

Northwest Aquatic Management, LLC

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Rochester, WA 98579

(360) 870-4362

nwaqua.com



**Capitol Lake
Weed Management Services**

2016 Annual Report

December 20, 2016

Northwest Aquatic Management, LLC



Prepared for:
Carrie Martin
Department of Enterprise Services
State of Washington

Prepared by:
Kyle Steelhammer
President
Northwest Aquatic Management, LLC
(360) 870-4362

Northwest Aquatic Management, LLC

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Introduction

Capitol Lake is a 260-acre lake located on the Washington State Capitol Campus in Olympia and Tumwater. It was created in 1951 when a dam was constructed at the mouth of the Deschutes River, blocking the tidal action of Puget Sound, to form a reflecting pool for the Legislative (Capitol) Building.

Since May 7, 2008 Northwest Aquatic Management, LLC has managed noxious and aquatic weeds in and around Capitol Lake under the direction of the State of Washington Department of Enterprise Services.

Those noxious weeds included Eurasian Watermilfoil (*Myriophyllum spicatum*), Yellow Flag Iris (*Iris pseudacorus*) Purple Loosestrife (*Lythrum salicaria*) and Fragrant White Water lily (*Nymphaea odorata*). Other macrophytes observed in and around Capitol Lake were:

- Elodea (*Egeria canadensis*)
- Coontail (*Ceratophyllum demersum*)
- Large-leaved Pondweed (*Potamogeton amplifolius*)
- Thin-Leaved Pondweed (*Potamogeton nodosus*)
- Curlyleaf Pondweed (*Potamogeton crispus*)
- White Stem Pondweed (*Potamogeton praelongus*)
- Brittlewort (*Nitella*)

Non-aquatic noxious weeds observed,

- Butterfly Bush
- Japanese Knotweed

In the peak of the weed growing season it is estimated that 80% of the lakebed is covered with native vegetation.

Capitol Lake is a rapidly changing eco-system, which responds differently every year to various environmental conditions.

Significant changes observed in recent years include:

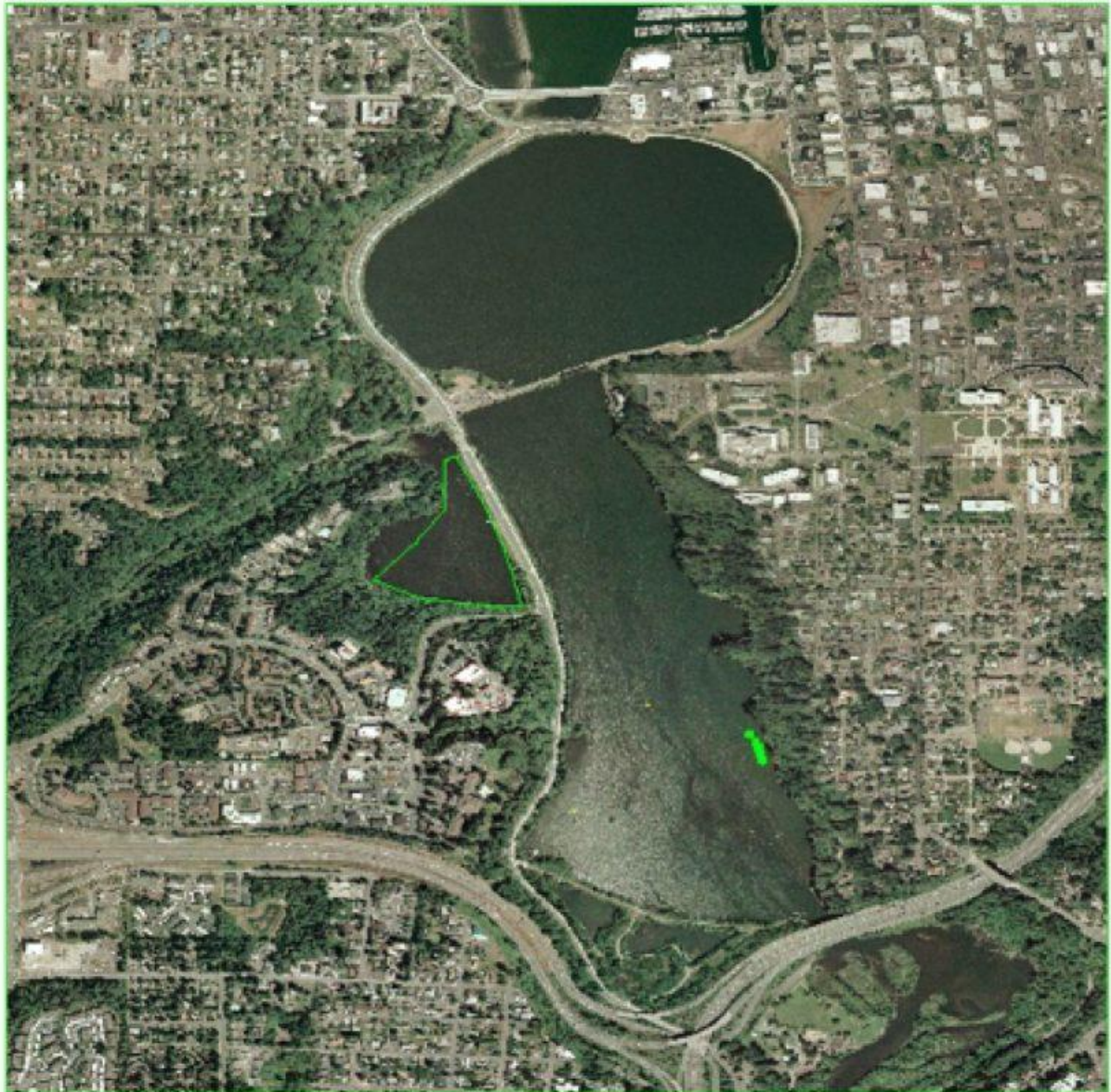
- Explosive spread of Thin-Leaved Pondweed (*Potamogeton nodosus*)
- Deposition of sediments
- Infestation of New Zealand Mud Snails
- Increase in Eurasian Watermilfoil

Eurasian Watermilfoil (*Myriophyllum spicatum*)



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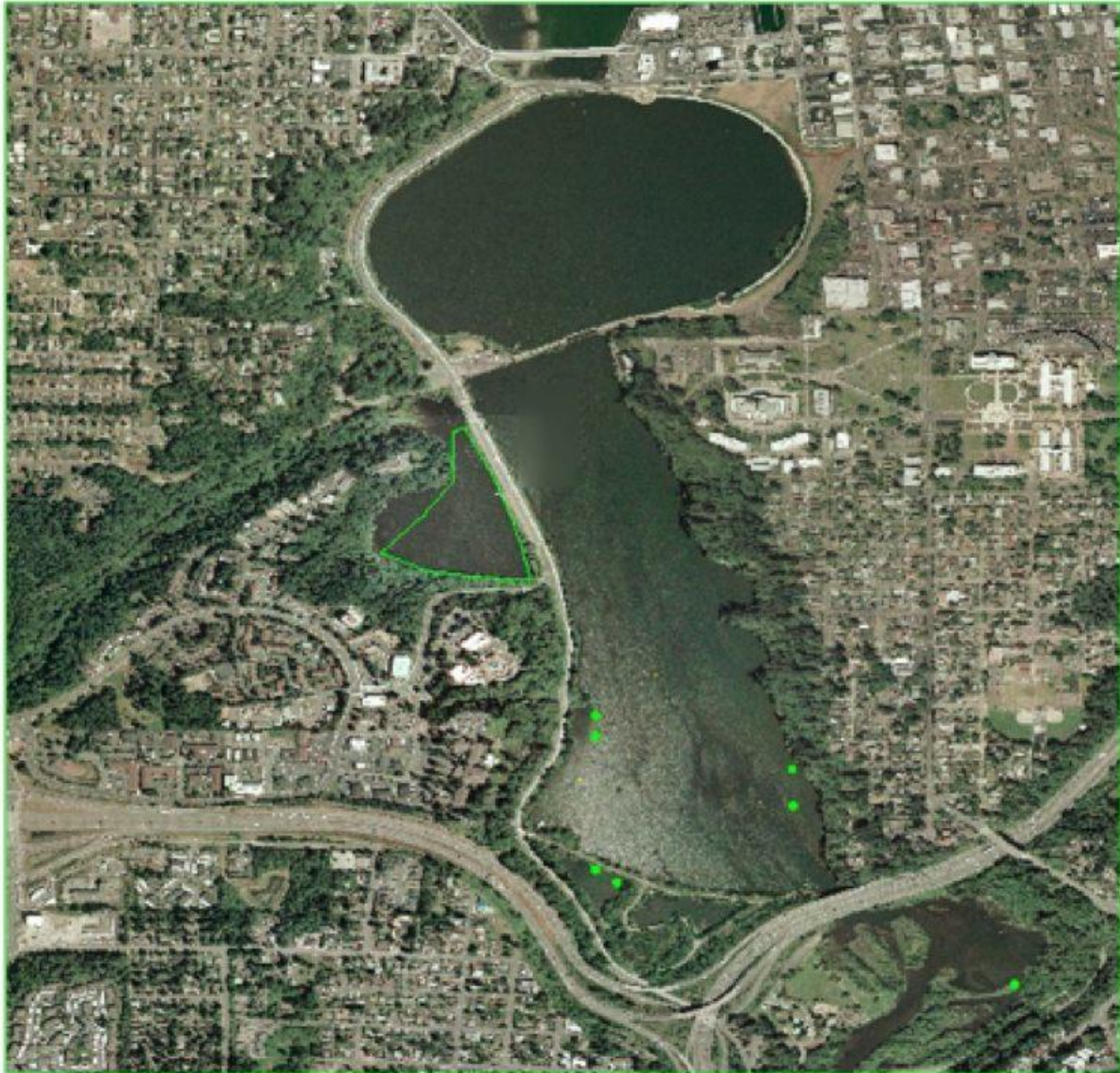
Capitol Lake 2012 Invasive Plant Infestation Survey





