

ORIGINAL



North American Hydro Holdings, Inc.

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February 7, 2012

The Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

FILED
SECRETARY OF THE
COMMISSION
2012 FEB 16 A 9:02
FEDERAL ENERGY
REGULATORY COMMISSION

Re: Oconto Falls Upper Project, No. 2523, NEW Hydro, LLC
Article 407, Purple Loosestrife Eurasian Watermilfoil Inventory

Dear Secretary:

On behalf of N.E.W Hydro, Inc., and in accordance with the Purple Loosestrife-Eurasian Watermilfoil Monitoring Plan per license article named above, North American Hydro Holdings, Inc. submits the annual Purple Loosestrife and Eurasian Watermilfoil Inventory for 2011 for the above named project. Copies of the inventory have been sent to the Wisconsin Department of Natural Resources and the US Fish & Wildlife Service and no comments have been received to date.

If you have any questions or comments regarding this submission, please contact Mr. Jereme Klassy at 920-293-4628 (ext. 22).

Sincerely,

NORTH AMERICAN HYDRO HOLDINGS, INC.

for Charles Alsberg
Chief Executive Officer

CC: FERC – CRO

**Oconto Falls Upper Project Purple Loosestrife & Eurasian Watermilfoil Inventory
August 9-11, 2011
FERC Project #2523 Article 407**

**NEW Hydro, Inc.
116 North State Street
Neshkoro, WI 54960**

Purple Loosestrife

On August 9, 2011 through August 11, 2011, NEW Hydro, Inc. (NEW) performed an inventory of purple loosestrife plants at the Oconto Falls Upper Project in Oconto County, Wisconsin. The method of inventory as approved and modified by Federal Energy Regulatory Commission (FERC) Order of November 19, 1999 was defined as follows:

After Purple Loosestrife has bloomed in mid July to early August, the inventory should be conducted using a boat to survey the impoundment above the dam and on foot or by boat below the dam. County wetland maps will be used to determine other areas where Purple Loosestrife could be found on lands owned by NEW within the Project Boundary. These areas will be surveyed on foot. A pair of binoculars should be used to search for the purple flowered spikes of the plant. When plants are located, the person(s) inventorying should get close enough to make a positive identification without disturbing the plants or the immediate area around the plants as this could cause them to spread. A GPS receiver will be used to establish a GPS coordinate for the location of the plants. If it is not possible to get close enough to establish an accurate location, an approximate location will be established with reference to an established GPS coordinate. The plant should be inventoried by marking and numbering the location on a lake map along with notes approximating size of plants, stand area, percent cover, stem density, plant density, and location with reference to established GPS coordinates. Photos and/or videotape will be taken of the largest occurrences.

Example:

#1 6' tall plants; 4' X 20'; 30% cover; 4 – 5 stems per plant; 4 plants; on shoreline N44° 52.9092' E88° 10.0000'; no photo

#2 5' - 7' tall plants; 10' X 10'; 25% cover; 4 – 5 stems per plant; in marsh 50 feet bearing 25° from N44° 52.5092' E88° 10.0000'; photo No. 1

The area to be inventoried shall be the shoreline and lands owned by NEW within the Project Boundary as indicated on the Project Boundary map included as Exhibit G of NEW Hydro, Inc. Application For New License for the Oconto Falls Hydroelectric Project FERC Project #2523. The Project Boundary is shown as the water and shoreline of the impoundment from approximately 6000' upstream of the State Highway 32 bridge to approximately 500' downstream of the Project dam.

General Observations:

For purple loosestrife, the Oconto Falls Upper Project Boundary was divided into four distinctly different areas; the tailrace (from the dam to 500' immediately downstream of the dam on the east end of the impoundment), the main basin (from the dam to 2 miles upstream of the dam where the river narrows), the headwaters (from 2 miles upstream of the dam where the river narrows to the western point of the project boundary ~6,000 feet upstream of the Highway 32 bridge), and outlying project owned lands.

The tailrace was surveyed on foot and was found to contain no visible purple loosestrife plants.

The main basin was surveyed by boat and was found to contain no visible purple loosestrife plants.

The headwaters were surveyed by boat. Six occurrences of purple loosestrife plants were observed in this area and are noted on the lake map and survey comments at the end of this report. One of these occurrences appears to be on project owned land and is so noted.

Plants have been observed at GPS Point OFUP PL001 (located on project owned land) every year since 2000. The plants have been treated with an herbicide every year since 2003, including this year. Galerucella beetles were found on a number of plants each year from 2007-2010. Thirty-four plants were observed at this location in 2011. Both the number of plants and the plant size has gone down since last year. Heavy beetle damage was found on the plants.

Plants have been observed at GPS Point OFUP PL002 every year since 2000, with the exception of 2009. The density of the plants has reduced since 2005. Five plants were observed at this location in 2011. Galerucella beetle damage has been found on the plants every year since 2006. Heavy beetle damage was found on the plants once again this year. The plants at this site have not been treated in any of the survey years due to their location in a low-lying area on private property.

