

Northwest Aquatic Management, LLC

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Rochester, WA 98579

(360) 870-4362

kyle@nwaqua.com



Capitol Lake

Weed Management Services

2018 Annual Report

October 28, 2018

Northwest Aquatic Management, LLC



Prepared for:
Michael Van Gelder
Department of Enterprise Services
State of Washington

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

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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,

- Japanese Knotweed
- Tansy Ragwort
- Evergreen Blackberry
- Himalayan Blackberry

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

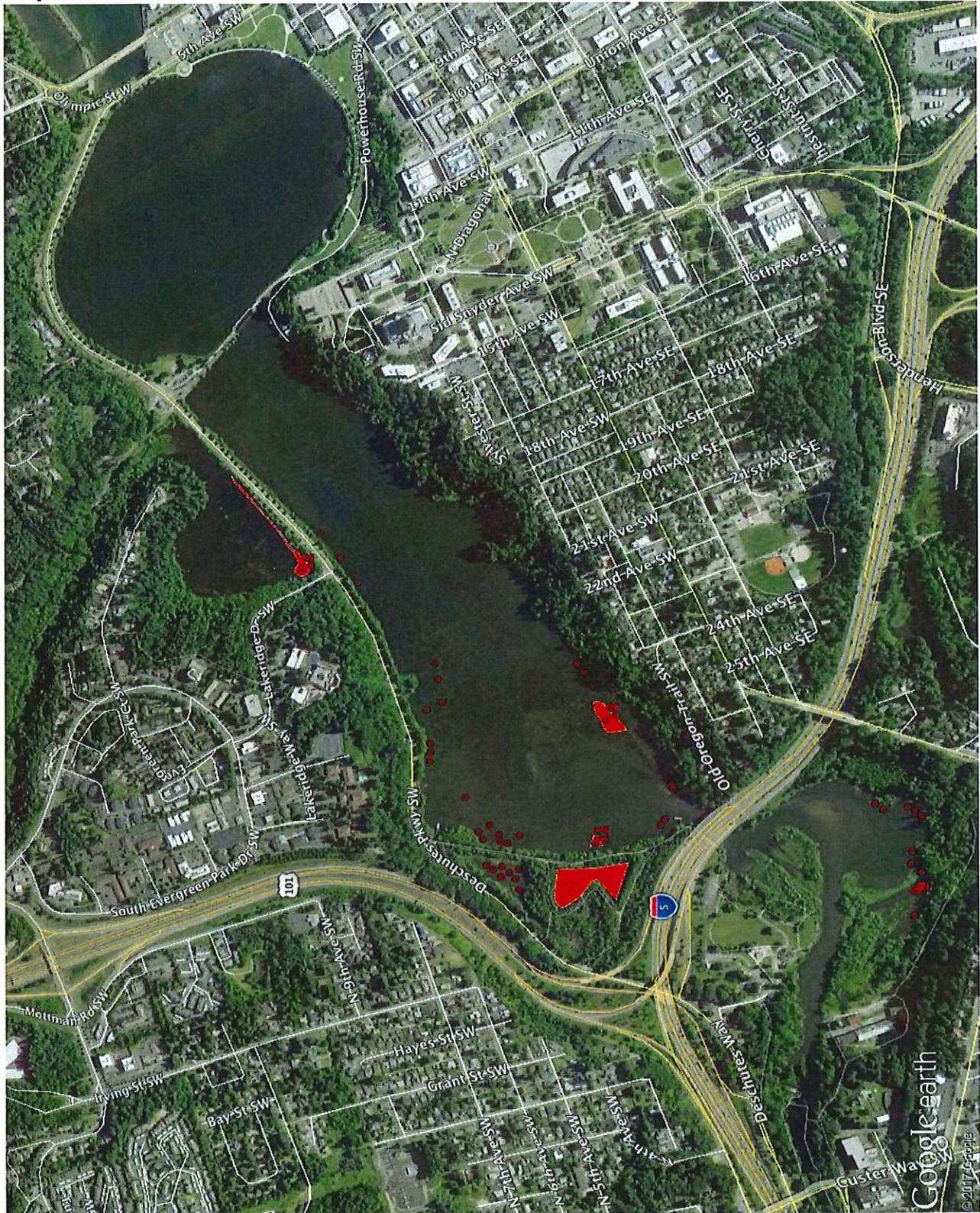
Capitol Lake is a rapidly changing eco-system, which responds differently every year to various environmental conditions.

Significant changes observed in recent years include:

- Deposition of sediments
- Infestation of New Zealand Mud Snails
- Increase in Eurasian Watermilfoil

Eurasian Watermilfoil (*Myriophyllum spicatum*)

Capitol Lake 2017 – Eurasian Milfoil Infestation



Capitol Lake 2018 – 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

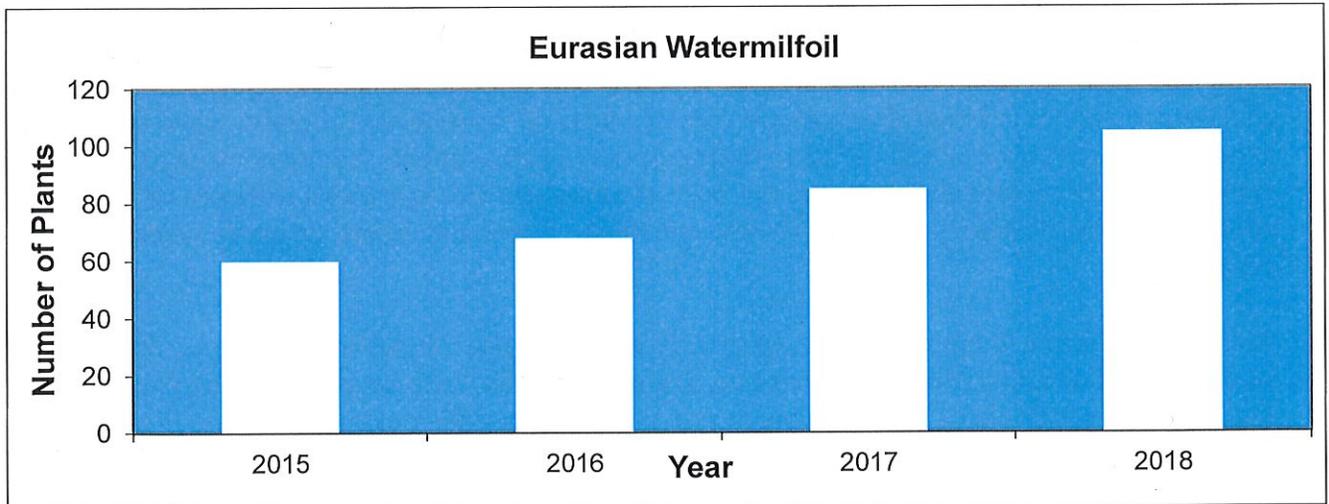
Eurasian Watermilfoil plants were found in depth ranges from 1 to 4 feet.

