

**Priest Rapids Hydroelectric Project No. 2114
2015 Annual Report for the Bald Eagle Perch/Roost Protection Plan
Pursuant FERC Article 414**

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Executive Summary

On January 19, 2010, the Federal Energy Regulatory Commission (FERC) approved the bald eagle (*Haliaeetus leucocephalus*) perch/roost protection plan pursuant to Article 414 of the license for the Priest Rapids Hydroelectric Project No. 2114 (Project). Within this 2015 annual report, the Public Utility District No. 2 of Grant County, WA (Grant PUD) is reporting its progress on the implementation activities related to this plan for the period from March 16, 2014 to March 15, 2015. The 2015 annual report presents results from daytime eagle-use surveys, communal roost site surveys, nest occupancy and productivity surveys, perch/roost tree protection efforts, and provides an update on riparian planting efforts.

A total of 365 eagle observations were made during the project-wide surveys, distributed throughout the project (Table 1; Figure 1). The survey on January 7, 2015 yielded the greatest single-day, Project-wide survey count of 74 total eagles. Of the 365 eagle observations, only 12 were observed during the three 2014 recreation-season eagle surveys (June 1 – Sept. 30).

Two existing bald eagle nests were monitored during the 2015 reporting year. The nest within The Cove was successful in 2014 and produced a bald eagle that fledged on June 15, 2014. Productivity of the existing nest on Goose Island was unknown due to the foliage obstructing the view, though the nest was documented as occupied. In addition two new bald eagle nests were identified as potentially being occupied during the 2015 reporting year. A nest at Crescent Bar was identified March 4, 2015, and had an adult eagle sitting in the nest. The second potential nest site, located at A6, had two adult eagles perched near the nest but not actively nesting on March 4, 2015.

A total of three communal roost sites were documented during the surveys. The communal roost site with the greatest eagle use was at the north end of Quilomene Bar, where 12 eagles were documented. The other two communal roost areas were located at the Douglas Creek confluence within Wanapum Reservoir and Goose Island within the Priest Rapids Reservoir where 6 eagles and 5 eagles were documented, respectively.

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1.0 Introduction

On January 19, 2010, the Federal Energy Regulatory Commission (FERC) approved the bald eagle (*Haliaeetus leucocephalus*) perch/roost protection plan pursuant to Article 414 of the license for the Priest Rapids Project No. 2114 (Project)¹. FERC's approval of Article 414 requires the Public Utility District No. 2 of Grant County, Washington (Grant PUD) to file an annual progress report to FERC, the United States Fish and Wildlife Service (USFWS), and the Washington Department of Fish and Wildlife (WDFW), and that the annual report shall cover the dates of March 16 through March 15 of the following year.

Activities related to the bald eagle perch/roost protection plan were implemented in coordination with other plans required by the license for the Project for the 2015 reporting period (March 16, 2014–March 15, 2015). This includes the Wildlife Habitat Management Plan (Article 409); Wildlife Habitat Monitoring and Information and Education Plan (Article 410); Transmission Line Avian Collision Protection Plan (Article 411); Rare, Threatened, and Endangered Plant Monitoring Plan (Article 413); Programmatic Agreement (Article 416); the Memorandum of Agreement between Grant PUD and the Wanapum (Article 417); Priest Rapids Recreation Resource Management Plan (Article 418); the Shoreline Management Plan (Article 419); and the provisions of the Historic Properties Management Plan.

2.0 Material and Methods

The following sections depict the materials and methods used during the 2015 reporting year for eagle-use surveys.

2.1 Eagle Surveys

Grant PUD conducted daytime eagle-use surveys, communal roost tree surveys, and nest surveys from March 16, 2014 to March 15, 2015.