Plants were first observed at GPS Point OFUP PL003 in 2001. In 2002 and 2003 the seed heads on all of the plants were removed to reduce the possibility of spreading. No plants were observed in 2004. The plants returned in 2005 and the seed heads were once again removed. No plants were found from 2006-2008. One plant was found and pulled in 2009. There weren't any loosestrife plants observed in 2010 or 2011.

Plants were first observed at GPS Point OFUP PL004 in 2001. All plants were pulled and destroyed that year. No plants have been observed since then, including 2011.

Plants were first found at GPS Points OFUP PL005 – OFUP PL010 in 2002. This location was observed each year from 2002-2008. The number of plants at this site had reduced in number in 2007 and 2008. Minor beetle damage was noted in 2007. No plants were observed in 2009. In 2010 three large plants were observed, one with beetle damage. No purple loosestrife plants were found at this location in 2011.

Plants were first observed at GPS Point OFUP PL011 in 2002. This location was observed from 2002-2004, with the seed heads being removed each year. No plants were observed in 2005. Plants were once again found in 2006, and have been found every year since then. All plants were pulled and destroyed each year. Five plants were observed at this location in 2011. These plants were similar in size and number to the plants found here in recent years. The plants were pulled and destroyed. Beetle damage was noted in 2007, 2008, and 2009. Heavy beetle damage was found in 2011.

Plants were first observed at GPS Point OFUP PL012 in 2005. The plants didn't reappear until 2009. All plants in both years were pulled and destroyed. No plants were found at this location in 2010 or 2011.

Plants were observed at GPS Point OFUP PL013 in 2005. All those plants were pulled and destroyed. No plants have been found at this location since then, including 2011.

Plants were observed at GPS Point OFUP PL014 in 2006 and 2007. All those plants were pulled and destroyed. No plants were found from 2008-2010. One purple loosestrife plant was found at this location in 2011. The plant was pulled and destroyed.

Plants were first observed at GPS Point OFUP PL015 in 2006. The plants didn't reappear until 2009. All those plants both years were pulled and destroyed. No purple loosestrife plants were found in 2010 or 2011.

Plants were observed at GPS Point PL016 in 2007. The three plants found were pulled and destroyed. No plants have been found at this location since then, including 2011.

Plants were first observed at GPS Point OFUP PL017 in 2007. One blooming plant was found in 2007, 2008, and 2009. The plant was pulled and destroyed each year. No plants were found in 2010. One purple loosestrife plant was again observed in 2011. The plant had minor beetle damage and was pulled and destroyed.

Plants were first observed at GPS Point OFUP PL018 in 2008 below the southeast corner of the Hwy. 32 bridge. Plants were also found in 2009. All plants were pulled and destroyed both years. No plants were observed in 2010. One purple loosestrife plant was observed in 2011. The plant was pulled and destroyed.

One purple loosestrife plant was observed at GPS Point OFUP PL019 in 2009. The plant was pulled and destroyed. There weren't any purple loosestrife plants observed at this location in 2010 or 2011.

The outlying project owned lands were first researched using aerial wetland maps to determine the areas conducive to purple loosestrife growth. These areas were then surveyed on foot and were found to contain no visible purple loosestrife plants.

During the inventory, a video camcorder or digital camera has been used to document new occurrences of purple loosestrife as noted in the survey comments at the end of this report.

Eurasian Watermilfoil

On August 9, 2011 through August 11, 2011, NEW Hydro, Inc. performed an inventory of Eurasian watermilfoil plants at the Oconto Falls Upper Project in Oconto County, Wisconsin. The method of inventory as approved and modified by FERC Order of November 19, 1999 was defined as follows:

After Eurasian watermilfoil has developed in mid July to early August, the inventory should be conducted by boating transects in the impoundment above and below the dam. Number and locations of transects will be determined at the time of the first inventory and appropriately marked on the inventory lake map. A GPS receiver will be used to establish GPS coordinates for the beginning and endpoints of the transects. The person(s) inventorying should visually search areas with depths of 12 feet or less for the dense mats of the plants on and below the water surface. When plants are located, the person(s) inventorying should get close enough to make a positive identification without disturbing the plants or the immediate area around the plants as this could cause them to spread. If necessary, a sample may be taken for identification later. The plant should be inventoried by marking and numbering the location on a lake map along with notes approximating area that they cover, perimeter of bed, mat density, overall mat thickness, and location with reference to the GPS coordinates. Photos and/or videotape will be taken of the largest occurrences.

