

Henry M. Jackson Hydroelectric Project  
FERC No. 2157

**TERRESTRIAL RESOURCES  
2014 ANNUAL REPORT**



**April 30, 2015**

**Submitted by:**

Public Utility District No.1 of Snohomish County



Everett, WA

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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## LIST OF ACRONYMS AND ABBREVIATIONS

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
SCNWB	Snohomish County Noxious Weed Board
SRCT	Sultan River Canyon Trail
Tribes	Tulalip Tribes of Washington
TRMP	Terrestrial Resource 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 from 2011 through 2014 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 Order Issuing New License effective on 2 September 2011. Requirements of each plan were met during 2014. No problems were encountered and 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 2015 are also presented.

### **Tasks Accomplished during 2014**

- Created snags, decaying live trees, coarse woody debris logs and gaps on the Spada Lake Tract to promote mature forest characteristics in younger aged stands
- Maintained and monitored waterfowl nest boxes at Lost Lake
- Preserved and protected old growth forest, wetlands, and riparian forest on Project lands
- 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
- Followed the restrictions of the MMHPP in all Jackson Project related activities, including implementation of the Recreation Resources Management Plan
- District biologists coordinated with Jackson Project staff on work activities related to implementation of the TRMP, NWMP, and MMHPP to ensure that all Jackson Project activities were accomplished in accordance with plans

### **Tasks Scheduled for 2015**

- Create snags, decaying live trees, coarse woody debris logs and gaps on approximately 180 acres of the Spada Lake Tract
- Maintain and monitor waterfowl nest boxes at Lost Lake
- Manage noxious and invasive weeds on all TRMP tracts of land
- Preserve and protect old growth forest, wetlands, and riparian forest on Project lands
- Coordinate with operations and maintenance staff on Jackson Project activities and ensure that the TRMP, NWMP and MMHPP 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 2014 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:

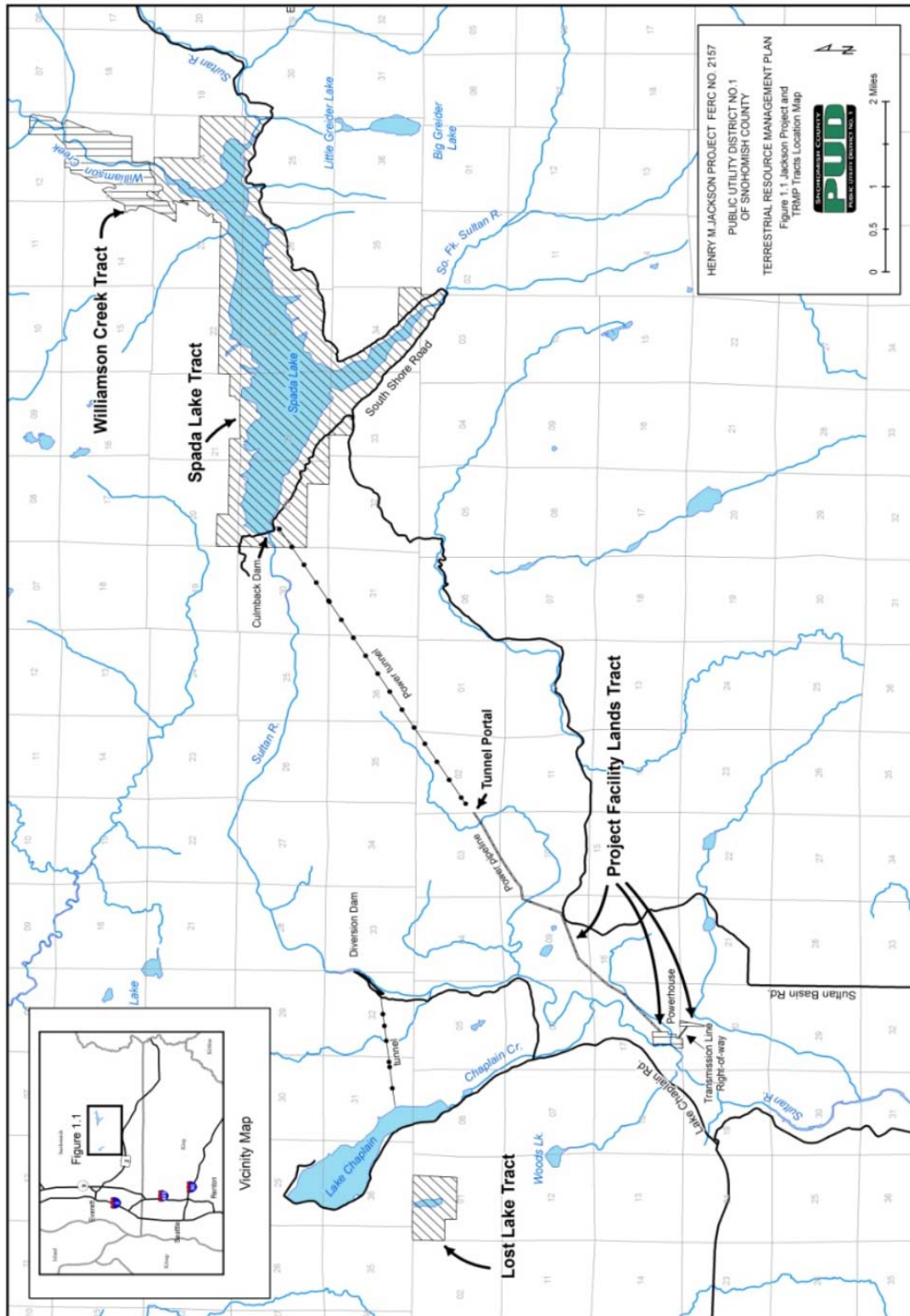
<http://www.snopud.com/PowerSupply/hydro/jhp/jhplicense.ashx?p=1978>).

The TRMP incorporates habitat enhancement methods for forest vegetation management, including old growth, young forest and understory management; lake, wetland and stream buffers; snags and decaying live trees; 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, habitat management objectives, habitat management methods, and management prescriptions for each tract. It also describes monitoring and reporting requirements and provides a schedule for implementation.

The TRMP requires that a report be prepared and submitted to the USFWS, WDFW, and the Tribes annually and submitted to FERC every five years. Reports summarize and document 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.

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:

<http://www.snopud.com/PowerSupply/hydro/jhp/jhplicense.ashx?p=1978>).



**Figure 1-1. Location of Jackson 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 will be provided to the FERC as part of the TRMP five-year report (2011-2015).

Surveys by the District and others have documented the presence of marbled murrelets (a federal Endangered Species Act (ESA) listed threatened species) in the Sultan Basin, and have 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) overstory 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 Jackson 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 web site via the following link: (<http://www.snopud.com/PowerSupply/hydro/jhp/jhplicense.ashx?p=1978>).

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 2014 are noted in this annual report.