2.1.1 Day-Use Surveys

A total of 11 daytime eagle-use surveys were conducted within the Project to document areas of eagle use (Table 1). These surveys were boat-based and each survey was composed of a single and complete pass of Wanapum and Priest Rapids reservoirs. Three surveys occurred during the summer recreational time period of June 1–September 30, 2014, and eight surveys occurred during the winter migration period (i.e., November 15, 2014–March 15, 2015). Eagle-use surveys recorded the date, weather conditions, surveyors, specific reservoir (i.e. Wanapum or Priest Rapids), survey start time, and survey end time. Additionally, each eagle observation had the following data recorded:

- 1). observation time;
- 2). number observed;
- 3). species (i.e., bald, golden, unknown);
- 4). maturity (i.e., mature, juvenile, unknown);
- 5). Geographic Positioning System (GPS) point (NAD 84, Decimal Degrees);
- 6). location description;
- 7). perch structure/soaring (i.e., on ground, perch pole, tree, rock, cliff, soaring); and
- 8). observation notes.

¹ 130 FERC ¶ 62,054 (2010)

Eagle species were identified as bald, golden, or unknown. Eagle maturity status was identified as either: mature, juvenile, or unknown. Bald eagles exhibiting a white head and tail were classified as mature. Juvenile bald eagles were classified by variable amounts of white on their belly, back, and wings. Golden eagles (*Aquila chrysaetos*) exhibiting a solid brown body, black tail, and golden feathering on their nape and upperwing coverts were classified as mature. Juvenile golden eagles were classified by a dark body with white bases on their outer secondary feathers and inner primary feathers with a tail that might be white with a thick or black terminal band (Alsop 2001).

2.1.2 Communal Roost Site Surveys

Grant PUD conducted two eagle communal roost survey during the January–February 2015 timeframe. Communal roost site eagle surveys were initiated 30 minutes before sunset and continued till twilight. Communal roost sites are defined as trees with three or more eagles perched in them. Trees that were classified as communal roost sites had the following data recorded: date, survey start time, time of sunset, time of civil twilight, observation time, count of eagles, species, GPS point, location description, and a date/time stamped photograph when possible.

2.1.3 Nest Surveys

Eagle nest surveys of known nests were performed to monitor nest occupancy, activity, and productivity in a manner consistent with WDFW protocols. In general, the methodologies for eagle nest surveys are as follows:

- 1). Nest occupancy surveys were conducted during the last week of February through the first week of March in good weather;
- 2). A minimum of three hours were spent at each known nest site in the morning hours unless eagle occupancy was established at arrival.
- 3). If eagle occupancy was established at arrival, the information was recorded, and the surveyor vacated the area to avoid disturbing the nesting pair of eagles.
- 4). If nest occupancy was not determined on the first survey, a second nest occupancy survey was conducted.

In addition, any evidence of new nesting activity was documented and will be monitored as per the occupancy protocols above.

2.2 Eagle, Perch Tree, Roost Time, and Nest Protection Efforts

Grant PUD implements measures to protect eagle perch, roost, and nesting trees through wire exclusion and site management plans. Eagle roost and nest trees are wrapped with exclusion wire to protect the trees from beaver damage. The installation of exclusion wire on eagle day-use perch trees is prioritized according to nearby beaver activity, nearby nesting eagles, the tree species, or the trees that are identified as communal roost trees. Grant PUD also collaborates with WDFW and the USFWS to develop a site management plan for an active bald eagle nest sited on Grant-PUD-owned property. As part of managing and supporting eagles that nest within or adjacent to the Project, Grant PUD maintains 17 perch, roost, and nesting structures located throughout the Project.

2.3 Riparian Plantings

Grant PUD identified 23 potential riparian planting areas intended to provide future eagle perch and roost trees in the Article 414 Plan approved by FERC. During the initial cultural assessment with the Wanapum and the Licensee's Cultural Resources Department, 10 of the original 23 riparian planting sites were removed from consideration due to their cultural significance (Turner 2011). In 2014–2015, Grant PUD continued cultural assessment at the remaining 13 potential riparian planting areas with Grant PUD's Cultural Resources Department and the Wanapum. Additionally, Grant PUD is also exploring alternative planting sites that would be compatible with Memorandum of Agreement between Grant PUD and the Wanapum (Article 417) and the provisions of the Historic Properties Management Plan. Grant PUD plans to employ a water jet stinger planting methodology developed by the Western Forestry and Conservation Association for cottonwood planting (WFCA 2010) for future black cottonwood (*Populus trichocarpa*) plantings. Grant PUD is also researching the potential to augur holes and plant potted cottonwoods in soils where the water jet stinger is not feasible.

