

**VIA ELECTRONIC FILING**

December 22, 2015

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
Mail Code: DHAC, PJ-12  
888 First Street NE  
Washington, DC 20426

**RE: Priest Rapids Hydroelectric Project P-2114-203  
License Article 409 Wildlife Habitat Management Plan Update**

Dear Secretary Bose,

Please find enclosed an update to Public Utility District No. 2 of Grant County, Washington's (Grant PUD's) Wildlife Habitat Management Plan (WHMP), consistent with the requirements of Article 409 of the Priest Rapids Hydroelectric Project License.

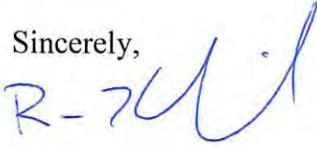
On October 12, 2009, Grant PUD submitted its original WHMP to the Federal Energy Regulatory Commission (FERC). On August 31, 2010, FERC issued an Order approving the WHMP, requiring the WHMP to be updated, at a minimum, of every five years. Per the August 31, 2010 approving Order, the enclosed WHMP update includes a summary of the habitat improvement measures implemented during the previous five years and measures projected to be implemented in the next five years.

FERC requires the WHMP update to be developed after consultation with the U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management, U.S. Bureau of Reclamation (USBR), Washington Department of Fish and Wildlife (WDFW), Department of Natural Resources, Washington Recreation and Conservation Office, the Confederated Tribes and Bands of the Yakama Nation, and the Wanapum Band. The draft WHMP update was submitted to the stakeholders on December 10, 2015. Comments were received from USFWS, USBR, and WDFW, and a summary of agency comments and Grant PUD's responses are included in Appendix E of the WHMP update.

Bose (WHMP Update)  
December 22, 2015  
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FERC staff with any questions should contact Fish, Wildlife and Water Quality Manager, Tom Dresser, at 509-754-5088, Ext. 2312 or at [tdresse@gcpud.org](mailto:tdresse@gcpud.org).

Sincerely,



Ross Hendrick  
License Compliance Manager

**Priest Rapids Hydroelectric Project (FERC No. 2114)  
Wildlife Habitat Management Plan  
License Article 409**



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**December 2015**

## **Executive Summary**

The Federal Energy Regulatory Commission (FERC) issued a license for the Priest Rapids Hydroelectric Project (FERC Project No. 2114 [Project]) on April 17, 2008. License Article 409 required Public Utility District No. 2 of Grant County, Washington (Grant PUD) to file, for FERC approval, a Wildlife Habitat Management Plan (WHMP) to protect and enhance wildlife habitats within the Project. Once approved, the plan was to be updated and filed, for FERC approval, a minimum, of every five years (FERC 2008). The original WHMP was filed with FERC in 2009 (GCPUD 2009) and received FERC approval in 2010. This document serves as the required five-year update to the 2009 WHMP that FERC approved in 2010.

In order to update the 2009 WHMP, Grant PUD convened a Working Group (Group) of key stakeholders. This Group was able to review objectives from the 2009 WHMP, refine those objectives where necessary, and help develop new goals and objectives for continued wildlife habitat management in the Project Area.

The 2009 WHMP consisted of three components: (1) wildlife habitat improvements, (2) development of a fire suppression program, and (3) an agency consultation and reporting schedule. The 2015 WHMP plan builds on these components, and adds Habitat Management Emphasis Areas in which specific management objectives will benefit target species.

Three locations were originally identified for site-specific improvements in the 2009 WHMP: (1) Buckshot Wildlife Area, (2) Burkett Lake, and (3) the Airstrip Site. Since the 2009 WHMP, Grant PUD has been planning restoration efforts at Sunland Estates. Proposed improvements at Sunland Estates are described in this 2015 WHMP.

A fire suppression program has been developed to maintain wildlife habitat within the Project, rehabilitate lands subject to wildfire, and reduce fuel loads to prevent wildfire on Project lands and adjoining wildlife areas. This program will continue.

An adaptive management process has been incorporated into this 2015 WHMP to help Grant PUD achieve objectives and complete meaningful habitat restoration. Engagement from key stakeholders is critical to the adaptive management process.

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## List of Abbreviations

BLM	United States Bureau of Land Management
BMPs	Best Management Practices
BOR	United States Bureau of Reclamation
Corps	Department of the Army Corps of Engineers
Ecology	Washington Department of Ecology
FERC	Federal Regulatory Energy Commission
GPS	Global Positioning System
Grant PUD (also GCPUD)	Public Utility District No. 2 of Grant County, Washington
HBTI	Habitat Based Terrestrial Inventory
HPA	Hydraulic Project Approval
IPM	Integrated Pest Management
JARPA	Joint Aquatic Resources Permit Application
License	Priest Rapids Project License No. 2114 (123 FERC 61,049)
MA	Management Area
PHS	Priority Habitats and Species
Project	Priest Rapids Project
TVMP	Total Vegetation Management Program
USFWS	United States Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WHMP	Wildlife Habitat Management Plan
WNHP	Washington Natural Heritage Program
WRCO	Washington Recreation and Conservation Office
WSPRC	Washington State Parks and Recreation Commission
WQC	401 Water Quality Certification

## **1.0 Introduction**

Public Utility District No. 2 of Grant County, Washington (Grant PUD) owns and operates two large hydroelectric dams on the Columbia River. The dams, Wanapum and Priest Rapids, their associated reservoirs, and adjacent shorelines and uplands, are collectively known as the Priest Rapids Project (Project). The Project is operated under the terms and conditions of a license issued by the Federal Energy Regulatory Commission (Project No. 2114). Grant PUD currently operates the Project to meet local, state, and regional power needs and, with the federal and state resource management agencies and other operators, to provide protection and enhancement for a range of resources within and downstream of the Project.

FERC issued a license for the Project on April 17, 2008. License Article 409 required Grant PUD to file, for FERC approval, a Wildlife Habitat Management Plan (WHMP) to protect and enhance wildlife habitats within the Project. Once approved, the plan is to be updated and filed, for FERC approval, a minimum of every five years (FERC 2008).

The final WHMP was submitted to FERC on October 12, 2009, consistent with requirements of Article 409 of the Priest Rapids Hydroelectric Project License. FERC approved the WHMP on August 31, 2010.

The 2009 WHMP consisted of three components namely, wildlife habitat improvements, development of a fire suppression program, and an agency consultation and reporting schedule. Wildlife habitat improvements were divided into three categories: (1) species-specific, (2) site specific, or (3) Project-wide.

After submittal of the final WHMP to FERC on October 12, 2009, Grant PUD developed a detailed implementation schedule (5-year timeline) for proposed wildlife habitat enhancements within the Project that included tasks to be completed, targeted dates to implement the tasks, staff roles, and budgets. Implementation started in late 2009 and has continued through the present.

Wildlife protection and enhancement measures required by various License articles undertaken by Grant PUD throughout the project and along transmission lines include habitat improvements, marking transmission lines to prevent avian collisions, controlling noxious weeds, protecting federally listed species, and continuing to provide raptor and waterfowl nesting structures.

This document serves as the required five-year update to the 2009 WHMP. In this document, Section 1 summarizes FERC License requirements, Section 2 summarizes wildlife habitats within the Project Area, Section 3 provides goals and objectives for wildlife habitat management, Section 4 describes the adaptive management process to be used in the implementation of this WHMP, and Section 5 provides a summary and schedule for stakeholder coordination, meetings and reporting.

### **1.1 Article 409 License Requirements – Wildlife Habitat Management Plan**

Article 409 required Grant PUD to file, for FERC approval, a WHMP to protect and enhance wildlife habitats within the Project. The WHMP was to be prepared after consultation with the United States Fish and Wildlife Service (USFWS), the United States Bureau of Land Management (BLM), the United States Bureau of Reclamation (BOR), the Washington Department of Fish and Wildlife (WDFW), the Washington Department of Natural Resources (DNR), the Washington Recreation and Conservation Office (WRCO), Confederated Tribes and

Bands of the Yakima Nation and the Wanapum Band. The WHMP was to include three main components: 1) wildlife habitat improvements; 2) fire suppression; and 3) an agency consultation and reporting schedule.

Additional requirements of Article 409 were to include: “(1) a detailed description of the habitat improvement measures that will be implemented over the first five years of the License, including the methods to be used; (2) a detailed description of the location where the improvements will occur, including maps and drawings; (3) a description of any annual or periodic maintenance and monitoring needed to ensure the success of the measures; and (4) a detailed implementation schedule.” Article 409 states that wildlife habitat projects that occur within and immediately adjacent to the project boundary should be given priority. Article 409 also states that the WHMP include management of noxious weeds on project lands.

Waterfowl requirements included “...provisions and a schedule for continued installation, monitoring and maintenance of 48 wood duck nest boxes; 12 raptor nesting, roosting and perching structures; and 50 waterfowl nesting platforms (mallard nest baskets and goose nesting tubs) around the project shoreline within the project boundary.”

Lastly, Article 409 requires that the WHMP be updated and filed for Commission approval, at a minimum, every five years after approval of the plan. The updated plan is to include a summary of the habitat improvement measures implemented during the previous five years and measures projected to be implemented in the next five years.

## **1.2 WHMP Purpose and Intended Use**

The 2009 WHMP was developed to implement the requirements of Article 409. These requirements were specific to implementation of required objectives and often had short time frames for implementation. Habitat enhancement requires an adaptive management process to be successful. This process is ongoing to achieve management objectives. The WHMP is a guidance document that provides both long- and short-term objectives to meet defined habitat enhancement goals. This WHMP should be considered a living document. Collaboration and communication with key stakeholders is anticipated to enable learning and to revise objectives through an adaptive management process.

## **1.3 WHMP Coordination with Other License Articles and Requirements**

Article 409 specifically requires that both development and implementation of the WHMP be coordinated with the development and implementation of the Recreation Resources Management Plan (Article 418) and Shoreline Management Plan (Article 419), to ensure that public access controls and site rehabilitation measures are addressed and consistent with project and adjoining public land management goals and objectives.

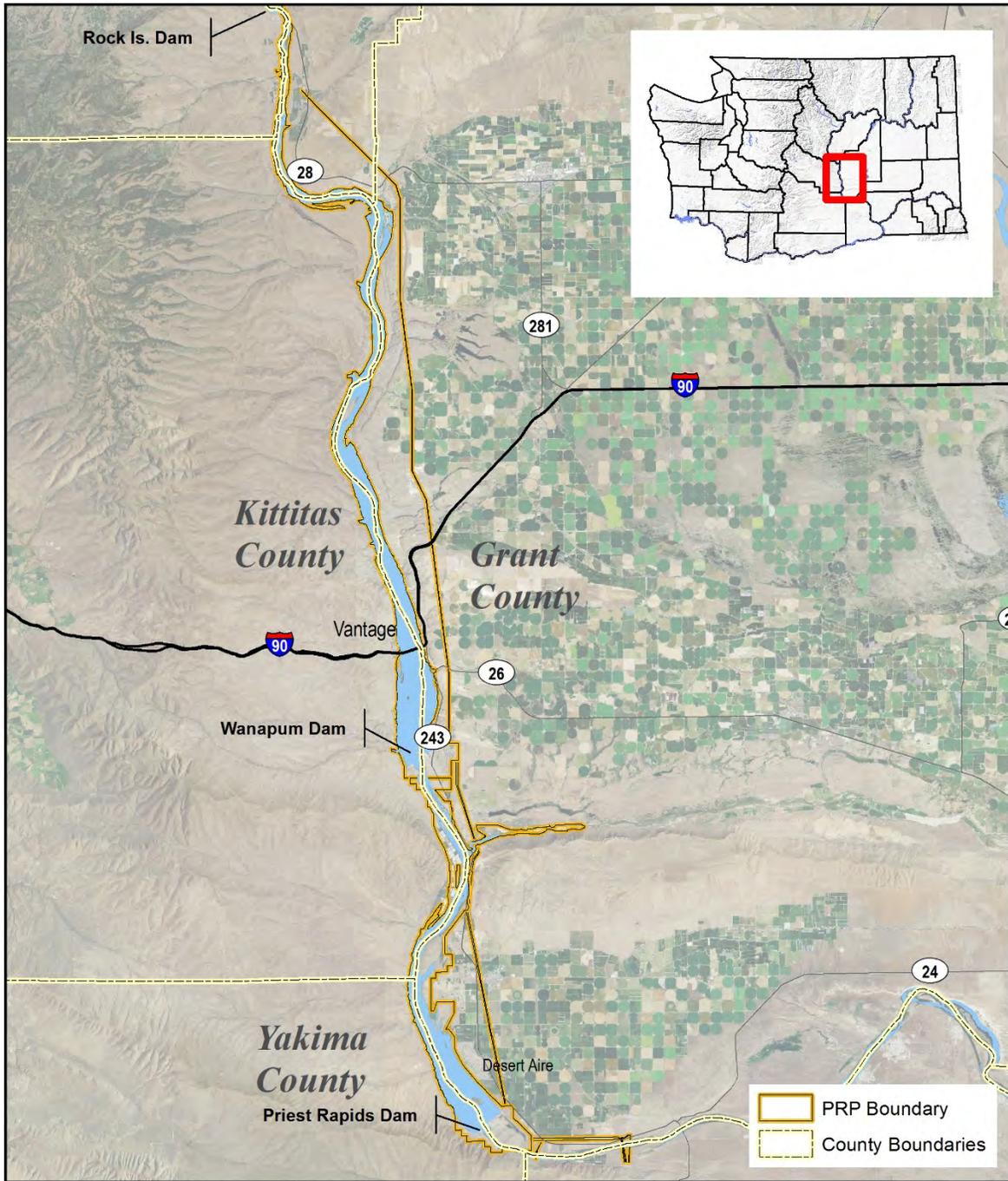
In addition, the work that Grant PUD completes to remain compliant with several other License Articles directly benefits wildlife or wildlife habitat. Examples include the Wildlife Habitat Monitoring and Information and Education Program (Article 410); the Transmission Line Avian Collision Program (Article 411); the Rare, Threatened, or Endangered Plant Monitoring Program (Article 413); the Bald Eagle Perch/Roosting Protection Program (Article 414); the Historic Properties Management Plan (Article 416) and the Memorandum of Agreement between Grant PUD and the Wanapum Band (Article 417).

## 1.4 Priest Rapids Project Boundary

The Project boundary extends from river mile (RM) 395, approximately two miles downstream of Priest Rapids Dam, to a point approximately 0.5 mi downstream of Rock Island Dam at RM 453 of the Columbia River. The Project area encompasses lands immediately adjacent to the Project reservoirs and other Project lands. Reservoirs associated with Wanapum and Priest Rapids dams span some 58 miles of the Columbia River. The Wanapum Reservoir is 38 miles long and has a surface area of approximately 14,680 acres. A total of ten tributaries; Johnson, Skookumchuck, Whisky Dick, Sand Hollow, Quilomene, Trinidad, Tarpiscan, Colockum, Douglas, and Brushy creeks - flow into Wanapum reservoir. The Priest Rapids Reservoir is 18 miles long and has a surface area of approximately 7,725 acres. Two tributaries, Crab and Hanson creeks, flow into Priest Rapids reservoir. The remaining 2 miles of the Project is located below Priest Rapids dam. Jackson Slough enters the reservoir below Priest Rapids Dam.

The Project is located in the Columbia Basin, one of the driest regions in Washington State. Undisturbed sites in this area are characterized by a mosaic of arid-land shrubs and perennial bunchgrasses, a vegetation type known as “shrub-steppe.” The Project also includes a number of other cover types, including wetlands, riparian areas, cobble bars, talus slopes, cliffs, inland dunes, and agricultural lands (GCPUD 2003).

The Project (Figure 1) extends approximately 58 miles along the Columbia River and includes both Wanapum and Priest Rapids reservoirs and the tailrace below Priest Rapids Dam. The City of Rock Island is upstream of the Project, while the Hanford Reach National Monument borders the downstream end. The Project includes lands along the shoreline that generally extend outward an average of 100 to 150 feet from full pool elevation. In a few instances the Project boundary extends 2,000 feet or more from full pool to capture Project features such as portions of the Buckshot Wildlife Area (one of the Project recreation sites), a portion of the Yakima Training Center, Burkett Lake Recreation Area and the lower five miles of Crab Creek. Downstream from the Priest Rapids Dam, the Project Boundary extends about 1 mile along the west bank and 2 miles along the east bank. All existing Project facilities, including Wanapum and Priest Rapids dams and powerhouses, reservoirs, a fish hatchery, the Wanapum Indian Village, and numerous recreation sites, are located within the Project. The transmission line right-of-way boundary for the Project ranges from 100 to 500 feet in width, although the majority of the transmission lines are outside the Project boundary.



**Priest Rapids Hydroelectric Project Boundary and Transmission Line ROW**

*This map/data was created for informational, planning, reference and guidance purposes only. Grant PUD makes no warranty, expressed or implied related to the accuracy or content of these materials. NR GIS - 2015*



**Figure 1 Priest Rapids Hydroelectric Project (FERC No. 2114) Boundary**

The Priest Rapids Project boundary consists of lands necessary for the safe operation and maintenance of the Project and other purposes such as: recreation, shoreline control, and protection of environmental resources. The Project encompasses about 35,097 acres. Of the area encompassed by the Project Boundary, 22,188 acres (63 %) is water. The 12,909 acres of land within the Project are owned by Grant PUD, state, federal, county, and private entities (Table 1).

**Table 1 Land ownership in the Priest Rapids Project**

<b>Ownership</b>	<b>Area (acres)</b>	<b>Percent of Project Area (%)</b>
Grant PUD	4,619	36
Federal <sup>1</sup>	3,386	26
State <sup>2</sup>	2,668	21
County	11	<1
Private	2,225	17
<b>Total</b>	<b>12,909</b>	<b>100</b>

## 2.0 Project Area Habitat Inventory

Most of the landscape in the Project vicinity is undeveloped and consists of large expanses of relatively undisturbed native habitats, particularly along the west side of Priest Rapids and Wanapum reservoirs where much of the land is in federal or state ownership. Land adjacent to over half the length of the west side of Priest Rapids reservoir is owned and managed by the U.S. Army as part of the Yakima Training Center. Most of the west side of Wanapum reservoir is state-owned and is managed by the WDFW, Washington Department of Natural Resources (WDNR), and Washington State Parks and Recreation Commission (WSPRC). Portions of the WDFW managed Quilomene, Colockum, and Whiskey Dick Wildlife Areas border the west side of Wanapum reservoir. The east side of the Project includes agricultural lands and a number of residential/resort communities including: Crescent Bar, Sunland Estates, Beverly, and Desert Aire. Ownership on the east side of the Project is a mixture of private, state, and federal ownership. Public lands that are managed specifically for fish and wildlife include the Quincy and Lower Crab Creek wildlife areas. The lands along the east side of the Project are within the area covered by the Columbia Basin Project, a large federal water project managed by the BOR which provides the water for all the irrigated agriculture east of the Project. This water is delivered by a system of canals, laterals, drains, and wasteways. Irrigation returns from the Columbia Basin Project supplement flows in many of the area's creeks.

<sup>1</sup> Federal ownership includes: Bureau of Reclamation, U.S. Bureau of Land Management, U.S. Army, United States Fish and Wildlife Service, U.S. Department of Energy, and Bonneville Power Administration.

<sup>2</sup> State ownership includes: WDFW, WDNR, and Washington State Parks.

## **2.1 Habitat Based Terrestrial Inventory**

The Project was the subject of a Habitat Based Terrestrial Inventory (HBTI) (DES 2000). The HBTI was required to address data gaps regarding existing terrestrial resources on Project lands, and was used in the information package for the Priest Rapids Project relicensing process. During the HBTI, botanical and wildlife studies were conducted to: 1) characterize the distribution, habitat preferences, and other aspects of federal and state listed plant and animal species in the Project; 2) provide detailed descriptions of previously defined riparian and wetland cover types in the Project; 3) list and describe all wildlife known to occur or potentially occurring in the Project and their habitat preferences; and 4) describe terrestrial wildlife habitats, their spatial characteristics, and the use of the Project as a wildlife corridor.

Wildlife investigations began with field observations of habitat structure and complexity in major tributaries, wetlands, islands, and inlets in the Project. Habitat data were compiled along with incidental observations, observations listed in the Grant PUD wildlife sightings database, and the scientific literature to describe the Project and its associated wildlife resources. Descriptions of important riparian habitats, particularly the perennial tributaries to the Columbia River, are provided in the HBTI final report (DES 2000). Over 280 species of wildlife (mammals, birds, reptiles, and amphibians) and their distributions are described. The known or potentially occurring Washington State or federally listed wildlife species are discussed in detail, along with their habitat preferences and relevant management concerns.

Botanical field inventories were conducted in all riparian and non-aquatic cover types, and supplemented with existing plan surveys and published checklists. Over 250 species of vascular plants are listed as known or potentially occurring in the five riparian and wetland cover types previously defined for the Project. These plants were screened with the ethnobotanical literature to compile a list of Culturally Important Plants; this screened list was provided as an appendix to the HBTI final report.

Twenty-seven state or federally listed plant species known to occur or having the potential to occur in the Project are described, along with their habitat preferences, known distributions, and relevant management concerns. To supplement the published data, a subset of the 55 rare plant occurrences were revisited and described. Seven previously unknown rare plant occurrences were identified during these efforts (DES 2000).

Grant PUD uses the HBTI data to describe and locate known habitats in the Project area, and as a baseline for continued rare plant and habitat monitoring surveys.

## **2.2 WDFW Priority Habitats**

The WDFW publishes a Priority Habitats and Species List (PHS) (WDFW 2015) that is a catalog of habitats and species considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority species include State Endangered, Threatened, Sensitive, and Candidate species; animal aggregations considered vulnerable; and those species of recreational, commercial, or tribal importance that are vulnerable.

A priority habitat is a habitat type with unique or significant value to many species. According to WDFW, an area identified and mapped as priority habitat has one or more of the following attributes: comparatively high fish and wildlife density or species diversity; important fish or

wildlife breeding or seasonal habitat; movement corridors; habitats of limited availability; high vulnerability to alteration; or contains unique or dependent species.

A priority habitat may be described and designated by a unique vegetation type or by a dominant plant species (e.g., oak woodlands, juniper savannah), a successional stage (e.g., old growth and mature forests) and/or a specific habitat feature or structure (e.g., talus slopes, caves, snags) of key value to fish and wildlife.

There are seven habitat types within the Project that are currently on the PHS list:

- 1). Cliffs
- 2). Talus Slopes
- 3). Riparian Zones
- 4). Sand Dunes
- 5). Shrub-Steppe
- 6). Waterfowl Concentrations, and
- 7). Wetlands

Maps showing the locations of these habitat types are presented in Appendix A (Priority Habitats and Species Maps) and summaries of priority habitats and priority species with the Project are provided in Appendix B and Appendix C, respectively.

### **3.0 Wildlife Habitat Management**

The 2009 WHMP (GCPUD 2009) provided three types of wildlife habitat enhancement objectives or management recommendations: general project-wide enhancement measures or best management practices (BMPs); site-specific habitat management, and; species-specific habitat management. The 2015 WHMP, through a collaborative process with stakeholders, re-defined the species-specific objectives and recommendations to be habitat based with associated target species (Section 3.1). The sections below provides a summary of these objectives or recommendations, a description of actions completed to date where applicable, and describes objectives for future management of these areas.

#### **3.1 Project-Wide Goals, Enhancement Measures and BMPs**

##### **3.1.1 Wildlife Habitat Management Over-Arching Goals Summary**

The over-arching goal for wildlife habitat management within the Project is to protect functioning wildlife habitat areas and enhance degraded wildlife habitat as part of restoration and mitigation projects within Site-Specific Habitat Management Areas, and to work collaboratively with stakeholders to improve management methods through the adaptive management process of refining objectives and management actions based on lessons learned.

For the 2015 WHMP, Site-Specific Habitat Management Areas where enhancement and restoration of degraded habitats will occur include Buckshot Wildlife Area, Burkett Lake, Airstrip, and Sunland Estates. Section 3.2 provides a summary of objectives and proposed management actions for these areas. In addition, restoration and mitigation for permitted actions will occur at recreation sites and other sites as they are proposed, incorporating wildlife habitat management goals and objectives.

As described in the introduction above, Grant PUD used a collaborative working group process to help refine or define key habitat management objectives for the 2015 WHMP. This process provided a means for consensus-based decision making on several key elements of the WHMP,

and allowed the discussion, identification, and refinement of the 2009 WHMP objectives that are being carried forward as part of the 2015 WHMP.

During implementation of the 2015 WHMP, Grant PUD will work collaboratively with WDFW and other stakeholders, meeting on an annual basis, to discuss lessons learned and develop appropriate revisions to management actions with the intent of increasing effectiveness of preservation, restoration or monitoring measures. In addition, Grant PUD and WDFW will jointly investigate and identify areas of the Project more appropriate for development (e.g., recreation) and those rare and high quality areas suitable for preservation, collaborate on management actions where appropriate (e.g. Burkett Lake/Lower Crab Creek Phragmites management) and share lessons learned from projects implemented independently.

### **3.1.2 Project-Wide Best Management Practices Summary and Implementation**

Grant PUD will utilize the following best management practices (BMPs) for habitat improvement measures, when appropriate, to enhance the value of wildlife habitat within the Project. These BMPs will be implemented on restoration or enhancement project sites and will be recommended by fish and wildlife staff for incorporation into other Project actions, as appropriate, through the Natural and Cultural Resource Review Process (NCRRP) – an internal project review process. Thus, consistent with state and federal permitting processes, Grant PUD will avoid, minimize and mitigate for effects of Project actions on wildlife habitat.

#### ***3.1.2.1 Maintain Healthy Riparian Plant Communities***

Maintaining a streamside riparian vegetation zone with a complexity of woody and herbaceous riparian plants provides multiple benefits. Maintaining healthy riparian plant communities provides shade to maintain cool water temperatures; filters sediment, nutrients, and other pollutants from upland sources; retains sediment, nutrients and other pollutants deposited during high flow events; preserves off-channel habitats frequently used by rearing fish (remnant channels, pocket pools); provides for recruitment of large woody debris; provides detritus and primary food production; and protects upland areas where channels tend to migrate (USACE 2004). To the extent possible, Grant PUD has avoided and will continue to avoid clearing riparian vegetation to support other land uses. Where recreation or capital improvement projects are proposed, Grant PUD Fish and Wildlife staff work with Project managers to avoid and minimize impacts to riparian areas. Where impacts to riparian vegetation are unavoidable, Grant PUD will mitigate for these impacts in accordance with local, state, and/or federal regulatory requirements.

#### ***3.1.2.2 Mitigate for Unavoidable Loss to Wildlife Habitat***

As part of this updated WHMP, Grant PUD will continue to mitigate for any future unavoidable loss to wildlife habitat within the Project boundary, as described below. Unavoidable loss to wildlife habitat could be part of future Grant PUD projects, authorized non-project uses by private parties on Grant PUD Project lands, and unauthorized non-project uses by private parties (e.g. encroachments) on Grant PUD Project lands.