The quantity of milfoil plants has increased in 2018. The shallowing areas are perfect growing conditions for this very aggressively spreading aquatic plant.

Results

In 2017 there was again an increase in Eurasian Watermilfoil. There were 18 plants found in the South Basin, there were 52 plants observed in the Middle Basin, and there were 15 plants found in Percival Cove. The west mitigation pond had about 12 plants in it while the east mitigation pond is relatively full of milfoil.

In 2018 there was again an increase in Eurasian Watermilfoil. In the South Basin there were two big grouped areas plants. These areas are very dense and thick with milfoil. The Middle Basin is continuing to increase the number of plants because of the increase of sediment. Percival Creek still has the milfoil along the east shoreline bordering Deschutes Parkway. The west mitigation pond has 15-20 plants in it while the east mitigation pond is relatively full of milfoil. The best estimation of the number of plants in represented in the chart below.



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 GPSMAP 276Cx
- Maps generated by Google Earth Pro

For 2017, the plants in the South Basin were observed throughout the entire season. The Middle Basin had shown the plants to be located in the deeper portions along the western shoreline. This extends from the outfall of the east mitigation pond heading northward toward Marathon Park. Dr. David Milne also spotted two plants off the dock at the southwest corner of the Middle Basin, right near the Interstate 5 overpass. Percival cove surveys showed plants along the eastern shoreline. All Milfoil plants that were conducive to hand pulling were removed. As the season progressed, the abundance of surface algae made survey and control activities increasingly difficult.

2017 also allowed for screen replacement to help reduce milfoil spread from the mitigation ponds. Water levels in the lake were temporarily lowered for 3 days allowing us access. Originally the contract budgeted for replacement of just the fine mesh screens. After assessment with lowered water levels we were able to conclude that more structural components needed to be replaced. The fine mesh screen above the water line was still in perfect working order. However, the lower half of the screens and much of the chain link fencing along with some of the underwater structuring had rotted. This was not in budget but understanding what the end goal results that were needed and the short amount of time with lowered water levels our action plan was adjusted accordingly. This did exceed our agreed budget by several hundred dollars but we were happy with the results.

A meeting onsite with Brent Chapman revealed that the water levels had been raised higher and then back to normal since repair. Giving the impression none of the screens had been replaced due to sediment and debris present high up on the fine mesh screens. After detailed explanation he understood and we agreed that in future situations we will document our findings and alterations and send a mini report. Making it universally understood the measures and adjustments that were made to reach our mutual goal. We believe our assessment of the rest of the structuring shows it will need full replacement of all posts within 3-4 years. Annually we will continue to assess and report the quality and condition as needed.

For 2018, the plants in the South Basin were observed throughout the entire season because of the size of the infestation and lack of algae formation. The Middle Basin is showing plants along the eastern shoreline along with plants located in the deeper portions along the western shoreline. These plants extend from the outfall of the east mitigation pond heading northward toward Marathon Park. All Milfoil plants that were conducive to hand pulling were removed.

All surveys were conducted in conjunction with Yellow Flag Iris, Purple Loosestrife, and Water Lily surveys and treatments.

Proposed Management

As of right now, management of Eurasian Watermilfoil for the 2019 season closely resembles the same method used in the 2018 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 2018. Previous control methods that were used, including more in-depth surveys, individual plant marking, and management could be replicated. If advanced survey work is implemented, milfoil plants could be marked for easy identification. After the plants are identified, a small dredge could be implemented to suck up and dispose of the plants. Another option would be to install individual shading cloth or similar material over each plant. This would inhibit the growth of the plants throughout the summer months and reduce the number of milfoil plants that reach maturity and spread in the future.

Capitol Lake 2018 – Yellow Flag Iris Infestation



Assessment

Yellow flag Iris plants are 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. The Yellow Flag Iris presents itself quite well and is easily seen when in bloom.

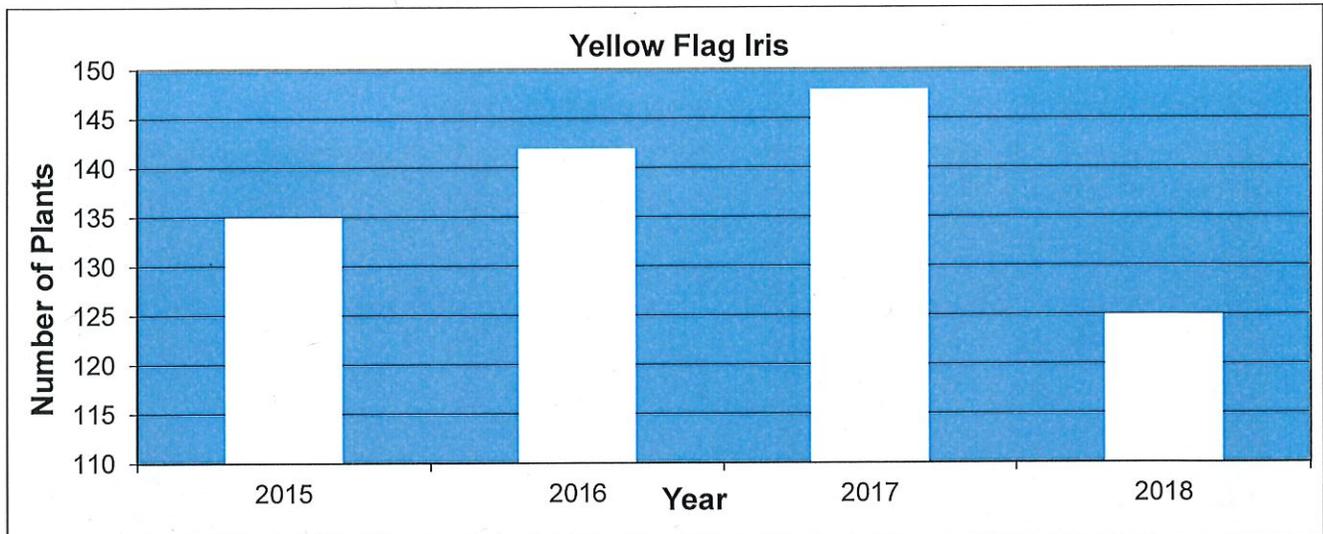
Yellow Flag Iris spreads by both seeds, which grow in pods, or by rhizomes that grow just above the roots.



