

Henry M. Jackson Hydroelectric Project  
FERC No. 2157

**TERRESTRIAL RESOURCES 2019 ANNUAL  
REPORT**



**April 2020**

**Submitted by:**



Public Utility District No.1 of Snohomish County

**Final** – This document has been prepared for the District. It has been peer-reviewed by the District for accuracy and formatting based on information known at the time of its preparation and with that understanding is considered complete by the District. The document may be cited as:

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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>iv</b>
<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>2. TERRESTRIAL RESOURCES MANAGEMENT PLAN .....</b>	<b>4</b>
2.1. PRIOR YEARS' SUMMARY – 2016 - 2018 .....	4
2.1.1. Snags, Decaying Live Trees and Coarse Woody Debris .....	4
2.1.2. Right-Of-Way Management.....	7
2.1.3. Waterfowl Nest Boxes .....	8
2.1.4. Stewardship Activities or Observations of Note .....	8
2.2. WORK COMPLETED IN 2019.....	9
2.2.1. Snags, Decaying Live Trees and Coarse Woody Debris .....	9
2.2.2. Right-Of- Way Management.....	14
2.2.3. Waterfowl Nest Boxes .....	14
2.2.4. Lake, Wetland and Stream Buffers .....	14
2.2.5. Stewardship Activities or Observations of Note .....	14
2.3. WORKED PLANNED FOR 2020 .....	15
2.3.1. Snags, Decaying Live Trees and Coarse Woody Debris .....	15
2.3.2. Right-Of-Way Management.....	15
2.3.3. Waterfowl Nest Boxes .....	15
2.3.4. Lake, Wetland and Stream Buffers .....	15
2.4. ISSUES OR PROPOSEDCHANGES .....	16
<b>3. NOXIOUS WEED MANAGEMENT PLAN .....</b>	<b>16</b>
3.1. PRIOR YEARS' SUMMARY – 2016 - 2018 .....	16
3.2. WORK COMPLETED IN 2019 .....	17
3.2.1. Lost Lake Tract Treatment and Monitoring .....	17
3.2.2. Spada Lake Tract Treatment and Monitoring.....	17
3.2.3. Williamson Creek Tract Treatment and Monitoring .....	17
3.2.4. Project Facility Lands Treatment and Monitoring .....	17
3.2.5. Annual Review of Noxious Weed List .....	18
3.2.6. Update of Species-Specific Management Methods .....	18
3.3. WORK PLANNED FOR 2020 .....	18
3.4. ISSUES OR PROPOSEDCHANGES .....	18

<b>4. MARBLED MURRELET HABITAT PROTECTION PLAN .....</b>	<b>18</b>
4.1. PRIOR YEARS' SUMMARY – 2016 - 2018 .....	18
4.2. WORK COMPLETED IN2019.....	19
4.3. WORK PLANNED IN2020 .....	19
4.4. ISSUES OR PROPOSEDCHANGES .....	19

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## LIST OF APPENDICES

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Appendix A	Noxious Weed Control Figures
Appendix B	Consultation Documentation Regarding Draft Report

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## LIST OF TABLES

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Table 2-1	Woody habitat structure management, 2017. ....	6
Table 2-2	Waterfowl nest box use on the Lost Lake Tract – 2016 and 2017. ....	8
Table 2-3	Incidental Wildlife Observations in 2016 and 2017. ....	8
Table 2-4	Snag, decaying live tree, and coarse woody debris creation in 2018. ....	13
Table 2-5	Waterfowl nest box use on the Lost Lake Tract in 2018. ....	14
Table 2-6	Incidental wildlife observations on Project lands – 2018. ....	15

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## LIST OF FIGURES

---

Figure 1-1	Location of Project and Terrestrial Resource Management Plan Tracts.....	2
Figure 2-1	Woody habitat structure creation at Spada Lake Tract, 2016-2017.....	5
Figure 2-2	Nest boxes at Lost Lake.....	11
Figure 2-3	Woody habitat structure creation on the Spada Lake Tract, 2018. ....	12

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**LIST OF ACRONYMS AND ABBREVIATIONS**

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City	City of Everett, Washington
CWD	coarse woody debris
District	Public Utility District No. 1 of Snohomish County
DLT	decaying live trees
DNR	Washington Department of Natural Resources
FERC	Federal Energy Regulatory Commission
MMHPP	Marbled Murrelet Habitat Protection Plan
NWMP	Noxious Weed Management Plan
Project	Henry M. Jackson Hydroelectric Project, FERC No. 2157
RRMP	Recreation Resource Management Plan
ROW	right-of-way
SCNWCB	Snohomish County Noxious Weed Control Board
SRCT	Sultan River Canyon Trail
Tribes	Tulalip Tribes of Washington
TRMP	Terrestrial Resources Management Plan
WDFW	Washington Department of Fish and Wildlife
WHMP	Wildlife Habitat Management Plan
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service Mt. Baker-Snoqualmie National Forest

## EXECUTIVE SUMMARY

Activities accomplished during 2019 on the Terrestrial Resource Management Plan (TRMP), Noxious Weed Management Plan (NWMP), and Marbled Murrelet Habitat Protection Plan (MMHPP) for the Henry M. Jackson Hydroelectric Project (Project) are summarized in this report. Implementation of these three plans was initiated following the Federal Energy Regulatory Commission (FERC) Order Issuing New License effective on 2 September 2011. Requirements of each plan were met during the 2019 calendar year. No significant changes are proposed for the management plans. At the request of Washington Department of Fish and Wildlife, expressed during the 2012 annual report and meeting, the same number of woody habitat structures (snags, decaying live trees, and coarse woody debris) will be created as specified in the TRMP, but standing structures will be created in place of some of the coarse woody debris. Also, the TRMP nest box program was altered to include an additional monitoring visit during the nesting season. Tasks scheduled for 2020 are also presented.

### Tasks Accomplished during 2019

- Created snags, decaying live trees, coarse woody debris logs and canopy gaps on the Spada Lake Tract to promote mature forest characteristics in younger aged stands.
- Implemented an intensive effort to manage noxious and invasive weeds on all TRMP tracts of land, with a concentrated effort to control weed infestations within the Spada Lake Reservoir watershed.
- Maintained and monitored waterfowl nest boxes at Lost Lake.
- Preserved and protected old growth forest, wetlands, and riparian forest on Project land.
- Followed the restrictions of the MMHPP in all Project related activities, including implementation of the Recreation Resources Management.
- District biologists coordinated with Project staff on work activities related to implementation of the TRMP, NWMP, and MMHPP to ensure that all Project activities were accomplished in accordance with plans.

### Tasks Scheduled for 2020

- Evaluate approximately 200 acres of land on the Spada Lake Tract for creation of decaying live trees, snags, coarse woody debris logs and canopy gaps, some of which will have woody habitat structure creation occurring for the second time under the existing FERC license.
- Continue to manage noxious and invasive weeds on all TRMP tracts of land.
- Continue preservation and protection of old growth forest, wetlands, and riparian forest on Project lands.
- Continue to maintain and monitor waterfowl nest boxes at Lost Lake.
- Finalize planning for long-term woody habitat structure monitoring program.
- Continue coordination with engineering and operations & maintenance staff on Project activities to ensure that the TRMP, NWMP and MMHP are considered when activities are being planned and adhered to when activities are conducted.

## 1. INTRODUCTION

The Terrestrial Resource Management Plan (TRMP), Noxious Weed Management Plan (NWMP), and Marbled Murrelet Habitat Protection Plan (MMHPP) for the Henry M. Jackson Hydroelectric Project (Project) are requirements under the Federal Energy Regulatory Commission (FERC) Order Issuing New License, issued on 2 September 2011 (136 FERC 62, 188), Ordering Paragraph E, License Appendix B, Condition 2; and Article 411 Marbled Murrelet Habitat Protection Plan. This 2019 Annual Progress Report for the TRMP, NWMP, and MMHPP was prepared by Public Utility District No. 1 of Snohomish County (the District) as required by each of these plans.

The TRMP describes the actions the District will take to protect, mitigate and enhance terrestrial resources associated with the Project on four management tracts (Figure 1-1). The TRMP was prepared in consultation with the U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service Mt. Baker-Snoqualmie National Forest (USFS), Washington Department of Fish and Wildlife (WDFW), and the Tulalip Tribes (Tribes). The plan guides the management of approximately 4,456 acres of land and water within the Project boundary. The TRMP is available on the District's web site via the following link:

<https://www.snopud.com/PowerSupply/hydro/jhp/jhpwild.ashx?p=1504>

Habitat enhancement methods are incorporated in the TRMP for forest vegetation management, including old growth, young forest and understory management; lake, wetland and stream buffers; snags, decaying live trees and coarse woody debris; right-of-way management; and waterfowl nest boxes on the four tracts. The TRMP describes the existing habitat conditions and values, management constraints and habitat management objectives, methods and prescriptions for each tract. It also describes monitoring and reporting requirements and provides a schedule for implementation.

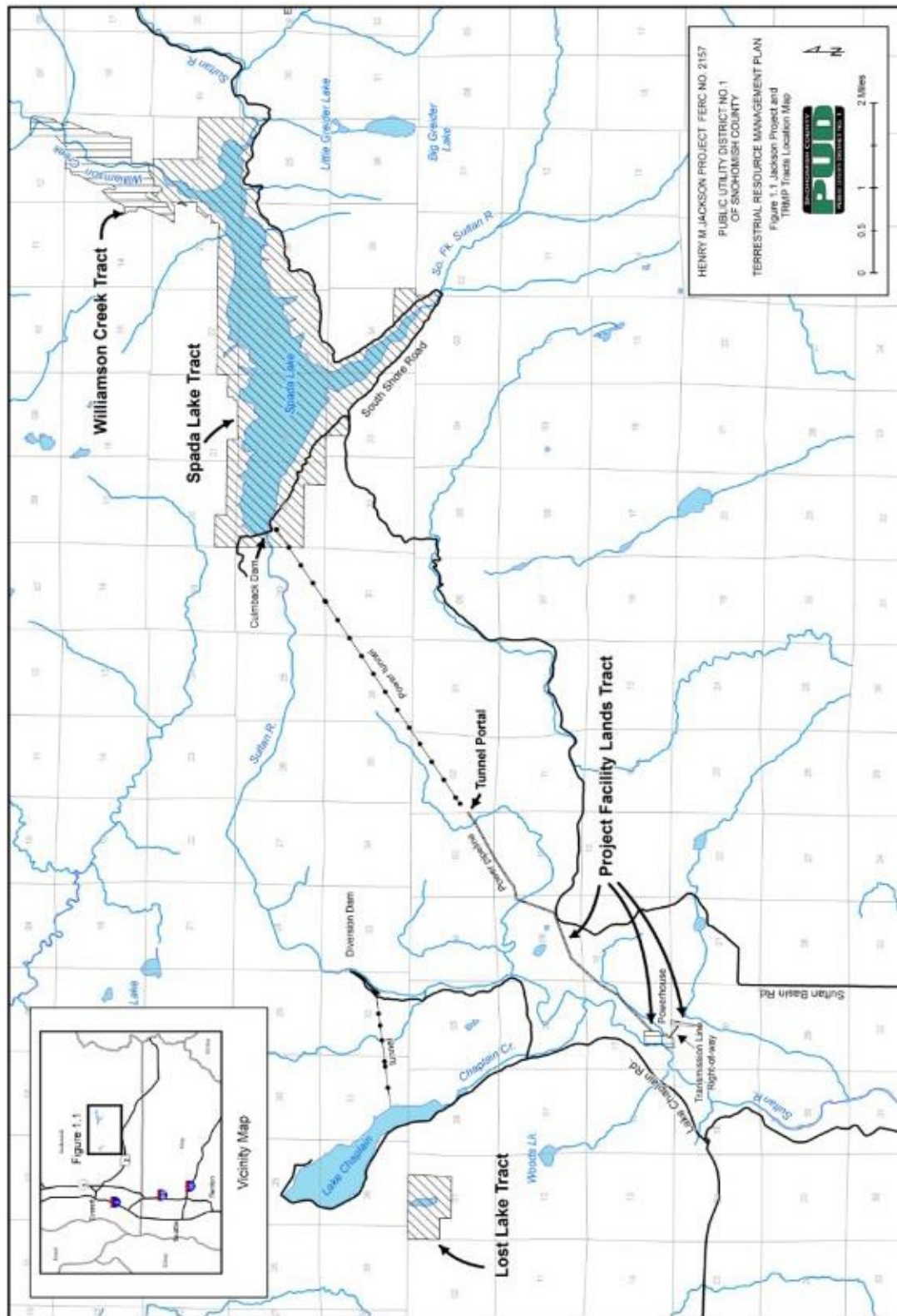
A report must be prepared and submitted to the USFWS, WDFW, and the Tribes annually and submitted to FERC every five years. Reports document and summarize implementation of the TRMP during the intervening period and identify activities planned for the next period.

Monitoring data is presented in summary form and analyzed. Problems and proposed changes in the TRMP, if any, are discussed. Review meetings are offered to the USFWS, WDFW and Tribes by the District, to discuss information included in the reports. This report represents the 2019 annual report to the Agencies, details activities that occurred in that year, and those that are planned for the following year.

