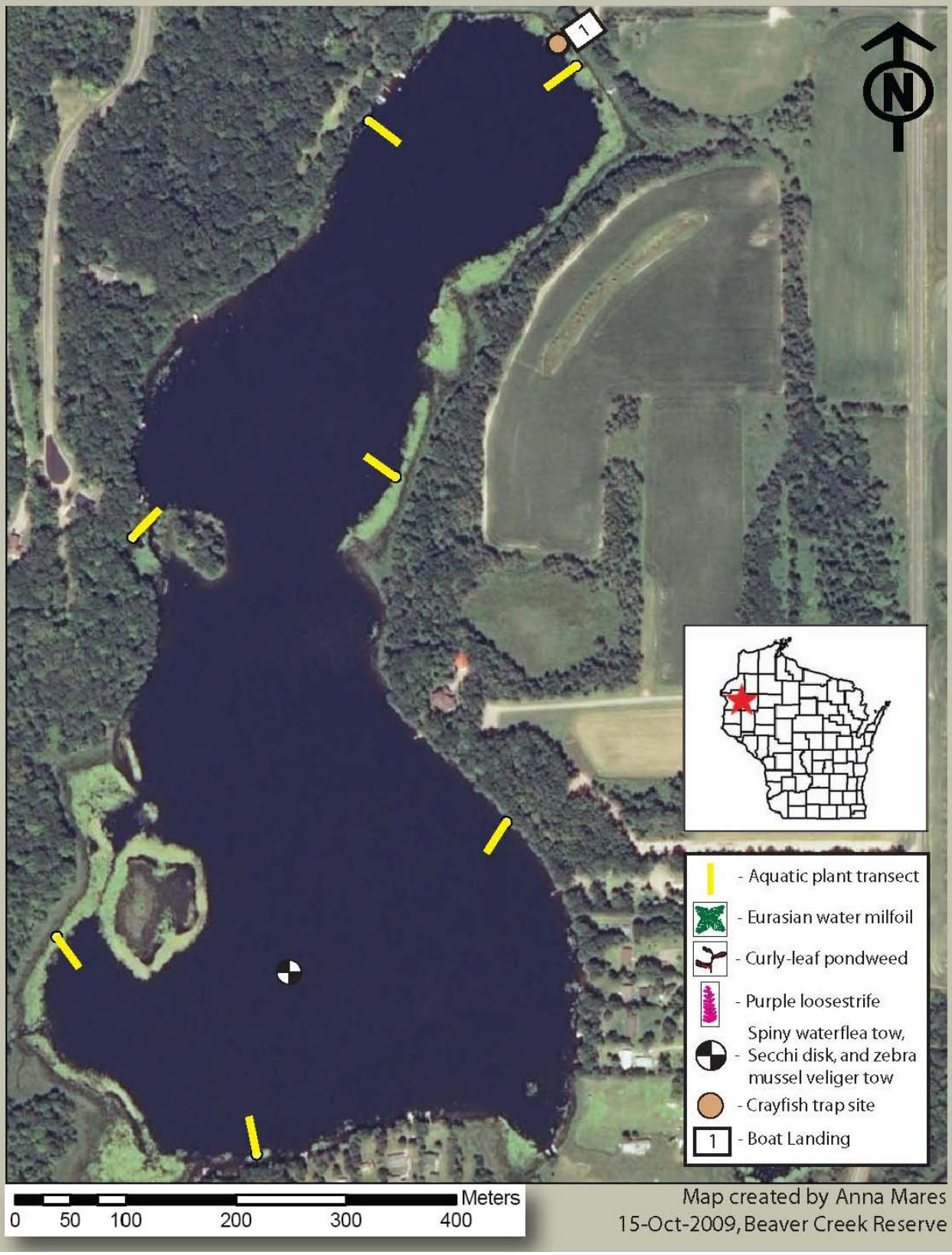
Lake and Shoreline Conditions

The shoreline vegetation is approximately 95% deciduous and 55 coniferous. Scott Lake is about 30% developed with most of the homes not having good buffers (often less than 5 ft) near the water. The water level appears to be 1.5 ft lower than normal. As a result, vegetation has begun to fill in the space between the two islands and the nearby shore. Scott Lake is a slow no wake lake from 4pm until 11am.

Aquatic Invasive Species Survey of

Scott Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Claire Bailey
on June 29, July 28, and August 18, 2009



Map created by Anna Mares
15-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
August 25, 2008
Data collected by Anna Mares, Kevin Mesiar, Ted Ludwig & Judy Schwarzmeier

North Shattuck Lake (Waterbody Identification Code # 1869300)

Eau Claire County (T32N R09W S25 NE ¼ SE ¼)

Dates of Survey

North Shattuck Lake was surveyed on June 24, July 17, and August 11, 2008

Boat Launch

There is one public boat launch off of County Highway M. The launch is a shallowly sloped dirt compacted path with a sandy launch pad. There is a small grassy parking area. There is no dock at the launch. The launch is owned by the WDNR and is part of the Ice Age Trail. A fee is required for parking at the launch or an Ice Age Trail Pass is needed.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Sedges	*Carex sp.*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Northern St. John's Wort	*Hypericum boreale*
Farwell's water Milfoil	*Myriophyllum farwellii*
Variable Milfoil	*Myriophyllum heterophyllum*
Nitellas	*Nitella sp.*
White Water Lily	*Nymphea odorata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Floating Lead Pondweed	*Potamogeton natans*
Sago Pondweed	*Potamogeton pectinatus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Stiff Arrowhead	*Sagittaria rigida*
Hardstem bulrush	*Scirpus acutus*
Swaying-rush	*Schoenoplectus subterminalis*
Creeping Bladderwort	*Utricularia gibba*
Flat-leaf Bladderwort	*Utricularia intermedia*
Large Purple Bladderwort	*Utricularia purpurea*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 06/24/2008.

North Shattuck Lake contains one plant, *Utricularia purpurea,* which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). North Shattuck Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 30.40, higher than the state average.

Invasive Species

No invasive plants were found in North Shattuck Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 11, 2008 sampling.

Secchi Disk Readings

Readings were consistent throughout the summer of 2008 with a slight increase in clarity in the beginning of August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 24, 2008	July 17, 2008	August 11, 2008
Site #1	15T 0623896 5008805	8.25 ft	8.0 ft	9.5 ft
Site #2	15T 0623973 5009105	8.75 ft	7.5 ft	9.0 ft

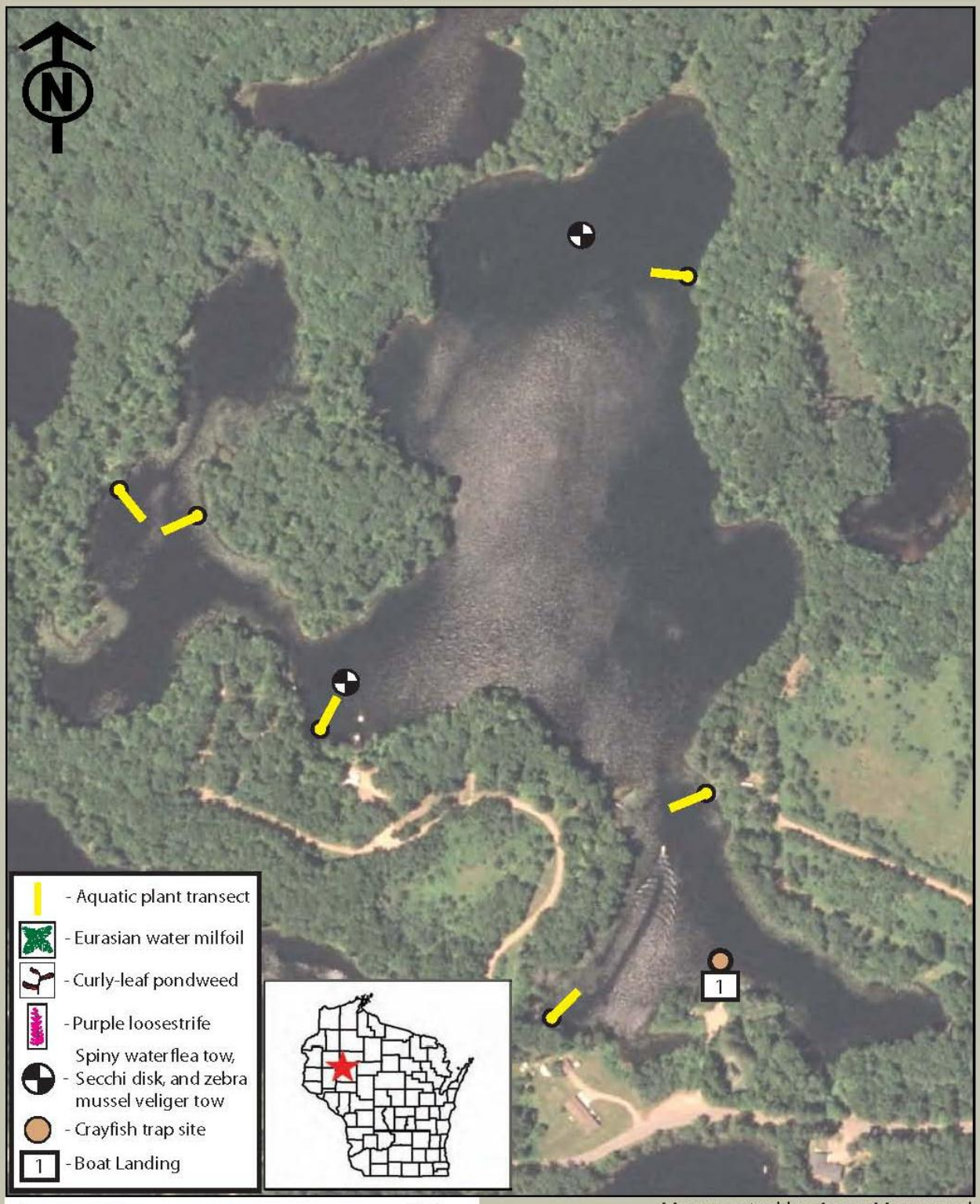
Lake and Shoreline Conditions

There are a handful of houses on the south west and west side of the lake. All of them have at least 10-15 ft of buffer before the water's edge. The rest of the lake is naturally vegetated with a mixed hardwood and conifer forest.

Aquatic Invasive Species Survey of

North Shattuck Lake, Eau Claire County

Data collected by Anna Mares, Kevin Mesiar, Ted Ludwig, and Judy Schwarzmeier
on June 24, July 17, and August 11, 2008



Map created by Anna Mares and
Jacob Sutherland on 02-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 23, 2008
Data Collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar
& Judy Schwarzmeier

South Shattuck (Waterbody Identification Code # 1879300)

Chippewa County (T32N R08W S31 NW ¼ NW ¼)

Date of Survey

South Shattuck was surveyed on June 18, July 17, and August 11, 2008

Boat Launch

There is one main public boat launch off of 135th Street, perpendicular to County Hwy M. The launch is a steep concrete pad with a large gravel parking area. There is no dock at the launch. The launch is owned by the WDNR and is part of the Ice Age Trail. A fee is required for parking at the launch or an Ice Age Trail Pass is needed.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Spiny Hornwort	*Ceratophyllum echinatum*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Moss	*Drepanocladus sp.*
Various-leaved Water Milfoil	*Myriophyllum heterophyllum*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating Lead Pondweed	*Potamogeton natans*
Sago Pondweed	*Potamogeton pectinatus*
Small Pondweed	*Potamogeton pusillus*
Large Purple Bladderwort	*Utricularia purpurea*

*Plant list is not comprehensive and contains only those species observed on 06/18/2008.

Ceratophyllum echinatum and *Utricularia purpurea* are both listed as species of Special Concern in Wisconsin. "Special Concern" means that experts suspect the species are rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic

Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). South Shattuck Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 24.12, higher than the state average.

Invasive Species

No invasive plants were found in South Shattuck during the 2008 field season. *Myriophyllum heterophyllum* was miss identified as Eurasian Water Milfoil by the Ice Age Trail Staff. The milfoil was sampled and confirmed by a specialist at Stevens Point as *M. heterophyllum* and not *M. spicatum.*

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish were detected during the August 11, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum. No samples were taken on July 17, 2008 due to a thunderstorm.