Mitigation ratios are meant to address the temporal loss of a functioning habitat or loss of an irreplaceable or unique habitat. The temporal loss is the loss of habitat function for a period of time. For example, it can take years for a wetland habitat in-place and in-kind mitigation to become functional; therefore, a ratio is applied in an attempt to mitigate for the temporal loss of

functional, unique, and irreplaceable habitat (Castelle et al. 1992), where permitting process do not supersede.

As part of this WHMP update, Grant PUD will implement the following mitigation approaches:

1. For impacts within the Project boundary that are within 200 feet of and/or below the OHWM, Grant PUD will follow federal, state, and local regulations and applicable mitigation requirements (these shall take priority over Item 2 below).
  - a. The WHMP is not intended to address aquatic (in-water) impacts, and thus mitigation for aquatic impacts shall be determined via applicable federal, state, and local regulations. Such regulations include, but are not limited to those addressed under the Joint Aquatic Resources Permit Application (JARPA): Department of the Army Corps of Engineers (Corps) Section 404 of the Clean Water Act and Section 10 of the River and Harbors Act, Washington Department of Ecology (Ecology) 401 Water Quality Certification (WQC), WDFW Hydraulic Project Approval (HPA), WDNR Aquatic Use Authorization. Local regulations and conditions that supersede this section of the WHMP include building, clearing, grading, filling, substantial development, conditional use permits and associated programs under the local government managed growth management and shoreline management acts.
2. For projects (or project impacts) in upland areas within the PRP Boundary that (a) are not addressed through federal, state, and/or local regulations and (b) impact **functional** habitat that is either **unique** or **irreplaceable** habitat, a 2:1 mitigation ratio shall be applied to account for the loss of functional habitat that has some unique or irreplaceable wildlife habitat value.
3. For projects (or project impacts) in upland areas within the PRP Boundary that (a) are not addressed through federal, state, and/or local regulations and (b) impact **functional habitat that has both unique and irreplaceable** habitat, a 3:1 mitigation ratio shall be applied to account for the loss of functional, unique, and irreplaceable wildlife habitat.

For the purposes of this WHMP, the following definitions are provided as it relates to Item 2 above:

- **Functional Habitat:** Ecological area comprised of native and desirable plants, or like habitat feature (e.g. hibernaculum) that may be inhabited by a particular species of animal or plant. Functional habitat may provide cover (e.g. from predators, weather, etc.), shade, nesting/denning, and/or food source for animals.
- **Unique Habitat:** Functional habitat that occurs within area(s) inhabited by state or federally listed animal species (e.g. striped whipsnake); this is typically defined either by USFWS, WDFW, or the Washington Natural Heritage Program (WNHP).
- **Irreplaceable Habitat:** Functional habitat that is either (a) defined by USFWS or WNHP to have listed plant species (to be confirmed by site surveys) or (b) is exclusive to the area (e.g. the only large trees in the immediate area that contains mostly shrub-steppe habitat).

As stated above, the wildlife habitat must meet all three of these definitions to require the 3:1 mitigation ratio (if not already dictated per local, state, or federal ratios (see Item 1 above)).

Similarly, the wildlife habitat must meet two of the three definitions (functional and either unique or irreplaceable) to require the 2:1 mitigation ratio (if not already dictated per local, state, or federal ratios). If only the functional habitat definition is met wildlife habitat shall be mitigated at a ratio of 1:1. If all three are not met, then by definition there is no habitat impact to be mitigated. Grant PUD may, at its discretion, elect to establish functional habitat through establishment of native vegetation.

A qualified Grant PUD biologist or qualified professional retained by Grant PUD will implement the following steps for determining if a site meets the functional, unique, and irreplaceable habitat definitions:

1. Check USFWS/WNHP database for listed plant and animal species occurrences and check WDFW PHS database. If occurrence is located near the project area, conduct site survey (per step 2a below) to determine proximity to project impacts and determine potential affects to the concerning species.
2. Conduct site survey to determine:
  - a. Proximity of listed plant/animal species and/or PHS (if determined to occur near the project, per Step 1 above) to project impact area.
  - b. If there is functional habitat, unique habitat and/or irreplaceable habitat at the site necessitating mitigation.
  - c. If PHS species or habitats are found, collect PHS information for submittal to WDFW.
3. If mitigation per the WHMP is required, Grant PUD will develop a mitigation plan specific to the site that addresses mitigation ratio and justification, incorporates native vegetation that is appropriate for the site in question and includes success criteria specific to the mitigation plan for the site.
4. Grant PUD will submit the site-specific mitigation design to Wildlife Management Plan workgroup members for review and comment prior to implementation.
5. Grant PUD will monitor the mitigation site for success and submit a project completion report to the Wildlife Management Plan workgroup members for review and comment prior to mitigation project closeout.

### ***3.1.2.3 Prevent Wind Erosion***

In areas with high winds and erodible soils, wind-born movement of soil can cause several issues. Detached sediment may be stored where it can be secondarily transported by water, or it may deposit directly in surface waters. Plants, especially grasses, have difficulty establishing in areas of high soil mobility. Methods such as tree plantings or placing downed logs or other biomass can decrease wind shear on the soil surface and reduce the mass of soil removed by the wind. Windbreaks or drift fences are effective tools that can be implemented to benefit wildlife habitat by keeping soils on site, which allows productivity to be maintained. Windbreaks also help reduce the deposition of wind-blown sediment into surface waters (USACE 2004). Grant PUD will assess potential wind erosion issues at restoration sites, and if appropriate will incorporate wind erosion prevention BMPs.

#### ***3.1.2.4 Maintain Native Seed Inventories***

The sourcing of local native seeds ensures grasses and plants are adapted to local climate and soil chemistry, which leads to increased survival. Only native plants will be used for habitat restoration. In addition, tree and shrub cuttings selected for all projects should also be obtained from local sources, preferably near the planting site. When implementing restoration projects, Grant PUD will attempt to secure seeds and plants from a local native seed grower, and/or will collect native seeds or cuttings within the Project Area for a source for restoration.

#### ***3.1.2.5 Avoid Exotic or Non-Native Species***

Although non-native plants can have positive stabilizing influence on a disturbed site, they can also overtake native species. Negative effects include increased maintenance problems, a reduction in plant diversity, increased disease and pest problems, and detrimental secondary effects on coexisting plants and wildlife (USACE 2004). Grant PUD will avoid the use of exotic species in all habitat restoration, rehabilitation, and establishment projects.

#### ***3.1.2.6 Mechanically Remove Non-Native Vegetation***

Mechanical removal of non-native vegetation typically involves the use of tractors or other heavy machinery equipped with a blade, mower, or other device to remove vegetation. While the degree of disturbance depends on the type of equipment used, mechanical removal breaks the surface of the soil and can remove some or all the parts of plants, including roots. Mechanical removal can be carried out over large areas or can be confined to smaller areas. Vegetation is sometimes removed in strips rather than clearing all areas (known as contouring or furrowing). Mechanical vegetation removal is generally highly efficient and does not involve chemicals (USACE 2004). Grant PUD may, when conditions dictate and after any necessary environmental and cultural resources review and regulatory permitting, mechanically remove undesirable vegetation from the Project using these methods.

#### ***3.1.2.7 Hand Pulling of Non-Native Vegetation***

Hand pulling of vegetation can be effective on small areas targeted for plant control, and on areas sensitive to chemical or mechanical treatment. Grant PUD will, when appropriate, utilize hand pulling of vegetation as a form of plant control.

#### ***3.1.2.8 Use Biological Non-Native Vegetation Control Methods***

Biological control of vegetation involves the use of disease, insects, other parasites, and desirable plants to inhibit growth and spreading of unwanted vegetation. Insect adults or larvae can be used to attack seed heads, stems, or flowers of target plants. In many cases, host-specific species of insects can be found. Bacteria, viruses, fungi, and other microbes can also be used to control vegetation, but these techniques are mostly experimental at this time (USACE 2004). Grant PUD has used and will continue to use biological control methods when and where appropriate and feasible.

#### ***3.1.2.9 Enhance Large Woody Debris Recruitment***

This technique is utilized to enhance the natural recruitment of streamside trees with the potential of becoming large woody debris. Approaches include: planting trees in floodplains and riparian areas; riparian harvest restrictions on individually marked trees, trees leaning toward or over streams, or other appropriate restrictions; falling select trees to bridge across streams; girdling select trees with strong potential as large woody debris; and selective harvest of trees to increase

size of remaining trees (USACE 2004). Grant PUD, in the management of restoration areas, will implement the above methods as appropriate to enhance the potential for large woody debris recruitment.

### **3.1.3 Fire Suppression Program Summary and Implementation**

#### ***3.1.3.1 Goals and Objectives***

Within the past 20 years, a number of catastrophic wildfires have burned large portions of natural areas near the Project. In 2000, more than 100,000 acres of the Hanford Site burned, killing large tracts of big sagebrush and antelope bitterbrush. Similarly, in 2013 a wildfire burned approximately 60,000 acres overlapping the 105,662 acre Colockum Wildlife Area. Numerous smaller fires occur annually, endangering property and often reducing wildlife habitat quality. The main causes of wildfires in this region are lightning strikes and human causes (campfires, target shooting, or illegal discharge of fireworks). WDFW is particularly concerned with fires on the State Wildlife Areas, which border Project reservoirs and receive a great deal of recreational use. Overland access to several of these areas is difficult, creating challenges for fire control.

Article 409 required Grant PUD to develop and implement a fire suppression program to maintain wildlife habitat in the Project, rehabilitate lands subject to wildfire, and to reduce fuel loads to prevent wildfire on Project lands and adjoining Wildlife Areas. More specifically, Article 409 required Grant PUD to:

- 1). Assist the WDFW in fire suppression efforts at Colockum, Quilomene, Quincy, Whiskey Dick, Priest Rapids, Crab Creek, and Buckshot Wildlife Areas;
- 2). Provide signage for key locations (West Bar and Quilomene Bay, and at marinas), that describe the hazards and costs of wildfire; and
- 3). Undertake rehabilitation efforts, such as planting sagebrush in recently burned areas, remove cheatgrass in selected areas, and replanting with perennial grasses to reduce fuel load.

#### ***3.1.3.2 Management Actions Summary***

Grant PUD entered into a cooperative service agreement with WDFW to provide funds to assist WDFW with fire suppression efforts within and adjacent to the Project. Grant PUD is making annual contributions to the fund in the not-to-exceed amount of \$40,000 per year. Funds from this account are to be used for: (1) revegetating burned areas, (2) revegetating areas known to burn frequently, with species carrying lesser fuel loads, (3) creating fire breaks in appropriate locations, and (4) paying for firefighting activities. The WDFW will submit a report to Grant PUD on or before February 15 of each year detailing the previous year's expenses and summarizing all fire protection activities.

Grant PUD has been managing several locations within the Project area, replacing non-native cheat grass, Russian thistle, Russian olive and other weed species with native grass and forb species that are more tolerant to fire. Most notable treated areas are the Buckshot Wildlife Area, Burkett Lake, and Airstrip. This shift from annual invasive and non-native species to perennial grasses and forbs will reduce fuel loads and provide increased fire resistance.

#### ***3.1.3.3 Continuing or New Actions***

Grant PUD proposes two strategies to prevent undesirable fires in the Project: education and enforcement. Grant PUD will continue the cooperative service agreement with WDFW and

placing educational signage at high-use areas within the project to assist with fire prevention and suppression efforts. Education is a critical component of fire prevention and will include on-site signage and off-site information in fulfillment of item two above. Two types of signs are envisioned for the Project: regulatory and informational. Regulatory signs will post state and county regulations, and any land management restrictions that apply to the site (e.g., fires are prohibited from April 15-October 15; fires permitted only within designated fire rings; vehicles not permitted off designated roads). These signs will be posted at boat access points and heavily used recreation sites. Grant PUD River Patrol crews provide assessment and monitoring along the river and provides notification to appropriate enforcement entities.

Enforcement of campfire and off-road regulations in the Project area is the responsibility of a number of entities including Grant County Sheriff, USFWS Fire Patrols, WDFW Enforcement, and WSPRC Patrols. Currently, enforcement of existing campfire and off-road regulations in the Project area is limited by a lack of funding.

Realizing that using the funding for actual suppression may not always provide the best benefit for wildlife, WDFW and Grant PUD will work closely to identify opportunities to apply the funding on potential projects that are appropriate. The West Bar area of the Colockum Wildlife Area (adjacent to Wanapum Reservoir) is a crucial area for fire-related habitat enhancement activities that provides benefits to multiple species. Other areas of focus for Grant PUD and WDFW are the Quilomene area, as well as locations where several creeks or drainages enter the Columbia River within the Project. Grant PUD will continue to incorporate native plants and grasses into restoration projects and target treatment of invasive species within the Project Area. This will enhance fire suppression efforts by removing or replacing species with high fuel loads with native, fire-resistant species.

### **3.1.4 Noxious Weed Management and Control**

#### ***3.1.4.1 Goals and Objectives***

The goal of weed control within the Project is to maintain and improve the habitat for wildlife, meet legal obligations (e.g., control Class A noxious weeds), provide good stewardship, and prevent the spread of noxious weeds from adjacent private lands to Grant PUD-owned lands. Weed control activities to be performed under the 2015 WHMP will be focused at the four Site-Specific Habitat Management Areas (e.g., Buckshot Wildlife Area, Burkett Lake Recreation Area, Airstrip and Sunland Estates), at mitigation sites, and at targeted locations (e.g., encroachment areas).

State law (RCW 17.15) requires that Grant PUD use integrated pest management (IPM), defined as a coordinated decision-making process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet programmatic pest management objectives, to accomplish weed control.

Grant PUD has a noxious weed management plan which outlines methods and processes that are relevant to Article 409 and the WHMP but it encompasses noxious weed control actions that are beyond the scope and requirements of Article 409 and the WHMP. Grant PUD's noxious weed management plan consists of three components:

1. Noxious Weed Herbicide Control Program
  - a. Herbicide application for noxious weeds on lands owned by Grant PUD in and adjacent to the Project. Common weeds controlled under the program are diffuse

knapweed, puncturevine, Canada thistle, kochia, pepperweed, and any other Class A or Class B designated weed identified through monitoring.

2. Biological Control Program

- a. Grant PUD targets purple loosestrife, diffuse knapweed, and Dalmatian toadflax using biological control methods. Biological control may be used on additional species when/if new scientifically sound controls become available.

3. Total Vegetation Management Program

- a. Total vegetation management program (TVMP) targets substations, transmission line corridors, dam embankments, wind test sites, roadsides, and other areas that must be kept clear of vegetation for fire safety, electrical reliability or other reasons. This program is managed under North American Electric Reliability Council (NERC) Electrical Reliability Standards FAC-003.

As part of communication, education, and training under the noxious weed management plan Grant PUD staff meet as needed with the noxious weed control board staff from Grant and Kittitas counties to review the status of Grant PUD's weed control program. In addition, all spray application activities are coordinated with the Wanapum Band on Traditional Cultural Properties (TCP) to reduce the risk of impacts from herbicide spray to culturally important plants, first foods and/or traditionally important gathering areas. All spray application activities are coordinated with the Wanapum Band on TCPs. The Wanapum Band is currently completing a cultural plant survey. Grant PUD will continue to work with the Wanapum Band in addressing weed management in sensitive areas, and information from the survey will be used to guide management strategies.

**3.1.4.2 Weed Species of Concern**

Noxious weed management will target, but will not be limited to, the species listed below.

- Bull Thistle (*Cirsium vulgare*)
- Canada Thistle (*Cirsium arvense*)
- China elm (*Ulmus parvifolia*)
- Dalmatian Toadflax (*Linaria dalmatica* ssp.)
- Diffuse Knapweed (*Centaurea diffusa*)
- Kochia (*Kochia scoparia*)
- Perennial Pepperweed (*Lepidium latifolium*)
- Phragmites (*Phragmites australis*)
- Puncturevine (*Tribulus terrestris*)
- Purple Loosestrife (*Lythrum salicaria*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Russian Knapweed (*Acroptilon repens*)
- Russian olive (*Elaeagnus angustifolia*)

- Russian Thistle (*Salsola iberica*)
- Spotted Knapweed (*Centaurea biebersteini*)
- White Top (Hoary Cress) (*Cardaria draba*)
- Yellow Flag Iris (*Iris pseudacorus*)

#### New Species of Concern

- Himalayan Blackberry (*Rubus discolor/ Rubus armeniacus*)
- Hoary Willowherb (*Epilobium parviflorun*)
- Salt Cedar (*Tamarix ramosissima*)
- Tree of Heaven (*Ailanthus altissima*)

#### ***3.1.4.3 Continuing or New Actions***

As part of the 2015 WHMP under Article 409, Grant PUD will continue noxious weed management at the four Site-Specific Habitat Management Areas (e.g., Buckshot Wildlife Area, Burkett Lake Recreation Area, Airstrip and Sunland Estates) and at mitigation sites. Additional weed management efforts will be undertaken as necessary on restoration or habitat enhancement projects to ensure native plant survival.

### **3.2 Habitat Management Emphasis Areas and Associated Species**

The 2009 WHMP included general management recommendations for priority habitats, as well as for a set of priority species. In discussions with agency stakeholders, it was determined that the best management approach for Grant PUD to provide benefits to individual species was by enhancing and protecting core habitats.

Sections 3.1.1 to 3.1.5 below provide descriptions of these key habitats (Habitat Management Emphasis Areas) and Table 2 below summarizes the management objectives and associated target species for each Habitat Management Emphasis Area. In addition the following appendices provide summaries of priority habitats and species within the Project:

- Appendix A - Project Area Priority Habitats and Species Maps
- Appendix B - Summary of WDFW priority habitats within the project, the WDFW priority area description, and locations of priority areas within the Project.
- Appendix C - Habitat requirements, recommended habitat management actions, and life histories of priority species in the Priest Rapids Project Area.

It is important to note that the Habitat Management Emphasis Areas are not specific to the description or location of WDFW Priority Habitats, but are areas within the Project that meet the descriptions below (and those provided in Appendix B) and/or provide core habitat to associated target species. By implementing protection and/or enhancement measures within these Habitat Management Emphasis Areas, Grant PUD will be providing an increase in habitat value for specific species associated with that habitat. For example, any new project proposals within the Project area will be subject to Grant PUD Fish and Wildlife staff review through the NCRP for consistency with the management objectives outlined in Table 2 below, and Fish and Wildlife

staff will recommend actions to avoid, protect, and/or mitigate/enhance wildlife habitat as part of the project proposal.

### **3.2.1 Cliffs and Talus Slopes**

Cliffs are topographic features greater than 7.6 meters (25 feet) high and occurring below 1,524 meters (5,000 feet). Talus slopes, often associated with cliffs in the Project Area, are homogenous areas of rock rubble ranging in average size from 0.15 - 2.0 m (0.5 - 6.5 ft). Within the Project, basalt cliffs and associated talus slopes occur in many locations adjacent to the Columbia River. Cliffs are a habitat feature regularly and/or traditionally used by a group of animals for resting, escape, hibernation, breeding, or rearing young.



**Figure 2 Typical Cliff and Talus Habitat Within the Project Area**

### **3.2.2 Riparian Habitat**

According to WDFW, riparian habitat encompasses the area beginning at the ordinary high water mark and extends to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. The width of riparian zones may vary, from just a few feet in some places to several feet in riparian forested areas. In riparian systems, the vegetation, water tables, soils, microclimate, and wildlife inhabitants of terrestrial ecosystems are often influenced by perennial or intermittent water. Simultaneously, adjacent vegetation, nutrient and sediment loading, terrestrial wildlife, as well as organic and inorganic debris influence the biological and physical properties of the aquatic ecosystem. Riparian habitat includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to stream courses or other freshwater.

Riparian habitats typically extend only a short distance from an aquatic area, and thus constitute a relatively small proportion of the habitats within a given area. However, the presence of favorable growing conditions for plants and a pronounced edge effect tend to make riparian zones unusually productive despite the relatively small area they occupy. Riparian habitats support a wide variety of wildlife species; approximately 85 percent of Washington's wildlife species use riparian habitats at some time during their life cycle (Knutson and Naef 1997). Some of the reasons that riparian habitats are so important to wildlife include: 1) the presence of water

for drinking, bathing, or reproduction (amphibians); 2) high vegetation biomass; 3) structurally diverse habitats; 4) the presence of edge habitats; 5) the presence of cool, shaded, and humid microclimates; 6) escape cover in areas where habitats are otherwise much more open, and 7) readily usable corridors for migration and travel (Thomas et al. 1979). Riparian areas are equally attractive to human enterprises, including recreation, residential development, timber harvest, agriculture, and grazing. Management of riparian habitats for wildlife poses unique challenges when other potential uses conflict with wildlife use (Knutson and Naef 1997).

For Grant PUD management purposes, riparian habitat also includes those areas adjacent to aquatic systems that may not provide cover or other habitat function, but do provide movement corridors for many species between more suitable habitats. Riparian habitat also includes cobble bars or other aquatic shoreline areas that may be exposed during times of lower water elevations, and islands within the Columbia River.



**Figure 3 Typical Riparian Habitat Within the Project Area**

### **3.2.3 Sand Dunes/Inland Dunes**

“This habitat occurs in Washington’s arid lands as wind-blown sand deposits entrained after the sandy sediments were eroded and sorted by fluvial processes, primarily in the Columbia and Snake rivers. Inundation of the (Priest Rapids) Project removed many of the fluvial processes and source sand bars, which historically emerged, became dry, and were eroded by wind during low water. Reworking of these deposits by wind produced widespread sand fields. The source sand for dunes is also by sand that was transported and deposited during Missoula Floods (Draut 2012).”

Sand dunes support vegetation if wind stress is not too great. Although dune vegetation tends to be variable, dunes often consist of plants that are also common to shrub-steppe, such as antelope bitterbrush, rabbitbrush and snow buckwheat. However, some plants are more restricted to sand dune, such as, Indian Ricegrass (*Achnatherum hymenoides*), Lemon Scurf pea (*Psoralidium lanceolatum*), Veiny Dock (*Rumex venosus*) and Gray Cryptantha (*Cryptantha leucophaea*). The

vegetation cover is related to annual rainfall totals and evapotranspiration rates. The mobility of sand dunes is related to the power of the wind, while a dune's mobility becomes inhibited as vegetation cover increases. Long periods of increased precipitation and persistent presence of vegetation may lead to a sand surface covered by litter and/or cryptobiotic crust. These same factors also can initiate soil formation, and can lead to partial or complete dune stabilization. Periods of drought will result in conditions unfavorable to vegetation and can reinitiate the mobility of sands. Other factors can have major influences on dune vegetation (e.g., livestock grazing, off-road vehicle use).

There are several identified dune areas within the Project, including Wanapum, Beverly, Sand Hollow, Frenchman Coulee, Quilomene, and Sentinel Butte (WDFW 2015). These include dunes of all functional stages and include a wide range of vegetation community types and qualities. Rare plant species such as gray cryptantha and northern wormwood are associated with dunes.



**Figure 4 Typical Dune Habitat Within the Project Area**

### **3.2.4 Shrub/Steppe**

WDFW defines shrub/steppe habitat as non-forested vegetation consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs. Although Big sagebrush (*Artemisia tridentata*) is the most widespread shrub/steppe shrub, other dominant (or co-dominant) shrubs include antelope bitterbrush (*Purshia tridentata*), threetip sagebrush (*A. tripartita*), scabland sagebrush (*A. rigida*), and dwarf sagebrush (*A. arbuscula*). Dominant bunchgrasses include (but are not limited to) Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg bluegrass (*Poa secunda*), Thurber's needlegrass (*Achnatherum thurberianum*), and Needle-and-Thread (*Hesperostipa comata*).

In areas with greater precipitation or on soils with higher moisture-holding capacity, shrub-steppe can also support a dense layer of forbs (i.e., broadleaf herbaceous flora). Shrub-steppe contains various habitat features, including diverse topography, riparian areas, and canyons. Another important component is habitat quality (i.e., degree to which a tract resembles a site potential natural community), which may be influenced by soil condition and erosion; and the

distribution, coverage, and vigor of native shrubs, forbs, and grasses. Sites with less disturbed soils often have a layer of algae, mosses, or lichens. At some more disturbed sites, non-natives such as Cheatgrass (*Bromus tectorum*) or Crested Wheatgrass (*Agropyron cristatum*) may be co-dominant species.

In the Project, shrub/steppe is a critical habitat that occupies much of the area above (and often within) the riparian zone. This includes varied topographic features like draws, canyons, slopes, and benches.



**Figure 5 Typical Shrub/Steppe Habitat Within the Project Area**

### **3.2.5 Wetlands**

Wetlands are transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands must have one or more of the following attributes: the land supports, at least periodically, predominantly hydrophytic plants; substrate is predominantly undrained hydric soils; and/or the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Wetlands within the Project are critical for waterfowl and other wildlife. Cattail and bulrush fringe marsh and lacustrine wetlands in backwater areas of the Columbia River, Moran Slough, and Burkett Lake provides habitat for upland game, ducks and nongame birds. Associated waterfowl concentrations are bald eagle foraging areas. In addition, many islands in the Project contain palustrine emergent or scrub-shrub wetlands that are not connected via surface water but provide seasonal water and habitat for a variety of species.



**Figure 6 Typical Wetland Habitat Within the Project Area**

Table 2 below provides a list of objectives for each of the Habitat Management Emphasis Areas. Target species are those that are provided specific benefit from habitat management within these emphasis areas. For a description of species life histories, habitat requirements, recommended habitat management actions, and locations within the Project, see Appendix C.