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

2017 stayed relatively steady for plant numbers on Department of Enterprise Service property. A total of 148 plants were found on the property. The plants found on private property were at 440 for 2017.

2018 stayed relatively steady with a slight decrease in plant numbers on Department of Enterprise Service property. A total of 125 plants were found on the property. The plants found on private property were very similar to 2017.



Control Activities

Yellow Flag Iris plants were located, documented, and plotted. Any plant that had a developed seed head/pod, were treated by removed the seed heads/pods and double bagging and disposed of them in County landfill. All plants, no matter seed head development or not, were then treated with a solution of 1.5% Nufarm Polaris (Imazapyr), 0.5% Wilbur-Ellis Competitor Adjuvant and blue die; plant die off was seen in one to two weeks. Yellow Flag Iris are a hearty perennial plant. A strong emphasis was put on treating immature iris plants or plants without flowers or seed heads. The extra time taken to identify an immature iris plant pays dividends in future years.

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/pods 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

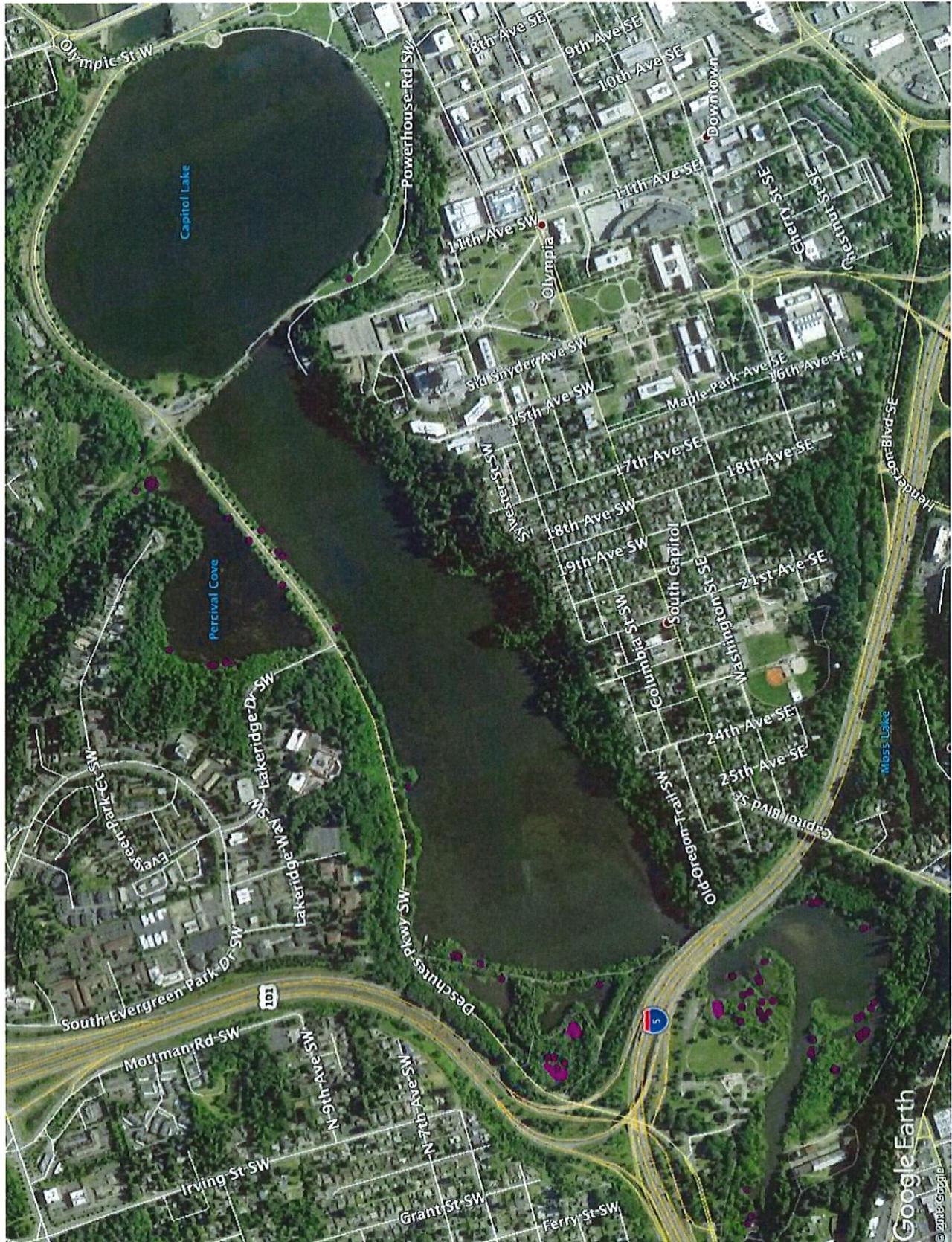
Management of Yellow Flag Iris for the 2019 season should continue with the same general strategies as in 2018 including the treatment of the immature plants, assuming the initial assessment finds similar conditions. The chemical change to an Imazapyr product with blue die will continue in 2019.

More aggressive action should be taken to eradicate the plants that were not in the 2018 treatment area. The most effective and economical option would be to obtain permission from the homeowners and conduct an herbicide application.