	GPS (UTMs)	June 18, 2008	July 17, 2008	August 11, 2008
Site #1	15T 0624426 5007991	9.5 ft	Not sampled	13.25 ft
Site #2	15T 0624363 5008327	11.5 ft	Not sampled	12.5 ft

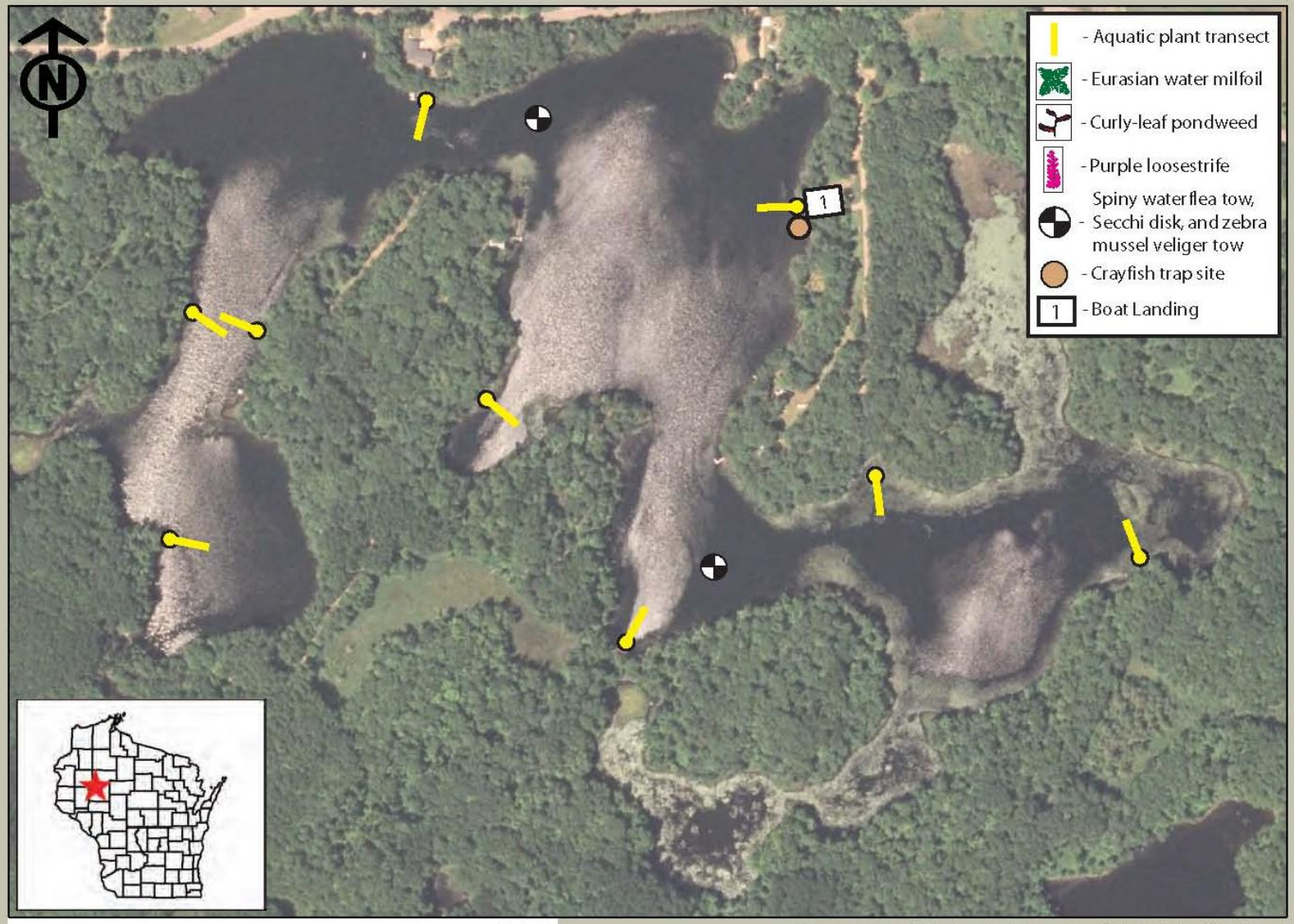
Lake and Shoreline Conditions

The majority of the lake is part of the Ice Age Trail; therefore, it has a natural shoreline. The privately owned cottages have at least 30ft of shoreline vegetation before any lawn starts. The meandering shoreline prevents heavy wave action and most bays contain some type of floating or emergent vegetation. The lake during the 2008 season is dominated by *Myriophyllum heterophyllum* to a nuisance level (residents complain about the number of plants).

Aquatic Invasive Species Survey of

South Shattuck Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Ted Ludwig, Kevin Mesiar, and Judy Schwarzmeier on June 18, July 17, and August 11, 2008



Map created by Anna Mares and Jacob Sutherland
23-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
November 17, 2009
Data collected by Anna Mares, Ted Ludwig, Katrina Smith, Jenny Pomeroy, Christine Preist, and Judy Schwarzmeier

Silver Lake (Waterbody Identification Code # 1881100)

Barron County (T36N R13W S24 SE ¼ SW ¼)

Dates of Survey

Silver Lake was surveyed on June 22, July 15, and August 11, 2009

Boat Launch

There is one launch on Silver Lake on the south side of the lake in Grant County Park. The launch is paved to the waterline and then is sand. A wooden dock and large AIS awareness signs are present. Restrooms are available in the park. There are 20 parking stalls and an open grass area for vehicles. No launch fee is required.

Native Plant List*

Common Name	Scientific Name
Waterwort	*Elatine minima*
Needle Spikerush	*Eleocharis acicularis*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Quillworts	*Isoetes sp.*
Plantain shoreweed	*Littorella uniflora*
Nitellas	*Nitella sp.*
Dwarf Water Milfoil	*Myriophyllum tenellum*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Leafy Pondweed	*Potamogeton foliosus*
Creeping Spearwort	*Ranunculus flammula*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/22/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Silver Lake was found to have an

approximate (as a full plant survey was not conducted) FQI value of 28.14, higher than the state average.

Invasive Species

No invasive plants were found in Silver Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 15, 2009 sampling. One invasive snail, the Chinese mystery snail, was found in Silver Lake, but it had already been documented.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 22, 2009	July 15, 2009	08/11/09
Site #1	15T 0621908 5044862	13.5 ft	10.5 ft	12.0 ft
Site #2	15T 0622531 5045470	14.0 ft	12.5 ft	11.25 ft
Site #3	15T 0622502 5045005	16.25 ft	13.5 ft	11.5 ft

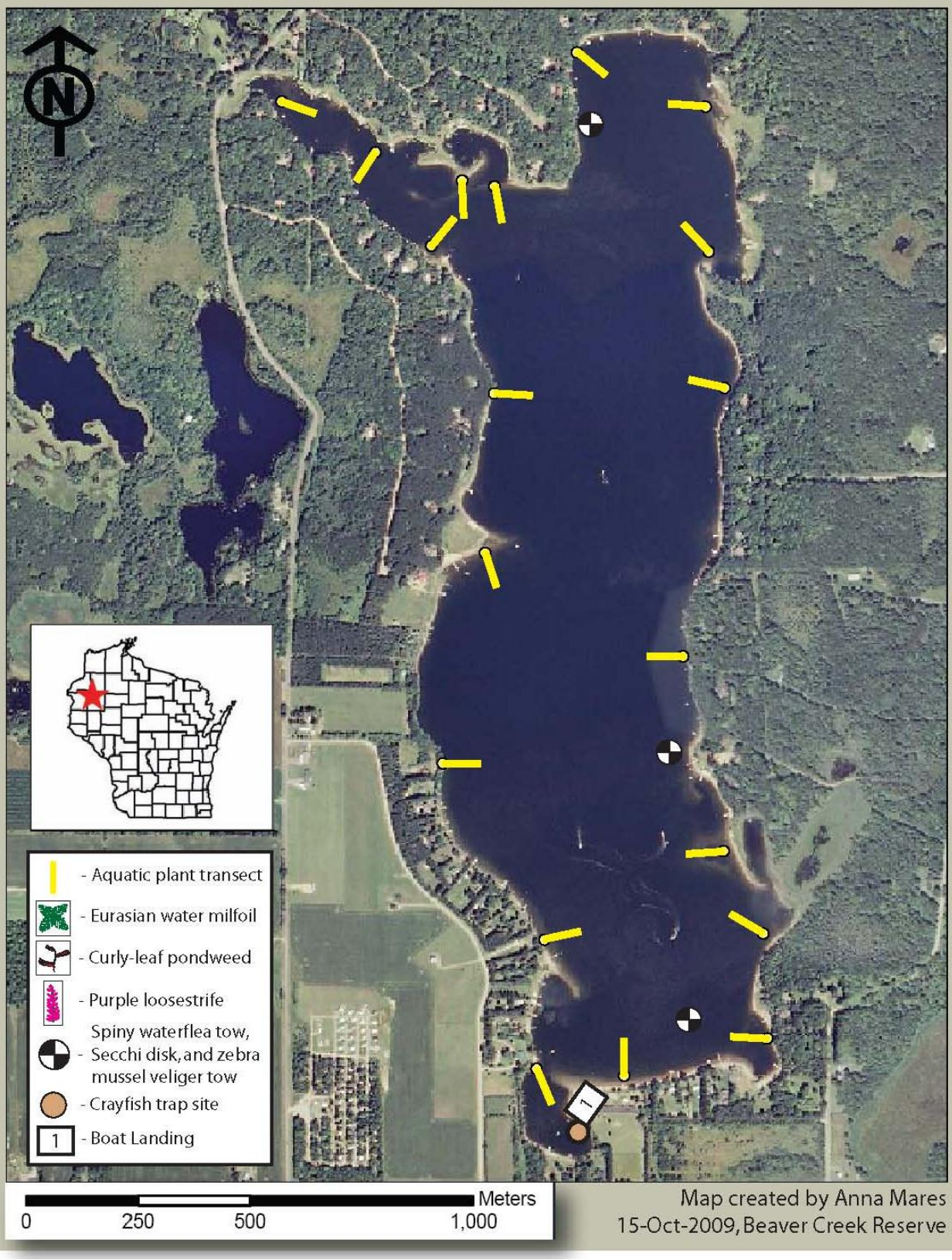
Lake and Shoreline Conditions

The shoreline vegetation is approximately 70% deciduous and 30% coniferous. Almost 95% of the lake is developed and docked. The lawns have little to no buffering before the water. Silver Lake has had a three foot drop in water from its normal level. This has caused large stretches of shoreline to become exposed and residents have begun to groom the plants off of the newly discovered beaches. Boats and personal watercraft are to keep 100 ft from shore and people. The bay that the boat launch is in is a slow no wake bay. Silver Lake has very zooplankton species and an abundant amount of the genus *Holopedium.*

Aquatic Invasive Species Survey of

Silver Lake, Barron County

Data collected by Anna Mares, Ted Ludwig, Katrina Smith, Jenny Pomeroy, Judy Schwarzmeier, and Christine Preist on June 22, July 15, and August 11, 2009



Map created by Anna Mares
15-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
November 19, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Christine Preist, Jenny Pomeroy and Judy Schwarzmeier

Spider Lake (Waterbody Identification Code # 1882000)

Barron County (T36N R13W S1 SW ¼ SW ¼)

Dates of Survey

Spider Lake was surveyed on June 17, July 15, and August 11, 2009

Boat Launch

The boat launch on Spider Lake is located on the north side of the lake off of 11th Street in Barron County Park land. It is an unimproved sand/gravel launch with no dock. In the water, the launch turns to muck that is over one ft deep. There is a turnaround and parking for two vehicles with trailers. No fees are required.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Spiny Hornwort	*Ceratophyllum echinatum*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Creeping Spikerush	*Eleocharis palustris*
Brown-fruited rush	*Juncus pelocarpus*
Plantain shoreweed	*Littorella uniflora*
Farwell's water Milfoil	*Myriophyllum farwellii*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Floating Leaf Pondweed	*Potamogeton natans*
Pondweed	*Potamogeton sp.*
Arrowhead	*Sagittaria latifolia*
Water bulrush	*Schoenoplectus subterminalis*
Broad-leaved Cattail	*Typha latifolia*
Creeping Bladderwort	*Utricularia gibba*
Large Purple Bladderwort	*Utricularia purpurea*
Common Bladderwort	*Utricularia vulgaris*
Green moss	*Drepanocladus sp.*

*Plant list is not comprehensive and contains only those species observed on 06/17/2009.

Spider Lake contains two plants, *Ceratophyllum echinatum* and *Utricularia purpurea*, which are listed as a species of Special Concern. "Special Concern" means that experts suspect the species are rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Spider Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 33.47, higher than the state average.