**Table 2 Habitat Management Emphasis Areas, Objectives, and Target Species**

<b>Habitat Management Emphasis Area</b>	<b>Management Objectives</b>	<b>Target Species</b>
Cliffs and Talus slopes	<ul style="list-style-type: none"> <li>• Avoid removal or disturbance of talus slopes and cliffs.</li> <li>• Provide and maintain disturbance free areas of cliff and talus habitat during critical life history phases such as nesting, lambing, and wintering. This management objective should include access to and from adjacent shrub or grassland areas.</li> <li>• Protect any known hibernaculum for reptile species.</li> </ul>	Bighorn Sheep <i>(Ovis canadensis)</i>  Chukar <i>(Alectoris chukar)</i>  Golden Eagle <i>(Aquila chrysaetos)</i>  Mule Deer <i>(Odocoileus hemionus)</i>  Peregrine Falcon <i>(Falco peregrinus)</i>  Striped Whipsnake <i>(Coluber taeniatus)</i>

Habitat Management Emphasis Area	Management Objectives	Target Species
Riparian Areas	<ul style="list-style-type: none"> <li>• Avoid or minimize removal of established native riparian vegetation.</li> <li>• Where removal is unavoidable, replace riparian trees and shrubs at ratios consistent with Section 3.1.2.2.</li> <li>• Minimize total removal of dead riparian vegetation. Provide snag and perch habitat and allow development of cavities, stand decadence, and LWD recruitment.</li> <li>• Prevent damage from beaver by wrapping trees with protective wire or lethal removal of beaver if necessary and in accordance with the Article 414 (Eagle Management Plan)</li> <li>• Develop and implement eagle nest protection management plans when nesting is identified in the Project Area, in accordance with the Article 414 (Eagle Management Plan)</li> </ul>	<p>Bald Eagle (<i>Haliaeetus leucocephalus</i>)</p> <p>Common Loon (<i>Gavia immer</i>)</p> <p>Mule Deer (<i>Odocoileus hemionus</i>)</p> <p>Rocky Mountain Elk (<i>Cervus elaphus</i>)</p> <p>Wood Duck (<i>Aix sponsa</i>)</p>
Inland Dunes	<ul style="list-style-type: none"> <li>• Work with local enforcement entities to prohibit off-road vehicle use in dune areas within the Project.</li> <li>• Allow natural processes, such as dune migration and stabilization, to occur.</li> </ul>	<p>Black-tailed Jackrabbit (<i>Lepus californicus</i>)</p> <p>Ord's Kangaroo Rat (<i>Dipodomys ordii</i>)</p> <p>Sagebrush Lizard (<i>Sceloporus graciosus</i>)</p>
Shrub/Steppe/Grassland	<ul style="list-style-type: none"> <li>• Avoid or minimize removal of established high-quality shrub/steppe habitat.</li> <li>• Where removal is unavoidable, replace at ratios consistent with Section 3.1.2.2.</li> <li>• Collaborate with WDFW in the identification of high-value shrub/steppe habitat in which</li> </ul>	<p>American Badger (<i>Taxidea taxus</i>)</p> <p>Black-tailed Jackrabbit (<i>Lepus californicus</i>)</p> <p>Burrowing Owl (<i>Athene cunicularia</i>)</p> <p>Chukar (<i>Alectoris chukar</i>)</p>

Habitat Management Emphasis Area	Management Objectives	Target Species
	<p>species-specific enhancements or protections should occur. These include winter ranges and fawning/calving areas.</p>	<p>Loggerhead Shrike (<i>Lanius ludovicianus</i>)</p> <p>Mule Deer (<i>Odocoileus hemionus</i>)</p> <p>Pygmy Rabbit (<i>Brachylagus idahoensis</i>)</p> <p>Ring-necked Pheasant (<i>Phasianus colchicus</i>)</p> <p>Sagebrush Lizard (<i>Sceloporus graciosus</i>)</p> <p>Sage Grouse (<i>Centrocercus urophasianus</i>)</p> <p>Sagebrush Sparrow (<i>Artemisiospiza nevadensis</i>), formerly (<i>Amphispiza belli</i>)</p> <p>Striped Whipsnake (<i>Coluber taeniatus</i>)</p> <p>Rocky Mountain Elk (<i>Cervus elaphus</i>)</p>
Wetlands	<ul style="list-style-type: none"> <li>• Avoid or minimize disturbance to wetlands.</li> <li>• Avoid or minimize removal of wetland vegetation.</li> <li>• Where removal is unavoidable, replace wetland vegetation at ratios consistent with Section 3.1.2.2 that increases the wildlife habitat function by adding vegetation for vertical stratification where conditions and opportunity allow.</li> <li>• Continue the aquatic invasive species removal to improve the function and value of wetland habitat as part of wetland enhancement projects.</li> </ul>	<p>American White Pelican (<i>Pelecanus erythrorhynchos</i>)</p> <p>Bald Eagle (<i>Haliaeetus leucocephalus</i>)</p> <p>Common Loon (<i>Gavia immer</i>)</p> <p>Northern Leopard Frog (<i>Lithobates pipiens</i>)</p> <p>Waterfowl</p>

### 3.3 Site-Specific Habitat Management Areas

In addition to general Project-wide management and Management Emphasis Areas described above, Grant PUD identified three key areas for intensive wildlife habitat improvement efforts in the 2009 WHMP: (1) Buckshot Wildlife Area, (2) Burkett Lake, and (3) the Airstrip Site. These areas were chosen due to their potential to provide improved ecological quality and diversity, increased habitat for key indicator wildlife species, and the opportunity for public use compatible with the ecological quality, diversity, and carrying capacity for key wildlife species goals.

Since 2009, many habitat improvement actions have occurred at each of these sites. This WHMP update summarizes those activities, and describes future planned actions.

For the 2015 WHMP update, Grant PUD is adding a fourth site that will undergo targeted habitat restoration efforts. Sunland Estates is a developed community on the east bank of the Columbia River, upstream from Vantage. Goals and objectives for the site and planned management actions are included below.

#### 3.3.1 Buckshot Wildlife Area

Buckshot Wildlife Area is a WDFW/Grant PUD co-managed site located on Priest Rapids reservoir near Mattawa (Figure 9). Previous facilities at this site were a two-lane concrete boat ramp, a large unimproved parking area, and numerous dispersed-use campsites. As part of the Recreation Resource Management Plan (RRMP), a capital improvement project was completed in 2013 which installed a vault toilet, informational kiosk, new parking lot gravel, an ADA parking spot, and an ADA-accessible waterfowl blind and trail on the north end of the site.

The WDFW utilizes the site as a ring-necked pheasant release area, smallmouth bass (*Micropterus dolomieu*) fishing area and a waterfowl hunting area. Overall use is relatively low, predominately comprised of local anglers and hunters; however, there is a large contingent of local farm workers who camp at the facility's dispersed-use sites. There is a posted three-day limit on camping. Popular activities at this site include camping, fishing, and hunting.

##### 3.3.1.1 Goals and Objectives

The overall goal for the Buckshot Wildlife Area is to create better site conditions for riparian and upland bird species and wildlife habitat diversity while minimizing damage from public use. In order to achieve this goal, the 2009 WHMP identified specific objectives summarized below.

- Control Noxious Weeds
  - Aggressively target purple loosestrife (*Lythrum salicaria*) for removal.
- Manage Public Access
  - Restrict access to the main access road via State Route 243 that extends to the boat launch. Prohibit access to all other access roads by using gates or large boulders.
  - Reduce the size of the large parking lot (3.5 acres) to match documented recreational use.
- Enhance Native Habitat
  - Restore the decommissioned portion of the parking lot to natural habitat conditions.

- Investigate the potential to convert the existing alfalfa field into a crop more beneficial to wildlife.

### **3.3.1.2 Management Actions Summary**

The intent of this section is to summarize some of the management actions that have been completed at the Buckshot Wildlife Area.

- Control Noxious Weeds
  - The management of purple loosestrife was and is a top priority at this site. Grant PUD annually monitors the site and applies herbicide. Since 2010, the areas covered by purple loosestrife have been drastically reduced, to the point where annual treatment is effective. Areas treated with herbicide have filled in with hardstem bulrush (*Schoenoplectus acutus*). Grant PUD has also used biological control (insects) collected at other locations to treat loosestrife at the Buckshot Wildlife Area.
  - From 2010 to 2013, WDFW released at the Buckshot Recreation Area the lesser knapweed flower weevil (*Larinus minutus*), a seedhead-eating weevil that eats the diffuse knapweed flower.
- Manage Public Access (Recreation Resources Management Plan, Article 418)
  - In 2013, Grant PUD placed large rock boulders along the access road and along the new southern boundary of the parking area (total of 1 mile of boulders). The boulder barrier starts at the intersection of Road U SW and Road 26 SW and extends along the north side of the access road to the boat launch (Figure 7). The barrier consists of boulders approximately 3 feet in diameter weighing from 1,800 to 2,400 pounds placed 5 feet-on-center. Boulders were placed across the existing parking area to reduce the size of the existing parking lot by approximately 70 percent. The south side of the access road is privately owned and so could not be rocked, however a barb-wire fence along the south side of the road currently restricts access.
  - To allow occasional vehicle access for site maintenance activities, two steel entry gates were installed at the northeast and southeast corners of the parking area (Figure 8).
  - The above listed actions has restricted vehicle access to most of the Buckshot Wildlife Area, protecting the habitat from human disturbance and excessive dumping. The boulder fence has prevented vehicles from driving beyond the access road and parking area, making law enforcement patrolling easier (illegal activities continue to be a problem at this area) and reducing impacts from vehicles on the environment.



**Figure 7 Buckshot Boulder Placement**

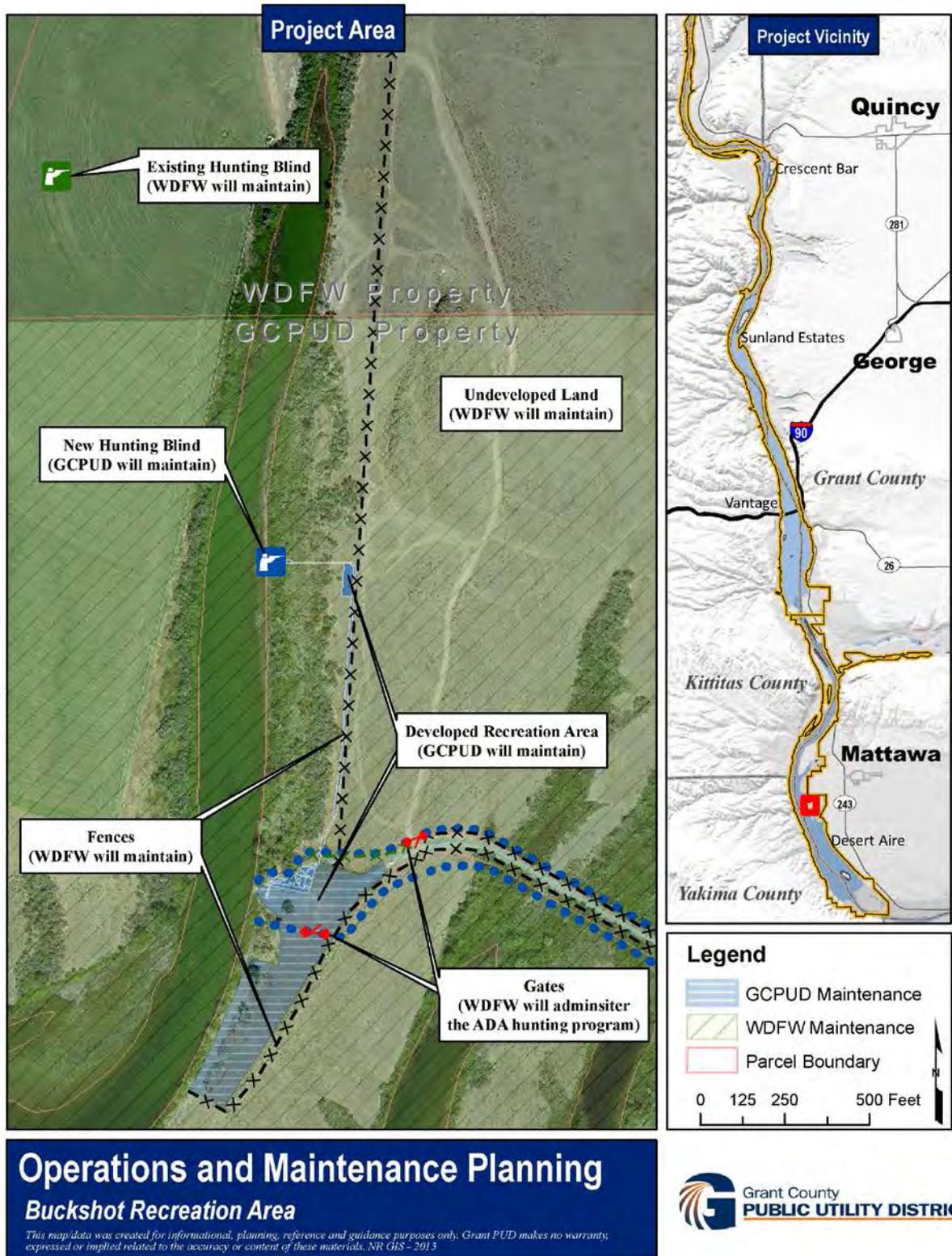


**Figure 8 Buckshot: Gate and Closed Parking Area**

- Enhance Native Habitat
  - Grant PUD removed Russian olive trees.
  - The parking area was covered in approximately 4 inches of compacted gravel which would not allow infiltration of precipitation or runoff and was unsuitable for seed germination and root development. Grant PUD restored the closed section of the Buckshot Wildlife Area parking lot (approximately 2.4 acres in size) by ripping and seeding with a native grass mix. The restoration included use of a ripper to de-compact the ground surface to a depth of 6 inches. No soil was removed from the site. After ripping, the area was drill seeded (1/16 inch deep) with a native upland seed mix. At the time of producing the 2015 WHMP, the native grass was doing very well, and 2016 will likely be the last year mowing and herbicide application will be needed on this restored area.
  - Grant PUD investigated the potential for converting the existing alfalfa field in the northern section of the Buckshot Wildlife Area into a crop more beneficial to wildlife (e.g. wheat, corn, or a combination). However, discussions with the farmer leasing the land revealed that soil conditions in the area are too poor (thin) to support this type of cereal crop. WDFW manages the lease for the crop land.



**Figure 9 Buckshot Wildlife Area**



**Figure 10 Buckshot Wildlife Area Improvements and Maintenance Plan**

### ***3.3.1.3 Continuing or New Actions***

Many of the management objectives planned for the Buckshot Wildlife Area have been implemented or achieved. The following activities will continue or are planned for the site.

- Continue noxious weed control, including targeting purple loosestrife in riparian areas and upland weeds in the restored parking lot areas.
- Investigate the need or potential for managing vegetation at the newly installed Grant PUD disabled access hunting blind. Grant PUD and WDFW will collaborate on any necessary vegetation management actions to increase the effectiveness of the blind.
- Investigate additional restoration/enhancement opportunities on this property, much of which is designated as priority habitat for pheasants, with the intent of managing for upland bird species and wildlife diversity.

### **3.3.2 Burkett Lake**

Burkett Lake is a man-made 36.8 acre lake located near the town of Beverly between Lower Crab Creek Road (Road 17 SW) and Crab Creek (Figure 12), just less than a mile east of the Priest Rapids reservoir. The lake and property, consisting of two parcels, is owned by Grant PUD. In addition to the lake, which is located within the Project area, Grant PUD owns approximately 63 acres of land surrounding the lake. This property is bordered by both federal (ROW land to the east) and private property (lands to the south, north, and west). The far western and southern portions of the site are not within the Project area.

The lake was originally a series of small wetland areas excavated to create a lake for private recreation and other activities, particularly water skiing. Water for the lake is supplied by a canal with irrigation return from Nunnally Lake and agricultural lands to the north and east. Burkett Lake is the lowest most water body in a chain of water bodies within the Crab Creek corridor. Crab Creek flows east to west along the base of the Saddle Mountain Ridge to the Priest Rapids reservoir. The Lower Crab Creek Wildlife Area, managed by WDFW, lies east of Burkett Lake. The wetlands and riparian areas within the Crab Creek corridor provide a diverse array of habitats for many species of wildlife, especially birds.

The WDFW considers the corridor an important waterfowl habitat area. The shoreline of the lake is vegetated (willow and rush) with an irregular and sinuous edge, providing habitat for many aquatic and terrestrial wildlife species. Beyond the shoreline the surrounding sandy uplands support native shrub-steppe communities. Invasive and/or noxious plant species have become established on the site (e.g., Russian olive, Phragmites). Grant PUD has implemented a noxious weed control program that includes removal, chemical treatment and burning.

The lake's location at the base of the Saddle Mountains within the Crab Creek corridor provides scenic views for visitors and refugia for wildlife. These factors combine to make the lake an ideal location for habitat enhancement and natural resource-based recreation activities consistent with provisions outlined in License Articles 410 and 418. Primary uses of this property include dispersed non-motorized recreational activities such as hiking, hunting, fishing, scenic views, and wildlife/botanical viewing.

The average temperature of Burkett Lake is 12-14 degrees Celsius. High temperatures occur in August, when the average is 23-25 degrees Celsius. Low temperatures occur in January when the average is 4 degrees Celsius. The maximum depth of Burkett Lake is 3.6 meters. The bottom

structure includes areas of small cobble, sand, and silt. Water quality and water depth do not appear to affect the use of the lake as a recreational fishery. Although the land surrounding the lake is somewhat disturbed and contains a variety of noxious plant species, there is significant potential for habitat enhancement to benefit wildlife.

### ***3.3.2.1 Goals and Objectives***

The overall goals for the Burkett Lake area are to create better habitat conditions for riparian and upland bird species and wildlife diversity and to enhance, manage and maintain the property for nature-based day-use recreation and education and interpretation activities. In order to achieve these goals, the 2009 WHMP identified specific objectives summarized below.

- **Wildlife Habitat Enhancements**
  - Install and maintain beaver guards to protect trees from beaver-caused damage (Article 414).
  - Manage, monitor, and treat noxious weeds on the property.
  - Replant suitable segments of the landscape with native plants or species that are beneficial to wildlife. Replanting of native plants will be designed and conducted in a manner forming a series of different successional zones (riparian, shrub-steppe, etc.) at the property.
  - Develop an area for native plant propagation on the southwest side of the lake near the undeveloped irrigation system. An existing terraced landscape that has available water and plumbing will be used. Plants produced on site will be (1) used to interactively showcase native species through educational outreach programs and (2) used to fulfill needs for rehabilitation of disturbed lands in and adjacent to the Project. The nursery may also function as an educational tool for local school districts consistent with information and education programs pursuant to Article 410.
- **Public Use Enhancements (Recreation Resources Management Plan, Article 418)**
  - Develop and maintain a barrier-free dock or pier.
  - Construct a foot trail that meanders through the different zones with kiosks placed along the trail that informs hikers of the presence and importance of the existing habitats.
  - Crab Creek/Burkett Lake Enhancement Plan (Article 407): In an effort to provide additional fishing opportunity in the area and to encourage public use of the property, Grant PUD will investigate stocking Burkett Lake annually with trout. This action fulfills the requirements of Article 407 and is consistent with the Native Resident Fish Management Plan required under Section 6.2 (5)(b) of the water quality certification.

### ***3.3.2.2 Management Actions Summary***

The intent of this section is to summarize some of the management actions that have been completed at Burkett Lake.

- **Wildlife Habitat Enhancements**

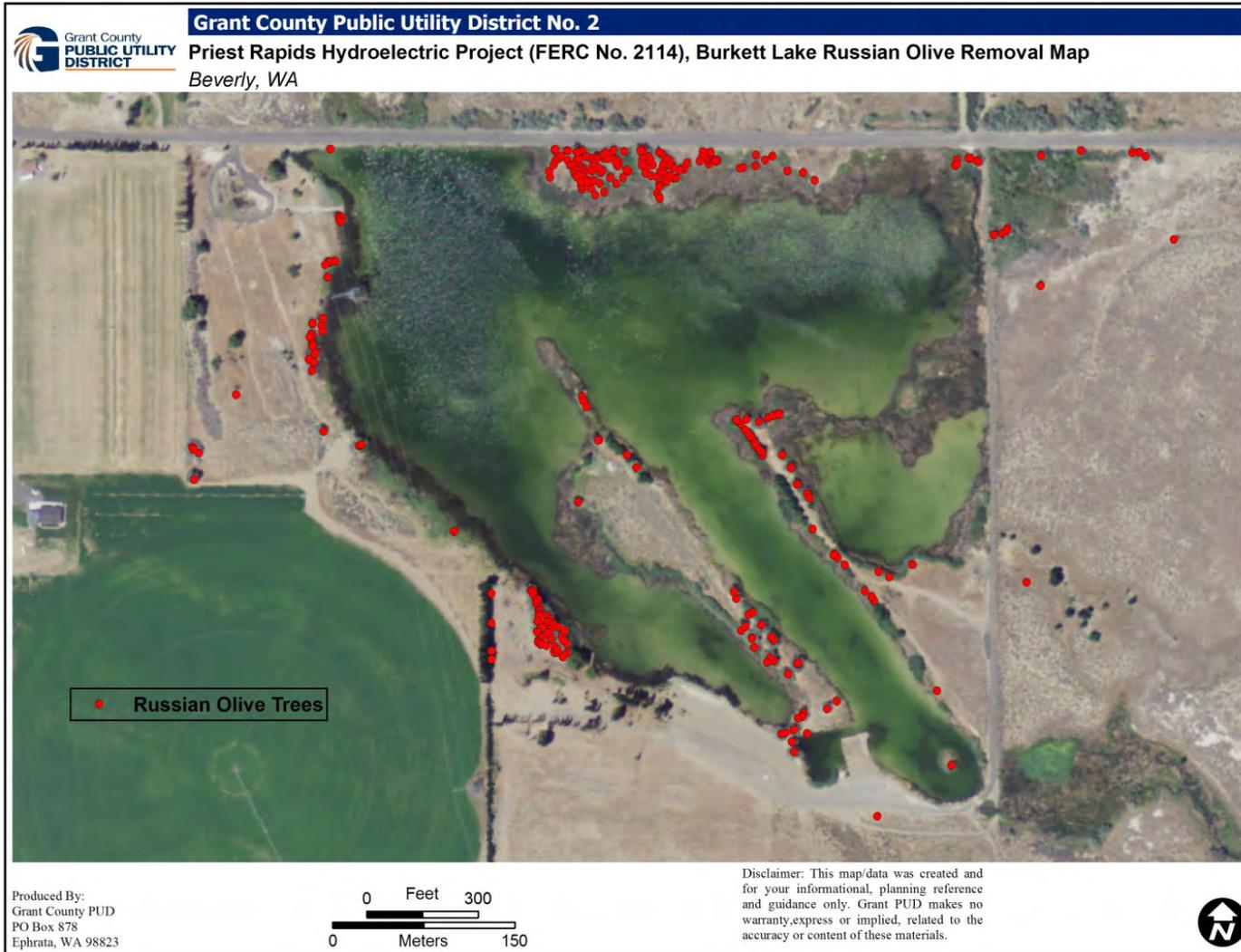
- Wrapped trees to prevent beaver damage (Article 414).
- Annual noxious weed control (e.g., spot treat noxious weeds, burn weed skeletons and slash piles)
- Removed approximately 750 Russian olive trees in 2011 (Figure 13)
- Chemical treatment of Russian olive regrowth in 2011 and 2012
- Site preparation for drill seeding in 2012
- Develop riparian planting plan in 2013
- Mow, harrow and drill seed approximately 19 acres of upland area with an upland seed mix (native upland grasses) in 2013. The drill seeded areas included an old orchard south of the lake and the old parking area west of the lake.
- Shoreline treatment for Phragmites (*Phragmites australis*) (chemical/prescriptive burn program) and Russian olive debris
- Investigated potential for establishment of native plant propagation area. This action was dropped due to feasibility of implementation and low projected need.
- Public Use Enhancements (Recreation Resources Management Plan, Article 418)
  - Completed Phase 1 Recreation improvements at Burkett Lake including access road, day use parking and ADA vault toilet on the east side of the Lake and installed and interpretive kiosk, wildlife viewing areas, and pedestrian and multi-use trails in the southern and central portions of the site.



**Figure 11 Burkett Lake Phase I Recreation Improvements – Completed**



**Figure 12 Burkett Lake and Vicinity**



**Figure 13 Burkett Lake Russian Olive Removal**



**Figure 14 Burkett Lake Phase II Recreational Improvements – Planned 2016**

### **3.3.2.3 Continuing or New Actions**

Many of the management objectives planned for the Burkett Lake area are in process. Grant PUD will work with stakeholders and continue working toward the overall goal of habitat enhancement at the site.

The following activities will continue or are planned for the site as part of Wildlife Habitat Enhancements under Article 409.

- Continue noxious weed monitoring and control across the upland and aquatic areas of the site to allow native vegetation to establish. Aggressively treat Phragmites on the shoreline of Burkett Lake to limit establishment.
- Continue habitat enhancements through native plant installation. Focus should be on providing successional stages adjacent to Burkett Lake through the planting of riparian trees and shrubs.
- Investigate the use of micro-habitat structures such as downed logs or brush mats to facilitate grass and shrub establishment in the restored shrub/steppe area south of the lake.
- Collaborate with WDFW on additional waterfowl habitat enhancement measures. Examples could include floating mats for goose nesting, or creation of loafing benches.

The following activities will continue at the site under other Articles:

- Complete additional recreation improvements (Article 418). Phase 2 improvements are scheduled to be completed by the end of 2015 and include a day use access road, day use parking, ADA vault toilet, interpretive kiosk, accessible fishing pier, picnic tables and pedestrian and multi-use trails on the northwest side of the lake (Figure 14).

Continue to investigate the potential for stocking the lake with trout as per License Article 407. This may include evaluating the possibility of rehabilitating the water control structure at the outlet of Burkett Lake in order to control lake elevations to provide flexibility in management of the lake.

### **3.3.3 Airstrip**

The Airstrip property is located east of Huntzinger Road near Vantage in Kittitas County (Section 29 and 30, Township 17N, Range 23E, W.M.) (Figure 15). The approximately 80 acre property was acquired in 1961, and was previously used for agriculture (e.g., pasture, grazing, orchards) and a single asphalt-surfaced airstrip is located in the upper west section of the property that was deemed abandoned by the U.S. Department of Transportation Federal Aviation Administration in February 2003. The adjacent land owner leased the site from Grant PUD until 2010, and grazing by horses caused a major increase in noxious weeds. Grant PUD has conducted an aggressive noxious weed program at Airstrip with the use of chemical, mowing, re-seeding and bio-control. The predominant invasive weeds identified and treated with chemical applications were Canadian thistle (*Cirsium arvense*), kochia (*Kochia scoparia*), perennial pepperweed (*Lepidium latifolium*), puncturevine (*Tribulus terrestris*), and diffuse knapweed (*Centaurea diffusa*). The wetland and shoreline areas are heavily infested with purple loosestrife. Grant PUD staff has expended a great deal of effort with biological control and an increase in

chemical control methods to decrease the infestation of purple loosestrife with positive short-term results in the recent years.

Article 418 required completion of a capital facilities assessment, in consultation with USFWS and WDFW, to determine if the Airstrip Site shall be further developed. Early conceptual plans for public recreation in this area included the possibility of RV/tent campsites, dispersed walk-in campsites, group campsites, a boat launch, areas for day use and picnicking, a swimming area, trails, restrooms with showers, vault toilets and habitat enhancement. This evaluation was completed and as of the date of this plan update, there are no plans for recreational development of the site.

During the 2010-2015 management plan period Grant PUD attempted to evaluate the effectiveness of different noxious weed control methods at Airstrip. Previous methods were ineffective. Thus, Grant PUD intends to again utilize some portions of the Airstrip Site to monitor the effectiveness of different noxious weed controls and the slough area for extensive riparian restoration. These efforts will be utilized to enhance the shoreline vegetation and control the spread of noxious and invasive weeds at this site. This will allow Grant PUD to assess the effectiveness of the physical and chemical noxious weed eradication protocols. Riparian restoration efforts will ensure succession and introduction of younger, native riparian vegetation, before existing species reach the end of their life spans.

Habitats at the site consist of relatively flat upland sagebrush areas, a freshwater slough, and riparian areas dominated by Lombardy poplar (*Populus nigra*), black cottonwood, (*Populus balsamifera* ssp *trichocarpa*), Russian olive (*Elaeagnus angustifolia*) and willow (*Salix* sp). A state-identified sensitive plant species, shining flatsedge (*Cyperus bipartitus*), has been identified within the property.

### **3.3.3.1 Goals and Objectives**

The overall goal at the Airstrip site in the 2009 WHMP was to enhance the natural landscape and increase the wildlife habitat value.