The NWMP describes the District's strategy for controlling and containing the spread of Class A, Class B Designate, and Snohomish County Selected noxious weeds, as well as other weeds the District manages within the Project boundary. The NWMP was developed in consultation with the Snohomish County Noxious Weed Board (SCNWB), the City of Everett (City), Washington Department of Natural Resources (DNR), USFWS, WDFW and USFS. The NWMP is available on the District's web site via the following link:

<https://www.snopud.com/PowerSupply/hydro/jhp/jhpwild.ashx?p=1504>





**Figure 1-1 Location of Project and Terrestrial Resource Management Plan Tracts.**



The NWMP includes:

- A list of Washington State Class A, Washington State Class B Designate and Snohomish County Selected Noxious Weeds, updated annually to reflect changes in State and County lists
- A summary of Washington State Class A, Washington State Class B Designate, Snohomish County Selected, and other target species of noxious weeds occurring within the Project boundary based on ongoing weed management work and the 2007 Noxious Weed Inventory
- A summary of ongoing weed management activities on Project lands
- Treatment options and recommendations for established and new infestations of target weed species, including management goals, measurable objectives, and priorities for treatment
- Prevention strategies (e.g., weed prevention practices for ground disturbing work, revegetation methods, and education information for Project employees)
- Monitoring and implementation schedules

The NWMP also includes annual consultation with SCNWCB and the other stakeholders. The annual consultation includes updates to the noxious weed list, a summary of weed management actions taken since the previous report, and periodic (five-year) review of plan accomplishments and updates of lists and appendices, prepared in consultation with the stakeholders. This information is provided to FERC as part of each five-year TRMP report.

The MMHPP was developed after surveys by the District and others documented the presence of marbled murrelets (a federal Endangered Species Act (ESA) listed threatened species) in the Sultan Basin, which resulted in the designation of portions of the forest in and near the Project boundary as “occupied” by nesting marbled murrelets. The MMHPP describes specific measures that the District will implement to avoid or minimize Project-related impacts to marbled murrelets and their habitat. Three general types of Project-related activities are addressed in the plan: 1) pruning, topping and felling of road-side danger trees; 2) over story thinning and creation of snags, decaying live trees, coarse woody debris and forest canopy gaps during implementation of the TRMP; and 3) the creation of new recreation trails and associated facilities as required in the Recreation Resource Management Plan (RRMP) under License Article 413.

In February 2011, the District updated the MMHPP to incorporate requirements of the USFWS Biological Opinion, Incidental Take Statement, Reasonable and Prudent Measures and Terms and Conditions for the proposed issuance of the license for the Project. These measures were reviewed by the Settlement Parties and USFWS concurred with the update. The updated MMHPP was included in the new license for the Project under Article 411. The MMHPP is available on the District’s website via the following link:

<https://www.snopud.com/PowerSupply/hydro/jhp/jhpwild.ashx?p=1504>

License Article 411 approved the MMHPP and specified that survey results and field notes of monitoring efforts for marbled murrelets will be documented and sent to the USFWS in conjunction with the TRMP annual reports for any year that surveys are conducted, or maps are updated. The MMHPP states that at least every 10 years, the District will update the Project marbled murrelet habitat maps to reflect current habitat conditions. The District may conduct surveys for nesting marbled murrelets in all suitable habitat that is not known to be occupied and has not been surveyed for 10 years or more. If the District chooses not to survey suitable habitat, such habitat will be considered occupied for purposes of the MMHPP and will be

described in the applicable report and update of the MMHPP.

Article 411 requires that at least every 10 years, the District will file for Commission approval, an updated MMHPP developed in consultation with USFWS and WDFW. Activities related to the MMHPP during 2019 are noted in this report.

## **2. TERRESTRIAL RESOURCES MANAGEMENT PLAN**

### **2.1. PRIOR YEARS' SUMMARY – 2016 - 2018**

This section includes background explanations of activities, and results summarized from the previous years' reports, for activities occurring since the beginning of the current 5-year reporting period (2016).

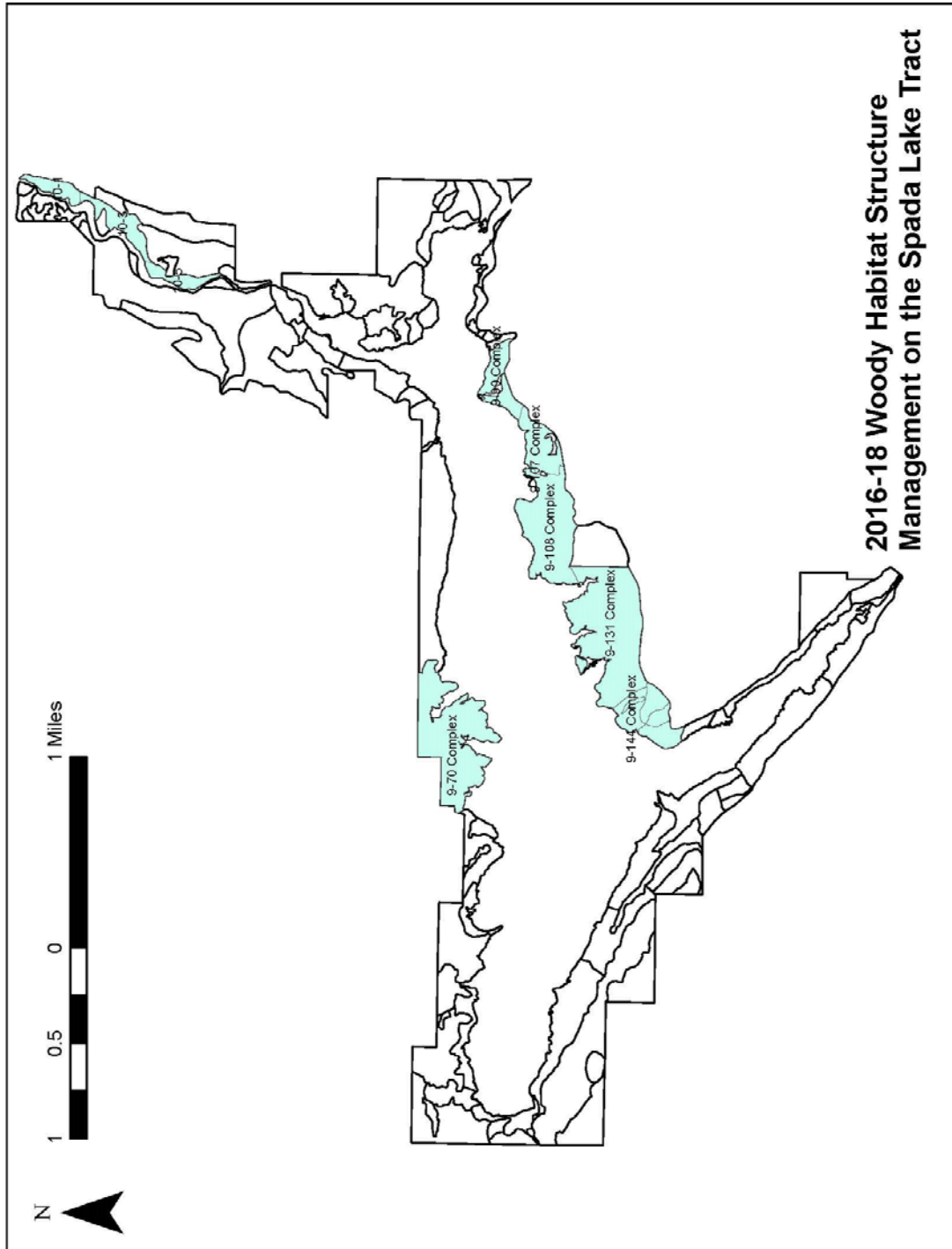
#### ***2.1.1. Snags, Decaying Live Trees and Coarse Woody Debris***

TRMP management measures include the creation of snags, decaying live trees (DLTs) and coarse woody debris (CWD) from live trees, across the four tracts of land, exclusive of old-growth forest; these components are collectively referred to as "woody habitat structures" in this report. Trees are selected from the largest size class and are typically clustered in groups of about 30 trees, called "canopy gaps". Canopy gaps are usually triangular in shape, with the base of the triangle being on the south or southwest side in an effort to maximize light penetration to the forest floor during the growing season, to encourage understory growth. The apex of the triangle is typically on the north or northeast end. The target gap size is 0.10 to 0.25 acre, depending on local limitations.

Forest stands on the Spada Lake Tract were harvested in the 1960s and most have stem densities greater than 450 trees per acre. Gap size on the Spada Lake Tract is often limited by the presence of numerous drainages and their required buffers. The base of a typical gap within the tract measures about 120 feet, with the height of the triangle also being about 120 feet (7,200 square feet; 0.16 acres).

Stand age on the Lost Lake Tract is typically around 75 years, with a selective harvest having been performed in the 1980s. The result, compared to the Spada Lake Tract, is stands of lower density that are much more heterogeneous including individuals and pockets of deciduous trees. Due to lower stand density, average tree diameter and canopy coverage per tree is much greater than a Spada Lake. Consequently, fewer trees are required to be topped or felled in one area on the Lost Lake Tract to achieve a canopy gap similar in size to those at Spada Lake. A typical gap at Lost Lake contains 5-10 trees, and averages about 0.15 acres. Woody habitat structures may also be created individually or in smaller groups, as needed to maintain appropriate distribution and based on habitat limitations.

From 2016-2018, a total of 480 acres, comprised of 9 stand complexes were treated resulting in 3,382 woody habitat structures being created. Some units include areas of excessively steep terrain or unstable slopes where creation of canopy gaps could increase slope instability. In these areas, fewer than the required 7 structures per acre were created. Where possible, the quantity created in adjacent units was increased to remedy this shortfall. Figures 2-1 and Table 2-1 show woody habitat structure management on TRMP lands during this period.



**Figure 2-1** Woody habitat structure creation at Spada Lake Tract, 2016-2018.

**Table 2-1 Woody habitat structure management, 2016-2018.**

<b>UNIT and YEAR creation occurred*</b>		<b>Spada 9-70 Complex</b>	<b>Spada 9-131 Complex</b>	<b>Spada 9-90 Complex</b>	<b>Spada 9-107 Complex</b>	<b>Spada 9-108 Complex</b>
<b>ACRES TREATED (Total 392)</b>		<b>124.1</b>	<b>130.5</b>	<b>23.8</b>	<b>29.6</b>	<b>84.0</b>
<b>DECAYING LIVE TREES</b>						
Total 2,307	<b># CREATED</b>	778	787	123	164	455
	<b>AVG DBH (in.)</b>	13.9	14.4	14.0	15.5	15.5
	<b>AVG HT (ft.)</b>	68.6	67.6	67	57	66.8
	<b>#/ACRE</b>	<b>6.3</b>	<b>6.1</b>	<b>5.2</b>	<b>6.0</b>	<b>5.4</b>
<b>SNAGS</b>						
Total 487	<b># CREATED</b>	189	107	43	32	116
	<b>AVG DBH (in.)</b>	13.1	13.6	12.5	13.4	13.6
	<b>AVG HT (ft.)</b>	66.8	64.5	63	53	59
	<b>#/ACRE</b>	<b>1.5</b>	<b>0.8</b>	<b>1.8</b>	<b>1.2</b>	<b>1.4</b>
<b>COARSE WOODY DEBRIS</b>						
Total 56	<b># CREATED</b>	22	16	0	1	17
	<b>AVG DBH (in.)</b>	11.8	12.7	0	11.2	11.7
	<b>#/ACRE</b>	<b>0.2</b>	<b>0.1</b>	<b>0.0</b>	<b>0.03</b>	<b>0.2</b>
<b>TOTAL #/ACRE</b>	<b>#/ACRE</b>	<b>8.0</b>	<b>7.0</b>	<b>7.0</b>	<b>7.2</b>	<b>7.0</b>

Table 2-1 (cont.) Woody habitat structure management, 2016-2018.

UNIT and YEAR creation occurred*		Williamson Creek Stand 10-1	Williamson Creek Stand 10-3	Williamson Creek Stand 10-5	Spada Stand 9-144 Complex	
<b>ACRES TREATED (88 Total)</b>		<b>12.6</b>	<b>20.0</b>	<b>11.4</b>	<b>44.0</b>	
<b>DECAYING LIVE TREES</b>						
Total 530	# CREATED	180	0	76	274	
	AVG DBH (in.)	14.0	0	14.1	14.6	
	AVG HT (ft.)	61.0	0	56.3	55.1	
	<b>#/ACRE</b>	<b>14.3</b>	<b>0</b>	<b>6.7</b>	<b>6.2</b>	
<b>SNAGS</b>						
Total 51	# CREATED	24	0	4	23	
	AVG DBH (in.)	12.1	0	13.6	13.0	
	AVG HT (ft.)	56.7	0	45.0	55.4	
	<b>#/ACRE</b>	<b>1.9</b>	<b>0</b>	<b>0.4</b>	<b>0.5</b>	
<b>COARSE WOODY DEBRIS</b>						
Total 16	# CREATED	4	0	1	11	
	AVG DBH (in.)	13.4	0	11.0	12.6	
	<b>#/ACRE</b>	<b>0.3</b>	<b>0</b>	<b>0.1</b>	<b>0.3</b>	
<b>TOTAL #/ACRE</b>	<b>#/ACRE</b>	<b>16.6</b>	<b>0</b>	<b>7.1</b>	<b>7.0</b>	
NOTES: * Woody habitat structure creation did not occur in 2016.		Additional wildlife trees created to account for a lack of opportunity in Stand 10-3	Little opportunity to create wildlife trees within this stand			

### 2.1.2. Right-Of-Way Management

Noxious and invasive weed management remained the primary activity conducted on the pipeline right-of-way (ROW) in 2019. Since TRMP implementation began in late 2011, work on the pipeline right-of-way (ROW) has consisted largely of weed control, but also included placement of bottomless culverts to span three creeks between manholes P1 and P4. This project allows continuous access to the ROW without the use of adjacent roads that are not

under the District's control, as well as more expeditious monitoring of the pipeline in the event of seismic activity. Measures, including the use of gates, will be implemented as needed to ensure that unauthorized motor vehicle access does not increase as a result of the stream crossing placement.