3.0 Results and Discussion

The following sections detail the results from the 2015 reporting year.

3.1 Eagle Surveys

Grant PUD conducted daytime eagle-use surveys, communal roost tree surveys, and nest surveys from March 16, 2014 to March 15, 2015 (Table 1).

3.1.1 Day-Use Surveys

Grant PUD preformed 11 Project-wide, day-use eagle surveys between June 1, 2014 and March 15, 2015. A total of 365 eagles were observed during the 11 surveys (Table 1). A map showing Project-wide distribution of the eagle observations is presented in Figure 1. A total of 342 eagles were identified as bald eagles, while the remaining 23 were documented as golden eagles. The survey on January 7, 2015 yielded the greatest single-day, Project-wide survey count of 74 eagles. The lowest single-day, project-wide survey counts recorded were on August 26, 2014 when no eagles were observed. Cumulatively, the 365 eagles counted during the 2015 reporting period was more than the 292 counted during the 2014 reporting period (Keeler 2014) and 319 eagles counted during the 2013 reporting period (Turner 2013). Table 2 provides a year-to-year comparison of day-use survey results across the annual monitoring periods following licensing in 2008.

Eagle use during the summer recreation period (i.e., June–September) was low and sparse (Table 1). A total of 12 eagles were observed during the three 2014 recreation season eagle surveys. The breeding adults were observed near their nests, perched in thick-canopy, shaded trees or at known foraging areas. Three juvenile bald eagles were observed within the Project during the recreation season surveys.

Table 1 The Priest Rapids Project eagle survey counts conducted for June 1, 2014 – March 15, 2015.

Reservoir	Date	Bald Eagles		Golden Eagles		Reservoir Sum	Survey Sum
		Mature	Juvenile	Mature	Juvenile		
Priest Rapids	6/24/14	1	0	0	0	1	7
Wanapum	6/25/15	2	4	0	0	6	
Priest Rapids	8/26/14	0	0	0	0	0	2
Wanapum	8/28/14	0	0	2	0	2	
Priest Rapids	9/12/14	1	0	0	0	1	3
Wanapum	9/11/14	0	2	0	0	2	
Priest Rapids	10/1/14	0	0	0	0	0	3
Wanapum		3	0	0	0	3	
Priest Rapids	11/5/14	1	0	0	0	1	10
Wanapum		4	2	3	0	9	
Priest Rapids	1/7/15	11	22	0	0	33	74
Wanapum		17	20	3	1	41	
Priest Rapids	1/21/15	9	28	0	0	37	73
Wanapum		18	14	3	1	36	
Priest Rapids	2/2/15	17	14	0	0	31	71
Wanapum		18	21	1	0	40	
Priest Rapids	2/12/15	8	12	0	0	20	40
Wanapum		7	8	5	0	20	
Priest Rapids	3/2/15	11	10	0	0	21	51
Wanapum		15	13	2	0	30	
Priest Rapids	3/4/15	4	4	0	0	8	31
Wanapum		7	14	2	0	23	
Column Totals		144	119	22	7	365 ¹	365
Notes:							
¹ Wanapum Reservoir had 212 documented observations; Priest Rapids Pool had 153 documented observations.							

Table 2 The Priest Rapids Project annual eagle survey results from 2009 – 2015.

Reservoir	Date	Bald Eagles		Golden Eagles			Unknown	Reservoir Sum	Survey Sum
		Mature	Juvenile	Mature	Juvenile	Unknown			
Priest Rapids	2009-2010 ¹	15	8	4	3	0	3	33	81
Wanapum		19	24	2	2	1	0	48	
Priest Rapids	2010-2011	44	51	16	3	0	0	116	361
Wanapum		118	95	29	3	0	0	245	
Priest Rapids	2011-2012	54	77	2	1	0	0	134	374
Wanapum ¹		102	118	13	5	0	2	240	
Priest Rapids	2012-2013	29	70	1	0	0	0	100	318
Wanapum		82	133	2	1	0	0	218	
Priest Rapids	2013-2014	60	45	3	2	0	0	110	292
Wanapum		84	74	19	5	0	0	182	
Priest Rapids	2014-2015	63	90	0	0	0	0	153	365
Wanapum		96	95	20	1	0	0	212	
Annual Averages	PRD	50	67	5	2	0	0	124	342
	WAN	97	103	17	3	0	1	220	

Notes:
¹Eagle Surveys reported in 2010 were based on surveys made two days (February 25, 2010 and March 4, 2010), and are not included in averages. Survey protocols modified following 2009-2010 period.

