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Pickerel - Crane Lakes
Protection & Rehabilitation District
715-484-4501

Mimi Wreczycki, Treasurer
Rolling Stone Lake
Protection & Rehabilitation District
715-484-3231

June Tomany, Secretary
Big Twin Lake Association
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Karen Tembath
Moose Lake Assn

LANGLADE COUNTY WATERWAYS, INC GRANT AEPP-267-11 FINAL REPORT

Accomplishments:

1. Hired Matthew L. Wagner as the Langlade County Waterways Association (LCWA) AIS Coordinator through a partnership with Lumberjack RC & D. Without the payroll administration of Lumberjack R C & D the grant would not have been able to be carried out.
2. Clean Boats/Clean Waters (CB/CW) boat landing inspections.
 - a. During the grant period of 2011, the LTE (Matthew Wagner) spent 230 hours inspecting boaters at boat landings in Langlade County. In that time he inspected 174 boats and 377 people. This equates to 1.6 people inspected and educated for every hour spent at boat landings and 0.75 boats inspected for every hour spent at boat landing.
 - i. Of all the people contacted, 95% of them were aware of the laws pertaining to AIS. Most of the individuals who were unaware of the laws pertaining to AIS were from out of state.
 - ii. Of the 174 boats inspected, 3% of them had plants present when exiting the lake. The LTE did not notice any AIS present on any boats (including those with plants), and all plants, mud, and other illegal material was taken off of all boats before the boaters were allowed to leave the boat landing.
 - iii. Of all of the boats inspected while entering Langlade County boat landings, 16% of them had been in another waterbody within the last 5 days. Many of these boaters were at waterbodies with known populations of AIS.
 - iv. Only 1% of the boaters inspected had a violation, and those were boaters who came to the boat landing with plant matter on their trailer rigging. Before they were allowed to enter the lake the LTE and the boat owner thoroughly cleaned all of the fishing equipment, and the boater was not reported to the DNR.
 - b. Note: The "Details" portion of this document has a series of graphs showing the information in pictorial form. It also has a graph of Langlade County showing all of the waterbodies inspected.
3. Advertised in Antigo Daily Journal concurrent with Langlade County Youth Fair. Ad was for Purple Loosestrife and AIS in general. Display booth was manned in 2008, 2009, 2010, and 2011.

4. Set and manned AIS booth at Langlade County Youth Fair in July and August of 2011. (LORI)
5. LCWA AIS Task Force meetings were held monthly. Emphasis was on sharing of ideas and strategy of checking lakes and educating the public on AIS issues.
6. Purple Loosestrife monitoring was conducted by Andy Tescheneck- White Lake; Sonny Wreczycki- Rolling Stone Lake; and Chuck Sleeter- Pickerel- Crane; Suzie Rabideau Post Lake; Ron Pabich- Enterprise Lake; Doug Tomany- Big Twin Lake; Lori Regni- County roadways and Matt Wagner on surveyed lakes and waters where he conducted boat inspections.
7. Site visits to area bait shops.
 - a. During the week of July 3rd through the 9th, in between monitoring boatlandings and doing aquatic plant surveys, Mr. Wagner would go to differing businesses in the area and ask the proprietors their opinions on AIS issues. The timing was important due to fact that it was right after the 4th of July weekend; a very important time of the year for local businesses to make money off of tourism dollars, and as we know, tourists don't spend as much money in an area with a known population of AIS.
 - b. This information was then used in one of the weekly AIS articles in the Antigo Daily Journal. (See the attached "Monetary Effects of Invasive Species.") For that article Mr. Wagner interviewed local owners of taverns, resorts, campgrounds, and gas stations that sell bait. Since the individual private business owners agree to be interviewed only if they could maintain their anonymity, their names and the names of their businesses will not be displayed in this report. Sufficed to say that in this time Mr. Wagner fulfilled the area of the grant dealing with site visits to area bait shops. This is due to the fact that after interviewing the bait shop owners, Mr. Wagner and the business owners talked about AIS issues, and left a bevy of AIS educational material in accessible areas (near minnow tanks, etc.) for the public to have.
8. Monitored existing and replaced outdated AIS signs at boat landings.
 - a. Chris Hamerla, Lumberjack RC&D AIS Coordinator, members of the Langlade County Waterways Association, and Mr. Wagner all agreed that although monitoring existing and replacing outdated AIS signage at public boat landings is important, it would not be financially expedient and a prudent usage of mileage money allocated by the DNR grant for Mr. Wagner to be driving from boat landing to boat landing for the sole purpose of monitoring and replacing AIS signage.
 1. Therefore it was resolved that Mr. Wagner monitor and replace AIS signage at boat landings only if he was in the area for another reason (aquatic plant survey, educational presentation, or boat landing monitoring).
 - b. The following is the listing of boat landings which had new AIS signage erected: Snag Lake, Borth Lake, Turtle Lake, and Lower Clear Lake.
 - i. Note: Many lakes monitored already had new signage.

9. Wrote and submitted educational articles on AIS for the Antigo Daily Journal.
 - a. One of the most successful portions of the grant was the amount of public support and interest that was captured with Mr. Wagner's educational articles on AIS in the Antigo Daily Journal. Mr. Wagner was often approached by people who were impressed by the articles. In fact, this phenomenon continues even two months after the publication of his last article.
 - b. Mr. Wagner's would end the AIS educational articles with "The Langlade County Waterways Association has received a grant to help combat the spread of invasive species in our county. If you are a property owner and are afraid that you have an aquatic invasive species in a local waterbody and would like advice on how to control it, feel free to contact Matthew Wagner, AIS Coordinator, at langladeais@gmail.com. Lake associations/districts and private property owners who are interested in having Wagner come to their waterbody and survey for invasive species are also encouraged to contact him".
 1. Mr. Wagner was contacted my individuals after they read his articles. These contacts led to lake surveys.
 - c. The Antigo Daily Journal printed 15 of Mr. Wagner's AIS educational articles. The following is a breakdown of the articles that they printed.
 1. Aquatic Invasive Species
 - a. Curly Leaf Pondweed
 - b. Eurasian Water Milfoil
 - c. Eurasian Marsh Thistle
 - d. Japanese Knotweed
 - e. Purple Loosestrife
 - f. Rusty Crayfish
 - g. Spiny Water Flea
 - h. Watercress
 - i. Wild Parsnip
 - j. Zebra Mussel
 2. Native aquatic plants that are often confused as an aquatic invasive species
 - a. Horsetail
 - b. Jewelweed
 - c. Water Smartweed
 3. General interest on AIS issues
 - a. Monetary effects of AIS
 - b. Controlling AIS: What's the point?