Invasive Species

No invasive plants were found in Spider Lake during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 11, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 17, 2009	July 15, 2009	August 11, 2009
Site #1	15T 0621908 5044862	8.0 ft	7.75 ft	6.75 ft

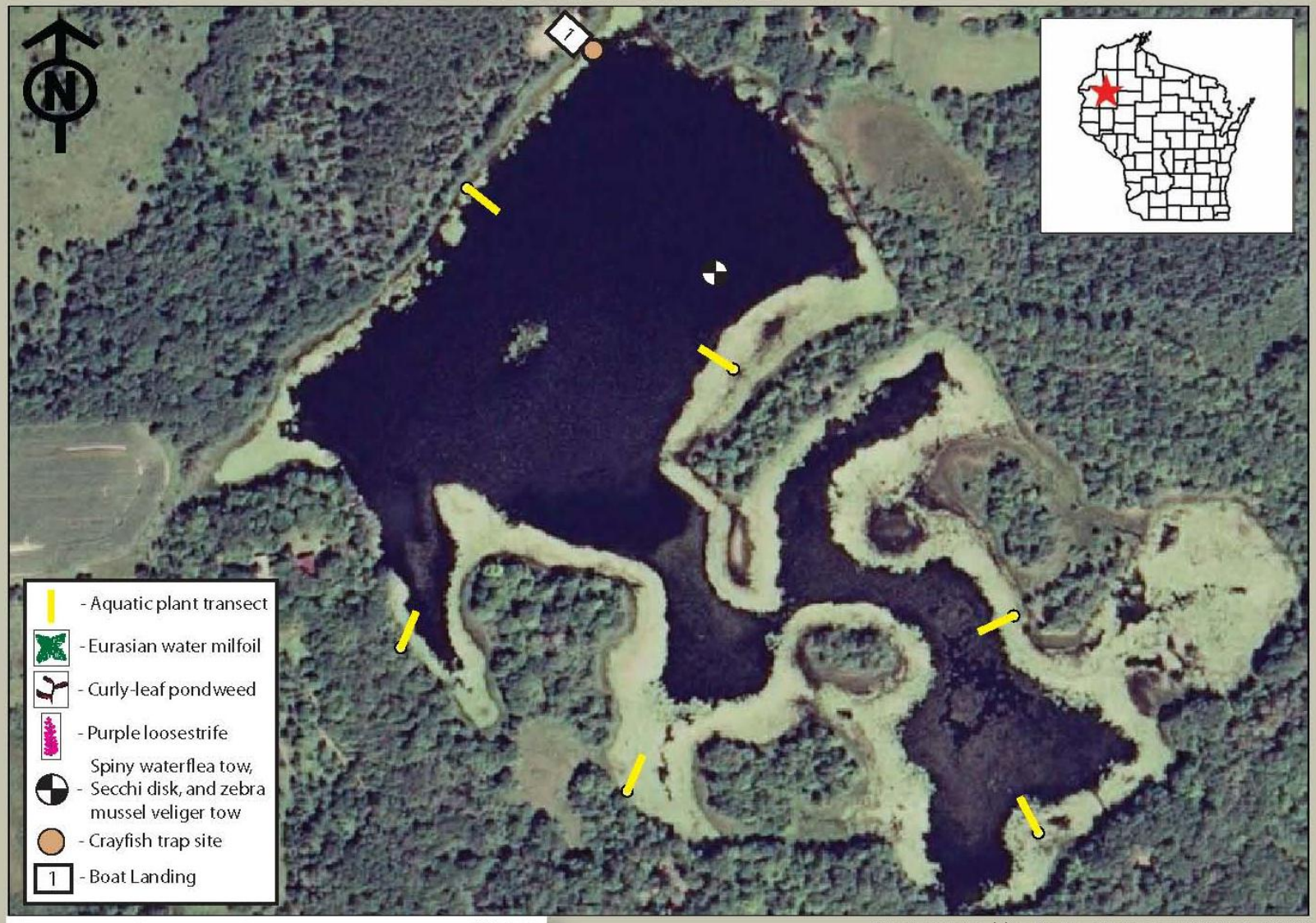
Lake and Shoreline Conditions

Emergents surround the shoreline with trees that are 95% deciduous and 5% coniferous. A small marsh lies on the east side of the lake. There are three homes on the lake, all of which have good buffers. Forest separates the homes. The water level on the lake is nearly 1.5 ft low. Heavy vegetation is filling in the space between the islands and the nearest shore.

Aquatic Invasive Species Survey of

Spider Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Christine Preist, Jenny Pomeroy and Judy Schwarzmeier
on June 11, July 14, and August 6, 2009



Map created by Anna Mares on 15-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Claire Bailey and Jeff Mares

Staples Lake (Waterbody Identification Code # 2631200)

Barron County (T35N R14W S30 SW ¼ NW ¼)

Dates of Survey

Staples Lake was surveyed on June 30, July 27, and August 19, 2009

Boat Launch

There are two boat launches on Staples Lake. The first launch (1 on the map) is on the north side of the lake off of Polk-Barron Street. It is a gravel to cement launch pad with a dock. It is a Polk County landing. There is a tight turnaround if vehicles are parked in the four available stalls. There are no bathrooms and no fees are required. The second launch (2 on the map) is on the west side of the lake off of Polk-Barron Street across from the Staples Lake Bar & Grill. Parking is available in the Bar & Grill parking lot. Vehicles must back up across the street to get to the paved launch. It is unknown if there is a required fee. Power loading is not allowed at either launch.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Lesser Duckweed	*Lemna minor*
Duckweed	*Lemna trisulca*
Slender Naiad	*Najas flexilis*
Nitellas	*Nitella sp.*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
White-stem pondweed	*Potamogeton praelongus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Fern Pondweed	*Potamogeton robbinsii*
Arrowhead	*Sagittaria sp.*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 6/30/2009.

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Claire Bailey and Jeff Mares

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Staples Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 21.25, slightly lower than the state average.

Invasive Species

One invasive plant species, *Potamogeton crispus,* was found in Staples Lake during the 2009 field season. *P. crispus* was found at 12 of 12 transects used for sampling aquatic plants set at 1,500 ft intervals around the perimeter of the lake. *P. crispus* was in large quantities at each of the transects and could be considered to be at nuisance levels.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 27, 2009 sampling. One invasive snail, the Chinese mystery snail, was found in Staples Lake, but it had already been documented as being present.

Secchi Disk Readings

Readings steadily declined over the course of the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 30, 2009	July 27, 2009	August 19, 2009
Site #1	15T 0566731 5038841	8.0 ft	4.5 ft	1.5 ft
Site #2	15T 0566274 5038499	8.0 ft	4.25 ft	2.25 ft

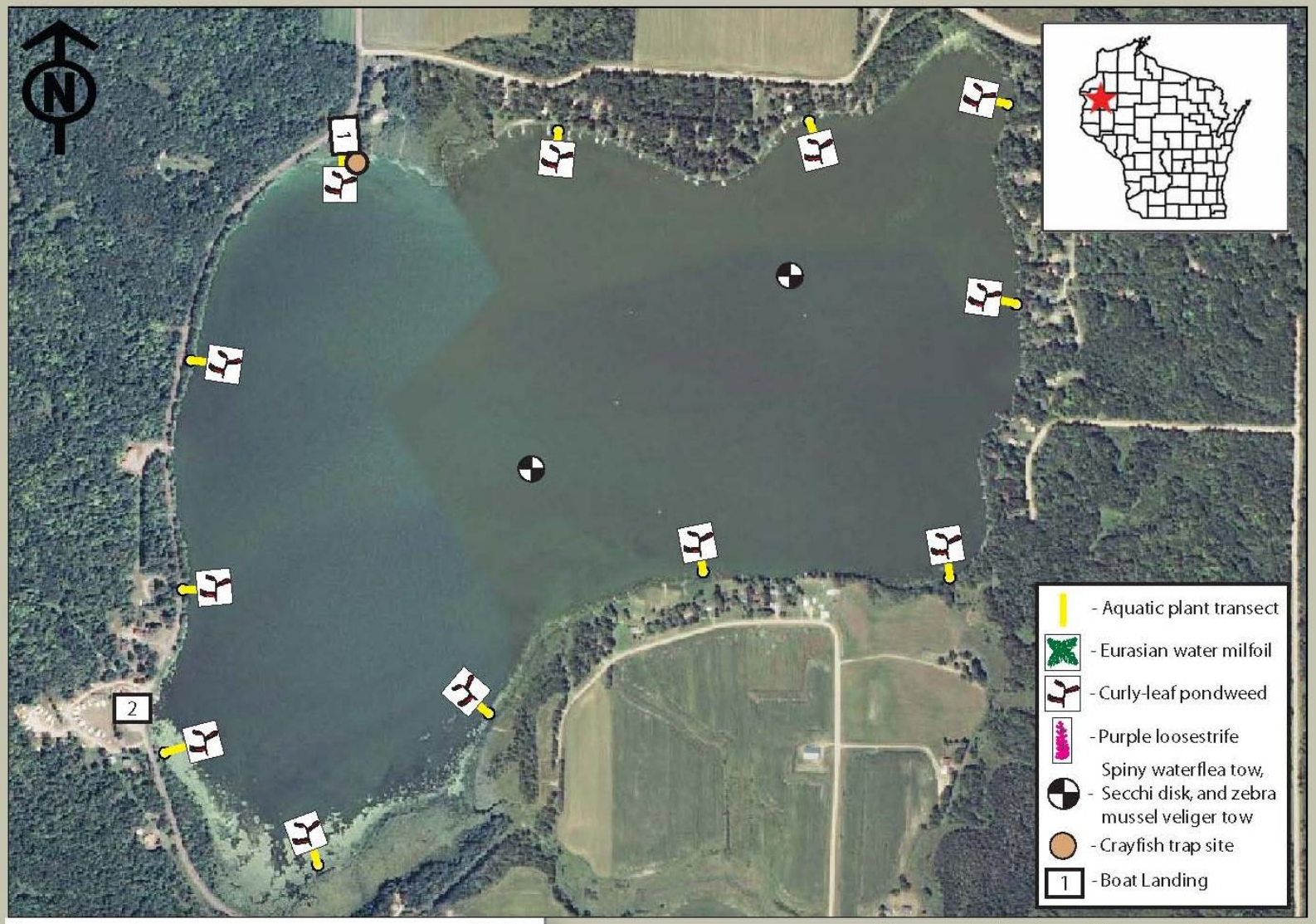
Lake and Shoreline Conditions

The shoreline vegetation is approximately 65% deciduous, 30% coniferous, and 5% marsh. Staples Lake is about 60% developed with docks. The homes that are present have cleared the vegetation on the property all the way to the water. Thirty feet of vegetative buffer is recommended. The lake is a slow no wake lake from 6pm to 10am. Thick sheets of black and green algae covered most of the plants in the water. Filamentous algae reduced water clarity.

Aquatic Invasive Species Survey of

Staples Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Claire Bailey, and Jeff Mares on June 30, July 27, and August 19, 2009



Map created by Anna Mares on 15-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Katrina Smith, and Christine Preist

Sylvan Lake (Waterbody Identification Code # 1884800)

Barron County (T36N R13W S15 NE ¼ NE ¼)

Dates of Survey

Sylvan Lake was surveyed on June 23, July 20, and August 12, 2009

Boat Launch

Sylvan Lake has one boat launch on the south side of the lake off of 27 ½ Avenue. The launch is sand/gravel with no dock. There are no restrooms or fees. Backing up on the road is required and parking is along the roadside. AIS awareness signs are present.

Native Plant List*

Common Name	Scientific Name
Sweet Flag	*Acorus calamus*
Water Shield	*Brasenia schreberi*
Sedge	*Carex comosa*
Three-way Sedge	*Dulichium arundinaceum*
Creeping Spikerush	*Eleocharis palustris*
Pipewort	*Eriocaulon aquaticum*
Water Horsetail	*Equisetum fluviatile*
Northern Blue Flag	*Iris versicolor*
Quillworts	*Isoetes sp.*
Lesser Duckweed	*Lemna minor*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Ribbon-leaf Pondweed	*Potamogeton epihydrus*
Arrowhead	*Sagittaria sp.*
Hardstem Bulrush	*Scirpus acutus*
Floating-leaf Bur-reed	*Sparganium fluctuans*
Broad-leaved Cattail	*Typha latifolia*

*Plant list is not comprehensive and contains only those species observed on 6/23/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Sylvan Lake was found to have an approximate

(as a full plant survey was not conducted) FQI value of 23.51, slightly higher than the state average.

Invasive Species

One invasive plant, purple loosestrife (*Lythrum salicaria*), was found on Sylvan Lake during the 2009 field season. Three plants were found 10 ft east of the boat landing. The flower heads were removed and marked with a white plastic bag tied around the stalk.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 20, 2009 sampling.