Spray Logs Appendix B*

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

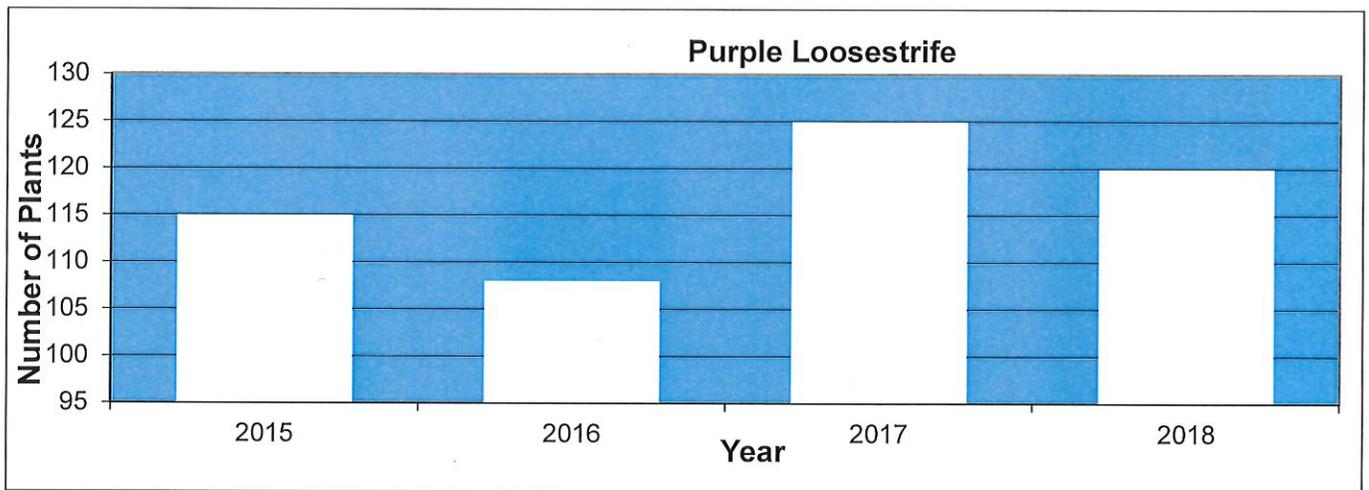
Capitol Lake 2018 – Purple Loosestrife Infestation



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 2018, the number of Purple Loosestrife plants found on DES property seemed to stay steady with 2017. Plants found were distributed along most shoreline and most wetlands around Capitol Lake. Majority of plants treated were found in previously existing infestation areas. With Purple Loosestrife seeds being very small and have been estimated to lay dormant for many years, these smaller plants were believed to be new growth. With optimal weather and soil conditions creating opportunity for them to germinate.



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), 0.5% Wilbur-Ellis Competitor Adjuvant and blue die. Plant die off was seen in one to two weeks. A strong emphasis was put on treating immature loosestrife plants or plants that have not flowered yet. The extra time taken to identify an immature loosestrife plant pays dividends in future years.

Proposed Management

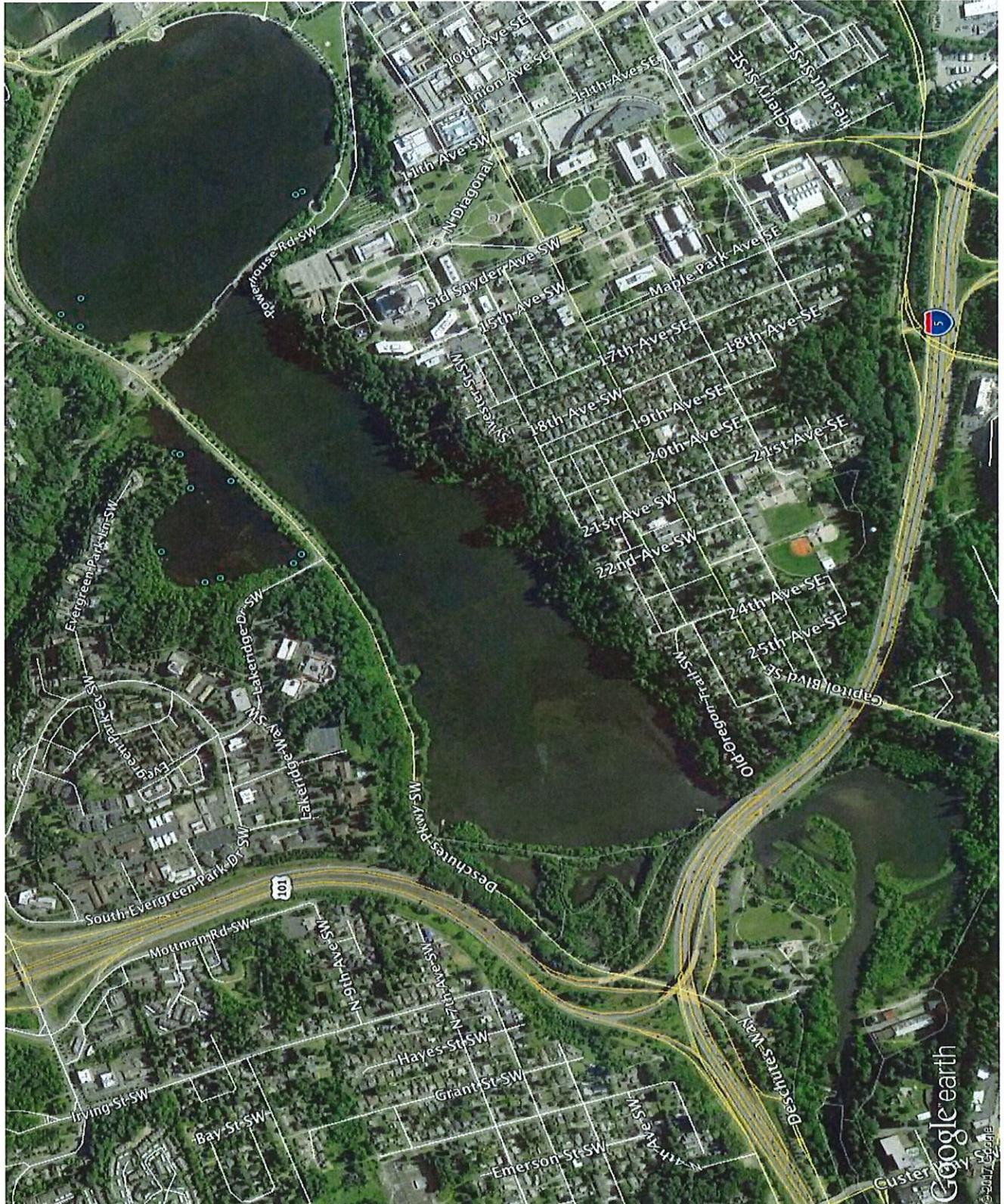
2019's management plan for Purple Loosestrife will stay consistent with our goals and strategy from 2018. We would like to implement the use of technology such as a drone to assist in surveying of heavy and dense brush areas that are difficult to access. This will allow a better assessment, save time and decrease our footprint in the wetland areas. Also, emphasizing the survey and treatment of immature loosestrife plants. The decision to change chemical to an Imazapyr product with a blue dye should continue into 2019.