- Wildlife Habitat Enhancements
  - Procure legal access to the site to facilitate habitat improvement, maintenance, and monitoring and to allow for potential recreational opportunity in the future.
  - Conduct site-clean up by removing old buildings and debris.
  - Continue wrapping trees to prevent beaver damage and install artificial nesting platforms in the hybrid poplar trees for bald eagles ( see also Article 414 Bald Eagle Perch/Roosting Protection).
  - Continue noxious weed management program.
  - Conduct experimental test plots with native species that provide beneficial habitat for a diversity of wildlife species.
  - Plant appropriate native species to enhance and restore the riparian function and upland habitat at the site.
  - Experimentally test cheat grass removal methods.

### ***3.3.3.2 Management Actions Summary***

The intent of this section is to summarize some of the management actions that have been completed at the Airstrip site under the 2009 WHMP.

- Grant PUD acquired a lease to use the Ellensburg Boat Club access road to facilitate implementation of wildlife habitat management actions at the site.
- Access to the site for recreational use remains from boat only (e.g., skiffs pull onshore to hunt waterfowl).
- From 2010 through 2012, Grant PUD removed tin shacks, bags of garbage, piping, derelict goose blinds, and other unwanted materials and structures from the site. After 2012, annual maintenance involves on-going removal of trash/litter.
- 146 Russian olive were removed from along the slough and Wanapum Reservoir riparian areas in 2010 (Figure 16 – Map showing red dots where each Russian olive tree was removed). The trees were removed and sprouts were sprayed as they emerged in 2011 and 2012.
- A buck and rail wooden fence (Montana fence) was installed along the property line (see Figure 17 – Airstrip Fencing) (started in 2008 and extended in 2011) excludes livestock from entering the site but allows passage of wildlife.
- A 4-acre experimental test plot was started in 2009 (Figure 18). The 4-acre area was chemically sterilized in 2009 and 2010, and then drill seeded in 2011 and 2012. Drill seeding involved a series of actions that included mowing, harrowing, and then drill seeding. Yearly weed control continues on the site.
- 2,657 willow cuttings were installed in summer of 2009, 332 cottonwood cuttings were installed in summer of 2009 (302 were pushed 12 inches into the ground and 30 were installed in trenches containing 10 cuttings each), 30 large diameter cottonwood live stakes/live logs were installed in 2010, 57 shrubs and trees were planted in 2010 (Rocky mountain juniper [6], chokecherry [6], Nootka rose [6], creeping Oregon grape [2], ponderosa pine [10], blue elderberry [4], golden current [4], Douglas hawthorn [1], red osier dogwood [7], serviceberry [9], and water birch [2]). In 2011, 700 4-inch diameter willow cuttings were planted at OHWM with a stinger. Of all these plantings, very few remain alive. Likely issues were planting methods or timing.

Raptor Nesting, Roosting and Perching Structures:

- Installed artificial nesting platforms in the hybrid poplar tress for bald eagles.



**Figure 15 Airstrip Site Aerial Photograph**



**Figure 16 Airstrip Site Russian Olive Removal**



**Figure 17     Airstrip Site Fencing**



**Figure 18     Airstrip Native Seed Test Site**



**Figure 19 Airstrip Site Enhancement Plantings**

### ***3.3.3.3 Continuing or New Actions***

The Airstrip site remains an area with high potential for habitat enhancements. The following actions are planned for continued improvements at the site.

- Continue a noxious weed monitoring and treatment program.
- Enhance and establish native shrub/steppe and bunch grass habitats on the site.
- Provide additional riparian plantings on the shore of the Columbia River and the slough to improve structural diversity and improve habitat at the site.
- Collaborate with WDFW regarding upland habitat enhancements at the site that may benefit upland birds such as pheasant and chukar.
- Investigate the removal of the airstrip pavement and restore with native species.
- Coordinate with Grant PUD Lands and Recreation staff regarding assessment for future recreational development. Ensure any future development is planned with wildlife habitat protection as an objective.

### **3.3.4 Sunland Estates**

The Grant PUD fee-owned shoreline property at Sunland Estates was acquired in 1965 for the purpose of operating the Priest Rapids Hydroelectric Project. Additionally, Grant PUD owns a vacant residential lot adjacent to the shoreline. This property, legally described as Lot 51, Block 11, Sunland Estates Division No. 2, was donated to Grant PUD in 2001 and is currently used for Grant PUD maintenance and access. Adjacent to the Grant PUD-owned shoreline is the Sunland Estates recreational/residential community, consisting of approximately 540 lots, 143 of which are immediately adjacent to Grant PUD property. There are 435 developed residential/recreational homes, approximately 10 percent of which are occupied on a year-round basis.

Grant PUD manages the land between the ordinary high water mark and the Sunland Estates development. The width of this ownership varies from 75 feet to nearly 500 feet along the Wanapum Reservoir shoreline (Figure 20). Over the last several decades, private use of Grant PUD land has occurred through the installation of irrigated lawns and landscapes, hardscapes, and trails, amongst other developments (Figures 24 and 25). Under Grant PUD's Shoreline Management Plan for the Priest Rapids Hydroelectric Project and Grant PUD Commission Resolution 8709, approved non-project uses must not create barriers to public access and avoid the appearance of private property. As of July 1, 2015, all previous permits for non-Project uses of Grant PUD-owned lands at Sunland Estates were revoked. Therefore, plantings and developments not meeting these criteria will be removed, and land will be restored to native vegetation.

Two distinct habitat zones currently occur within Grant PUD ownership around Sunland Estates: shrub-steppe and riparian. Shrub-steppe habitat occurs above the influence of the Wanapum Reservoir in upland areas, while riparian habitat occurs along the reservoir. A transitional area between these two zones is largely absent, except in areas with supplemental irrigation. The mature riparian and shrub/steppe habitats are relatively intact, interspersed with irrigated lawns, foot trails, and other impacted areas from neighboring private landowners. Overall species diversity in the intact shrub/steppe habitat is high, with antelope bitterbrush the dominant shrub. Mule deer, Chukar, and cottontail rabbits are documented within this area. Grant PUD conducts

annual noxious weed control on the property, and though noxious weeds are present, the prevalence is relatively low.

In 2015, Grant PUD began restoring native habitat along portions of the shoreline. Future actions may include reclaiming irrigated lawns with trees, shrubs, grasses, and forbs, re-establishing a functioning riparian area, and removing and restoring to native habitat many footpaths and trails. Firewise principles will be used in the restoration such as the use of lower-growing grasses and forbs within 50-75 feet of the private/public property boundary, removal of resinous and flammable trees and shrubs within 50-75 feet of the private/public property boundary, and thinning of existing dense stands of vegetation with 50-75 feet of private property.

#### ***3.3.4.1 Goal and Objectives***

Areas of the shoreline adjacent to Sunland Estates will be re-established with native riparian and shrub/steppe habitats, and include the protection and enhancement of existing intact habitats, and provide for public use compatible with habitat goals.

- Re-establish and enhance wildlife habitat
  - Restore areas of irrigated lawn to native shrub-steppe and riparian habitats through installation of native shrubs, grasses, and trees.
  - Restore degraded riparian habitats through installation of native shrubs, trees, and emergent species.
  - Remove and restore some footpaths and trails.
  - Enhance existing shrub/steppe habitat.
  - Establish Grant PUD maintenance access.

#### ***3.3.4.2 Proposed Management Actions***

In order to accomplish the goals and objectives at the Sunland Estates site, the following management actions are proposed.

- Beginning in fall of 2015, undergo site preparation by treating areas for invasive species removal, removing dead trees or dead branches that pose a hazard, removing gravel from unauthorized access paths, and seeding where appropriate (Figure 21 through Figure 23).
- Beginning in spring 2016 (Figure 21 through Figure 24):
  - plant native trees and shrubs in the degraded riparian zones, and
  - plant trees, shrubs, grasses, and forbs within:
    - areas of existing lawn,
    - some foot paths, and
    - other disturbed areas on the site.
- Irrigation and weed control will be conducted as needed in restored areas during plant establishment.

- Invasive grass species in existing intact shrub/steppe habitats may be chemically /biologically treated. Treated areas will be re-seeded with native grasses to enhance the habitat value of these areas.



## Grant PUD Managed Land - Sunland

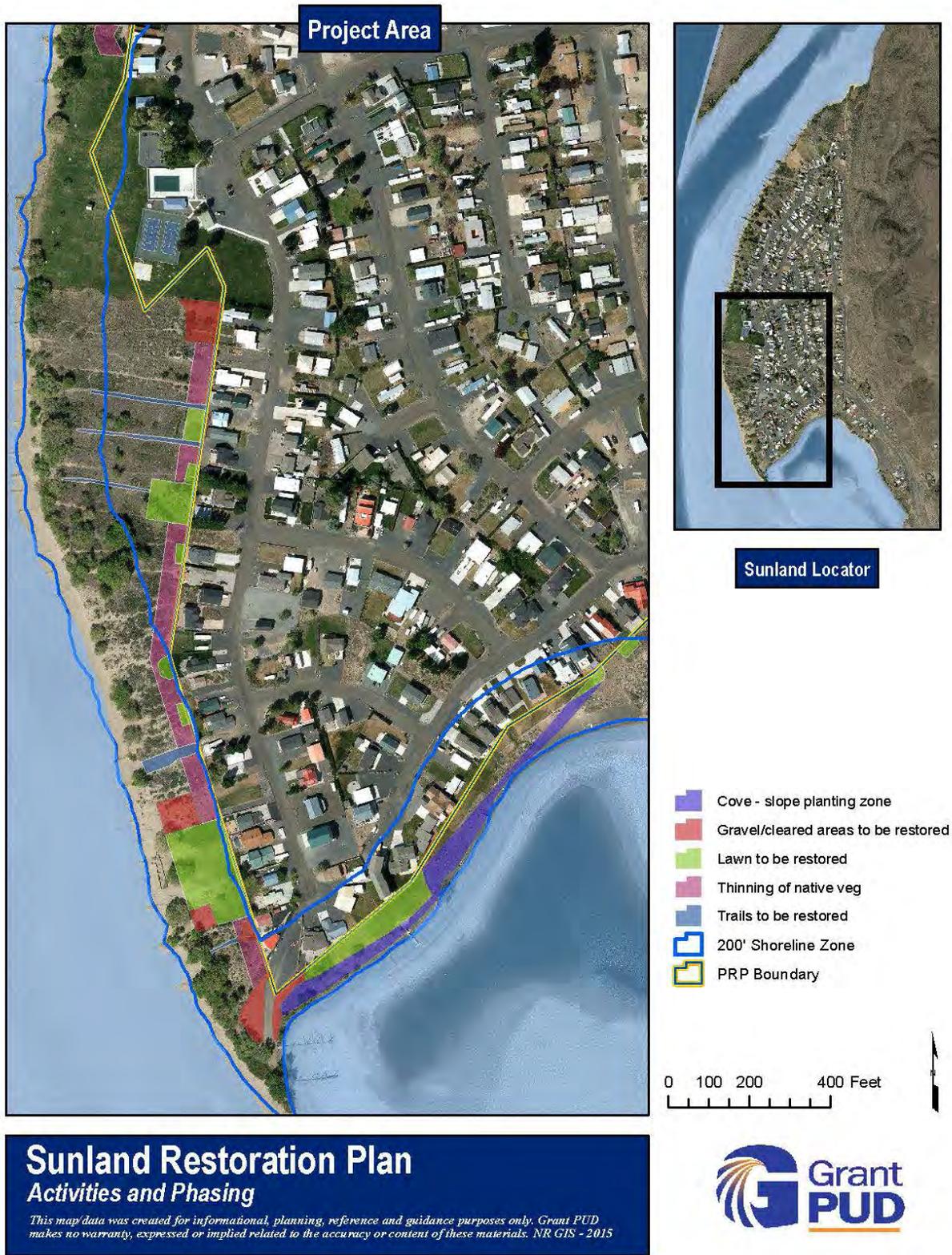
*This map/data was created for informational, planning, reference and guidance purposes only. Grant PUD makes no warranty, expressed or implied related to the accuracy or content of these materials. NR GIS - 2015*



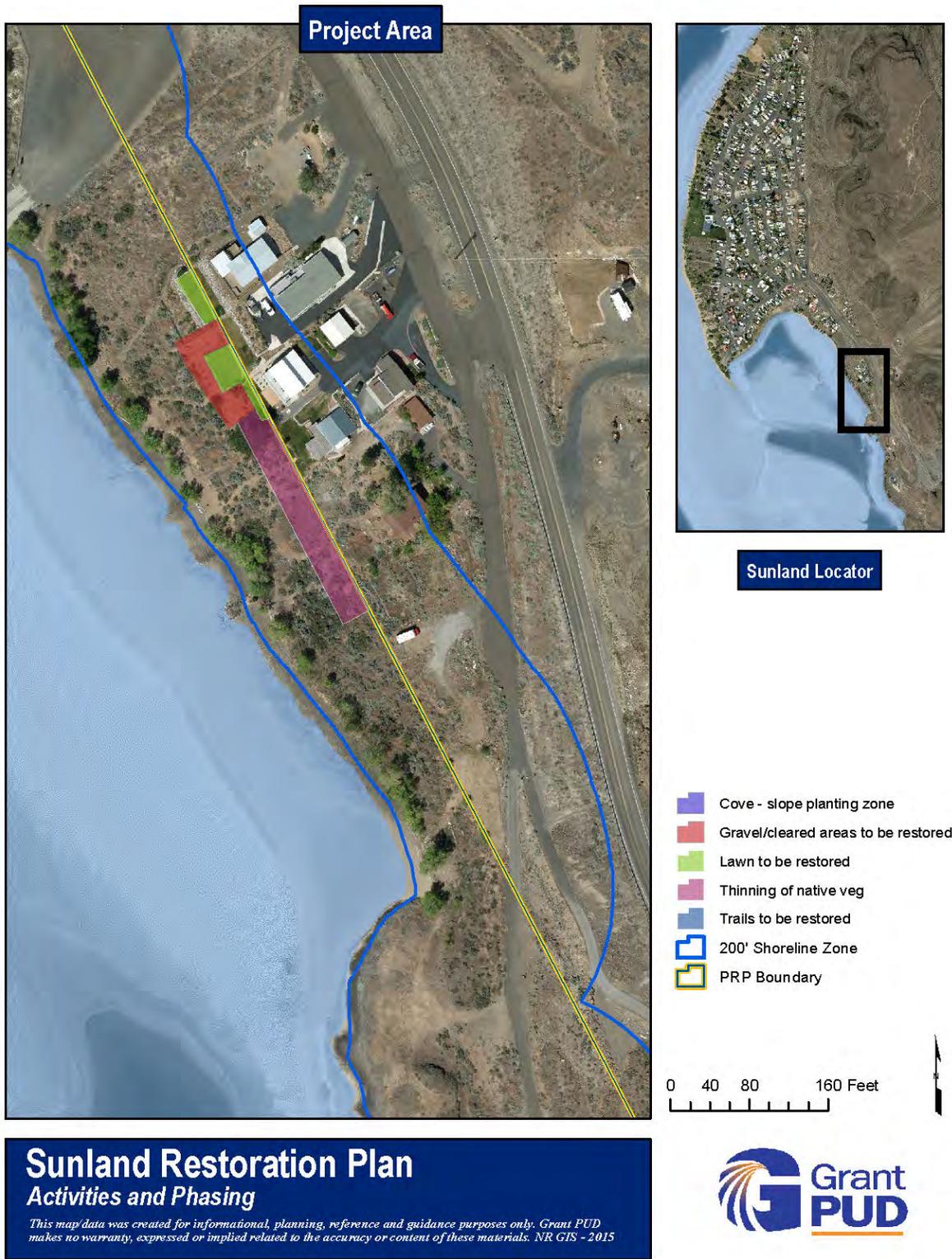
**Figure 20 Sunland Estates Aerial Photograph**



**Figure 21 Sunland Restoration Plan - North**



**Figure 22 Sunland Restoration Plan - South**



**Figure 23 Sunland Restoration Plan – South of Boat Launch**



**Figure 24 Sunland Estates disturbed shoreline area to be restored.**



**Figure 25 Example of lawn to be restored and surrounding native habitat.**

### **3.4 Waterfowl and Raptor Habitat Management**

Article 409 required that Grant PUD include in this plan provisions and a schedule for continued installation, monitoring and maintenance of 48 wood duck nest boxes; 12 raptor nesting, roosting and perching structures; and 50 waterfowl nesting platforms (mallard nest baskets and goose nesting tubs) around the Project shoreline. Goals and objectives for species-specific improvements and actions were identified in the 2009 WHMP. The following sections summarize the goals and objectives for each species-specific objective, describe the actions and results from the past five years, and provide a proposal for continuing or new actions.

#### **3.4.1 Wood Duck Nest Boxes**

In eastern Washington, wood duck numbers and distribution are limited by a scarcity of large trees that contain suitable nest cavities near water. However, wood ducks are common in eastern Washington, along waterways with large cottonwood groves. They are most abundant along the Yakima, Wenatchee, Okanogan, Walla Walla, Pend Oreille, and Little Spokane rivers. Wood ducks are relatively abundant along portions of the Columbia River near Richland, Wenatchee, and Brewster. The forested lowlands in many areas of northeastern Washington are also used by nesting wood ducks. Riparian habitat development along some impoundments and nest box programs resulted in the expansion of wood duck nesting in eastern Washington into areas where they previously had few nesting opportunities.

As their name implies, wood ducks are closely associated with habitats containing wooded areas near water. Ideally, the trees in those wooded areas should be big enough to have developed cavities of suitable size for wood duck nesting. In nature, wood ducks select nest cavities in a variety of trees. Deciduous trees are good cavity producers and are more commonly used than coniferous trees. In Washington, cottonwood trees provide many natural nest sites. Cottonwoods are relatively fast growing large trees prone to decay and cavity formation. They also thrive near water where wood ducks are likely to seek nest sites.

When natural nesting cavities are lacking, man-made nest boxes can be an adequate substitute. Nest boxes were first erected for wood ducks in Illinois in the late 1930s. Since then, many designs and modifications to nest boxes have taught biologists what works best for wood ducks.

Monthly wildlife surveys conducted in the early 1990s identified the presence of wood ducks within the Project. In 1993, Grant PUD initiated a wood duck nesting program on the Columbia River within the Project. The goal of this program was to enhance the resident wood duck population through the placement and maintenance of nest boxes. In the fall of 1993, 12 wood duck nest boxes were constructed and placed in suitable locations. During early spring 1994, 12 additional boxes were added. By the late 1990s, this program expanded to include 52 nest boxes along the shoreline of Wanapum and Priest Rapids reservoirs. The program was discontinued in 2000.

According to the 2009 WHMP, Wood duck nest boxes were to be installed along Priest Rapids reservoir, Wanapum reservoir, Burkett Lake, and Crab Creek following the guidelines suggested by Fielder (2000). Nest boxes were to be installed either on large diameter trees or artificial posts placed in or near back water habitats.

##### ***3.4.1.1 Goals and Objectives***

The goal of the wood duck nest box program is to provide, maintain, and monitor wood duck nest boxes in suitable locations within the Project to increase available nesting habitat.

To reach the above goal the following objectives were identified/developed:

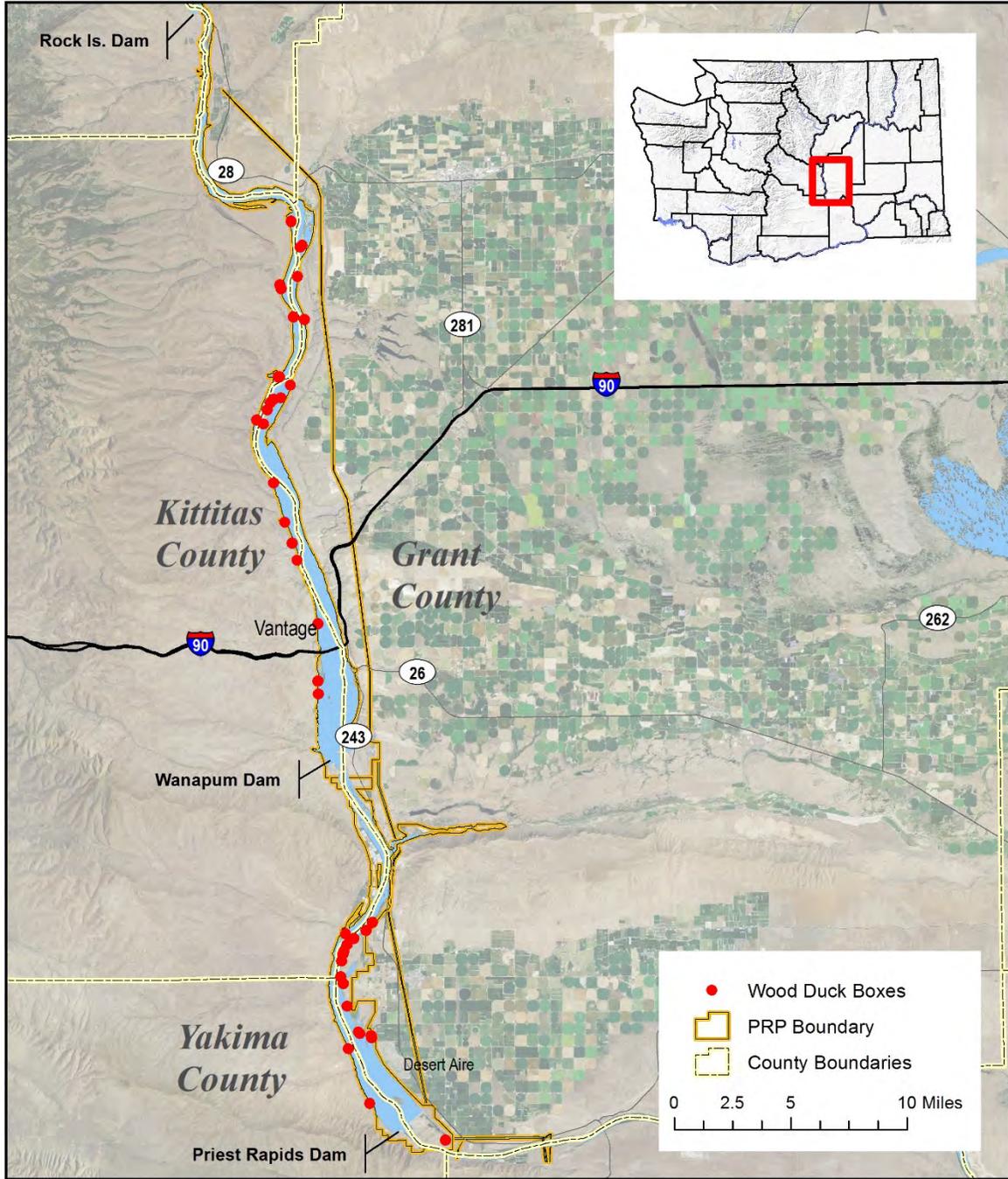
- Place wood duck nest boxes along Priest Rapids reservoir, Wanapum reservoir, Burkett Lake, and Crab Creek.
- Annually monitor a minimum of 48 wood duck nest boxes.
- Clean and repair nest boxes and add wood shavings prior to the breeding season.
- Survey nest boxes prior to and during the nesting season, depending on the nesting activity in the boxes.

#### ***3.4.1.2 Management Actions to Date***

- 48 nest boxes were constructed and installed in 2009-2010. Locations of nest boxes were recorded with GPS (See Figure 26 – Wood Duck Box Locations). Boxes were placed on trees (e.g., cottonwood, elm and Russian olive) and railroad trestles above the water or within 50 feet of the water (Figures 27 and 28). In general, boxes were installed from 8 to 15 feet above the ground.
- Faceplates were fastened over the existing opening of each nest box to reduce raccoon predation. However, Northern flickers were observed to have bored holes in the side of the boxes, and therefore faceplates were removed after one year.
- Nest boxes were maintained prior to each nesting season from 2011 through 2015. Some nest boxes were damaged or displaced during off-seasons and were replaced during the maintenance period, sometimes in alternate locations. In 2014, Wanapum pool boxes were not maintained due to the shoreline closure associated with the emergency spillway repair and reservoir closure at Wanapum dam.
- In addition to wood ducks, nest boxes have been used by starlings, kestrels, northern flickers, and screech owls.

#### ***3.4.1.3 Continuing or New Actions***

- Continue annual maintenance and monitoring of wood duck boxes throughout the Project.
- Analyze the use and success data of wood ducks and other species using the boxes. If warranted, investigate the removal or relocation of boxes to enhance nesting use and success.



**Priest Rapids Hydroelectric Project**  
**Wood Duck Box Locations**  
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**Figure 26** Wood duck box locations.



**Figure 27** Wood duck in nest box.



**Figure 28** Wood duck box in Project area.

### **3.4.2 Raptor Nesting, Roosting and Perching Structures**

A requirement of Article 409 specific to raptor nesting, roosting, and perching is to install, monitor, and maintain 12 raptor nesting, roosting and perching structures. Nine man-made perch

and roosting poles were in place within the Project when the WHMP was written (2009), and therefore to meet the requirement Grant PUD developed the following objective:

- Within five years of submitting the Final WHMP to FERC, Grant PUD will place three additional perch and roosting poles in suitable locations within the Project, for a total of 12 raptor nesting, roosting and perching structures.

Additional habitat improvements for raptors are covered under License Article 414.

#### ***3.4.2.1 Management Actions to Date***

- To improve nesting and perching functions, Grant PUD added wood to platforms of the nine existing poles.
- Eight tree platforms were added in 2010/2011.

#### ***3.4.2.2 Continuing or New Actions***

- Grant PUD will inspect and maintain the existing raptor perching/roosting platforms (9 platforms are on poles and 8 platforms are in trees) to maintain a minimum of twelve platforms.



**Figure 29 Raptor platform placement.**

### **3.4.3 Waterfowl Nesting Platforms**

In an effort to improve waterfowl nesting success by increasing suitable nesting cover and decreasing predation, Grant PUD installed nesting structures for mallard ducks and geese within the Project. Mallard (*Anas platyrhynchos*) nest cylinders (wire fencing with mixed hay) were installed on artificial posts placed in or near back water habitats. Goose tubs, constructed using

black plastic totes, were placed on poles positioned along the shoreline above the ordinary high water mark (OHWM) near suitable habitat and away from high-use recreation areas.

#### ***3.4.3.1 Goals and Objectives***

Wildlife habitat management goals for waterfowl nesting for the first five years of the WHMP plan were to build, install, monitor, and maintain 50 waterfowl nesting platforms around the Project.

Objectives developed to reach the above goal were as follows:

- Install 40 mallard (*Anas platyrhynchos*) nest cylinders and 10 goose nesting tubs.
- Install predator deterrents on all poles and structures supporting waterfowl nesting platforms if predation is identified and installment is feasible.
- Mallard nest cylinders and goose tubs will be monitored during the nesting season and a summary of nesting activity will be included in the WHMP five-year report.