10. AIS educational presentations.

- a. The following is a listing of educational presentations that Mr. Wagner gave in 2011 for the Langlade County Waterways Association. A Power Point presentation was the highlight of all the educational presentations.
 - i. A progress report on the grant and AIS issues to the Langlade County Waterways Association at the annual meeting
 - ii. An educational presentation on AIS to the Post Lake Protection and Rehabilitation District
 - iii. A presentation given to the Mary Lake District annual meeting
 - iv. A presentation given to the Pickerel-Crane Lake Association annual meeting.
 - v. A presentation to be given in conjunction with the AIS workshop at the Langlade County Youth Fair.
 - vi. A presentation for Market Street Days (No power point presentation due to outdoor venue).
 - vii. An educational presentation for the 2011 Mill's Fleet Farm Kids Fishing Day. (No power point presentation due to outdoor venue).
 - viii. Friends of Moose Lake presentation: (No power point presentation due to outdoor venue).

11. AIS workshops given at Langlade County Youth Fair.

- a. On Saturday, the 30th of July, 2011, Mr. Wagner gave a presentation to 15 attendees at the 2011 Langlade County Youth Fair. The presentation could have possibly had better attendance, but there was a variety of factors that went against it, such as some of the most stifling weather of the summer, followed by some of the most severe storms of the season.
- b. The attendance of 15 people is good for a fair the size of Antigo's. Mr. Wagner also met a man that had been reading his articles in the Antigo Daily Journal and wanted to meet with him so that they could set a time and date to survey some spring holes for possible AIS.
- c. Placemats were ordered by Chris Hamerla. Less than the quantity ordered was delivered however. Placemats were distributed to area restaurants where they were enthusiastically received. Many positive comments came from this effort and expense.

12. Coordinated with area groups and Chris Hamerla, Lumberjack RC&D AIS Coordinator to inspect area waterbodies.

- a. During the summer of 2011, Mr. Wagner was approached by many differing lake associations and private individuals interested in AIS issues. Many of these people called Mr. Wagner after reading his AIS educational articles in the Antigo Daily Journal. Mr. Wagner met with all groups and private individuals who contacted him regarding help in aquatic plant surveys.
- b. If the lake association or district wanted a copy of all of the aquatic plants (AIS or native plant) found growing in their waterbody during the survey, Mr. Wagner would give them a herbarium quality pressed, mounted, and labeled specimen from their waterbody.
- c. The following is a listing of the waterbodies which Mr. Wagner surveyed after being contacted by a member of lake association/district or a private property owner.

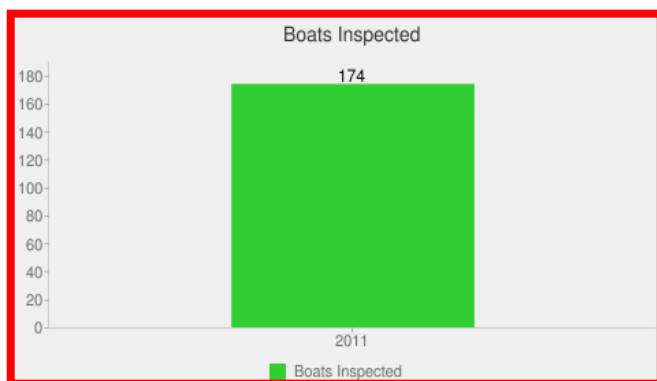
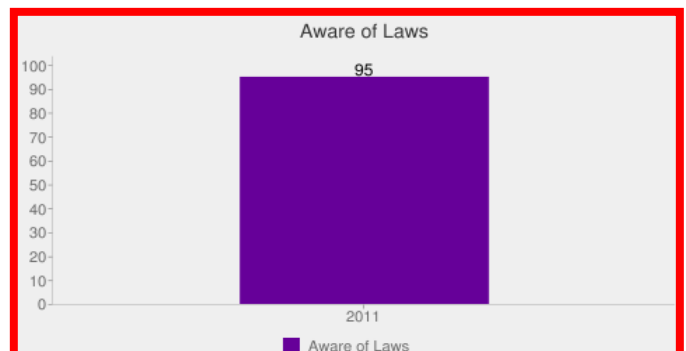
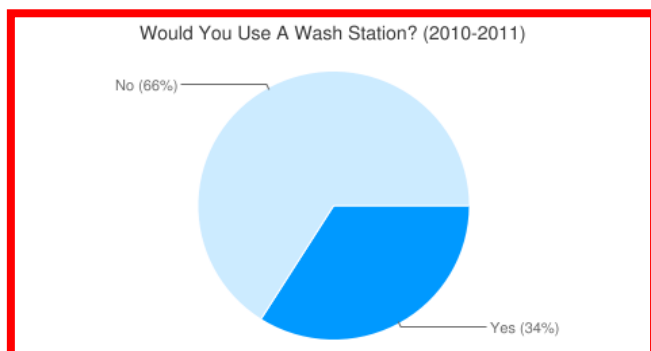
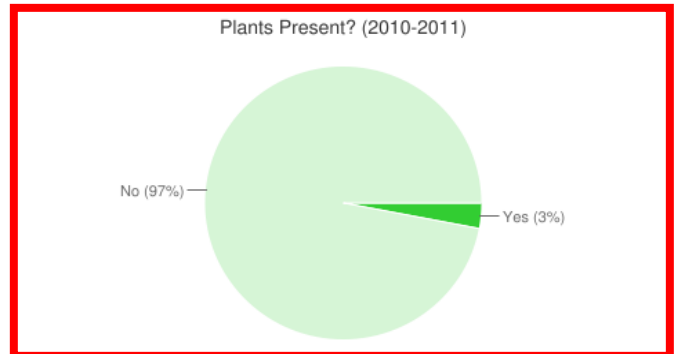
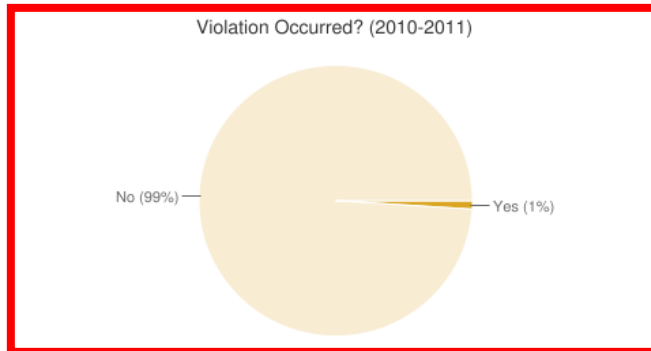
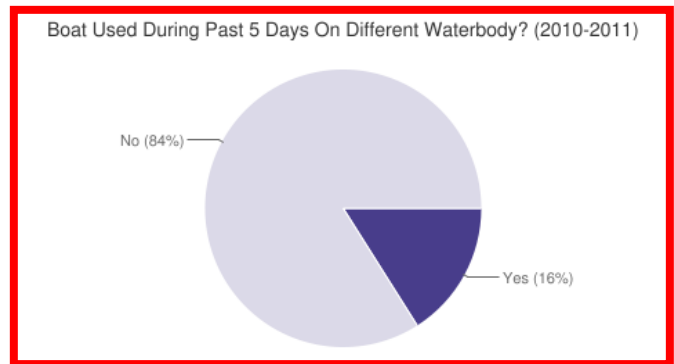
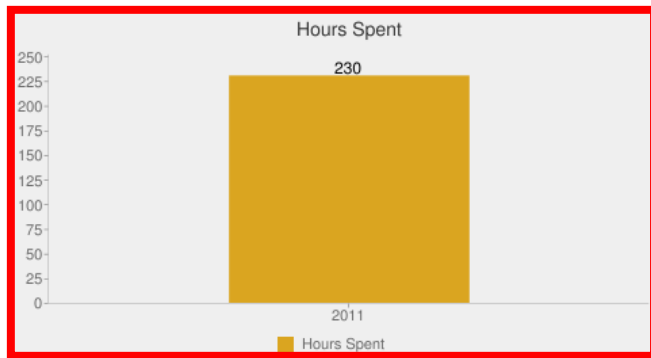
- i. Mary Lake: Aquatic plant survey with Chris Hamerla on 13 June, 2011
 - a. Created the Mary Lake District a professional herbarium quality educational packet of all of the aquatic plants found in their lake.
- ii. Greater Bass Lake: Aquatic plant survey with Jerry Jacobus and Roger Sell on 25 July, 2011
- iii. Moose Lake: Aquatic plant survey with Karen Trembath, Joan Resch, and David Omernick on 26 July, 2011
 - a. Created the Friend of Moose Lake a professional herbarium quality educational packet of all of the aquatic plants found in their lake.
- iv. Hogelee Springs #1: Aquatic plant survey with George Annis on 1 August, 2011
- v. Hogelee Springs #2: Aquatic plant survey with George Annis on 1 August, 2011
- vi. Woods' Flowage: Aquatic plant survey with George Annis on 1 August, 2011
- vii. Big Twin Lake: Aquatic plant survey with Doug Tomany on 10 August, 2011
- viii. Enterprise Lake: Aquatic plant survey with Ron Pavlich on 11 August, 2011
 - a. Created the Enterprise Lake District a professional herbarium quality educational packet of all of the aquatic plants found in their lake.
- ix. Deepwoods Lake: Aquatic plant survey with Greg Berth on 13 August, 2011
- x. The Channel between Pickerel Lake and Crane Lake: Aquatic plant survey with Chuck Sleeter on 19 August, 2011
 - a. Created the Pickerel-Crane District a professional herbarium quality educational packet of all of the aquatic plants found in their lake.