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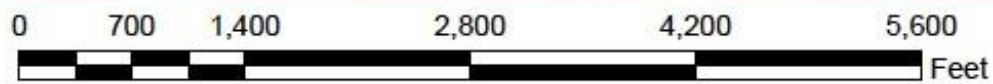
Capitol Lake 2013 Eurasian Watermilfoil Survey





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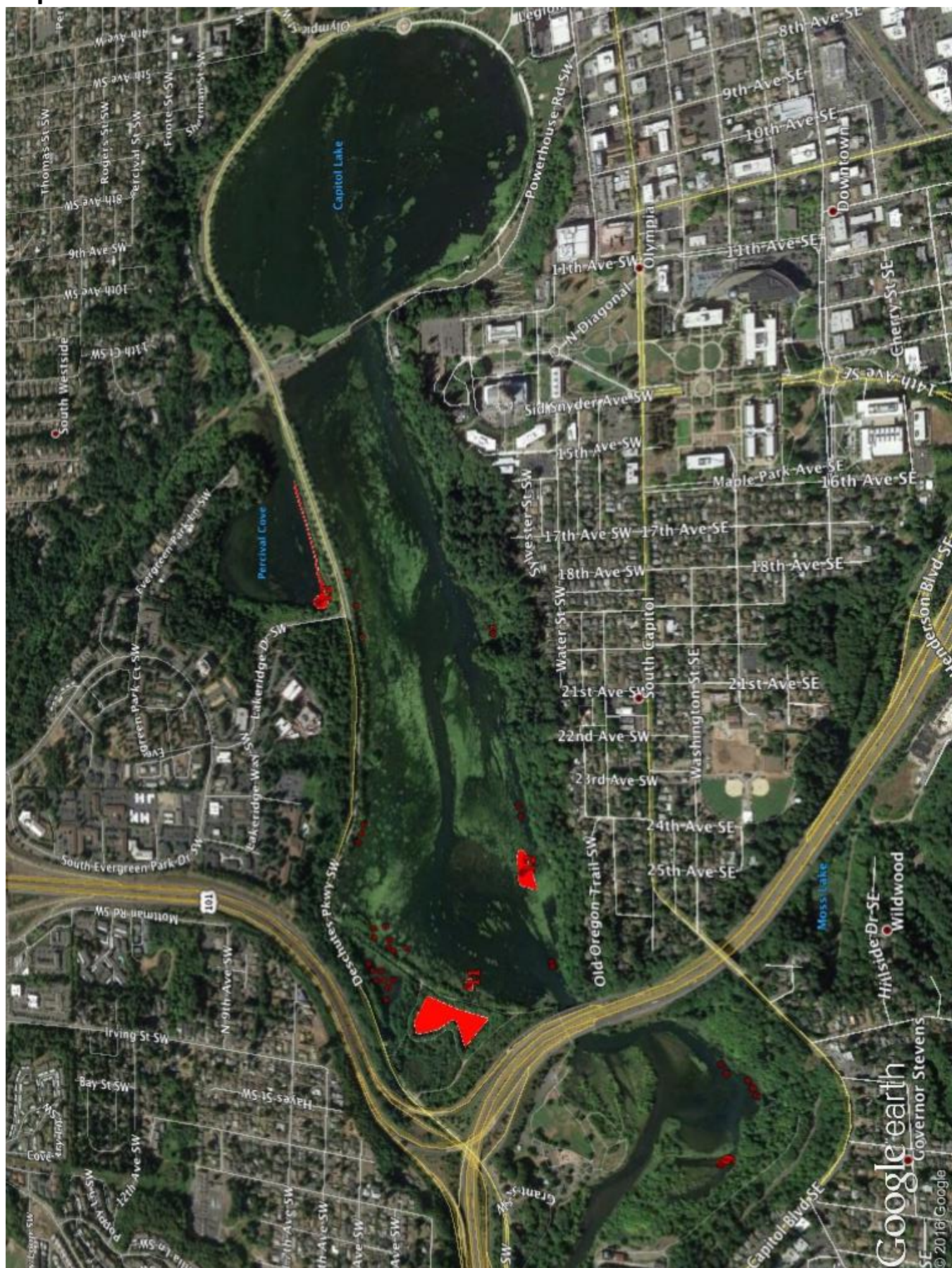
Capitol Lake 2014 Eurasian Milfoil Infestation



Capitol Lake 2015 – Eurasian Milfoil Infestation



Capitol Lake 2016 – Eurasian Milfoil Infestation



Assessment

During the multipurpose surveys, Eurasian Milfoil sites were visited in the order listed below and were determined by previous maps created for Washington State Department of General Administration.

1. Sites indicating populations of multiple Eurasian Watermilfoil plants.
2. Sites indicating single Eurasian Watermilfoil plants.
3. Sites indicating no Eurasian Watermilfoil plants.

Conditions

Dense populations of Thin-Leaved Pondweed (*Potamogeton nodosus*) have spread each year from where they were traditionally found in the north basin into the north end of the middle basin. Thin-Leaved Pondweed (*Potamogeton nodosus*) is a native plant, which grows into dense colonies forming what looks like a mat on the lakes surface. The population was observed on both sides of the deeper river channel extending several hundred yards south of the pedestrian bridge separating the North and Middle Basins.

Eurasian Watermilfoil plants were found in depth ranges from 1 to 4 feet.

The quantity of milfoil plants has increased in 2016. The filamentous algae on the surface, which interferes with the Eurasian Watermilfoil survey and removal process was again present in 2016. This lessens the quality of the survey. The surveys were performed to the best of our ability.

Continued buildup of sediments in the middle basin have reduced the areas suitable for Eurasian Watermilfoil growth. Increased areas in the Middle Basin are no longer navigable due to this sedimentation.

Results

In 2012 surveys resulted in no plants early in the season. In August, a late survey found 7 plants concentrated on the east shoreline of the Middle Basin. Factors contributing to this may have been:

- Saltwater back-flush
- Water draw down
- Freezing temperatures during draw down
- Sedimentation

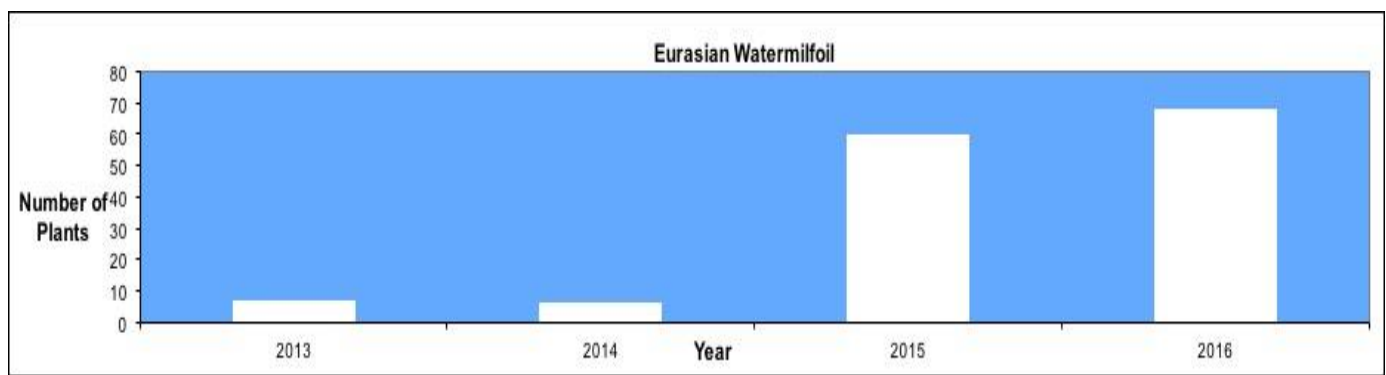
The Department of Enterprise Services contracted with divers in the 2012 season to perform Eurasian Watermilfoil removal work in Percival Cove. It is our understanding these divers removed thousands of pounds' plant material.

In 2013 there were 6 Eurasian Watermilfoil plants found. This does not include the Percival Cove pond; which Department of Enterprise Services has been contracting with divers to control Eurasian Watermilfoil in this area. The above practices will continue to combat the spread of the Eurasian Watermilfoil.

In 2014 there were also 6 Eurasian Watermilfoil plants found. The factors listed above seem to continue to keep the population from expanding. Percival Cove continues to support a large population but its' spread has not been observed.

In 2015 there was a dramatic increase in Eurasian Watermilfoil plants found. There were 12 plants found in the South Basin of Capitol Lake, there were 36 plants found in the Middle Basin of Capitol Lake, and there were about 12 plants found in Percival Cove. The west mitigation pond had about 8 plants in it while the east mitigation pond is relatively full of milfoil.

In 2016 there was a slight increase in Eurasian Watermilfoil plants found. There were 14 plants found in the South Basin of Capitol Lake, there were 42 plants found in the Middle Basin of Capitol Lake, and there were about 12 plants found in Percival Cove. The west mitigation pond had about 8 plants in it while the east mitigation pond is relatively full of milfoil. The Department of Enterprise Services did not contract divers in 2016. Their use in 2017 would be beneficial.



Control Activities

The survey work that was performed for Eurasian Milfoil was done in a 14' aluminum Jon boat powered by a 3.5 HP Tohatsu four stroke. This boat is dedicated 100% to the Capitol Lake Noxious Weed Project due to the infestation of the New Zealand Mud Snails. Precautions have been made with Washington Department Fish and Wildlife for decontamination procedures.

