

Henry M. Jackson Hydroelectric Project  
(FERC No. 2157)

**TERRESTRIAL RESOURCES  
2016 ANNUAL REPORT**



Everett, WA

May 2017

Final - This document has been prepared by 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:

*Public Utility District No. 1 of Snohomish County (District). 2017. Terrestrial Resources 2016 Annual Report for the Henry M. Jackson Hydroelectric Project, FERC No. 2157. May 2017.*

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	iv
1. INTRODUCTION .....	1
2. TERRESTRIAL RESOURCES MANAGEMENT PLAN .....	5
2.1. WORK COMPLETED IN 2016 .....	5
2.1.1. Snags, Decaying Live Trees and Coarse Woody Debris .....	5
2.1.2. Right-Of-Way Management .....	5
2.1.3. Waterfowl Nest Boxes .....	5
2.1.4. Lake, Wetland and Stream Buffers .....	5
2.1.5. Stewardship Activities or Observations of Note .....	6
2.2. WORKED PLANNED FOR 2017 .....	7
2.2.1. Snags, Decaying Live Trees and Coarse Woody Debris .....	7
2.2.2. Right-Of-Way Management .....	7
2.2.3. Waterfowl Nest Boxes .....	8
2.2.4. Lake, Wetland and Stream Buffers .....	8
2.3. ISSUES OR PROPOSED CHANGES .....	8
3. NOXIOUS WEED MANAGEMENT PLAN .....	9
3.1. BACKGROUND .....	9
3.2. WORK COMPLETED IN 2016 .....	9
3.2.1. Lost Lake Tract Treatment and Monitoring .....	10
3.2.2. Spada Lake Tract Treatment and Monitoring .....	10
3.2.3. Williamson Creek Tract Treatment and Monitoring .....	10
3.2.4. Project Facility Lands Treatment and Monitoring .....	10
3.2.5. Annual Review of Noxious Weed List .....	10
3.2.6. Update of Species-Specific Management Methods .....	10
3.3. WORK PLANNED FOR 2017 .....	11
3.4. ISSUES OR PROPOSED CHANGES .....	11
4. MARBLED MURRELET HABITAT PROTECTION PLAN .....	12
4.1. COORDINATION WITH PROJECT OPERATIONS STAFF .....	12
4.2. WORK COMPLETED IN 2016 .....	12
4.3. WORK PLANNED FOR 2017 .....	12
4.4. ISSUES OR PROPOSED CHANGES .....	12

### Appendix 1 Maps of Noxious Weed Locations within the Project Boundary

## LIST OF FIGURES

Figure 1.	Location of Project and Terrestrial Resource Management Plan Tracts. ....	2
Figure 2.	Nest structure locations at Lost Lake. ....	6
Figure A-1.	Overview of Project Lands and sequence of noxious weed figures. ....	A-1
Figure A-2.	2016 noxious weed locations at Culmback Dam. ....	A-2
Figure A-3.	2016 noxious weed locations along Lower Culmback Dam Road. ....	A-3
Figure A-4.	2016 noxious weed locations along Upper Culmback Dam Road. ....	A-4
Figure A-5.	2016 noxious weed locations along South Shore Road, section 1. ....	A-5
Figure A-6.	2016 noxious weed locations along South Shore Road, section 2. ....	A-6
Figure A-7.	2016 noxious weed locations along South Shore Road, section 3. ....	A-7
Figure A-8.	2016 noxious weed locations along South Shore Road, section 4. ....	A-8
Figure A-9.	2016 noxious weed locations along South Shore Road, section 5. ....	A-9
Figure A-10.	2016 noxious weed locations along South Shore Road, section 6. ....	A-10
Figure A-11.	2016 noxious weed locations along South Shore Road, section 7. ....	A-11
Figure A-12.	2016 noxious weed locations at the powerhouse and along pipeline ROW, section 1. ....	A-12
Figure A-13.	2016 noxious weed locations along the pipeline ROW, section 2. ....	A-13
Figure A-14.	2016 noxious weed locations along the pipeline ROW, section 3. ....	A-14
Figure A-15.	2016 noxious weed locations along the pipeline ROW, section 4. ....	A-15
Figure A-16.	2016 noxious weed locations along the pipeline ROW, section 5. ....	A-16
Figure A-17.	2016 noxious weed locations along the pipeline ROW, section 6. ....	A-17
Figure A-18.	2016 noxious weed locations along the pipeline ROW, section 7. ....	A-18

## LIST OF TABLES

Table 1.	Waterfowl nest box use on the Lost Lake Tract in 2016. ....	5
Table 2.	Incidental wildlife observations in 2016. ....	7

## 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
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 2016 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. No significant changes are proposed for the management plans, however a problem with securing a suitable contractor to perform habitat tree creation was encountered. Additional woody habitat structures will be created each year for the remainder of the 10 year cycle (through 2020) to ensure that all suitable acres are evaluated and have structures created as required. 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 as substitutes for some of the coarse woody debris. Also, TRMP nest box program was modified to include an additional monitoring visit during the nesting season. Tasks scheduled for the 2017-2020 period are also presented.

### Tasks Accomplished during 2016

- 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 Project related activities, including implementation of the Recreation Resources Management Plan and construction work related to the Diversion Dam Volitional Fish Passage Project.
- District biologist 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 2017

- Evaluate and treat as necessary, approximately 225 acres of land on the Spada Lake Tract for creation of decaying live trees, snags, coarse woody debris logs and canopy gaps, to ensure that by the end of the initial 10-year period (2011-2020) all TRMP lands have been evaluated for woody habitat structure creation.
- Continue to maintain and monitor waterfowl nest boxes at Lost Lake.
- 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 coordination with engineering, operations, and 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 2016 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). 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:

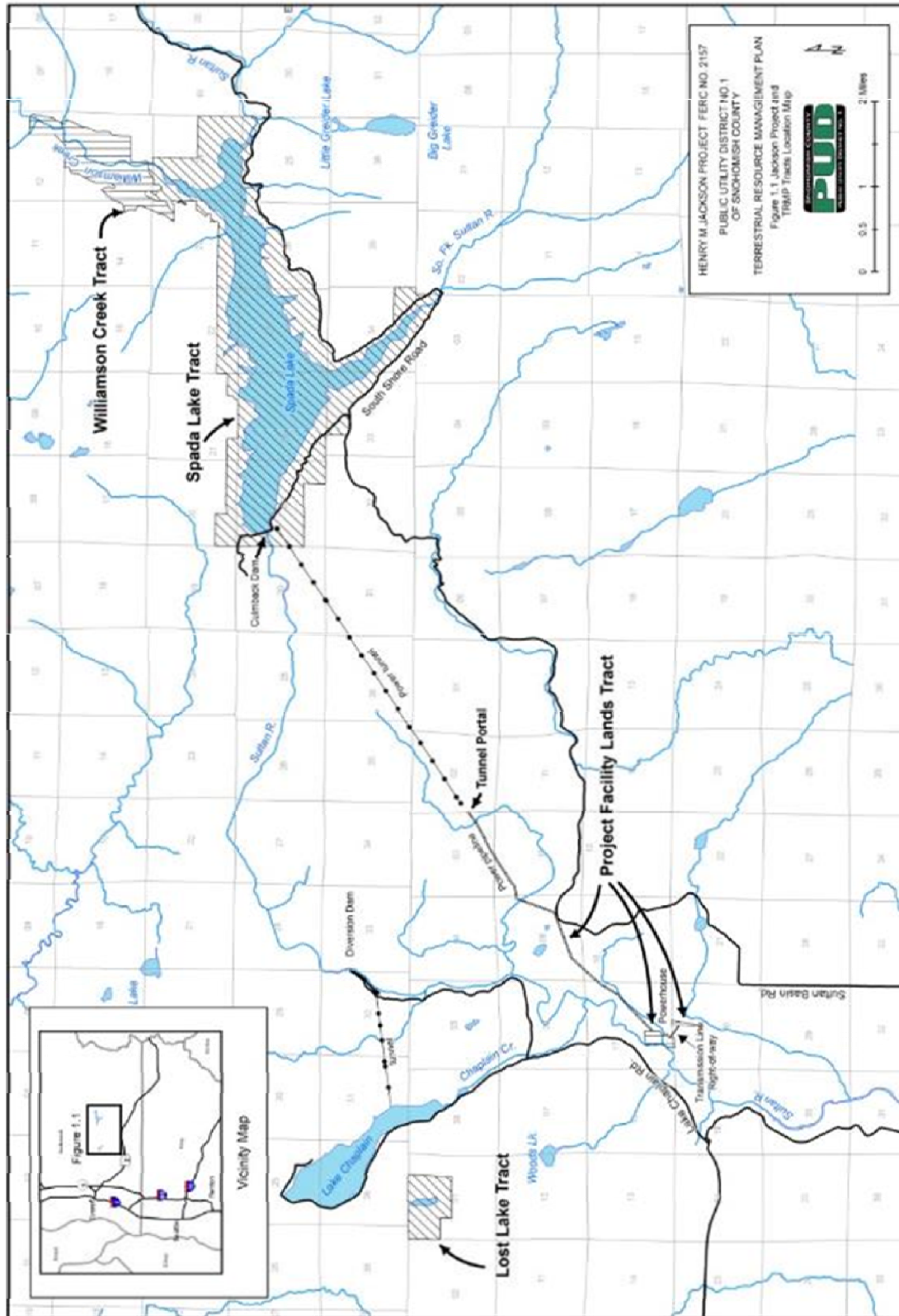
<http://www.snopud.com/PowerSupply/hydro/jhp/jhplicense.ashx?p=1978>).

The TRMP incorporates habitat enhancement methods for forest vegetation management, including old growth, young forest and understory management; lake, wetland and stream buffers; snags, 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, habitat management objectives, habitat management methods, and management prescription 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. This report represents the 2016 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:

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



**Figure 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. Documentation 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:

<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 marbled murrelet monitoring surveys for 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 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 2016 are noted in this report.

## 2. TERRESTRIAL RESOURCES MANAGEMENT PLAN

### 2.1. *WORK COMPLETED IN 2016*

#### 2.1.1. 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 Project mitigation land.

In 2016, woody habitat structures were not created on any of the TRMP tracts, due to an issue with the contractor's ability to perform. The shortfall from 2016 will be spread evenly across the 4 years remaining in the 10-year cycle of woody habitat structure management, resulting in approximately 225 acres being treated annually versus the typical 180 acres.