13. Surveyed area waterbodies to document both native plant and AIS populations.

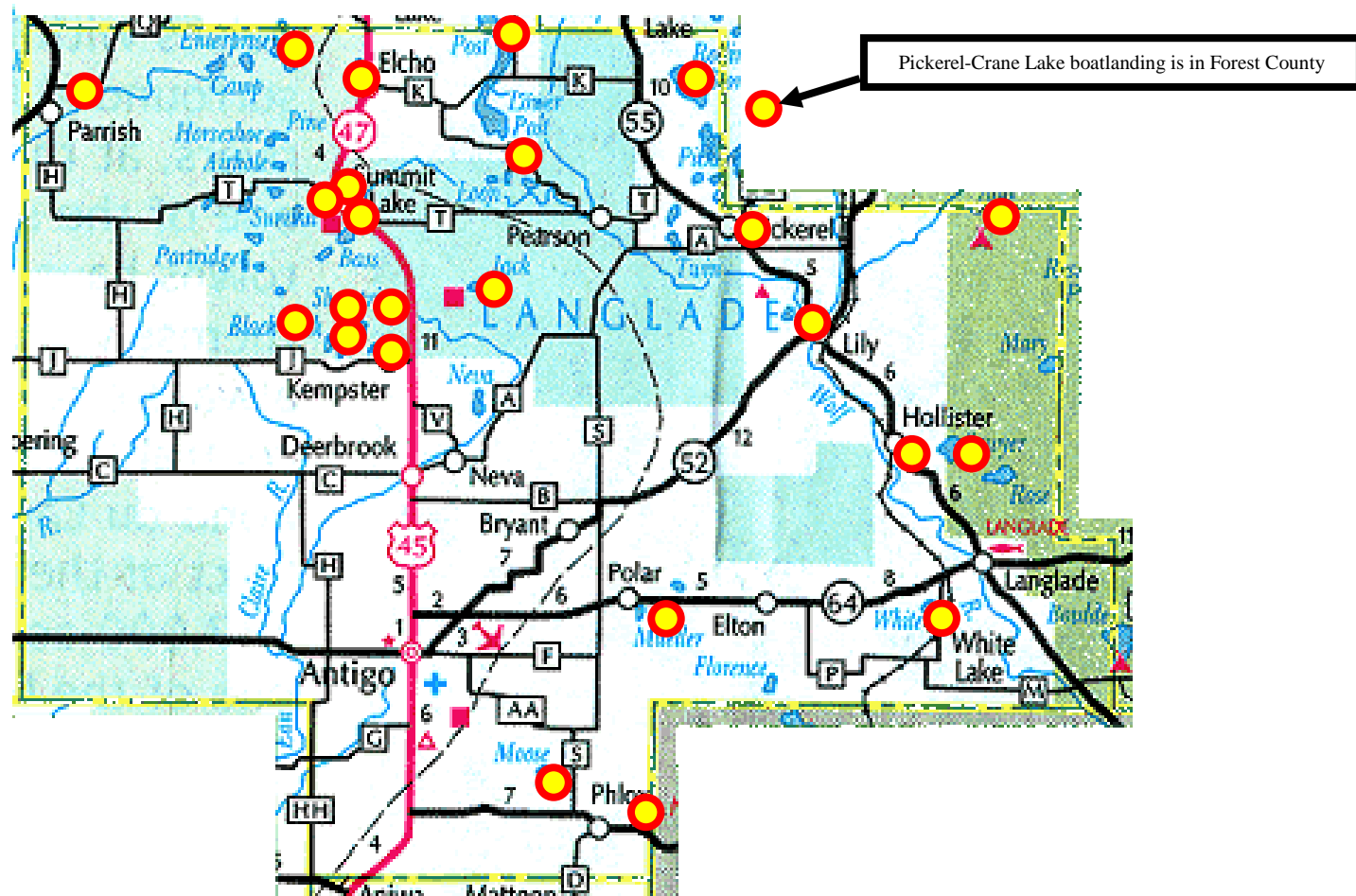
- a. Mr. Wagner conducted aquatic plant surveys on 24 waterbodies in Langlade County and one waterbody in Forest County during his employment as the Langlade County AIS Coordinator. The purposes for all of the aquatic plant surveys were to quantify the species of plants present in each waterbody. The qualification of each species gives scientific professionals in the areas of natural resource management a "snap shot" of what was growing in each particular lake at a given time. These "snap shots" prove invaluable in the event of an AIS infestation, because they reveal a picture of the waterbody in balance. A voucher specimen was taken for each species on each waterbody for documentation purposes. Mr. Wagner then professionally dried, mounted, and labeled each specimen on archival quality paper. Afterwards each specimen was annotated by Dr. Robert W. Freckmann, Professor Emeritus of Biology at the University of Wisconsin-Stevens Point (UWSP), and then donated to the Robert W. Freckmann Herbarium at UWSP. These specimens prove to be invaluable for botanical studies of our areas waterbodies, by college students and natural resource professionals alike. After annotation, Mr. Wagner then electronically sent all information to Merel Black, Webmaster for the "Plants of Wisconsin" website for the University of Wisconsin System. This information shows the range and habitat of each species. Once this information is put on line, any natural resource professional can download the information at the click of a mouse.