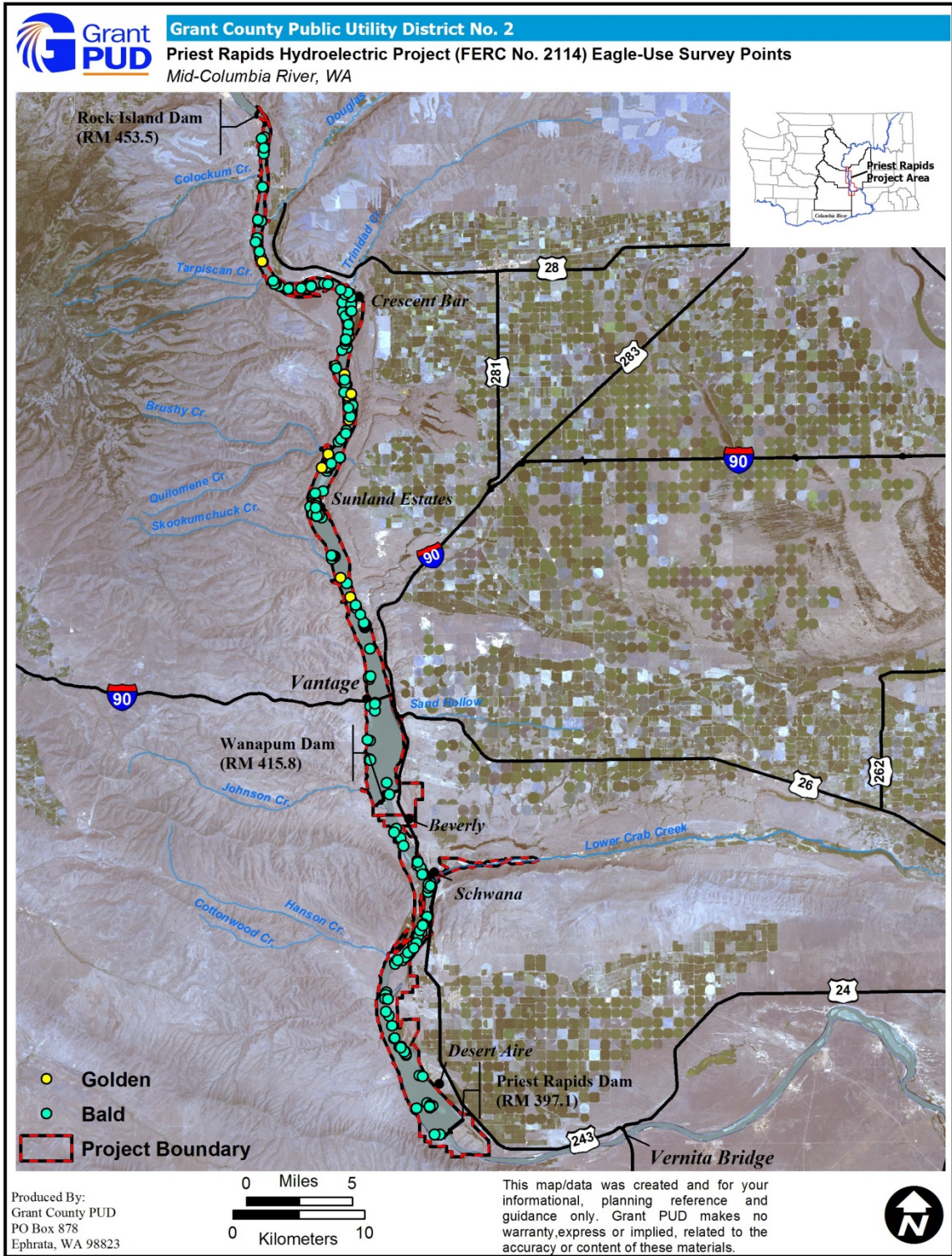


Figure 1 2014 – 2015 eagle use observations within the Priest Rapids Project, mid-Columbia River, WA.