Instrumentation for this project included:

- Garmin 498 Chart plotter sonar
- Maps generated by Google Earth Pro

For 2015, plants in the Middle basins were only observed very late in the season. Areas traditionally surveyed are now so shallow that they did not support Eurasian Watermilfoil and were not conducive to surveys.

For 2016, the plants in the South Basin were observed throughout the season. The Middle basin had plants that were located in the deeper portions of the basin and where it has not built up too much sediment. Most of these plants are located at or near the outfall of the east mitigation pond. Percival Cove has plants along the East shoreline. Milfoil plants that were conducive to hand pulling were hand pulled. As the season went on the algae made surveys and control activities much more difficult to perform.

Surveys were conducted in conjunction with Yellow Flag Iris and Purple Loosestrife surveys and treatments.

Proposed Management

As of right now, management of Eurasian Watermilfoil for the 2017 season closely resembles the same method used in the 2016 season. Less emphasis will be placed on the pre-season survey allowing more time for surveys later in the season as the plants grow in size and are more identifiable.

However, Eurasian Milfoil survey work needs to be expanded due to the amount of plants found in 2016. Previous control methods that were used, including surveys, marking, and managing that could be replicated. If survey work is implemented, plants could be marked for easy identification and divers could come remove and dispose of the plants. Another option if survey work is implemented, would be to lower the lake level that would be conducive to hand pulling some of the new Eurasian Milfoil plants.

As we already know Eurasian watermilfoil is very dangerous because it spreads and invades fast. Our current system is surveying, documenting and treating if possible. If the plant is able to be hand pulled, then it will be pulled.

An idea to test would be to spot treat milfoil with a granular herbicide. We could treat the milfoil plant during our regularly scheduled surveys for milfoil, water lilies, yellow iris and purple loosestrife. We would be able to spot treat the milfoil just as we are with the other plants. Broadcast treatment would not be used; the application would be very precise and in small amounts. The test would include a small sprinkling can that we would use to sprinkle the granular herbicide on top of the milfoil plant itself and only treat the spot where the specific plant is growing. Renovate OTF is a granular selective herbicide that can be sprinkled on top of a milfoil plant when spotted and the granules would only treat that specific location and should not harm native plants.

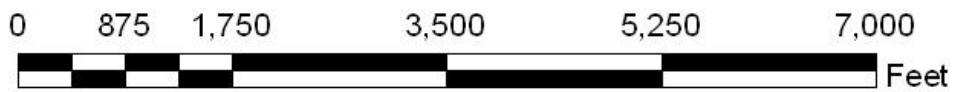
The Department of Ecology states that a Renovate equivalent herbicide is effective for spot treatments of Eurasian watermilfoil.

Yellow Flag Iris (*Iris pseudacorus*)



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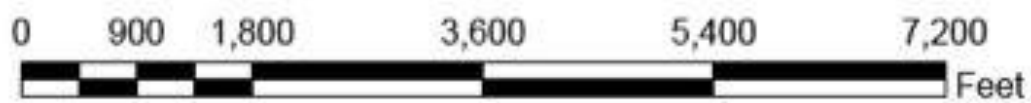
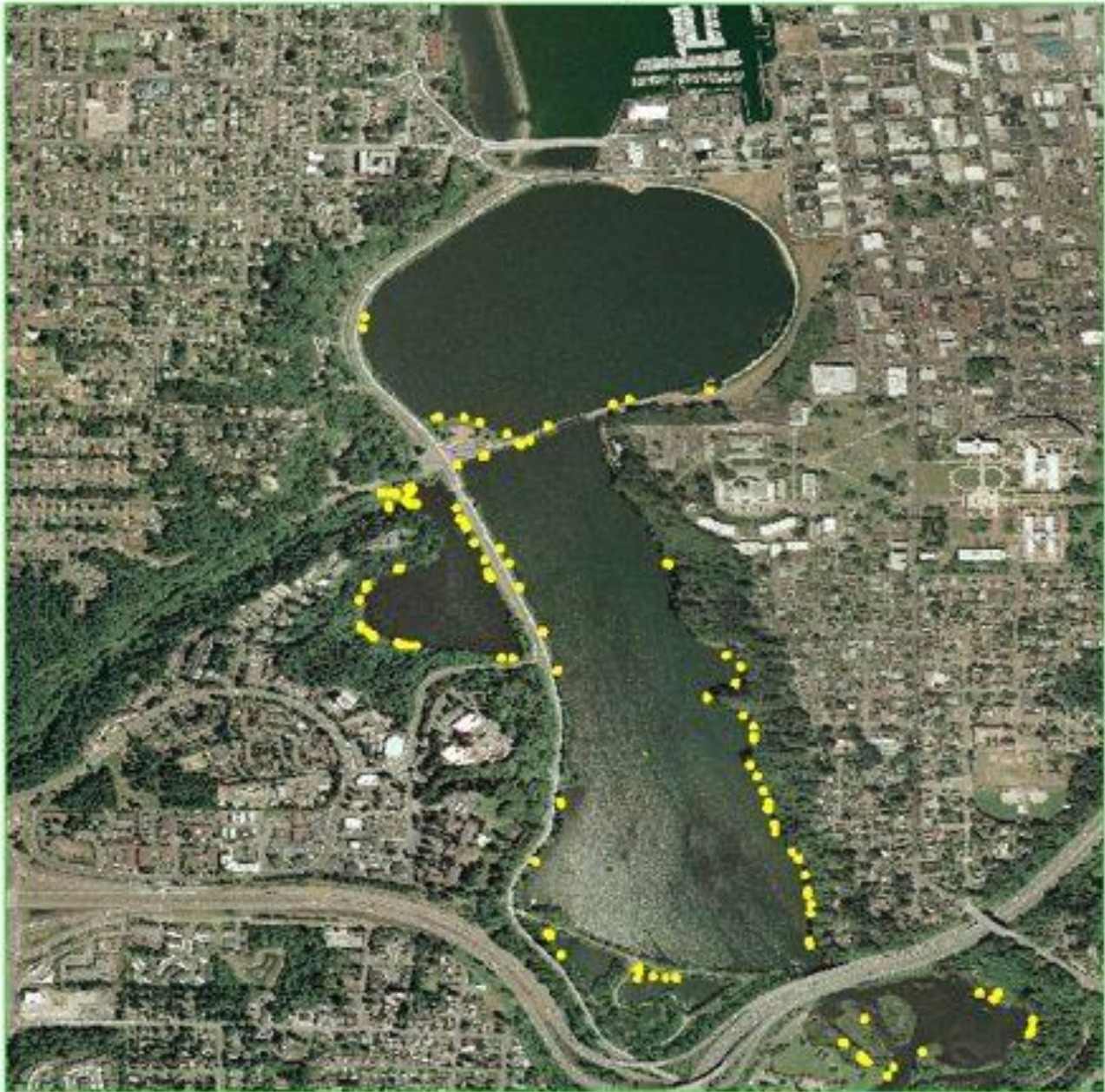
Capitol Lake 2012 Yellow Flag Iris Infestation Survey





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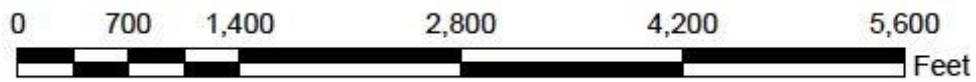
Capitol Lake 2013 Yellow Flag Iris Survey





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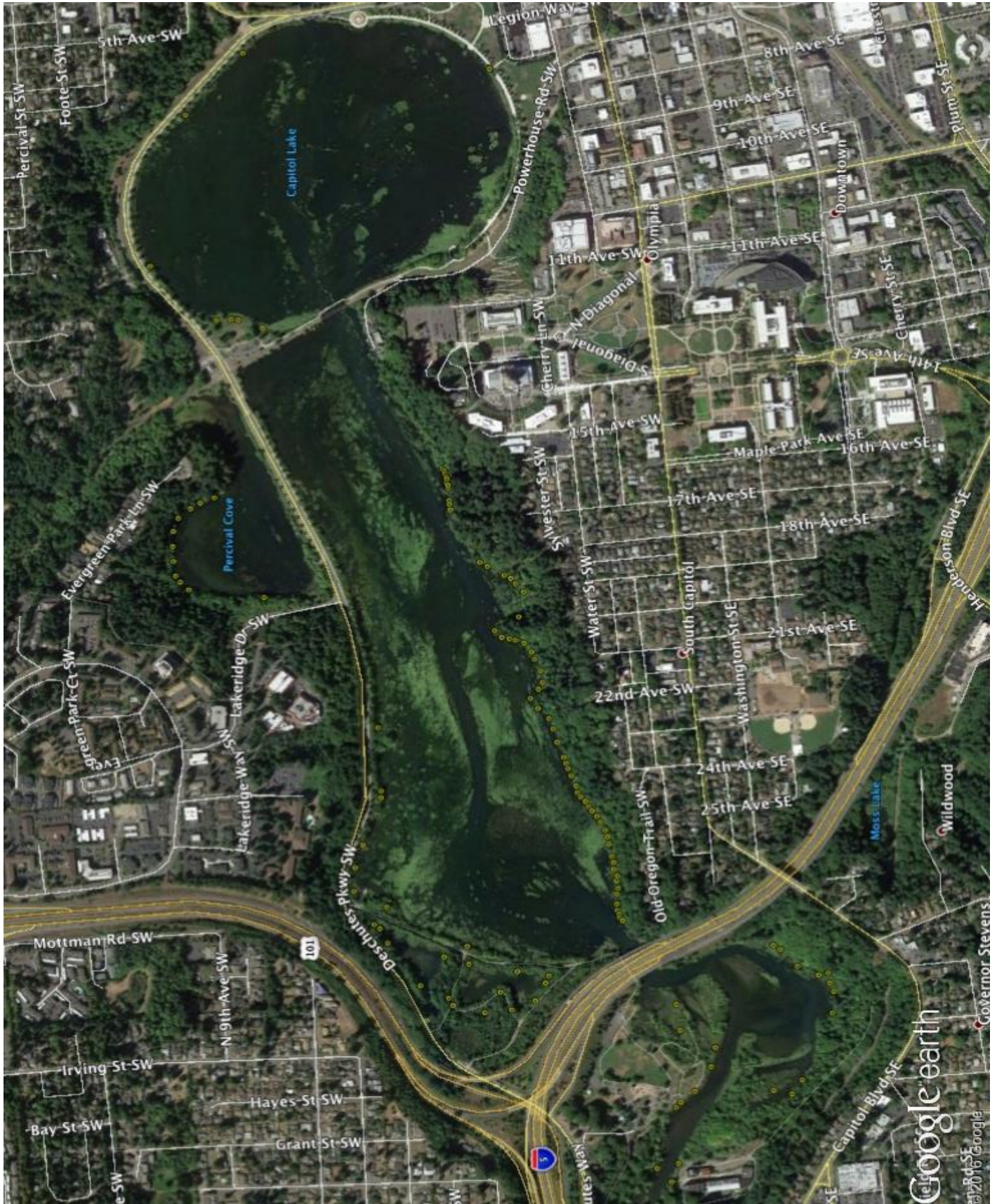
Capitol Lake 2014 Yellow Flag Iris Infestation