## 2. TERRESTRIAL RESOURCES MANAGEMENT PLAN

### 2.1. PRIOR YEARS' SUMMARY – 2011 through 2013

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 between 2011 and 2015, that will be sent to the FERC in 2016. This section can be used as a quick reference of previous activities within recent years, and it will allow for an efficient and transparent preparation of the five-year report.

#### 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, on the four tracts of land; 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 to encourage understory growth. The apex of the triangle is then on the north or northeast end. The target gap size is 0.10 to 0.25 acres, depending on local limitations. Research has shown this size to maximize shrub growth while minimizing excessive in-seeding by hemlocks, which would reduce light penetration and forage production within the gap.

Forest stands on the Spada Lake Tract were harvested in the 1960s and most are quite dense, with stem densities in many cases greater than 450 trees per acre. Consequently, the diameter of trees is restricted and the number of trees comprising a canopy gap can be large. 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).

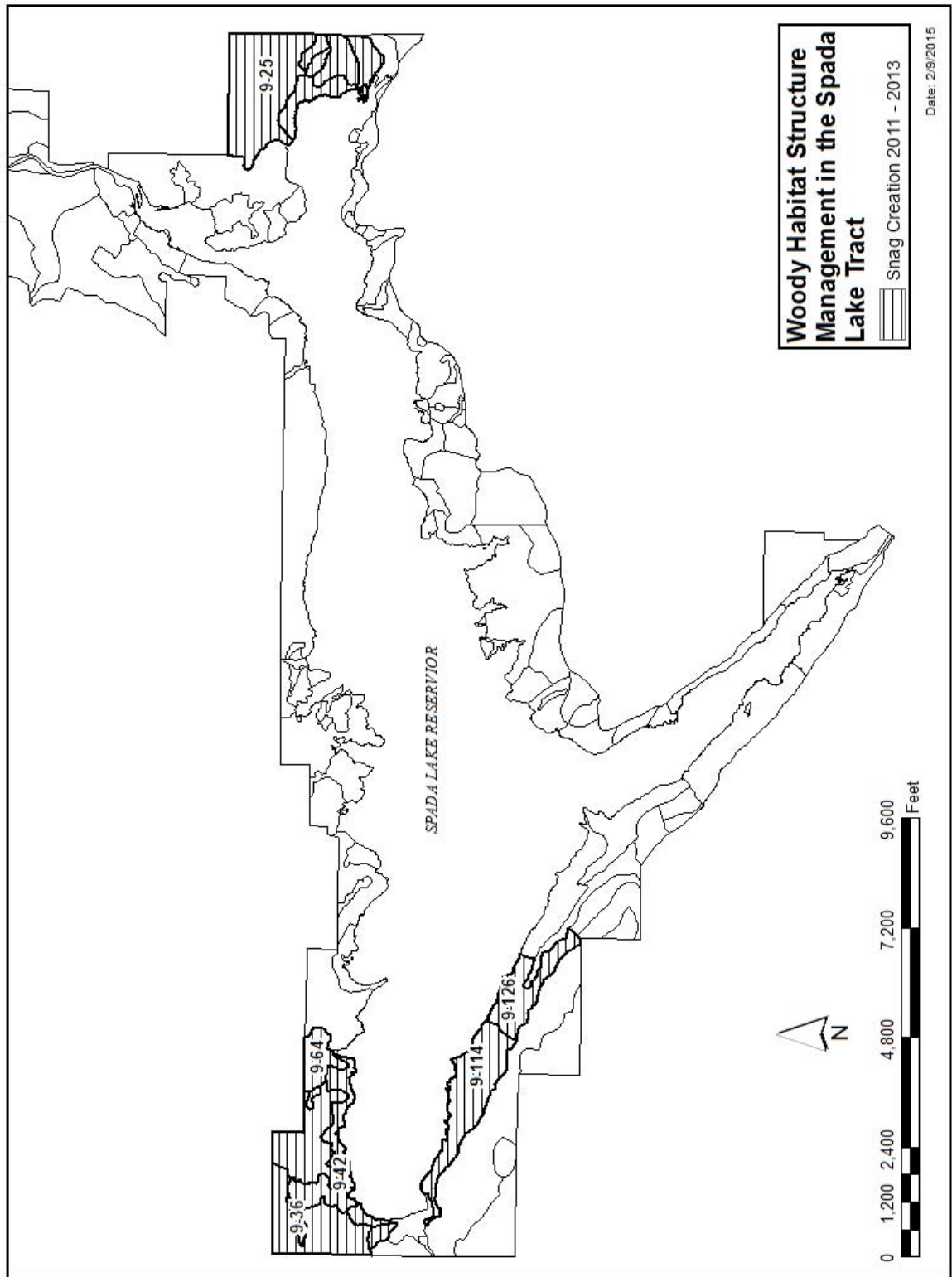
Stand age on the Lost Lake Tract is typically around 75 years, with a selective harvest having been performed in the 1980s. The result, compared to the Spada Lake Tract, is stands of lower density that are much more heterogeneous including individual and pockets of deciduous trees. Due to lower stand density, average tree diameter and canopy coverage per tree is significantly greater than at 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 small groups, as needed to maintain appropriate distribution and based on habitat limitations.