#### 2.1.2. 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 species most often encountered.

#### 2.1.3. Waterfowl Nest Boxes

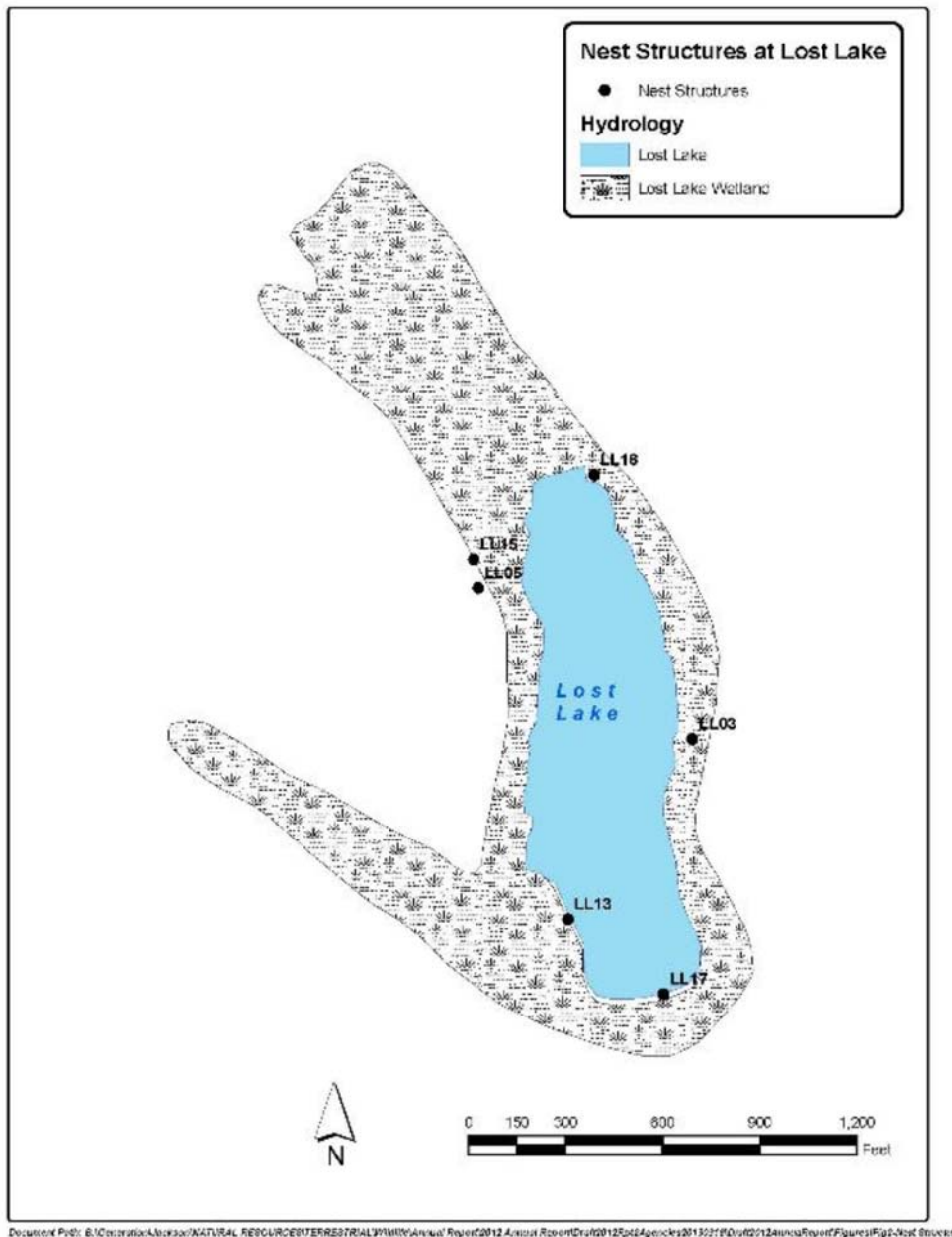
On the Lost Lake Tract, a total of six nest boxes were available for use during 2016, with two being used by cavity nesting waterfowl, although only one successfully fledged ducklings (Table 1). Boxes were checked, cleaned, repaired as needed, and provided with fresh nesting material on February 24. All boxes were visited again on May 2 and June 27 to determine use, check for damage, and remove unwanted species, including native squirrels, starlings, and their nests, per WDFW's 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.

**Table 1. Waterfowl nest box use on the Lost Lake Tract in 2016.**

BOX #	RESULTS
BOX 3	No use.
BOX 5	No use.
BOX 13	Several eggs were noted during 5/2/16 visit, however, 11 Hooded Merganser eggs were found abandoned in nest during 6/27/16 visit. Unsuccessful attempt.
BOX 15	No use.
BOX 16	No use.
BOX 17	Female Wood Duck setting on nest during 5/2/16 visit. Remnants of 7 hatched eggs found during 6/27/16 visit.

#### 2.1.4. 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.



**Figure 2. Nest structure locations at Lost Lake.**

### 2.1.5. 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 2016 considered these objectives. These habitat types were protected and received minimal management activity in 2016, 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 2016.

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. 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. Incidental wildlife observations in 2016.**

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

## **2.2. WORKED PLANNED FOR 2017**

### **2.2.1. 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 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.

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

Aggressive noxious and invasive weed control will continue on all Project lands to prevent seed production. Soil amendment on the pipeline ROW also 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 the TRMP. For erosion control, only certified weed-free straw is used on all District lands.

### **2.2.3. 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-native birds and 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 mid to late June to ensure accurate determination of use, as specified in the TRMP.

### **2.2.4. 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.

## **2.3. *ISSUES OR PROPOSED CHANGES***

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

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

#### **3.1. BACKGROUND**

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 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 relicensing 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. Figure 3-1 shows an overview of the project lands, figures 3-2 through 3-11 show weed locations identified around Spada Lake. Figures 3-12 through 3-18 show weed locations along the pipeline ROW. These figures include comparisons between weed locations identified by the botanical consultants in 2007 and those identified by District biologists in 2016.

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 2016**

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.

### **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 2016.

### **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. Since botanical surveys were conducted in 2007 as part of the relicensing of the Jackson Project, control efforts have resulted in dramatic decreases in abundance of several species. For example, Canada Thistle was mapped as an intermittent population along nearly the entire South Shore road in 2007. Currently, that population has been reduced to scattered small pockets (figures A-4 through A-11). Similar results occurred with other weed species as well. 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 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.

### **3.2.4. 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 included Canada thistle, hawkweed, Scotch broom, 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 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 2016. 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. To help ensure that weeds don't develop resistance to specific herbicides or modes of action, District biologists regularly change herbicides used.

### **3.3.      *WORK PLANNED FOR 2017***

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 each annual 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 project, 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. COORDINATION WITH PROJECT OPERATIONS STAFF***

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 2016***

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

- Construction work to allow anadromous fish passage at the Diversion Dam
- Conducting snow surveys to support operation and water supply planning
- Maintaining recreation facilities in support of the RRMP
- Implementing the TRMP
- Implementing the NWMP

### ***4.3. WORK PLANNED FOR 2017***

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. Forest stand structure and composition will be evaluated to determine if any suitable habitat has developed since the last forest inventory, which occurred as a precursor to creation of the MMHPP.

- Water Temperature Conditioning work at Culmbach Dam will begin in September, and all criteria set forth in the Biological Opinion to protect Marbled Murrelets will be met.

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

No issues have been identified and no changes are proposed for the MMHPP.