### 2.1.3. Waterfowl Nest Boxes

A total of six nest boxes (Figure 2-2) are provided on the Lost Lake Tract and are monitored several times during the year. Maintenance occurs in February to ensure six boxes are provided at the beginning of each nesting season. A mid-nesting season visit occurs in early May to more accurately document use, with the final check and box clean out occurring in early June. Over the past 3 years, use has ranged from 16 to 33% (Table 2-2) with no clear preference for a particular box or location around the lake/wetland complex exhibited by any species.

**Table 2-2 Waterfowl nest box use on the Lost Lake Tract – 2016 - 2018.**

YEAR	WATERFOWL NEST BOX USE SUMMARY DATA
2016	1 of 6 boxes successfully used, fledging 7 wood ducks
2017	1 of 6 boxes successfully used, fledging 10 hooded mergansers
2018	2 of 6 boxes successfully used, fledging 19 hooded mergansers

### 2.1.4. Stewardship Activities or Observations of Note

District biologists met with Project staff to inform and educate them regarding the TRMP and worked with them to ensure that the TRMP was being followed during implementation of maintenance activities.

Table 2-3 provides a summary of incidental wildlife observations on Project mitigation land from 2016 and 2017. These are incidental only and are not part of a systematic monitoring program.

**Table 2-3 Incidental Wildlife Observations in 2016 - 2018.**

DATE	LOCATION	SPECIES	DESCRIPTION
2016			
4/1/16	Spada Lake	Loons	Swimming on Spada Lake
4/1/16	Spada Lake	Sooty Grouse	In tree along road north of Culmback Dam
4/1/16	Spada Lake	Cormorant	Several swimming on Spada Lake
4/1/16	Spada Lake	Wood Duck	2 or 3 swimming on Spada Lake
4/1/16	Spada Lake	Warbler	In brush at South Shore boat launch
4/1/16	Spada Lake	Common Merganser	Swimming on Spada Lake
4/1/16	Spada Lake	Mallard	Swimming on Spada Lake
4/1/16	Spada Lake	Canada Geese	Swimming on Spada Lake
5/5/16	Lost Lake	Black bear	Sow & cub crossing road near Lost Lake
5/16/16	Spada Lake	Bald Eagle	Pair flying overhead at Culmback Dam
5/26/16	Lost Lake	Wood Duck	Female with chicks on Lost Lake
5/26/16	Spada Lake	Common Merganser	4 pairs swimming in mouth of North Fork Sultan River
5/26/16	Spada Lake	Bald Eagle	Mature eagle flying over mouth of NF Sultan River
5/26/16	Spada Lake	Canada Geese	25 geese flying over Spada Lake
8/12/16	Spada Lake	Osprey	3 osprey flying over lake
8/12/16	Spada Lake	Golden Eagle	Flying along perimeter of lake

DATE	LOCATION	SPECIES	DESCRIPTION
<b>2017</b>			
2/14/17	Lost Lake	Pileated WP	Pair calling from east side of lake
2/14/17	Lost Lake	Bufflehead	1 pair swimming on lake
2/14/17	Lost Lake	Hooded Merganser	4 pair swimming on lake
2/14/17	Lost Lake	Mallard	5 pair swimming on lake
2/14/17	Lost Lake	Kestrel	Caught small songbird near fishing platform
4/8/17	Spada Lake	Western Tanager	Female in willows at South Shore recreation site
4/8/17	Spada Lake	Canada Geese	Several on shore at South Shore recreation site
4/27/17	Spada Lake	Ruby Crowned Kinglets	Flock at South Shore recreation site
6/1/17	Pipeline ROW	Black bear	2 adults foraging on ROW about ½ mile north of powerhouse
8/27/17	Spada Lake	Osprey	Calling from Bear Cr. drainage area in SE corner of tract
9/14/17	Spada Lake	Osprey	Again, heard calling from similar area as 8/27/17
DATE	LOCATION	SPECIES	DESCRIPTION
<b>2018</b>			
2/13/18	Lost Lake	Pileated Woodpecker	Calling from south end near ford
2/13/18	Lost Lake	Bufflehead	1 pair swimming on lake
2/13/18	Lost Lake	Hooded Merganser	1 pair swimming on lake
2/13/18	Lost Lake	Mallard	8 pair swimming on lake
2/13/18	Lost Lake	Otter	Latrine near duck box LL17
4/21/18	Spada	Grey-crowned Rosy Finch	Along Culmbach Dam Rd
5/3/18	Spada	Bald Eagle	Flying near old recreation Site 4
9/6/18	Spada	Otter	Swimming along south shore, east end of lake
9/6/18	Spada	Common Merganser	11 immature, swimming along south shore, east end of lake
9/6/18	Spada	Bald Eagle	Flying over east end of lake
9/6/18	Spada	Osprey	3 osprey observed over reservoir
9/6/18	Spada	Great blue heron	2 foraging in Williamson Cr mouth

## 2.2. WORK COMPLETED IN 2019

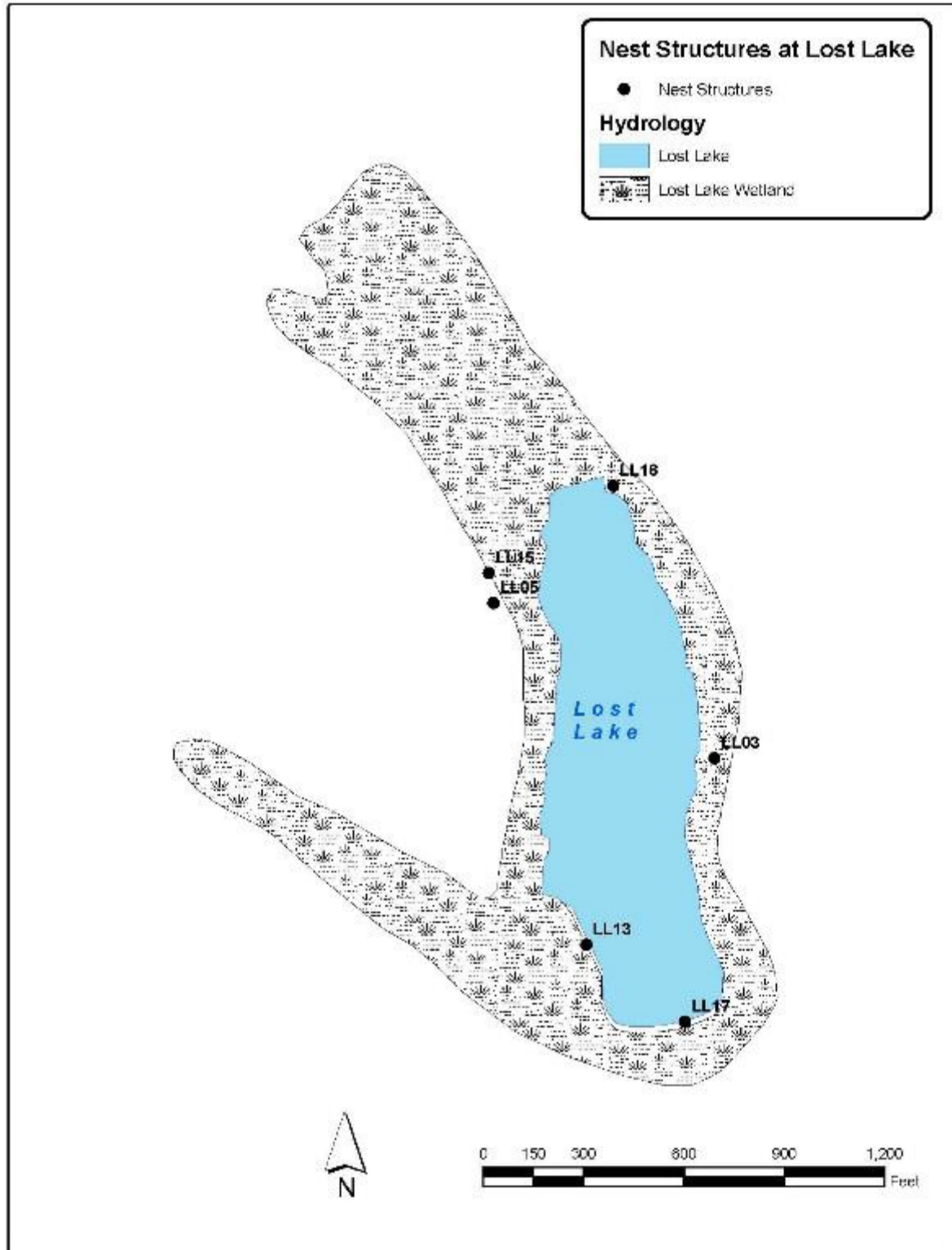
### 2.2.1. Snags, Decaying Live Trees and Coarse Woody Debris

TRMP management measures include the creation of woody habitat structures (snags, decaying live trees, and coarse woody debris) from live trees, on the 4 tracts of Project mitigation land. A brief history of land management as it relates to their creation is presented in Section 2.1.1.

In 2019, 1,234 woody habitat structures were created on 3 Spada Lake Tract stands/complexes totaling 175 acres (Figure 2-4, Table 2-4). A complex is one larger stand and multiple small stands (typically 1 acre or less) consolidated to allow easier management. Of the woody habitat structures created in 2018, 80 percent (1,000) were live-topped to become DLTs. These typically have at least 5 whorls of live limbs left to allow the tree to remain alive for at least several years following topping, in the hopes that infection by heart rotting fungus occurs.

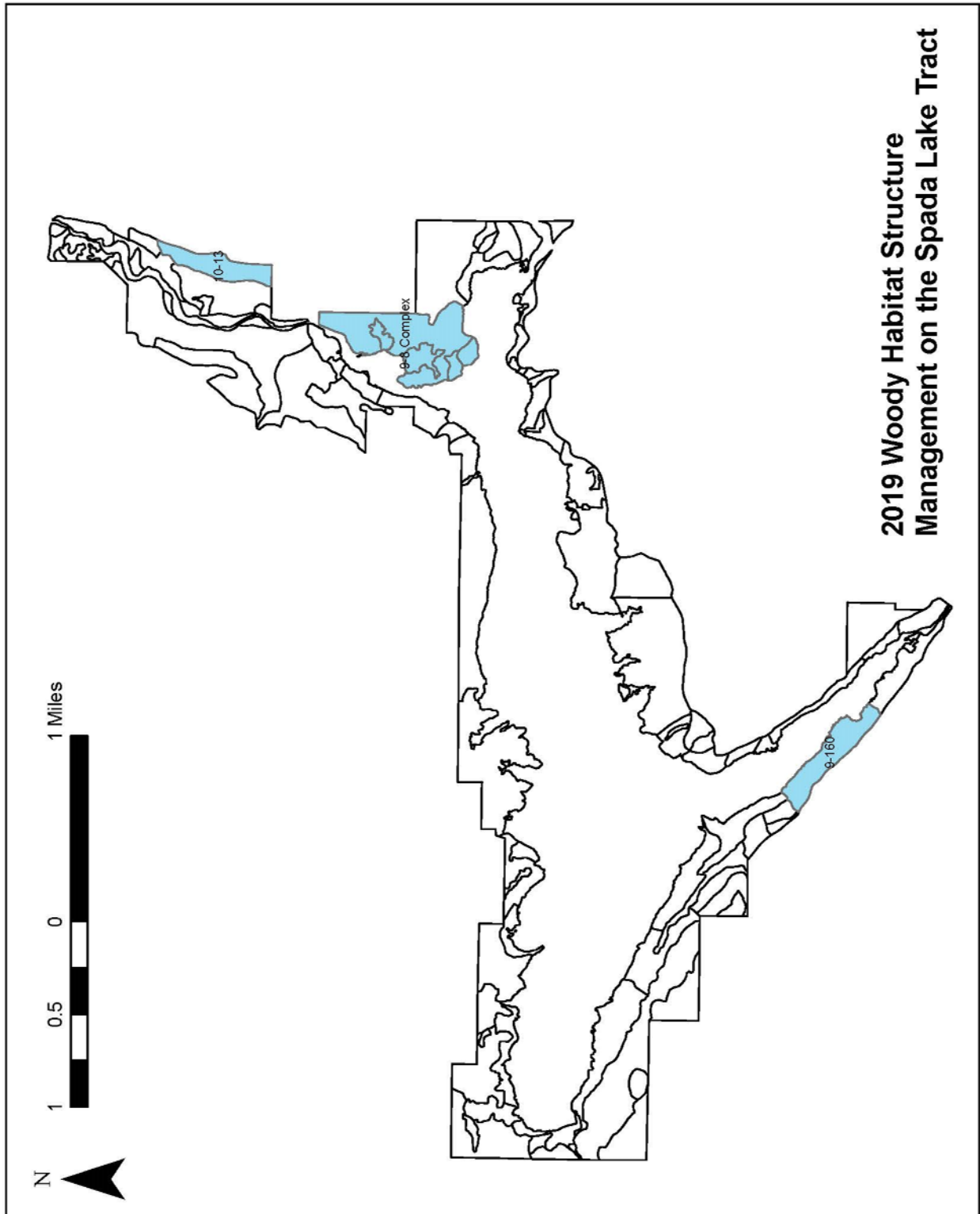


Typically, the largest trees are selected to be live-topped. As in the past, these woody habitat structures are typically created in groups to create an opening in the forest canopy. On the Spada Lake Tract, these groups are typically made up of 30 or more trees, due to the high density of stems. On the Lost Lake Tract, where trees are larger and less dense, groupings are typically 5-7 trees. In both cases, the objective is to create canopy gaps up to 0.25 acres in size.