Spray Logs Appendix C*

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

Fragrant White-Water Lily (*Nymphaea odorata*)

Capitol Lake - 2017 Fragrant White-Water Lily Infestation



Capitol Lake - 2018 Fragrant White-Water Lily Infestation

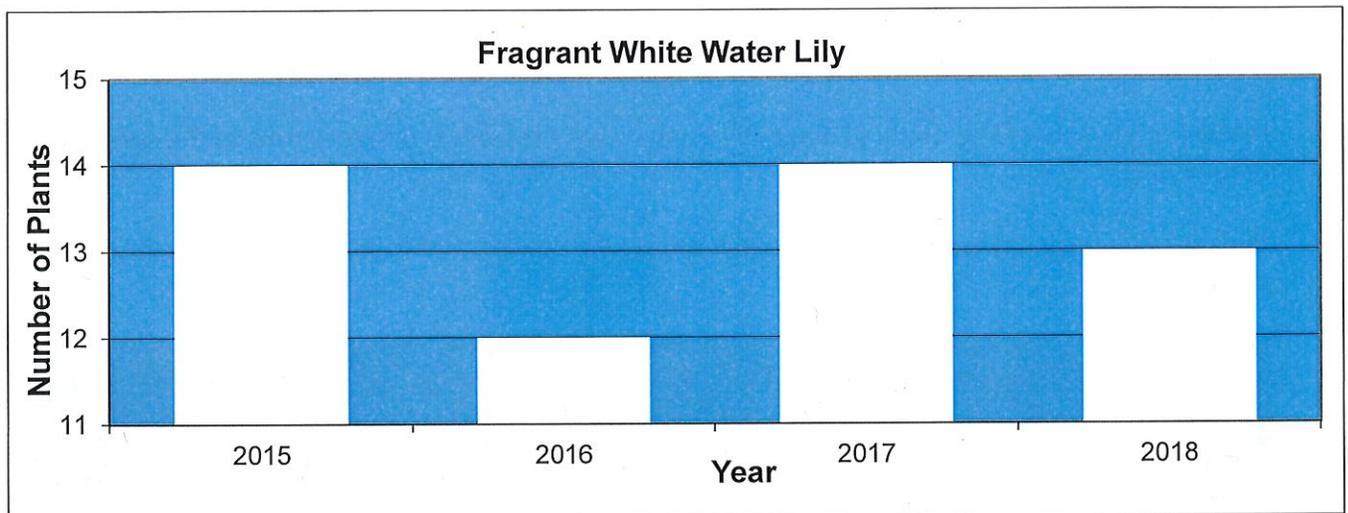


Assessment

In relative terms to other Western Washington Lakes this is considered a very small infestation. 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 2017 seasons survey of Fragrant White-Water Lilies resulted in the recording of 5 locations on Capitol Lake and 9 locations found in Percival Cove. The pads on Capitol Lake and Percival Cove have stayed neutral and consistent from our surveys of the 2016 season.

The 2018 seasons survey of Fragrant White-Water Lilies resulted in the recording of 6 locations and also one large grouping appearing in the northern most part of the North Basin. There were also 6 locations found in Percival Cove. The pads on Capitol Lake have expanded slightly while the pads in Percival Cove have decreased. The Middle and South basins have no recorded Lily Pad growth.



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 reduction 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 2018 survey observed no new infestations. The property south of Historical Park has a quite large infestation. Thurston County has been notified.

Control Activities

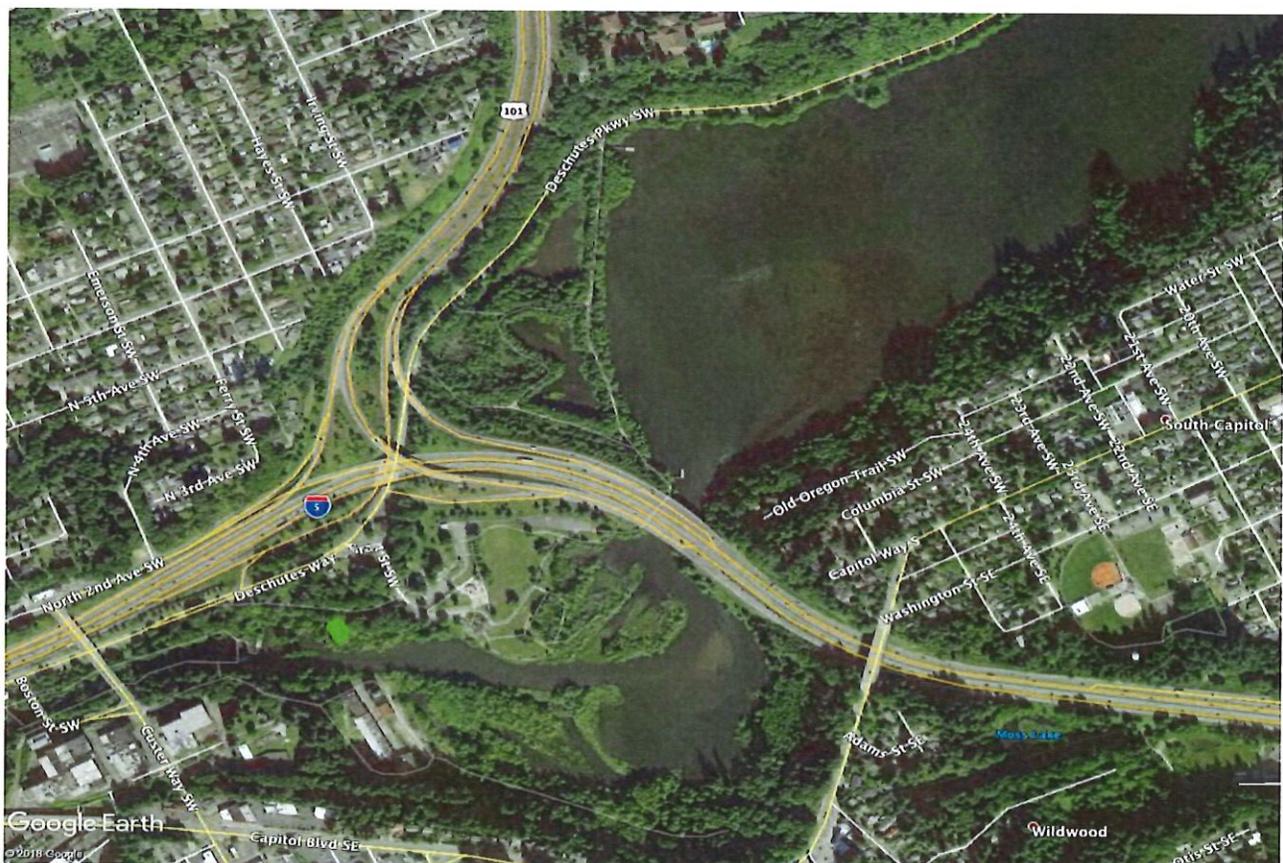
The Thurston County Noxious Weed Board and the City of Tumwater should both be regularly notified of the issue.