## **Appendix A**

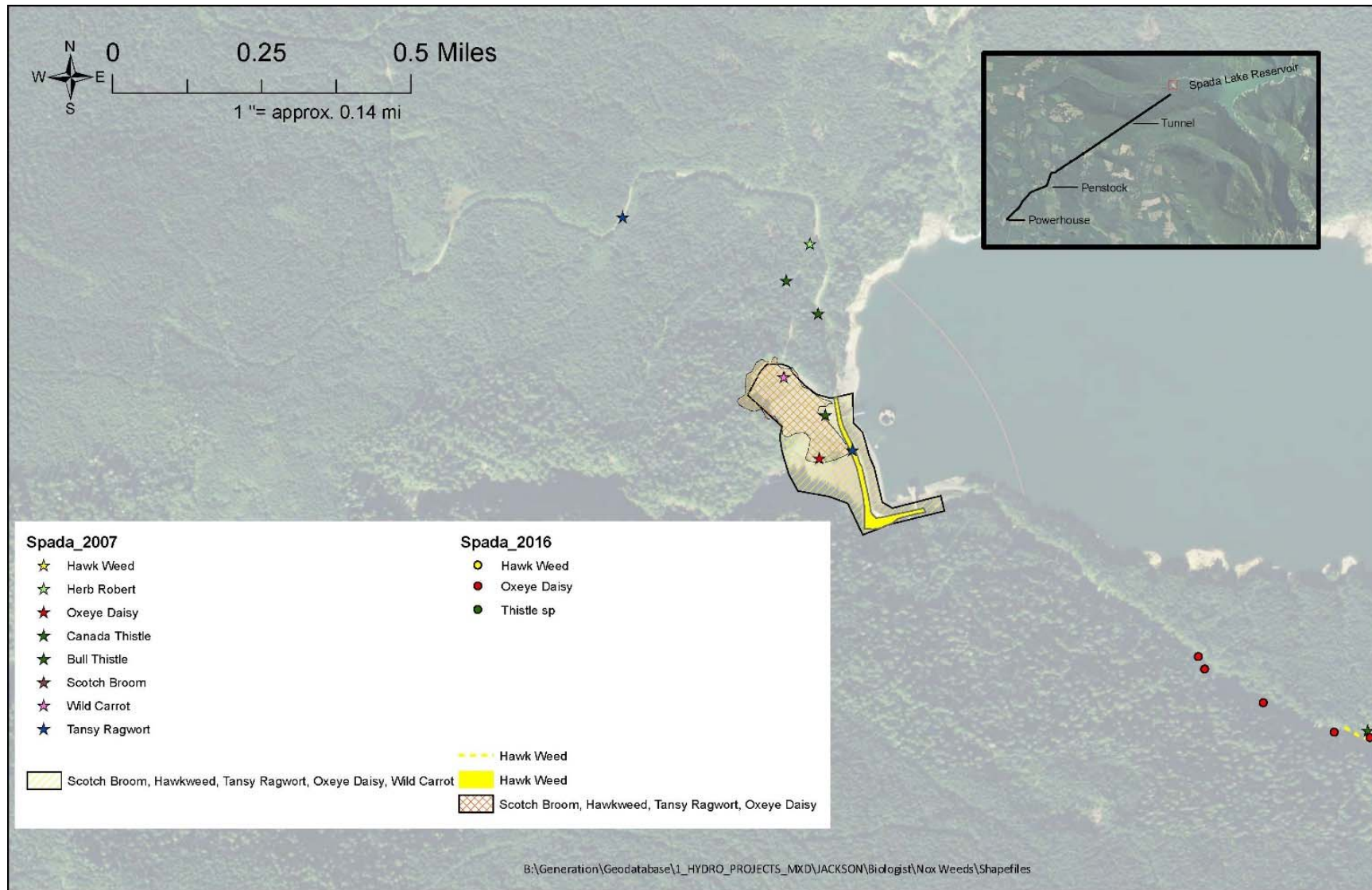
---

### *Maps of Noxious Weed Locations within the Project Boundary*

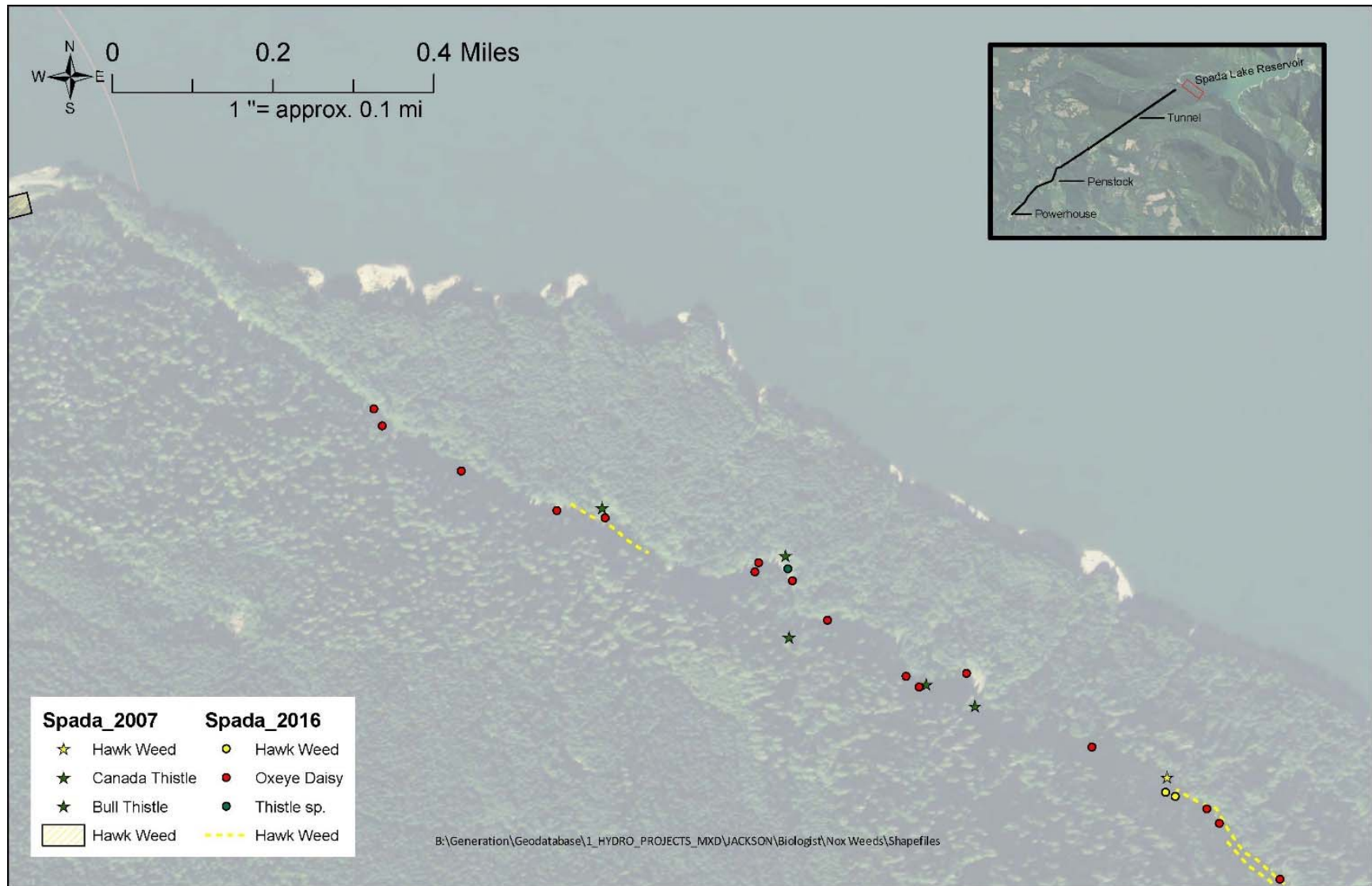


**Figure A-1. Overview of Project Lands and sequence of noxious weed figures.**



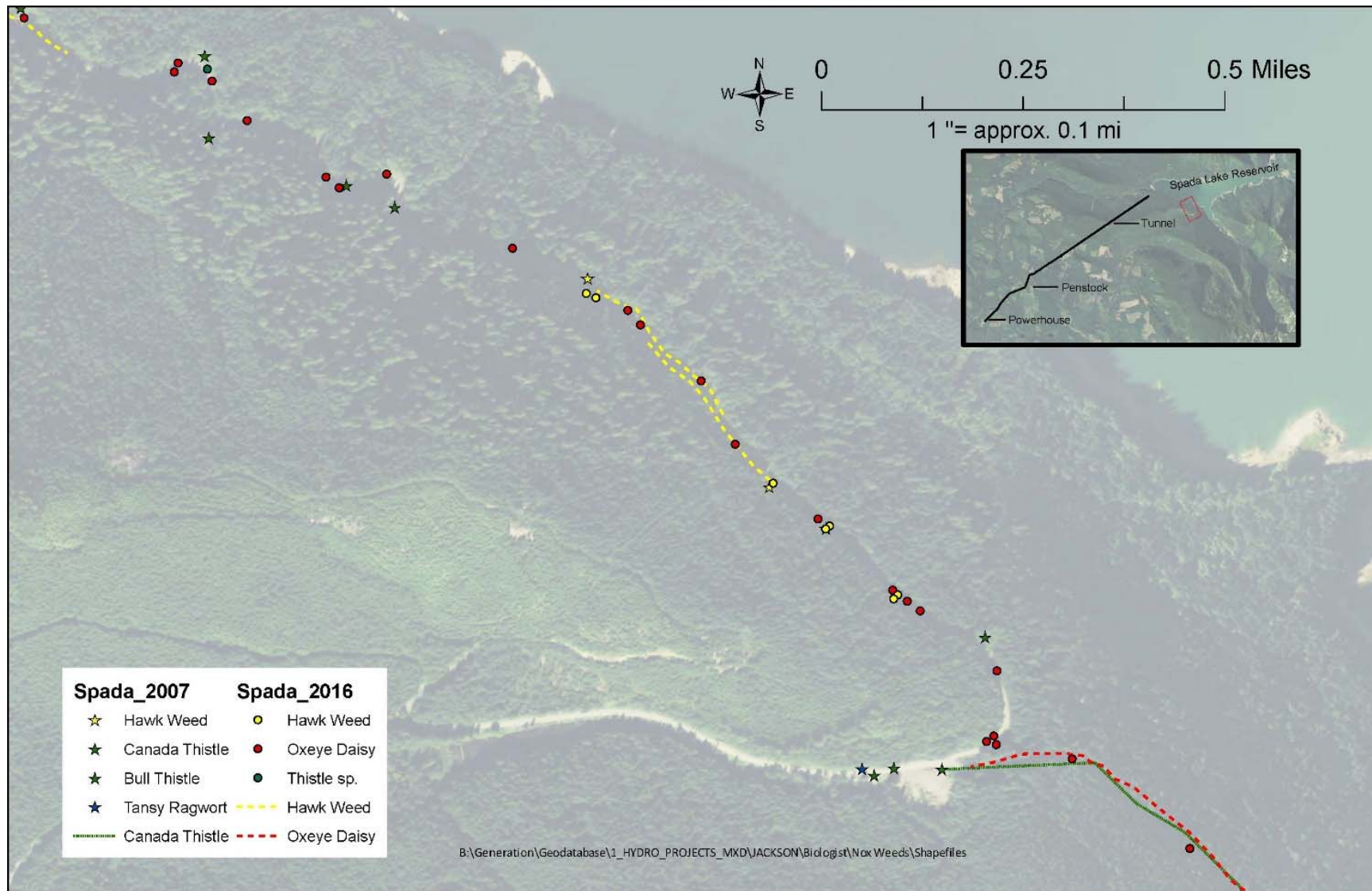


**Figure A-2. 2016 noxious weed locations at Culmback Dam.**

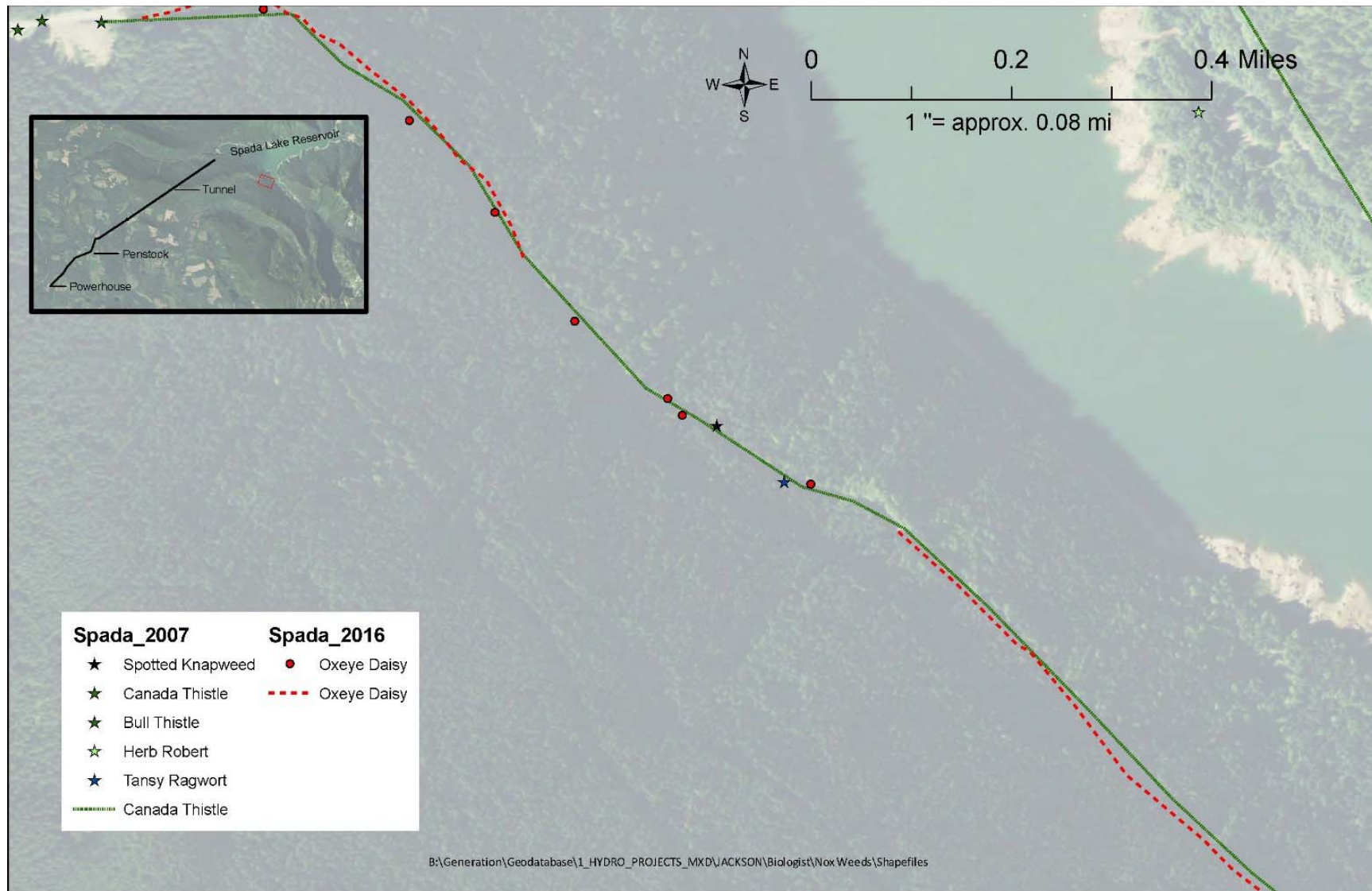


**Figure A-3. 2016 noxious weed locations along Lower Culmback Dam Road.**



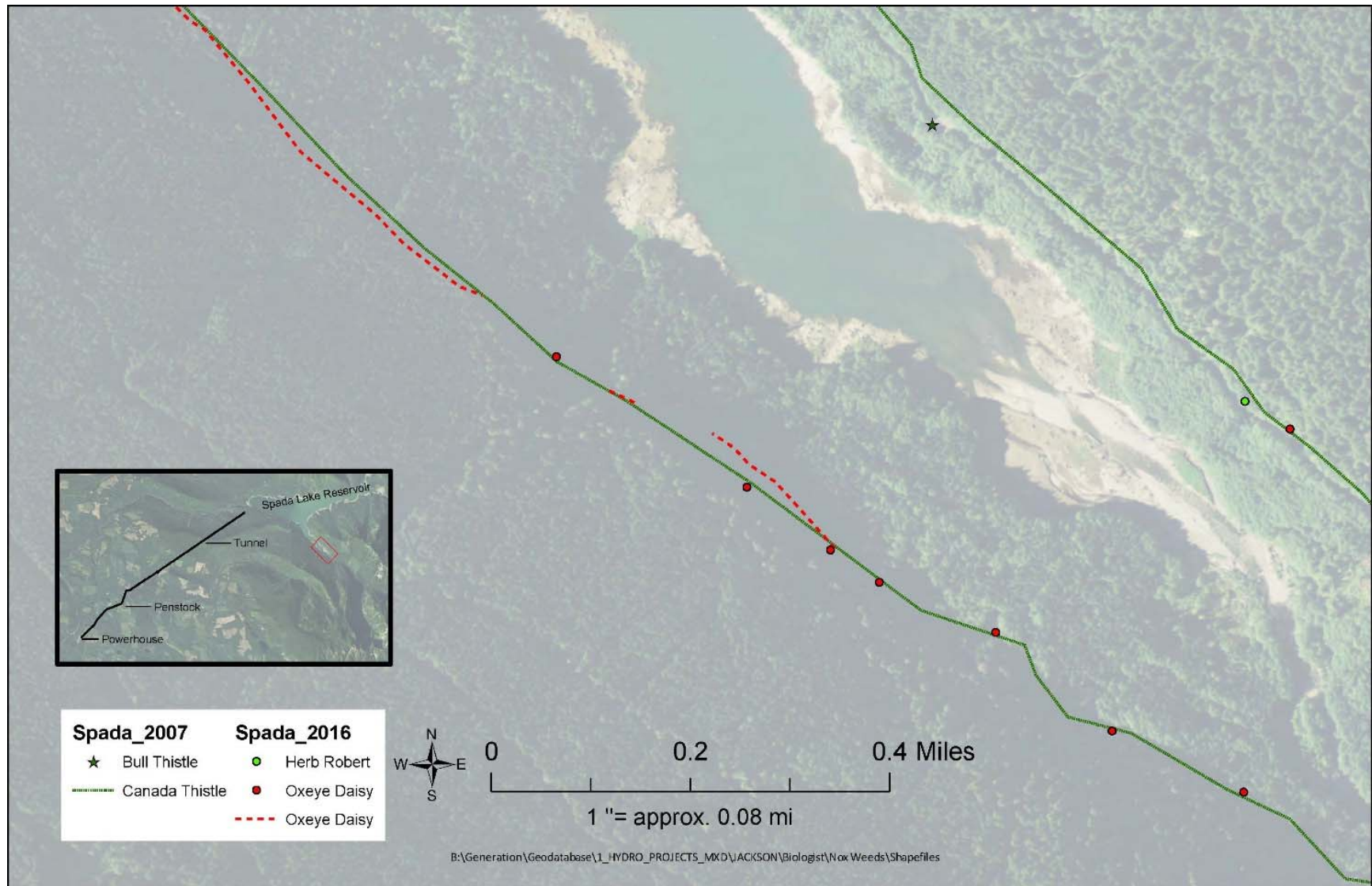