#### ***3.4.3.2 Management Actions to Date***

- Nest structures were installed 2010 through 2011.
- New mallard nest tubes are constructed every year, and placed throughout the project where necessary.
- Predation has not been identified at these nest structures and predator deterrents have been determined to be unwarranted and/or unfeasible, and therefore, not installed. Most structures have available protection features (e.g., metal posts extend above the mallard tubes to provide protection from aerial predators and goose tubs are constructed above the ground mounted on posts).
- There has been very limited use of mallard and goose nest structures to date.

#### ***3.4.3.3 Continuing or New Actions***

- Continue providing nest structures to increase nesting opportunity for waterfowl throughout the Project.
- Monitor structures for use, and determine what adaptive management may be necessary to increase use or nesting success.
- Collaborate with agency stakeholders on beneficial actions for waterfowl habitat that can be undertaken. These actions may provide higher benefit to waterfowl habitat than providing nesting structures alone.



**Figure 30** Mallard nest tubes



**Figure 31** Goose nesting tub

#### **4.0 Adaptive Management**

There is inherent uncertainty in the best course of action to achieve habitat restoration goals. The dynamic nature of the Project environment (e.g., changing environmental conditions, changes in ecological processes, difficulty in plant establishment) requires that adaptive management practices be used to reduce uncertainty and improve management effectiveness. A habitat management plan that tries to determine final objectives or elements of success prior to implementation is short-sighted and may not achieve even basic goals.

## 4.1 Process

The main components of the adaptive management process are shown below and in Figure 32:

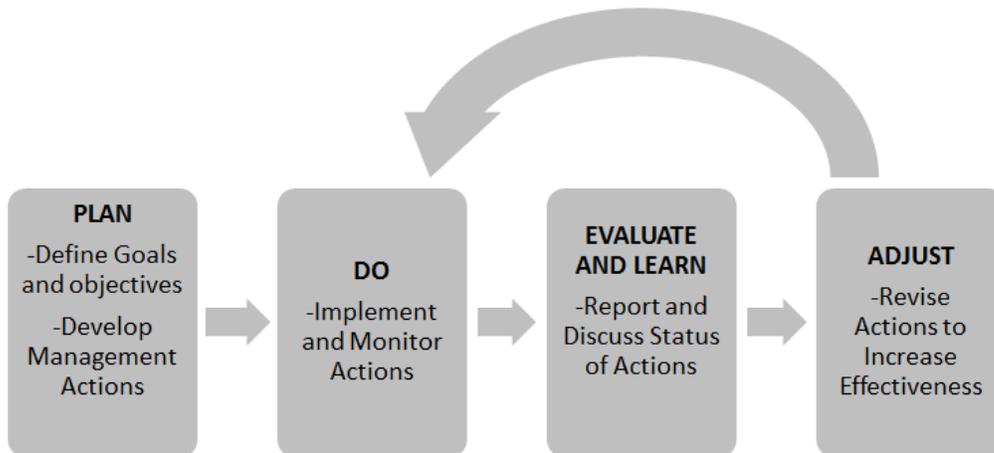
**Plan** – The WHMP has identified goals and objectives to manage and improve wildlife habitats in the Project Area. Many of the objectives define the strategies and actions that are to be undertaken to achieve management goals.

**Do** – Grant PUD will continue to implement the objectives outlined in the plan. This will include monitoring these objectives for performance.

**Evaluate and Learn** – On an as needed basis, and at twice-yearly stakeholder meetings, Grant PUD will report to stakeholders on the status of actions that are in process. Grant PUD and stakeholders can evaluate findings and learn from performance.

**Adjust** - Having understanding and engagement from stakeholders will provide a recommended course of action if objectives are not being met. Adjusting management actions is expected when necessary to enhance the effectiveness of the plan

A critical part of the adaptive management process is stakeholder engagement. Changes or modifications to objectives or planned actions will be made through an adaptive management process that will address changing conditions, assess benefits or negative impacts, and investigate potential corrective actions. Grant PUD and stakeholders are committing to utilize these principles to adapt and refine the objectives within the WHMP as needed for the benefit of wildlife and wildlife habitat.



**Figure 32 Adaptive Management Process**

## **5.0 Stakeholder Coordination**

The 2010 FERC order approving the WHMP states Grant PUD will host an annual meeting on or before December 31 of each year. To ensure success of the WHMP in meeting its objectives and coordination among other plans and as part of the adaptive management process described above, Grant PUD will meet with stakeholders twice per year – once in the spring, prior to management activities, and again in the fall to present monitoring results. Grant PUD will also report on progress related to implementation of the measures required in the WHMP with the identified agencies and tribal stakeholders.

In addition to annual meetings, Grant PUD will coordinate with stakeholders through site-specific wildlife project and mitigation project development and implementation. As outlined in Section 3, any mitigation projects in upland areas and within Project Boundaries that qualify for mitigation under subsection 3.1.2.2 will involve stakeholders. Similarly, Grant PUD will coordinate with stakeholders on wildlife projects at featured sites like Airstrip (subsection 3.3.3.3) where collaboration is essential to project development.

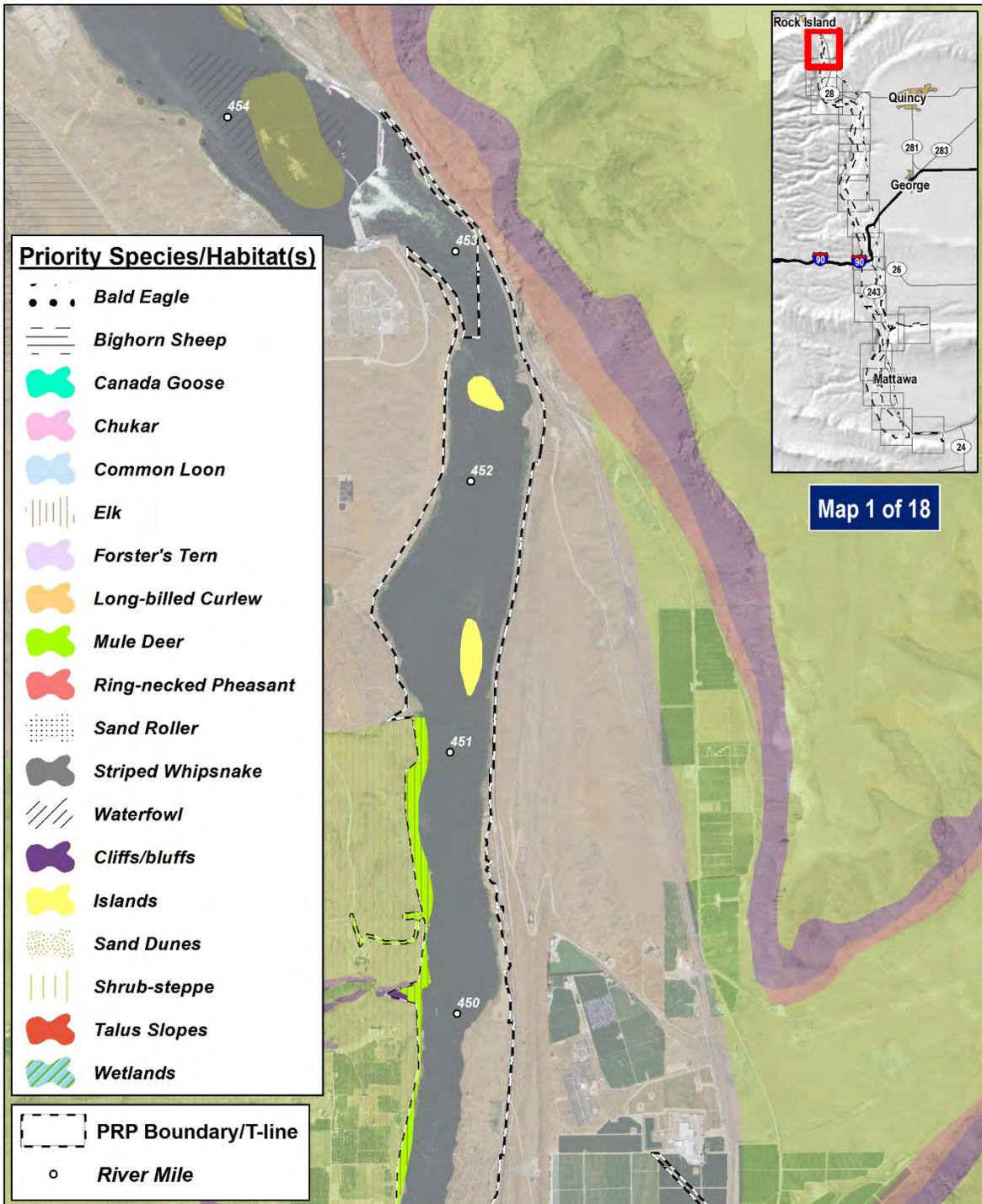
As required by Article 409, the WHMP will be updated and filed for Commission approval, at a minimum, of every five years after approval of this plan. The updated plan shall include a summary of the habitat improvement measures implemented during the previous five years and measures projected to be implemented in the next five years. This plan represents the first 5-year update. It is presently scheduled to be updated again in 2020.

FERC requires the WHMP shall be developed after consultation with the USFWS, BLM, BOR, WDFW, DNR, WRCO, the Confederated Tribes and Bands of the Yakama Nation, and the Wanapum Band. This group of agencies and tribes has participated on the 2015 WHMP Working Group. The consultation record associated with production of the 2015 WHMP includes notes from stakeholder meetings (Appendix D) and comments on the WHMP final draft (Appendix E).

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**Appendix A**  
**Project Area Priority Habitats and Species Maps**

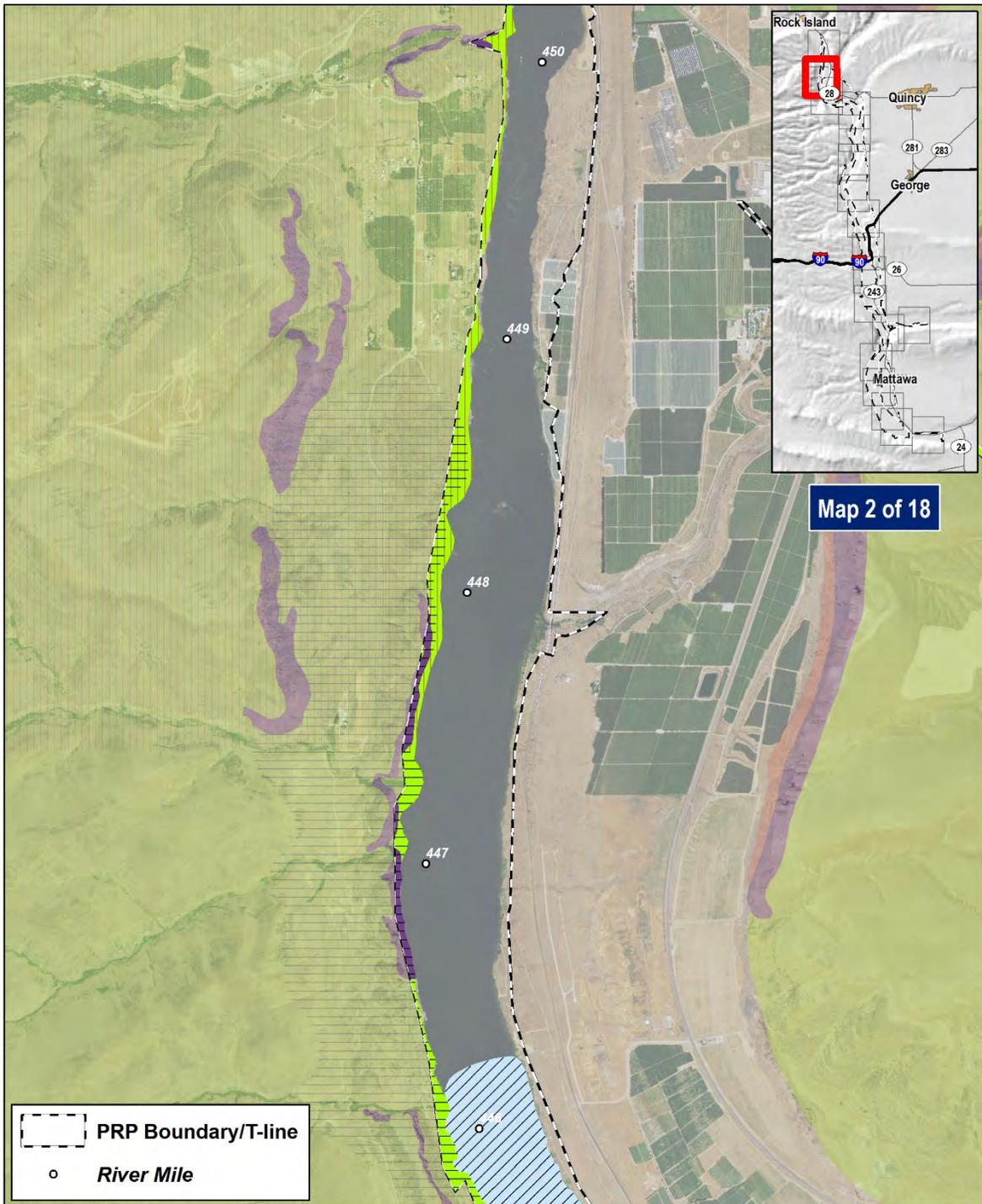


**Priority Habitats and Species - Priest Rapids Project**

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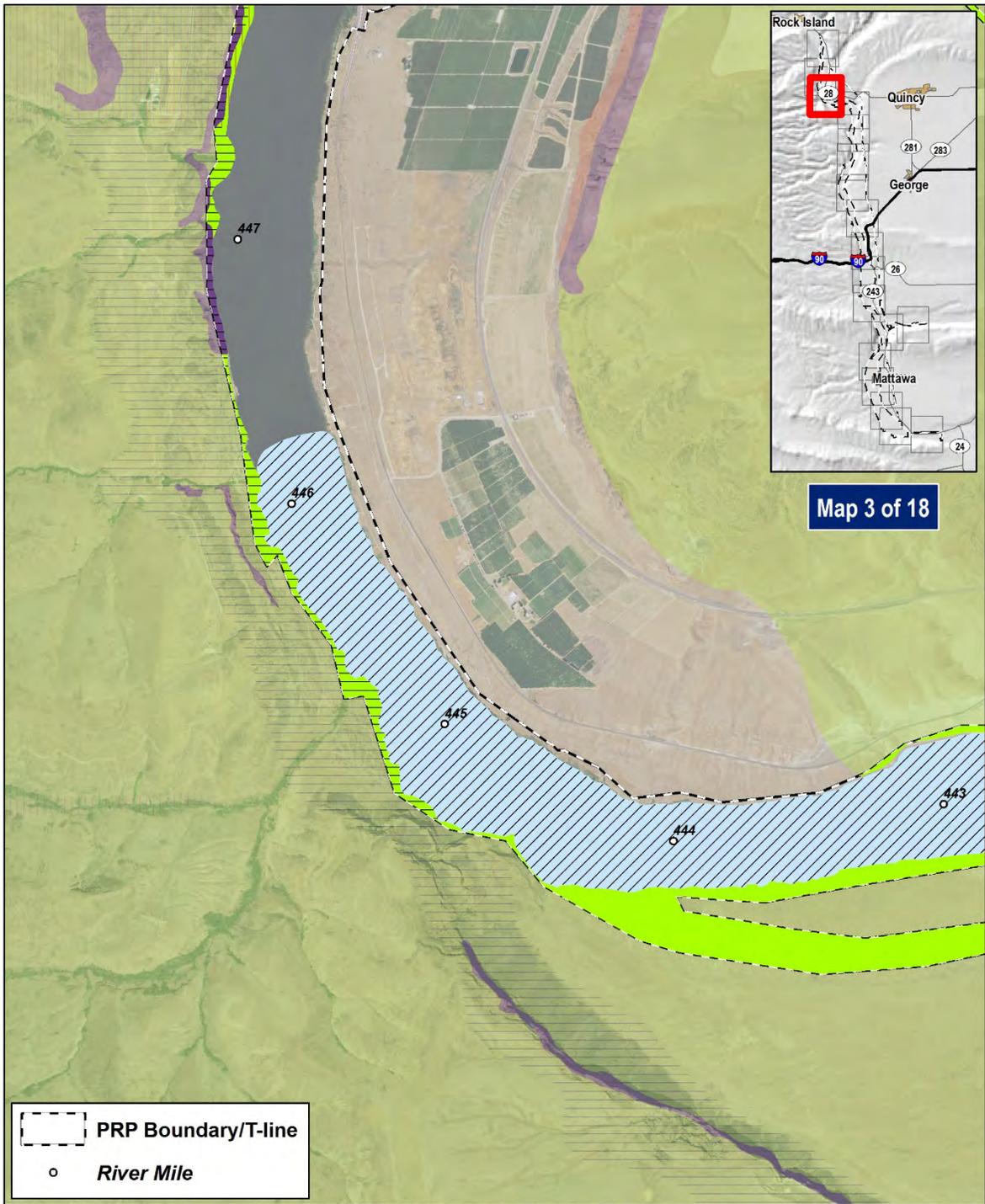


Map 2 of 18

**Priority Habitats and Species - Priest Rapids Project**



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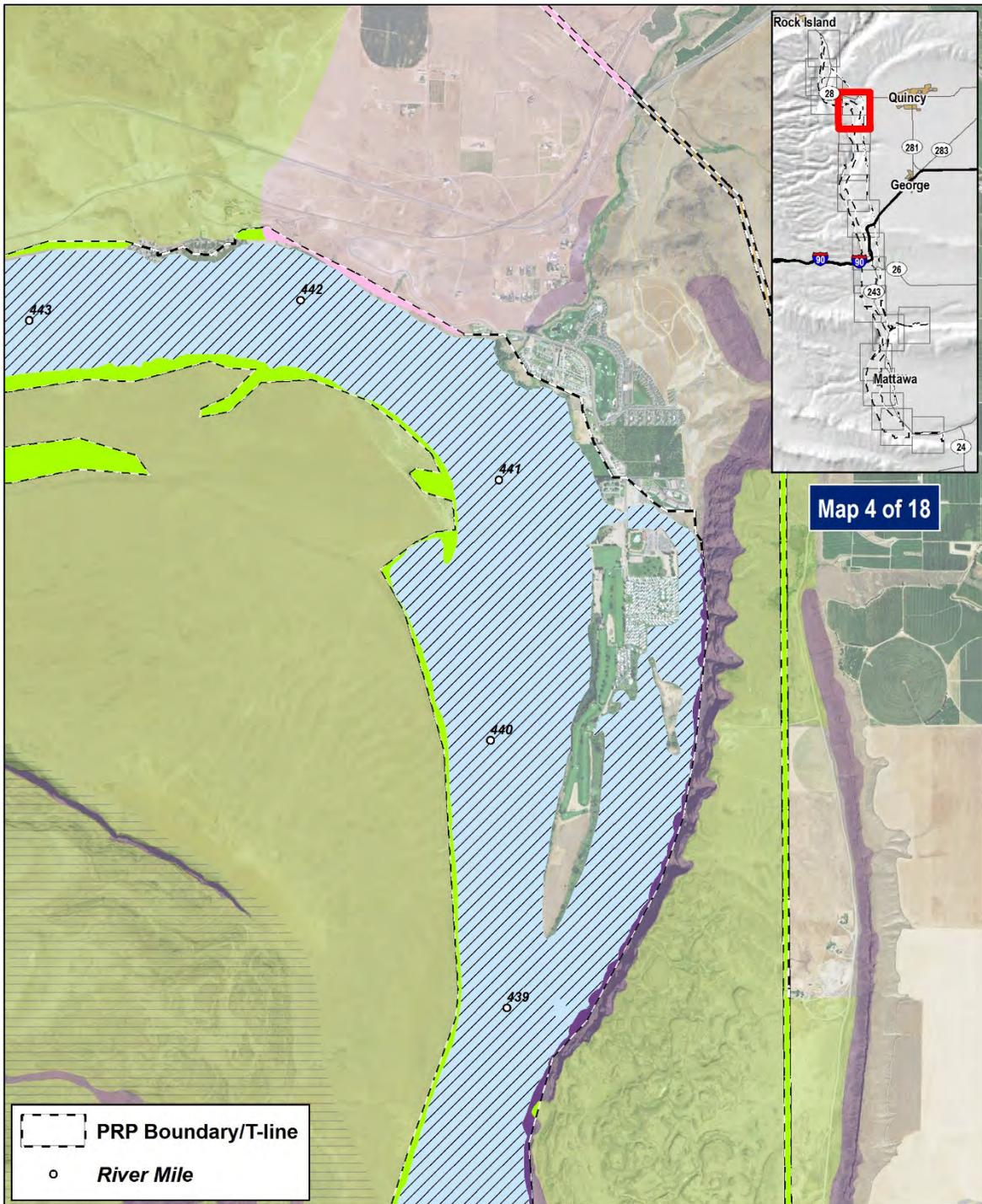


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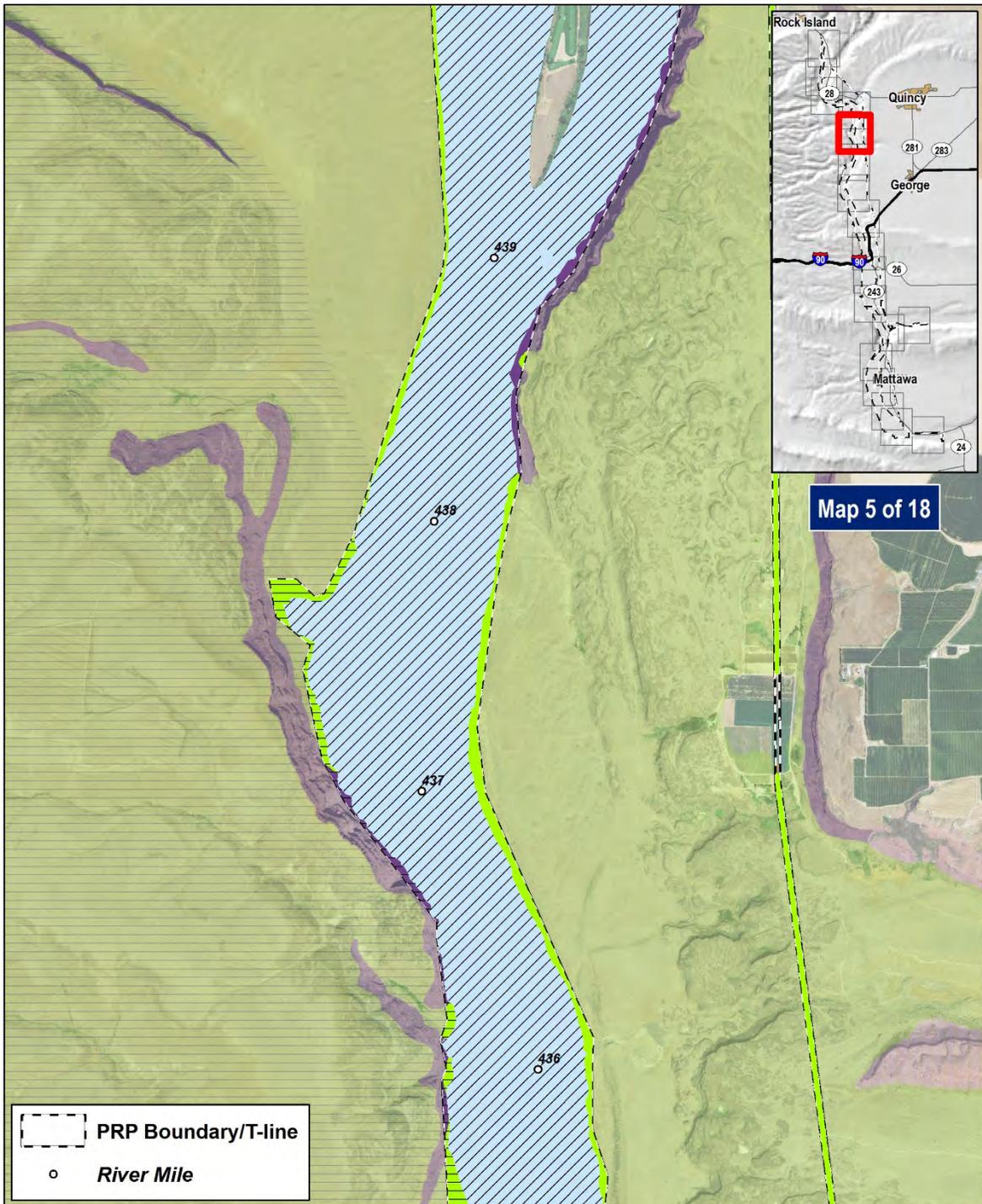


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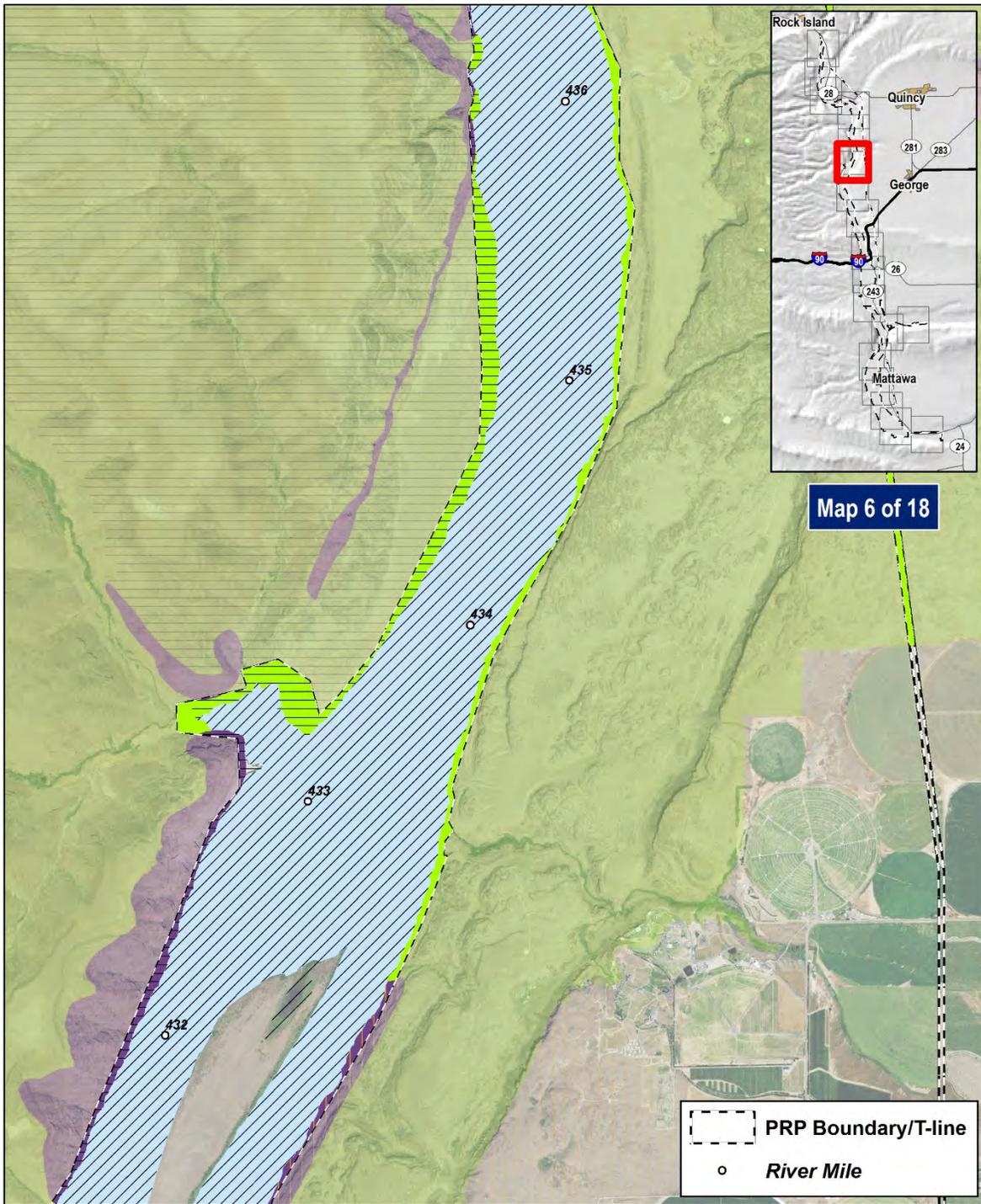