Secchi Disk Readings

Readings increased over the summer. A fine brownish green algae dramatically reduced water clarity in May. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 23, 2009	July 20, 2009	August 12, 2009
Site #1	15T 0581493 5051554	1.0 ft	4.5 ft	8.0 ft
Site #2	15T 0581836 5050765	1.0 ft	4.0 ft	5.75 ft

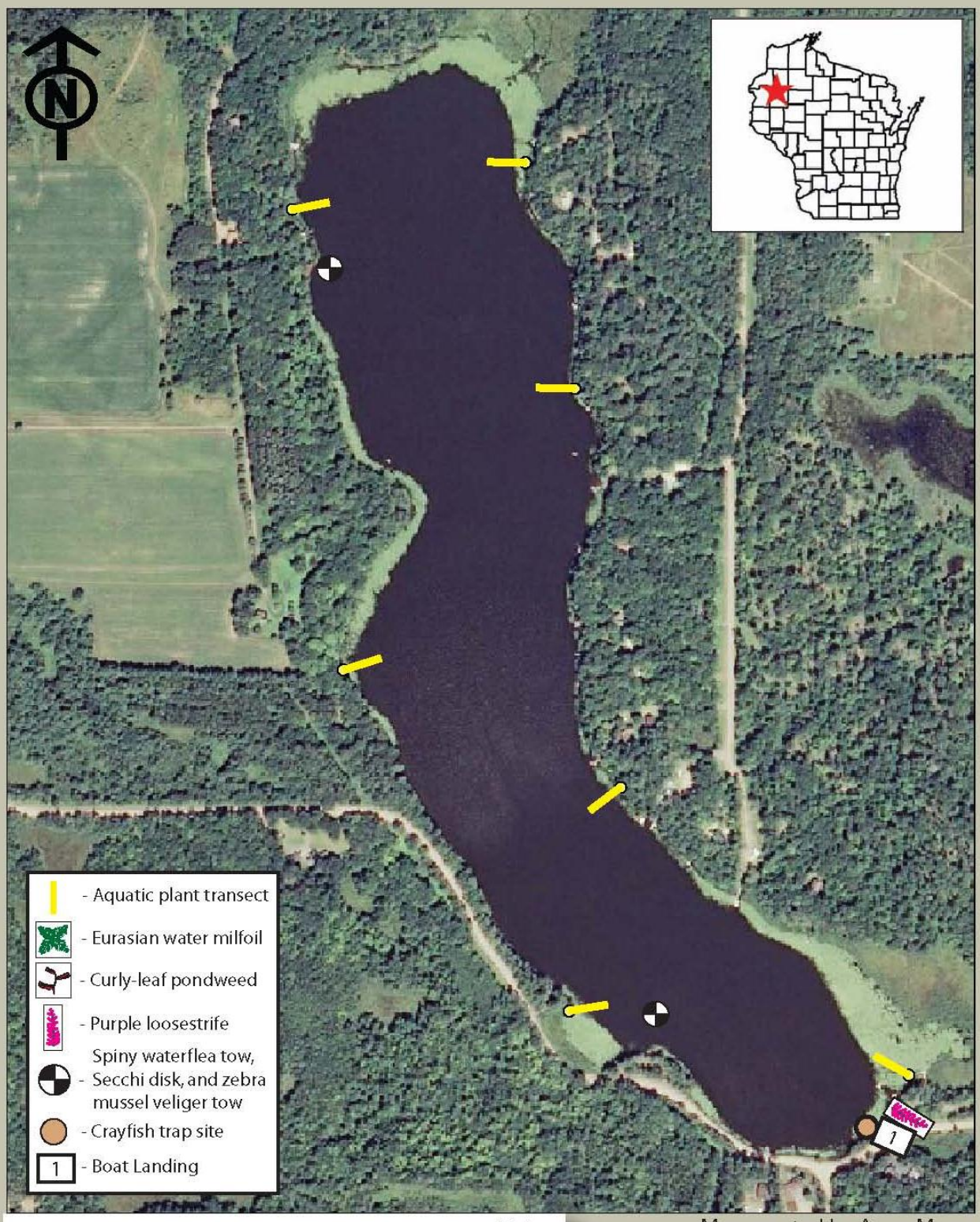
Lake and Shoreline Conditions

The shoreline vegetation on Sylvan Lake is approximately 75% deciduous and 25% coniferous. There is a marshy area on the north side of the lake and to the east of the boat landing. Most properties have good buffers. Only one home has a cleared lawn to the water. The water level appeared normal over the summer.

Aquatic Invasive Species Survey of

Sylvan Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, Katrina Smith and Christine Preist
on June 23, July 20, and August 12, 2009



Map created by Anna Mares
15-Oct-2009, Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, Anna Mares and Chris Ludwig

Tainter Lake (Waterbody Identification Code # 2068000)

Dunn County (T28N R12W S6 NW ¼ SW ¼)

Dates of Survey

Tainter Lake was surveyed July 11, August 6, and August 23, 2007

Boat Launch

There are three boat launches accessing Tainter Lake. One on the northwest shore off County Road D and 610th Street, one on the north end off Highway 170 and County Road D, and one on the southeast corner off of County Road B.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Lesser Duckweed	*Lemna minor*
White Water Lily	*Nymphea odorata*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Soft-stem Bulrush	*Scirpus validus*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 08/06/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Tainter Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 16.88, lower than the state average.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe, Anna Mares and Chris Ludwig

Invasive Species

One invasive plant was found in Tainter Lake during the 2007 field season. *Potamogeton crispus* was located where the mouth of the Hay River empties into Tainter Lake. It was not found at any of the transects used for sampling aquatic plants around the perimeter of the lake

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 3, 2007 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer with low visibility. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 11, 2007	August 6, 2007	August 23, 2007
Site #1	15T 0591445 4981994	2.0 ft	2.25 ft	2.5 ft
Site #2	15T 0590823 4982835	3.0 ft	2.0 ft	3.0 ft
Site #3	15T 0589542 4981808	no reading	2.0 ft	3.5 ft

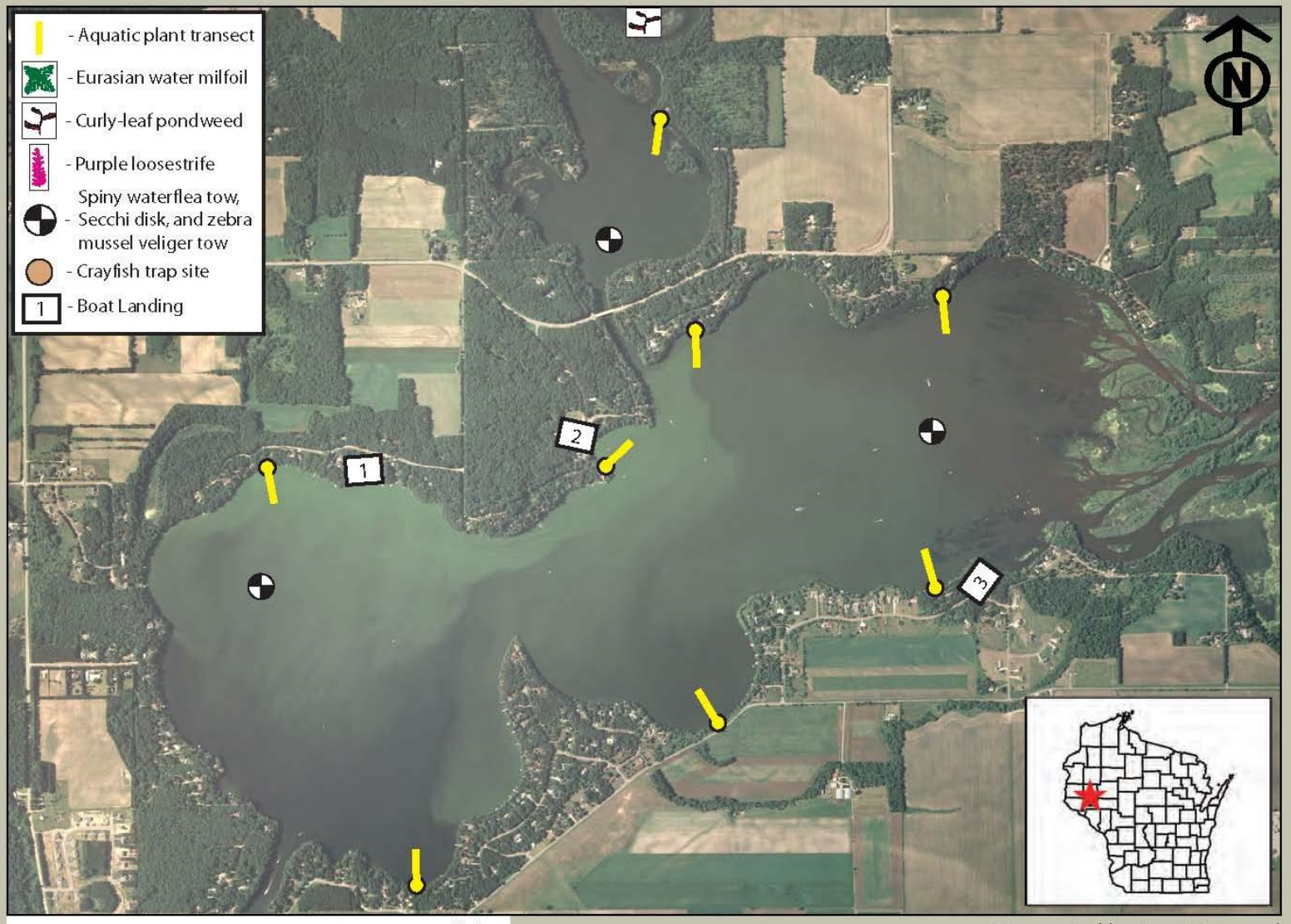
Lake and Shoreline Conditions

Lake Tainter is upstream from Lake Menomin. Like Menomin, it had low Secchi disk readings throughout the entire summer. Large algae blooms, including blue-green algae, contribute to these low readings with an overall greening effect. The southern shore of the lake is the most heavily populated with several lawns having less than a 30 ft buffer zone. Then northern half of the lake has more natural vegetation lining the shore. Large tracks of agricultural land surround Lake Tainter.

Aquatic Invasive Species Survey of

Tainter Lake, Dunn County

Data collected by Jo Heuschele, Shelby Happe, Anna Mares, and Chris Ludwig on July 11, August 6, and August 23, 2007



Map created by Anna Mares and
Jacob Sutherland on 09-Nov-2009
Beaver Creek Reserve

Written by Anna Mares
November 19, 2009
Data collected by Anna Mares, Ted Ludwig and Phil Rynish

Tenmile Lake (Waterbody Identification Code # 2089500)

Barron County (T33N R10W S32 SE ¼ SE ¼)

Dates of Survey

Tenmile Lake was surveyed on June 3, 2009

Boat Launch

Tenmile Lake has one boat launch on it in the Barron County Park on the east side of the lake. It is accessible from 26 ½-27th Street. The launch is paved with handicap access, and a wooden, floating dock. There are no required fees.

Native Plant List*

Common Name	Scientific Name
Marsh calla	*Calla palustris*
Bottle brush sedge	*Carex comosa*
Coontail	*Ceratophyllum demersum*
Creeping spikerush	*Eleocharis palustris*
Common waterweed	*Elodea canadensis*
Lesser duckweed	*Lemna minor*
Forked duckweed	*Lemna trisulca*
Northern water milfoil	*Myriophyllum sibiricum*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Large-leaf pondweed	*Potamogeton amplifolius*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Fern pondweed	*Potamogeton robbinsii*
Flat-stem pondweed	*Potamogeton zosteriformis*
White water crowfoot	*Ranunculus trichophyllus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Common bladderwort	*Utricularia vulgaris*
Common watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed 06/03/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state

average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Tenmile Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 25.04, higher than the state average.

Invasive Species

One invasive plant species, *Potamogeton crispus*, was found in Tenmile Lake during the 2009 field season. *P. crispus* was found at 23 of 26 transects used for sampling aquatic plants at 1,500 ft intervals. The largest beds of *P. crispus* were found in the southern half of the lake. Some areas were so thick with *P. crispus* that it impeded navigation to the southeast corner of the lake.

No samples were taken to look for spiny water flea or zebra mussel veligers during the summer samplings. No crayfish traps were set on Tenmile in the thought that if crayfish were found in the traps set in Prairie, Chetek or Pokegama, they would be in Tenmile Lake. One invasive snail species was found in Tenmile Lake, the Chinese mystery snail.

Secchi Disk Readings

No secchi disk readings were taken on Tenmile Lake. Tenmile Lake is less than 10 ft in depth and therefore did not have any spiny waterflea or zebra mussel tows, which necessitate secchi disk readings. Tenmile Lake had the same algal bloom issues as the rest of the Chetek Chain of Lakes.