Example:

#1 40' X 20'; 3' depth; perimeter N44° 52.8925' E88° 10.0000'
N44° 52.8860' E88° 10.0000', N44° 52.8860' E88° 09.9953', N44°
52.8925' E88° 09.9953'; 50% density; 3' thick; no photo

#2 8' X 10'; 10' depth; N44° 52.9008' E88° 10.0000', N44°
52.8995' E88° 10.0000', N44° 52.8995' E88° 09.9980', N44°
52.9008' E88° 09.9980'; 25% density; 8' thick; photo No. 1

The area to be inventoried shall be that within the Project Boundary as indicated on the Project Boundary map included as Exhibit G of NEW Hydro, Inc. Application for New License for the Oconto Falls Hydroelectric Project FERC Project #2523. The project boundary is shown as the water and shoreline of the impoundment from approximately 6000' upstream of the State Highway 32 bridge to approximately 500' downstream of the Project dam.

General Observations:

For Eurasian Watermilfoil, the Oconto Falls Upper Project Boundary was divided into three areas: the **tailrace** (from the dam to 500' immediately downstream of the dam on the east end of the impoundment), the **main basin** (from the dam to 2 miles upstream of the dam where the river narrows), and the **headwaters** (from 2 miles upstream of the dam where the river narrows to the western point of the project boundary – 6,000 feet upstream of the Highway 32 bridge).

Water clarity at the Project at the time of the survey was limited to 1' – 3' in the impoundment and 2' – 4' in the river. It was determined at that time to use a 14" wide garden rake with a 5.5' handle for shallow areas and a 14" wide garden rake attached to an 18' aluminum pole for deeper areas. For the 2000 and 2001 surveys, no weed growth of any kind was retrieved from waters deeper than 10', so sampling at the 15' depth was discontinued.

No Eurasian Watermilfoil plants were found in the **tailrace**.

Eight transects were established in the **main basin** in 2000 with sample points at 1.5', 5', and 10' depths. Each sample point of each transect was an 8' circle divided into quadrants. Each quadrant was sampled using one of the rakes. If the teeth of the rake contained less than 50% Eurasian Watermilfoil, a rating of 1 was assigned, and if 50% or more, a rating of 2 was assigned. In addition, areas of weed growth were searched while skirting the perimeter of the weed beds and shoreline.

No weed samples of any kind were detected at the 10' depth. There was very little boat traffic on the sampling date. Floating segments of Eurasian Watermilfoil were found during the survey. Special attention was paid to each of the boat landings.

The northeast boat landing near the hydroelectric plant, included in Mat #9, contained some growing and floating strands of Eurasian Watermilfoil in 2011. It was also observed on the apron of the boat landing.

The north boat landing immediately east of the swimming beach contained a few floating strands of Eurasian Watermilfoil near the landing. None of the plants appeared to be growing from the bottom. As in previous years, strands of Eurasian Watermilfoil were found on the apron of the landing in 2011.

The boat landing at the West Park is within mat #5. Eurasian watermilfoil plants were found floating around the landing and dock, and a few were observed on the apron of the landing again in 2011. Plants were seen growing nearby.

No Eurasian Watermilfoil was detected at sampling locations with depths greater than 5'. The occurrences at 5' depth and less were easily identified without the use of dredging techniques, as the plants had grown to the surface and most had reddish tops.

In past years, some sampling points did not yield any Eurasian watermilfoil plants, although there may have been some plants floating on the surface and/or growing from the bottom within 25' of the sampling point. In 2002, a column was added to the survey sheet at the end of this report to show these observations.

Since 2000, fourteen mats containing Eurasian Watermilfoil have been identified within the project boundary. No new mats were found in 2011. Mats #1 through #4 were first identified in 2000. Mat #5 was found in 2001. Mats #6 and #7 were found in 2003. Mat #8 was found in 2005. Mats #9 through #11 were found in 2006. Mat #12 was found in 2008. Mats #13 and #14 were found in 2009. All fourteen mats were discovered visually. All of these mats were interspersed with other types of plants and all of them had Eurasian Watermilfoil densities as noted in the survey comments at the end of this report. Mats #1 through #10 are located in the **main basin**.

Mat #1 was first observed in 2000 and remained the same size and density through 2003. It decreased in size in 2004 and was no longer visible in 2005. The mat reappeared in 2006, remaining the same size through 2010. The density of this mat declined in 2010. In 2011 the size has stayed the same, but the density has slightly decreased again.

Mat #2 was first observed in 2000 and remained the same size and density through 2003. It decreased in size in 2004 and was no longer visible in 2005. The mat reappeared in 2006. It increased in size and density in 2007, staying that way until 2009, when the mat size and density again declined. In 2010 this mat returned to its original size with only a slight increase in density. In 2011 the size of the mat has decreased to approximately 695' x 20', and the density has gone back down slightly.

Mat #3 was first observed in 2000, increasing in size and density through 2003. In 2004 a drastic reduction in density was observed. In 2005 its density reduced further to where it could be considered the same as when it was first observed in 2000. It slightly increased in density in both 2006 and 2007. The size of the mat stayed the same from 2003 through 2007, but more than doubled in length in 2008. In 2009 the survey crew divided mat #3 into two sections (east & west) to produce a more accurate report. Mat #3 east had the same size and density in 2009, 2010, and 2011. The size of mat #3 west remained the same in 2009, 2010, and 2011. Mat #3 west's density declined in 2010, but stayed the same this year.