**Figure A-4. 2016 noxious weed locations along Upper Culmback Dam Road.**

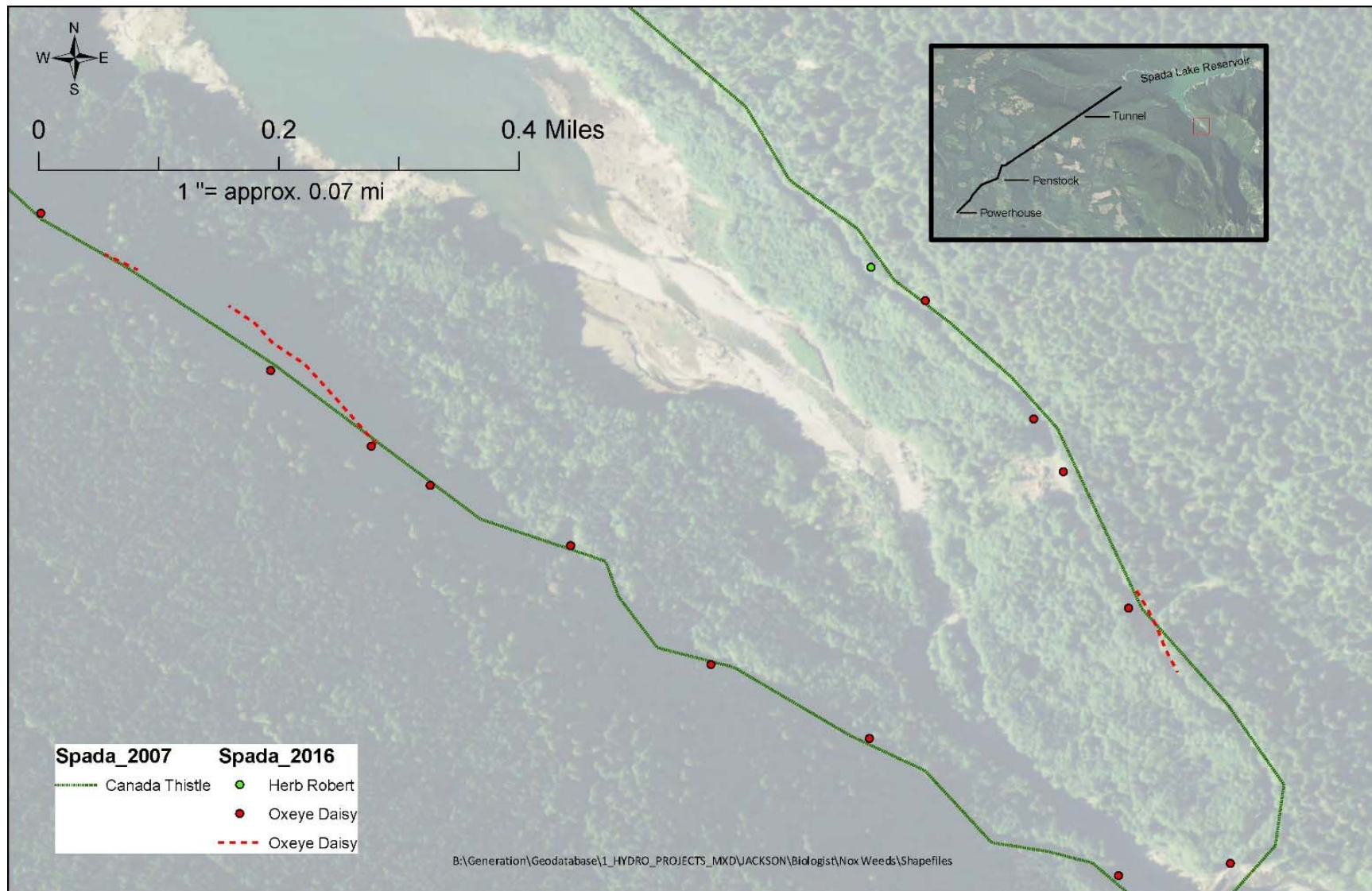


**Figure A-5. 2016 noxious weed locations along South Shore Road, section 1.**



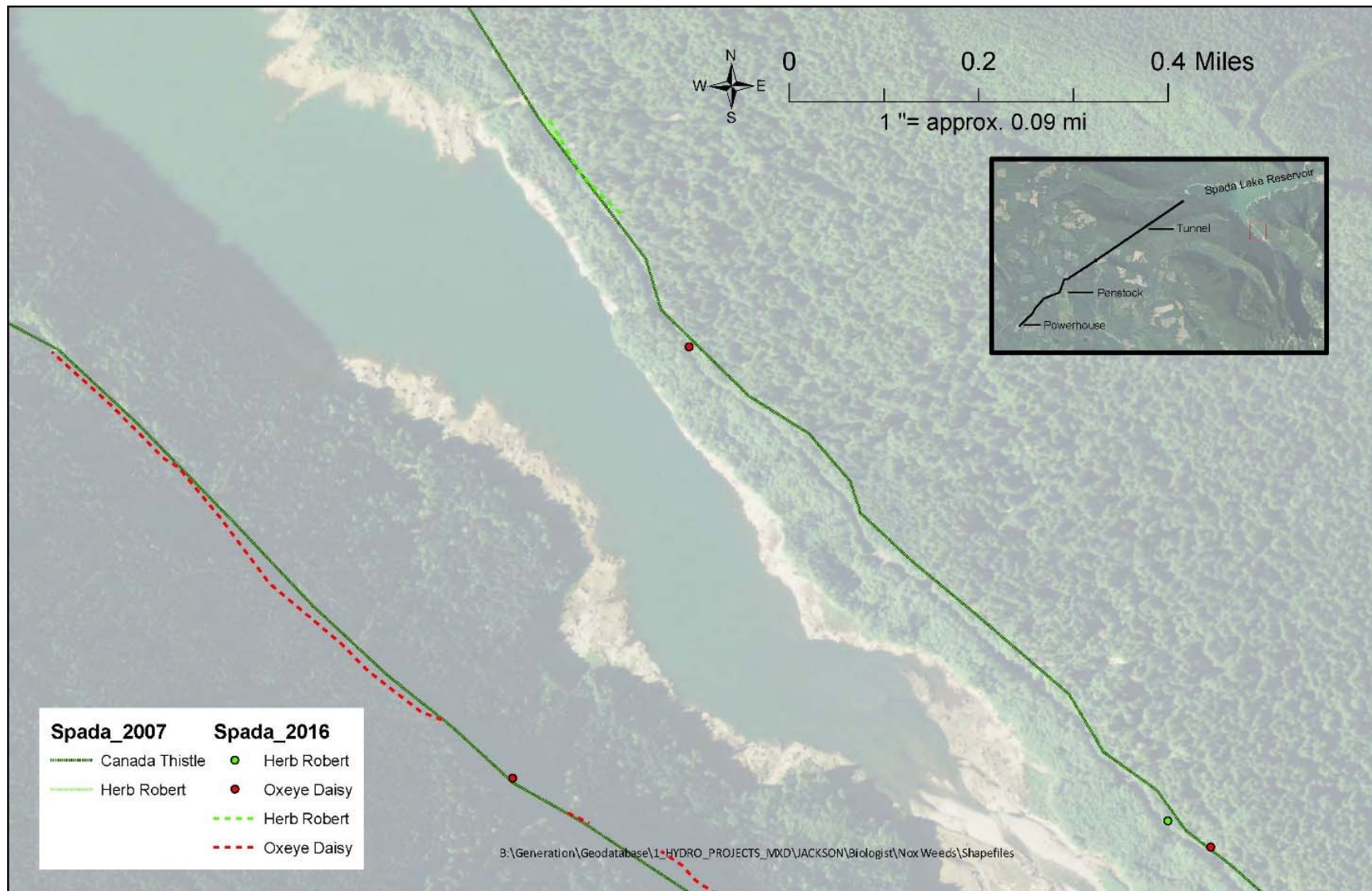


**Figure A-6. 2016 noxious weed locations along South Shore Road, section 2.**

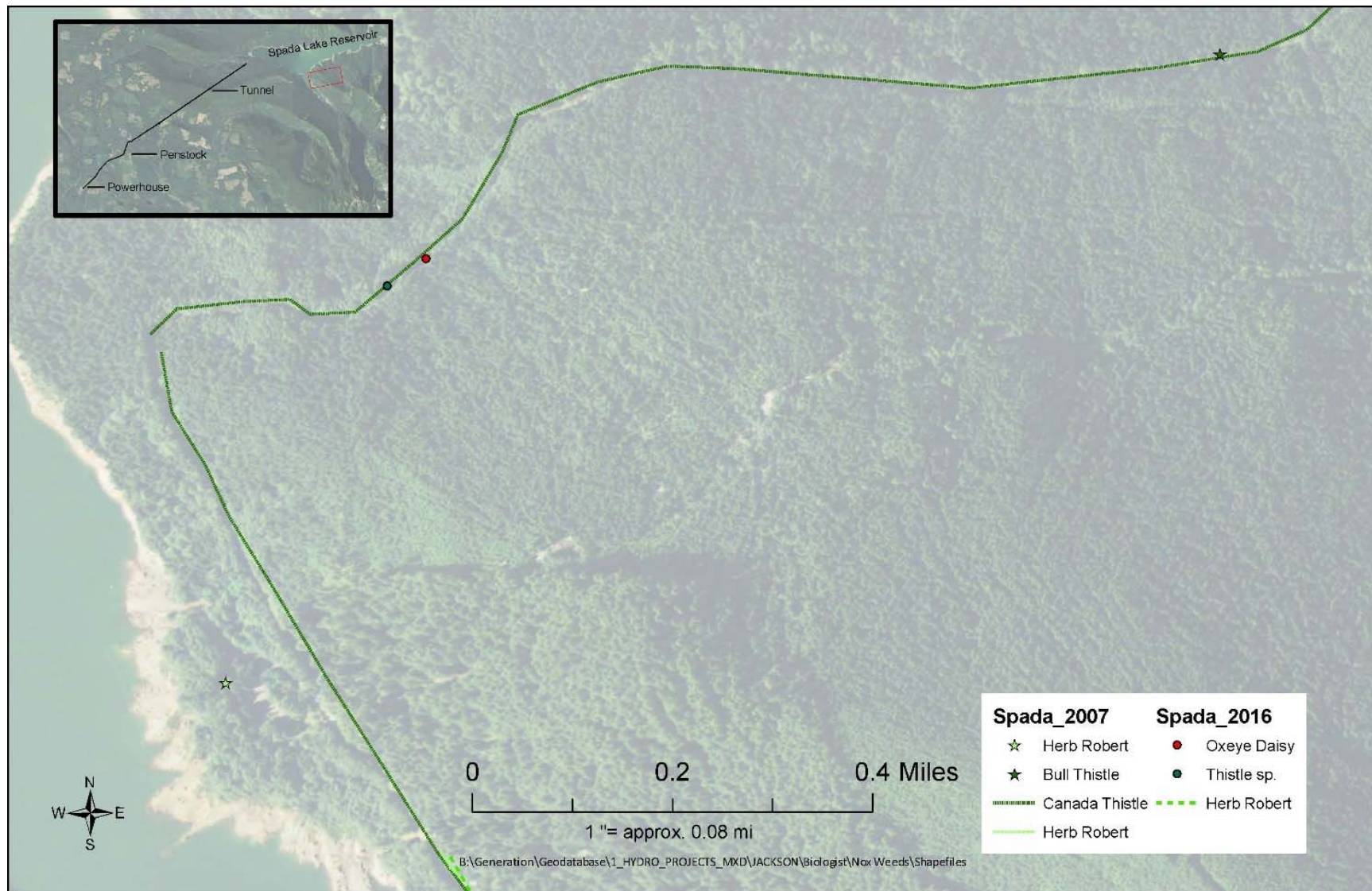