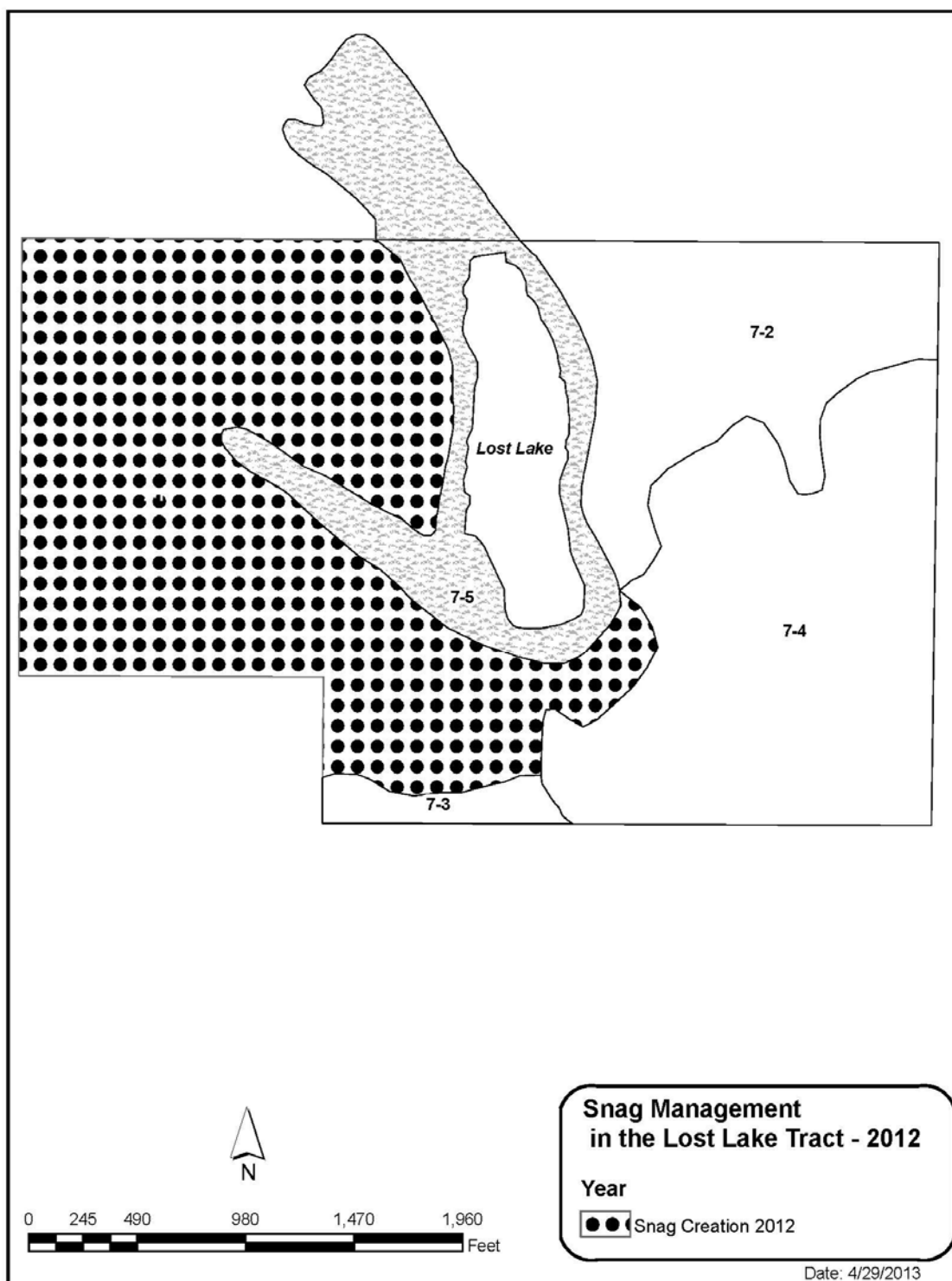
Table 2-1 and figures 2-1 and 2-2 show woody habitat structure management on TRMP lands from 2011 through 2013.

**Table 2-1. Woody habitat structure management, 2011 - 2013.**

UNIT	ACRES	YEAR	SNAGS				DLT				CWD		
			# Created	#/Acre	Avg Ht (ft)	Avg DBH (in)	# Created	#/Acre	Avg Ht (ft)	Avg DBH (in)	# Created	#/Acre	Avg DBH (in)
Spada 9-38	39.3	2011	94	2.4	59.2	13.8	111	2.8	61.1	16.3	149	3.8	14.5
Spada 9-36 complex	56.3	2011	166	3.0	46.4	13.2	154	2.7	49.0	14.5	193	3.4	14.7
Lost Lake 7-1	81.0	2011/12	67	0.8	87.3	20.6	261	3.2	87.5	21.0	94	1.2	19.8
Spada 9-42 complex <sup>a</sup>	45.9	2012	9	0.2	59.4	12.3	80	1.7	65.8	13.7	2	0.1	11.5
Spada 9-64 complex <sup>a</sup>	35.0	2012	104	3.0	61.9	12.7	530	15.1	64.6	14.7	38	1.1	12.4
Spada 9-71 Complex	53.0	2013	104	2.0	68.0	14.7	247	4.7	69.1	15.3	20	0.4	13.3
Spada 9-114	53.0	2013	38	0.7	58.6	13.3	290	5.5	61.5	14.5	44	0.8	13.3
Spada 9-126 <sup>b</sup>	23.7	2013	0	0.0	0.0	0.0	10	0.4	62.0	14.1	0	0.0	0.0
Spada 9-25 complex	45.4	2012/13	147	1.6	66.1	13.7	386	4.3	70.4	15.6	100	1.1	13.9
sum 2011-2013	432.6		582				1683				540		
<sup>a</sup> stand 9-42 is comprised mainly of mixed forest on unstable soils near dam. Entire complement of snags could not be made. Stand 9-64 is an overstocked conifer stand adjacent to 9-42. Additional woody habitat structures were created there to remedy shortfall in 9-42.													
<sup>b</sup> unit will be completed in 2014													



**Figure 2-1. Cumulative woody habitat structure creation on the Spada Lake Tract, 2011-2013.**



Document Name: Snag Management Annual Report - Lost Lake Tract 2012

**Figure 2-2. Cumulative woody habitat structure creation on the Lost Lake Tract, 2011-2013; 2012 was the only year woody habitat structure creation occurred.**

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

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 will allow 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 are monitored several times during the year, with pre-and post-nesting season visits, as well as a mid-nesting season visit (which began in 2012), to more accurately document use. Maintenance occurs in February to ensure six boxes are provided at the beginning of each nesting season.

**Table 2-2. Waterfowl nest box use on the Lost Lake Tract - 2011 through 2013.**

YEAR	WATERFOWL NEST BOX USE SUMMARY DATA
2011	2 of 6 boxes successfully used, fledging 14 wood ducks
2012	2 of 6 boxes successfully used, fledging 7 buffleheads and 8 wood ducks
2013	1 of 6 boxes successfully used, fledging 4 buffleheads

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

District biologists met with Jackson 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 Jackson Project mitigation lands from 2011 through 2013. These are incidental only, and are not part of a systematic monitoring program.