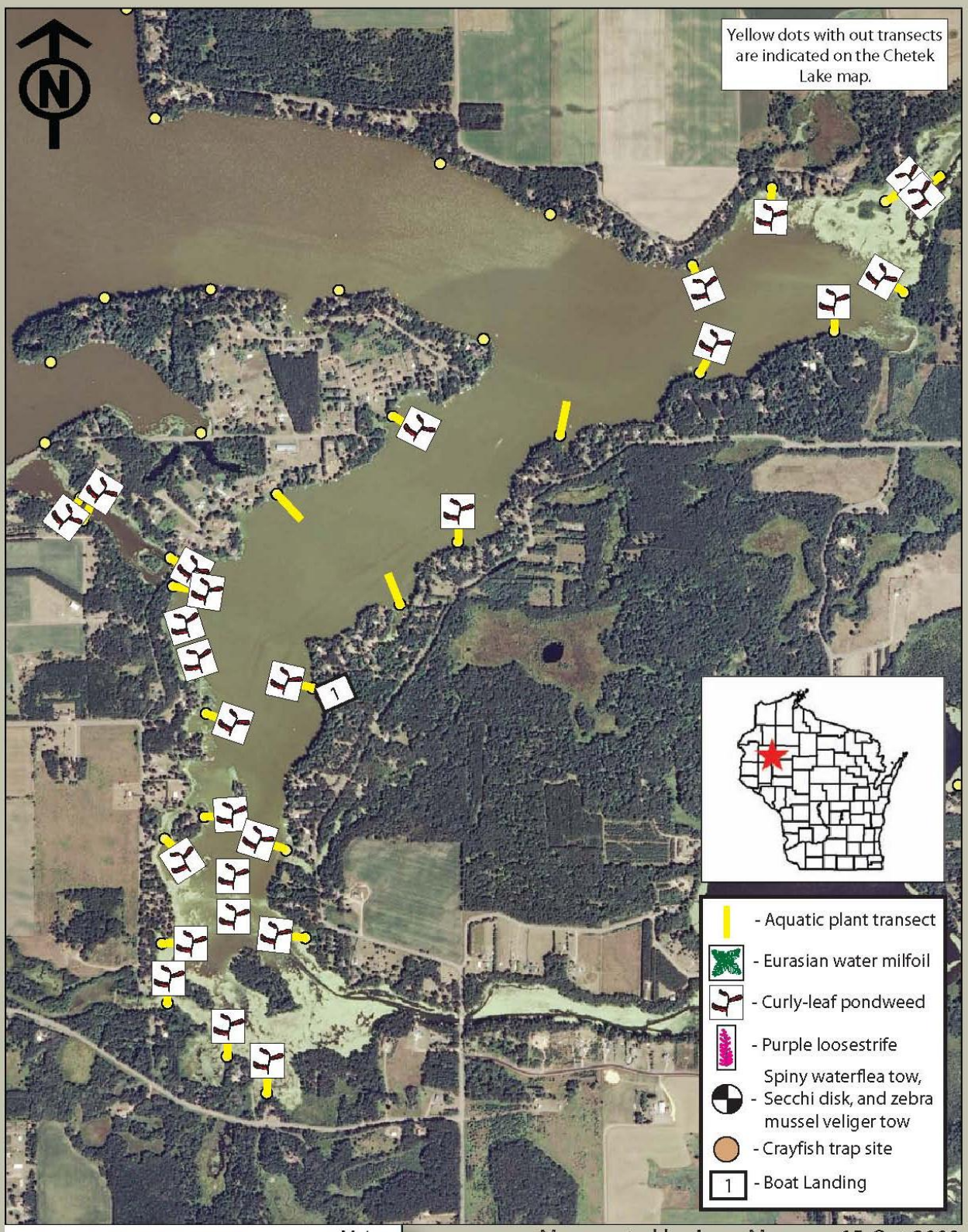
Lake and Shoreline Conditions

Of the five lakes in the Chetek Chain of lakes, Tenmile Lake was one of the less highly developed. Good buffers were present in the southern half of the lake, but became poorer the closer the homes were to Chetek Lake. Navigation appeared to be an issue in the southern half of the lake, due to abundant vegetation and shallow water. Tenmile Lake had the second greatest native plant diversity in the Chetek Chain of lakes. It also has relatively low boat traffic compared to the others.

Aquatic Invasive Species Survey of

Tenmile Lake, Barron County

Data collected by Anna Mares, Ted Ludwig and Phil Rynish on June 3, 2009



Map created by Anna Mares on 15-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 4, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig, and Phil Rynish

Thornapple Flowage (Waterbody Identification Code # 2227500)

Rusk County (T34N R07W S22 NE ¼ SE ¼)

Dates of Survey

The Thornapple Flowage was surveyed on June 2, July 7, and August 3, 2009

Boat Launch

There are two boat landings, one at the currently functional Thornapple Dam and another at what used to be the Port Arthur Dam, which no longer exists. The landing at the north end of the flowage has a cement pad and a wooden dock in fair condition, but no signs whatsoever. The landing at the Thornapple Dam has eight parking stalls, is handicap accessible, is well maintained, has a cement pad, and has a wooden dock. No signs regarding AIS are present at the landing. The launch that is marked on the DNR map does not exist.

Native Plant List*

Common Name	Scientific Name
Water marigold	*Bidens beckii*
Coontail	*Ceratophyllum demersum*
Spiny hornwort	*Ceratophyllum echinatum*
Common waterweed	*Elodea canadensis*
Water stargrass	*Heteranthera dubia*
Lesser duckweed	*Lemna minor*
Various-leaved water milfoil	*Myriophyllum heterophyllum*
Floating leaf pondweed	*Potamogeton natans*
Fern pondweed	*Potamogeton robbinsii*
Narrowleaf	*Potamogeton sp.*
Flat-stem pondweed	*Potamogeton zosteriformis*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Wild celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/02/2009.

The Thornapple Flowage contains one plant, *Ceratophyllum echinatum*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is

rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). The Thornapple Flowage was found to have an approximate (as a full plant survey was not conducted) FQI value of 21.63, lower than the state average.

Invasive Species

No invasive plants were found in the Thornapple Flowage during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. An invasive species of crayfish, rusty crayfish, was detected from the August 3, 2009 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 2, 2009	July 7, 2009	August 3, 2009
Site #1	15T 0642013 5030432	3.75 ft	5.0 ft	5.0 ft
Site #2	15T 0640345 5051181	3.5 ft	4.5 ft	5.5 ft
Site #3	15T 0639582 5030590	5.25 ft	5.0 ft	6.5 ft

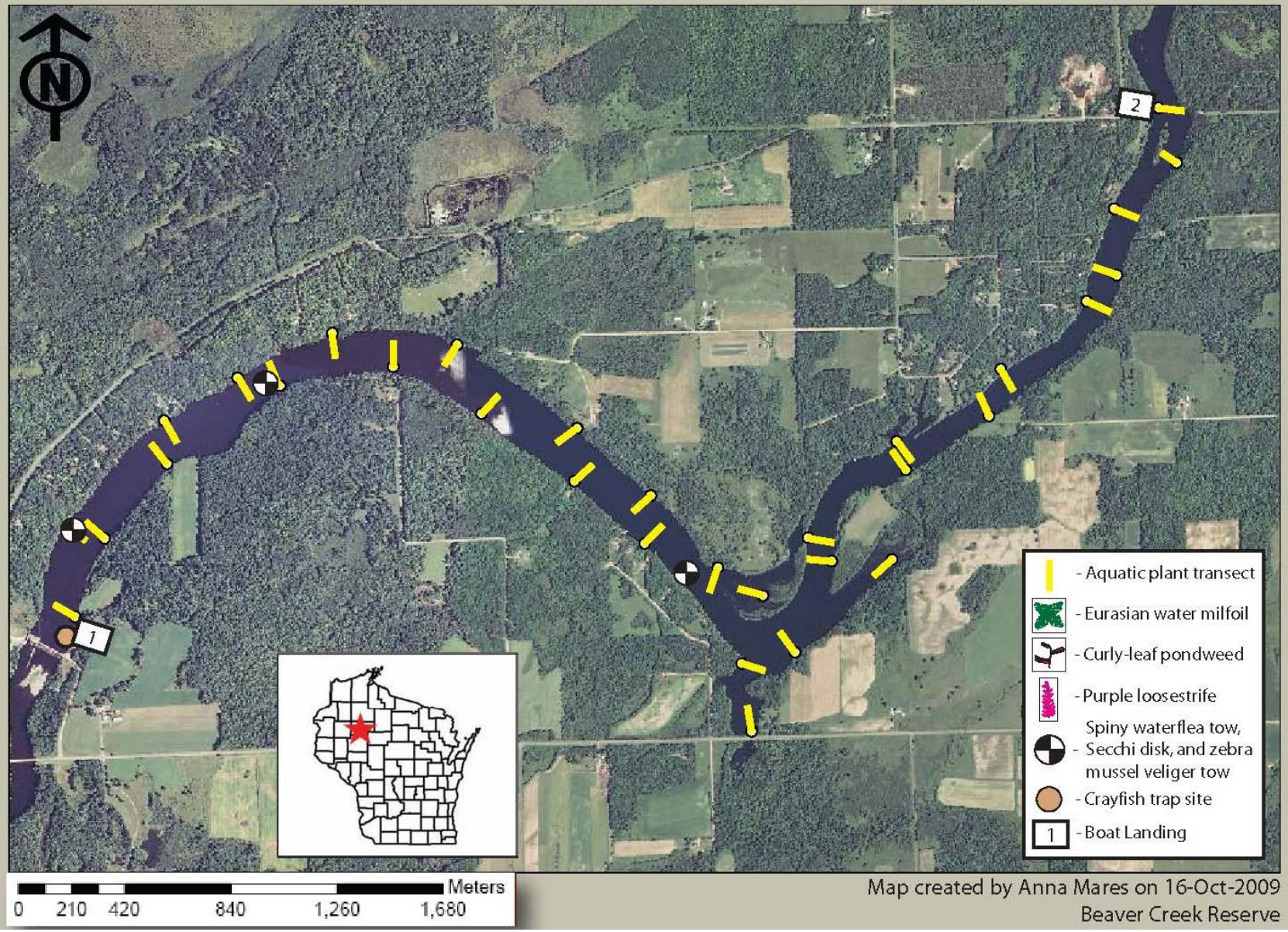
Lake and Shoreline Conditions

The shoreline vegetation is approximately 70% deciduous and 30% coniferous. Around 5% of shoreline is not buffered and those areas that are developed have at least some shoreline buffer intact. Port Arthur Dam is no longer in existence.

Aquatic Invasive Species Survey of

Thornapple Flowage, Rusk County

Data collected by Anna Mares, Ted Ludwig, Zoe Hastings, and Phil Rynish on June 2, July 7, and August 3, 2009



Map created by Anna Mares on 16-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe and Anna Mares

Tilden Mill Pond (Waterbody Identification Code # 2151200)

Chippewa County (T29N R09W S24 NE ¼ NW ¼)

Dates of Survey

Tilden Mill Pond was surveyed June 18, July 20, and August 9, 2007.

Boat Launch

Access to Tilden Mill Pond is provided by a boat launch located on the south side of the pond off of 102nd / Mill Pond Avenue. The launch is in poor condition and it would be difficult to back a boat down it. This launch is best suited for hand carry in. Parking is only available along the roadside.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Common Waterweed	*Elodea canadensis*
Pipewort	*Eriocaulon aquaticum*
Lesser Duckweed	*Lemna minor*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Long-leaf pondweed	*Potamogeton nodosus*
Small Pondweed	*Potamogeton pusillus*
Spiral-fruited pondweed	*Potamogeton spirillus*
Soft-stem Bulrush	*Scirpus validus*
Narrow-leaved Cattail	*Typha angustifolia*
Wild Celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/18/2007.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Tilden Mill Pond was found to have an approximate (as a full plant survey was not conducted) FQI value of 18.02, lower than the state average.

Written by Anna Mares
September 9, 2008
Data collected by Jo Heuschele, Shelby Happe and Anna Mares

Invasive Species

One invasive plant was found in Tilden Mill Pond during the 2007 field season. *Potamogeton crispus* was found on June 18, 2007.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 9, 2007 sampling.