Capitol Lake 2015 – Yellow Flag Iris Infestation



Capitol Lake 2016 – Yellow Flag Iris Infestation



Assessment

Yellow flag Iris plants were distributed along all shorelines of the lake and in many wetland areas. When not in bloom, Yellow Flag Iris looks similar to cattails and other reeds making the timing of the survey important. The Yellow Flag Iris presents itself quite well and is easily seen when in bloom.

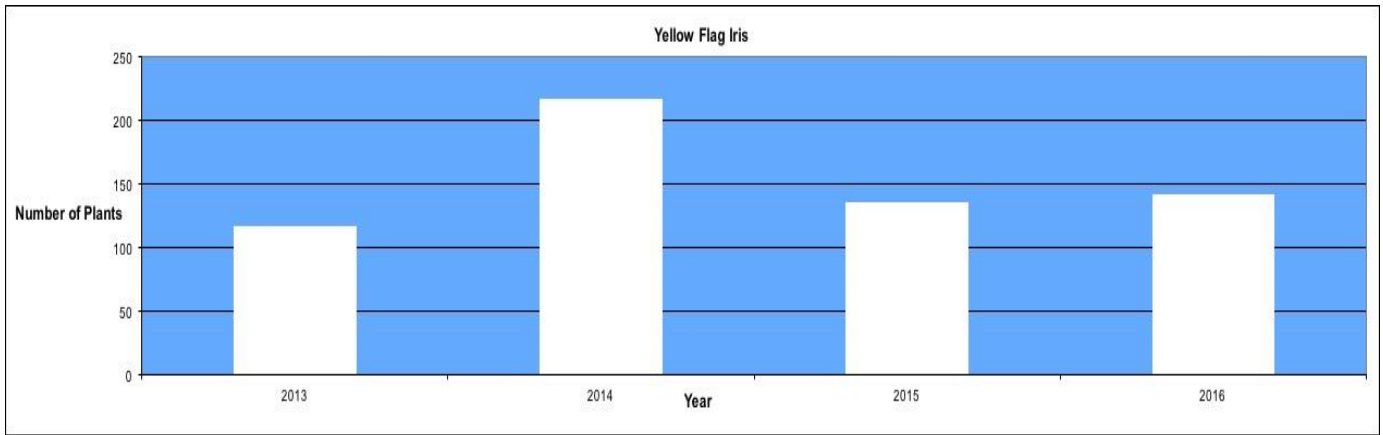
Yellow Flag Iris spreads by both seeds, which grow in pods, or by rhizomes that grow just above the roots.



Yellow Flag Iris in late bloom stage with a Crab Spider (Misumena vatia)

In comparison to 2014, 2015 demonstrated a decrease in plant count on Department of Enterprise Service property. A total of 135 plants were found on the property, while the number of plants found on private property was quite high with 453 plants. The drop-in plant numbers could be attributed to unusual season activity in the past few years; earlier spring and a shorter growing season.

2016 demonstrated a very slight increase in plant count on Department of Enterprise Service property. A total of 142 plants were found on the property, while the number of plants found on private property was quite high with 445 plants.



Control Activities

Yellow Flag Iris plants were located, documented, and plotted. Plants that had developed seed heads were removed and the seed heads were double bagged and disposed of in the County landfill. All plants, no matter seed head development or not, were then treated with a solution of 1.5% Nufarm Polaris (Imazapyr) and 0.5% Wilbur-Ellis Competitor Adjuvant; Plant die off was seen in one to two weeks.

All areas on the map indicating plant presence were treated with the exception of the east shoreline between the I-5 Bridge and the power plant. These plants were on residential parcels. At these sites the plants were inventoried and seed heads were removed and double bagged to help prevent further spreading.

WSDA Letter of Limited Agent Status - Appendix A

A *Letter of Limited Agent Status* was acquired from the WSDA for this activity and all public notification requirements were met.

Proposed Management

Management of Yellow Flag Iris for the 2017 season should continue with the same general strategies as in 2016, assuming the initial assessment finds similar conditions. The chemical change to an Imazapyr product in 2016 should continue in 2017.

If in that assessment bare areas are observed as a result of repeated treatments a program to re-vegetate these locations with native seeding should be considered.

More aggressive action could be taken to eradicate the plants that were not in the 2015 treatment area. The most effective and economical option would be to obtain permission from the homeowners and conduct an herbicide application. A less effective and less economical treatment would be to obtain the homeowners permission to conduct a manual removal of the Yellow Flag Iris.

Spray Logs Appendix B*

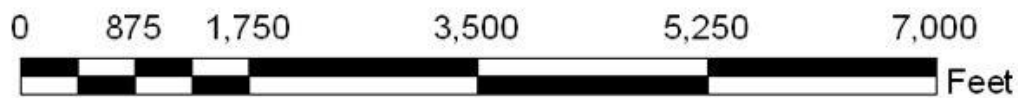
* - **Some Application Records have both Yellow Flag Iris and Purple Loosestrife**

Purple Loosestrife (*Lythrum salicaria*)



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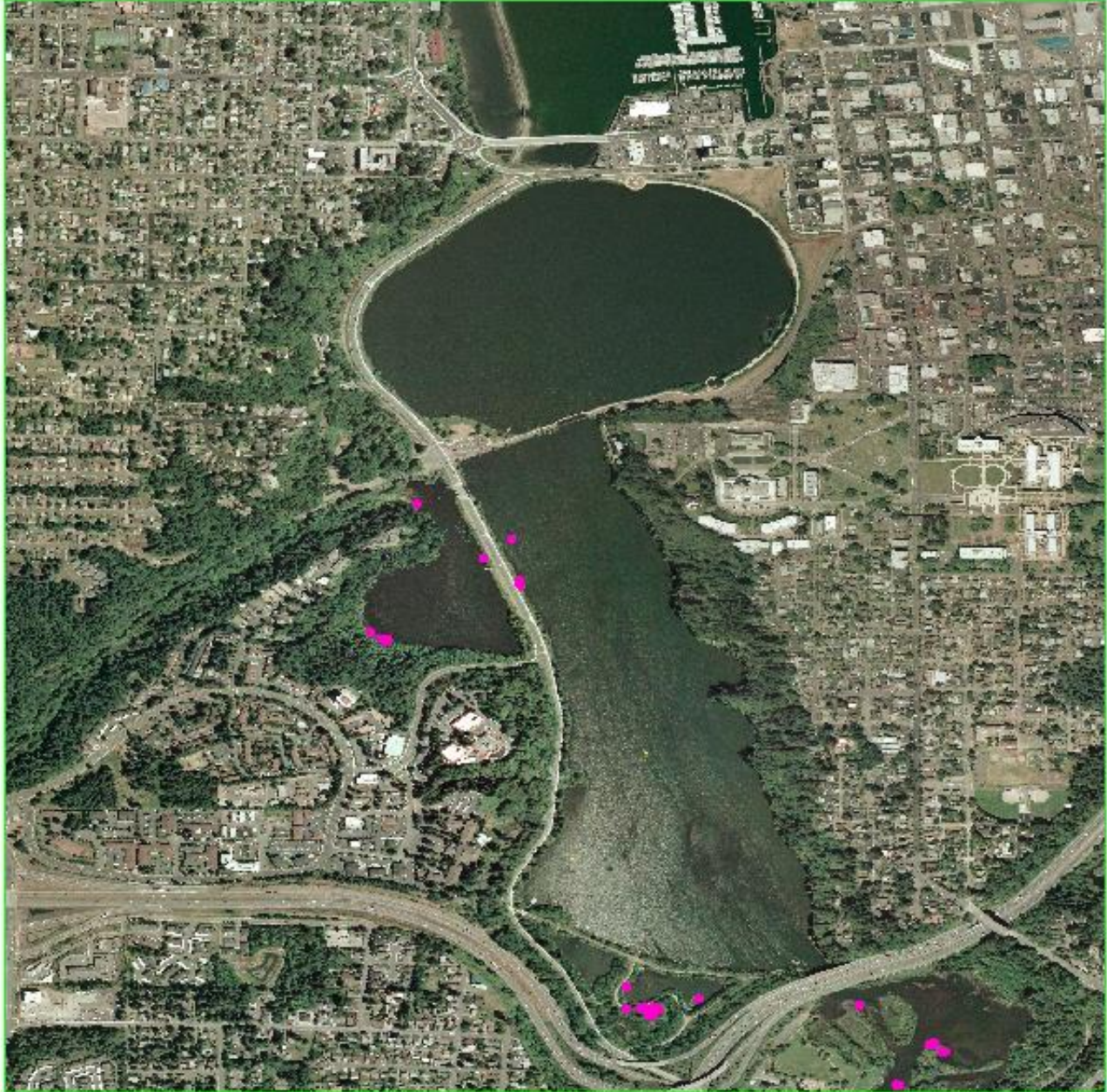
Capitol Lake 2012 Purple Loosestrife Infestation Survey