**Table 2-3. Incidental wildlife observations on Jackson Project Lands.**

DESCRIPTION	LOCATION	DATE
<b>2011 observations</b>		
Osprey	Powerhouse site – one on nest near microwave tower and one on perch at nest.	4/27/11
Osprey	Powerhouse site – on nest near microwave tower	5/2/11
Osprey	In nest west of Spada Lake Tract on NFS lands	5/10/11
Osprey	Powerhouse site – on perch at nest near microwave tower	6/2/11
2 adult Canada Geese, 4 goslings	Spada Lake Reservoir near log boom; frequently seen foraging on dam as well	6/18/11
4 Osprey	Pipeline ROW – 4 osprey alternately flying and perching on nest platform near microwave tower	6/21/11
Deer – 1 doe, 1 fawn, 1 four pt buck	Powerhouse site – near microwave tower	6/29/11
Western toad	On road just past Bear Creek Recreation Site	7/8/11
Osprey	One osprey on branch below nest flapping its wings and calling. Second osprey heard. This is same nest seen on 5 May 2011.	8/18/11
Common loon	On Spada Lake Reservoir, heard from Bear Creek Recreation Site and seen out from Nighthawk Site	8/26/11
Osprey	On shorter snag in Spada Lake Reservoir out from Bear Creek Recreation Site	8/26/11
Pika	Heard just west of Bear Creek Recreation Site	8/26/11
Northern Goshawk	Attacking 2 Douglas squirrels that had been chasing each other around large Hemlock tree; NW corner of Lost Lake Tract. Unknown result.	12/8/11
<b>2012 observations</b>		
Mallard	N End Lost Lake; 4 pair	2/20/12
Black bear	Lake Chaplain; on road to Lost Lake	4/9/12
Harlequin duck	South Fork Sultan River just upstream of bridge	5/18/12
Deer	ROW; 4 does bedded down inside Lake Bronson gate	5/24/12
Pileated WP	Lost Lake; drumming on large hollow cedar snag	5/30/12
Kingfisher	Lost Lake; south end, calling and flying over lake	7/16/12
Common merganser	Spada; site 3 area; female and 4 immature swimming	8/21/12
In 2012, numerous other species were sighted by City of Everett watershed patrol, but date and location were not recorded. These include: blue grouse, yellow warbler, varied thrush, common loon, great blue heron, kinglets, western grebe, Rufus hummingbird, barred owl, American goldfinch, kingfisher, northern shrike, wood duck, spotted sandpiper, yellow-rumped warbler, black bear, coyote, bobcat, river otter, beaver, Western toad and garter snake.		
<b>2013 observations</b>		
Osprey	Powerhouse site – pair circling near microwave tower nest platform	5/6/13
Common Merganser	Adult female with 2 ducklings near N Fork Sultan R. mouth.	6/25/13
Osprey	Adult flying east over log boom.	7/16/13
Osprey	2 in nest at Jackson Powerhouse	7/18/13
Barred Owl	Two juveniles in old growth northwest of dam.	7/18/13
Black-tailed deer	Mature buck, 3x3pt in full velvet off 6122 Rd	6/26/13
Canada Geese -	Three pairs of adults + 16 goslings near Williamson Cr.	7/19/13
Barrow's Goldeneye	Adult female with 2 ducklings, near N Fork Sultan R. mouth.	7/19/13
Common Merganser	Adult female with 7 ducklings near Williamson Cr mouth.	7/25/13

## 2.2. WORK COMPLETED IN 2014

### 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 four tracts of Jackson Project mitigation land. A brief history of land management as it relates to their creation is presented in Section 2.1.1.

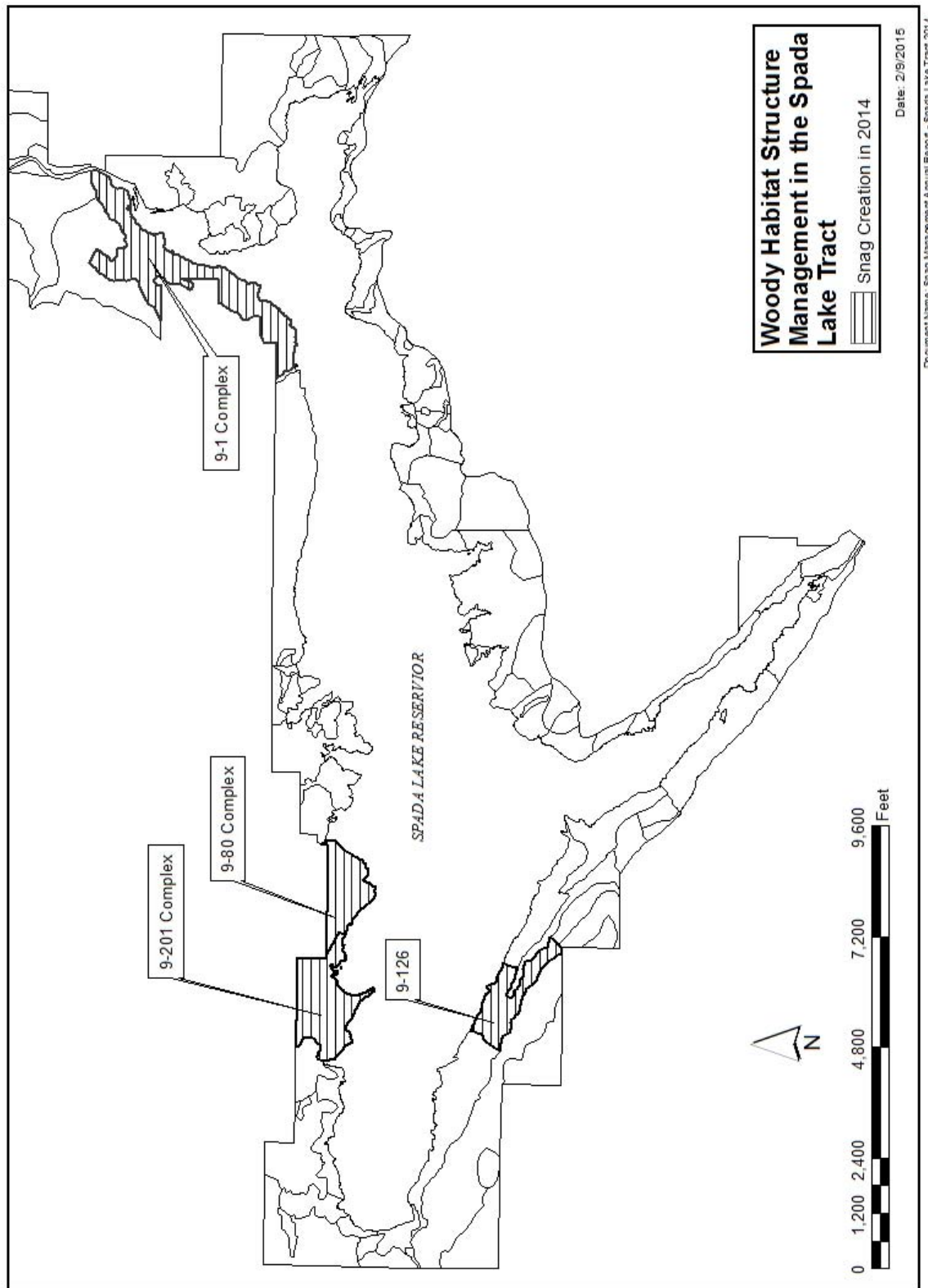
In 2014, woody habitat structures were created on four Spada Lake Tract stands/complexes totaling 215 acres (Table 2-4, Figure 2-3). A complex is one larger stand and multiple small stands (typically 1 acre or less) consolidated to allow easier management. A total of 1,332 woody habitat structures were created in 2014, with 89% of them being live-topped to become DLT's. 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 fungi 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 can be 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 of approximately 0.25 acres in size. One stand (9-126) did not have the full complement of woody structures created due to a high proportion of deciduous trees and stream corridors crossing the stand. These factors led to a total of 4.2 structures per acre being created rather than the full 7.0 per acre required. However, in this stand 5.2 snags per acre were created in 2007 under the WHMP.