Proposed Management

As discussed, any Japanese Knotweed infestation found on DES property will be controlled accordingly. If any knotweed is found on DES property than a spray solution of 2% Glyphosate, 1% Imazapyr and a foliar application between the months of mid-July to mid-September will be used in treatment.

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

The following mapped location of Japanese Knotweed is not on Department of Enterprise Services property.



Tansy Ragwort (Senecio jacobaea)

Capitol Lake - 2018 Tansy Ragwort



Assessment

Tansy Ragwort is a Class C noxious weed in Thurston County. Control is required when 25 or more plants are present in an area of 20 acres or less. The area may include more than one parcel if the area is under the same ownership.

The 2018 survey observed new plants in a couple locations. The infestation did not meet Thurston County treatment requirements but we did treat the plants that were found to reduce the expansion of the infestation.

Control Activities

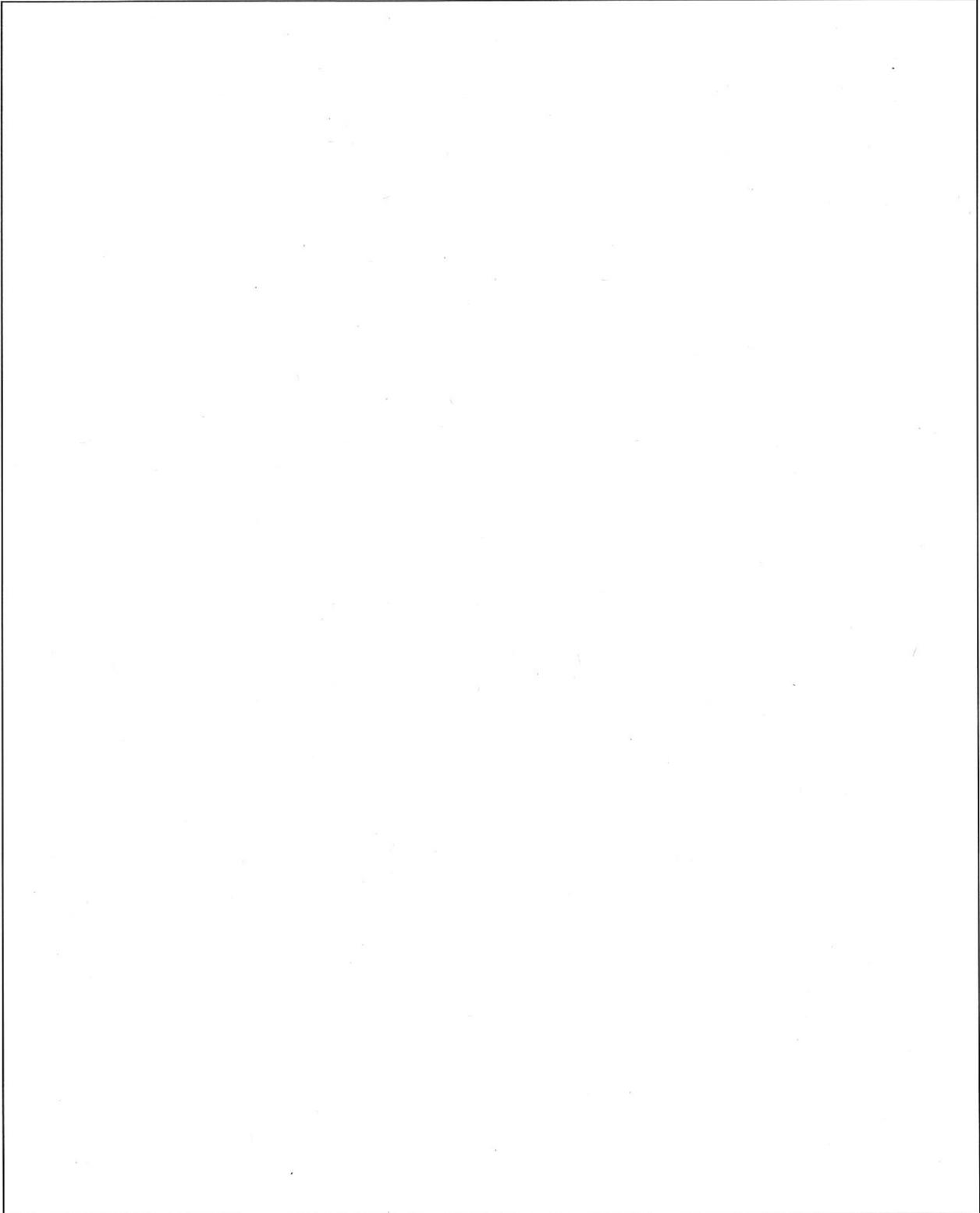
The individual plants were treated with the same herbicide as the Yellow Flag Iris and Purple Loosestrife.