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**Figure 2-2 Nest boxes at Lost Lake.**



**Figure 2-3** Woody habitat structure creation on the Spada Lake and Williamson Creek Tracts, 2019.

**Table 2-4 Snag, decaying live tree, and coarse woody debris creation in 2019.**

Unit or Stand Complex			2019; 175 acres; 1,234 created		
			Spada 9-8 Complex	Spada Stand 9-160	Williamson Creek Stand 10-13
ACRES TREATED 175.2					
DECAYING LIVE TREES					
Total 1,000		# CREATED	726	41	233
		AVG DBH (in)	14.7	15.4	14.6
		AVG HT (ft.)	74.8	62.8	61.1
		#/acre	5.5	0.8	6.2
SNAGS					
Total 131		# CREATED	114	0	17
		AVG DBH (in)	14.2	0	13.7
		AVG HT (ft.)	72.2	0	63.4
		#/acre	0.9	0	0.5
CWD					
Total 103		# CREATED	87	3	13
		AVG DBH (in)	12.4	11.2	12.6
		#/acre	0.6	0.1	0.4
TOTAL #/ACRE			7.0	0.9	7.1
	NOTES			Creation began in 2019 and will be completed in 2020	

### **2.2.2. Right-Of- Way Management**

Control of noxious weeds continued along the pipeline ROW, with Canada thistle, Hawkweed and Scotch broom being the species most often encountered.

### **2.2.3. Waterfowl Nest Boxes**

On the Lost Lake Tract, a total of six nest boxes were available for use during 2019, with two being used by cavity nesting waterfowl (Table 2-5). Boxes were checked, cleaned, repaired as needed, and provided with fresh nesting material on February 5. All boxes were visited again on May 7 and 20 to determine use, check for damage, and remove unwanted species, including native squirrels, starlings, and their nests, per WDFW request. Nests of native birds are not removed if found. Eggs were not moved or handled for counting during nest checks, therefore quantities should be considered low estimates. The locations of the six existing nest structures on the Lost Lake Tract are depicted in Figure 2-3.

**Table 2-5 Waterfowl nest box use on the Lost Lake Tract in 2019.**

<b>BOX #</b>	<b>RESULTS</b>
BOX 3	No use.
BOX 5	No use.
BOX 13	8 warm eggs found May 7. Remnants of 7+ eggshells found May 20; 8 Hooded mergansers fledged.
BOX 15	No use.
BOX 16	No use.
BOX 17	9 warm eggs found May 7. Remnants of 9 eggshells found May 20; 9 Hooded mergansers fledged.

### **2.2.4. Lake, Wetland and Stream Buffers**

Activities occurring within buffers included nest box maintenance and woody habitat structure creation, as described in the previous sections of this document. The buffer restrictions for snags, DLT and CWD described in the TRMP were followed, which allow only individual or small groupings of woody habitat structures to be made within 100 feet of a lake, wetland or stream. Within the remainder of the buffers, which may be up to 500 feet wide, gap sizes are restricted to 0.25 acres.

### **2.2.5. Stewardship Activities or Observations of Note**

Though potentially overshadowed in the annual report by proactive management, one of the key elements of the TRMP is the protection of old growth forests, wetlands and riparian areas on the four management tracts. The TRMP requires the preservation of 502 acres of existing old growth forest and promotion of old growth characteristics on 1,119 acres of second growth conifer forest. Approximately 57 acres of riparian forest and 40 acres of wetlands are protected from human disturbance and maintained as high-quality habitat under the TRMP. All management activities in 2019 considered these objectives. These habitat types were protected and received minimal management activity in 2019, primarily woody habitat structure creation within buffer zones. No overstory thinning, gap creation, snag creation or coarse woody debris creation occurred in old growth forest during 2019.

District wildlife biologists worked with Project staff throughout the year to ensure compliance with the TRMP.

Some incidental observations of wildlife species by District wildlife biologists and knowledgeable City of Everett personnel on TRMP lands are listed in Table 2-4. This list of observations is not the result of systematic surveys for wildlife but is included in this report simply to document the presence of these species on management lands.

**Table 2-6 Incidental wildlife observations on Project lands – 2019.**

DATE	LOCATION	SPECIES	DESCRIPTION
2/5/19	Lost Lake	Hooded Merganser	2 males 1 female swimming along eastern shore.
3/13/19	Lost Lake	Pileated Woodpecker	Calling from southern end of property
5/2/19	Williamson Creek	Black capped chickadee	Numerous, calling and flitting within tree canopy.
5/2/19	Williamson Creek	Grouse	Drumming on downed log.
5/2/19	Williamson Creek	Band-tailed pigeon	Calling among large cedar trees
5/2/19	Williamson Creek	Canada geese	Pair swimming in mouth of creek.
5/7/19	Spada	Bald Eagle	Flying near old recreation Site 4
7/9/19	Lost Lake	Gray Jay	5 or 6 flying in forest along east side of lake
8/25/19	Spada	Osprey	2 juveniles fledged near recreation site 3
9/11/19	Spada	Great blue heron	Juvenile near recreation site 3
10/11/19	Spada	Common loon	2 swimming along southern shoreline
10/23/19	Spada	Coastal giant salamander	Inside Culmback Dam spillway

## 2.3. WORKED PLANNED FOR 2020

### 2.3.1. Snags, Decaying Live Trees and Coarse Woody Debris

Creation of woody habitat structures will continue on the Spada Lake Tract to ensure that all TRMP lands have been evaluated for woody habitat structure creation by the end of 2020. The focus will be on stands where woody habitat structure creation began in prior years but was not completed, has not yet occurred, or where creation occurred more than 10 years ago. Approximately 225 acres will be evaluated and have woody habitat structures created, as needed, to meet the 10-year cycle outlined in the TRMP.

### 2.3.2. Right-Of-Way Management

Aggressive noxious and invasive weed control will continue on all Project lands to prevent seed production. State-licensed herbicide application contractors will continue to apply herbicides under the direction of state-licensed District biologists. All disturbed or amended soils will be promptly seeded with a mixture of non- invasive, weed-free grasses and forbs as listed in the TRMP. For erosion control, only certified weed-free straw is used on all District lands.

### 2.3.3. Waterfowl Nest Boxes

Nest boxes on the Lost Lake Tract will be repaired as needed by the end of February, to ensure availability for the upcoming nesting season. An intermediate nesting season check will be performed (early May) and all non-waterfowl, including native squirrels, will be evicted, as requested by WDFW. A final nest box productivity check will be conducted in mid to late June to ensure accurate determination of use, as specified in the TRMP.

### 2.3.4. Lake, Wetland and Stream Buffers

Aside from woody habitat structure creation and nest box maintenance, as summarized in this report and detailed in the TRMP, no other activities are planned in buffer zones.

## **2.4. ISSUES OR PROPOSED CHANGES**

No issues have come up and no changes are proposed at this time.

## **3. NOXIOUS WEED MANAGEMENT PLAN**

### **3.1. PRIOR YEARS' SUMMARY – 2016 - 2018**

This section includes background explanations of activities, and results summarized from the previous years' reports, leading up to the five-year report covering implementation activities occurring from 2016 through 2018.

Due to water quality concerns, noxious weeds and invasive species found within the Spada Lake Reservoir and City of Sultan watersheds (along the pipeline ROW) were treated with naturally derived herbicides; initially high strength vinegar in 2016, then Caprylic acid, trade name Suppress EC, by state-licensed contract herbicide applicators, overseen by District biologists who are also state-licensed herbicide applicators. This product is OMRI listed and labeled for organic production, but is a non-selective herbicide (it will damage or kill any portion of a plant that it contacts), and is non-systemic (it only affects the portion of the plant that it touches, and is not translocated through the plant's vascular system to kill the roots). Using this type of herbicide requires repeat applications, as it is not as effective as systemic herbicides, but is considered safer for water quality by the City of Everett (primary purveyor of drinking water in Snohomish County, serving 80% of county residents) and the City of Sultan.

Areas outside of the above-mentioned watersheds have been treated with synthetic herbicides that are systemic and selective and require fewer treatments. Again, all applications were performed by state-licensed contract herbicide applicators.

As part of re-licensing studies, botanical consultants were contracted to survey all project lands that had project structures, roads, prior forestry activities or other human disturbances for invasive or noxious weeds. A detailed map and GPS record was created to document presence and level of infestation for each invasive species. These sites are visited multiple times each year by District staff familiar with weed identification and treatment. Areas of the Project that were disturbed and weed-prone, where noxious weeds have been previously observed (particularly during the 2007 noxious weed surveys), and sites that have been previously treated, were evaluated for the presence of noxious weeds. Treatment locations were captured and recorded using a GPS device, with that data then incorporated into the District's GPS database, to allow tracking of weed occurrences and treatment efforts, to guide the following year's management. Figures A1 through A18 in appendix A provide an overview of the project lands, and specific weed locations identified around Spada Lake and pipeline ROW. These figures include comparisons between weed locations identified by the botanical consultants in 2007 and those identified by District biologists in 2019.

Overall, the District's approach to invasive weed control has been successful in preventing most seed production and spread of known infestations. No new species of noxious weed have been documented on project lands since the original 2007 surveys, and most occurrences of weeds are becoming smaller and more intermittent in space. Availability of suitable spraying weather is the primary factor dictating the number of times weeds are sprayed over the course of the growing season, and therefore plays a large role in determining the overall effectiveness of



control efforts.

District biologists met with Project staff to inform and educate regarding the NWMP and worked with them to ensure that the NWMP was being followed.

### **3.2. WORK COMPLETED IN 2019**

Areas of the Project that were disturbed and weed-prone, as well as areas where noxious weeds had been observed and treated in the past were visited to control noxious weeds. As the weather allowed, multiple treatments were made at all sites during the growing season. Appendix A contains figures A-1 through A-17 showing mapped locations of invasive species.

#### ***3.2.1. Lost Lake Tract Treatment and Monitoring***

The access road and the boat launch area at Lost Lake were visually inspected for noxious and invasive species several times during the growing season. Particular attention was paid to areas identified in the 2007 Noxious Weed Survey. Species of weeds treated include herb Robert, Canada thistle, and Himalayan and Evergreen blackberry. Weeds found were treated twice in 2019.

#### ***3.2.2. Spada Lake Tract Treatment and Monitoring***

Weed species most commonly found along roads on the Spada Lake Tract were Canada thistle and oxeye daisy. Culmback Dam had significant infestations of hawkweed and smaller patches of Scotch broom. Due to construction activities, weed control on the dam was not possible this year. Within the Spada Lake Reservoir Watershed, which supplies most of Snohomish County with drinking water, the City of Everett has requested that herbicides derived from inorganic compounds not be used. Naturally derived, high-strength acids have proven to be successful in treating weeds and have been approved by the City for use within the watershed. Many of the treated plants display top-kill or reduced vigor quickly and for a considerable length of time after treatment, but multiple applications are typically required. Plants were treated as early in the growing season as practicable and were re-treated as needed and as allowed by weather conditions. Seed production was prevented in nearly all cases, as required by State and County regulations.

#### ***3.2.3. Williamson Creek Tract Treatment and Monitoring***

Hawkweed, reed canary grass, and Canada thistle have been found on the Williamson Creek Tract during previous field visits. The abandoned road has become largely overgrown with alder saplings, and as a result, these infestations are not expected to extend their range significantly. Based on this and the difficulty of accessing this now roadless area, other sites have received higher priority for treatment. The area was visually assessed while performing snag/gap creation activities.

#### ***3.2.4. Project Facility Lands Treatment and Monitoring***

The pipeline ROW was visited multiple times during the growing season to locate and treat invasive species. Typical weeds found here include hawkweed, Scotch broom, Canada thistle and tansy ragwort.

Noxious weeds on the transmission line ROW were also sprayed several times during the growing season, with the primary species found here being English holly, Bull and Canada thistle, and blackberry species.

### **3.2.5. Annual Review of Noxious Weed List**

The District reviewed the State and County's annual updated weed list for 2019. No changes were made that impacted weed control on Project Lands.

### **3.2.6. Update of Species-Specific Management Methods**

No updates to specific management methods have been proposed; emphasis will continue to be on preventing new infestations and reducing the size and number of existing infestations.

Cultural methods to prevent new infestations or reduce existing infestations continued to be employed including 1) keeping ground disturbance to a minimum while mowing vegetation, and 2) seeding/placing weed-free straw on open or disturbed soils as soon as possible. Where infestations exist, herbicides remained the most effective treatment due to the size and variety of locations. The herbicide used was changed in 2017 in favor of another organic acid that exhibited less volatility and decreased risk to the applicators. All indications are that the new product has performed as well or better than the prior product.