**Table 2-4. Snag, decaying live tree, and coarse woody debris creation in 2014.**

UNIT	ACRES	YEAR	SNAGS				DLT				CWD		
			# Created	#/Acre	Avg Ht (ft)	Avg DBH (in)	# Created	#/Acre	Avg Ht (ft)	Avg DBH (in)	# Created	#/Acre	Avg DBH (in)
Spada 9-1 Complex	99.8	2014	85	0.9	54.1	12.1	614	6.2	58.4	14.1	0	0.0	0.0
Spada 9-126 <sup>a</sup>	35.1	2013/14	9	0.3	56.1	12.0	130	3.7	58.6	13.7	7	0.2	12.6
Spada 9-80 Complex	35.4	2014	8	0.2	66.3	12.9	214	6.0	66.3	15.3	3	0.1	12.5
Spada 9-201 Complex	44.7	2014	266	6.0	63.7	14.1	96	2.1	67.1	16.3	11	0.2	12.4
<b>Total Created</b>	<b>215</b>		<b>368</b>	<b>1.8</b>			<b>1054</b>	<b>4.5</b>			<b>21</b>	<b>0.1</b>	

<sup>a</sup> creation began in 2013. number shown are totals for 2013/14.



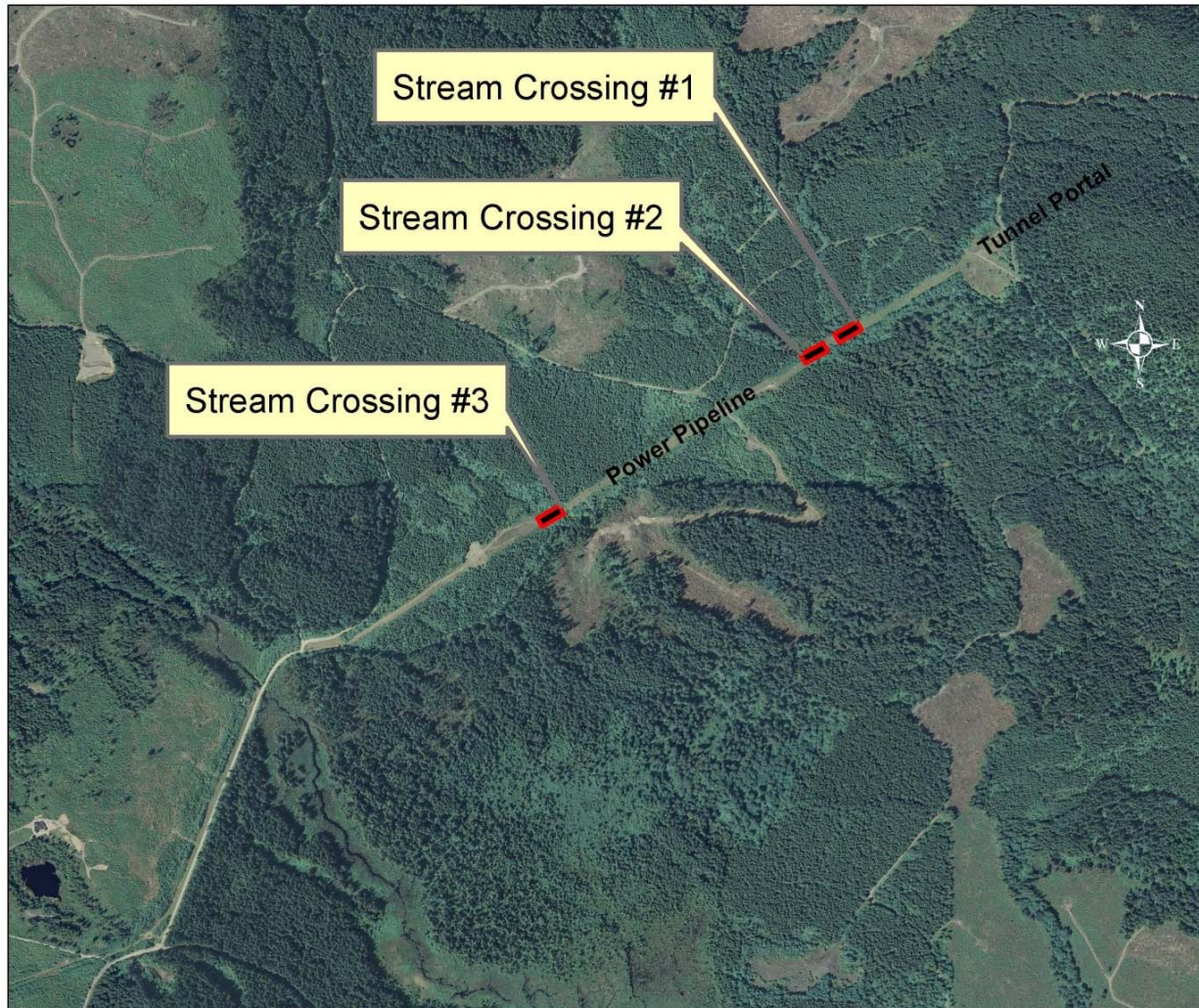


**Figure 2-3. Woody habitat structure creation on the Spada Lake Tract, 2014.**

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

Control of noxious weeds continued along the pipeline right-of-way (ROW), with Canada thistle, hawkweed and Scotch broom being the primary species targeted.

Following issuance of necessary permits, the placement of bottomless arched culverts occurred across three small streams between manholes P1 and P4 (Figure 2-4). This allows better access to inspect the pipeline under adverse conditions.



**Figure 2-4. Locations of culverts placed along the pipeline ROW in 2014.**

### 2.2.3. *Waterfowl Nest Boxes*

On the Lost Lake Tract, a total of six nest boxes were available for use during 2014, with one being used by cavity nesting waterfowl (Table 2-5). Boxes were checked, cleaned, repaired as needed, and provided with fresh nesting material on February 27. All boxes were visited again on May 7 and 30 to determine use, check for damage, and remove unwanted species, including native squirrels and their nests. Eggs are not moved or handled for counting during nest

checks, therefore quantities should be considered estimates. The locations of the six existing nest structures on the Lost Lake Tract are depicted in Figure 2-5.

**Table 2-5. Waterfowl nest box use on the Lost Lake Tract in 2014.**

BOX #	RESULTS
BOX 3	No use.
BOX 5	No use.
BOX 13	No use.
BOX 15	No use.
BOX 16	No use. Box had fallen off tree within last 3 weeks. Bear band on tree intact with no claw marks.
BOX 17	Flushed female Hooded Merganser May 7; 8 or 9 eggs counted. All 9 fledged.