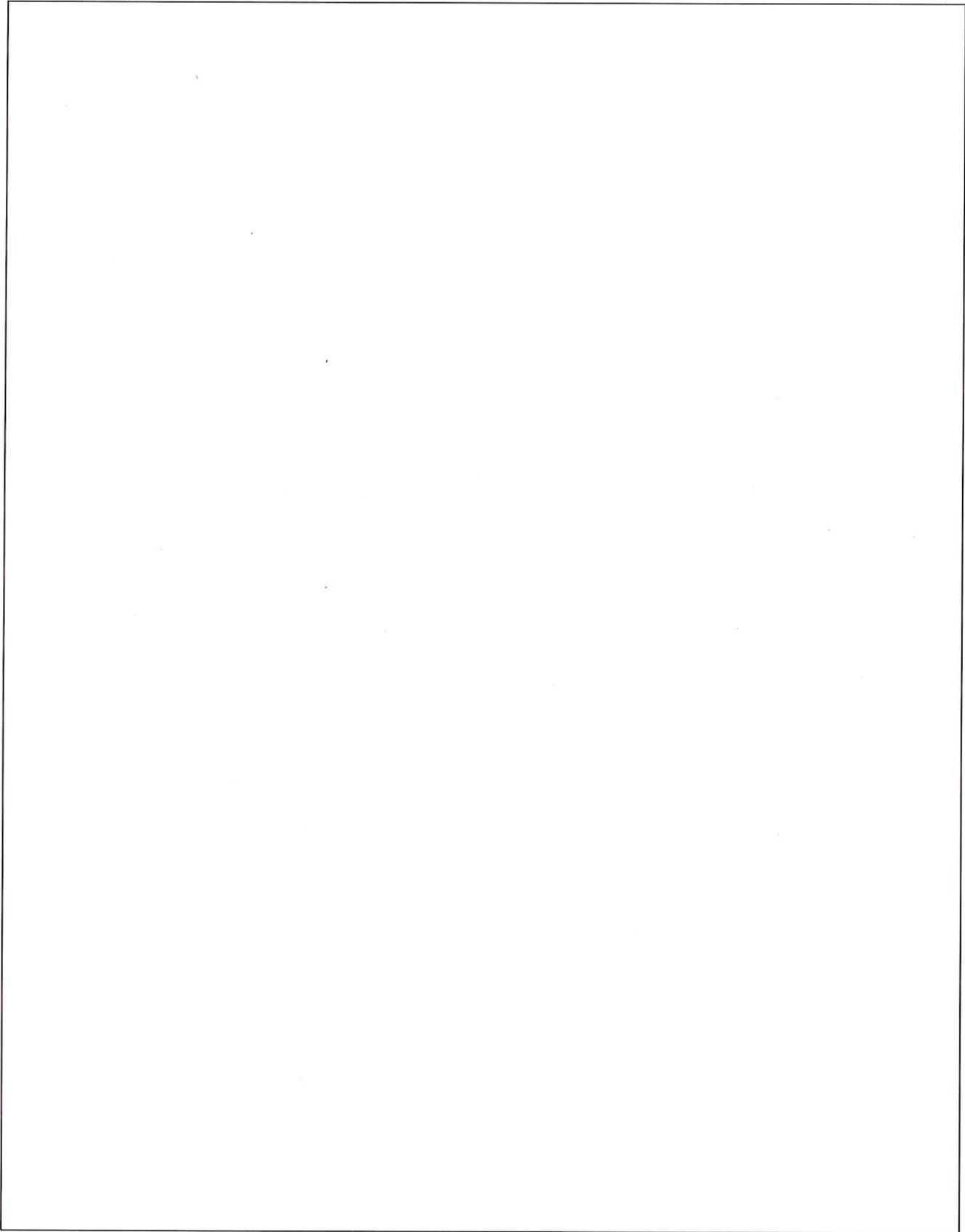
Proposed Management

Any future plants that are discovered will be treated to keep the infestation low.

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

August 21, 2018

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
Capitol Lake	Thurston	13 - Deschutes	Purple Loosestrife, Yellow Flag Iris	Glyphosate
Capitol Lake	Thurston	13 - Deschutes	Purple Loosestrife, Yellow Flag Iris	Imazapyr
Green River	Pierce	9 - Duamish- Green	Blackberry	Triclopyr TEA
Green River Natural Resources Area	Pierce	9 - Duamish- Green	Purple Loosestrife	Imazapyr
Lake St Clair	Thurston	11 - Nisqually	Yellow Flag Iris	Imazapyr
Percival Creek	Thurston	13 - Deschutes	Yellow Flag Iris	Imazapyr
Private Farm Pond	Lewis	23 - Upper Chehalis	Yellow Flag Iris, Purple Loosestrife, Blackberry	Imazapyr
Private Property Near Lake Minterwood	Pierce	15 - Kitsap	Yellow Flag Iris	Imazapyr
Private Property Wetland	Thurston	13 - Deschutes	Purple Loosestrife	Imazapyr

Small Stream	Thurston	13 - Deschutes	Yellow Flag Iris	Imazapyr
Sunset Lake	Thurston	13 - Deschutes	Yellow Flag Iris	Imazapyr
Union Bay	King	8 - Cedar-Sammamish	Purple and Garden Loosestrife	Imazamox

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 3, 2017.

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, 2018. Direct in-water treatment of aquatic weeds is not allowed under this agreement.

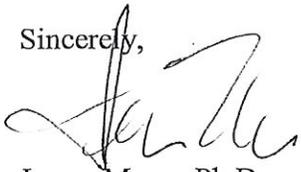
The above-named entity agrees to comply with all terms, conditions, and requirements included or referenced in the Application for Limited Agent Status, Permit and appropriate state, federal and local laws. WSDA issues this Letter of Limited Agent Status in specific reliance on the representations and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

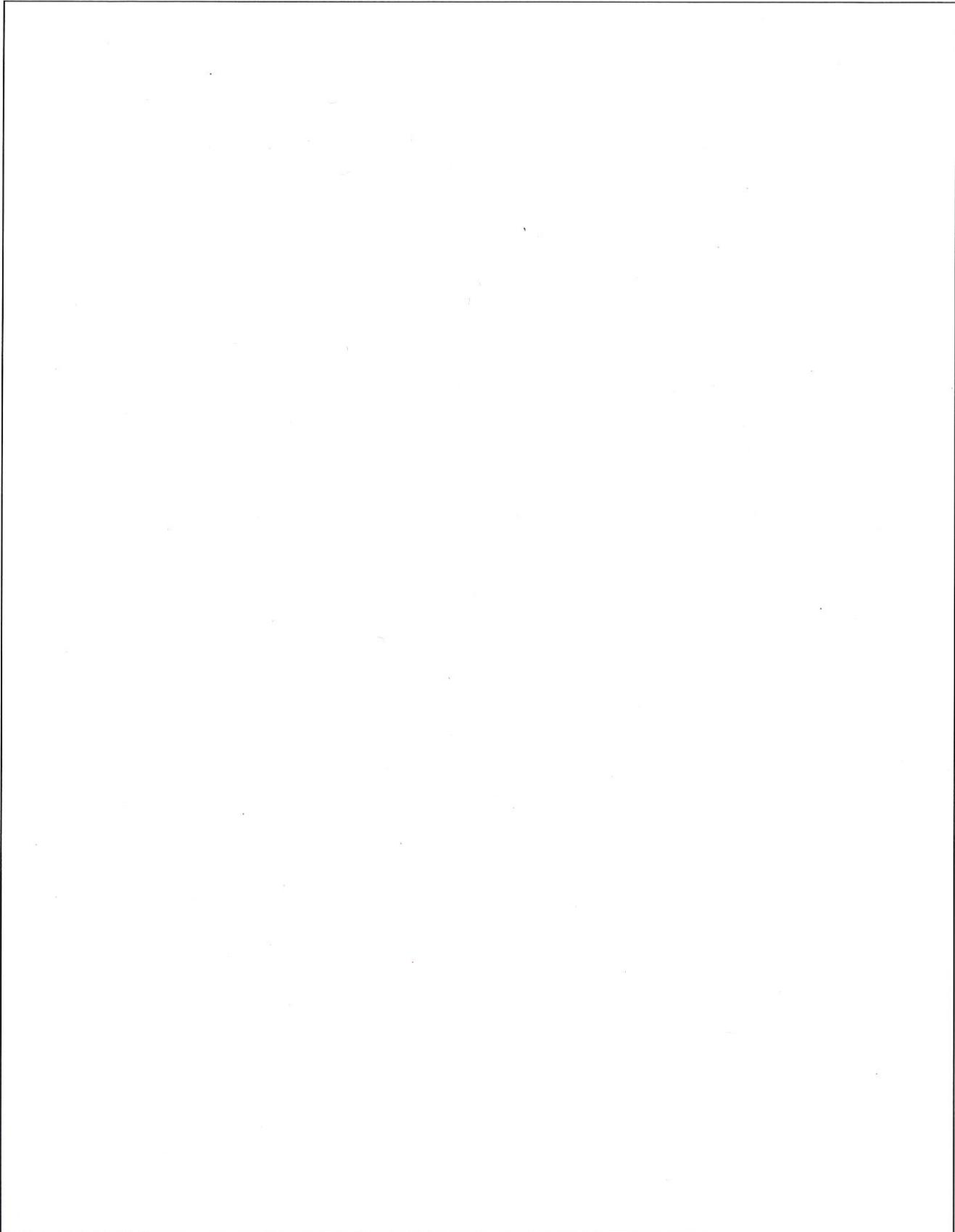
If any notification to WSDA is required under the Application for Limited Agent Status, that notification must be made to James Marra at (360) 902-2071 or jmarra@agr.wa.gov.