**Figure A-7. 2016 noxious weed locations along South Shore Road, section 3.**



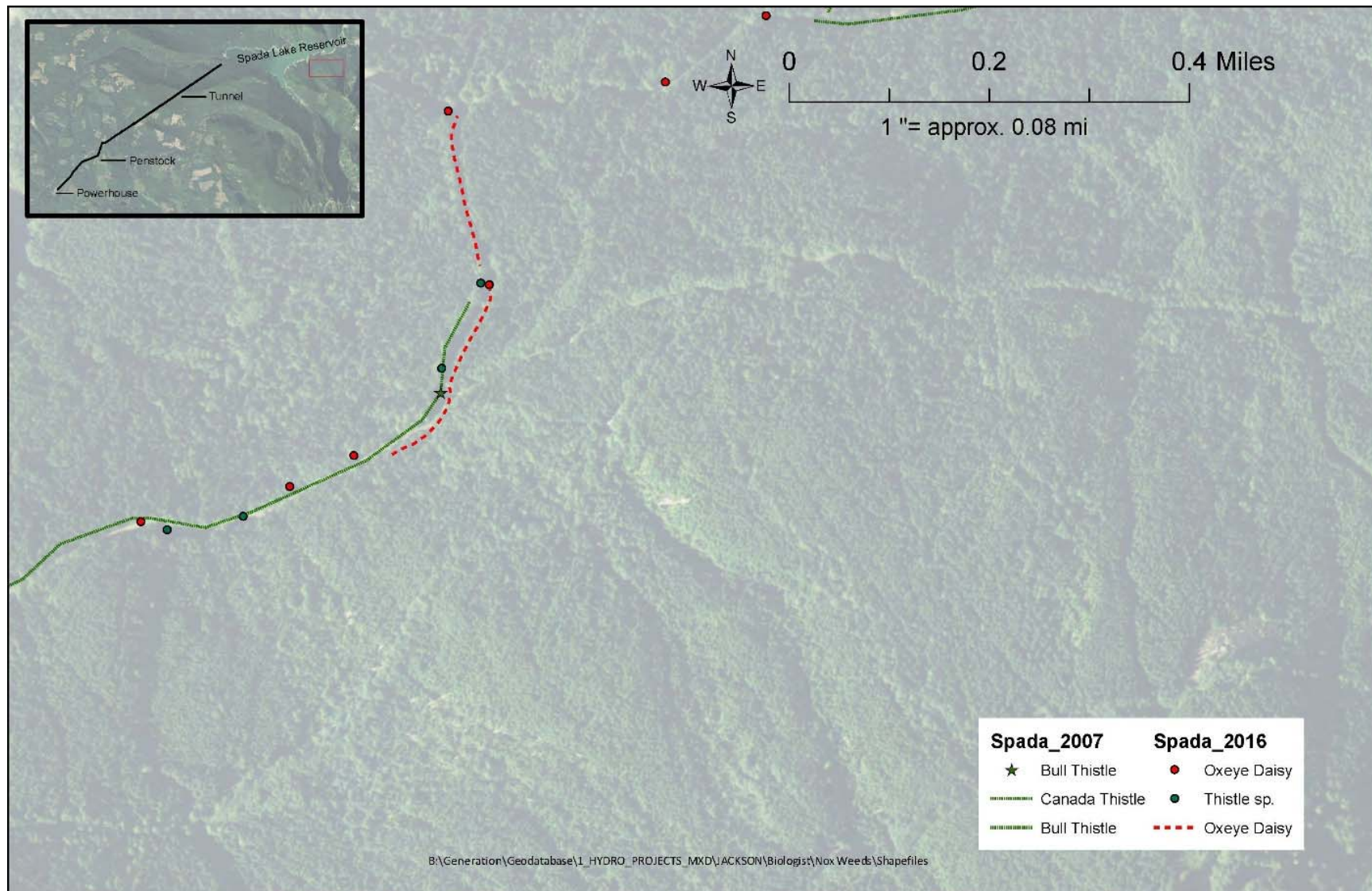


**Figure A-8. 2016 noxious weed locations along South Shore Road, section 4.**

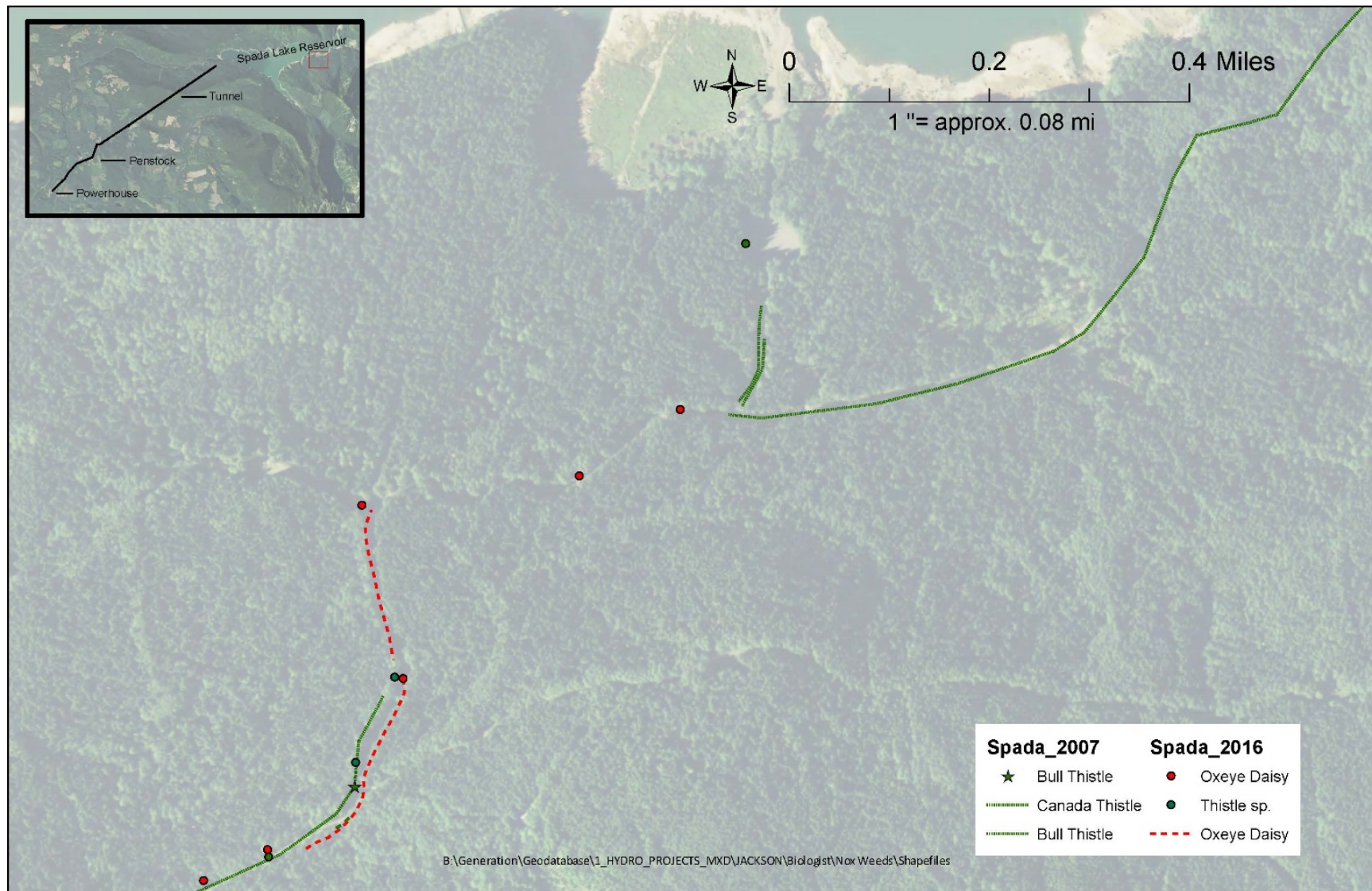


**Figure A-9. 2016 noxious weed locations along South Shore Road, section 5.**



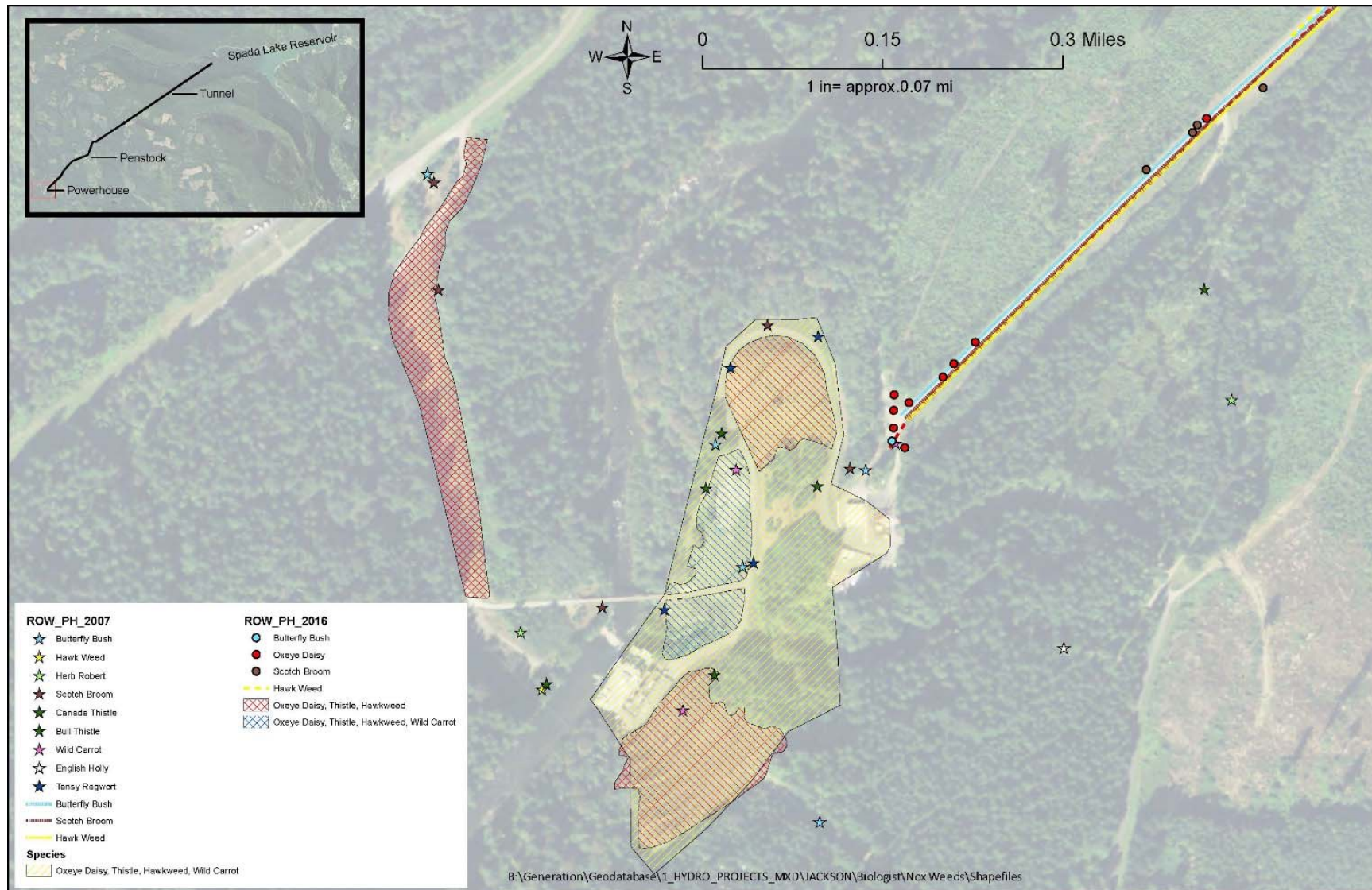


**Figure A-10. 2016 noxious weed locations along South Shore Road, section 6.**



**Figure A-11. 2016 noxious weed locations along South Shore Road, section 7.