DETAILS

1. Hiring, training, and supervising Matthew L. Wagner. With the assistance of Chris Hamerla, Lumberjack AIS Coordinator Matt Wagner was hired as the LCWA LTE AIS Coordinator, Training was provided by Lori Regni and Suzie Rabideau. Chuck Sleeter supervised Matt out of the donated office space the Town of Nashville provided. Lori Regni provided on-going technical supervision and Chris Hamerla provided assistance with protocol and scheduling of AIS monitoring and AIS presentations.
2. Display ads created for Langlade County Fair flier asking the public for help in locating Purple Loosestrife (PL) in the county. AIS included in ads. Ad included as exhibit.
3. Clean Boats/Clean Waters (CB/CW) boat landing inspections
 - a. The following is a series of graphs showing the accomplishments of the Langlade County Waterways Association LTE in pictorial form. There is also an outline of Langlade County with dots representing all of the lakes which were monitored. SWIMS data entered.



The following is an image of Langlade County. The dots represent the boatlandings monitored in 2011. As you can see, every part of the county was monitored.



4. Langlade County Fair. Attended by thousands is one of busiest fairs in the area. Many people come yearly to check on AIS spread in County and bring in samples of suspected plants. Displayed selection of PL lookalikes as well as sample of PL and PL with Galerucella beetles. Jarred AIS specimens were on hand as well. Distributed AIS literature, watch and wild cards.



5. Nine meetings held during the year, open to the public. Area lake leaders attend and report on “happenings” on their lakes. Developed strategy for ongoing AIS awareness and monitoring. Subsequent Assn. Meetings included AIS in all agendas. AIS Task Force continues to monitor existing sites in Langlade County.

6. **Over 200 children** came to Mill’s Fleet Farm’s “Kid’s Fishing Day”. All children were required to attend classes on general fish identification, tackle selection, how to bait hooks, boating and fishing safety, and AIS. Mr. Wagner had AIS specimens on hand and he taught the children and their parents on topics such as AIS identification, AIS ecological problems, and how AIS are spread. The children also had the opportunity to catch some trout that were donated by a local business and put into a fishing pond.



- a. The children at Kid’s Fishing Day all attended a class on AIS by Mr. Wagner and Mr. Sonny Wrzycynski. They also received fishing bobbers with the “Stop Aquatic Hitchhikers” logo and AIS temporary tattoos.
- b. The interested adults chaperoning the children got to choose the AIS educational material that they would use, such as AIS identification cards.
- c. The coordinator of the event stated that it was a success that it surpassed his “wildest dreams”.
- d. Each child went home with a better education on a wide array of issues (including AIS). ~\$15.00 worth of fishing tackle, and at least one filleted trout that they caught from the pond.
 - i. The parents of the children in the photos of this section have authorized Matthew Wagner to use the photos in AIS educational materials



Mission Statement: The purpose of the Langlade County Waterways Association, Inc. is to preserve, protect its lakes, rivers, streams, wetlands and groundwater, through the undertaking of various activities, including sharing of information between individuals, environmental organizations and local and state governmental bodies, and involvement in various educational and special projects aimed at the good stewardship and wise use of our waters and their natural wildlife habitats and fisheries, both for us and future generations.

7. Waterbodies monitored by Matthew L. Wagner in 2011.

Matthew L. Wagner conducted aquatic plant surveys on 23 waterbodies in Langlade County and one waterbody in Forest County during his employment as the Langlade County AIS Coordinator. The purposes for all of the aquatic plant surveys were to qualify the species of plants present in each waterbody. The qualification of each species gives scientific professionals in the areas of natural resource management a “snap shot” of what was growing in each particular lake at a given time. These “snap shots” prove invaluable in the event of an AIS infestation, because they reveal a picture of the waterbody in balance. A voucher specimen was taken for each species on each waterbody for documentation purposes. As a donated service (25 hours) to enhance the grant effort Mr. Wagner then professionally preserved, mounted, and labeled each specimen (approx 700) on archival quality paper while using archival glue (donated by the Robert W. Freckmann Herbarium at the UW-Stevens Point). Afterwards each specimen was annotated by Dr. Robert W. Freckmann, Professor Emeritus of Biology at the University of Wisconsin-Stevens Point (UWSP), and then donated to the Robert W. Freckmann Herbarium at UWSP. These specimens prove to be invaluable for botanical studies of our areas waterbodies, by college students and natural resource professionals alike. After annotation, Mr. Wagner then electronically sent all information to Merel Black, Webmaster for downloading into the “Plants of Wisconsin” website for the University of Wisconsin System. This information shows the range and habitat of each species. Once this information is put on line, any natural resource professional can download the information at the click of a mouse.