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Capitol Lake 2013 Purple Loosestrife Survey





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Capitol Lake

2014 Purple Loosestrife Infestation



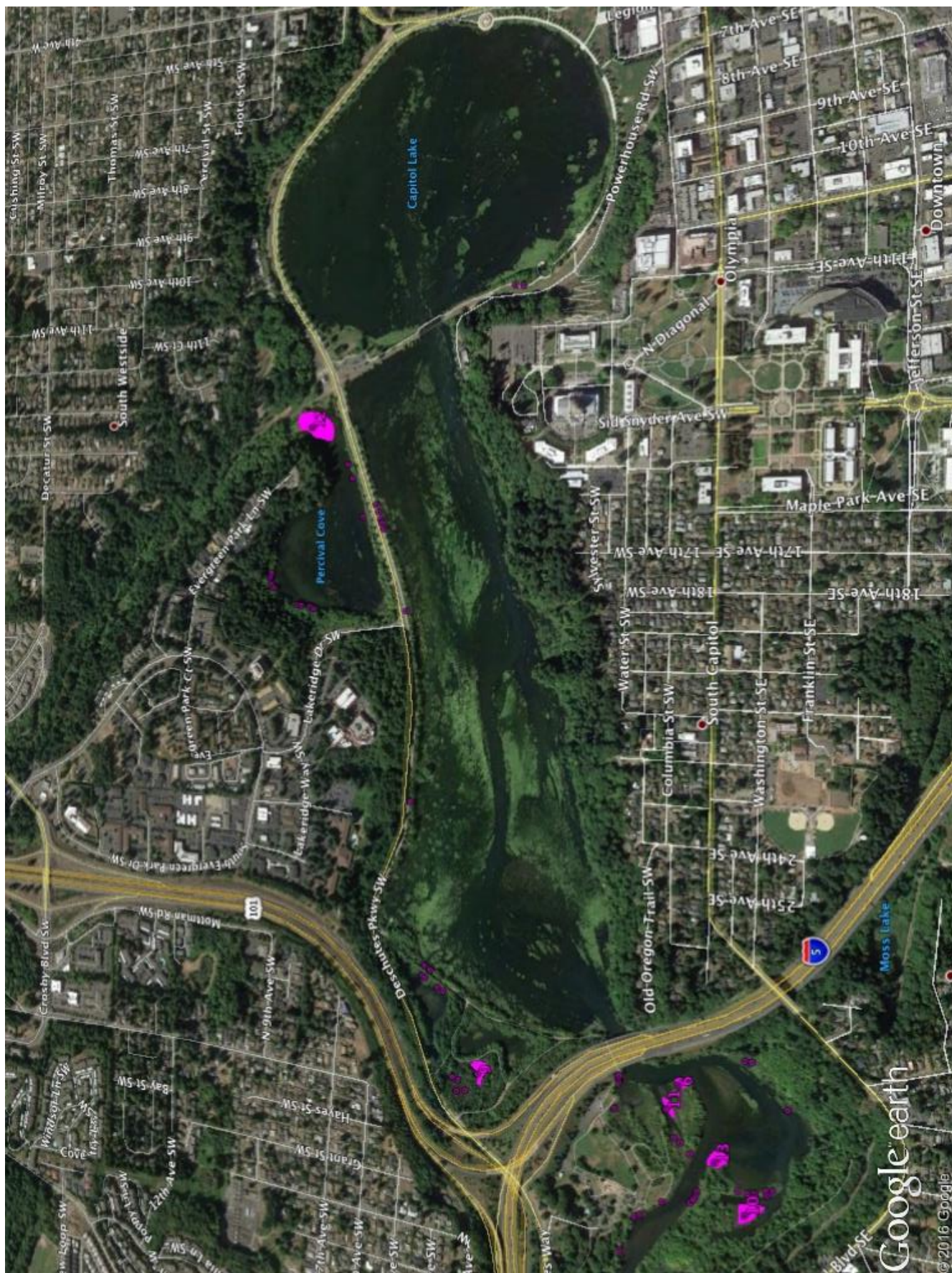
0 700 1,400 2,800 4,200 5,600 Feet



Capitol Lake 2015 – Purple Loosestrife Infestation



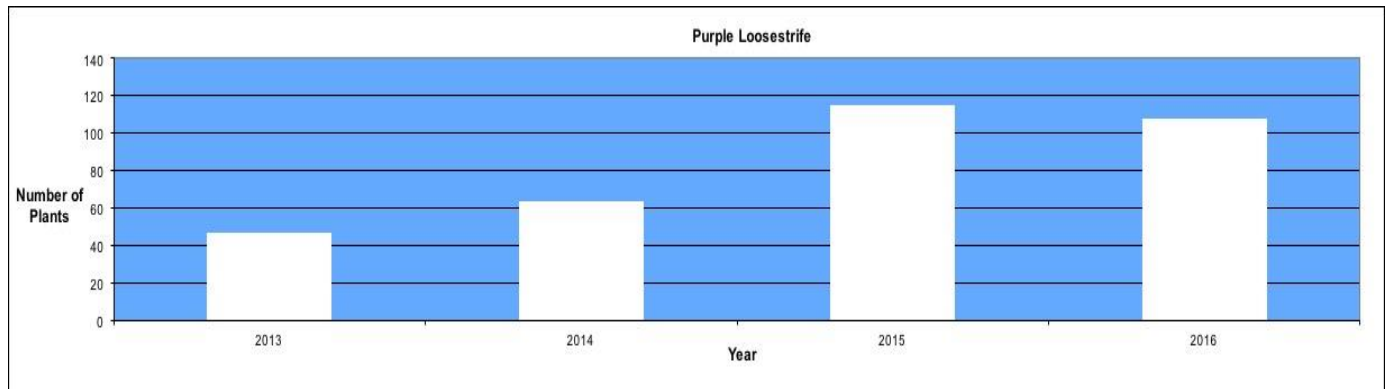
Capitol Lake 2016 – Purple Loosestrife Infestation



Assessment

Purple Loosestrife is most easily identified while it is in bloom. Purple Loosestrife stays in bloom much longer than Yellow Flag Iris and spreads much more aggressively.

In 2016, Purple Loosestrife plants were distributed along many of the shorelines and in most wetlands around Capitol Lake. These plants were located in the same geographical areas around the lake but have a very high probability of being new plants. Purple Loosestrife seeds are very small and stay viable for many years. They will stay dormant in the soil until conditions are right to germinate. The number of plants found on DES property decreased slightly from 2015, from 115 to 108.



Control Activities

Purple Loosestrife plants were located, documented, and plotted. Plants that had developed seed heads were topped and the seed heads were double bagged and disposed of in the County landfill. All plants were then treated with a solution of 1.5% Nufarm Polaris (Imazapyr) and 0.5% Wilbur-Ellis Competitor Adjuvant. Plant die off was seen in one to two weeks.

In past years, some plants had shown indications that the Black-margined Loosestrife beetles (*Galerucella californiensis*) were present. The beetles helped with control by specifically targeting Loosestrife plants.

As with many biological controls, with the decrease in plant populations the Black-margined Loosestrife beetles' activity is not noticeable again in 2016.

Proposed Management

Management of Purple Loosestrife for the 2017 season should continue the same general strategies as in 2016, assuming the initial assessment finds similar conditions. The chemical change to an Imazapyr product in 2016 should continue in 2017.