Mat #4 was first observed in 2000, increasing in size and density through 2003. In 2004 a drastic reduction in density was observed. In 2005 its density reduced further to where it could be considered the same as when it was first observed in 2000. In 2006 it slightly increased in density. The density decreased once again in 2007. In 2008 heavier densities developed to the northeast and lighter densities to the northwest of the mat. In 2009 and 2010 the density remained the same, but heavier concentrations of Eurasian Watermilfoil developed on the south and west end of the mat. The density of the mat slightly decreased in 2011. The mat size has stayed the same since 2004, including this year.

Mat #5 was first observed in 2001, increasing in size and density through 2003. In 2004 a drastic reduction in density was observed. In 2005 its density reduced further to where it could be considered the same as when it was first observed in 2001. It increased in density in 2006. The mat's size was the same from 2004 through 2006. In 2007 it decreased in size, but increased in density. In 2008 the length increased slightly to the northwest and the density remained the same. In 2009 the size of mat declined and the density was lighter than the previous year. The mat size remained the same in 2010, but the density increased. The size and density has remained the same in 2011.

Mat #6 was first observed in 2003. In 2004 it remained the same size but reduced in density. In 2005 its size and density remained the same. In 2006 its size and density increased. In 2007 it increased in size and density until it joined with mat #8 to form one continuous mat. In 2008 the mat grew further out into the impoundment and the density increased. In 2009 the size and density declined. In 2010 the mat size remained the same, but the density increased. The mat size stayed the same and the density slightly increased once again in 2011. As in previous years, mat #6 has remained joined with mat #8. This has created a continuous area of Eurasian Watermilfoil from the N. Flatley Ave. swimming beach to the boat barrier adjacent to the dam and powerhouse.

Mat #7 was first observed in 2004. It was not visible in 2005 and reappeared in 2006. In 2007, 2008, and 2009 it was not visible. Sparse amounts of Eurasian Watermilfoil were growing at this location in 2010. This mat was once again not visible in 2011.

Mat #8 was first observed in 2005. In 2006, 2007, and 2008 it increased in size and density. In 2009 and 2010 the mat remained the same size, but the density increased. The mat has stayed the same size and slightly increased in density once again in 2011. This mat remains joined with mat #6 to form one continuous mat.

Mat #9 was first observed in 2006. In 2007 it increased in size, but the density remained the same. In 2008 there was a slight increase in the density and the

mat reached out approximately 25' from the shoreline, greater in width than in 2007. In 2009 the mat did not change in size, but increased in density. In 2010 the mat size decreased, but density did not change. The mat density has decreased considerably in 2011, potentially due to the very low water clarity. The size of the mat has decreased to approximately 515' x 15' in 2011.

Mat #10 was first observed in 2006. In 2007 it remained the same size, but increased in density. The mat size remained the same and increased in density once again in 2008. In 2009 the mat size increased considerably, but the density slightly decreased. The mat size and density remained the same in 2010. In 2011 the mat size remained the same, but the density decreased.

The **headwaters** contain mats #11, #12, #13, and #14.

Mat #11 was first observed in 2006. In 2007 it remained the same size and decreased in density. When surveyed in 2008, the size and density of this mat had not changed from the previous year. The 2009 survey found a large increase in the size of this mat and only a slight increase in density. In 2010 the mat size remained the same, but the density increased. In 2011 the size has remained the same, but the density has decreased.

Mat #12 was first observed in 2008. In 2009 this mat increased in length by 388'. The density of this mat also showed a large increase. In 2010 the mat size remained the same with a slight increase in density. In 2011 the size has remained the same, but the density of this mat has decreased.

Mat #13 was first observed in 2009 and is the furthest mat upriver to this date. In 2010 this mat did not change in size or density. In 2011 the size of this mat has remained the same, but the density of Eurasian Watermilfoil has decreased.

Mat #14 was first observed in 2009. In 2010 the length of this mat increased by 30'. The density stayed the same. In 2011 the size of this mat has remained the same, but the density of Eurasian Milfoil has increased.

The individual plants observed within the project boundary indicate a further upstream infestation noted during the 2011 survey as compared to any previous survey year. The furthest upstream point where Eurasian Watermilfoil has been located is GPS point N44°52.836' W88°12.545' (Datum: WGS84) which is 414 feet west of the Larson Bridge. Eurasian Watermilfoil weed densities, overall, decreased from 2010 to 2011. Mat size this year, overall, appears to be about the same as in 2010, with two mats decreasing in size and none increasing.