**





**Figure A-12. 2016 noxious weed locations at the powerhouse and along pipeline ROW, section 1.**

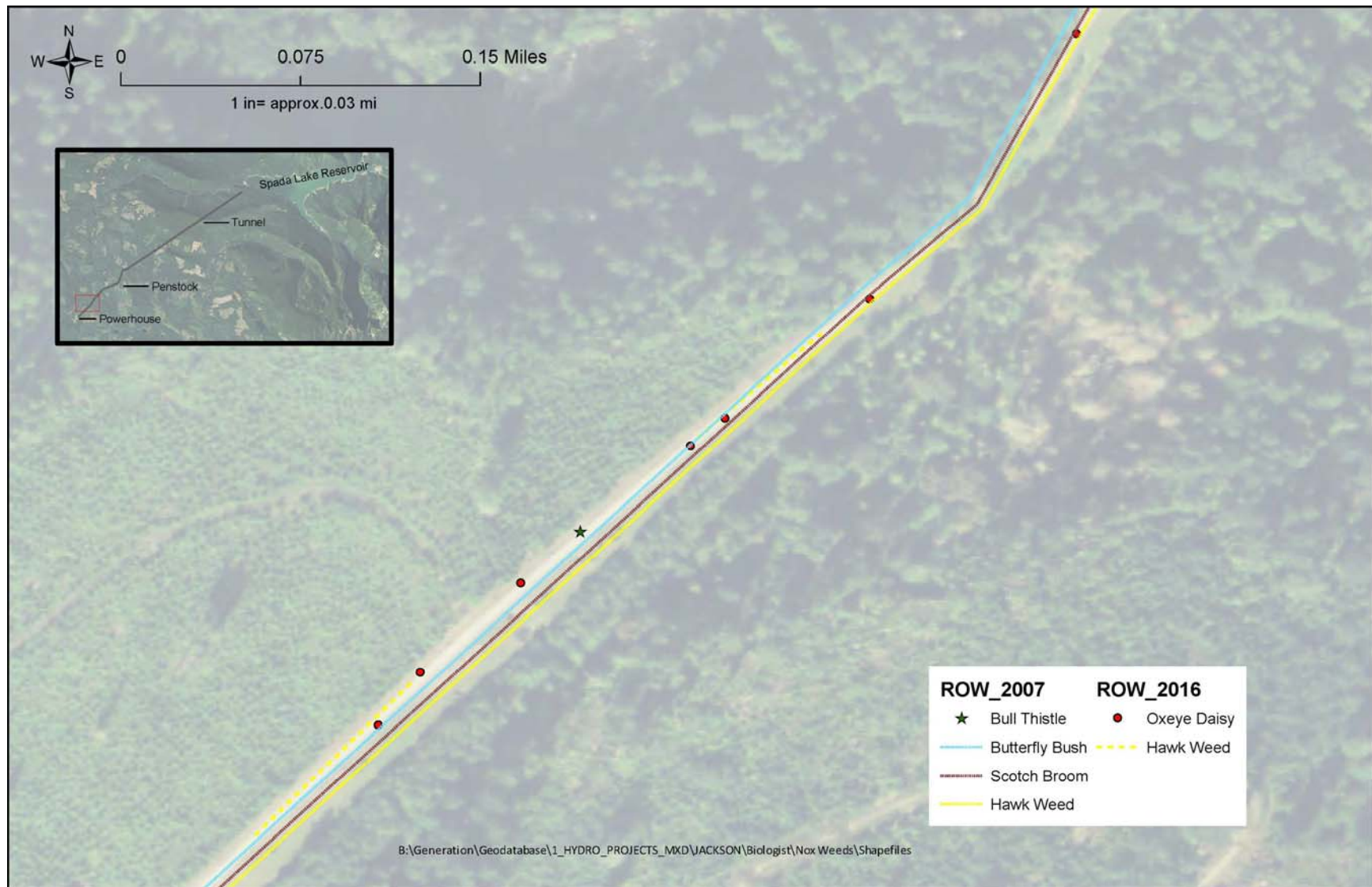
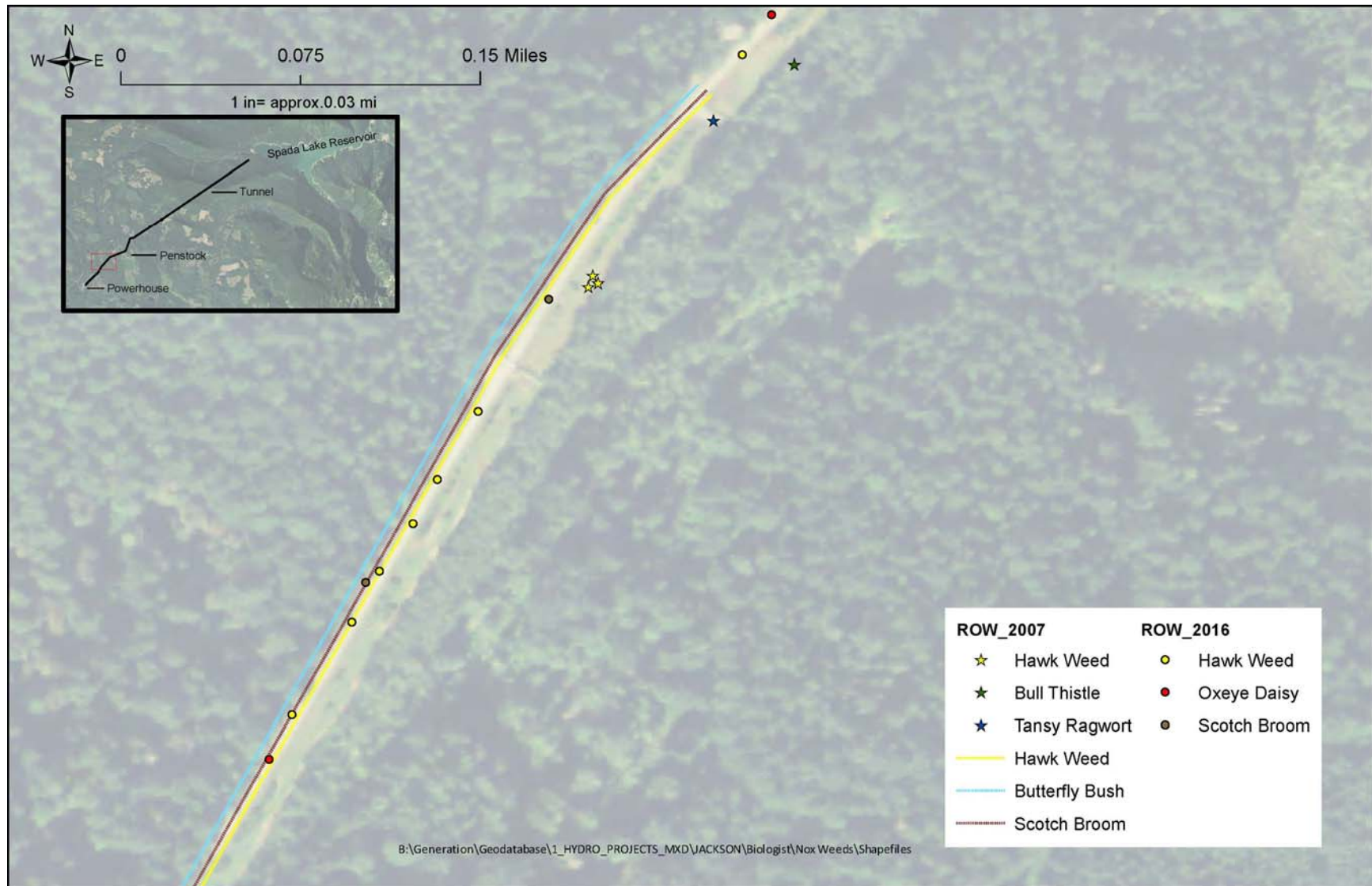


Figure A-13. 2016 noxious weed locations along the pipeline ROW, section 2.





**Figure A-14. 2016 noxious weed locations along the pipeline ROW, section 3.**

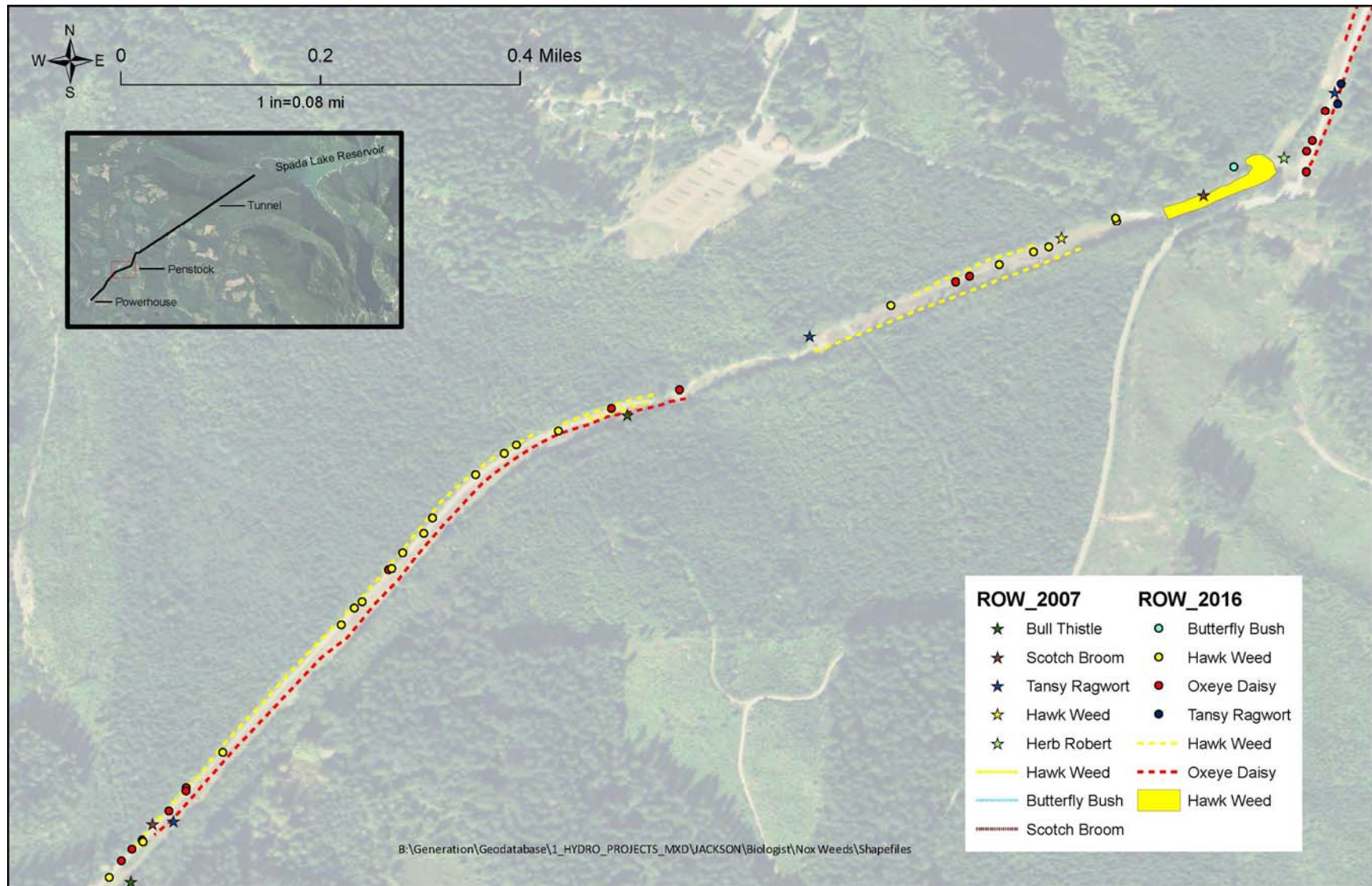


Figure A-15. 2016 noxious weed locations along the pipeline ROW, section 4.