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

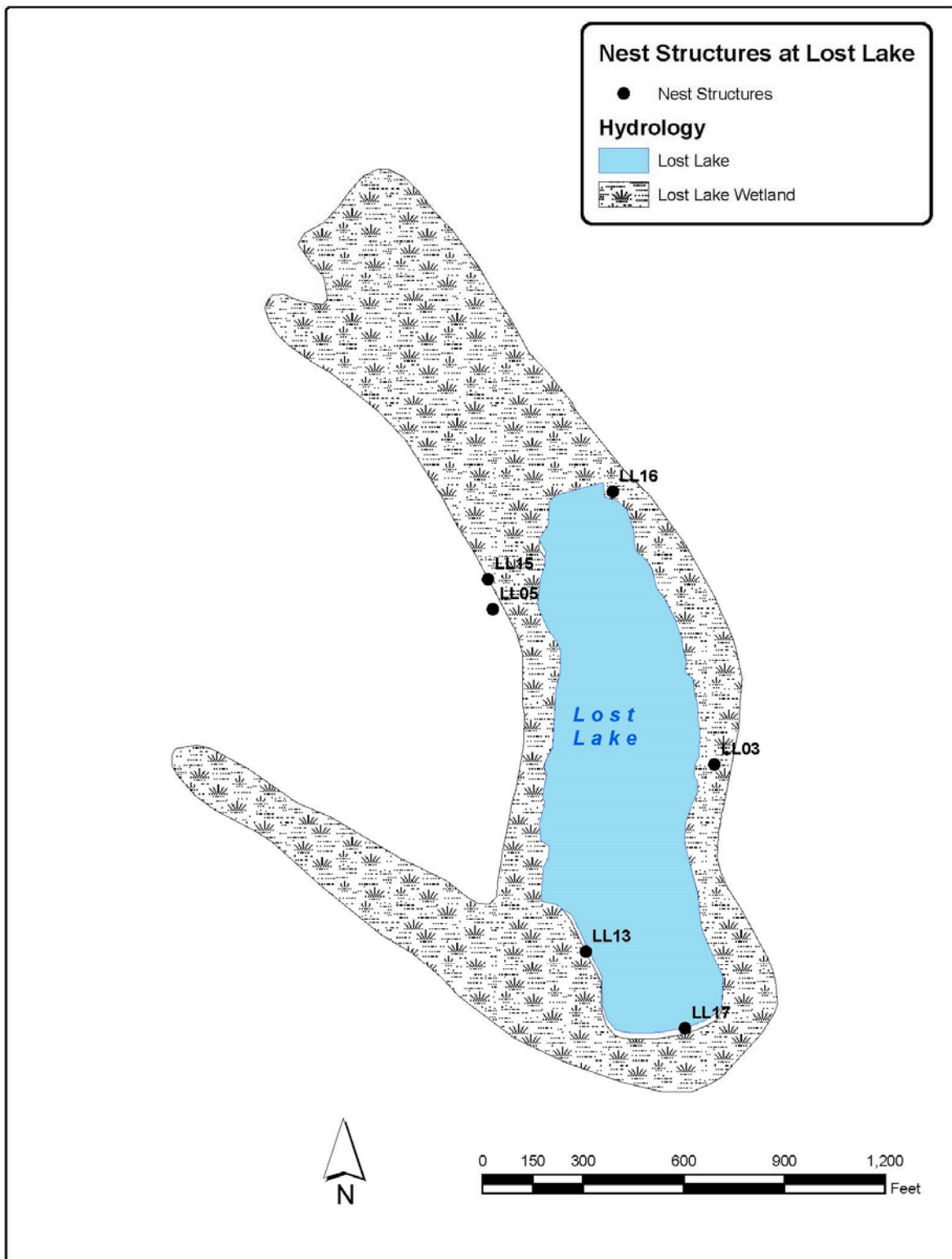
Activities occurring within buffers included nest box maintenance and woody habitat structure creation, as described in the previous sections of this document. The buffer restrictions for snags, DLT and CWD described in Table 2.2 of the TRMP were followed, which allow only individual or small groupings of woody habitat structures to be made within 100 feet of a lake, wetland or stream. Within the remainder of the buffer, 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 forest 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 2014 considered these objectives. These habitat types were protected and received minimal management activity in 2014, 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 2014.

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





Document Path: B:\Generation\Jackson\NATURAL RESOURCES\TERRESTRIAL\Wildlife\Annual Report\2012 Annual Report\Draft2012Rpt2Agencies20130318\Draft2012AnnualReport\Figures\Fig2-Nest Structure

**Figure 2-5. Nest structures at Lost Lake.**

Some incidental observations of wildlife species by District wildlife biologists and knowledgeable City of Everett personnel on TRMP lands are listed in Table 2-6. This partial 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 in 2014.**

DESCRIPTION	LOCATION	DATE
Hooded Merganser	Adult female + 3 ducklings near fishing platform	7/2/14
Beaver	Adult swimming mid-lake north to south	7/31/14
Grouse	Adult along roadside near north property line	9/5/14
Barred Owl	Flying into forest at north property line	9/5/14
Sightings recorded by City of Everett Watershed Patrol:		
Rufous Hummingbird	Site 3	5/29/14
Yellow Warbler	Site 3, near nest	5/29/14
White Crowned Sparrow	Site 3	5/29/14
Bushtits	Site 3	5/29/14
Western Tanager	Site 3, near nest	5/29/14
Pygmy Owl	Site 2	11/8/14

## 2.3. WORK PLANNED FOR 2015

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

Creation of snags/DLT/CWD will continue on the Spada Lake Tract during 2015. The focus will again be on stands where woody habitat structure creation has not yet occurred, or where creation occurred more than 10 years ago. Approximately 180 acres per year 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. Soil amendment on the pipeline ROW will continue if biosolids from the City of Everett waste water treatment facility are available. All disturbed or amended soils will be promptly seeded with a mixture of non-invasive, weed-free grasses and forbs as listed in Table 2.5 of 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 and all non-waterfowl, including native squirrels, will be evicted, as requested by WDFW at the 2011 Annual TRMP meeting. A final nest box productivity check will be conducted in 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. CUMULATIVE SUMMARY – 2011 through 2013**

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 between 2011 and 2015, that will be sent to the FERC in 2016. This section can be used as a quick reference of previous NWMP activities within recent years, and it will allow for an efficient and transparent preparation of the five-year report.

Due to water quality concerns, noxious weeds and invasive species found within the Spada Lake Reservoir and City of Sultan (along the Pipeline ROW) watersheds were treated with a naturally derived herbicide (20% acetic acid) by state-licensed contract herbicide applicators. Acetic acid is a non-selective herbicide (it will damage or kill any plant or portion of a plant that it contacts), and is non-systemic (it only effects 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).

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.

Areas of the Jackson Project that were disturbed and weed-prone, where noxious weeds have been 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 GIS database, to allow tracking of historical occurrences and treatment efforts to guide the following year's management.