Spray Logs Appendix C*

* - Some Application Records have both Yellow Flag Iris and Purple Loosestrife

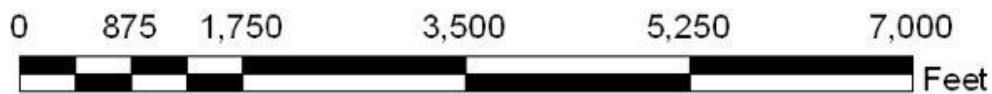
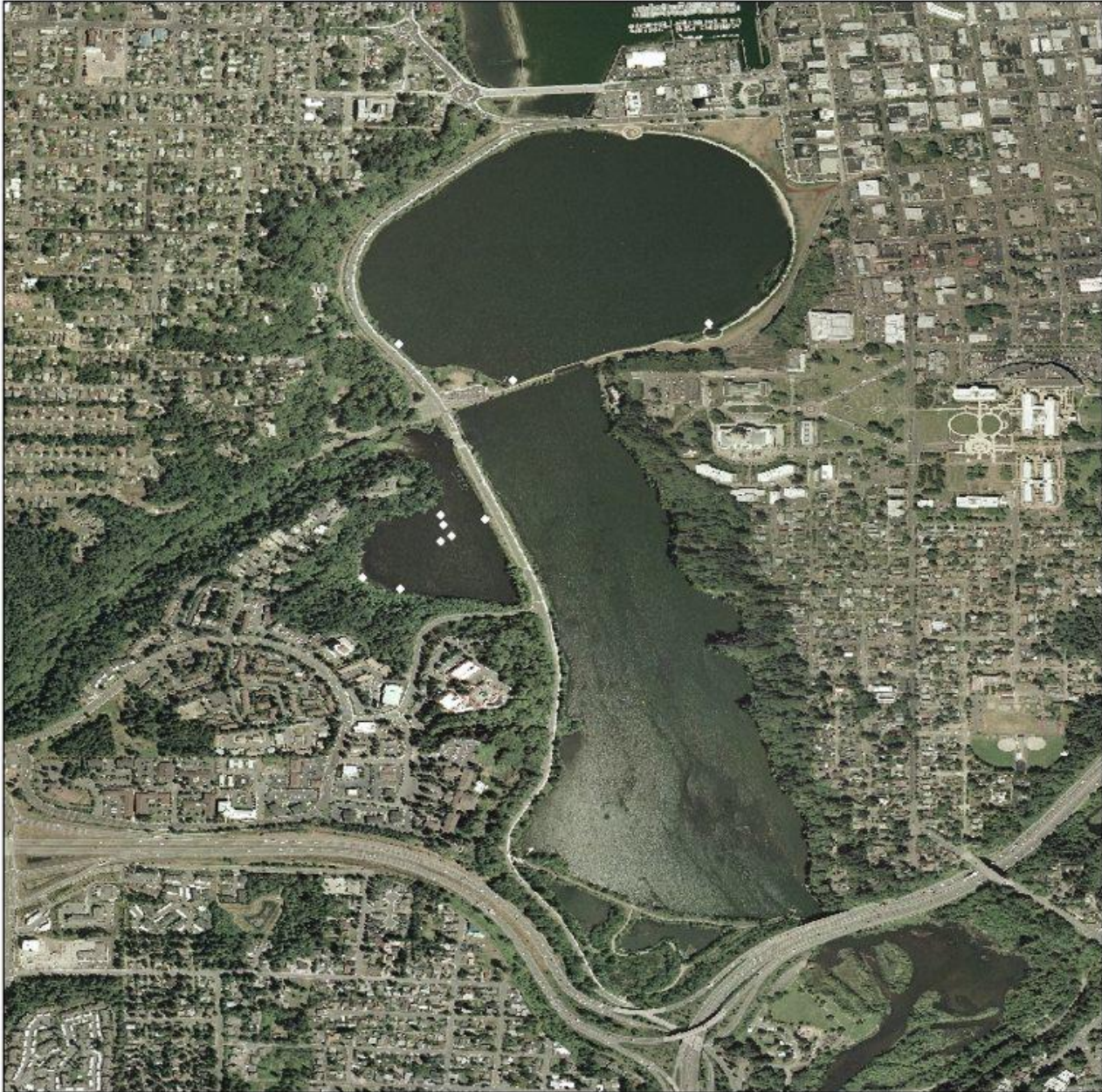
Fragrant White Water Lily (*Nymphaea odorata*)



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Capitol Lake

2012 Fragrant White Water Lilies Infestation Survey





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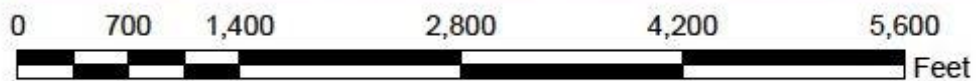
Capitol Lake 2013 Fragrant White Water Lily Survey





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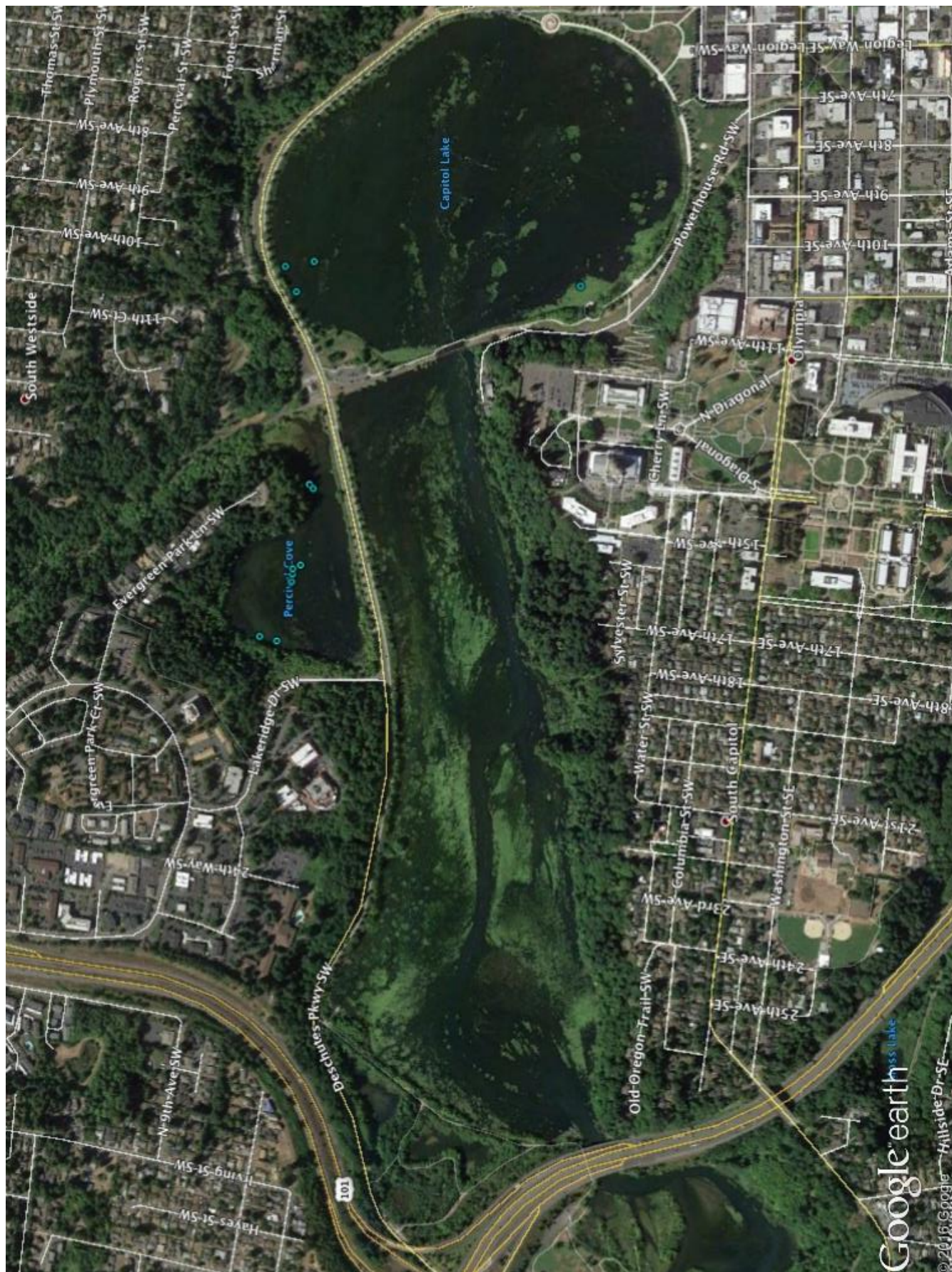
Capitol Lake 2014 Fragrant White Water Lily Infestation



Capitol Lake - 2015 Fragrant White Water Lily Infestation



Capitol Lake - 2016 Fragrant White Water Lily Infestation



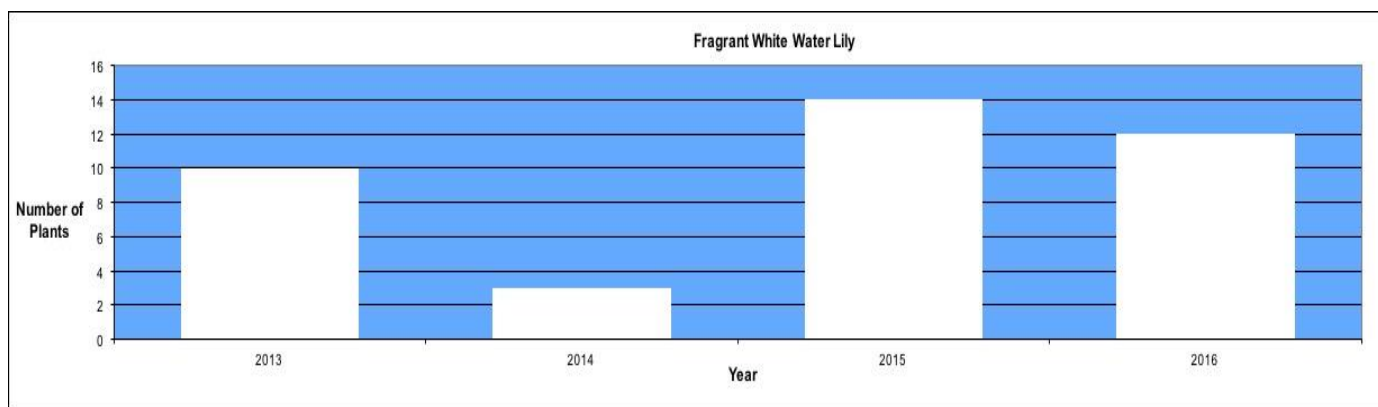
Assessment

In relative terms to other Western Washington Lakes this is considered a very small infestation. All locations consisted of less than one dozen pads. White Water Lilies have the ability to spread across several acres forming a canopy over areas of the lake, blocking all sunlight from other plant life. This often leads to anaerobic conditions.