Purple Loosestrife Survey

Project: Oconto Falls Upper #2523

Date: August 8-10, 2011

Crew: GRR & CTM

Datum: WGS 84

GPS Point	Latitude	Longitude	Plant Height	Stand Area	Beetle Damage	Comments
OFUP PL001	N44°53.0397'	W088°13.7630'	Mostly less than 1' - Two plants were 3' tall	34 Plants	Yes	First observed in 2000. Located 30 yards bearing 0° (north) of GPS point on the north side of a marshy slough. Appears to be on a snowmobile trail, as snowmobile trail signs are on either side of slough opening into the river channel. In 2011, 34 plants were located, mostly 1' tall or less. The only two plants blooming were approximately 3' tall. The number of plants and plant size has dropped considerably compared to last year. These plants are all located on project owned lands. Video tape in 2000. Video taken of damaged plants in 2005. Galerucella beetles were positively identified on plants each year from 2007-2010, and again in 2011. All plants sprayed with herbicide each year from 2003-2010, and once again in 2011. Major beetle damage was found on most plants.
OFUP PL002	N44°52.8626'	W088°14.9756'	2' - 6'	5 Plants	Yes	First observed in 2000. Located 30 yards bearing 180° (south) of GPS point on the south side of a marshy slough located directly west of the HWY 32 wayside boat landing. Video in 2000. No treatment has been made to this area since it was first observed. Plants found each year since 2000 except for 2009. Six large plants found in 2010. Five plants found in 2011, similar in size to the previous year. Major beetle damage was found on the plants.
OFUP PL003	N44°53.012'	W088°13.614'	N/A	N/A	N/A	First observed in 2001. Located 10 yards bearing 0° (north) of GPS point on the left side of the river. Video in 2001. Seed heads removed in 2002 and 2003. No plants visible in 2004. Reappeared in 2005, and pulled. No plants observed in 2006, 2007, and 2008. Reappeared in 2009, and pulled. No beetle damage. No plants observed in 2010 or 2011.

Purple Loosestrife Survey

Project: Oconto Falls Upper #2523

Date: August 8-10, 2011

Crew: GRR & CTM

Datum: WGS 84

GPS Point	Latitude	Longitude	Plant Height	Stand Area	Beetle Damage	Comments
OFUP PL004	N44°52.943'	W088°14.809'	N/A	N/A	N/A	First observed in 2001. Located near the water's edge on the northeast side of the HWY 32 bridge. Video in 2001. All plants pulled in 2001. No plants observed since initial finding, including 2011.
OFUP PL005	N44°53.029'	W088°13.524'	N/A	N/A	N/A	First observed in 2002. Located on the edge of the far side of a slough 30 - 60 yards northwest of waypoint 178. Recorded on video in 2002. No treatment from 2002-2005, 2010, or 2011. All plants pulled in 2006, 2007, and 2008. In 2007 and 2008, all plants showed minor beetle damage. No plants observed in 2009. Three multi-stem plants observed in 2010. Couldn't get close enough to observe any damage. No plants were found in 2011.
OFUP PL006	N44°53.059'	W088°13.549'	N/A	N/A	N/A	
OFUP PL007	N44°53.057'	W088°13.562'	N/A	N/A	N/A	
OFUP PL008	N44°53.056'	W088°13.578'	N/A	N/A	N/A	
OFUP PL009	N44°53.050'	W088°13.615'	N/A	N/A	N/A	
OFUP PL010	N44°53.055'	W088°13.530'	N/A	N/A	N/A	
OFUP PL011	N44°52.895'	W088°12.805'	1' - 3'	5 Plants	Yes	First observed in 2002. Located on left side of river 10' due north of the waypoint on the bank. Video in 2002. Seed heads removed in 2002, 2003, and 2004. No plants observed in 2005. All plants pulled each year from 2006-2010. Five plants were found in 2011. Small to no blooms found on plants. All plants were pulled. Beetle damage in 2007-2009. No beetle damage in 2010. Heavy beetle damage found in 2011.
OFUP PL012	N44°53.024'	W088°13.439'	N/A	N/A	N/A	First observed in 2005. Located on left side of river 10' due north of the waypoint on the bank. Plants pulled in 2005 had heavy beetle damage. No plants observed in 2006, 2007, or 2008. All plants pulled in 2009. No plants observed in 2010 or 2011.