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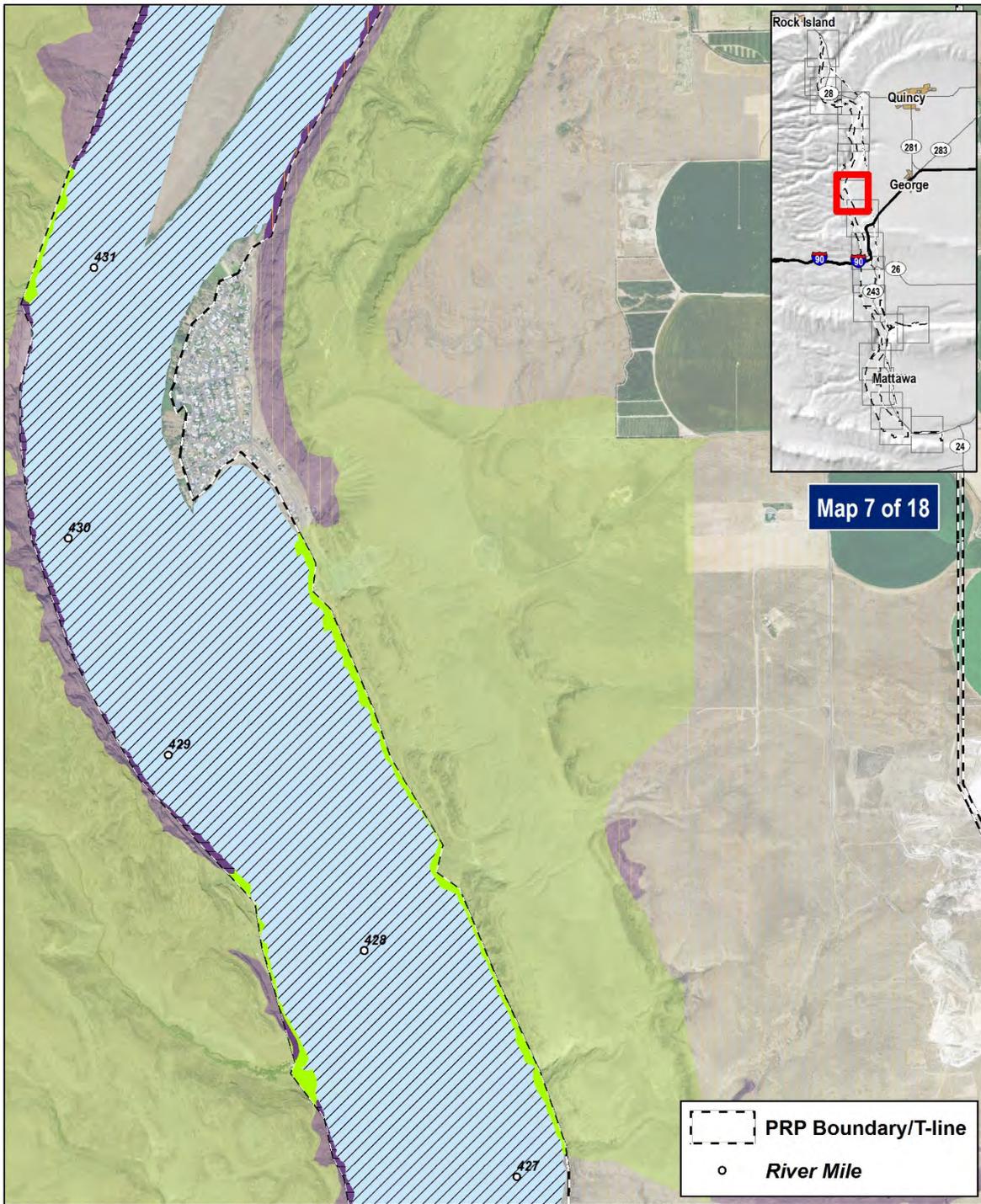


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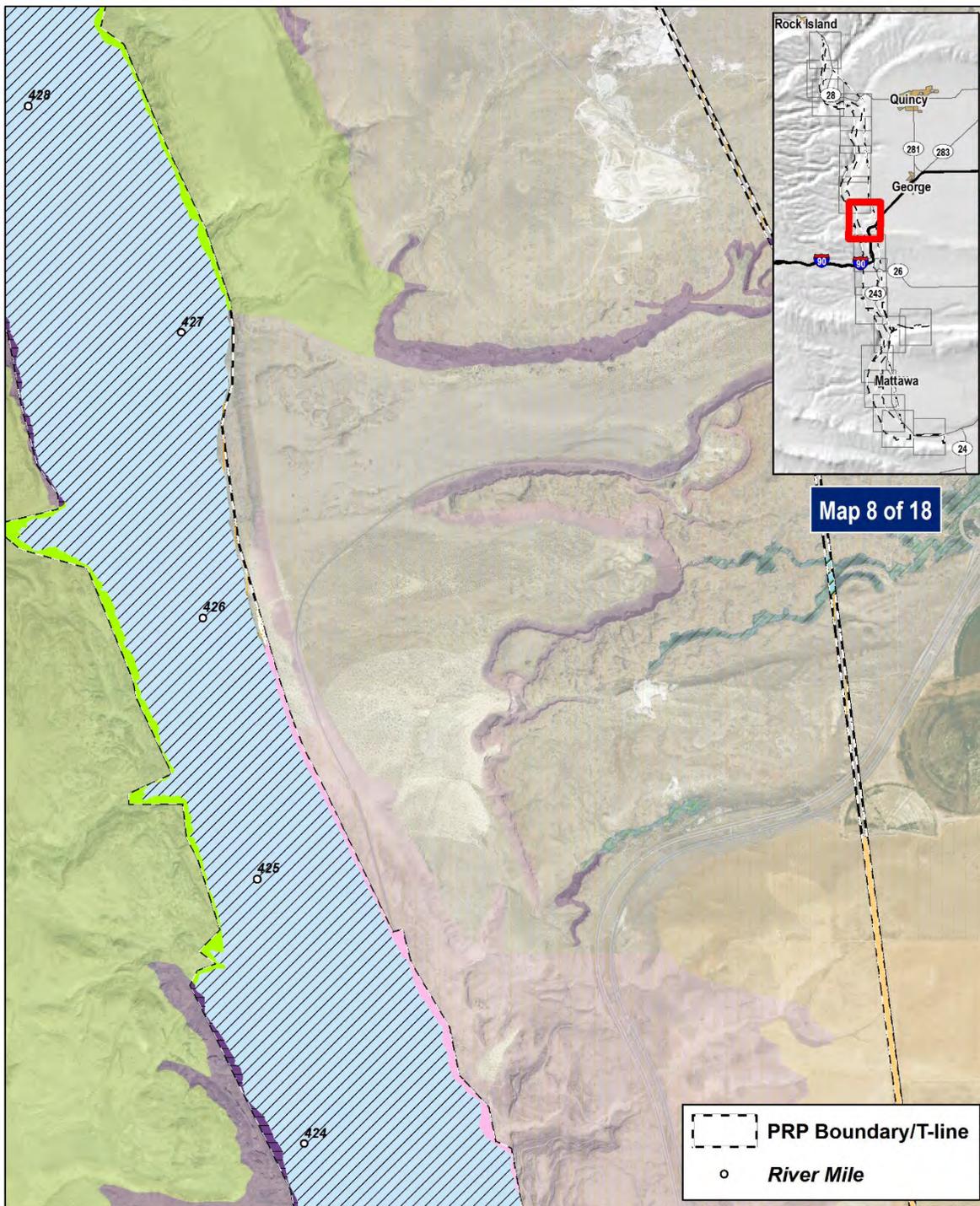
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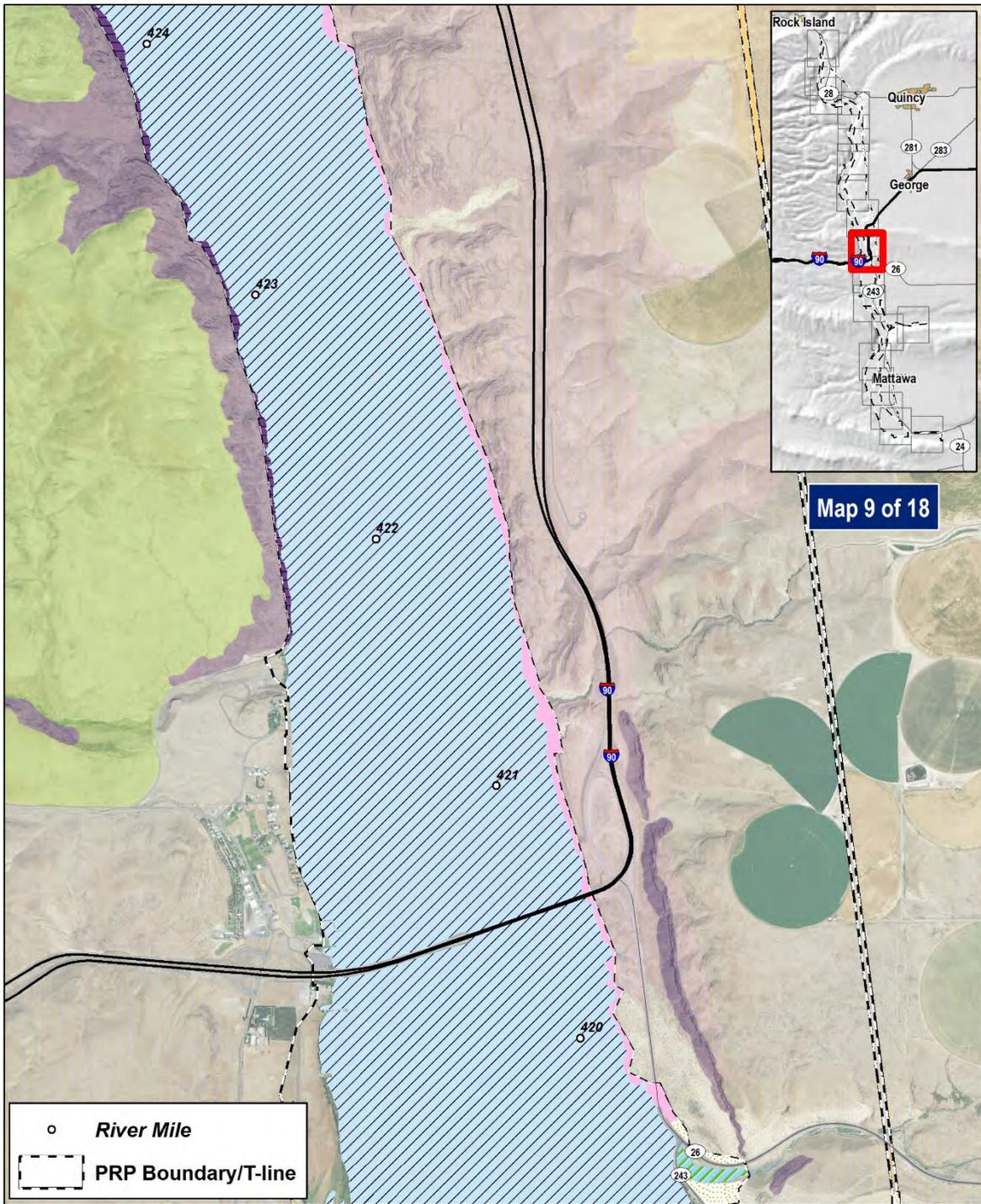
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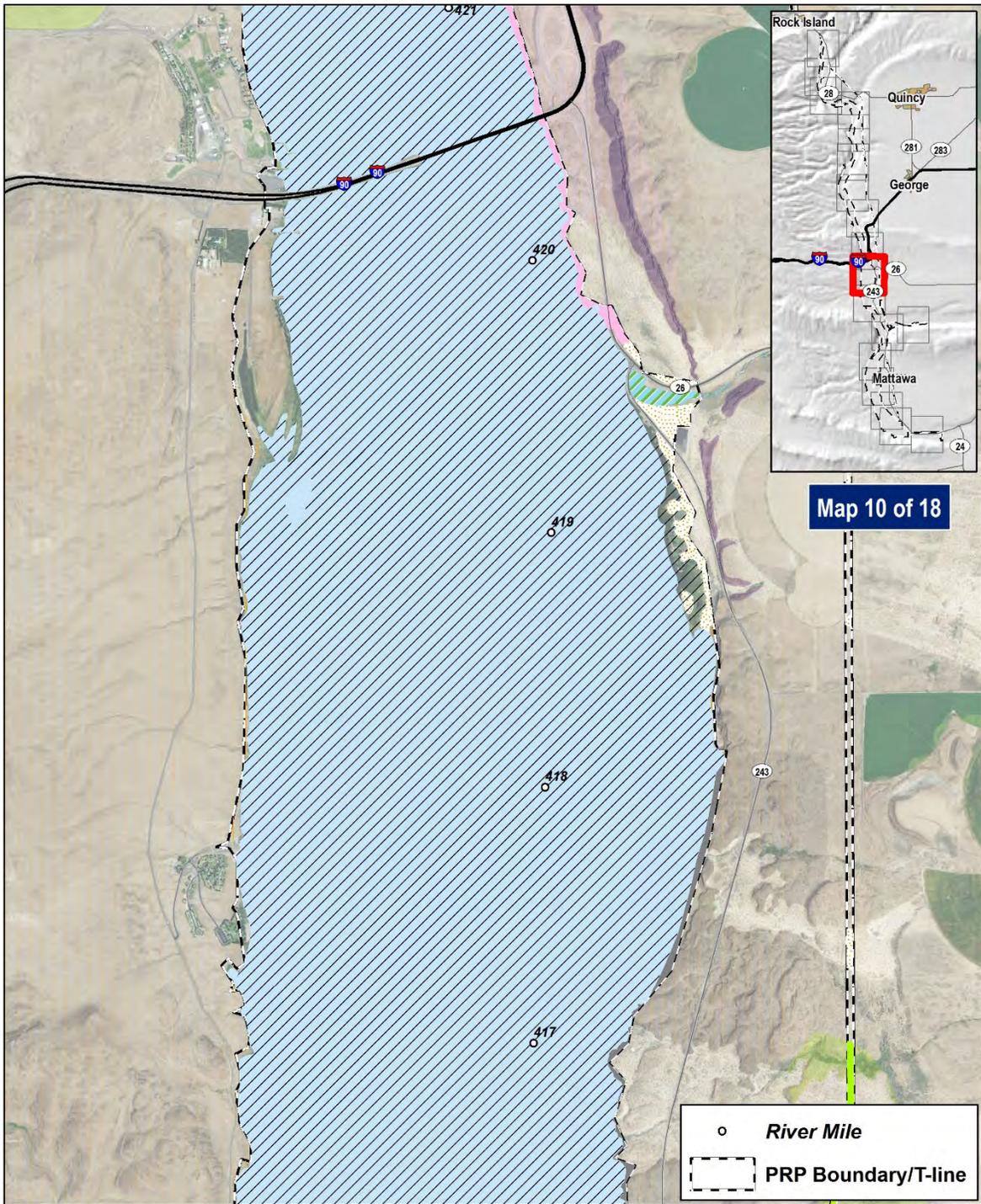


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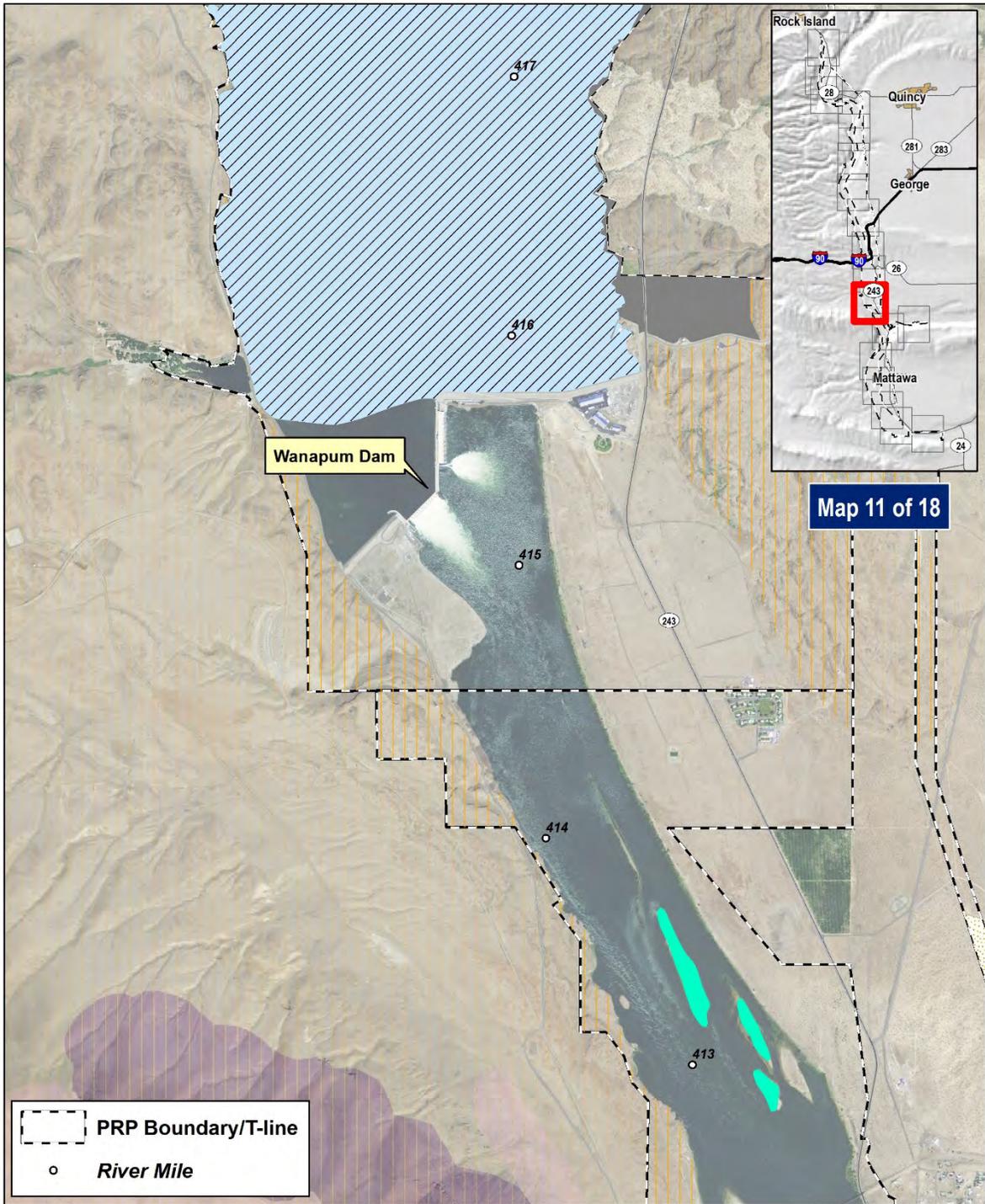


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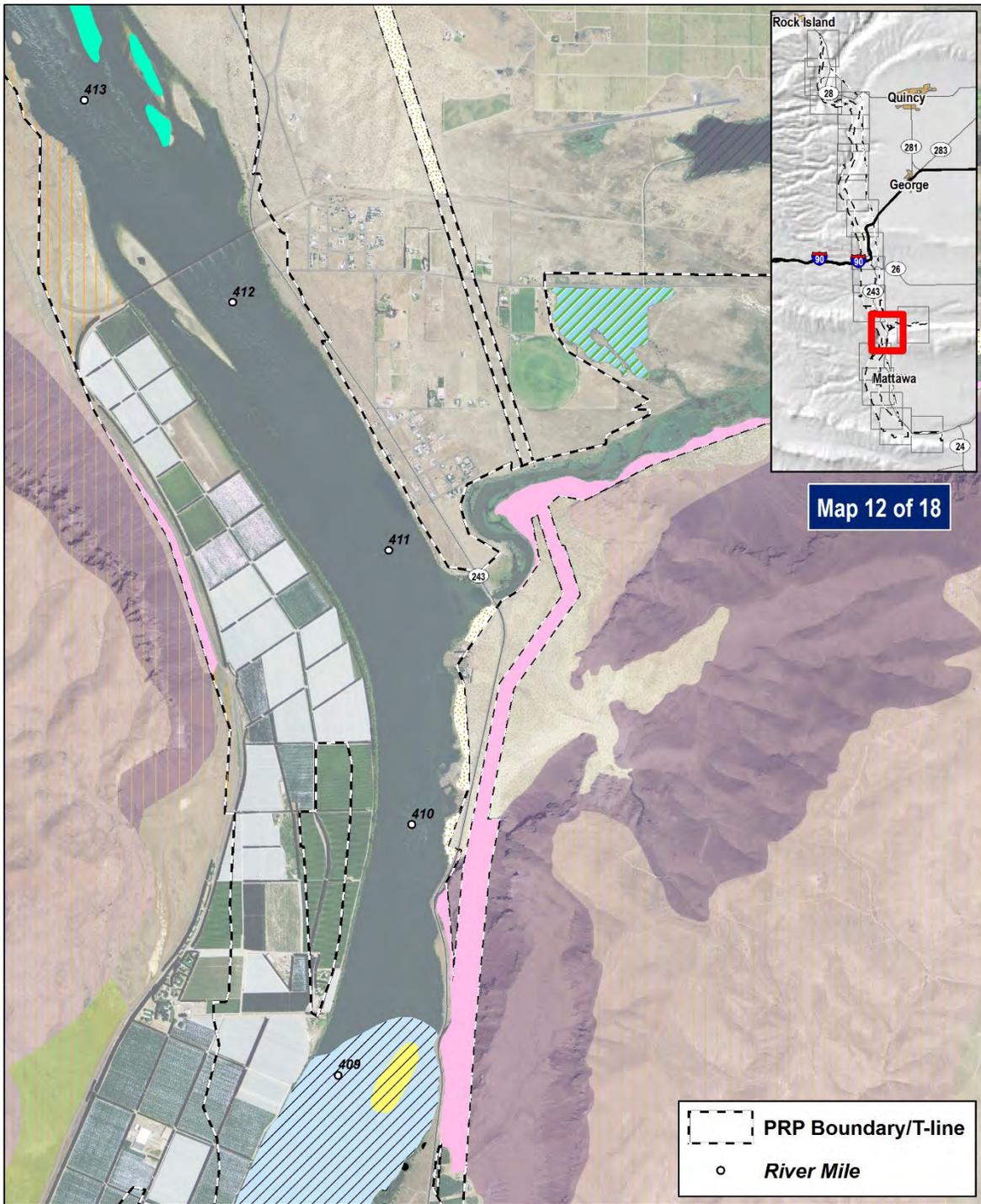


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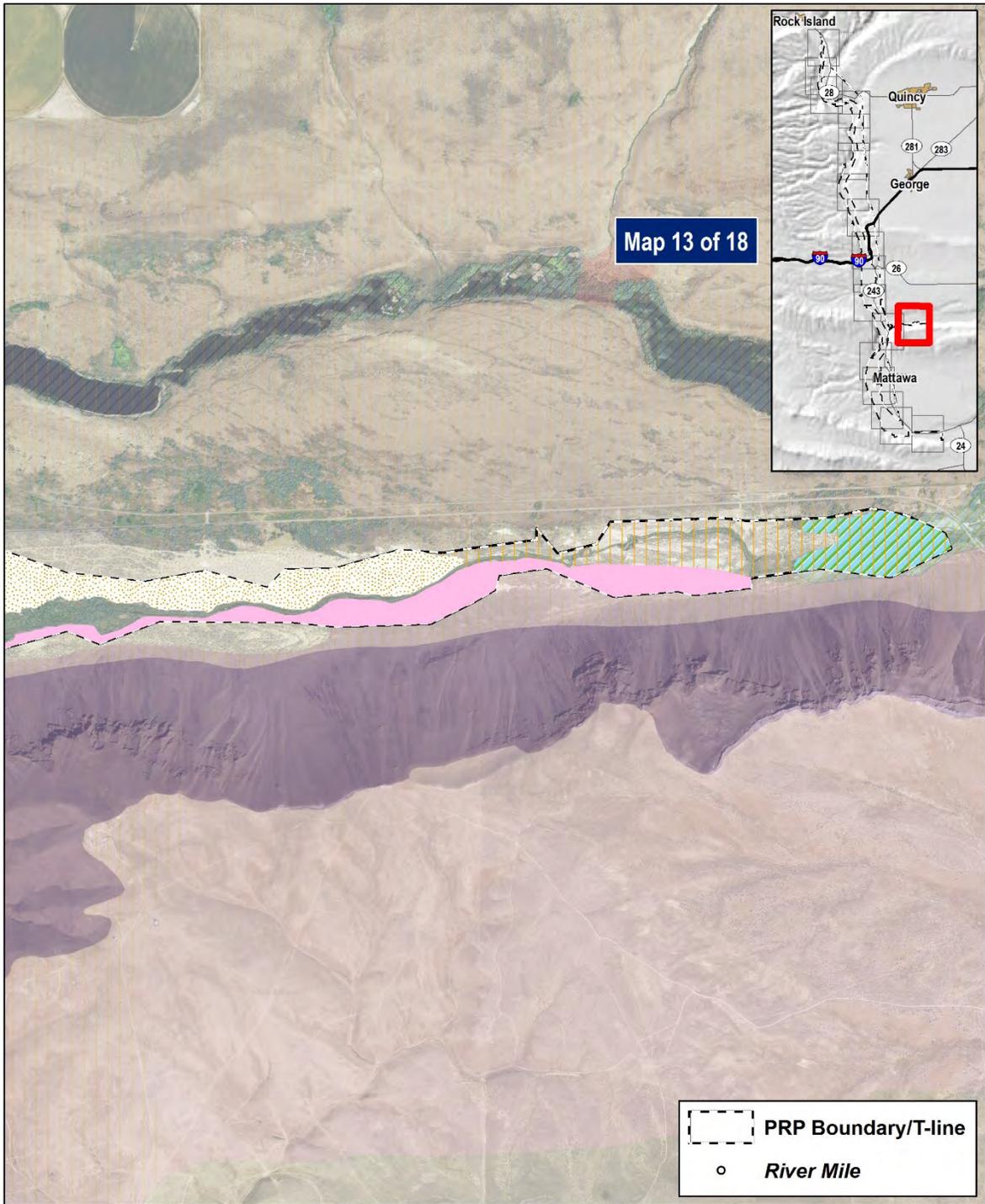