NOTES:

- All plants collected by Mr. Wagner were acquired by rake throws or hand pulling.
- The following narrative will provide information on whether the plants collected were species of special concern, county records, or aquatic invasive species. All of this information was taken off of the Plants of Wisconsin website. Since this information was taken from the internet, and not all specimens have been entered into the database, it is possible that some species have been collected in a particular lake before, but simply not reported. Insomuch, this shows the importance of Mr. Wagner and the Langlade County Waterways Association taking the time to send the information to Merel Black.
- The usual pattern of distribution of aquatic plants in Wisconsin lakes is the familiar one of zonation correlated with water depth; the emergent species are on and near the shore, the floating species in deeper water, and the submerged species in the zone nearest the center of the lake. This concentric pattern is rarely perfectly expressed and may be totally lacking on large lakes with wave-swept shores or on smaller lakes of fluctuations water level with broad sandy beaches. In the latter cases, the submerged plants comprise the sole aquatic vegetation. In spite of the apparent homogeneity of this submerged environment, the communities are very diverse in their composition and show surprisingly great variation with short distances. The major environmental controls are water depth as related to light intensity, water chemistry, water movement, and nature of the substrate. Various intensities or qualities of these factors can interact in a variety of ways to influence the local composition of the community. As a result, a single lake may contain a number of relatively homogeneous

stands, each with a different species makeup, depending on depth, nature of adjoining shoreline, and degree of protection from waves.

- The definition of an “aquatic plant” for the purposes of this report can be summed up as “a plant that has special adaptations for spending at least a portion of its lifecycle submersed in water, at the water’s surface, or in soil that is permanently saturated.
- The identification of aquatic vascular plants is often more difficult than terrestrial vascular plants. Aquatic vascular plants tend to be collected less often than more accessible groups. Specimens are hard to handle; many species are limp or quickly shrivel when removed from water. Keys often require flowers, or fruits, or at least complete vegetative materials, and these features may be absent at the time of the field work. Water depth and the developmental stage of the plant can have a large effect on some characters. Sterile inter-specific hybrids may be surprisingly common at the some locations due to the ease of vegetative reproduction. Having Mr. Wagner, an excellent field botanist of staff proved invaluable for this enormous undertaking.
- Appendix A labeled “Plants by Lake” is attached; All monitoring entered into SWIMS.

Mary Lake: 13 June, 2011

Mary Lake is a 154 acre lake located in Langlade and Oconto County. It has a maximum depth of 9 FEET. The shoreline of Mary Lake consists of privately owned property and property owned by the Nicolet-Chequamegon National Forest. Chris Hamerla, the Lumberjack RC&D AIS

Coordinator was an additional collector. We used a boat furnished by a person who is member of the Mary Lake District. The plants collected at Mary Lake show signs of marl. There are also several springs in the lake. In all, 11 species of native plants were collected, along with the nonvascular plant Chara. Some plants such as Potamogeton pectinatus show that Mary Lake has the potential to be an important feeding area for migratory waterfowl. Moreover, the presence of Potamogeton praelongus shows that the marl and other substrates in the lake are being held in place due to the no-wake law, due to the fact that Potamogeton praelongus has a turbidity rating of zero. Mary Lake had banded mystery snails.

Chris Hamerla and Matthew Wagner surveyed Mary Lake using a boat loaned to them by lake residents. The survey took approximately 5 hours.

Borth Lake: 28 June, 2011

Borth Lake is a 30 acre lake located in Langlade County. It has a maximum depth of 16 FEET. The majority of the shoreline of Borth Lake is privately owned, but there is a large section of the shoreline on the eastern side of the lake that is undeveloped due to Borth Lakes’ close proximity to County Road B. Borth Lake has several small islands and a relatively high shoreland development factor due to the physical configuration of the shoreline. Victor Wagner (additional collector) and Matthew

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to often under-reported during lake surveys due to its diminutive size.

Wagner found 13 species of aquatic plants and the non-vascular Chara. Some of the plants are often easily overlooked in aquatic plant surveys due to their diminutive size (Elatine minima and Juncus pelocarpus). Moreover, a sample of Nuphar microphylla, a species of special concern was documented. According to the Plants of Wisconsin website, Borth Lake has very soft water.

Mr. Wagner surveyed Borth Lake in his own canoe. The survey took approximately 5 hours.

Snag Lake: 29 June, 2011

Snag Lake is a 20 acre lake located in Langlade County. It has a maximum depth of 23 FEET. About 80% of the shoreland property along Snag Lake is privately owned. However, Snag Lake is not highly developed due to the bogs surrounding the waterbody. Snag Lake is an aptly named waterbody due to the fact that there is an incredible amount of coarse woody habitat present throughout the littoral zone. Some of this coarse woody habitat comes in the form of floating logs. Additional collector Everett Wagner and I found quite a large population of orchids growing on the floating logs. We found both *Arethusa bulbosa* and *Calopogon tuberosus* growing out of logs which were ~80% submersed and 20% floating. The orchids were growing out of the logs very near the water level on the logs. *Arethusa bulbosa* is a species of special concern and a county record. In fact, since 1888, *Arethusa bulbosa* has only been documented as growing in the State of Wisconsin 96 times. *Calopogon tuberosus* on the other hand has been recorded in Langlade County a handful of times, but it has never been documented as growing out of a partially submersed log. Most specimens seem to have been found growing in floating bogs that surround lakes.

Mr. Wagner surveyed Snag Lake using his own canoe. The survey took 4 hours.