Secchi Disk Readings

Readings fluctuated through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 18, 2007	July 20, 2007	August 9, 2007
Site #1	15 T 0624437 4983014	5.0 ft	2.0 ft	3.0 ft

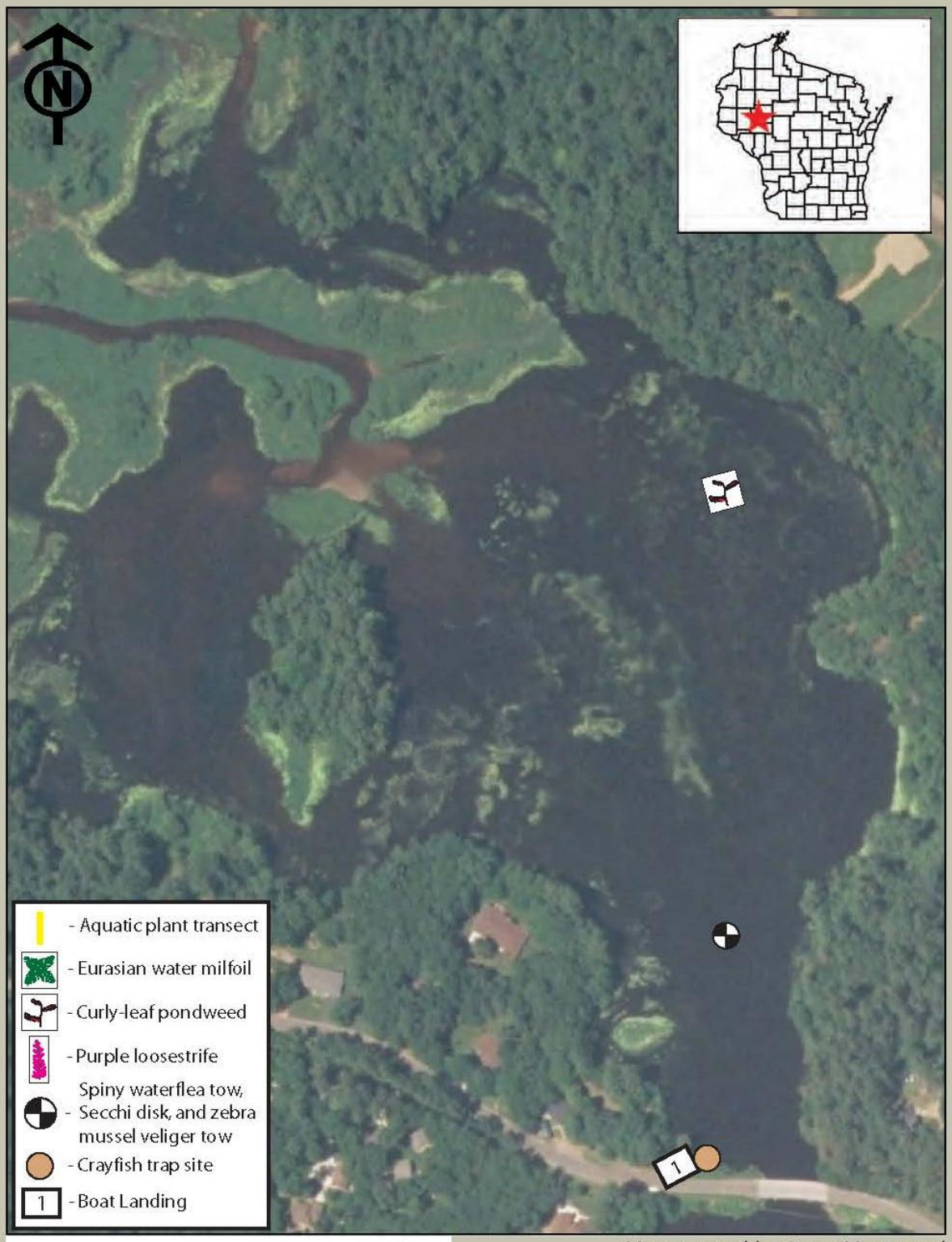
Lake and Shoreline Conditions

Tilden Mill Pond is very shallow and heavily vegetated. Duckweed covered nearly the entire water surface during the July sampling. A canoe was used for sampling because of the shallow water depth and the condition of the boat landing. Tilden Mill Pond could have possibly been the source of curly-leaf pondweed for Glen Loch Flowage, as the flowage is downstream of the mill pond. The shoreline of Tilden Mill Pond is approximately 25% developed on the southwest side of the waterbody. The rest of the pond has great buffering of more than 30 ft.

Aquatic Invasive Species Survey of

Tilden Mill Pond, Chippewa County

Data collected by Jo Heuschele, Shelby Happe, and Anna Mares
on June 18, July 20, and August 9, 2007



Map created by Anna Mares and
Jacob Sutherland on 23-Nov-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 23, 2008
Data Collected by Jo Heuschele, Anna Mares, Kevin Mesiar & Judy Schwarzmeier

Townline Lake (Waterbody Identification Code # 2172600)

Chippewa County (T32N R08W S33 NE ¼ SW ¼)

Date of Survey

Townline Lake was surveyed on June 23, July 17, and August 7, 2008

Boat Launch

The one launch on Townline Lake is steeply sloping gravel/sand into the lake off of 225th Ave. The road leading to the launch is unmarked and contains large rocks and washes; use caution with low draft vehicles. The launch is deep with loose sand. There is one large wash on launch pad. Use caution when pulling trailer out of water. There is a turnaround, but it then has a long stretch to back up. Landing is owned by the state and is located in the Ice Age State Scientific Area. No fee required. The area does have a primitive campsite, but no bathroom.

Native Plant List*

Common Name	Scientific Name
Water Marigold	*Bidens beckii*
Water Shield	*Brasenia schreberi*
Coontail	*Ceratophyllum demersum*
Three-way Sedge	*Dulichium arundinaceous*
Needle Spike Rush	*Eleocharis acicularis*
Pipewort	*Eriocaulon aquaticum*
Quillwort	*Isoetes sp.*
White Water Lily	*Nymphaea odorata*
Yellow Water Lily	*Nuphar variegata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Floating-leaf Pondweed	*Potamogeton natans*
Fern-leaf Pondweed	*Potamogeton robbinsii*
Stiff Arrowhead	*Sagittaria rigida*
Bur-reed	*Sparganium sp.*

*Plant list is not comprehensive and includes only what was observed on 06/23/2008.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Town Line Lake was

found to have an approximate (as a full plant survey was not conducted) FQI value of 24.12, higher than the state average.

Invasive Species

No invasive plants were found in Townline Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or native crayfish were detected during the August 7, 2008 sampling.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 23, 2008	July 17, 2008	August 7, 2008
Site #1	15T 0627689 5007521	6.5 ft	5.5 ft	6.0 ft
Site #2	15T 0628275 5007760	8.0 ft	6.0 ft	6.0 ft

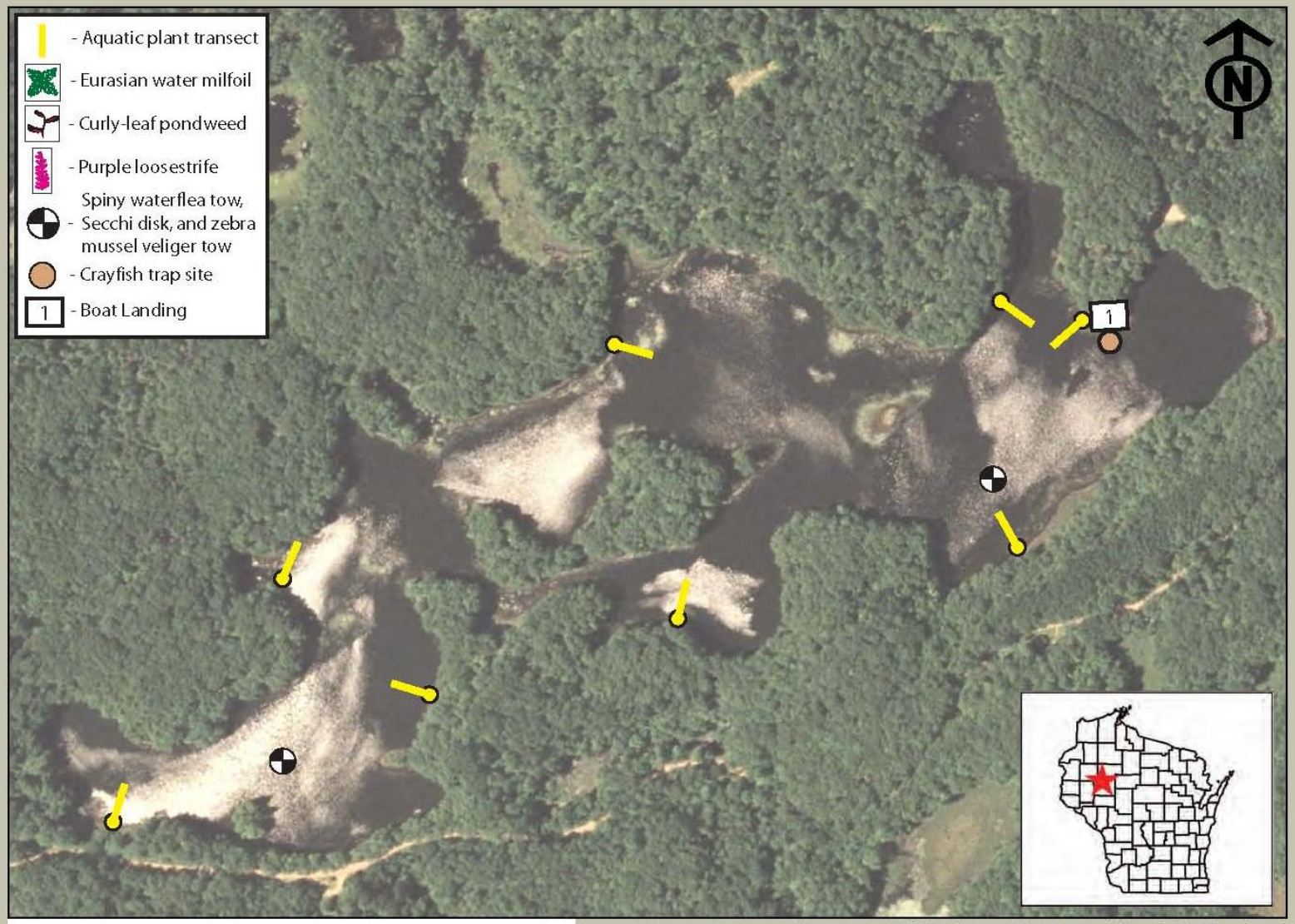
Lake and Shoreline Conditions

There are no houses on Townline Lake. Approximately 3-4 m of grass like plants and forbs line the shoreline and then turn into hardwoods. The vegetation may indicate the high water mark before the drought during the late 1990's early 2000's. Shoreline is sandy with large rocks. Townline is a seepage lake. Certain parts of the lake channels become very shallow as the summer progresses and if it doesn't rain enough.

Aquatic Invasive Species Survey of

Town Line Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, and Judy Schwarzmeier on June 23, July 17, and August 7, 2008



Map created by Anna Mares and Jacob Sutherland
23-Nov-2009 Beaver Creek Reserve

Written by Anna Mares
October 28, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Jenny Pomeroy

Triple Lake West (Waterbody Identification Code # 2044700)

Chippewa County (T32N R08W S21 SW ¼ NW ¼)

Dates of Survey

Triple Lake West was surveyed on July 13, August 3, and August 24, 2009

Boat Launch

Triple Lake West has one boat launch that is located on the east side of the lake off of 151st Street. The launch and the turnaround are separated by the road. The launch is steep and made of sand/gravel to the water. There are no restrooms, fees, or signs of any kind. There is no dock present. The only available parking is the turnaround. Large trucks frequent the narrow road, making roadside parking not an option.

Native Plant List*

Common Name	Scientific Name
Water Shield	*Brasenia schreberi*
Spiny Hornwort	*Ceratophyllum echinatum*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Pipewort	*Eriocaulon aquaticum*
Spiny-spored quillwort	*Isoetes echinospora*
Brown-fruited rush	*Juncus pelocarpus*
Farwell's water Milfoil	*Myriophyllum farwellii*
Nitellas	*Nitella sp.*
White Water Lily	*Nymphea odorata*
Pickerelweed	*Pontederia cordata*
Large-leaf Pondweed	*Potamogeton amplifolius*
Ribbon-leaf pondweed	*Potamogeton epihydrus*
Narrowleaf	*Potamogeton sp.*
Water bulrush	*Schoenoplectus subterminalis*
Creeping Bladderwort	*Utricularia gibba*
Large Purple Bladderwort	*Utricularia purpurea*
Common Bladderwort	*Utricularia vulgaris*

*Plant list is not comprehensive and contains only those species observed on 07/13/2009

Triple Lake West contains two plants, *Ceratophyllum echinatum* and *Utricularia purpurea*, which are listed as a species of Special Concern. "Special Concern" means that experts suspect the species are rare or declining in Wisconsin but have not yet gathered proof of threats to their survival in Wisconsin. *Utricularia gibba* is listed as uncommon for Wisconsin. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Triple Lake West was found to have an approximate (as a full plant survey was not conducted) FQI value of 33.70, higher than the state average.

Invasive Species

No invasive plants were found in Triple Lake West during the 2009 field season.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the August 3, 2009 sampling.