The District is also committed to ensuring that weeds that survive treatment with inorganic herbicides (those outside of the Spada and City of Sultan watersheds) do not develop resistance to a particular mode of action (the specific means by which the herbicide damages or kills the plant cells). As a result, District biologists routinely evaluate new products to determine their efficacy for use in controlling the species of weeds present on Project lands.

## **3.3. WORK PLANNED FOR 2020**

Areas of the Project that are disturbed and weed-prone, where noxious weeds have been observed, and sites that have been previously treated will be visited several times during the 2020 growing season to document and treat noxious weeds. Licensed contract herbicide applicators will be used to apply herbicides. Prior to initiation of any ground disturbing activities, staff will meet to discuss pre- and post-project means to reduce the likelihood of increasing infestation size or spreading weed propagules to new areas, including, to the extent possible, treating existing weeds prior to those ground-disturbing activities.

## **3.4. ISSUES OR PROPOSED CHANGES**

No issues have come up and no changes are proposed at this time. Any changes to the list of weeds requiring control, based on changes to the State and County weed lists, may necessitate changes to the NWMP.

# **4. MARBLED MURRELET HABITAT PROTECTION PLAN**

## **4.1. PRIOR YEARS' SUMMARY – 2016 - 2018**

This section includes background explanations of activities and results summarized from the previous years' reports.

Project-related activities conducted in the Spada Lake Reservoir Basin and on other Project lands from 2016-2018 were conducted according to the MMHPP. Plans and activities were prepared or modified as needed to comply with the MMHPP. These activities included:

- Planning and construction related to Diversion Dam Volitional Passage
- Planning and construction of the Water Temperature Conditioning pipe and valve to improve habitat conditions within the bypass reach
- Implementing the Whitewater Recreation Plan under License Article 412
- Air-lifting toilets out of the Bear Creek and Nighthawk Recreation Sites to support the Recreation Resource Management Plan (RRMP)
- Conducting snow surveys to support project operations and water supply planning
- Conducting hazard tree maintenance activities to support operation and maintenance
- Conducting recreation site vegetation maintenance and trail improvements
- Implementing all aspects of the TRMP
- Implementing all aspects of the NWMP

District biologists met and had numerous conversations with Project staff to inform them of, and ensure compliance with, the MMHPP. Project staff have been very cooperative and frequently call District biologists to ask about specific activities and restrictions.

#### **4.2. WORK COMPLETED IN 2019**

Project-related activities conducted in the Spada Lake Reservoir Basin and on other Project lands during 2019 were conducted according to the MMHPP. Plans and activities were prepared or modified as needed to comply with the MMHPP. These activities included:

- Conducting snow surveys to support operations and water supply planning
- Maintaining recreation facilities in support of the RRMP
- Implementing the TRMP
- Implementing the NWMP

District biologists met and had numerous conversations with Project staff to coordinate Project related work and ensure compliance with the MMHPP.

#### **4.3. WORK PLANNED IN 2020**

District biologists will continue to stay informed of Project-related activities that might affect marbled murrelets and their habitat and advise and educate those working on the Project of the MMHPP requirements. Cover Type determinations will be evaluated as required every 10 years to determine whether additional stands have now become suitable nesting habitat. This will include aerial imagery interpretation and ground-truthing inventories throughout the Project lands.

#### **4.4. ISSUES OR PROPOSED CHANGES**

No issues have come up and no changes are proposed for the MMHPP.

## **Appendix A**

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### *Noxious Weed Control Figures*

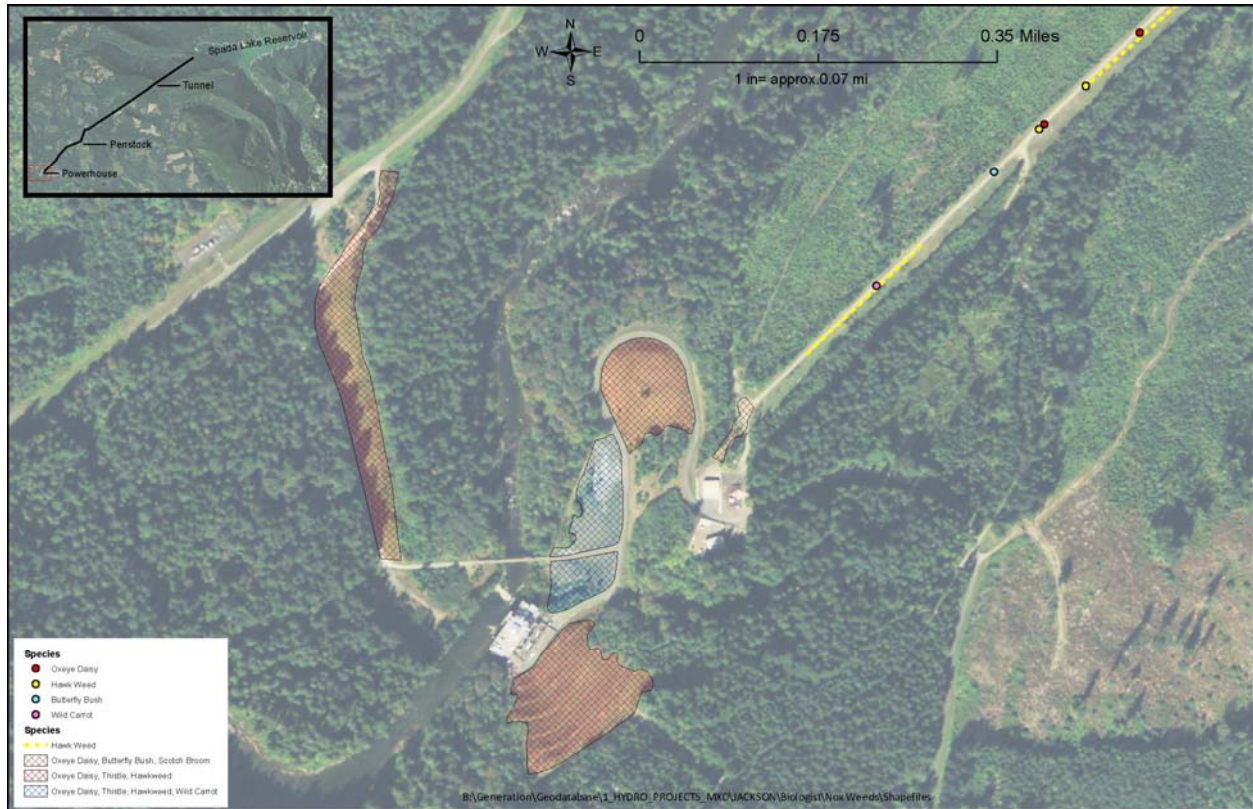


Figure A-1. Noxious weed locations at Powerhouse and ROW.



Figure A-2. Noxious weed locations on pipeline ROW.





Figure A-3. Noxious weed locations on pipeline ROW.



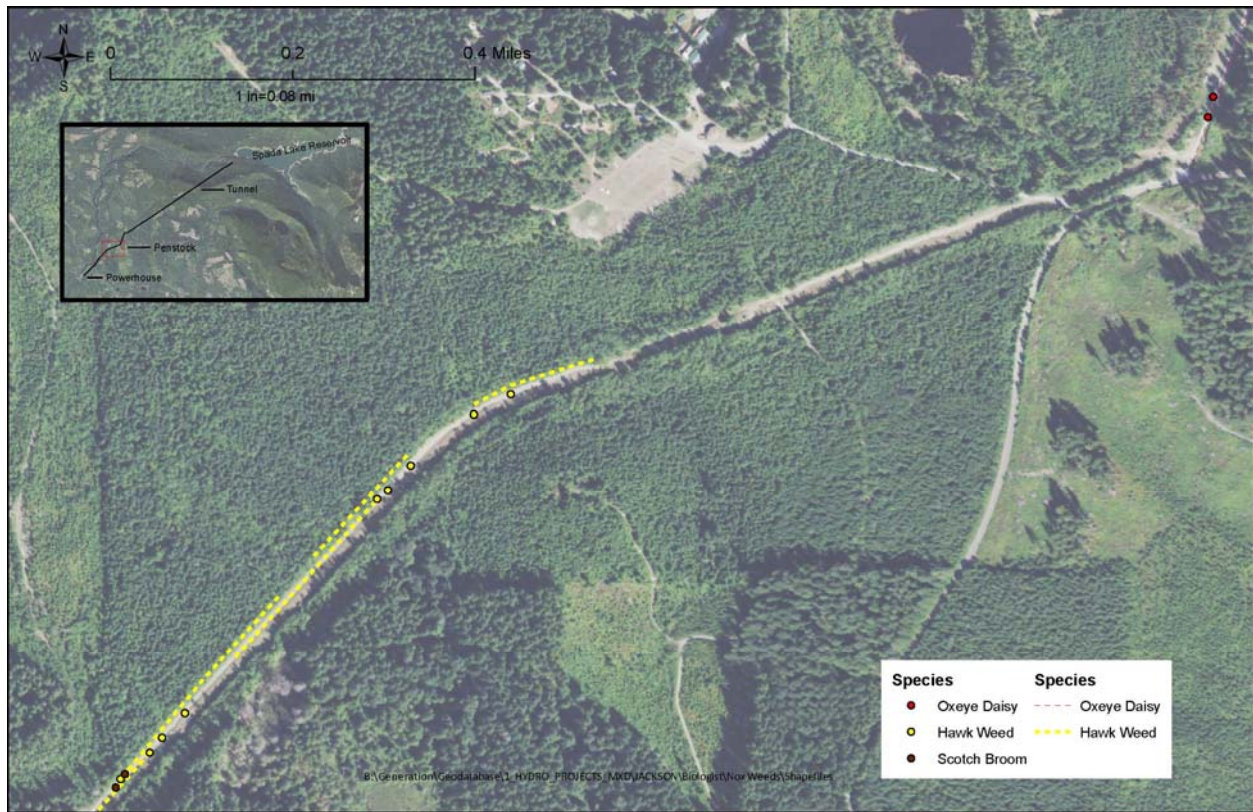


Figure A-4. Noxious weed locations on pipeline ROW.

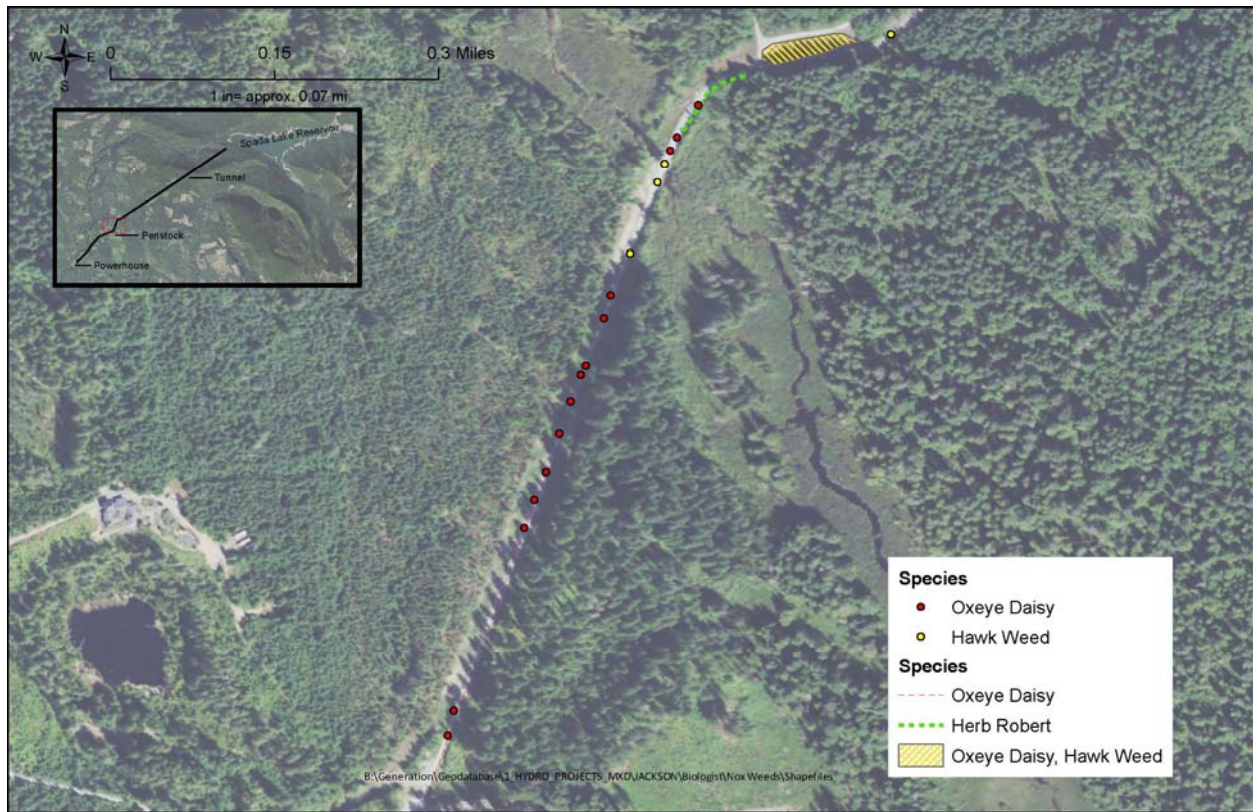


Figure A-5. Noxious weed locations on pipeline ROW.