Sincerely,



James Marra, Ph.D.
Pest Program Manager

Appendix B – Application Records - Yellow Flag Iris and Purple Loosestrife





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: 2018 Month: June Day: 20

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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)	Department of Enterprise Services, Capitol Lake	1.5 Gals	Spot Treatment	8 AM	75		8
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris	5 PM			
2. a)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife				
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							



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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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Competitor	2935-04001	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:

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						DIR	VEL (mph)
1. a)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a)	Department of Enterprise Services, Capitol Lake	1.0 Gal	Spot Treatment	5 PM	75		6
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	630 PM			
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							



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

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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) Department of Enterprise Services, Capitol Lake	.25 Gal	Spot Treatment	8 AM	65	SW	5
b) 1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris	3:30 PM			
2. a) Department of Enterprise Services, Capitol Lake		Spot Treatment				
b) 1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosetrife				
3. a)						
b)						
4. a)						
b)						
5. a)						
b)						
6. a)						
b)						
7. a)						
b)						
8. a)						
b)						



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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: 2018 Month: July Day: 18

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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) Department of Enterprise Services, Capitol Lake		Spot Treatment				
b) 1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a) Department of Enterprise Services, Capitol Lake	.5 Gal	Spot Treatment	6 AM	65	VAR	LGT
b) 1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	12:30 PM			
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: 2018 Month: July Day: 25

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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--Phosphatidicholine methylacetic acid and alkyl polyoxyethylene ether</u>	<u>034704-50035</u>	<u>2 Quarts/100 Gallons</u>
<u>Nufarm Polaris Herbicide (Imazapyr)</u>	<u>228-534</u>	<u>6 Quarts / 100 Gallons</u>
<u>Competitor</u>	<u>2935-04001</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>Department of Enterprise Services, Capitol Lake</u>		<u>Spot Treatment</u>				
b)	<u>1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480</u>		<u>Yellow Flag Iris</u>				
2. a)	<u>Department of Enterprise Services, Capitol Lake</u>	<u>1 Gal</u>	<u>Spot Treatment</u>	<u>6 AM</u>	<u>83</u>	<u>VAR</u>	<u>3</u>
b)	<u>1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480</u>		<u>Purple Loosestrife</u>	<u>4 PM</u>			
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							



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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: 2018 Month: July Day: 29

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a)	Department of Enterprise Services, Capitol Lake	.75 Gal	Spot Treatment	9 AM	83	VAR	3
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	1 PM			
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: 2018 Month: August Day: 01

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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) Department of Enterprise Services, Capitol Lake		Spot Treatment				
b) 1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a) Department of Enterprise Services, Capitol Lake	3.5 Gal	Spot Treatment	10 AM	73	VAR	3
b) 1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	4 PM			
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: 2018 Month: August Day: 10

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a)	Department of Enterprise Services, Capitol Lake	1.5 Gal	Spot Treatment	6 AM	68	VAR	3
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	2 PM			
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: 2018 Month: August Day: 15

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a)	Department of Enterprise Services, Capitol Lake	.5 Gal	Spot Treatment	11 AM	85	VAR	9
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	3 PM			
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							



PESTICIDE APPLICATION RECORD (Version 4)

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Pesticide Management Division
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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: 2018 Month: August Day: 21

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a)	Department of Enterprise Services, Capitol Lake	.75 Gal	Spot Treatment	1 PM	83		9
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	5 PM			
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							



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Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
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(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: 2018 Month: August Day: 22

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a)	Department of Enterprise Services, Capitol Lake	.75 Gal	Spot Treatment	1 PM	78		9
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Purple Loosestrife	5 PM			
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							



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Pesticide Management Division
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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: 2018 Month: September Day: 09

B. Firm Name: Northwest Aquatic Management LLC Telephone No.: (360) 870-4362

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

Street Address: 9727 Hwy 12 W #369 City: Rochester State: WA Zip: 98579

C. Name of person(s) who applied the pesticide: Kyle Steelhammer

License No(s): 90015

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
Nufarm Polaris Herbicide (Imazapyr)	228-534	6 Quarts / 100 Gallons
Competitor	2935-04001	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)	Department of Enterprise Services, Capitol Lake		Spot Treatment				
b)	1500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Yellow Flag Iris				
2. a)	Department of Enterprise Services, Capitol Lake	.25 Gal	Spot Treatment	6 AM	63	VAR	3
b)	51500 Jefferson Street SE, PO Box 41480, Olympia, WA 98504-1480		Tansy Ragwort	2:30 PM			
3. a)							
b)							
4. a)							
b)							
5. a)							
b)							
6. a)							
b)							
7. a)							
b)							
8. a)							
b)							