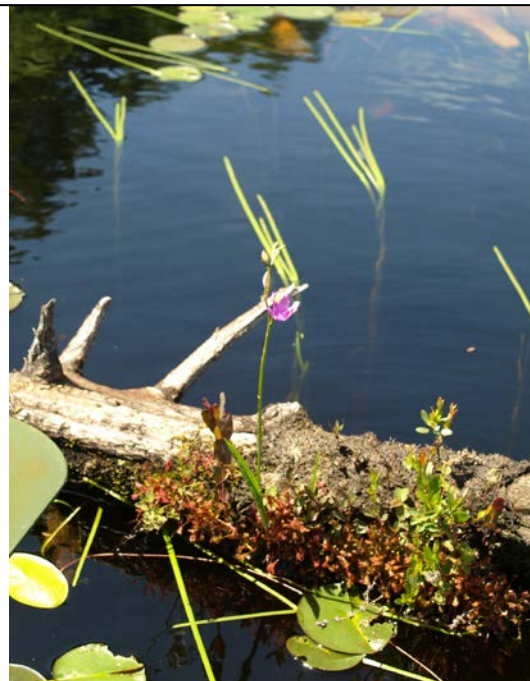


Photo of *Calopogon tuberosus* growing out of a floating log.



Close up of *Arethusa bulbosa*.



Close up of *Calopogon tuberosus*.

Indian Lake: Early summer

Indian Lake is a 16 acre lake located in Langlade County. It has a maximum depth of 26 FEET. Everett and Matthew Wagner surveyed this lake and found 14 differing species of aquatic vascular plants. At the time of the survey, *Utricularia vulgaris* was the most abundant plant in the lake. *Potamogeton pusillus* was found and documented, but was rare.

Mr. Wagner used his own boat and trolling motor to survey Indian Lake. The survey took 4 hours.

Two Island Lake: 8 July, 2011

Two Island Lake is a 32 acre lake located in Langlade County. It has a maximum depth of 19 FEET. Most of the littoral zone of Two Island Lake is dominated with *Brasenia scherbi* and *Sparganium fluctuans*. However there was a small population of *Pogonia ophioglossoides* growing in a floating bog on the southwestern edge of Two Island Lake.

Mr. Wagner surveyed Two Island Lake in his own canoe and the survey took 3.5 hours.



Pogonia ophioglossoides

Shoestring Lake: 13 July, 2011

Shoestring Lake is an 8 acre lake located in Langlade County. It has a maximum depth of 9 FEET. Shoestring Lake is located just to the northwest of Lower Clear Lake. The shoreland property around the lake is an approximate 50/50 split between public and private ownership. Approximately 95% of Shoestring Lake is surrounded by floating bogs. Although the slope along the eastern slope of Shoestring Lake is minimal, some of the slopes on the western edge are quite substantial. *Utricularia vulgaris* is by far the most common aquatic plant. But there are pockets of *Sparganium fluctuans*, *Nuphar microphylla*, and *Nuphar variegata*.

Mr. Wagner surveyed Shoestring Lake in his own canoe. The survey took 3 hours.



Sparganium fluctuans is one of the commonest aquatic plants in Langlade County lakes.

Greater Bass Lake: 25 July, 2011

Greater Bass Lake is a 244 acre lake located in Langlade County. It has a maximum depth of 27 FEET. Jerry Jacobus, Roger Sell, and Matthew Wagner surveyed Greater Bass Lake and found 8 different species of aquatic plants, including

Potamogeton vaseyi is a species of special concern and was found in Greater Bass Lake.



Potamogeton vaseyi, which is a county record and a species of special concern.

Mr. Wagner surveyed Greater Bass Lake in the pontoon boat owned by Mr. Roger Sell. Mr. Jerry Jacobus also helped with the plant survey. The survey took 3.5 hours.

Moose Lake: 26 July, 2011

Moose Lake is a 113 acre lake located in Langlade County. It has a maximum depth of 20 FEET. On the 26th of July, David Omernick, Joan Resch, Karen Trembath, and I surveyed Moose Lake in separate watercraft and found 14 different species of aquatic plants along with the nonvascular plant Chara. Moose Lake is a unique waterbody. Although the vast majority of the shoreland property along the lake is privately owned and developed, the riparian zone is still well intact. Moreover Moose Lake is one of the few waterbodies in Langlade County that show signs of marl. Moose Lake has an inlet and an outlet and is also fed by a series of springs. The most northwest portion of the lake (near the inlet) was covered with a dense carpet of Ranunculus aquaticilis. The emergent flower of this species of aquatic plant was so prevalent that the bay looked like a field of daisies. There was a small patch of Nasturtium officinale growing along the shore of one of the islands near the inlet. Ceratophyllum echinatum, a species of special concern is quite prevalent in the littoral zone of the western edge of the lake. The water of Moose Lake is quite clear, as would be expected after find Potamogeton praelongus. The presence of Stuckeria pectinata could make Moose Lake an important stop for migratory waterfowl.

Mr. Wagner, Mr. David Omernick, Ms Karen Trembath, and Ms. Joan Resch surveyed Moose Lake by using two separate canoes. The canoes were never more than 100 feet apart during the survey. The survey took 5 hours, but with two watercraft counts for 10 hours for the purposes of this grant.



Riccia fluitans is an extremely rare bryophyte. Mr. Wagner documented it in Moose Lake.



Ranunculus aquaticilis is common in Moose Lake.

Willow Springs: 18 July, 2011

Willow Springs is a 5 acre lake located in Langlade County. It has a maximum depth of 6 FEET. It is a popular area for early season duck hunting due in part to the prevalence of Stuckeria pectinata. Potamogeton diversifolius, a

Mr. Wagner surveyed Willow Springs in his own canoe and the survey took 3 hours.



Callitriche palustris L. is common in some areas and not found in others.

species of special concern and a county record was found in Willow Springs.

Lawrence Lake: 24 July, 2011

Lawrence Lake is a 50 acre lake located in Langlade County. It has a maximum depth of 40 FEET. Some of the land surrounded Lawrence Lake is a State Natural Area. This lake is widely fished by county residents. Lori Regni and Matthew Wagner found 15 species of vascular aquatic plants and the nonvascular plant Chara. Sagittaria cristata and Sagittaria rigida are common along the shoreline in the littoral zone. One of the western bays is dominated by Equisetum fluviatile. Elatine minima, Isotetes echinospora, and Hypericum boreale are present in some of the mucky areas of substrates, but not too common.

Mr. Wagner and Ms. Lori Regni surveyed Lawrence Lake in Mr. Wagner's boat. The survey took approximately 3.5 hours.



Long Lake:

Long Lake is a 69 acre lake located in Langlade County. It has a maximum depth of 22 FEET. The dates of the collections on both Long Lake and Turtle Lake have been lost due to a computer glitch. Long Lake is dominated by plants in the Potamogetonaceae Family. Long Lake has a lot of Potamogeton epihydrus, Potamogeton natans, Potamogeton pusillus, Potamogeton richardsonii, Potamogeton robbinsii, and Potamogeton zosteriformis.