Secchi Disk Readings

Readings declined from July to August but were still high compared to most lakes surveyed for the project in 2009. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 13, 2009	August 3, 2009	August 24, 2009
Site #1	15T 0627670 5011382	12 ft	8.0 ft	8.25 ft

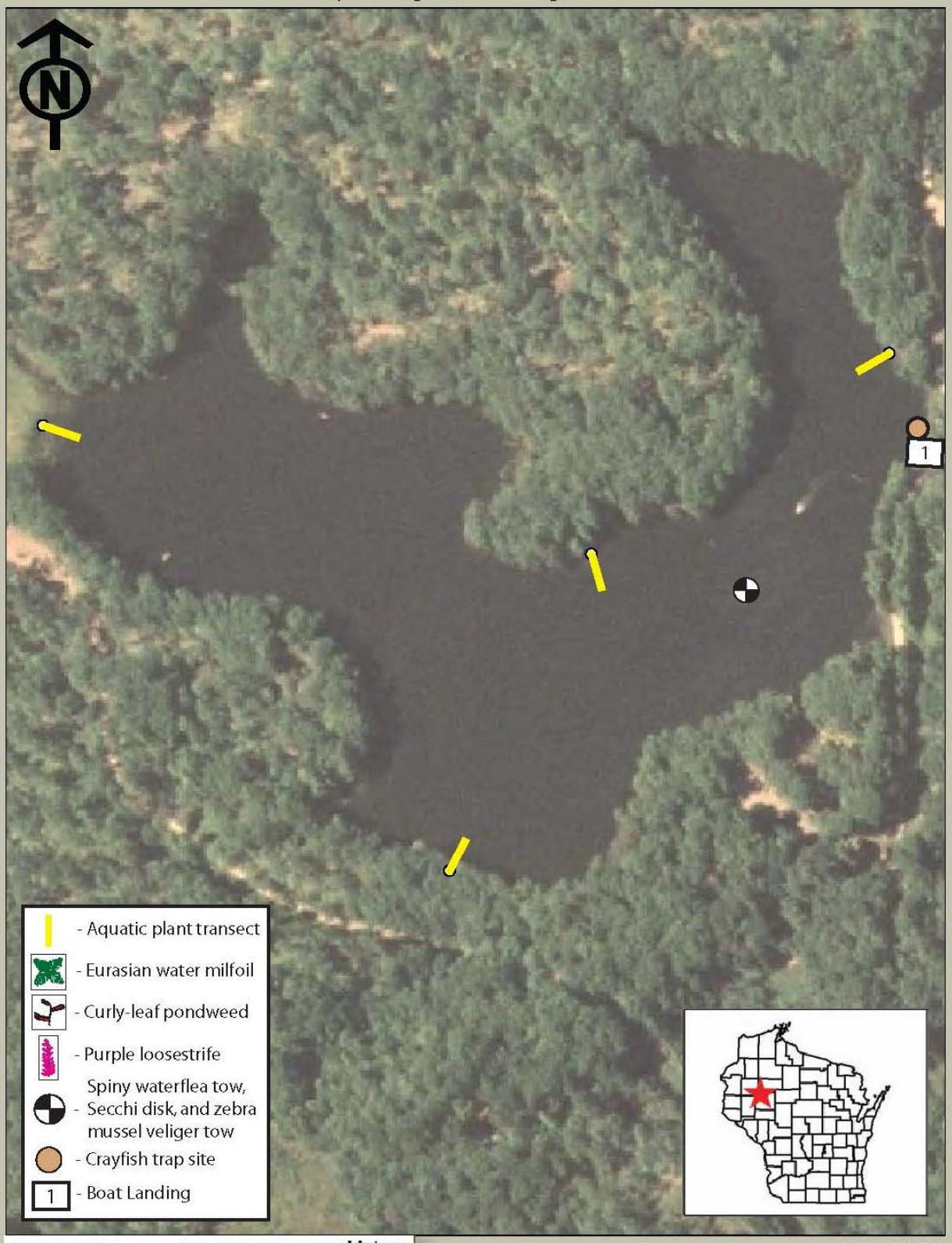
Lake and Shoreline Conditions

The shoreline vegetation is 60% deciduous, 35% coniferous and 5% marsh in the northwest corner of the lake. One home is present on the lake and is visible from the water with no buffer right in front of the house. The rest of the lake has excellent buffering. The water level appears to be six to eight inches lower than normal. Triple Lake West is not suffering from the severe water level drops that lakes close by are enduring.

Aquatic Invasive Species Survey of

Triple Lake West, Chippewa County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Jenny Pomeroy
on July 13, August 3, and August 24, 2009



Map created by Anna Mares on 16-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Claire Bailey

Lower Turtle Lake (Water Body Identification Code # 2079700)

Barron County (T33N R14W S2 NW ¼ NW ¼)

Dates of Survey

Lower Turtle Lake was surveyed on June 30, July 29 and August 20, 2009

Boat Launch

There are two boat launches on Lower Turtle Lake. The first launch (1 on the map) is located off of 4th Street on the east side of the lake. It is gravel to a cement launch pad into the water with a wooden dock. There is parking available for 3-4 vehicles and there are no restrooms. AIS awareness signs are present. No fees are required. The second launch (2 on the map) is on the west side of the lake on 3 3/4th-4th Street. The launch is gravel to cement slab with no dock. A pavilion is available but there are no restrooms. Aquatic invasive species awareness signs are present and there are 2-3 parking stalls.

Native Plant List*

Common Name	Scientific Name
Coontail	*Ceratophyllum demersum*
Musk grass	*Chara sp.*
Northern blue flag	*Iris versicolor*
Lesser duckweed	*Lemna minor*
Northern water milfoil	*Myriophyllum sibiricum*
Slender naiad	*Najas flexilis*
Bullhead pond lily	*Nuphar variegata*
White water lily	*Nymphea odorata*
Sago pondweed	*Potamogeton pectinatus*
Small pondweed	*Potamogeton pusillus*
Clasping-leaf pondweed	*Potamogeton richardsonii*
Narrowleaf	*Potamogeton sp.*
Flat-stem pondweed	*Potamogeton zosteriformis*
Soft-stem bulrush	*Scirpus validus*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved cattail	*Typha latifolia*
Wild celery	*Vallisneria americana*

*Plant list is not comprehensive and contains only those species observed on 06/30/2009

Written by Anna Mares
November 24, 2009
Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Claire Bailey

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Lower Turtle Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 20.65, lower than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Lower Turtle Lake during the 2009 field season. *P. crispus* was found at 11 of 14 transects used for sampling aquatic plants at 1,500ft intervals around the perimeter of the lake. *P. crispus* along with *P. pusillus* made navigation difficult in several sections of the lake.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 29, 2009 sampling.

Secchi Disk Readings

Readings declined by July and stayed steadily low through August. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	June 30, 2009	July 29, 2009	August 20, 2009
Site #1	15T 0572415 5026277	6.0 ft	3.0 ft	3.0 ft
Site #2	15T 5071742 5027190	7.5 ft	3.25 ft	3.25 ft
Site #3	15T 0572355 5026892	6.75 ft	3.25 ft	3.0 ft

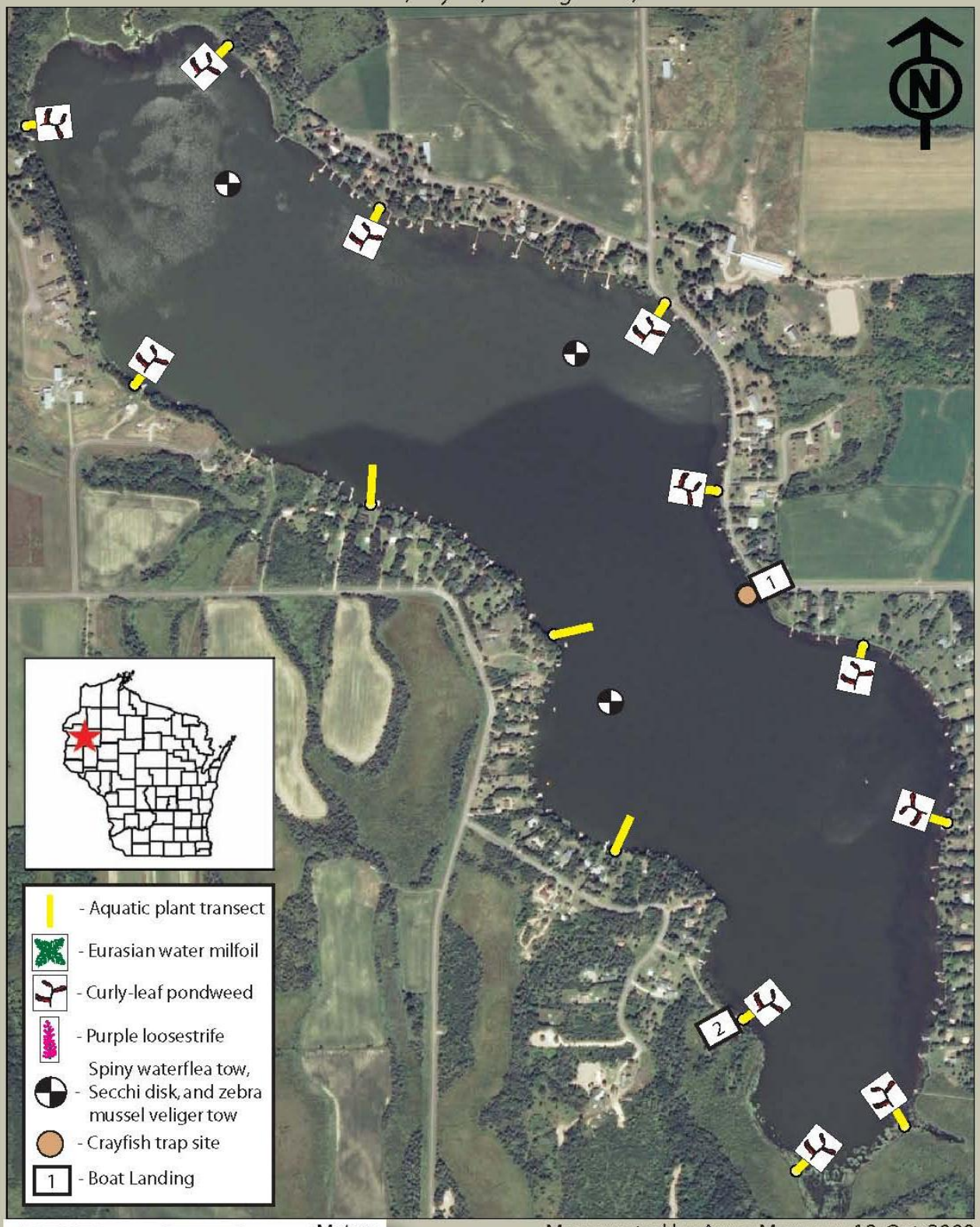
Lake and Shoreline Conditions

Lower Turtle Lake is approximately 80% developed with the very north and south ends vacant of homes. These small areas have the best buffers (30+ ft of vegetation) on the lake with natural vegetation covering the shoreline. The rest of the lake has tightly spaced homes with short lawns and little buffering. There is extensive agricultural land surrounding the entire lake.

Aquatic Invasive Species Survey of

Lower Turtle Lake, Barron County

Data collected by Anna Mares, Zoe Hastings, Ted Ludwig and Claire Bailey
on June 30, July 29, and August 20, 2009



Map created by Anna Mares on 13-Oct-2009
Beaver Creek Reserve

Written by Anna Mares
October 28, 2009
Data collected by Anna Brady, Zoe Hastings, Ted Ludwig and Claire Bailey

Upper Turtle Lake (Waterbody Identification Code # 2079800)

Barron County (T34N R14W S27 NE ¼ NW ¼)

Dates of Survey

Upper Turtle Lake was surveyed on July 1, July 29, and August 20, 2009

Boat Launch

There is one boat launch on Upper Turtle Lake off of County Highway 8. The launch is located in a county run park in the southeastern corner of the lake. There is a rest area with picnic tables and pit toilets above the launch. The launch is paved to cement block in the water with a dock. The launch is very shallow and it became increasingly difficult to launch the boat over the summer as the water level dropped. There is a large turnaround that has parking for handicap vehicles. Other parking is available on the lawn for five to six vehicles with additional parking in the above rest area. No fees are required.

Native Plant List*

Common Name	Scientific Name
Marsh Calla	*Calla palustris*
Coontail	*Ceratophyllum demersum*
Musk grass	*Chara sp.*
Northern Blue Flag	*Iris versicolor*
Lesser Duckweed	*Lemna minor*
Northern Water Milfoil	*Myriophyllum sibiricum*
Slender Naiad	*Najas flexilis*
Bullhead Pond Lily	*Nuphar variegata*
White Water Lily	*Nymphea odorata*
Illinois pondweed	*Potamogeton illinoensis*
Sago Pondweed	*Potamogeton pectinatus*
Small Pondweed	*Potamogeton pusillus*
Clasping-leaf Pondweed	*Potamogeton richardsonii*
Flat-stem Pondweed	*Potamogeton zosteriformis*
Stiff water crowfoot	*Ranunculus longirostris*
Slender Arrowhead	*Sagittaria graminea*
Hardstem bulrush	*Scirpus acutus*
Common bur-reed	*Sparganium eurycarpum*
Great duckweed	*Spirodela polyrhiza*
Broad-leaved Cattail	*Typha latifolia*
Wild Celery	*Vallisneria americana*
Common Watermeal	*Wolffia columbiana*

*Plant list is not comprehensive and contains only those species observed on 07/01/2009.