Purple Loosestrife Survey

Project: Oconto Falls Upper #2523

Date: August 8-10, 2011

Crew: GRR & CTM

Datum: WGS 84

GPS Point	Latitude	Longitude	Plant Height	Stand Area	Beetle Damage	Comments
OFUP PL013	N44°53.024'	W088°13.439'	N/A	N/A	N/A	First observed in 2005. Located 10' due south of the waypoint on the bank west of HWY 32 bridge. All plants pulled in 2005. No plants observed since initial finding, including 2011.
OFUP PL014	N44°52.915'	W088°14.823'	3'	1 Plant	No	First observed in 2006. Located 10' due south of the waypoint on the bank east of HWY 32 bridge. All plants pulled in 2006 and 2007. No plants observed in 2008, 2009 or 2010. One plant was found and pulled in 2011. No beetle damage was found on the plant.
OFUP PL015	N44°52.915'	W088°52.915'	N/A	N/A	N/A	First observed in 2006. Located on the left side of river 10' due north of the waypoint. All plants pulled in 2006. No plants observed in 2007 or 2008. All plants pulled in 2009, with beetle damage found on plants. No plants observed in 2010 or 2011.
OFUP PL016	N44°52.643'	W088°15.762'	N/A	N/A	N/A	First observed in 2007. Located 10' due south of waypoint on small island in river. All plants pulled in 2007. No plants observed since initial finding, including 2011.
OFUP PL017	N44°53.050'	W088°13.863'	2'	1 Plant	Yes	First observed in 2007. Located on the left side of river, 10' due north of waypoint. No old cane. No damage. All plants pulled in 2007, 2008 and 2009. No plants found at this site in 2010. One plant was found and pulled in 2011. Minor beetle damage was found on plant.
OFUP PL018	N44°52.914'	W088°14.829'	3'	1 Plant	No	First observed in 2008. Located below the southeast corner of the HWY 32 bridge at the waypoint. All plants pulled in 2008 and 2009. No old cane in 2009. No plants found in 2010. One plant was found and pulled in 2011. No beetle damage was found on plant.

Purple Loosestrife Survey

Project: Oconto Falls Upper #2523

Date: August 8-10, 2011

Crew: GRR & CTM

Datum: WGS 84

GPS Point	Latitude	Longitude	Plant Height	Stand Area	Beetle Damage	Comments
OFUP PL019	N44°52.898'	W088°14.868'	N/A	N/A	N/A	First observed in 2009. Located 80' west of the HWY 32 bridge on the right side of river at the waypoint. All plants pulled in 2009. No old cane. No beetle damage was found. No plants found at this site in 2010 or 2011.

Eurasian Watermilfoil Survey - Mat Descriptions

Project: Oconto Falls Upper #2523 **Datum:** WGS 84

Date: August 8-10, 2011

Crew: GRR & CTM

Note - Italicised GPS points were not used in this survey

Mat #	Depth	GPS point	Latitude	Longitude	Comments
4	4' -5'	OFUP EW04-A	N44°53.0944'	W088°10.4541'	Located in center of river 1400 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is 2050' x 200' and is in the center of the river. Mat is interspersed with other weeds. Total mat density is 50% - 95% of which 5% - 30% is Eurasian Watermilfoil. Heaviest concentrations of Eurasian Watermilfoil are located on the south and west sides of the mat with lighter concentrations on the north and east sides.
		OFUP EW04-B	N44°53.1284'	W088°10.4607'	
		OFUP EW04-C	N44°53.1601'	W088°10.4738'	
		OFUP EW04-D	N44°53.2086'	W088°10.5103'	
		OFUP EW04-E	N44°53.1968'	W088°10.5389'	
		OFUP EW04-F	N44°53.1701'	W088°10.5475'	
		OFUP EW04-G	N44°53.1220'	W088°10.5007'	
		OFUP EW04-H	N44°53.1081'	W088°10.4868'	
		OFUP EW04-I	N44°53.233'	W088°10.533'	
		OFUP EW04-J	N44°53.256'	W088°10.555'	
		OFUP EW04-K	N44°53.277'	W088°10.585'	
		OFUP EW04-L	N44°53.303'	W088°10.650'	
		OFUP EW04-M	N44°53.303'	W088°10.791'	
5	0' -5'	OFUP EW05-H	N44°52.778'	W088°10.002'	Located from the west side of the boat landing at the West Side Park on the south side of the impoundment in Oconto Falls to 900' upstream (west) of the boat landing. Eurasian Watermilfoil mat is formed on the outside edge of an existing mat of submergent weed growth in the 3' - 6' depth range. Mat is 900' x 50'. Mat is interspersed with other weeds. Total mat density is 30% - 60% of which 5% - 15% is Eurasian Watermilfoil. This mat was recorded on video tape in 2001.
		OFUP EW05-A	N44°52.756'	W088°09.898'	
		OFUP EW05-B	N44°52.743'	W088°09.859'	
		OFUP EW05-C	N44°52.735'	W088°09.810'	
		OFUP EW05-D	N44°52.720'	W088°09.750'	
		OFUP EW05-E	N44°52.715'	W088°09.702'	
		OFUP EW05-F	N44°52.723'	W088°09.673'	
OFUP EW05-G	N44°52.728'	W088°09.643'			