Chara, a nonvascular bryophyte as called Musk-grass is sometimes mistaken for an AIS such as Eurasian Water Milfoil.

Mr. Wagner surveyed Long Lake in his boat and the survey took 6 hours.

Turtle Lake:

Turtle Lake is a 58 acre lake located in Langlade County. It has a maximum depth of 11 FEET. The date of the collection of Turtle Lake has been lost due to a computer glitch. Turtle Lake is a small lake that drains into the Wolf River near the village of Lily. The substrate of Turtle Lake is extremely mucky and shows signs of marl. The biodiversity of Turtle Lake's aquatic vegetation community is impressive, with 20 species of vascular plants found along with the nonvascular plant Chara. Ceratophyllum echinatum, a species of special concern is common in Turtle Lake.

Mr. Wagner surveyed Turtle Lake in his boat and the survey took 5.5 hours.

Ada Lake: 1 August, 2011

Mr. Wagner surveyed Ada Lake in his canoe and the survey took 5 hours.

Mission Statement: The purpose of the Langlade County Waterways Association, Inc. is to preserve, protect and enhance all waters of Langlade County, including its lakes, rivers, streams, wetlands and groundwater, through the undertaking of various activities, including advocating and facilitating communications through sharing of information between individuals, environmental organizations and local and state governmental bodies, and involvement in various educational and special projects aimed at the good stewardship and wise use of our waters and their natural wildlife habitats and fisheries, both for us and future generations.

Ada Lake is a 75 acre lake located in Langlade County. It has a maximum depth of 65 FEET. Approximately half of the shoreland property on Ada Lake is privately owned while the other half is owned by the USDA Forest Service. Ada Lake is an interesting ecosystem. Most of the littoral zone, especially in the northernmost bay of the lake is almost entirely covered with *Brasenia schreberi*, with a smattering of *Potamogeton natans* and *Potamogeton epihydrus* intermixed. The southern and western edges of the lake are mucky and have a tremendous amount of *Eriocaulon aquaticum*, mixed with *Elatine minima*, *Elatine triandra*, and *Dulichium arundinaceum*. Many of the deeper areas of the lake have only *Utricularia vulgaris* floating through.

Woods Flowage: 1 August, 2011

Woods Flowage is an 18 acre lake located in Langlade County. It has a maximum depth of 6 FEET. George Annis, a former Antigo High School teacher contacted me after reading my AIS educational articles in the Antigo Daily Journal. He was afraid that some of his favorite trout fishing haunts (Woods Flowage, Hogelee Spring #1, and Hogelee Spring #2) were infested with Eurasian Water Milfoil. The plant that Mr. Annis thought was EWM was in fact *Ranunculus aquatilis*. However, we did find two invasive species in the spring areas: *Nasturtium officinale* and *Lythrum salicaria*.

Hogelee Springs # 1 & #2: 1 August, 2011

Hogelee Spring Number One is a 2 acre lake located in Langlade County. It has a maximum depth of 9 FEET. Hogelee Spring Number Two is a 2 acre lake located in Langlade County. It has a maximum depth of 9 FEET. Mr. Annis wanted to check the Hogelee Springs for AIS. He was afraid that they had EWM. The plant in question turned out to be *Chara*. There was also *Nasturtium officinale* in the spring holes.

Pickerel Creek/Wolf River Confluence: 4 August, 2011

I had canoed the Wolf River earlier in the summer and had documented some *Potamogeton crispus*. On the 4th of August, I went to eradicate the *Potamogeton crispus* and to perform a waterbody survey. I documented 11 different aquatic species. One of the most common plants in this area is *Zizania palustris*, which is a very important plant in the Ojibwa culture, so it is good that I attempted to hand pull all of the *Potamogeton crispus* that I saw. Other plants in the area were *Najas flexilis*, *Potamogeton epihydrus*, *Potamogeton natans*, and *Potamogeton zosteriformis*.



Above are images of *Potamogeton crispus* collected from the confluence of Pickerel Creek and the Wolf River. Mr. Wagner was the first to report this infestation. The infestation was marked using GPS coordinates. All information on the infestation was then reported to the DNR and entered into the DNR's SWIMS database. Moreover, samples of this species were pressed and used as educational specimens.

Mr. Wagner also contacted Dr. Robert W. Freckmann, Professor Emeritus of Biology at the University of Wisconsin-Stevens Point (UWSP) about an oddity in the plant population of the infected area. While hand pulling the *Potamogeton crispus* in the area, Mr. Wagner noticed that some of the submersed ribbon-like leaves of *Potamogeton epihydrus* in the area were not limp when taken out of the water as they should be. Instead the leaves were stiff when the plant was out of the water. These plants were collected and brought to UWSP so that Dr. Freckmann can later do analysis on the plants to determine if there is any

Indian Lake: 4 August, 2011

Indian Lake is a 16 acre lake located in Langlade County. It has a maximum depth of 26 FEET. Although I had already surveyed Indian Lake, I received a call from Lumberjack RC&D claiming that there was a concern that the lake had EWM. In the month that has passed since I last surveyed Indian Lake the *Utricularia vulgaris* has been replaced in dominance by *Utricularia purpurea*, a species of special concern.

A photo of *Nymphaea odorata*, taken by Matthew Wagner on Indian Lake.



Mr. Wagner resurveyed Indian Lake in his own boat and the survey took 4 hours.

Jack Lake: 5 August, 2011

Jack Lake is an 85 acre lake located in Langlade County. It has a maximum depth of 38 FEET. Much of the land around Jack Lake is owned by Langlade County. Although only ten species of aquatic plants were found during the survey, the amount of *Decodon verticillatus* found growing in and around the lake is stunning. Cuttings of this plant could be used to restore degraded and eroded shorelines in other lakes.

Mr. Wagner surveyed Jack Lake in his boat and the survey took 6 hours.



Decodon verticillatus is so common in Jack Lake that it will grow 20 feet off of the shoreline.

Otter Lake: 09 August, 2011

Otter Lake is a 84 acre lake located in Langlade County. It has a maximum depth of 28 FEET. Mr. Wagner and Mr. Rodney Visser surveyed Otter Lake. It took 4 hours. The amount and diversity of plants found in Otter Lake were low due to the high volume of Rusty Crayfish in Otter Lake. Otter Lake also has a lot of Purple Loosestrife growing along the shore. Mr. Visser and Mr. Wagner handpulled all of the Purple Loosestrife that they saw.