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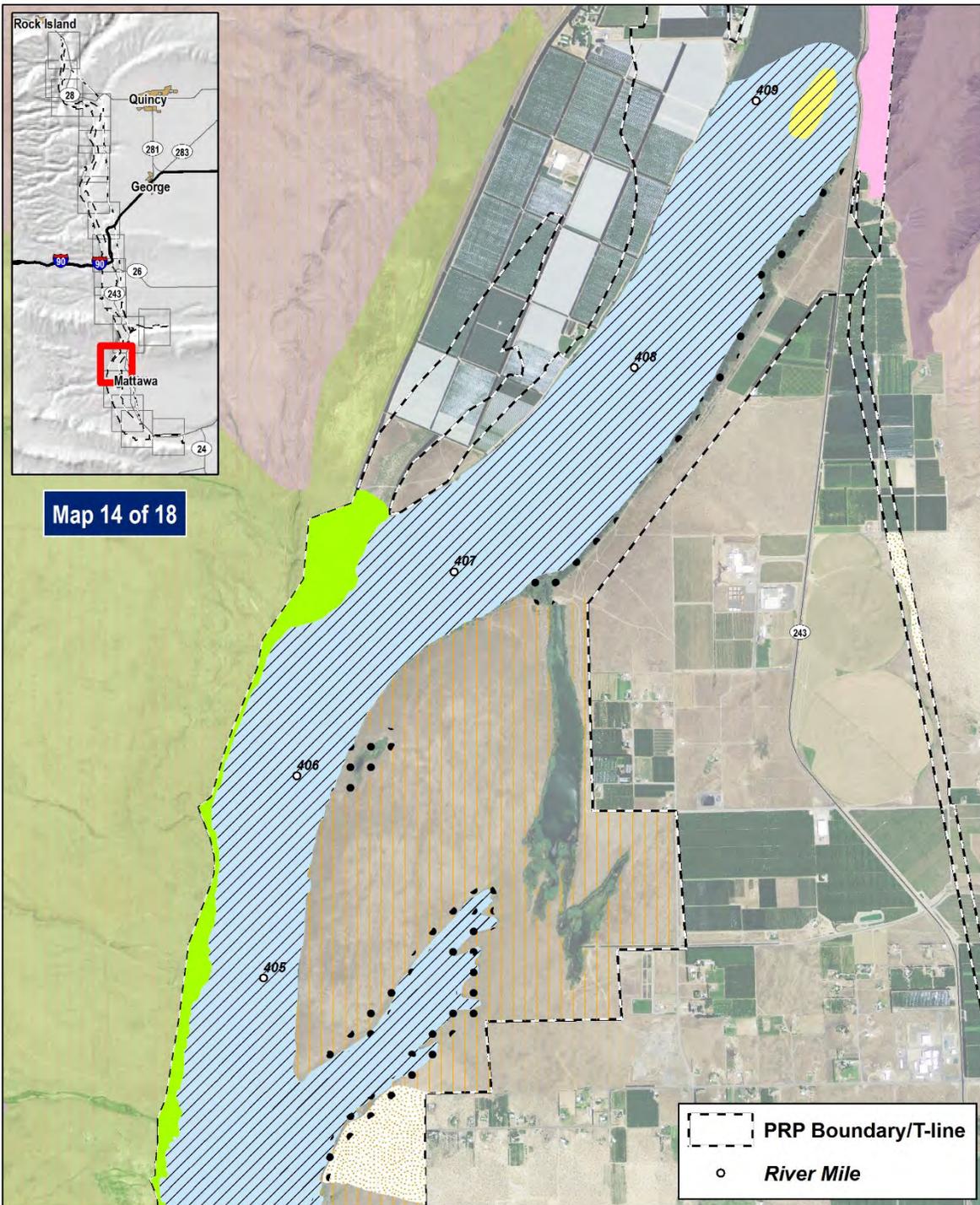
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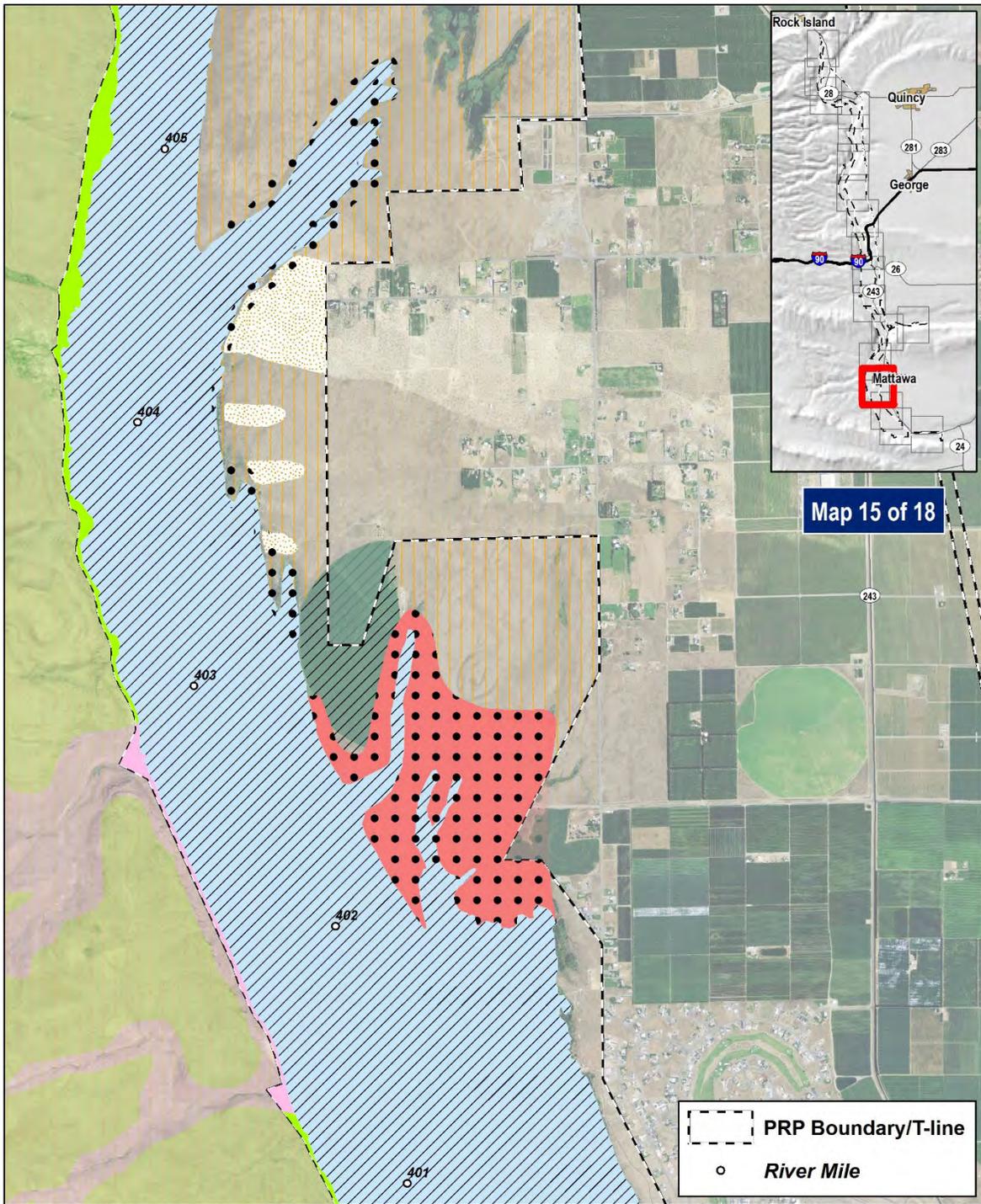


Map 14 of 18

**Priority Habitats and Species - Priest Rapids Project**

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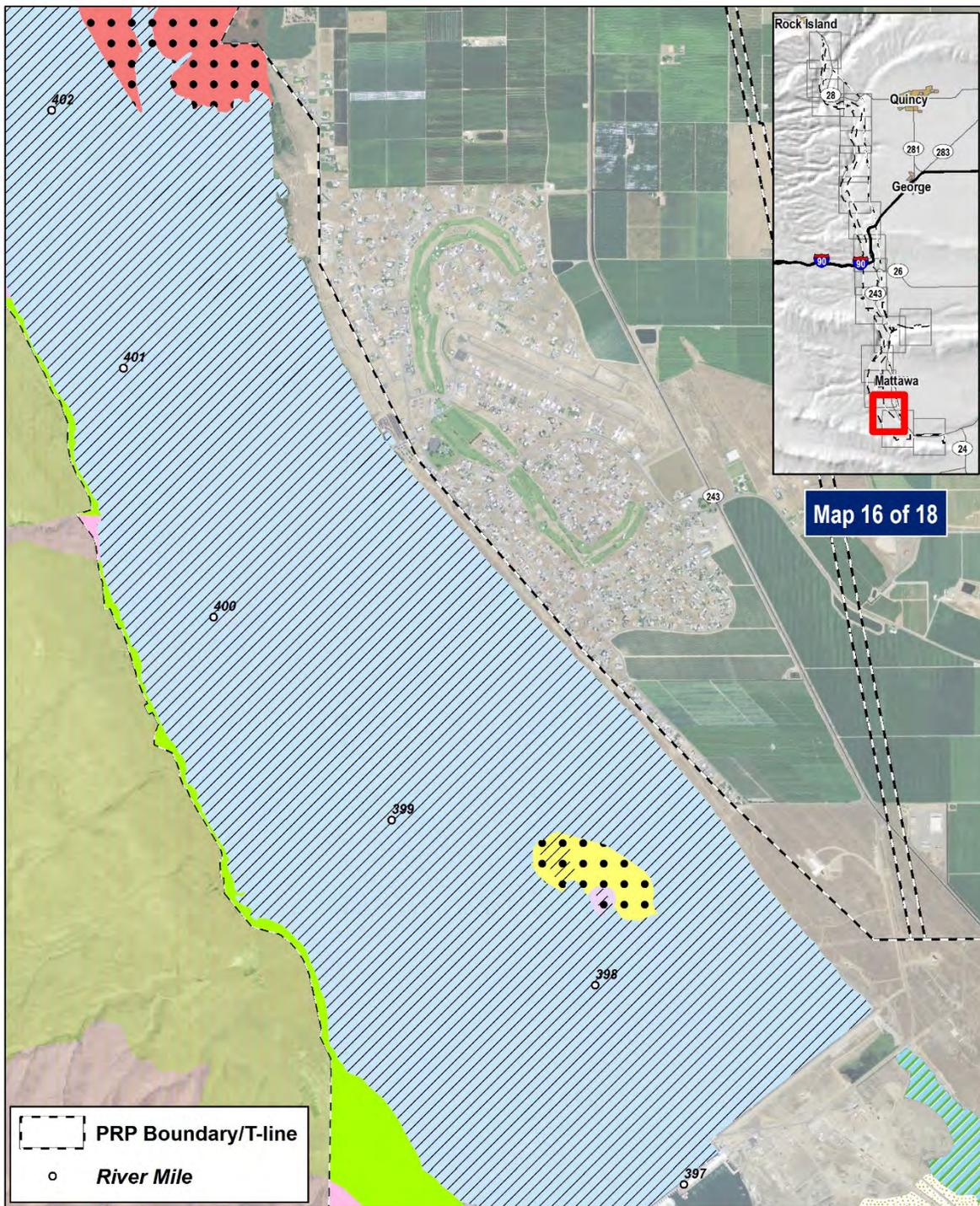


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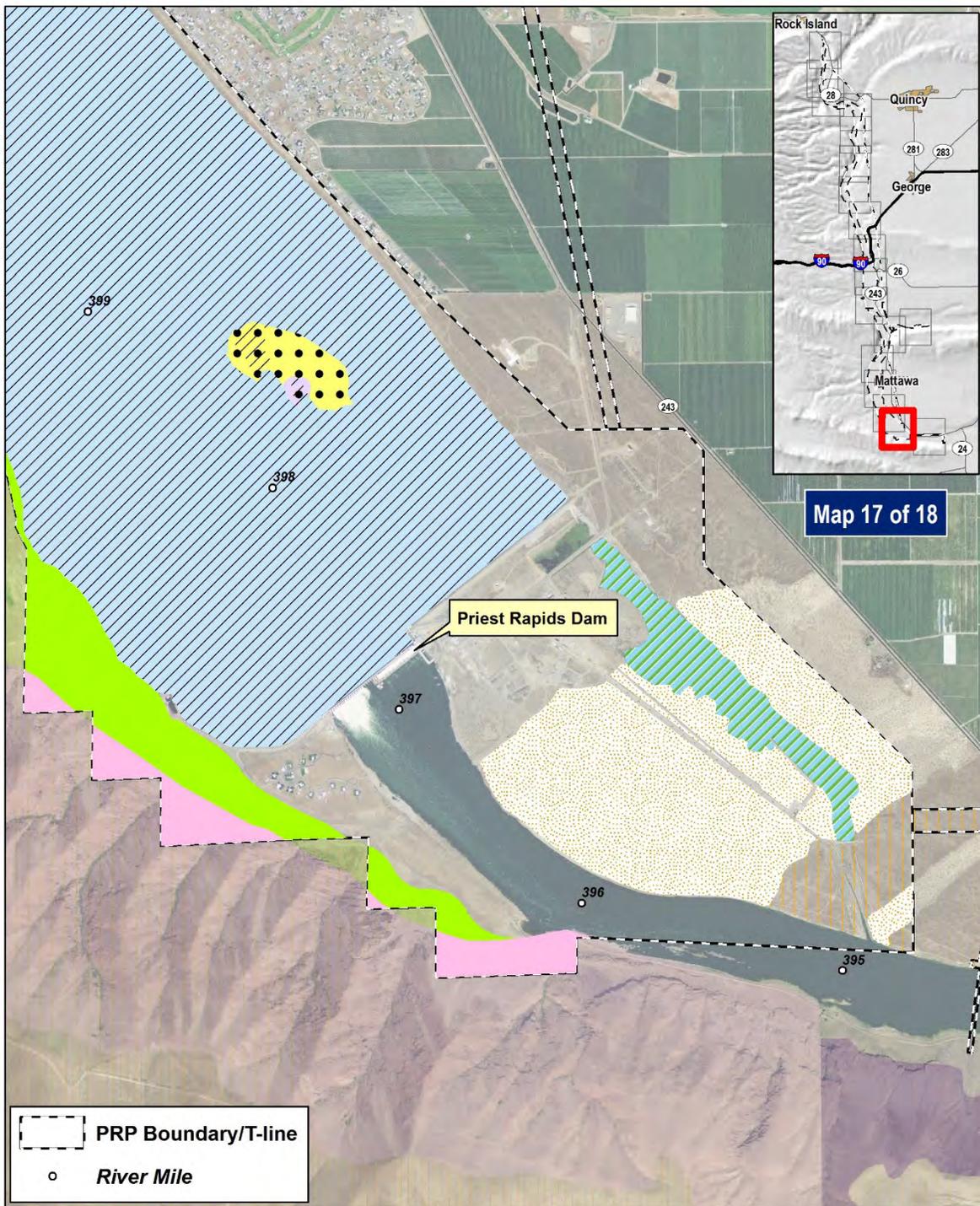
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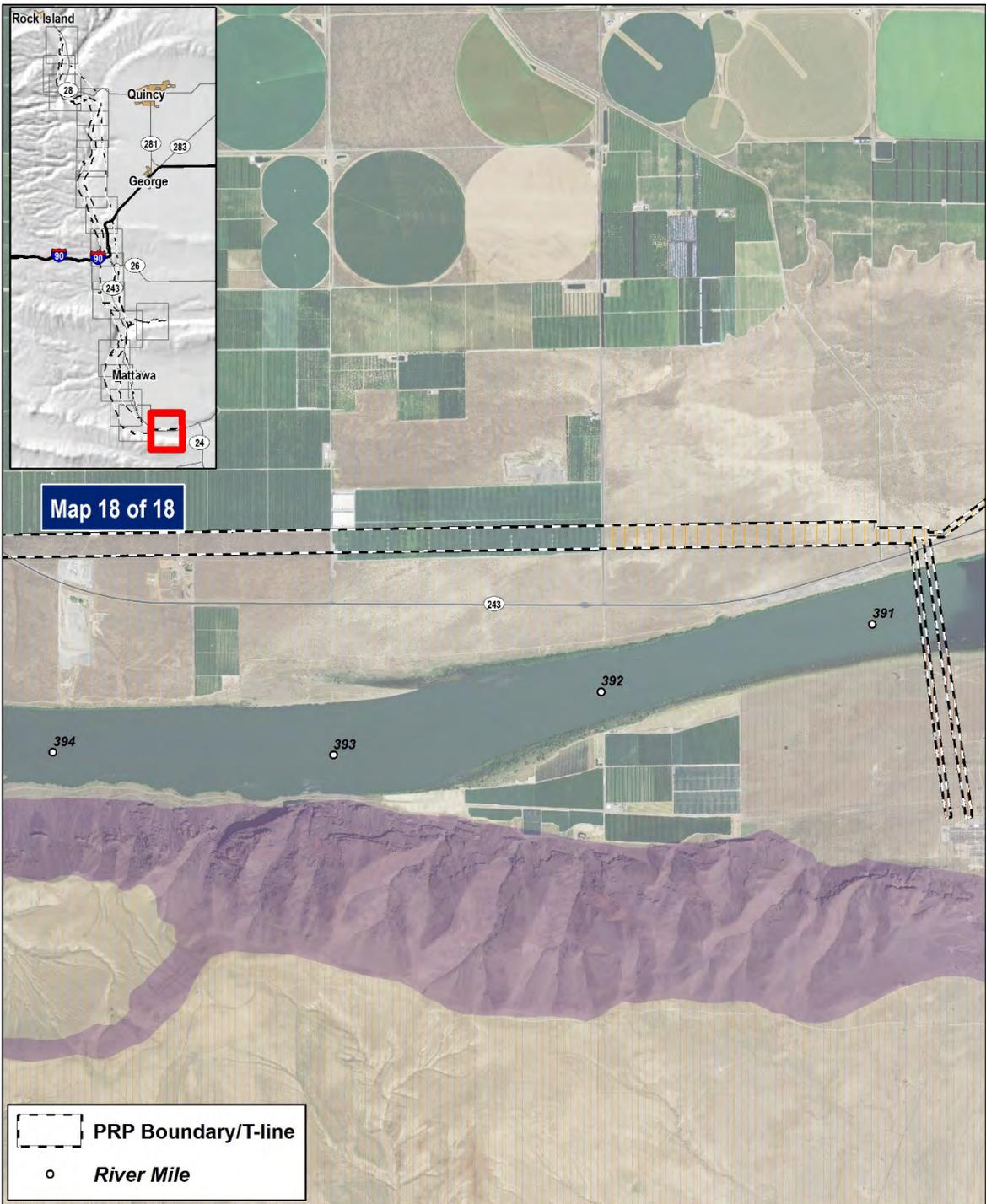


**Priority Habitats and Species - Priest Rapids Project**

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Map 18 of 18

PRP Boundary/T-line  
 ○ River Mile

**Priority Habitats and Species - Priest Rapids Project**

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**Appendix B**  
**Summary of Priority Habitats within the Project**

Priority Habitat	WDFW Priority Area Description (WDFW 2008)	Locations within the Project
Cliffs	The WDFW describes cliffs/bluffs as greater than 7.6 m (25 ft) high and occurring below 1,524 m (5,000 ft) (WDFW 2009).	(1) Babcock Ridge Cliffs, (2) Midway Substation Cliffs, (3) Sentinel Gap, (4) West Bar, (5) Quilomene, (6) Colockum, (7) Ginkgo, (8) Moses Coulee, and (9) Saddle Mountain (WDFW 2015). A majority of the Project’s cliff habitat (with the exception of Saddle Mountain/Sentinel Gap) is located within the Wanapum Reservoir.
Talus Slopes	Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	(1) Extreme north end of the Project on left-bank side directly downstream of Rock Island Dam. Site known as Palisades Talus (WDFW 2015).
Riparian Zones	The area adjacent to flowing or standing freshwater aquatic systems. Riparian habitat encompasses the area beginning at the ordinary high water mark and extends to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. In riparian systems, the vegetation, water tables, soils, microclimate, and wildlife inhabitants of terrestrial ecosystems are often influenced by perennial or intermittent water. Simultaneously, adjacent vegetation, nutrient and sediment loading, terrestrial wildlife, as well as organic and inorganic debris influence the biological and physical properties of the aquatic ecosystem. Riparian habitat includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to stream courses or other freshwater.	(1) Crescent Bar bald eagle wintering, (2) Trinidad Creek, (3) Sunland Estates riparian area, (4) Rock Island Dam (downstream) riparian area, (5) Priest Rapids Pool, (6) Mattawa Wasteway, (7) Buckshot Ranch, (8) Columbia River Breaks riparian sites, (9) Hanson Creek, and (10) Lower Crab Creek.
Sand Dunes (called “Inland Dunes” in the updated 2008 PHS list)	<p>This system occurs in Washington’s arid lands where sandy sediments were deposited during the Missoula floods. Reworking of these deposits by wind produced widespread sand fields. Dunes were also formed by sand that was transported and deposited by the Columbia and Snake rivers. These original sand deposits and dune systems can be found on geology maps, county soil surveys, and USGS 7.5’ topos.</p> <p>Dune formation requires well-sorted fine to medium grained sand and wind transport. Sand accumulates when wind passes from a rough to a smooth surface (e.g., sand patch) or when wind flows over a depression or encounters a permeable obstacle (e.g., shrub). Dunes accumulate sand during strong winds and lose sand during gentle winds until they reach a critical size. Once this size is attained, sand is trapped under all wind conditions due to factors that result in sand depositing at the leeward margin rather than being carried off the dune.</p> <p>Dunes occur at three different functional stages: 1) open/migrating, 2) anchored, and 3) stabilized.</p> <p>Open/migrating dunes have large areas of open active surface sand and migrate with the effective wind direction. Unstable slip faces (lee slopes) often form and vegetation cover is minimal. Anchored dunes have active surface sands, but movement/migration as a whole is inhibited by vegetation. This stage often occurs on the trailing arms of migrating parabolic dunes and on vegetated sand sheets. Stabilized dunes lack active sands as a result of being sealed off by vegetation, cryptobiotic crusts, or volcanic ash.</p> <p>Sand dunes support vegetation if wind stress is not too great. Although dune vegetation tends to be variable, dunes often consist of plants that are also common to shrub-steppe, such as antelope bitterbrush, rabbitbrush and snow buckwheat. However, some plants are more restricted to sand dune, such as, Indian Ricegrass (<i>Achnatherum hymenoides</i>), Lemon Scurfpea (<i>Psoralidium lanceolatum</i>), Veiny Dock (<i>Rumex venosus</i>) and Gray Cryptantha (<i>Cryptantha leucophaea</i>). The vegetation cover is related to annual rainfall totals and evapotranspiration rates. The mobility of sand dunes is related to the power of the wind, while a dune’s mobility becomes inhibited as vegetation cover increases. Long periods of increased precipitation and persistent presence of vegetation may lead to a sand surface covered by litter and/or cryptobiotic crust. These same factors also can initiate soil formation, and can lead to partial or complete dune stabilization. Periods of drought will result in conditions unfavorable to vegetation and can reinitiate the mobility of sands.</p> <p>Other factors can have major influences on dune vegetation (e.g., livestock grazing, off-road vehicle use).</p>	<p>Sand Hollow South: Open dunes and stabilized sand plains. Big sagebrush, grey and green rabbitbrush, antelope bitterbrush, spiny hopsage, needle-and-thread grass, veiny dock, grey ball sage, tumble mustard, and bugweed are present.</p> <p>Sand Hollow North: System of sand plains and climbing dunes. grey and green rabbitbrush, spiny hop-sage, big sagebrush, bugloss fireweed, indian ricegrass, lemon scurfpea, evening primrose, tumble mustard, and cheatgrass are present.</p> <p>Additional dune areas within the Project include Wanapum, Beverly, Frenchman Coulee, Quilomene, and Sentinel Butte.</p>

Priority Habitat	WDFW Priority Area Description (WDFW 2008)	Locations within the Project
	Although most dunes have endured some disturbance, Inland Dunes include any area that fits the abovementioned definition with the exception of dunes where the key physical processes have been lost when cheatgrass becomes so dominant that it forms a “thatch,” sealing off the dune permanently.	
Shrub-steppe	A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover). Although Big Sagebrush ( <i>Artemisia tridentata</i> ) is the most widespread shrub-steppe shrub, other dominant (or co-dominant) shrubs include Antelope Bitterbrush ( <i>Purshia tridentata</i> ), Threetip Sagebrush ( <i>A. tripartita</i> ), Scabland Sagebrush ( <i>A. rigida</i> ), and Dwarf Sagebrush ( <i>A. arbuscula</i> ). Dominant bunchgrasses include (but are not limited to) Idaho fescue ( <i>Festuca idahoensis</i> ), Bluebunch Wheatgrass ( <i>Pseudoroegneria spicata</i> ), Sandberg Bluegrass ( <i>Poa secunda</i> ), Thurber's Needlegrass ( <i>Achnatherum thurberianum</i> ), and Needle-and-Thread ( <i>Hesperostipa comata</i> ). In areas with greater precipitation or on soils with higher moisture-holding capacity, shrub-steppe can also support a dense layer of forbs (i.e., broadleaf herbaceous flora). Shrub-steppe contains various habitat features, including diverse topography, riparian areas, and canyons. Another important component is habitat quality (i.e., degree to which a tract resembles a site potential natural community), which may be influenced by soil condition and erosion; and the distribution, coverage, and vigor of native shrubs, forbs, and grasses. Sites with less disturbed soils often have a layer of algae, mosses, or lichens. At some more disturbed sites, non-natives such as Cheatgrass ( <i>Bromus tectorum</i> ) or Crested Wheatgrass ( <i>Agropyron cristatum</i> ) may be co-dominant species.	Lower Babcock Ridge: Unique complex of basalt cliffs, sand dunes, shrub-steppe and small wetlands provide habitat for upland game, nongame birds and reptiles (records for s. Whipsnake and desert nightsnake).  (1) Vernita Dunes, (2) Babcock Bench, (3) Moses Coulee State Route 2, and (4) Evergreen Ridge.
Waterfowl Concentrations	Significant breeding areas: The area necessary to support reproduction and the rearing of young; includes breeding sites and adjacent foraging habitat, and may include a disturbance buffer.  Regular concentrations in winter: Areas that are commonly or traditionally used by a group of animals  (Anatidae excluding Canada Geese in urban areas)	(1) Wanapum reservoir waterfowl area, (2) Sand Hollow beach front, (3) Buckshot Ranch goose pasture, and (4) Priest Rapids reservoir.
Wetlands	<u>Freshwater Wetlands</u> : Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands must have one or more of the following attributes: the land supports, at least periodically, predominantly hydrophytic plants; substrate is predominantly undrained hydric soils; and/or the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.  <u>Fresh Deepwater</u> : Deepwater habitats are permanently flooded lands lying below the deepwater boundary of wetlands. Deepwater habitats include environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. The dominant plants are hydrophytes; however, the substrates are considered nonsoil because the water is too deep to support emergent vegetation. These habitats include all underwater structures and features (e.g., woody debris, rock piles, caverns).	Examples include:  Sand Hollow: Cattails fringe marsh provides habitat for upland game, ducks and nongame birds.  Goose Island: Palustrine, emergent persistent, seasonal, diked/impounded  Airstrip: Lacustrine littoral, unconsolidated shore, seasonal, diked/impounded  (1) Sand Hollow and (2) Lower Crab Creek.