The 2014 Survey of Fragrant White Water Lilies resulted in the recording of 3 locations on Capitol Lake and several in Percival Cove. The plants in Percival Cove were not mapped in 2014 due to the infestation of Eurasian Watermilfoil. We felt it was best to minimize activity in the Eurasian Watermilfoil infestation site to avoid fragmentation.

The 2015 survey of Fragrant White Water Lilies resulted in the recording of 6 locations on Capitol Lake and 8 locations in Percival Cove. The pads on Capitol Lake are consistent with the same locations as in 2014 survey.

The 2016 survey of Fragrant White Water Lilies resulted in the recording of 4 locations on Capitol Lake and 8 locations in Percival Cove. The pads on Capitol Lake have declined from 2015. The pads on Percival Cove are consistent with the locations as in 2015 survey.



Control Activities

Fragrant White Water Lilies were cut three times during the summer to control their growth.

Proposed Management

Continued cutting to achieve carbohydrate depletion over multiple seasons will result in the eradication of the Fragrant White Water Lilies.

Japanese Knotweed (*Fallopia japonica*)

Assessment

Japanese Knotweed is a Class B noxious weed, which should be controlled to prevent its spread.

The 2016 survey observed no new infestations. The location that Department of Enterprise Services staff was concerned about in 2015 was not located on DES property and was not an early infestation.

Control Activities

The Thurston County Noxious Weed Board and the City of Tumwater should both be regularly notified of the issue.

Proposed Management

If a Japanese Knotweed infestation is found on DES property, then it will be controlled accordingly. Japanese Knotweed is most commonly controlled by stem injection with glyphosate. This management strategy is effective but requires special equipment and is time consuming. A spray solution of 2% glyphosate and 1% Imazapyr and a foliar application between the months of mid-July and mid-September has also been very effective, roughly a 95% kill rate. Besides the chemical solution mentioned previously, Tim Wilson from Thurston County Noxious Weeds, has also recommended a straight 2% spray solution of Imazapyr for treatment of Japanese Knotweed.

Further inquiry should be made to assure there is a work program in effect to control the surrounding infestations.

Attachments

Appendix A – WSDA Letter of Limited Agent Status



STATE OF WASHINGTON
 DEPARTMENT OF AGRICULTURE
 PLANT PROTECTION DIVISION
 P.O. Box 42560 • Olympia, Washington 98504-2560 • Phone (360) 902-1908 • Fax (360) 902-2094

LETTER of LIMITED AGENT STATUS March 14, 2016

I. ENTITY WITH LIMITED AGENT STATUS

Name of Entity:	Northwest Aquatic Management, LLC		
Name:	Kyle Steelhammer		
Mailing Address:	9727 Hwy 12 W #815		
City:	Rochester	State:	WA
ZIP + 4:	98579		
E-Mail Address:	kyle@nwaqua.com		
Daytime Phone:	360-870-4362	Cell Phone:	

II. WATERBODY AND HERBICIDE INFORMATION

Waterbody Name	County	WRIA	Target Weed	Herbicide
Capital Lake	Thurston	Deschutes	Lythrum salicaria (Purple Loosestrife), Iris pseudacorus (Yellow Flag Iris)	Glyphosate
Capitol lake	Thurston	Deschutes	Purple Loosestrife, Yellow Flag Iris	Imazapyr

Dear Applicant:

This Letter of Limited Agent Status constitutes a formal acceptance by the Washington State Department of Agriculture (WSDA) of the “Application and Agreement for Limited Agent Status for Aquatic Noxious Weed Control under WSDA’s National Pollutant Discharge Elimination System General Permit” (hereinafter, “Application for Limited Agent Status”) submitted by the above-named entity.

As set forth in the Application for Limited Agent Status and agreed to in this Letter of Limited Agent Status, WSDA hereby enters into a contract with the above-named entity (Section I), under which the entity acts as a limited agent to carry out noxious emergent and quarantine weed control for WSDA under the “Aquatic Noxious Weed Management General Permit National Pollutant Discharge Elimination System Waste Discharge General Permit” (hereinafter, “Permit”) issued to WSDA on February 17, 2012.

This limited agent status applies to only the noxious weed control and/or eradication activities described in the Application for Limited Agent Status (Section II). This limited agent status covers only treatments conducted by the above-named entity and treatments conducted under contract on behalf of the above-named entity. This coverage terminates December 31, 2016. Direct in-water treatment of aquatic weeds is not allowed under this agreement.

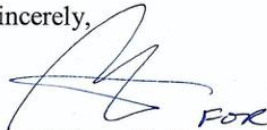
The above-named entity agrees to comply with all terms, conditions, and requirements included or referenced in the Application for Limited Agent Status, Permit and appropriate state, federal and local laws. WSDA issues this Letter of Limited Agent Status in specific reliance on the representations and agreements made by the entity in the Application for Limited Agent Status and WSDA intends that the entity comply with all terms, conditions, and requirements included or referenced in the Application for Limited Agent Status and the Permit.

Further information and the Permit language can be found at the following URL.

http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/noxious/noxious_index.html


If any notification to WSDA is required under the Application for Limited Agent Status, that notification must be made to James Marra at (360) 902-2071 or jmarra@agr.wa.gov.

Sincerely,

A handwritten signature in black ink, appearing to be 'J. Marra', with the initials 'JOM' written in smaller letters to the right of the signature.

James Marra, Ph.D.
Pest Program Manager

Appendix B – Yellow Flag Iris*



WSDA

PESTICIDE APPLICATION RECORD (Version 4)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

A. Date of Application - Year: 2016 Month: 6 Day: 22

B. Firm Name: NW Aquatic Management LLC Telephone No.: 3608704362
 Commercial Applicator's Name: Kyle Steelhammer License No.: 90015
 Street Address: 19925 Tahoma Circle SW City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Jeff Howe
 License No(s): 80509

D. Pesticide Information (list all information for each pesticide including spray adjuvants (buffer, surfactant, dye, etc.) in the tank mix):

Full Product Name	EPA Reg. No.	Concentration <small>Amount (Lbs., Gts., etc.) of brand per 100 gallons of tank mix. Amount and unit must be specified.</small>
<u>Aquamaster(Glyphosate)</u>	<u>000524-00343</u>	<u>12.5 Quarts/100 Gallons</u>
<u>LI 700--Phosphatidycholine methylacetic acid and alkyl polyoxyethylene ether</u>	<u>034704-50035</u>	<u>2 Quarts/100 Gallons</u>

E. Application crop or site: Wetlands F. Apparatus License Plate No. Backpack

G. Record the following information for the specific conditions during each application:

CUSTOMER <small>(a) full name (b) complete address</small>	AMOUNT APPLIED <small>(gals. of mix)</small>	AREA TREATED <small>(sq. ft., etc.)</small>	START & STOP TIME	TEMP F°	WIND DIR	VEL. <small>(mph)</small>
1. a) <u>General Administration, Capitol Lake</u>		Spot Treatment	<u>6:30pm</u>	<u>72</u>	<u>NW</u>	<u>1.2</u>
b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>		Yellow Flag Iris	<u>8:45pm</u>	<u>68</u>	<u>NW</u>	<u>1.</u>
2. a) <u>General Administration, Capitol Lake</u>		Spot Treatment				
b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>		Purple Loosestrife				
3. a) _____						
4. a) _____						
5. a) _____						
6. a) _____						
7. a) _____						
8. a) _____						

AGR FORM 640-4234 (R4/07)



PESTICIDE APPLICATION RECORD (Version 4)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

A. Date of Application - Year: 2016 Month: 6 Day: 24

B. Firm Name: NW Aquatic Management LLC Telephone No.: 3608704362

Commercial Applicator's Name: Kyle Steelhammer License No.: 90015

Street Address: 19925 Tahoma Circle SW City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Jeff Howe

License No(s): 80509

D. Pesticide Information (list all information for each pesticide including spray adjuvants (buffer, surfactant, dye, etc.) in the tank mix):

Full Product Name	EPA Reg. No.	Concentration
		Amount: (Lbs., Qts., etc.) of brand per 100 gallons of tank mix. Amount and unit must be specified.
Aquamaster(Glyphosate)	000524-00343	12.5 Quarts/100 Gallons
LI 700--Phosphatidycholine methylacetic acid and alkyl polyoxycethylene ether	034704-50035	2 Quarts/100 Gallons

E. Application crop or site: Wetlands F. Apparatus License Plate No. Backpack

G. Record the following information for the specific conditions during each application:

CUSTOMER (a) full name (b) complete address	AMOUNT APPLIED (gals. of mix)	AREA TREATED (sq. ft., etc.)	START & STOP TIME	TEMP F°	WIND	
					DIR	VEL (mph)
1. a) General Administration, Capitol Lake b) 210 11 th Ave SW GA Bldg, Rm 201 Olympia, WA 98504	. 5	Spot Treatment Yellow Flag Iris	7 12	55 66	SW	1 5
2. a) General Administration, Capitol Lake b) 210 11 th Ave SW GA Bldg, Rm 201 Olympia, WA 98504		Spot Treatment Purple Loosestrife				
3. a) b)						
4. a) b)						
5. a) b)						
6. a) b)						
7. a) b)						
8. a) b)						



PESTICIDE APPLICATION RECORD (Version 4)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

A. Date of Application - Year: 2016 Month: 7 Day: 15

B. Firm Name: NW Aquatic Management LLC Telephone No.: 3608704362

Commercial Applicator's Name: Kyle Steelhammer License No.: 90015

Street Address: 19925 Tahoma Circle SW City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Jeff Howe

License No(s): 80509

D. Pesticide Information (list all information for each pesticide including spray adjuvants (buffer, surfactant, dye, etc.) in the tank mix):