District biologists met with Jackson 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 2014**

Areas of the Jackson Project that were disturbed and weed-prone, areas where noxious weeds had been observed in the past, and sites that had been previously treated, were visited to control noxious weeds. Most sites were re-treated several times during the growing season.

##### **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 included herb Robert, Canada thistle and Himalayan and Evergreen blackberry.

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

Weeds most commonly found along roads on the Spada Lake Tract were Canada thistle and oxeye daisy. Culmback Dam had large infestations of hawkweed and smaller patches of Scotch broom. 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 acetic acid has proven to be successful in treating weeds, albeit not as effectively as synthetically derived herbicides, and has been approved by the City for use within the watershed. Multiple applications of acetic acid were required on weed infestations, with many of the treated plants displaying top-kill or reduced vigor for a considerable length of time after treatment. 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.

### 3.2.4. *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 alders, and as a result, these infestations are not expected to extend their range significantly. Based on this and the difficulty of accessing this now road-less area, other sites have received higher priority for treatment.

### 3.2.5. *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 included Canada thistle, hawkweed, Scotch broom, Himalayan blackberry, and tansy ragwort. Areas of disturbed soil are over-seeded with a grass/clover mix when discovered and monitored to ensure that weeds do not become established.

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

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

The District reviewed the State and County's annual updated weed list for 2014. No changes were made that impacted weed control on Project lands.

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

No updates to specific management methods have been proposed. Cultural methods to prevent new infestations or reduce existing infestations continued to be employed including keeping ground disturbance to a minimum while mowing vegetation and 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.



### **3.3. WORK PLANNED FOR 2015**

Areas of the Jackson Project that are disturbed and weed-prone, where noxious weeds have been observed, and sites that have been previously treated will be visited to record occurrences of noxious weeds. Licensed contract herbicide applicators will again be used to apply herbicides. To reduce the likelihood of increasing infestation size or spreading weed propagules to new areas, weeds will be treated to the extent possible prior to ground-disturbing activities.

District biologists will continue to work with Jackson Project staff to facilitate implementation of the NWMP.

### **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. CUMULATIVE SUMMARY – 2011 through 2013

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 between 2011 and 2015, that will be sent to the FERC in 2016. This section can be used as a quick reference of previous MMHPP activities within recent years, and it will allow for an efficient and transparent preparation of the five-year report.

Project-related activities conducted in the Spada Lake Reservoir Basin and on other Project lands during 2011-2013 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 conducting Marsh Creek Slide Modifications under License Article 402
- Planning for Side Channel Enhancement under License Article 404
- Preparation for implementing the Whitewater Recreation Plan under License Article 412
- Replacing the valve on the auxiliary line at Culmback Dam to support water temperature conditioning under License Article 415
- Replacing culverts on the South Shore Road to support the Recreation Resource Management Plan (RRMP)
- Air-lifting toilets out of the Bear Creek and Nighthawk Recreation Sites to support the RRMP
- Conducting snow surveys to support project operations and water supply planning
- Planning of the Sultan River Canyon Trail under the RRMP
- Planning of the New Recreation Site at Spada Lake Reservoir under the RRMP
- Conducting hazard tree maintenance activities to support operation and maintenance
- Implementing the TRMP
- Implementing the NWMP

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

### 4.2. WORK COMPLETED IN 2014

Project-related activities conducted in the Spada Lake Reservoir Basin and on other Project lands during 2014 were conducted according to the MMHPP. Plans and activities were prepared or modified as needed to comply with the MMHPP. These activities included:

- Air-lifting toilets out of the Bear Creek and Nighthawk Recreation Sites to support the RRMP
- Conducting snow surveys to support operation and water supply planning
- Planning and construction of the Sultan River Canyon Trail (SRCT) and modifications to the 6122 Road, under the RRMP
- Initiating surveys concurrent with construction/modification planning to allow fish passage at the Diversion Dam

- Planning and construction of the New Recreation Sites which included Gateway Trailhead, Culmback Dam Recreation Site, and the new North Shore Recreation Site at Spada Lake Reservoir under the RRMP and Amendment to the RRMP
- Conducting hazard tree maintenance activities to support operation and maintenance
- Maintaining recreation facilities in support of the RRMP
- Planning and construction of the Culmback Dam Trail as specified in the RRMP
- Implementing the TRMP
- Implementing the NWMP

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

A sign was posted at Spada Lake Reservoir recreation sites to alert users of the need to contain all refuse to protect nesting marbled murrelets.

#### **4.3. WORK PLANNED IN 2015**

The 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. Planning of volitional fish passage at the Diversion Dam will continue and includes a study to determine if there is occupied marbled murrelet habitat nearby; the second and final year of this study will be completed in 2015.

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

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

## APPENDIX A

### 2014 Agency Correspondence

#### 1. Annual Meeting Notice from District to Agencies

**From:** Schutt, Mike  
**To:** "Tim Romanski (Tim\_Romanski@fws.gov)"; "Ardagost, Brock A (BFW)"; "Michael Sedgony (msedgony@tribes-nsn.gov)"; "Sonny Paz"; "Sonny Gohrman (sonny.gohrman@co.snohomish.wa.us)"; Justin Schmal (justin.schmal@dnr.wa.gov); "MCGUIRE, AL (al.mcguire@dnr.wa.gov)"; "Prince, Sarah A"; Shauna Hae (shae@fs.fed.us)  
**Cc:** "Daryl Williams (dwilliams@tribes-nsn.gov)"; "Eric Orog (erog@fs.fed.us)"; "Laurie Bergvall (laurie.bergvall@dnr.wa.gov)"; Binkley, Keith  
**Subject:** Jackson Project Terrestrial Resources 2014 Annual Report Meeting  
**Date:** Monday, February 23, 2015 12:13:25 PM

Greetings,

We are currently preparing the 2014 Annual Report for the Jackson Hydroelectric Project Terrestrial Resources Mitigation Plan (TRMP). Included will be a summary of activities completed in 2014, as well as a cumulative summary of activities accomplished since 2011 for the TRMP, Noxious Weed Management Plan (NWMP), and the Marbled Murrelet Habitat Protection Plan (MMHPP).

These plans can be found on the PUD's web site at <http://www.snopud.com/PowerSupply/hydro/jhprelicense/jhprelicense/mgmtplans.aspx?p=1891>. Implementation activities conducted on the Lost Lake, Project Facility Lands, Spada Lake, and Williamson Creek Tracts are included in the report. This is the fourth annual report under our 2011 Jackson Project license. The summary report will not go to FERC until the 2015 report, filed in 2016.

You should receive the report on or about March 13, with 30 days for review. I would be happy to meet to discuss our activities and provide an on-site visit if desired. The week of March 30 – April 3 is open for a meeting/field visit. 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.

Please let me know as soon as possible if you would like to attend a meeting, and whether you prefer a field visit as well. Also, please indicate your availability during the week of March 30.