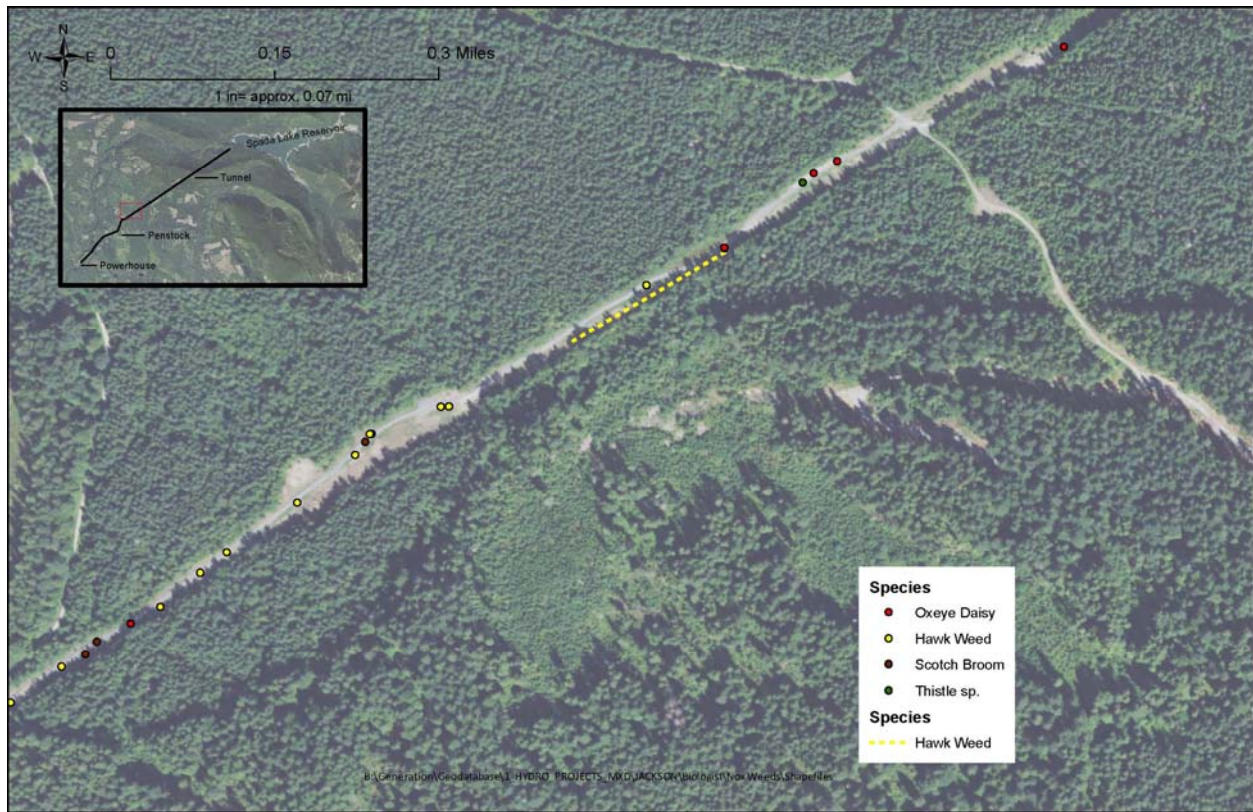


Figure A-6. Noxious weed locations on pipeline ROW.



Figure A-7. Noxious weed locations on pipeline ROW.



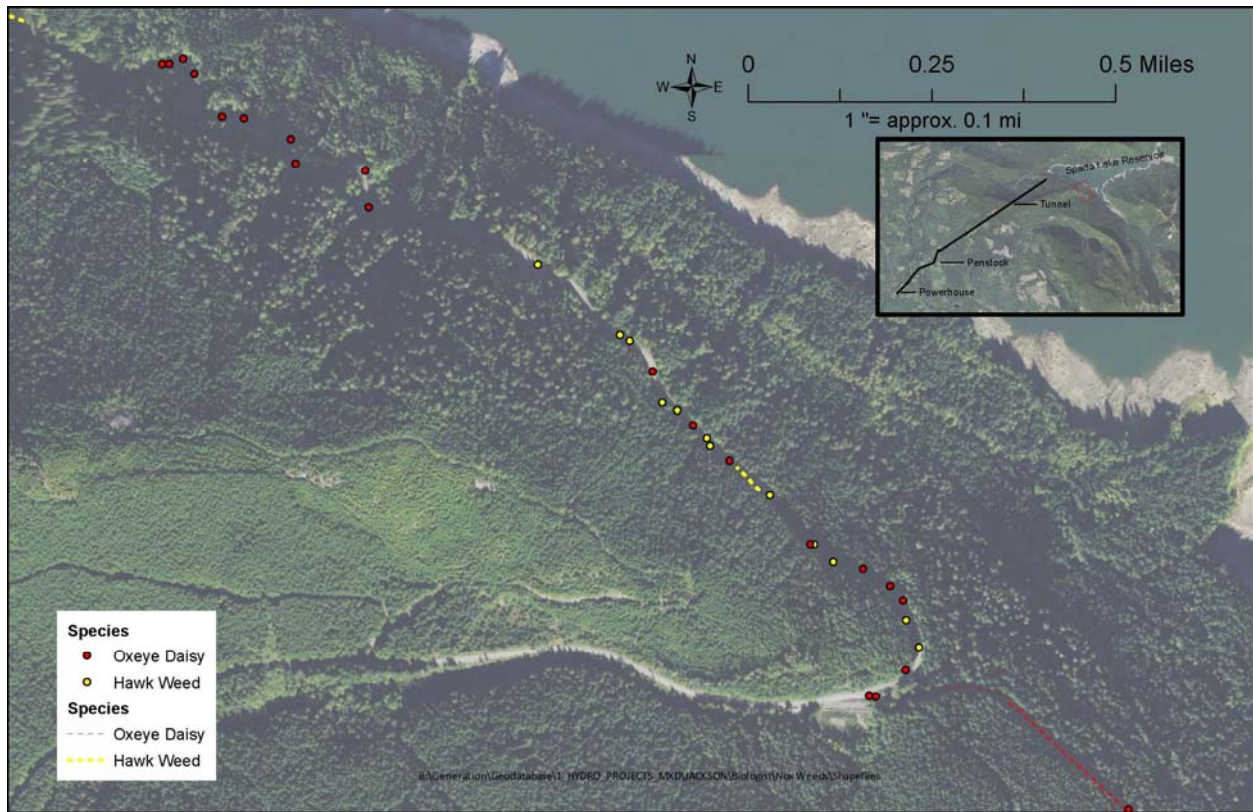


Figure A-8. Noxious weed locations at Spada Lake.

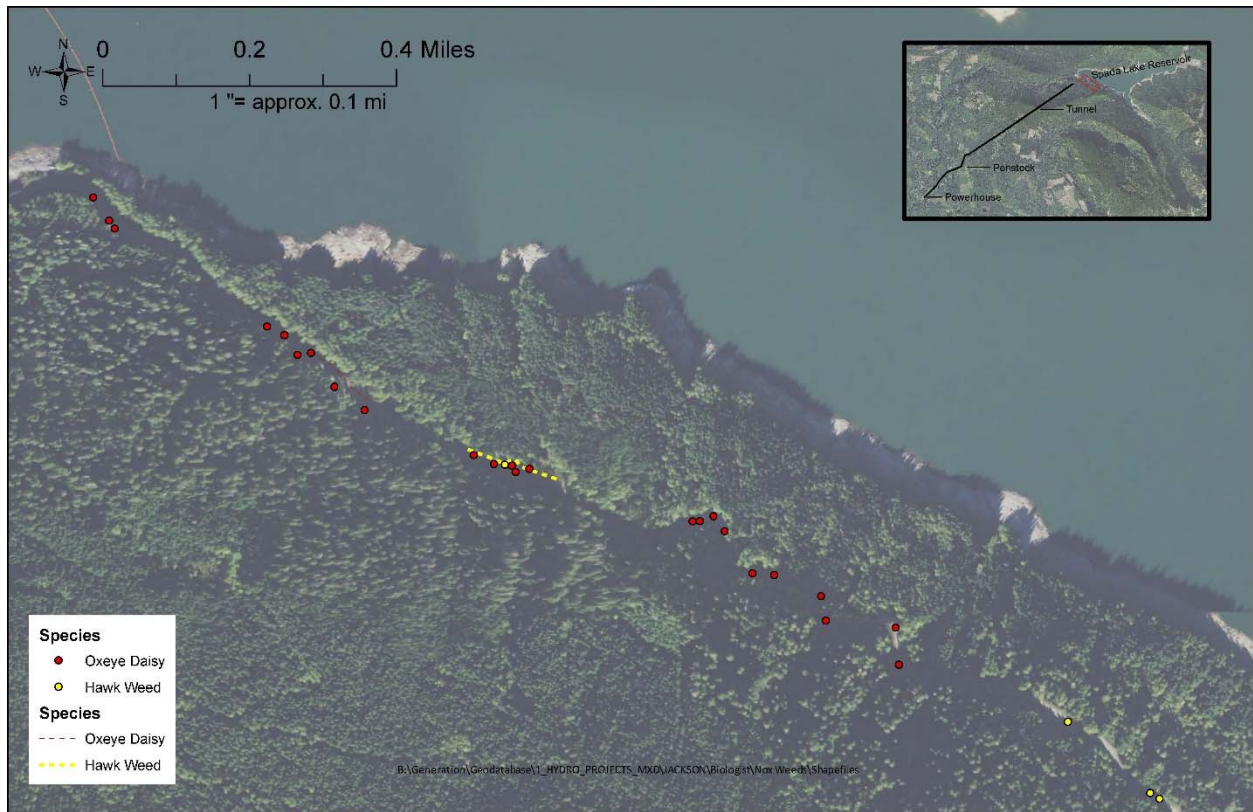


Figure A-9. Noxious weed locations at Spada Lake.

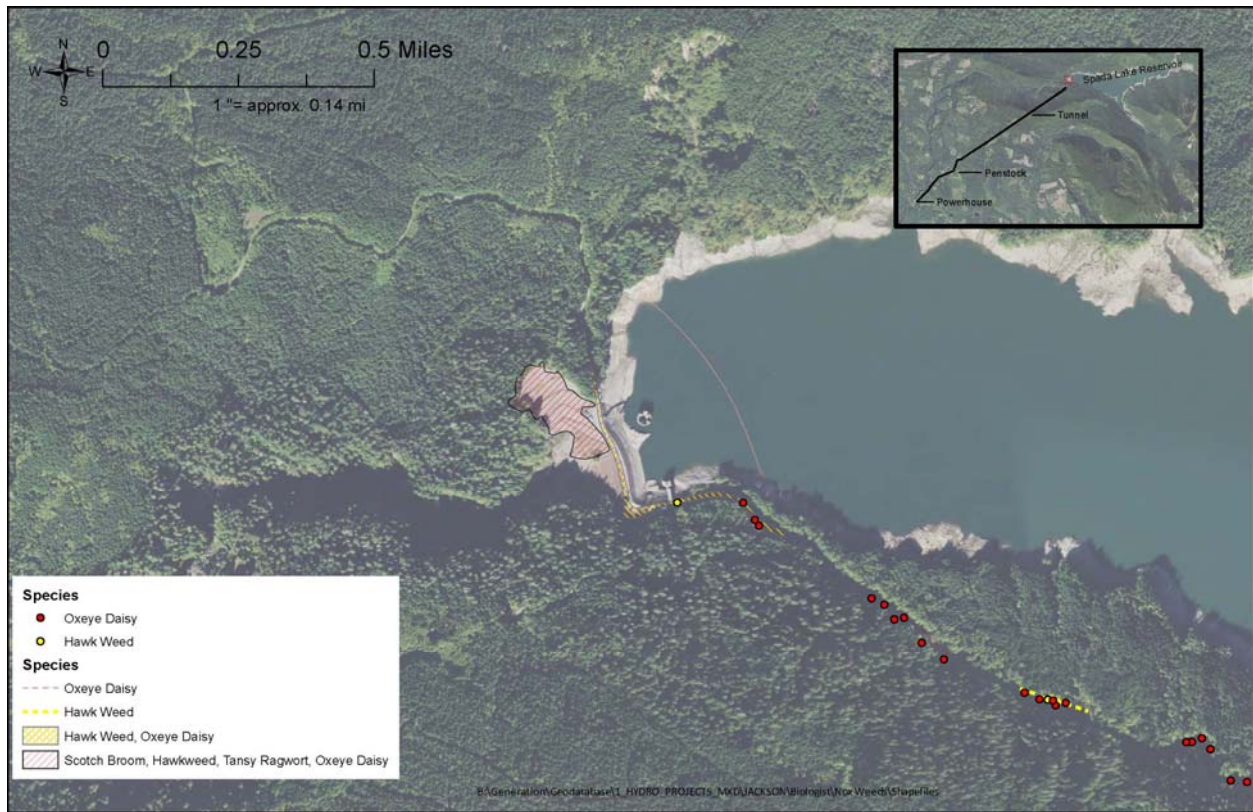


Figure A-10. Noxious weed locations at Spada Lake.