Eurasian Watermilfoil Survey - Mat Descriptions

Project: Oconto Falls Upper #2523

Date: August 8-10, 2011

Crew: GRR & CTM

Datum: WGS 84

Note - Italicised GPS points were not used in this survey

Mat #	Depth	GPS point	Latitude	Longitude	Comments
1	0' - 5'	OFUP EW01-A	N44°52.7679'	W088°08.9863'	Located from immediately on the east side of the swimming beach to boat launch docks to the east. Mat is 180' x 20' and extends out from shore in the 2' - 5' depth range. Mat is interspersed with other weeds. Total mat density is 10% - 20% of which 20% - 40% is Eurasian Watermilfoil.
		OFUP EW01-B	N44°52.7729'	W088°08.9940'	
		OFUP EW01-C	N44°52.7892'	W088°09.0109'	
2	0' - 5'	OFUP EW02-A	N44°52.8133'	W088°09.0233'	Located from immediately on the west side of the swimming beach to where HWY 22 meets the lakeshore to the east. Mat is 695' x 20' and extends out from shore in the 2' - 5' depth range. Mat is interspersed with other weeds. Total mat density is 25% - 30% of which 5% - 10% is Eurasian Watermilfoil.
		OFUP EW02-B	N44°52.8286'	W088°09.0265'	
		OFUP EW02-C	N44°52.8437'	W088°09.0283'	
3	0' - 5'	OFUP EW03-O	N44°52.887'	W088°09.245'	Located on north shore beginning 500 feet upstream from where HWY 22 meets the lakeshore. In 2009, the survey crew divided mat #3 into two sections (Mat #3 East & Mat #3 West) to produce a more accurate report. Mat #3 East is .7 miles x 30' wide and runs parallel to shore in the 2' - 5' depth range. This mat is interspersed with other weeds. Total mat density is 25% - 30% of which 5% - 10% is Eurasian Watermilfoil. Mat #3 west is 1 mile x 30' wide and runs parallel to shore in the 2' - 5' depth range. The mat is interspersed with other weeds. Total mat density is 10% - 80% of which 10% - 40% is Eurasian Watermilfoil.
		OFUP EW03-P	N44°52.868'	W088°09.309'	
		OFUP EW03-I	N44°52.837'	W088°09.914'	
		OFUP EW03-J	N44°52.843'	W088°09.959'	
		OFUP EW03-A	N44°52.8465'	W088°09.9786'	
		OFUP EW03-B	N44°52.8541'	W088°10.0106'	
		OFUP EW03-C	N44°52.8613'	W088°10.0369'	
		OFUP EW03-D	N44°52.8675'	W088°10.0597'	
		OFUP EW03-E	N44°52.8805'	W088°10.0931'	
		OFUP EW03-F	N44°52.8952'	W088°10.1251'	
		OFUP EW03-G	N44°52.9184'	W088°10.1610'	
		OFUP EW03-H	N44°52.9358'	W088°10.1870'	
		OFUP EW03-K	N44°52.964'	W088°10.217'	
		OFUP EW03-L	N44°52.984'	W088°10.230'	
		OFUP EW03-M	N44°53.030'	W088°10.300'	
OFUP EW03-N	N44°53.094'	W088°10.386'			
OFUP EW03-Q	N44°53.287'	W088°10.571'			
OFUP EW03-R	N44°53.094'	W088°10.386'			

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Mat #	Depth	GPS point	Latitude	Longitude	Comments
6	2' -5'	OFUP EW06-A	N44°52.765'	W088°09.253'	Located east of the island in the impoundment 600 yards east of the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is 2500' x 200' interspersed with other weeds. Total mat density is 30% - 70% of which 20% - 30% is Eurasian Watermilfoil.
		OFUP EW06-B	N44°52.759'	W088°09.218'	
		OFUP EW06-C	N44°52.746'	W088°09.186'	
		OFUP EW06-D	N44°52.736'	W088°09.154'	
		OFUP EW06-E	N44°52.718'	W088°09.125'	
		OFUP EW06-F	N44°52.700'	W088°09.109'	
		OFUP EW06-G	N44°52.684'	W088°09.094'	
		OFUP EW06-H	N44°52.681'	W088°09.095'	
		OFUP EW06-I	N44°52.680'	W088°09.134'	
		OFUP EW06-J	N44°52.686'	W088°09.172'	
		OFUP EW06-K	N44°52.680'	W088°09.184'	
		OFUP EW06-L	N44°52.671'	W088°09.183'	
		OFUP EW06-M	N44°52.650'	W088°09.146'	
7	0' -5'	OFUP EW06-N	N44°52.629'	W088°09.119'	Located 1250 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Not found in 2011.
		OFUP EW06-O	N44°52.623'	W088°09.088'	
		OFUP EW06-P	N44°52.619'	W088°09.051'	
8	2' -5'	OFUP EW06-Q	N44°52.623'	W088°09.027'	Located west of the island in the impoundment 150 yards east of the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is 1500' x 100' interspersed with other weeds. Total mat density is 30% - 70% of which 20% - 30% is Eurasian Watermilfoil.
		OFUP EW06-R	N44°52.608'	W088°09.005'	
		OFUP EW06-S	N44°52.580'	W088°08.986'	
		OFUP EW07-A	N44°53.042'	W088°10.468'	
		OFUP EW07-B	N44°53.007'	W088°10.425'	
		OFUP EW07-C	N44°52.996'	W088°10.411'	
8	2' -5'	OFUP EW08-A	N44°52.743'	W088°09.595'	Located west of the island in the impoundment 150 yards east of the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is 1500' x 100' interspersed with other weeds. Total mat density is 30% - 70% of which 20% - 30% is Eurasian Watermilfoil.
		OFUP EW08-B	N44°52.755'	W088°09.547'	
		OFUP EW08-C	N44°52.761'	W088°09.488'	
		OFUP EW08-D	N44°52.763'	W088°09.407'	
		OFUP EW08-E	N44°52.766'	W088°09.313'	
		OFUP EW08-F	N44°52.765'	W088°09.253'	