The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI) of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Upper Turtle Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 25.49, higher than the state average.

Invasive Species

One invasive plant, *Potamogeton crispus*, was found in Upper Turtle Lake during the 2009 field season. It was present at 16 of 25 transects used for aquatic plant sampling at 1,500 ft intervals. *P. crispus* has already been officially documented in Upper Turtle Lake by the WI DNR.

No spiny waterflea or zebra mussel veligers were detected during the three summer samplings. No rusty crayfish or any native crayfish species were detected from the July 29, 2009 sampling. One invasive snail species, the Chinese mystery snail, was found in Upper Turtle Lake during the surveys.

Secchi Disk Readings

Readings steadily decreased over the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	July 1, 2009	July 29, 2009	August 20, 2009
Site #1	15T 0570789 5030164	8.75 ft	4.75 ft	3.25 ft
Site #2	15T 0569985 5030861	12.25 ft	6.0 ft	3.25 ft
Site #3	15T 0571219 50290505	10.0 ft	4.5 ft	2.75 ft

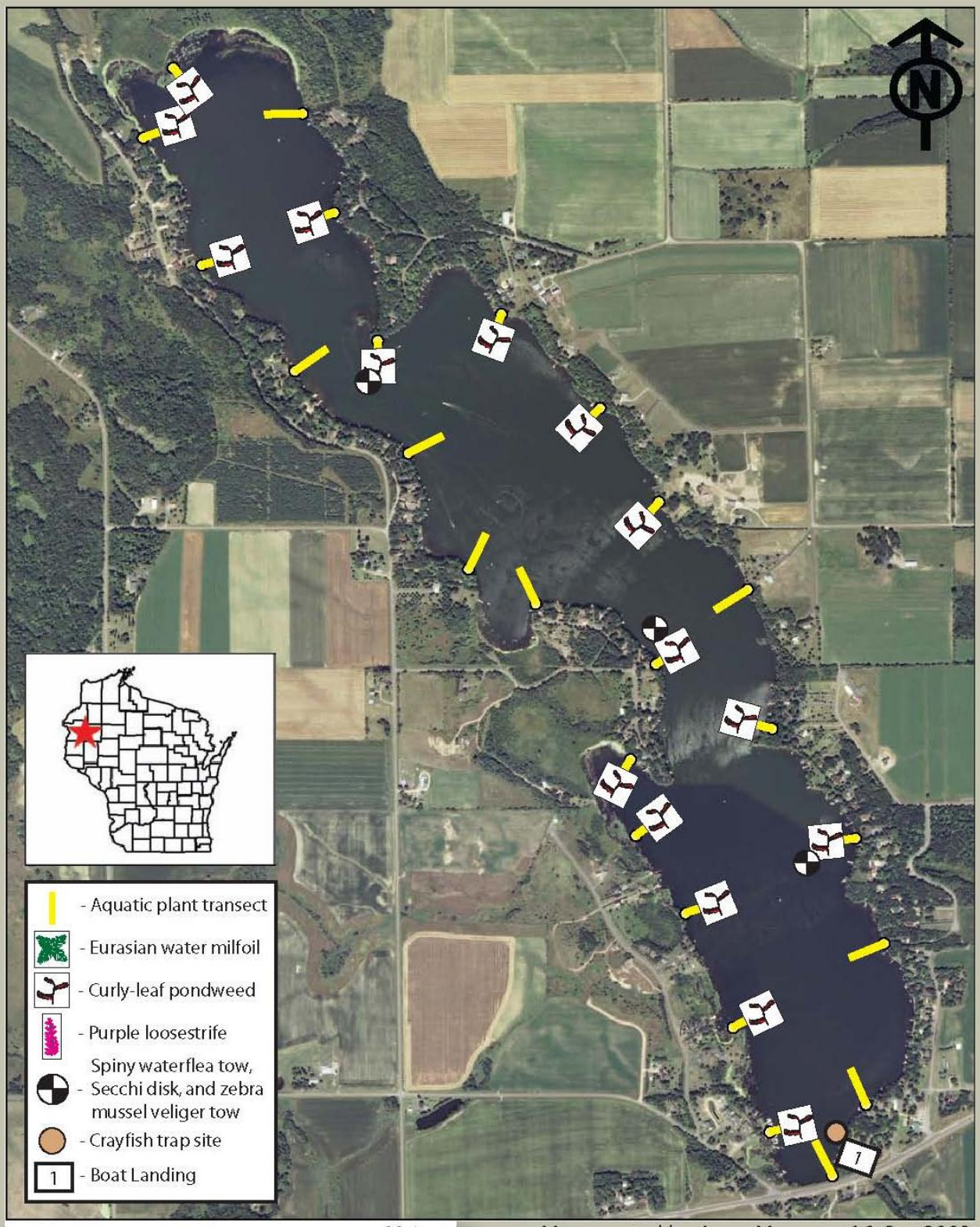
Lake and Shoreline Conditions

The shoreline vegetation is approximately 90% deciduous and 10% coniferous with up to 3-5% being marshland. The lake is very developed with many lawns that provide little to no buffering to the lake. There are two farms close to the water. Water level appears to be one ft lower than average.

Aquatic Invasive Species Survey of

Upper Turtle Lake, Barron County

Data collected by Anna Brady, Zoe Hastings, Ted Ludwig, and Claire Bailey
on June 11, July 14, and August 6, 2009



Map created by Anna Mares on 16-Oct-2009
Beaver Creek Reserve

Written by Jo Heuschele & Anna Mares
August 25, 2008
Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Ted Ludwig, & Sarah Graves

Two Island Lake (Waterbody Identification Code # 1887500)

Chippewa County (T32N R08W S20 SW ¼ SW ¼)

Dates of Survey

Two Island Lake was surveyed on May 25, July 28, and August 13, 2008

Boat Launch

There is one boat launch on Two Island Lake off of 145th Street. It is composed of sandy gravel with no dock. There is a turn about area for backing up the trailer but little parking space. The path leading down from the road is steep and heavily gullied from water erosion.

Native Plant List*

Common Name	Scientific Name
Watershield	*Brasenia schreberi*
Three-way Sedge	*Dulichium arundinaceum*
Needle Spikerush	*Eleocharis acicularis*
Pipewort	*Eriocaulon aquaticum*
Feather Moss, Brown	*Drepanocladus sp.*
Feather Moss, Green	*Drepanocladus sp.*
Dwarf hyssop	*Gratiola aurea*
Quillworts	*Isoetes sp.*
Dwarf Water Milfoil	*Myriophyllum tenellum*
Nitellas	*Nitella sp.*
Pickerelweed	*Pontederia cordata*
Small Pondweed	*Potamogeton pusillus*
Arrowhead	*Sagittaria sp.*
Creeping Bladderwort	*Utricularia gibba*
Large Purple Bladderwort	*Utricularia purpurea*

*Plant list is not comprehensive and contains only those species observed on 05/25/2008.

Two Island Lake contains one plant, *Utricularia purpurea*, which is listed as a species of Special Concern. "Special Concern" means that experts suspect the species is rare or declining in Wisconsin but have not yet gathered proof of threats to its survival in Wisconsin. *Utricularia gibba* is listed as uncommon for this region of the state. The plants present in a lake can reflect the water quality and level of disturbance in a lake which can be measured using the Floristic Quality Index (FQI)

of Wisconsin. The state average FQI is 22.2, but it can range from 3.0 to 44.6, with higher FQI values correlating to greater lake quality (UWEX, 2009). Two Island Lake was found to have an approximate (as a full plant survey was not conducted) FQI value of 28.28, higher than the state average.

Invasive Species

No invasive plants were found in Two Island Lake during the 2008 field season.

No spiny waterflea or zebra mussel veligers were detected in Two Island Lake during the three summer samplings. No rusty crayfish or native crayfish were detected during the August 13, 2008 sampling. Snails were collected on May 25, 2008 and were sent to the Center for Limnology for identification. They were brown mystery snails, which are native, and *not* Chinese mystery snails, which are invasive.

Secchi Disk Readings

Readings stayed relatively steady through out the summer. All GPS points were collected in the NAD 83 Central Datum.

	GPS (UTMs)	May 25, 2008	July 28, 2008	August 13, 2008
Site #1	15T 0625923 5010047	17.5 ft	17.25 ft	16.75 ft
Site #2	15T 0626080 5010222	16.75 ft	16.25 ft	17.25 ft

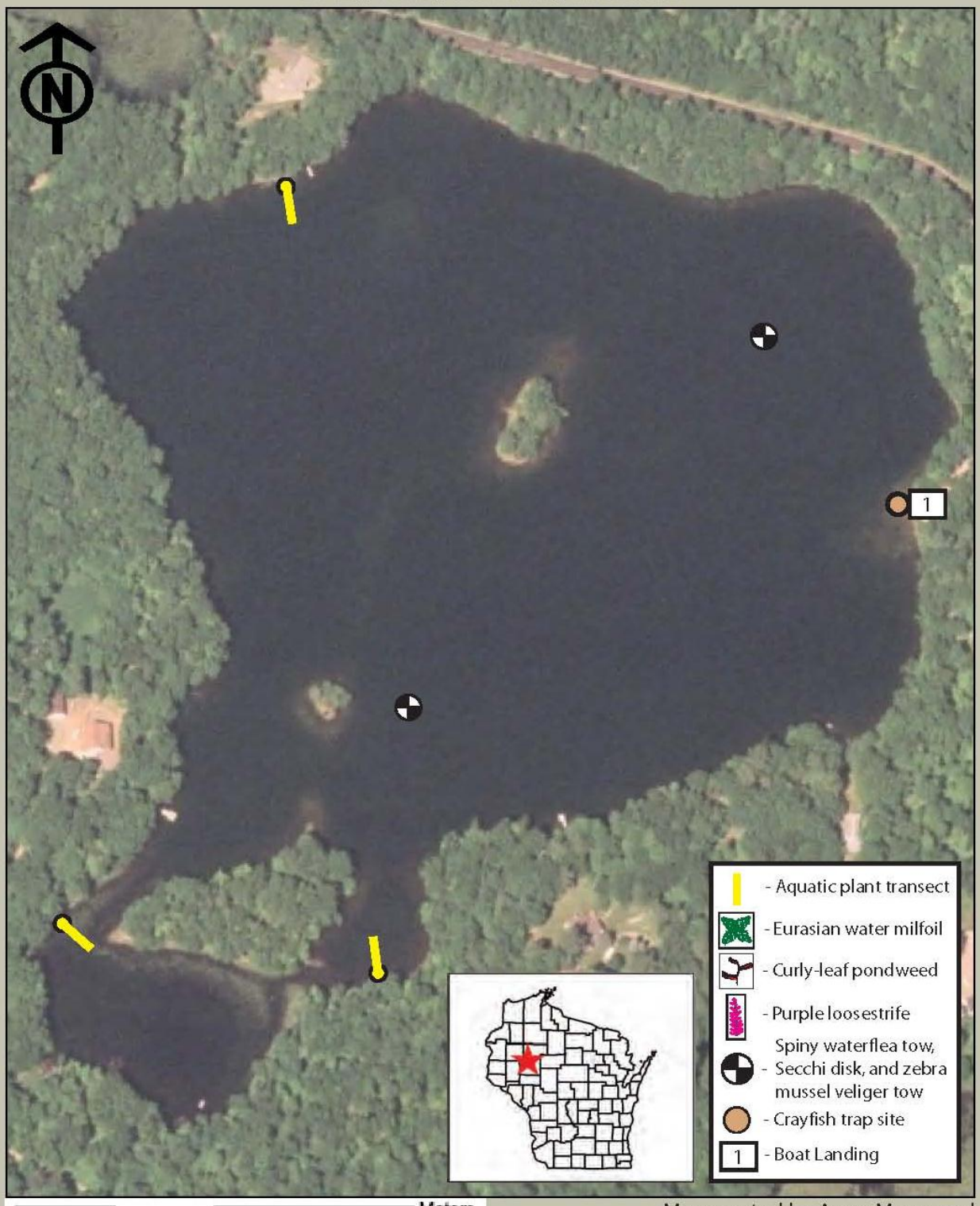
Lake and Shoreline Conditions

There are four visible docks on the lake, each leading to a house. The buffer zone is natural all the way around the shore with grasses extending 10-15 ft out. The surrounding forest is a conifer/hardwood mix. Pickerel weed and water shield surround the boat landing. Two Island Lake is designated as a No Gasoline Powered Engine lake.

Aquatic Invasive Species Survey of

Two Island Lake, Chippewa County

Data collected by Jo Heuschele, Anna Mares, Kevin Mesiar, Ted Ludwig, and Sarah Graves
on May 25, July 28, and August 13, 2008



Map created by Anna Mares and
Jacob Sutherland on 02-Nov-2009
Beaver Creek Reserve