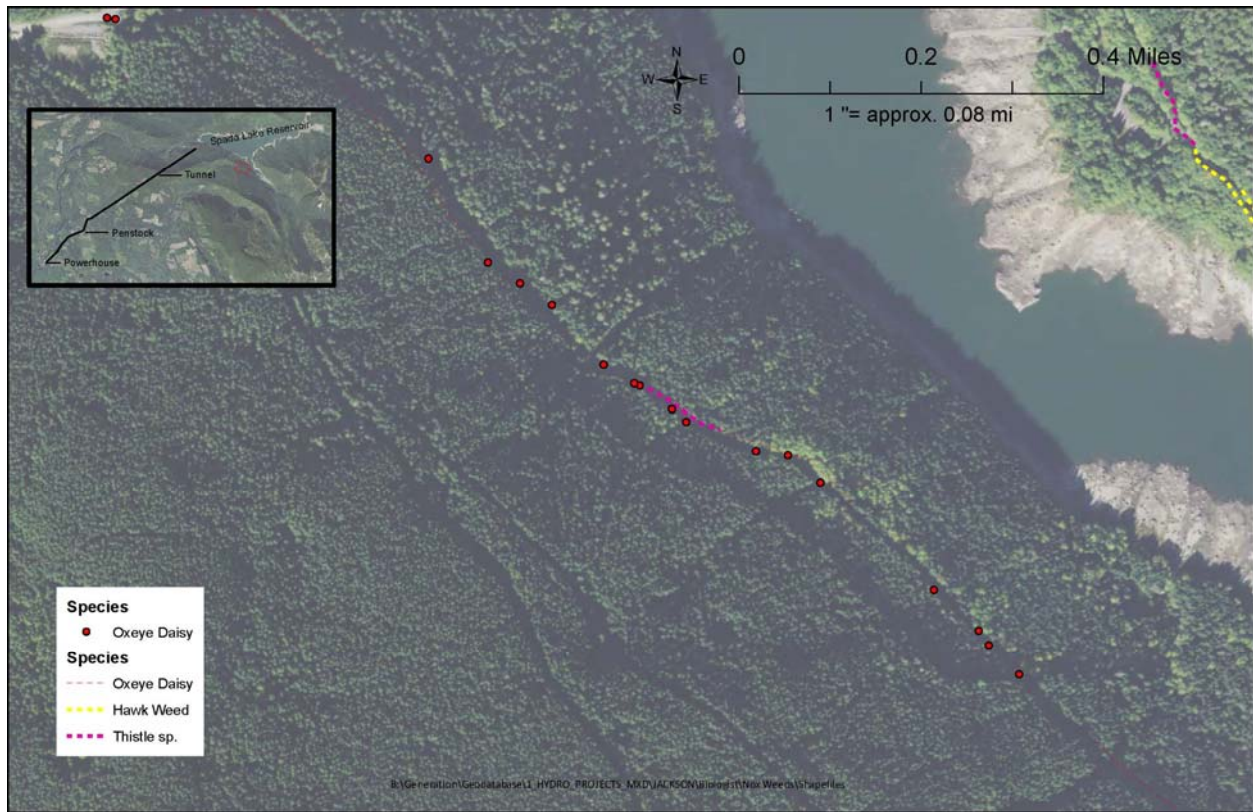


Figure A-11. Noxious weed locations at Spada Lake.

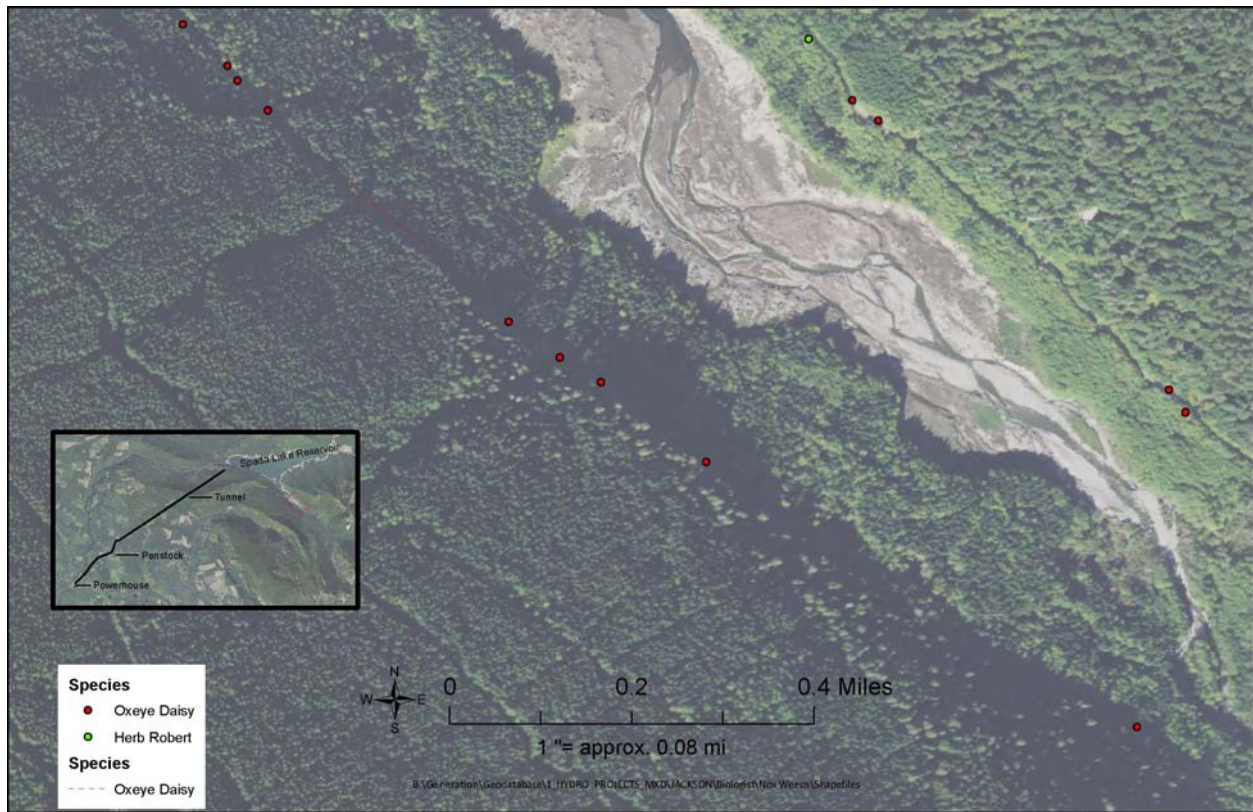


Figure A-12. Noxious weed locations at Spada Lake.



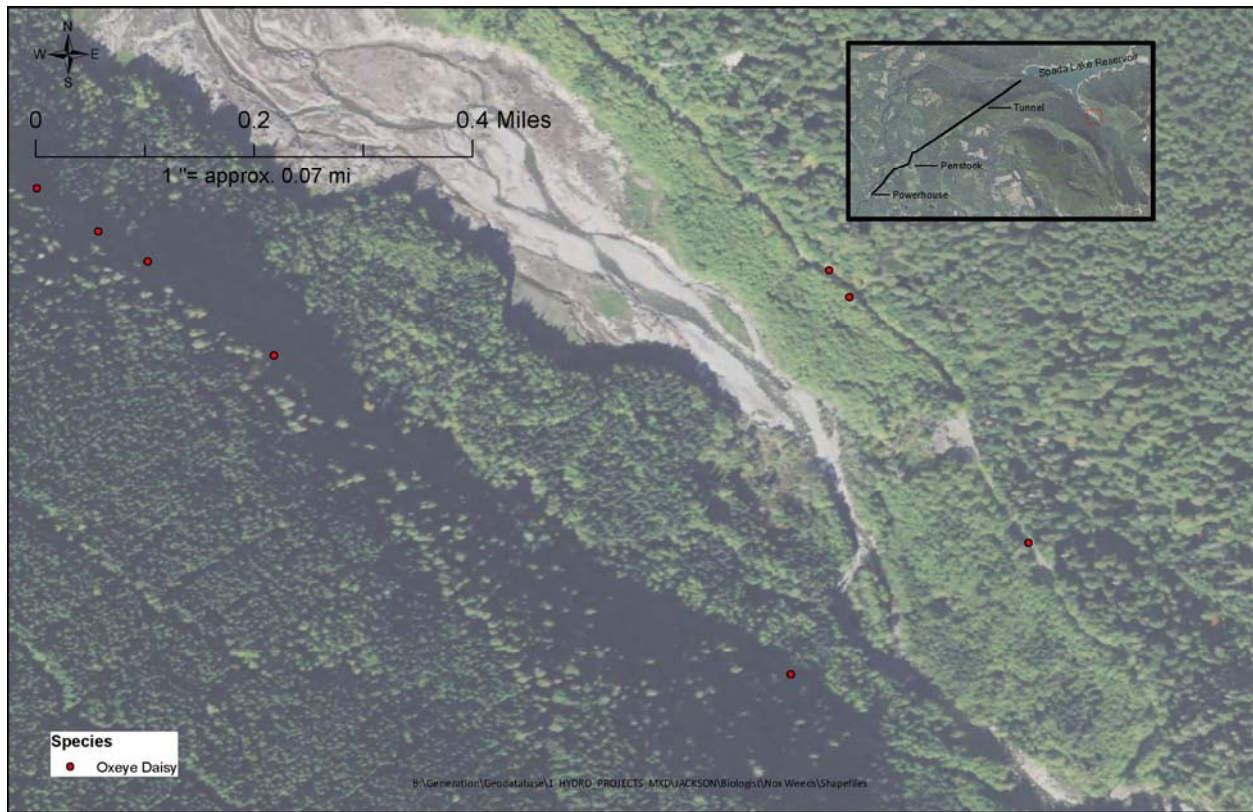


Figure A-13. Noxious weed locations at Spada Lake.

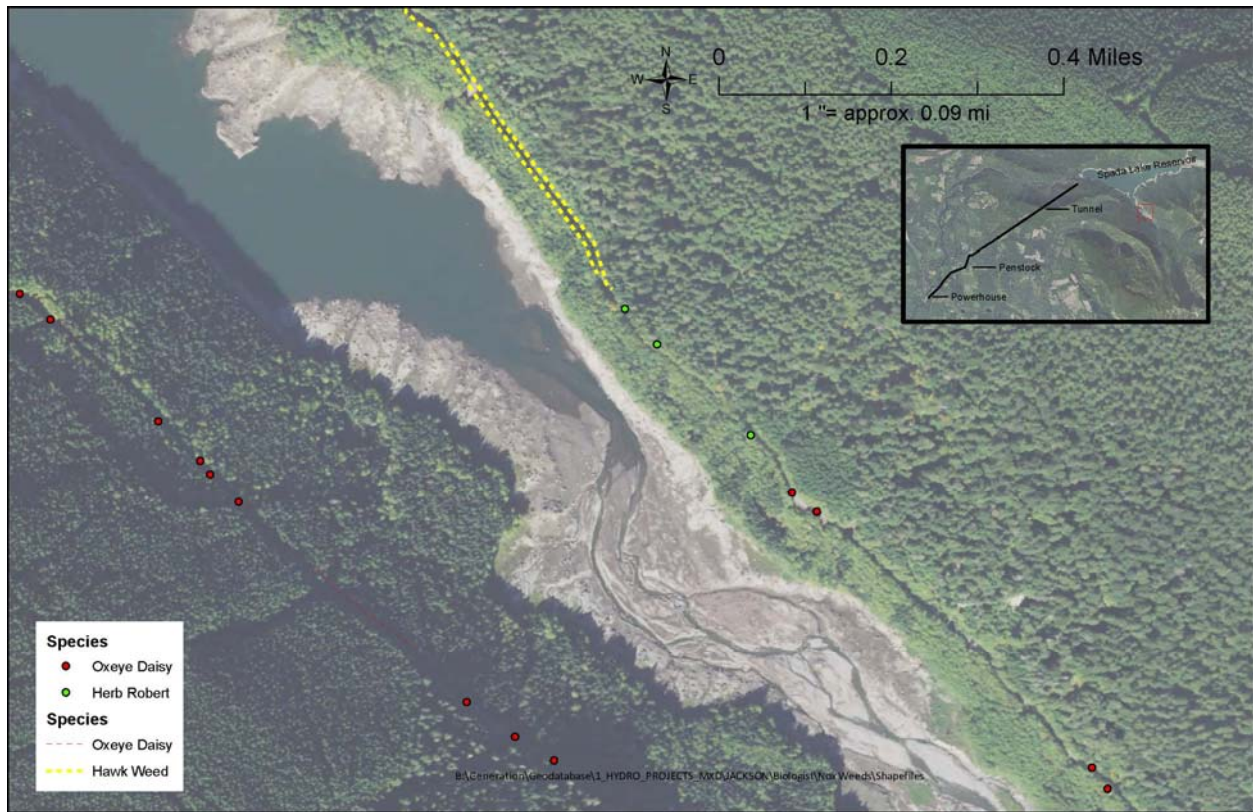


Figure A-14. Noxious weed locations at Spada Lake.