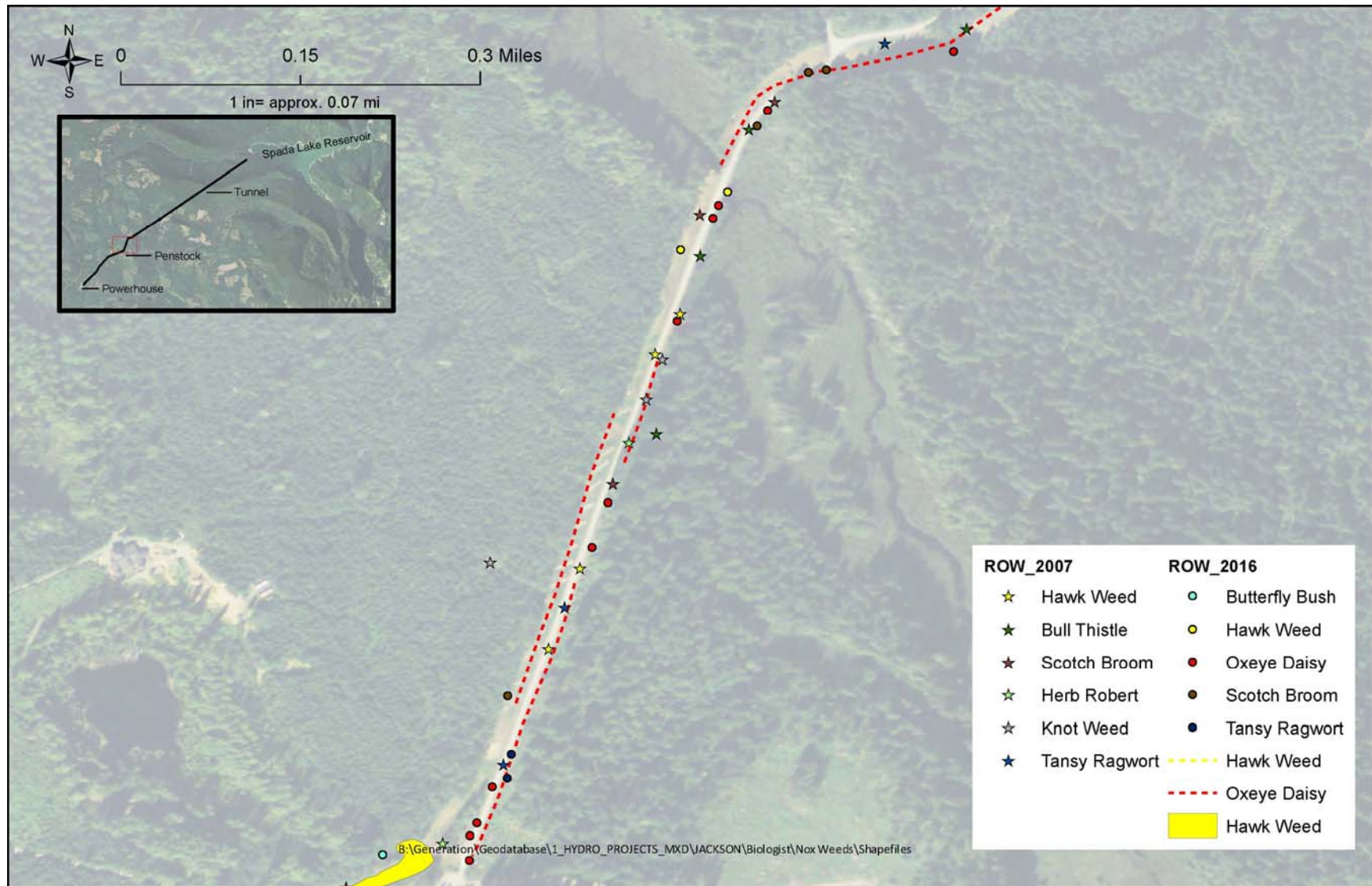
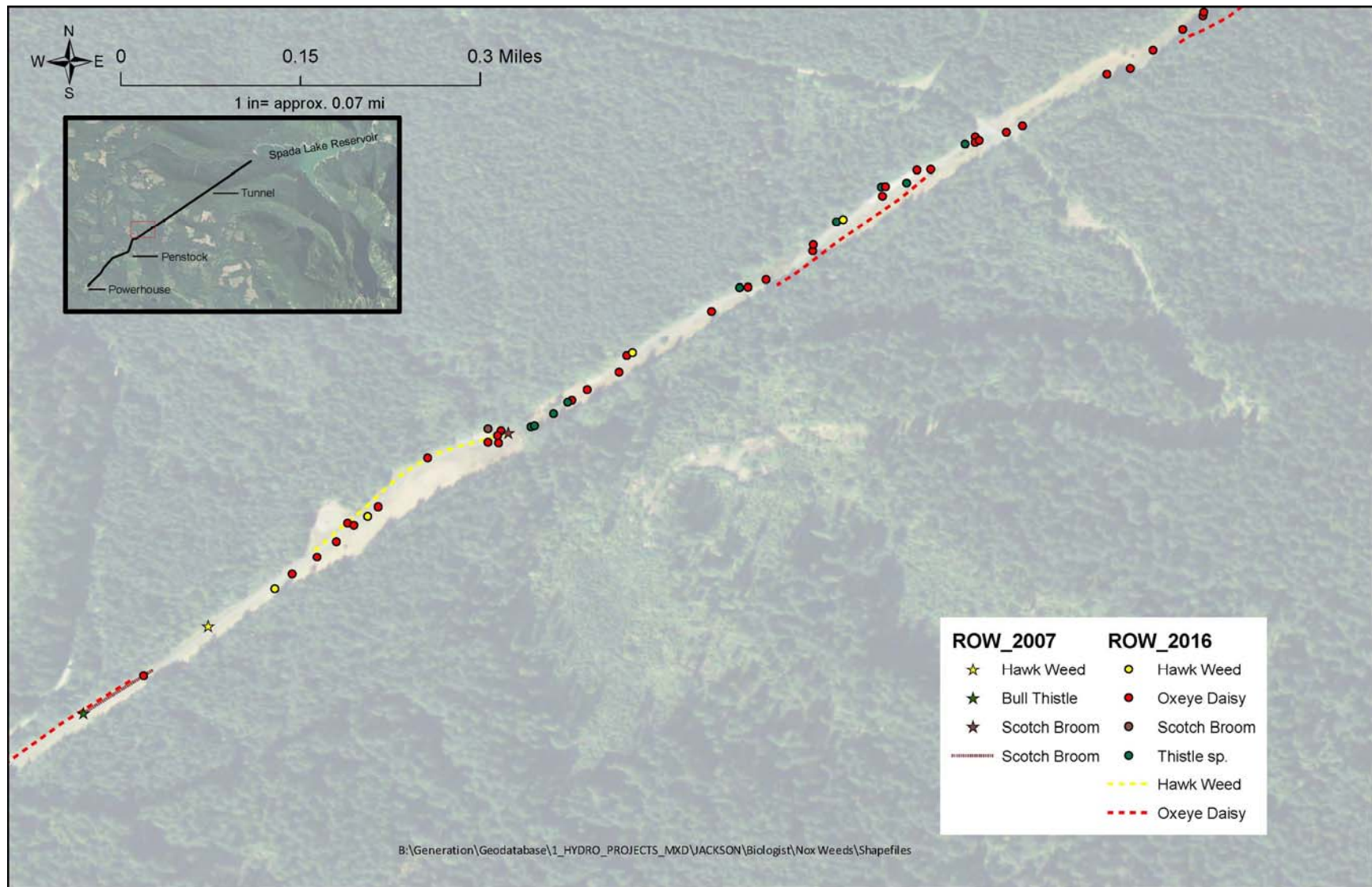


Figure A-16. 2016 noxious weed locations along the pipeline ROW, section 5.



**Figure A-17. 2016 noxious weed locations along the pipeline ROW, section 6.**



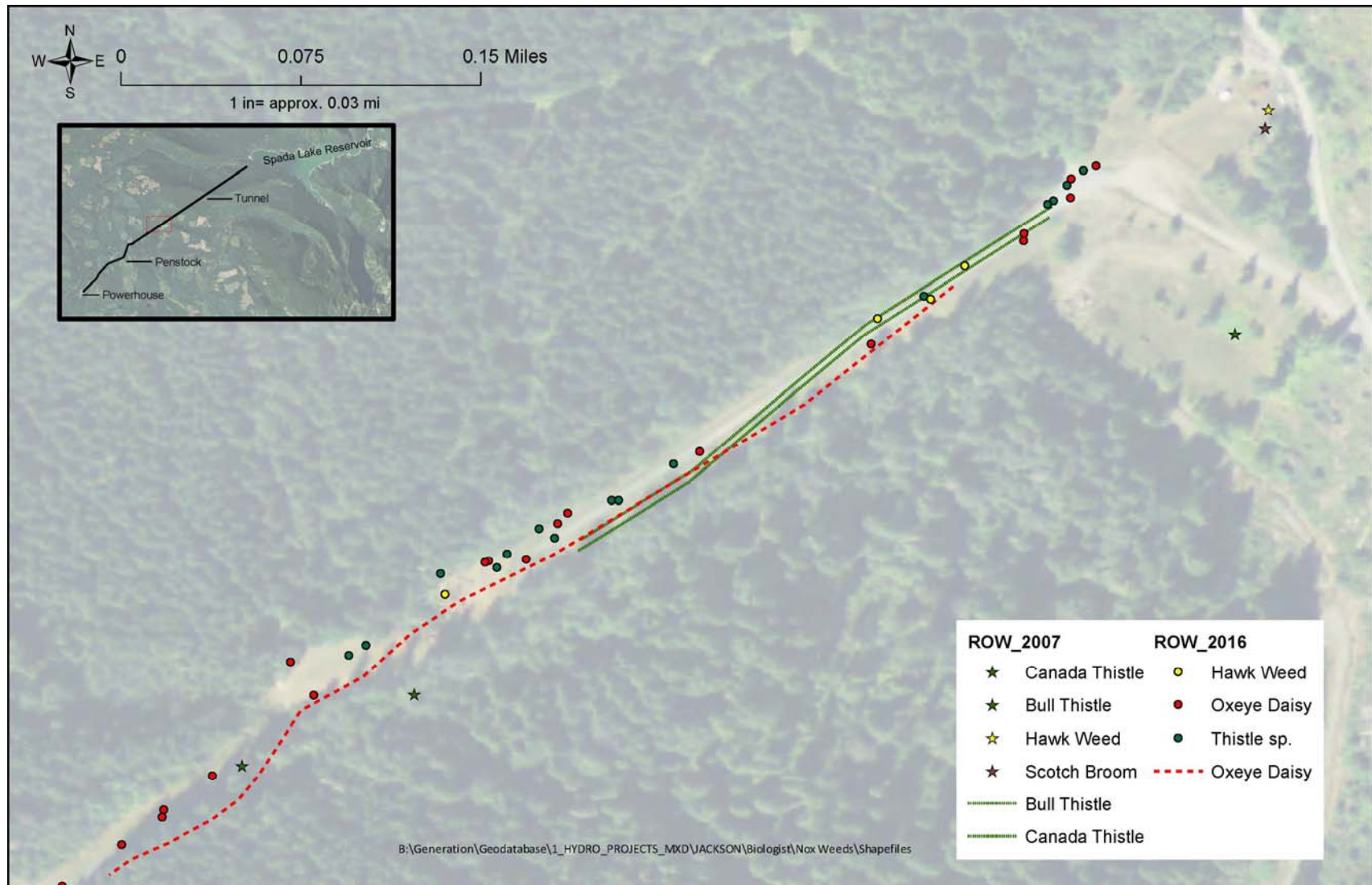


Figure A-18. 2016 noxious weed locations along the pipeline ROW, section 7.

## **Appendix B**

---

### *Consultation Documentation Regarding Draft Report*

**From:** [Binkley, Keith](#)  
**To:** [Spahr, Jessica](#)  
**Cc:** [Presler, Dawn](#); [Schutt, Mike](#)  
**Subject:** FW: Comments for Terrestrial Resources Mitigation Plan Annual Report and Schedule a site visit/meeting -- Jackson Hydro Project  
**Date:** Wednesday, May 10, 2017 2:58:42 PM

---

---

**From:** Schutt, Mike  
**Sent:** Friday, April 14, 2017 9:36 AM  
**To:** Presler, Dawn <DJPresler@SNOPUD.com>  
**Cc:** Binkley, Keith <KMBinkley@SNOPUD.com>  
**Subject:** FW: Comments for Terrestrial Resources Mitigation Plan Annual Report and Schedule a site visit/meeting -- Jackson Hydro Project

Dawn, can you please set Brocks comments up in a matrix and I'll fill in responses.  
thanks

---

**From:** Applegate, Brock A (DFW) [<mailto:Brock.Applegate@dfw.wa.gov>]  
**Sent:** Friday, April 07, 2017 2:03 PM  
**To:** Schutt, Mike; EGTVEDT, LISA (DNR); Shauna Hee ([shee@fs.fed.us](mailto:shee@fs.fed.us)); Tim Romanski ([Tim\\_Romanski@fws.gov](mailto:Tim_Romanski@fws.gov)); Michael Sevigny ([msevigny@tulaliptribes-nsn.gov](mailto:msevigny@tulaliptribes-nsn.gov)); ANDERSON, GREG (DNR); MCGUIRE, AL (DNR); 'Saw, Geraldine'; Paz, Sonny ([spaz@fs.fed.us](mailto:spaz@fs.fed.us)); McDonnell, Andrew; [Lindsay\\_Wright@fws.gov](mailto:Lindsay_Wright@fws.gov)  
**Cc:** Milner, Ruth L (DFW)  
**Subject:** Comments for Terrestrial Resources Mitigation Plan Annual Report and Schedule a site visit/meeting -- Jackson Hydro Project

Hi Mike, I have a few comments to the Terrestrial Resources Management Plan (TRMP). In general, the report looks good.