Mr. Wagner and Mr. Visser surveyed Otter Lake in Mr. Visser's pontoon boat and it took four hours.

Big Twin Lake: 10 August, 2011

Big Twin Lake is a 66 acre lake located in Langlade County. It has a maximum depth of 35 FEET. Doug Tomany and Matthew Wagner surveyed Big Twin Lake and found that the EWM that once infested Big Twin is now very much under control. Although we only documented 8 species of aquatic plants and the nonvascular plant Chara, the aquatic plant community of Big Twin is in very good shape. Perhaps the most impressive plant in Big Twin is Megalondonta beckii. Mr. Tomany believes that the M. beckii is taking over in the areas that were treated for EWM. We also documented Zannichella palustris, which is a county record.

Mr. Wagner and Mr. Tomany surveyed Big Twin Lake in Mr. Tomany's boat and the survey took four hours. Mr. Tomany also had an underwater camera that helped tremendously with the survey.



Enterprise Lake: 11 August, 2011

Enterprise Lake is a 509 acre lake located in Langlade County. It has a maximum depth of 28 FEET. Mr. Ron Pavlich and Matthew Wagner surveyed Enterprise Lake and documented 18 species of vascular plants along with the nonvascular plant Chara. Najas flexilis is dominant in areas. Potamogeton praelongus shows low water turbidity. Ceratophyllum echinatum and Utricularia, both species of special concern, were both documented in Enterprise Lake, along with the uncommon Zannichellia palustris

Zannichella palustris is a county record

Mr. Wagner and Mr. Pabich surveyed Enterprise Lake in Mr. Pabich's boat and the survey took 5 hours.

Deepwoods Lake: 13 August, 2011

Deepwoods Lake is a 71 acre lake located in Langlade County. It has a maximum depth of 23 FEET. Mr. Greg Berth and Matthew Wagner surveyed Deepwoods Lake

Mr. Wagner and Mr. Berth surveyed Deepwoods Lake in Mr. Berth's boat and the survey took 4 hours.

Mr. Wagner and Mr. Sleeter surveyed the channel between Pickerel Lake in Mr. Sleeter's boat and Crane Lake and the survey took 3.5 hours.

and only found two species of aquatic plants; *Brasenia schreberi* and *Polygonum amphibium*. Although this a very low number of species, it can be explained by the fact that Deepwoods was not much more than a mud puddle for the better portion of the last decade due to the drought and they only got water back this year. The water was so low for so long that there were 5 feet tall *Betula papyrifera* trees which were growing in the dry lakebed which are now under several feet of water and have *Polygonum amphibium* dancing through their branches.

Channel between Pickerel Lake and Crane Lake: 19 August, 2011

Chuck Sleeter and Matthew Wagner surveyed the channel between Pickerel Lake and Crane lake to determine if the EWM from Pickerel Lake was encroaching into Crane Lake via the channel. We found no evidence of this. We did however find 14 species of aquatic vascular plants and the nonvascular plant *Chara. Vallisneria americana* was dominant in areas.

Mr. Wagner surveyed Perch Lake in his canoe and the survey took 4 hours.

Mr. Wagner surveyed White Lake while teaching in the “Pontoon Classroom” for the White Lake School’s “Lake Day”. Many differing property owners allowed Mr. Wagner and the children to use their pontoons. The approximate usage of pontoons for the purpose of this grant comes to 6.5 hours.

Perch Lake: 26 August, 2011

Perch Lake is a 25 acre lake located in Langlade County. It has a maximum depth of 21 FEET. Wyatt and Matthew Wagner surveyed Perch Lake and only found 6 species of aquatic plants. *Eriocaulon aquaticum* is quite common in the littoral zone.

White Lake: 15 September, 201

White Lake is a 153 acre lake located in Langlade County. It has a maximum depth of 42 FEET. Matthew Wagner surveyed White Lake as part of White Lake School District’s “Pontoon Classroom”, where Mr. Wagner taught 6 classes on aquatic plants to Kindergartener’s to 6th Graders. All classes went out on pontoons and helped collect plants. Many different species of plants from the *Potamogetonaceae* Family were documented including *Potamogeton amplifolius*, *Potamogeton gramnieus*, *Potamogeton illinoensis*, *Potamogeton obtusifolius* (county record), *Potamogeton praelongus*, and *Potamogeton zosteriformis*.

Boat/canoe cost share:

The Langlade County Waterways Association had the good fortune of working with many different generous people in the summer of 2011. Many differing concerned riparian property owner and Wisconsin waterbody lovers offered their time, talents, and watercrafts to help survey the waters of Langlade County. All told, the Langlade County Waterways Association is claiming 89.5 hours of watercraft hours for this grant. The hours are broken down as follows:

- 24 hours: Matthew Wagner’s canoe
- 24 hours: Matthew Wagner’s boat, motor, trolling motor, and trailer
- 41.5 hours: Concerned citizens boats, motors, and trolling motors.

Distribution of Final Report: Upon approval by WDNR this report will be distributed to Lumberjack RC&D, Antigo Daily Journal, Antigo Public Library, School Districts in Langlade County, lake

associations and districts in Langlade County and the Langlade County Land & Water Conservation Committee.



The image above is an example of *Polygonum amphibium* L. (Water Smartweed). This is one of the dozens of professionally identified, mounted, and labeled aquatic plant specimens that Mr. Wagner prepared for lake associations/districts in Langlade County after surveying their waterbody. In this way, the lake association/district will have specimens on hand of every plant species found in their lake during the survey, and will be able to use them for educational purposes in the future. Moreover, since lake associations/districts was given their own professionally mounted specimen to keep in their archives, they will be able to use these specimens in the future to determine whether or not this particular species of aquatic plant was found in the summer of 2011 when Mr. Wagner surveyed the waterbody, and thereby have a more scientific knowledge of their waterbody at one point in time.

The specimen shown above is from Deepwoods Lake. Mr. Greg Berth and Mr. Wagner went out on Deepwoods Lake on the 13th of August, 2011. Specimens were taken for the UWSP Robert W. Freckmann Herbarium and the Department of Natural Resources for the purpose of this grant.

Exhibits

Ads

Articles in Newsletters

PL Observation sheets

Appendix A.-Species of Plants Found

Appendix B- Plants found in Langlade Surveyed Lakes; Final by Lake