Thanks for your time,

**Mike Schutt**

Sr. Environmental Coordinator – Wildlife

**Snohomish County PUD #1**

Office) 425-783-1712

Cell) 425-210-5816

## 2. Agency Review Notice of Draft 2014 Annual Report

**From:** [Schutt, Mike](#)  
**To:** ["Tim Romanski \(Tm\\_Romanski@fw.gov\)"; "Ardleoste, Brock A \(DFW\)"; "Michael Seidov \(mseidov@bualuprbes-nm.gov\)"; "Sonny Pac"; "Sonny Gohman \(sonny.gohman@co.snohomish.wa.us\)"; "Justin Schmal \(justin.schmal@dnr.wa.gov\)"; "McGUIRE, Al \(al.mcguire@dnr.wa.gov\)"; "Prince, Sarah A"; "Shauna Hee \(shee@fs.fed.us\)"; "Deryl Williams \(dwilliams@bualuprbes-nm.gov\)"; "Eric Orog \(erog@fs.fed.us\)"; "Laurie Bergvall \(laurie.bergvall@dnr.wa.gov\)"; Binkley, Keith; Presler, Dawn](#)  
**Cc:** ["Deryl Williams \(dwilliams@bualuprbes-nm.gov\)"; "Eric Orog \(erog@fs.fed.us\)"; "Laurie Bergvall \(laurie.bergvall@dnr.wa.gov\)"; Binkley, Keith; Presler, Dawn](#)  
**Subject:** Draft Jackson Project Terrestrial Resources 2014 Annual Report for your review  
**Date:** Thursday, March 12, 2015 2:49:59 PM  
**Attachments:** [2014 JHP Annual Report Draft 031215.pdf](#)

Attached for your review is the draft 2014 Terrestrial Resources Annual Report for the Jackson Hydroelectric Project (FERC 2157). Comments are due back no later than April 13, 2015.

The report includes a summary of activities accomplished during 2014 and those proposed for 2015, for the Terrestrial Resource Management Plan, Noxious Weed Management Plan, and Marbled Murrelet Habitat Protection Plan. These plans can be found on the PUD's web site via the following link: <http://www.snopud.com/PowerSupply/hydro/jhp/jhplicense.aspx?p=1978>.

This is the fourth annual report under our new Jackson Project license; the final version will not go to FERC. In 2016 FERC will receive a five-year summary for work accomplished from 2011 – 2015.

No invitee has expressed an interest in holding an on-site meeting to discuss any of the above-mentioned management plans, so no meeting has been scheduled.


**Mike Schutt**  
 Sr. Environmental Coordinator – Wildlife  
**Snohomish County PUD #1**  
 Office) 425-783-1712  
 Cell) 425-210-5816

### 3. Agency Comments on the Annual Report

**From:** [Ozog, Eric -FS](#)  
**To:** [Schutt, Mike](#)  
**Subject:** FW: Draft Jackson Project Terrestrial Resources 2014 Annual Report for your review  
**Date:** Wednesday, March 25, 2015 3:58:45 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

Hi Mike, see below comments from our botany program manager Kevin James, who reviewed the Noxious Weed section of the 2014 Terrestrial Resources report and proposed actions for 2015. If you prefer a more formal written response, let me know. Best, Eric



**Eric Ozog**  
**Realty Specialist**  
**Forest Service**  
**Mt. Baker-Snoqualmie National Forest, Verlot Public Service Center**  
 p: 360-691-4396  
 f: 360-691-7122  
[eozog@fs.fed.us](mailto:eozog@fs.fed.us)  
 33515 Mountain Loop Highway  
 Granite Falls, WA 98252  
[www.fs.fed.us](http://www.fs.fed.us)  
  
**Caring for the land and serving people**

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**From:** James, Kevin - FS  
**Sent:** Monday, March 23, 2015 12:46 PM  
**To:** Ozog, Eric -FS  
**Cc:** Schreiber, Carrie L -FS; Hee, Shauna M -FS  
**Subject:** RE: Draft Jackson Project Terrestrial Resources 2014 Annual Report for your review

Hi Eric,

Below is my review of the Draft 2014 Annual Report, Noxious Weed Management Plan section:

Overall the Noxious Weed Management Plan (NWMP) section of the Draft Jackson Project Terrestrial Resources 2014 Annual Report is a qualitative presentation of noxious weed work in the project areas.

This section of the report succinctly summarizes noxious weed work completed prior to 2014. As for noxious weed treatment activity in 2014, brief narratives of activity by project tract provide an adequate overview of the past year's activity. This section of the report is written as a supplement/update to the 2009 NWMP rather than a stand-alone report that could reference the original plan. In 2014, treatments continued to follow those outlined in 2009 NWMP and work planned for 2015 looks like it will be carried out in the same way. Efforts to prevent the spread of noxious species should continue. For the 5 year report it would be good to see tables that quantify treatment efforts, revegetation efforts, treatment efficacy of the natural derived herbicide and

**From:** [Paz, Sonny -FS](#)  
**To:** [Schutt, Mike](#)  
**Cc:** [Ozog, Eric -FS](#)  
**Subject:** RE: Jackson Project Terrestrial Resources 2014 Annual Report Meeting  
**Date:** Monday, April 13, 2015 10:37:27 AM  
**Attachments:** [image001.jpg](#)

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Mike,

I have completed my review of the 2014 Annual Report for the Jackson Hydroelectric Project TRMP.  
I do not have any comments to submit in response to the 2014 draft report.

Thank you for the opportunity to review the draft report.

**A Sonny Paz**  
**Wildlife Biologist**  
**Mt. Baker-Snoqualmie National Forest**  
p: 425-888-8757  
f: 425-888-1910  
[spaz@fs.fed.us](mailto:spaz@fs.fed.us)

FS\_Shield



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**From:** Schutt, Mike [mailto:MSSchutt@snopud.com]  
**Sent:** Monday, February 23, 2015 12:13 PM  
**To:** 'Tim Romanski (Tim\_Romanski@fws.gov)'; 'Applegate, Brock A (DFW)'; 'Michael Sevigny (msevigny@tulaliptribes-nsn.gov)'; Paz, Sonny -FS; sonny.gohrman@co.snohomish.wa.us; Justin Schmal (justin.schmal@dnr.wa.gov); 'MCGUIRE, AL (al.mcquire@dnr.wa.gov)'; Callaghan, Sarah A -FS; Hee, Shauna M -FS  
**Cc:** 'Daryl Williams (dwilliams@tulaliptribes-nsn.gov)'; Ozog, Eric -FS; 'Laurie Bergvall (laurie.bergvall@dnr.wa.gov)'; Binkley, Keith  
**Subject:** Jackson Project Terrestrial Resources 2014 Annual Report Meeting

Greetings,

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These plans can be found on the PUD's web site at

<http://www.snopud.com/PowerSupply/hydro/jhprelicense/jhprdocrel/mgmtplans.ashx?>