3.1.2 Communal Roost Surveys

A total of two communal roost surveys were conducted for the 2015 report period during the peak of eagle use (late-January through mid-February). The communal roost surveys occurred on January 21 and February 2, 2015 on Priest Rapids and Wanapum reservoirs, respectively. A group of 12 eagles were documented roosting at the north end of Quilomene Bar. Six eagles were documented roosting at Douglas Creek confluence, and five were documented at Goose Island. No new communal roost sites were documented during these surveys.

3.1.3 Nest Survey Results

Two previously documented bald eagle nests, identified as WDFW Bald Eagle Nest Territory 1703 (Wanapum Pool Right Bank/Johnson Creek/Getty's Cove (The Cove)) and Bald Eagle Nest Territory 1820 (Priest Rapids Pool/Goose Island), were monitored during the 2015 reporting period. The nest within Territory 1703 produced a juvenile bald eagle for three consecutive years (2010-2012), but was abandoned during the 2013 season. The nest was successful again in 2014, and fledged one young on June 15, 2014. The nest was checked again in early March of 2015, and the nest is again occupied with incubation behavior observed. Monitoring results for the 2015 nesting season will be presented in the 2016 reporting period report.

The nests within WDFW Bald Eagle Nest Territory 1820 were Nest 1 (1820-1) for 2010, Nest 2 (1820-2) for 2011, and Nest 3 (1820-3) for 2012. Nest 1820-1 was unsuccessful in 2010, and the top of the nest tree broke off in January 2011 which ultimately destroyed Nest 1820-1. Nest 1820-2 was first documented on March 3, 2011, and the nest was not successful in 2011. In 2012, the eagles built Nest 1820-3; however, the eagles continued to nest in Nest 1820-2. The productivity of the Nest 1820-2 was unknown in 2012. Adults were seen incubating in March 2013 on Nest 1820-3, but nest success was unknown due to nest location and tree foliage limiting observations. Spring 2014 surveys documented Nest 1820-3 active with an adult incubating (see Appendix A for more details). However, productivity of the nest on was unknown due to the foliage obstructing the view.

Two new potentially active bald eagle nests were documented during surveys on March 4, 2015, both on Wanapum Reservoir. The A-6 nest site is located just north and east of Crescent Bar in a ponderosa pine tree above a basalt cliff face on the right bank of the Columbia River. The second nest is located on Crescent Bar Island. These nests will be monitored for occupancy and, if occupied, will be documented in the 2016 report.

3.2 Eagle Perch Tree, Roost Tree, and Nest Protection Efforts

During the 2015 reporting period, Grant PUD did not wrap any trees for beaver protection. Grant PUD proactively and aggressively wrapped trees during the 2010-2012 reporting periods and did not discover a need for tree wrapping during the 2015 reporting period.

Grant PUD continued its implementation of the 2012–2016 bald eagle site management plan for the Grant PUD-owned property known as The Cove. The site management plan was produced as a separate document that was jointly developed by the USFWS, WDFW, and Grant PUD, thus the site management plan was not presented in this report.

3.3 Riparian Plantings

On February 27, 2014, a horizontal fracture was discovered in the spillway monolith No. 4 at Wanapum Dam. The fracture opened a crack on the upstream face of the structure approximately

2 inches high by 65 feet long on the spillway monolith. Grant PUD immediately initiated its Emergency Action Plan (EAP; level B) and began to draw the Wanapum Reservoir down in a steady controlled state.

On March 4, 2014, the Wanapum Reservoir was lowered to a safe operating elevation range between 545 feet and 541 feet. As a result of the drawdown, shoreline areas closed to all activity. Due to this closure, no riparian plantings occurred and Grant PUD did not continue the assessment of the 13 potential riparian planting sites in 2014. On March 16, 2015, FERC approval was received and the reservoir began refilling. Collaboration regarding these riparian planting areas will resume with the Wanapum, Grant PUD Cultural Resource Department, and other stakeholders during the 2016 reporting year.