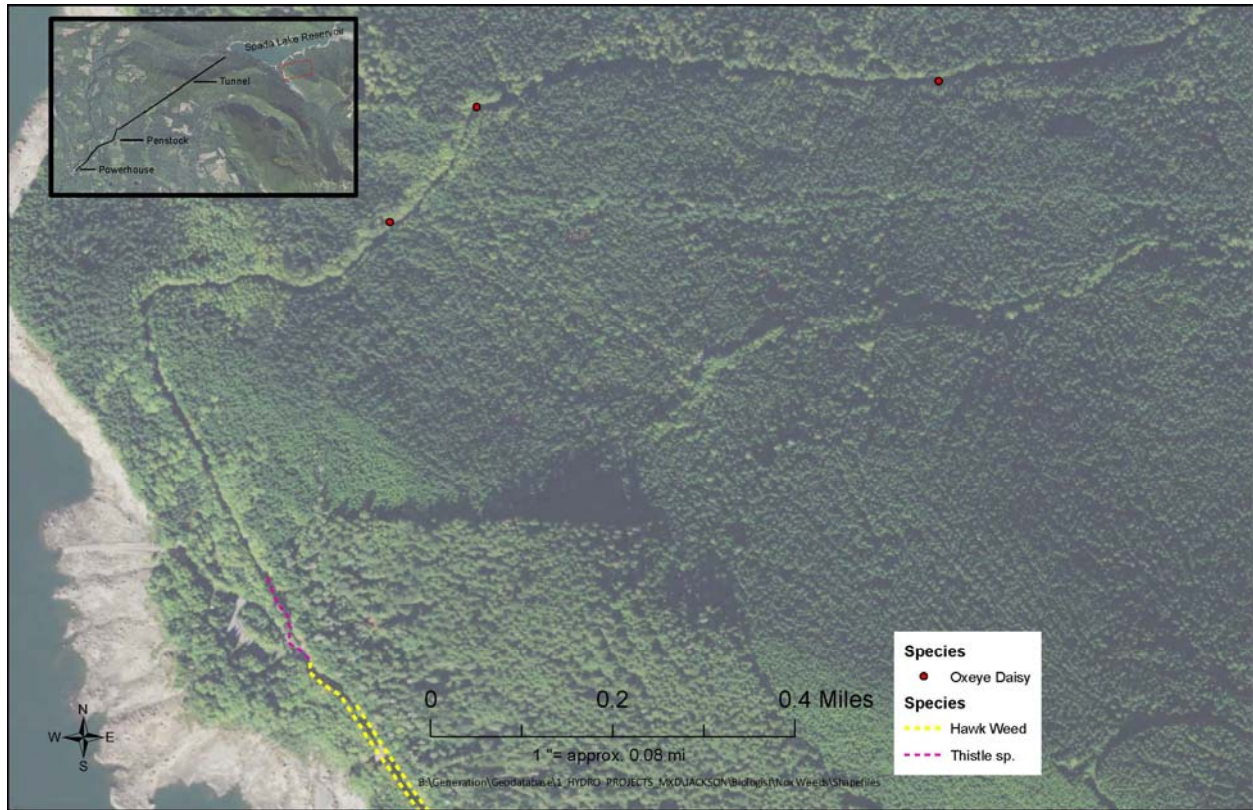


Figure A-15. Noxious weed locations at Spada Lake.

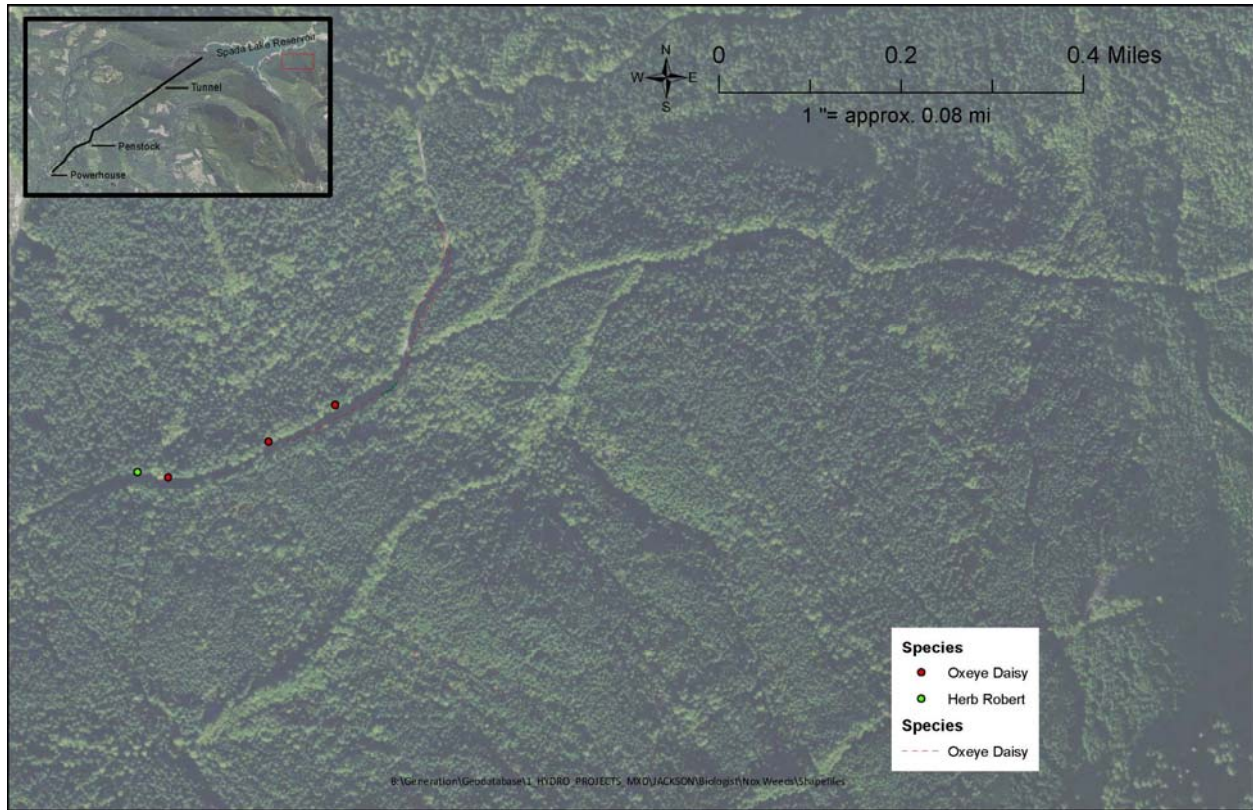


Figure A-16. Noxious weed locations at Spada Lake.



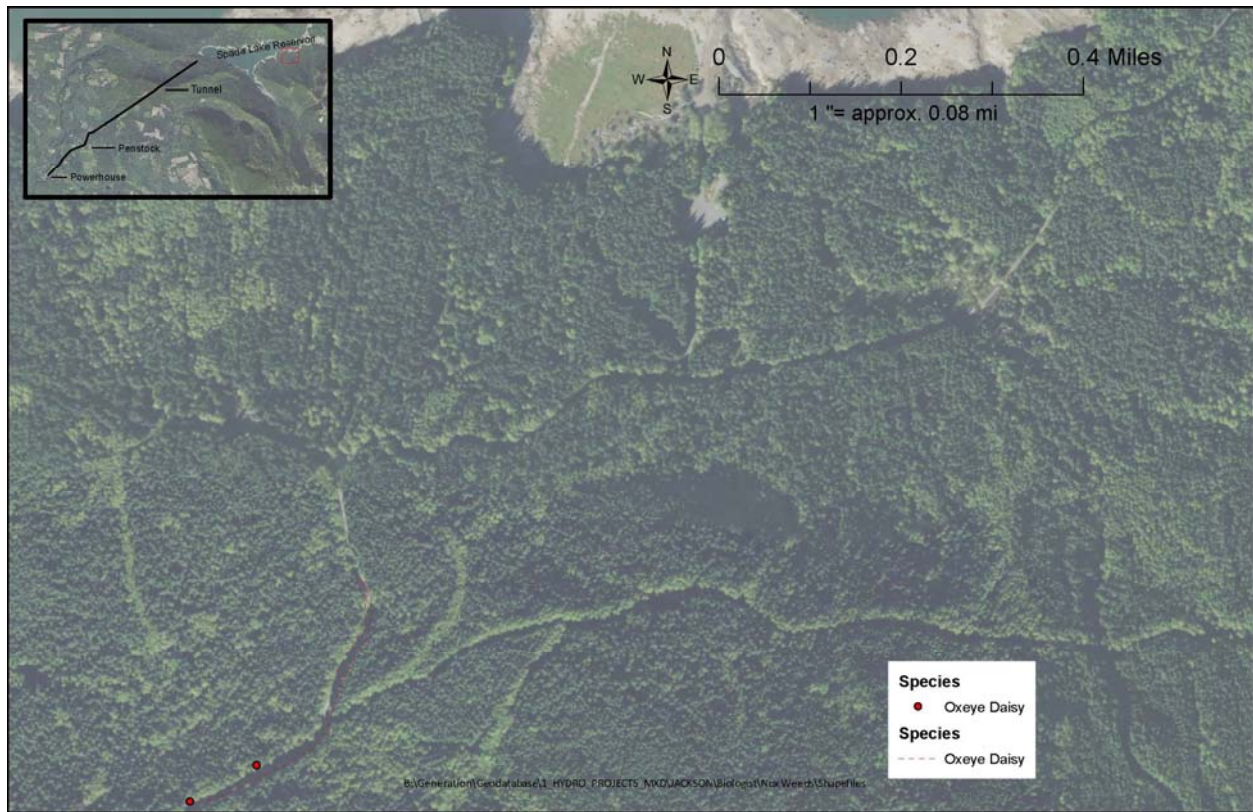


Figure A-17. Noxious weed locations at Spada Lake.



## **Appendix B**

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### *Consultation Documentation Regarding Draft Report*

## Presler, Dawn

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**From:** Schutt, Mike  
**Sent:** Wednesday, February 19, 2020 2:40 PM  
**To:** Brock Applegate (brock.applegate@dfw.wa.gov); Tim Romanski (Tim\_Romanski@fws.gov); 'geraldine.saw@snoco.org'; Michael Sevigny (msevigny@tulaliptribes-nsn.gov); Rylan Sprague (rsprague@fs.fed.us); Eric Ozog (eozog@fs.fed.us); Al McGuire (Al.McGuire@dnr.wa.gov); LISA.EGTVEDT@dnr.wa.gov  
**Subject:** 2019 Jackson Hydro Project Terrestrial Resources Mitigation Plan Annual Report and Meeting Invite

Greetings,

We are currently preparing the 2019 Annual Report for the Jackson Hydroelectric Project Terrestrial Resources Mitigation Plan (TRMP). Included will be a summary of activities completed from 2016 through 2019, and activities planned for 2020 for the TRMP, Noxious Weed Management Plan (NWMP), and Marbled Murrelet Habitat Protection Plan (MMHPP). These plans can be found on the PUD's web site at

<https://www.snopud.com/?p=2047>

Implementation activities conducted on the Lost Lake, Project Facility Lands, Spada Lake, and Williamson Creek Tracts are included in this report. This is the ninth annual report under our 2011 Jackson Project license. The summary report will not be sent to FERC this year. You should receive the report on or about March 12, with 30 days for review.

I would be happy to meet to discuss our activities and provide an on-site visit if desired, but would suggest delaying any visit until summer, due to winter storm damage to roads. This meeting is optional, at your request, and we have not identified any problems or issues that we feel merit discussion. The meeting would be held at the PUD's Everett office, unless a field visit is requested, in which case we would meet at the Jackson powerhouse prior to the site visit. Feel free to contact me at any time if you would like to attend a meeting, and whether you prefer a field visit as well.

Thanks for your time,

**Mike Schutt**

Sr. Environmental Coordinator – Wildlife

**Snohomish County PUD**

Generation – Natural Resources

**Office) 425-783-1712**

**Cell) 425-210-5816**

## Presler, Dawn

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**From:** Schutt, Mike  
**Sent:** Thursday, March 12, 2020 2:11 PM  
**To:** 'Tim Romanski (Tim\_Romanski@fws.gov)'; 'Brock Applegate (brock.applegate@dfw.wa.gov)'; 'Saw, Geraldine'; 'LISA.EGTVEDT@dnr.wa.gov'; 'Al McGuire (Al.McGuire@dnr.wa.gov)'; 'Eric Ozog (eozog@fs.fed.us)'; 'Rylan Sprague (rsprague@fs.fed.us)'; Jonathane Schmitt (jonathaneschmitt@fs.fed.us); Michael Seigny (mseigny@tulaliptribes-nsn.gov)  
**Cc:** Presler, Dawn; Binkley, Keith  
**Subject:** RE: Jackson Project (FERC No. 2157) - 2019 Terrestrial Resources Annual Report for 30-day review and comment  
**Attachments:** 2019 JHP TRMP Annual Report DRAFT.pdf

Dear Jackson Project Terrestrial Resource Group Members:

Attached for your 30-day review and comment is the draft report covering the Jackson Hydro Project's Terrestrial Resource Management Plan (TRMP), Noxious Weed Management Plan (NWMP), and Marbled Murrelet Habitat Protection Plan (MMHPP). The plans can be found on the District's website at:

<https://www.snopud.com/?p=2047>

The attached report summarizes activities accomplished pursuant to the License and associated terrestrial management plans for the Jackson Hydro Project for 2019 and those activities planned for 2020. If you have any comments on the draft report, please email them to me by CoB Friday April 15, 2020. Comments will be reviewed and responded to as appropriate prior to finalizing the report; the report will not be filed with FERC this year.

If you have any questions regarding the attached draft report or management plans, don't hesitate to contact me.

### **Mike Schutt**

Sr. Environmental Coordinator – Wildlife

**Snohomish County PUD**

Generation – Natural Resources

**Office) 425-783-1712**

**Cell) 425-210-5816**