I would like to give you a few recommendations:

2.1.1. Snags, Decaying Live Trees and Coarse Woody Debris - WDFW recommends that you contact Puget Sound Energy, if you have additional problems with finding a contractor, who will top trees. If needed, please contact Haley Edwards at 425-462-3305 or 206-419-4919 (mobile).

-

2.1.3. Waterfowl Nest Boxes - Snohomish County Public Utility District No. 1 (SnoPUD) has done a good job of spacing the nest boxes around Lost Lake, with one exception. WDFW recommends that you move Box LL05 or Box LL15 to an appropriate place with good cover and out of the line-of-sight of other boxes. To minimize the impacts of brood parasitism, predation, and starling use, SnoPUD should place the nest boxes for wood ducks far enough apart not to permit visibility between boxes, (Bellrose and Holm 1994, Semel and Sherman 1995). Bellrose and Holm (1994) recommend a minimum of 46 m (150 ft) between nest box structures. Nest box placement can affect clutch size, rates of brood parasitism, and hatching success in wood ducks. When people placed nest boxes

closely grouped together, with highly visible entrances, these nests often suffered from higher rates of brood parasitism and produced less ducklings over time, than nest boxes placed in trees out of sight of each other, (Bellrose 1976, Semel and Sherman 1995).

2.2.3. Waterfowl Nest Boxes - WDFW has made this comment in past annual reports, so we expect that we have a wording mistake. WDFW recommends that you do not remove any native bird nests, waterfowl or not. We recommend that you change “non-waterfowl” to “non-native birds.” We only emphasize this wording, because of the possibility of other birds in the nest box like owls, swallows, and chickadees, which we would like to remain in the box.

WDFW would like to make a site visit/meeting as soon as the snow melts and others can go. Let’s put out a Doodle Poll and [get a date on the calendar](#).

Thank you for all the good work SnoPUD has done on their mitigation lands. We look forward to seeing you soon for a tour.

Sincerely, Brock

Brock Applegate  
Renewable Energy/Major Projects Mitigation Biologist  
Washington Department of Fish and Wildlife  
P.O. Box 1100  
111 Sherman St. (physical address)  
La Conner, WA 98257-9612

(360) 466-4345 x244 (office)  
(360) 789-0578 (cell)  
(360) 466-0515 (fax)

## **References**

**Bellrose, F. C. 1976.** Ducks, geese, and swans of North America. Stackpole Books, Harrisburg, Pennsylvania, USA.

**Bellrose, F. C. and D. J. Holm. 1994.** Ecology and management of the wood duck. Stackpole Books, Harrisburg, Pennsylvania, USA.

**Lewis, J. C. and D. Kraege. 2000.** Cavity Nesting Ducks. Pages 4-1 – 4-6 in E. Larsen, J. M. Azerrad, N. Nordstrom, editors. Management Recommendations for Washington’s Priority Species, Volume IV: Birds. Washington Department of Fish and Wildlife, Olympia, Washington, USA.

**Semel, B., and P. W. Sherman. 1995.** Alternative placement strategies for wood duck nest boxes. Wildlife Society Bulletin 23:463-471.

---



**From:** Schutt, Mike [<mailto:MSSchutt@snopud.com>]  
**Sent:** Friday, March 10, 2017 2:27 PM  
**To:** Applegate, Brock A (DFW); EGTVEDT, LISA (DNR); Shauna Hee ([shee@fs.fed.us](mailto:shee@fs.fed.us)); Tim Romanski ([Tim\\_Romanski@fws.gov](mailto:Tim_Romanski@fws.gov)); Michael Sevigny ([msevigny@tulaliptribes-nsn.gov](mailto:msevigny@tulaliptribes-nsn.gov)); ANDERSON, GREG (DNR); MCGUIRE, AL (DNR); 'Saw, Geraldine'; Paz, Sonny ([spaz@fs.fed.us](mailto:spaz@fs.fed.us)); McDonnell, Andrew; [Lindsay\\_Wright@fws.gov](mailto:Lindsay_Wright@fws.gov)  
**Cc:** Milner, Ruth L (DFW)  
**Subject:** RE: Jackson Hydro Project Terrestrial Resources Mitigation Plan Annual Report and Meeting Invite

Hi Brock,  
to this point, no one has requested a meeting/site visit, and you were the only one indicating availability, so I didn't scheduled anything. You are welcome to come out for a visit whenever you'd like, but right now, we're under 5 feet of snow around Spada Lake. Let's talk later in the Spring if you'd like to visit the management lands.

Lindsy, you are welcome to plan a site visit in late Spring or Summer as well to familiarize yourself with the lay of the land, or you could both come out at the same time.

let me know what your preferences are,

thanks

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

---

**From:** Applegate, Brock A (DFW) [<mailto:Brock.Applegate@dfw.wa.gov>]  
**Sent:** Friday, March 10, 2017 12:15 PM  
**To:** Schutt, Mike <[MSSchutt@snopud.com](mailto:MSSchutt@snopud.com)>; EGTVEDT, LISA (DNR) <[LISA.EGTVEDT@dnr.wa.gov](mailto:LISA.EGTVEDT@dnr.wa.gov)>; Shauna Hee ([shee@fs.fed.us](mailto:shee@fs.fed.us)) <[shee@fs.fed.us](mailto:shee@fs.fed.us)>; Tim Romanski ([Tim\\_Romanski@fws.gov](mailto:Tim_Romanski@fws.gov)) <[Tim\\_Romanski@fws.gov](mailto:Tim_Romanski@fws.gov)>; Michael Sevigny ([msevigny@tulaliptribes-nsn.gov](mailto:msevigny@tulaliptribes-nsn.gov)) <[msevigny@tulaliptribes-nsn.gov](mailto:msevigny@tulaliptribes-nsn.gov)>; ANDERSON, GREG (DNR) <[GREG.ANDERSON@dnr.wa.gov](mailto:GREG.ANDERSON@dnr.wa.gov)>; MCGUIRE, AL (DNR) <[al.mcguire@dnr.wa.gov](mailto:al.mcguire@dnr.wa.gov)>; 'Saw, Geraldine' <[geraldine.saw@co.snohomish.wa.us](mailto:geraldine.saw@co.snohomish.wa.us)>; Paz, Sonny ([spaz@fs.fed.us](mailto:spaz@fs.fed.us)) <[spaz@fs.fed.us](mailto:spaz@fs.fed.us)>; McDonnell, Andrew <[AWMcDonnell@SNOPUD.com](mailto:AWMcDonnell@SNOPUD.com)>  
**Cc:** Milner, Ruth L (DFW) <[Ruth.Milner@dfw.wa.gov](mailto:Ruth.Milner@dfw.wa.gov)>  
**Subject:** RE: Jackson Hydro Project Terrestrial Resources Mitigation Plan Annual Report and Meeting Invite

**CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER.**  
**Do not click on links or open attachments if the sender is unknown or the email is**

suspect.

---

Hi Mike, Did we set a date yet for the end of March TRMP meeting/site visit?

Thanks, Brock

Brock Applegate  
Renewable Energy/Major Projects Mitigation Biologist  
Washington Department of Fish and Wildlife  
P.O. Box 1100  
111 Sherman St. (physical address)  
La Conner, WA 98257-9612

(360) 466-4345 x244 (office)  
(360) 789-0578 (cell)  
(360) 466-0515 (fax)

---

**From:** Schutt, Mike [<mailto:MSSchutt@snopud.com>]  
**Sent:** Monday, February 13, 2017 12:37 PM  
**To:** EGTVEDT, LISA (DNR); Shauna Hee ([shee@fs.fed.us](mailto:shee@fs.fed.us)); Tim Romanski ([Tim\\_Romanski@fws.gov](mailto:Tim_Romanski@fws.gov)); Applegate, Brock A (DFW); Michael Sevigny ([msevigny@tulaliptribes-nsn.gov](mailto:msevigny@tulaliptribes-nsn.gov)); ANDERSON, GREG (DNR); MCGUIRE, AL (DNR); 'Saw, Geraldine'; Paz, Sonny ([spaz@fs.fed.us](mailto:spaz@fs.fed.us))  
**Cc:** McDonnell, Andrew; Binkley, Keith; Presler, Dawn  
**Subject:** Jackson Hydro Project Terrestrial Resources Mitigation Plan Annual Report and Meeting Invite

Greetings,

We are currently preparing the 2016 Annual Report for the Jackson Hydroelectric Project Terrestrial Resources Mitigation Plan (TRMP). Included will be a summary of activities completed in 2016, and activities planned for 2017, 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 <http://www.snopud.com/PowerSupply/hydro/jhprelicense/jhprdocol/mgmtplans.ashx?p=1891>. Implementation activities conducted on the Lost Lake, Project Facility Lands, Spada Lake, and Williamson Creek Tracts are included in this report. This is the sixth 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 14, with 30 days for review. We would be happy to meet to discuss our activities and provide an on-site visit if desired. The week of March 27 – 31 is available 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. If so, please indicate your availability during the week of March 27.

Thanks for your time,

**Mike Schutt**

Sr. Environmental Coordinator – Wildlife

**Snohomish County PUD**

Generation Services

**Office) 425-783-1712**

Cell) 425-210-5816

## **Appendix C**

---

### *Response to Comments Regarding Draft Report*

No.	Comment	Response
<b>Brock Applegate of Washington Dept. of Fish and Wildlife via Email dated 04/07/2017</b>		
1	<p><u>2.1.1. Snags, Decaying Live Trees and Coarse Woody Debris</u> - WDFW recommends that you contact Puget Sound Energy, if you have additional problems with finding a contractor, who will top trees. If needed, please contact Haley Edwards at 425-462-3305 or 206-419-4919 (mobile).</p>	<p>The District is re-bidding the contract for 2017, and has 8 prospective bidders on the list who are all qualified to perform this work, but will contact Haley at PSE to inquire about additional potential bidders.</p>
2	<p><u>2.1.3. Waterfowl Nest Boxes</u> - Snohomish County Public Utility District No. 1 (SnoPUD) has done a good job of spacing the nest boxes around Lost Lake, with one exception. WDFW recommends that you move Box LL05 or Box LL15 to an appropriate place with good cover and out of the line-of-sight of other boxes. To minimize the impacts of brood parasitism, predation, and starling use, SnoPUD should place the nest boxes for wood ducks far enough apart not to permit visibility between boxes, (Bellrose and Holm 1994, Semel and Sherman 1995). Bellrose and Holm (1994) recommend a minimum of 46 m (150 ft.) between nest box structures. Nest box placement can affect clutch size, rates of brood parasitism, and hatching success in wood ducks. When people placed nest boxes closely grouped together, with highly visible entrances, these nests often suffered from higher rates of brood parasitism and produced less ducklings over time, than nest boxes placed in trees out of sight of each other, (Bellrose1976, Semel and Sherman 1995).</p>	<p>Boxes LL05 and LL15 are well hidden from each other due to heavy forest cover along the wetland edge. Nest dumping has not been a problem with either box over the past 15 years. Coincidentally, however, Box LL15 fell from the tree this past winter and was relocated about 250 yards south of Box LL05 in February 2017.</p>
3	<p><u>2.2.3. Waterfowl Nest Boxes</u> - WDFW has made this comment in past annual reports, so we expect that we have a wording mistake. WDFW recommends that you do not remove any native bird nests, waterfowl or not. We recommend that you change "non-waterfowl" to "non-native birds." We only emphasize this wording, because of the possibility of other birds in the nest box like owls, swallows, and chickadees, which we would like to remain in the box.</p>	<p>The report has been changed to reflect that only non-native bird nests will be removed from nest boxes.</p>