Future riparian planting options could include Grant PUD collecting cuttings during the winter and planting prior to spring through available methods depending on cultural restrictions on the site. Planting of ponderosa pine rooted stock will also be investigated depending on existing conditions at the potential sites and the ability to plant. A monitoring and adaptive management plan will be part of any proposed planting strategy to ensure success.

4.0 Summary

The numbers of bald eagles using the Project have increased over the last decade. The greatest documented use during the year has occurred in the later part of January to February. Golden eagles continue to be present in the Project, but not in large numbers.

The 2015 reporting period is the first to document new nest locations. Monitoring information for the new nests will be presented in the 2016 reporting period report. Existing nest 1703-2 (located at The Cove) successfully fledged one young bald eagle in July of 2014. The bald eagles nesting on Goose Island (Nest 1820-3) continue to show signs of nesting with unknown success due to observation challenges associated with nest location and tree foliage surrounding the nest. Grant PUD plans to continue monitoring the active bald eagle nests within the Project.

Grant PUD plans to direct future tree protection and planting efforts in areas of eagle nesting, roosting, foraging areas, and daytime perching as needed. Future tree protection efforts are planned to be directed in response to beaver activity at known areas of eagle use. Grant PUD will continue to collaborate with the Wanapum and Cultural Resources Department in the selection of future black cottonwood planting areas and methodologies.

List of Literature

- Alsop, F. J. III, 2001. Smithsonian Handbooks Birds of North America: Western Region. DK Publishing, Inc. New York, NY.
- Public Utility No 2 of Grant County, Washington. 2014. Priest Rapids Hydroelectric Project No. 2114. 2014 Annual Report for the Bald Eagle Perch/Roost Protection Plan Pursuant FERC Article 414. Public Utility District No. 2 of Grant County. Ephrata, WA.
- Public Utility No 2 of Grant County, Washington. 2009. Priest Rapids Hydroelectric Project No. 2114 Bald Eagle Perch/Roosting Protection Plan Pursuant FERC Article 414. Ephrata, WA.
- Turner, B. 2013. Priest Rapids Hydroelectric Project No. 2114. 2013 Annual Report for the Bald Eagle Perch/Roost Protection Plan Pursuant FERC Article 414. Public Utility District No. 2 of Grant County. Ephrata, WA.
- Turner, B. 2012. Priest Rapids Hydroelectric Project No. 2114. 2012 Annual Report for the Bald Eagle Perch/Roost Protection Plan Pursuant FERC Article 414. Public Utility District No. 2 of Grant County. Ephrata, WA.
- Turner, B. 2011. Priest Rapids Hydroelectric Project No. 2114. 2011 Annual Report for the Bald Eagle Perch/Roost Protection Plan Pursuant FERC Article 414. Public Utility District No. 2 of Grant County. Ephrata, WA.
- Turner, B. 2010. Priest Rapids Hydroelectric Project No. 2114. 2010 Annual Report for the Bald Eagle Perch/Roost Protection Plan Pursuant FERC Article 414. Public Utility District No. 2 of Grant County. Ephrata, WA.
- Western Forestry and Conservation Association (WFCA). 2010. Restoration of Disturbed Sites with Native Plants: An Integrated Approach. June 14–17, 2010. Wenatchee, WA.

Appendix A
Bald Eagle Nest Survey Reports

Bald Eagle Territory # 1703
 Wanapum Pool Right Bank



Nest #	Zapped	Nest Description
1703-2	No	Bald Eagle Nest at The Cove LAT 46.8803 LONG -119.9927 Legal Description: T16-ON R23-OE S18

Bald Eagle Territory # 1820
 Priest Pool – Goose Island



Nest #	Zapped	Nest Description
1820-2	No	Bald Eagle Nests on Priest Pool – Goose Island LAT 46.6622 LONG -119.9912 Legal Description: T14-ON R23-OE S34
1820-3	No	