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Mat #	Depth	GPS point	Latitude	Longitude	Comments			
9	2' - 5'	OFUP EW09-A	N44°52.623'	W088°08.831'	Located at the east end boat ramp nearest the hydroelectric plant. Mat is 515' x 15'. Total mat density is 5% - 15% of which 10% - 20% is Eurasian Watermilfoil. Water clarity is very low and may affect growth.			
		OFUP EW09-B	N44°52.631'	W088°08.852'				
		OFUP EW09-C	N44°52.651'	W088°08.891'				
		OFUP EW09-D	N44°52.684'	W088°08.936'				
		OFUP EW09-E	N44°52.707'	W088°08.955'				
		OFUP EW09-F	N44°52.702'	W088°08.955'				
10	2' - 5'	OFUP EW10-A	N44°53.343'	W088°10.790'	Located in the center of the river 2200 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is 485' x 120' and is in the center of the river. Mat is interspersed with other weeds. Total mat density is 50% - 80% of which 5% - 40% is Eurasian Watermilfoil.			
		OFUP EW10-B	N44°53.353'	W088°10.845'				
		OFUP EW10-C	N44°53.353'	W088°10.882'				
		OFUP EW10-D	N44°53.341'	W088°10.899'				
		OFUP EW10-E	N44°53.336'	W088°10.871'				
		OFUP EW10-F	N44°53.333'	W088°10.838'				
		OFUP EW10-G	N44°53.337'	W088°10.809'				
		OFUP EW10-H	N44°53.315'	W088°10.679'				
		OFUP EW10-I	N44°53.320'	W088°10.814'				
		11	2' - 5'	OFUP EW11-A		N44°53.305'	W088°10.960'	Located 2475 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is 3810' x 300' and is on the south side of the river. Mat is interspersed with other weeds. Total mat density is 40% - 75% of which 10% - 50% is Eurasian Watermilfoil.
OFUP EW11-B	N44°53.323'			W088°10.979'				
OFUP EW11-C	N44°53.332'			W088°11.055'				
OFUP EW11-D	N44°53.327'			W088°11.134'				
OFUP EW11-E	N44°53.304'			W088°11.228'				
OFUP EW11-F	N44°53.259'			W088°11.325'				
OFUP EW11-G	N44°53.245'			W088°11.329'				
OFUP EW11-H	N44°53.246'			W088°11.372'				
OFUP EW11-I	N44°53.156'			W088°11.719'				
OFUP EW11-J	N44°53.309'			W088°10.911'				
12	2' - 5'			OFUP EW12-A	N44°53.293'	W088°11.320'	Located 2880 yards upstream from the West Side Park boat landing on the south side of the impoundment in Oconto Falls. Mat is 738' x 30' and is on the north side of the river at a power line crossing. Mat is interspersed with other weeds. Total mat density is 35% - 85% of which 5% - 30% is Eurasian Watermilfoil.	
				OFUP EW12-B	N44°53.274'	W088°11.358'		
		OFUP EW12-C	N44°53.259'	W088°11.398'				
		OFUP EW12-D	N44°53.243'	W088°11.474'				

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Mat #	Depth	GPS point	Latitude	Longitude	Comments
13	2' - 5'	OFUP EW13-A	N44°53.003'	W088°11.943'	Located 560 yards downstream from the County K bridge on the the south side of the river. Mat is 807' x 30' wide and runs parallel to shore in the 2' - 5' depth range. The mat is interspersed with other weeds. Total mat density is 30% - 60% of which 10% - 40% is Eurasian Watermilfoil.
		OFUP EW13-B	N44°52.995'	W088°12.027'	
		OFUP EW13-C	N44°52.996'	W088°12.074'	
		OFUP EW13-D	N44°52.997'	W088°12.128'	
14	2' - 5'	OFUP EW14-A	N44°53.184'	W088°11.726'	Located 1158 yards downstream from the County K bridge on the the north side of the river. The mat is 509' x 30' wide and runs parallel to shore in the 2' - 5' depth range. Mat is interspersed with other weeds. Total mat density is 30% - 60% of which 40% - 75% is Eurasian Watermilfoil.
		OFUP EW14-B	N44°53.116'	W088°11.782'	
		OFUP EW14-C	N44°53.113'	W088°11.787'	

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