Full Product Name	EPA Reg. No.	Concentration
		Amount: (Lbs., Qts., etc.) of brand per 100 gallons of tank mix. Amount and unit must be specified.
<u>Aquamaster(Glyphosate)</u>	<u>000524-00343</u>	<u>12.5 Quarts/100 Gallons</u>
<u>LI 700-Phosphatidycholine methylacetic acid and alkyl polyoxyethylene ether</u>	<u>034704-50035</u>	<u>2 Quarts/100 Gallons</u>

E. Application crop or site: Wetlands F. Apparatus License Plate No. Backpack

G. Record the following information for the specific conditions during each application:

CUSTOMER (a) full name (b) complete address	AMOUNT APPLIED (gals. of mix)	AREA TREATED (sq. ft., etc.)	START & STOP TIME	TEMP F°	WIND	
					DIR	VEL (mph)
1. a) <u>General Administration, Capitol Lake</u> b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>	<u>1 gal.</u>	<u>Spot Treatment</u> <u>Yellow Flag Iris</u>	<u>8:30</u> <u>1:30</u>	<u>59</u> <u>68</u>	<u>SW</u>	<u>2-8</u> <u>1.5</u>
2. a) <u>General Administration, Capitol Lake</u> b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>	<u>.5</u>	<u>Spot Treatment</u> <u>Purple Loosestrife</u>				
3. a) _____ b) _____						
4. a) _____ b) _____						
5. a) _____ b) _____						
6. a) _____ b) _____						
7. a) _____ b) _____						
8. a) _____ b) _____						



PESTICIDE APPLICATION RECORD (Version 4)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42580
Olympia WA 98504-2580
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

A. Date of Application - Year: 2016 Month: 7 Day: 15

B. Firm Name: NW Aquatic Management LLC Telephone No.: 3608704362

Commercial Applicator's Name: Kyle Steelhammer License No.: 90015

Street Address: 19925 Tahoma Circle SW City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Jeff Howe

License No(s): 80509

D. Pesticide Information (list all information for each pesticide including spray adjuvants (buffer, surfactant, dye, etc.) in the tank mix):

Full Product Name	EPA Reg. No.	Concentration
		Amount: (Lbs., Qts., etc.) of brand per 100 gallons of tank mix. Amount and unit must be specified.
Aquamaster(Glyphosate)	000524-00343	12.5 Quarts/100 Gallons
LI 700--Phosphatidycholine methylacetic acid and alkyl polyoxyethylene ether	034704-50035	2 Quarts/100 Gallons

E. Application crop or site: Wetlands F. Apparatus License Plate No. Backpack

G. Record the following information for the specific conditions during each application:

CUSTOMER (a) full name (b) complete address	AMOUNT APPLIED (gals. of mix)	AREA TREATED (sq. ft., etc.)	START & STOP TIME	TEMP F°	WIND	
					DIR	VEL (mph)
1. a) General Administration, Capitol Lake b) 210 11 th Ave SW GA Bldg, Rm 201 Olympia, WA 98504	<u>1 gal.</u>	<u>Spot Treatment</u>	<u>8:30</u>	<u>59</u>	<u>SW</u>	<u>2-3</u>
2. a) General Administration, Capitol Lake b) 210 11 th Ave SW GA Bldg, Rm 201 Olympia, WA 98504	<u>.5</u>	<u>Spot Treatment</u> <u>Purple Loosestrife</u>	<u>1:30</u>	<u>68</u>		<u>1-5</u>
3. a) _____ b) _____						
4. a) _____ b) _____						
5. a) _____ b) _____						
6. a) _____ b) _____						
7. a) _____ b) _____						
8. a) _____ b) _____						



PESTICIDE APPLICATION RECORD (Version 4)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4556

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

A. Date of Application - Year: 2016 Month: 7 Day: 29

B. Firm Name: NW Aquatic Management LLC Telephone No.: 3608704362

Commercial Applicator's Name: Kyle Steelhammer License No.: 90015

Street Address: 19925 Tahoma Circle SW City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Jeff Howe

License No(s): 80509

D. Pesticide information (list all information for each pesticide including spray adjuvants (buffer, surfactant, dye, etc.) in the tank mix):

Full Product Name	EPA Reg. No.	Concentration
		Amount (Lbs., Qts., etc.) of brand per 100 gallons of tank mix. Amount and unit must be specified.
Aquamaster(Glyphosate)	000524-00343	12.5 Quarts/100 Gallons
LI 700--Phosphatidycholine methylacetic acid and alkyl polyoxyethylene ether	034704-50035	2 Quarts/100 Gallons

E. Application crop or site: Wetlands F. Apparatus License Plate No. Backpack

G. Record the following information for the specific conditions during each application:

CUSTOMER (a) full name (b) complete address	AMOUNT APPLIED (gals. of mix)	AREA TREATED (sq. ft., etc.)	START & STOP TIME	TEMP F°	WIND	
					DIR	VEL (mph)
1. a) General Administration, Capitol Lake	<u>.5</u>	Spot Treatment	<u>8:30</u>	<u>61</u>	<u>SW</u>	<u>1</u>
b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>		Yellow Flag Iris	<u>2:30</u>	<u>90</u>	<u>NE</u>	<u>2</u>
2. a) General Administration, Capitol Lake	<u>.5</u>	Spot Treatment				
b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>		Purple Loosetrife				
3. a) _____						
b) _____						
4. a) _____						
b) _____						
5. a) _____						
b) _____						
6. a) _____						
b) _____						
7. a) _____						
b) _____						
8. a) _____						
b) _____						



PESTICIDE APPLICATION RECORD (Version 4)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

A. Date of Application - Year: 2016 Month: 8 Day: 18

B. Firm Name: NW Aquatic Management LLC Telephone No.: 3608704362

Commercial Applicator's Name: Kyle Steelhammer License No.: 90015

Street Address: 19925 Tahoma Circle SW City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Jeff Howe

License No(s): 80509

D. Pesticide Information (list all information for each pesticide including spray adjuvants (buffer, surfactant, dye, etc.) in the tank mix):


Full Product Name	EPA Reg. No.	Concentration
		Amount: (Lbs., Qts., etc.) of brand per 100 gallons of tank mix. Amount and unit must be specified.
<u>Aquamaster(Glyphosate)</u>	<u>000524-00343</u>	<u>12.5 Quarts/100 Gallons</u>
<u>LI 700--Phosphatidycholine methylacetic acid and alkyl polyoxyethylene ether</u>	<u>034704-50035</u>	<u>2 Quarts/100 Gallons</u>

E. Application crop or site: Wetlands F. Apparatus License Plate No. Backpack

G. Record the following information for the specific conditions during each application:

CUSTOMER (a) full name (b) complete address	AMOUNT APPLIED (gals. of mix)	AREA TREATED (sq. ft., etc.)	START & STOP TIME	TEMP F°	WIND	
					DIR	VEL (mph)
1. a) <u>General Administration, Capitol Lake</u> b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>	<u>1</u>	<u>Spot Treatment</u>	<u>6:30</u>	<u>61</u>	<u>NE</u>	<u>2</u>
		<u>Yellow Flag Iris</u>	<u>9:30</u>	<u>84</u>		<u>2.5</u>
2. a) <u>General Administration, Capitol Lake</u> b) <u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>	<u>1.5</u>	<u>Spot Treatment</u>				
		<u>Purple Loosestrife</u>				
3. a) _____ b) _____						
4. a) _____ b) _____						
5. a) _____ b) _____						
6. a) _____ b) _____						
7. a) _____ b) _____						
8. a) _____ b) _____						

Appendix C – Purple Loosestrife*



PESTICIDE APPLICATION RECORD (Version 4)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42580
Olympia WA 98504-2580
(877) 301-4555

A. Date of Application - Year: 2016 Month: 8 Day: 14

B. Firm Name: NW Aquatic Management LLC Telephone No.: 3608704362
 Commercial Applicator's Name: Kyle Steelhammer License No.: 90015
 Street Address: 19925 Tahoma Circle SW City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Jeff Howe
 License No(s): 80509

D. Pesticide Information (list all information for each pesticide including spray adjuvants (buffer, surfactant, dye, etc.) in the tank mix):

Full Product Name	EPA Reg. No.	Concentration Amount: (Lbs., Qts., etc.) of brand per 100 gallons of tank mix. Amount and unit must be specified.
<u>Aquamaster(Glyphosate)</u>	<u>000524-00343</u>	<u>12.5 Quarts/100 Gallons</u>
<u>LI 700--Phosphatidycholine methylacetic acid and alkyl polyoxyethylene ether</u>	<u>034704-50035</u>	<u>2 Quarts/100 Gallons</u>

E. Application crop or site: Wetlands F. Apparatus License Plate No. Backpack

G. Record the following information for the specific conditions during each application:

	CUSTOMER <small>(a) full name (b) complete address</small>	AMOUNT APPLIED <small>(gals. of mix)</small>	AREA TREATED <small>(sq. ft., etc.)</small>	START & STOP TIME	TEMP F°	WIND	
						DIR	VEL <small>(mph)</small>
1. a)	<u>General Administration, Capitol Lake</u>		<u>Spot Treatment</u>	<u>8:30</u>	<u>72</u>	<u>NE</u>	<u>1</u>
b)	<u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>		<u>Yellow Flag Iris</u>				
2. a)	<u>General Administration, Capitol Lake</u>	<u>1</u>	<u>Spot Treatment</u>	<u>1</u>	<u>89</u>		<u>Ø</u>
b)	<u>210 11th Ave SW GA Bldg, Rm 201 Olympia, WA 98504</u>		<u>Purple Loosestrife</u>				
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							

AGR FORM 640-4234 (9/04/07)

* - Some Application Records have both Yellow Flag Iris and Purple Loosestrife