**Appendix C  
Summary of Priority Species within the Project**

	<b>Priority Wildlife Species</b>	<b>Habitat Requirements</b>	<b>Recommended Management (WDFW, USFWS etc)</b>	<b>Life History Facts</b>	<b>References</b>
<b>Birds</b>	<b><u>American White Pelican</u></b>	Occur throughout the western, central and southern parts of North America. Non-breeding pelicans can be found along the Columbia River from the Dalles through Chief Joseph pool. Require shallow water for foraging; most feeding occurs between water depths of 0.3 to 2.5 meters. Foraging takes place along lake or river edges, in open areas within marshes, on or below rapids and occasionally in deepwaters of lakes and rivers.	In Washington, management of American white pelican populations should focus on protection of breeding colonies and protection of feeding and loafing areas of both breeding and non-breeding birds. Managers should: <ul style="list-style-type: none"> <li>• Close nest islands to trespass during breeding season from 15 March through 31 August.</li> <li>• Establish a buffer zone of 400 to 800 meters and up to 1600 meters from the nesting island which is closed to human activity such as boating, fishing, water skiing, discharge of fire arms, wildlife observation.</li> <li>• Restrict air traffic to an altitude of 610 meters above breeding colonies to reduce disruption of nesting.</li> <li>• Close channels with dikes to restrict boating/fishing in breeding areas, creating sanctuaries.</li> <li>• Retain stable water levels during the nesting season so that flood waters do not inundate nests, and low water levels do not allow the emergence of mainland to island bridges that can be crossed by predators.</li> <li>• Protect nesting areas and potential nesting islands from mammalian predators such as coyotes.</li> <li>• Land managers should identify and protect loafing/roosting and feeding areas of both breeding and non-breeding birds.</li> </ul>	Colonial nesters, breeding primarily in the western and central United States and Canada. Breed most often on isolated islands in freshwater lakes and occasionally on isolated islands in rivers. Islands free from human disturbance, mammalian predators, flooding and erosion are required for successful nesting.	Washington State Department of Fish and Wildlife (WDFW). 2004. Management Recommendations for Washington’s Priority Species – Volume IV: Birds.  Cornell Lab of Ornithology. 2015. All about Birds. Available at: <a href="http://www.allaboutbirds.org/Page.aspx?pid=1189">http://www.allaboutbirds.org/Page.aspx?pid=1189</a> .
	<b><u>Bald Eagle</u></b>	Breeding –Uneven-sized forest stands with old-growth-like structural components along shorelines, and adequate food resources. • Wintering –Day Perches: Tall trees, especially deciduous and snags along shorelines. • Night Roosts –Uneven-sized, multi-layered, mature/old-growth stands that provide protection from weather. • Feeding –Adequate food resources including spawned salmon, carrion, and waterfowl near nesting, perching, and roosting areas. • Freedom from disturbance.	Downgraded from Federally threatened to species of concern on August 8, 2007. Downgraded from Washington State threatened to sensitive in 2008. As of May 2011, WDFW removed its recommended management objectives as result of the downgraded status.  Still protected by the Federal Bald and Golden Eagle Protection Act.	Nesting Season: Jan 1 – Aug 31, Roosting Season: Oct 15 – Mar 15 (USFWS 2015)	United States Fish and Wildlife Service (USFWS). 2015. Eagles in the Pacific Northwest Bald Eagle ( <i>Haliaeetus leucocephalus</i> ) <a href="http://www.fws.gov/pacific/eagle/all_about_eagles/Bald_Eagles.html">http://www.fws.gov/pacific/eagle/all_about_eagles/Bald_Eagles.html</a>  WDFW. 2004a. Management Recommendations for Washington’s Priority Species – Volume IV: Birds. Technical Editors: Eric M. Larsen, Jeffrey M. Azerrad, and Noelle Nordstrom, May, 2004. Washington Department of Wildlife, Olympia, Washington..
	<b><u>Burrowing Owl</u></b>	Burrowing owls inhabit open, dry areas in well-drained grasslands, shrub-steppe, prairies and deserts with silty-loam structurally stable soils. Depends on abandoned burrows excavated by burrowing mammals (e.g., prairie dogs, ground squirrels, badgers, foxes and coyotes). The primary habitat characteristics preferred by burrowing owls include a complex of available burrows, short and/or sparse vegetation that provides good visibility, and adequate populations of prey species. Breeding paired owls will use up to 10 auxiliary burrows that are within 90 m (300 ft) of their primary nesting burrow.	This species is associated with shrub-steppe and grassland habitats and has experienced a contraction of its range and decline in numbers due to loss of habitat and persecution of mammalian species that provide earthen burrows that owls use (WDFW 2015). <ul style="list-style-type: none"> <li>• Conserve all native vegetation and plant communities (e.g., shrub-steppe) in known or potential owl nesting habitat</li> <li>• Nesting burrows and nearby alternate burrows should be protected from disturbance by placing visible markers near the burrows and preventing destruction by recreation and agriculture.</li> <li>• Near known or potential nest sights, protect burrowing mammal species that create borrows.</li> <li>• Restrict human disturbances within 0.8 km (0.5 mi) of burrowing owl nests between 15 February and 25 September. Avoid use of pesticides and herbicides in habitat.</li> </ul>	Occupies shrub-steppe habitat of the eastern part of the Washington during the breeding season. Recent banding data have shown that some owls overwinter in eastern Washington. Additionally, a resident owl was recently found with eggs that were produced in late February. Most burrowing owls from Canada and the northern United States are believed to migrate south in September and October. The northern migration to the breeding grounds is thought to occur from March through the first week of May.	WDFW. 2004a. Management Recommendations for Washington’s Priority Species – Volume IV: Birds. Technical Editors: Eric M. Larsen, Jeffrey M. Azerrad, and Noelle Nordstrom, May, 2004. Washington Department of Wildlife, Olympia, Washington.

	Priority Wildlife Species	Habitat Requirements	Recommended Management (WDFW, USFWS etc)	Life History Facts	References
			<ul style="list-style-type: none"> <li>• Use artificial nest burrows for expanding the capacity of existing nesting sites.</li> <li>• Use artificial perches in areas where vegetation is taller than 5 cm tall.</li> </ul>		
<b>Birds Continued</b>	<b><u>Chukar</u></b>	<p>The following is from WDFW 2004a:</p> <ul style="list-style-type: none"> <li>• Chukars flourish in mesic (moist) and semi-arid portions of shrub-steppe habitat characterized by steep, rocky &amp; dry slopes.</li> <li>• Habitat is dense to open, with non-spiny shrubs, perennial and annual grasses, and forbs.</li> <li>• Optimum range: 50% sagebrush (<i>Artemisia</i> spp.)-cheatgrass (<i>Bromus tectorum</i>)-bunchgrass (<i>Agropyron</i> spp.); 45% talus slope, rock outcrops, cliffs, and bluffs; 5% brushy creek bottoms and swales; and steep slopes (up to 40).</li> <li>• Big sagebrush (<i>Artemisia tridentate</i>) is the predominant shrub and cheatgrass brome the predominant grass throughout the chukar range.</li> <li>• In Washington, chukar habitat consists of talus areas containing bromegrasses, bunchgrasses, and sagebrush at elevations of 175-1,220 m (575-4,000 ft)</li> <li>• Preferred plant communities: Douglas hackberry (<i>Celtis douglasii</i>), smooth sumac (<i>Rhus glabra</i>), and poison ivy (<i>Toxicodendron</i> spp.) along rivers and riparian corridors (e.g., Columbia river canyon)</li> <li>• Do not occupy agricultural areas</li> <li>• Found in areas unoccupied by other upland birds</li> </ul>	<p>The following is from WDFW 2004a:</p> <ul style="list-style-type: none"> <li>• Avoid reduction of sagebrush within primary chukar management zones.</li> <li>• Avoid management practices that significantly impact insect populations.</li> <li>• Use integrated pest management targeting specific pests or noxious weeds. Appendix A of WDFW 2004 has more information on integrated pest management.</li> <li>• Protect and improve existing water supplies (e.g., reconstructing livestock watering troughs and other watering developments)</li> <li>• Add supplemental bird drinking basins to stock water tanks and provide escape ramps</li> <li>• Place gallinaceous guzzlers, a device that holds rain water for utilization by wildlife, (350 gallons) within 150 feet of steep, rocky escape cover or near the bottom of draws, gullies, and/or ravines – plant cover (shrubs) around the device</li> <li>• Retain preferred plant communities (see previous column)</li> </ul>	Chukars typically roost and loaf on the ground beneath sagebrush, under rock outcrops, or in open rocky areas. Rock outcrops, Douglas hackberry, and smooth sumac communities may be used for loafing.	WDFW. 2004a. Management Recommendations for Washington's Priority Species – Volume IV: Birds. Technical Editors: Eric M. Larsen, Jeffrey M. Azerrad, and Noelle Nordstrom, May, 2004. Washington Department of Wildlife, Olympia, Washington.
	<b><u>Common Loon</u></b>	<ul style="list-style-type: none"> <li>•Breed on lakes that are larger than 29.6 acres in forested areas.</li> <li>•Nesting occurs within 5 feet of shorelines with emergent vegetation.</li> <li>•Able to use many different media for nesting; such as vegetation, stumps, gravel, and artificial platforms.</li> <li>•Requires plentiful fish population on which to feed.</li> <li>•Dependent on undisturbed shoreline or island nesting sites.</li> </ul>	<ul style="list-style-type: none"> <li>• Protection of loons and habitat during pair-bonding, egg laying, and initial brood rearing.</li> <li>• Protection of existing nests.</li> <li>• No humans should approach within 492 feet of nesting sites from April 1<sup>st</sup> to July 15<sup>th</sup>.</li> <li>• 492 foot disturbance buffer for brood rearing areas from July 15<sup>th</sup> to September 1<sup>st</sup>.</li> <li>• No buildings within 492 feet of nests.</li> <li>• Artificial islands provided in areas lacking natural islands.</li> <li>• Maintain constant reservoir water levels when incubating and laying eggs.</li> </ul>	Breed in North America throughout the northern tier of the lower 48 states. Some migrant loons arrive from the north to spend the winter along the Columbia River.	WDFW. 2004a. Management Recommendations for Washington's Priority Species – Volume IV: Birds. Technical Editors: Eric M. Larsen, Jeffrey M. Azerrad, and Noelle Nordstrom, May, 2004. Washington Department of Wildlife, Olympia, Washington.
	<b><u>Forster's Tern*</u></b>	<p>The Forster's tern typically breeds in marshes with open water and stands of island-like vegetation. They over-winter in marshes, coastal beaches, lakes, and rivers.</p> <ul style="list-style-type: none"> <li>•During migration and in winter, they can be found in a wider variety of aquatic habitat, especially around estuaries, inlets, and bays, but rarely out of sight of land. Prey include small fish and arthropods.</li> </ul>	Consult with USFWS to develop for management objectives.	Nests varies from unlined scrape in mud or sand, to elaborate raft of floating vegetation, or on top of a muskrat lodge. Typically placed in clumps of marsh vegetation close to open water.	<a href="http://www.allaboutbirds.org/guide/forsters_tern/lifehistory">http://www.allaboutbirds.org/guide/forsters_tern/lifehistory</a>

	Priority Wildlife Species	Habitat Requirements	Recommended Management (WDFW, USFWS etc)	Life History Facts	References
<b>Birds Continued</b>	<b>Golden Eagle</b>	Typically found in open country around mountains, hills and cliffs and tend to use a variety of habitats ranging from arctic to desert including farmland and grasslands.	<p>In general, golden eagle habitat should be managed to improve native vegetation and maintain native prey populations. Management of grassland habitats can influence prey density, diversity and availability.</p> <p>Although empirical evidence is limited, human activities near nests appear to cause breeding failure; rock climbing as well as development activities on or near cliffs containing nests should be avoided.</p> <p>Establishment of buffer zones reduces disturbance to nesting buffers.</p>	<p>Tend to nest on cliffs and hills. Washington supports nesting golden eagles east and west of the Cascade Mountains, as well as a winter migratory population from nesting populations in Canada and Alaska.</p> <p>Nesting period of February 15 to July 15.</p>	<p>Washington State Department of Fish and Wildlife (WDFW). 2015. Species and Ecosystem Science Raptor Ecology. Available at: <a href="http://wdfw.wa.gov/conservation/research/projects/raptor/">http://wdfw.wa.gov/conservation/research/projects/raptor/</a>.</p> <p>Cornell Lab of Ornithology. 2015. All about Birds. Available at: <a href="http://www.allaboutbirds.org/Page.aspx?pid=1189">http://www.allaboutbirds.org/Page.aspx?pid=1189</a>.</p> <p>Washington State Department of Fish and Wildlife (WDFW). 2004a. Management Recommendations for Washington's Priority Species – Volume IV: Birds.</p>
	<b>Greater Sage Grouse*</b>	The breeding habitat for the greater sage-grouse is sagebrush country in the western United States and southern Alberta and Saskatchewan. They nest on the ground under sagebrush or grass patches. They live in elevations ranging from 4,000 to over 9,000 feet; cannot survive in areas where sagebrush does not exist.	<ul style="list-style-type: none"> <li>• Maintain multiple and geographically distributed sage-grouse populations across the species' ecological niche and geographic range.</li> <li>• Maintain a healthy sagebrush shrub and native perennial grass and forb community appropriate to local site ecological conditions.</li> <li>• Suppress fires.</li> <li>• Eliminate non-native predators.</li> <li>• Allow light livestock grazing.</li> <li>• Eliminate activities known to negatively impact sage-grouse and their habitats.</li> <li>• Implement an avoidance first strategy that minimizes continuing declines in the species and its habitats.</li> </ul>	<p>Nest on the ground under sagebrush or grass patches. Most sage-grouse gradually move from sagebrush uplands to more mesic areas (moist areas, such as streambeds or wet meadows) during the late brood-rearing period (three weeks posthatch) in response to summer desiccation of herbaceous vegetation in the sagebrush uplands.</p>	<p><a href="http://www.fws.gov/informationquality/topics/FY2015/COT-Report-with-Dear-Interested-Reader-Letter.pdf">http://www.fws.gov/informationquality/topics/FY2015/COT-Report-with-Dear-Interested-Reader-Letter.pdf</a></p> <p><a href="http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06W#conservationPlans">http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06W#conservationPlans</a></p>
	<b>Loggerhead Shrike</b>	Open habitat with scattered shrubs during both breeding and nonbreeding seasons. Grasslands or pastures with short or patchy grasses are usually used for foraging. Scattered trees, shrubs or hedgerows are most often used for nesting and perching. In the shrub-steppe of eastern Washington, they were most abundant in lowland communities of sagebrush, sandberg's bluegrass and cheatgrass; mixed shrub communities containing big sagebrush, bitterbrush, sandberg's bluegrass, Indian ricegrass and needle and thread grass	<ul style="list-style-type: none"> <li>• Shrub-steppe communities should be left in reasonably undisturbed condition and fragmentation should be minimized. Management activities that increase cheatgrass invasion or increase risk of wildlife also must be avoided.</li> <li>• Retain patches of tall shrubs, and trees for nesting and perching.</li> <li>• Livestock grazing at low to moderate levels has not been shown to be detrimental to loggerhead shrike habitat, however sustained grazing will likely reduce habitat suitability.</li> </ul>	<p>Most loggerhead shrikes arrive in Washington mid-to late March and emigrate by September. Primarily a breeding resident of the shrub-steppe zone in eastern Washington.</p> <p>Selection criteria for nesting trees or shrubs appear to be based on the amount of cover and protection the plant provides rather than species of plant.</p>	<p>Washington State Department of Fish and Wildlife (WDFW). 2013. Threatened and Endangered Wildlife in Washington: 2012 Annual Report. Listing and Recovery Section, Wildlife Program, Washington Department of Fish and Wildlife, Olympia, Washington.</p> <p>Washington State Department of Fish and Wildlife (WDFW). 2004. Management Recommendations for Washington's Priority Species – Volume IV: Birds.</p>
	<b>Peregrine Falcon</b>	Peregrine falcons perch or nest on cliffs, power pylons, skyscrapers, water towers and other tall structures. They can be found nesting at elevations up to about 12,000 feet, as well as along rivers and coastlines or in cities, where the local Rock Pigeon populations offer a reliable food supply. In migration and winter you can find Peregrine Falcons in nearly any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains.	<ul style="list-style-type: none"> <li>• Establish a buffer zone of no human activity around peregrine falcon breeding sites.</li> <li>• Curtail logging within 1 mile of occupied peregrine eyries</li> <li>• Eyries occurring within non-forested lands and those eyries not subjected to forest practices or forest practice rules should be similarly considered through the development of a site specific peregrine management plan when activities near nests are considered.</li> <li>• Aircraft should not approach closer than 500 meters above a nest.</li> <li>• Wherever possible powerlines should be routed away from eyries.</li> </ul>	<p>In North America they breed in open landscapes with cliffs (or other tall structures) for nest sites. Males typically select a few possible nest ledges at the beginning of each season and the female chooses from these. The birds do no nest building beyond a ritualized scraping of the nest ledge to create a depression in the sand, gravel or other substrate of the nest site. Scrapes are about 9 inches in diameter and 2 inches deep.</p>	<p>Cornell Lab of Ornithology. 2015. All about Birds. Available at: <a href="http://www.allaboutbirds.org/Page.aspx?pid=1189">http://www.allaboutbirds.org/Page.aspx?pid=1189</a>.</p> <p>Washington State Department of Fish and Wildlife (WDFW). 2004. Management Recommendations for Washington's Priority Species – Volume IV: Birds.</p>

	Priority Wildlife Species	Habitat Requirements	Recommended Management (WDFW, USFWS etc)	Life History Facts	References
			<ul style="list-style-type: none"> <li>• Applications of pesticides that could potentially affect passerine birds should be avoided around occupied peregrine eyries during the breeding season.</li> <li>• Wetlands are key feeding areas in the winter and should receive strict protection.</li> <li>• Maintain all large trees and snags in areas where peregrine falcons feed in winter.</li> </ul>		
<u>Birds Continued</u>	<u>Ring-necked Pheasant</u>	<ul style="list-style-type: none"> <li>• Permanent cover such as cattail/willow patches, riparian/shrub trees, thickets, woody plants, thorny shrubs.</li> <li>• Fence rows and field edges with adequate vegetation provide travel corridors.</li> <li>• With adequate habitat, they may spend entire lives in 640 acre areas.</li> <li>• Prime ring-necked pheasant habitat contains approximately 25-50% uncultivated land and 50-75% cultivated land</li> </ul>	<ul style="list-style-type: none"> <li>• Plant native grasses, or species that have proven beneficial, as nesting cover and shrubs and woody plants as winter cover.</li> <li>• Maintain or plant dense stands of warm- and cool-season grasses in areas of low precipitation. If weed control is necessary, mow between August 1 and September 1.</li> <li>• Avoid use of pesticides within high quality pheasant habitat where possible.</li> <li>• Encourage the use of integrated pest management within the ring-necked pheasant primary management zone.</li> </ul>	Females gather grasses, leaves, and other detritus into shallow depressions for nest creation. Incubation is 23-28 days. 7-15 eggs per clutch. Feeds on seeds in the fall/winter, and insects in the spring/fall.	Washington Department of Fish and Wildlife (WDFW). 2004a. Management Recommendations For Washington's Priority Species – Volume IV: Birds. Technical Editors: Eric M. Larsen, Jeffrey M. Azerrad, and Noelle Nordstrom. May 2004.  <a href="http://www.allaboutbirds.org/guide/ring-necked_pheasant/lifehistory">http://www.allaboutbirds.org/guide/ring-necked_pheasant/lifehistory</a>
	<u>Sagebrush Sparrow</u>	In Washington, their distribution is associated with sagebrush and bunchgrass vegetation communities of the central portion of the state. Sagebrush sparrows are sensitive to fragmentation of sage cover and are found more frequently in extensive areas of continuous sage.	In order to maintain sagebrush sparrow populations, sagebrush communities should be left in relatively undisturbed condition and fragmentation should be avoided. Habitat restoration on formerly tilled fields could expand the range of sagebrush steppe obligate birds in fragmented landscapes. Removal of sagebrush should be avoided. Livestock grazing at low to moderate levels has not been shown to be detrimental to sagebrush sparrow. However, because sagebrush sparrow primarily forage at ground level and nest on the ground in spring, grazing levels should be kept at low levels.	Breed from southeast Washington to California. Commonly nest within or beneath sagebrush plants. Nesting takes place from late March through June with pairs typically producing 1 to 2 broods per year. Contiguous breeding territories generally are established by males in March. Territory sizes of mated males vary greatly ranging from 2 acres to 11 acres.	Washington State Department of Fish and Wildlife (WDFW). 2004a. Management Recommendations for Washington's Priority Species – Volume IV: Birds.
<u>Amphibians</u>	<u>Northern Leopard Frog</u>	Inhabit marshes, wet meadows, riparian areas, and moist, open woods, at elevations ranging from 82 m (270 ft) to 415 m (1,363 ft). Prey items include insects and spiders, leeches, fish, other amphibians, small snakes, and birds. Breeds in spring, in marshes and ponds or along lake margins (both temporary and permanent water bodies) where there is dense aquatic vegetation. Vegetative cover provides refuge from predators and helps maintain stable water temperatures. Avoids bodies of water with no vegetation, preferring cattail or sedge marshes and weedy ponds. In the summer they often stray far from water, inhabiting moist meadows, hay fields and grassy woodlands, with high ground cover for concealment. During the winter, they hibernate under rocks or other objects within aquatic habitats.	Avoid flooding, draining, dredging, or otherwise altering riparian areas and wetlands supporting northern leopard frogs. Avoid activities and land uses that impact hydrology (e.g., cause water table/groundwater water-level fluctuations. Along stream banks and/or pond edges do not remove wetland vegetation and control nonnative plants. Maintain and promote native fish and amphibian populations and avoid introducing nonnative amphibians, reptiles, and fish into sites supporting northern leopard frogs. Algae, which is eaten by tadpoles, should not be removed or treated in wetlands. Known hibernation sites should not be altered. Do not divert stormwater runoff from urban, agricultural or residential areas into northern leopard frog habitats. Please refer to the Ecology's current stormwater management manual. Avoid use of pesticides and herbicides in, or adjacent to, water bodies used by northern leopard frogs. If pesticide or herbicide use is being considered for areas where these frogs exist, refer to Appendix A (Contacts Useful When Evaluating Pesticides and Their Alternatives)	Breeding usually begins in March or April. Will travel some distance to reach suitable breeding sites, and may be seen on roads during warm rainy nights in spring. In Wyoming, breeding activities begin when the water temperature reaches 10 C (50°F). Eggs are usually attached to submerged vegetation, near the surface of water that is at least 0.5 m (1.6 ft) deep. There may be two or three dozen egg masses in a limited area. Eggs develop at temperatures between 6 and 27°C (43-80°F.). Incubation phase timing decreases as water temperatures increase. Reach sexual maturity two or three years after hatching.	WDFW. 1997. Management Recommendations for Washington's Priority Species – Volume III: Amphibians and Reptiles. Technical Editor: Eric M. Larsen, November, 1997. Washington Department of Wildlife, Olympia, Washington.

	Priority Wildlife Species	Habitat Requirements	Recommended Management (WDFW, USFWS etc)	Life History Facts	References
Reptiles	<b><u>Striped Whipsnake</u></b>	<ul style="list-style-type: none"> <li>Inhabits undisturbed native grasslands, sagebrush flats, and dry/rocky canyons up to elevations of 1985 ft.</li> <li>Utilizes branches of bushes and small trees for hunting, basking and cover.</li> <li>Feeds on lizards, snakes, and small mammals.</li> <li>Availability of rodent burrows, rock crevices, and rocky masses.</li> </ul>	<ul style="list-style-type: none"> <li>Conserve shrub-steppe habitats within the Project area, near talus slopes or dry, rocky canyons and ravines.</li> <li>Protect known hibernaculum from human disturbance.</li> <li>Avoid of indiscriminant pest control methods of other snake species.</li> <li>Obtain permits from WDFW before undertaking surveys, especially they involve trapping, removing substrate or handling species.</li> </ul>	Hibernates communally during the winter. Strong den site fidelity. Other snakes such as the gopher snake, racer, and western rattlesnake sometimes share dens. Areas surrounding hibernacula are used for mating during the spring before snake dispersal.	Washington Department of Fish and Wildlife (WDFW). 1997. Management Recommendations For Washington's Priority Species – Volume III: Amphibians and Reptiles. Technical Editor: Eric M. Larsen, November, 1997.
	<b><u>Sagebrush lizard</u></b>	In Washington, Sagebrush Lizards are associated with vegetated sand dunes and associated sandy habitats that support shrubs and have large areas of bare ground. Typically, they can be seen on the ground at the edge of shrubs and other vegetation that provide cover from predators and relief from mid-day heat.	<ul style="list-style-type: none"> <li>Remove habitat degrading invasive plants, such as cheatgrass, that grow densely between shrubs and eliminate bare ground.</li> <li>Prevent excessive livestock grazing.</li> </ul>	Ground dwelling lizard. Eggs are laid in early summer. Hatchlings appear in early August. Likely overwinters in sand dune habitat.	<a href="http://wdfw.wa.gov/conservation/cwcs/2015/draft_sgcn_herps_03-2015.pdf">http://wdfw.wa.gov/conservation/cwcs/2015/draft_sgcn_herps_03-2015.pdf</a>
Mammals	<b><u>Badger*</u></b>	Badgers are generally found in grassland, shrub-steppe, desert, dry forest, parkland, and agricultural areas. Badgers require soils that allow the excavation of den sites and support fossorial prey species (e.g., ground squirrels).	<ul style="list-style-type: none"> <li>Undertake comprehensive field surveys to determine abundance, habitat use, and threats.</li> <li>Protect habitat from degradation.</li> <li>Restore populations of ground squirrels and other prey species.</li> </ul>	Badgers are largely solitary. They use large home ranges that may overlap with other badgers of either sex.	WDFW. 2015. State Wildlife Action Plan Revision. Species of Greatest Conservation Need, Draft Fact Sheets – Mammals. March, 2015. Washington Department of Fish and Wildlife, Olympia, Washington. <a href="http://wdfw.wa.gov/conservation/cwcs/2015/draft_sgcn_mammals_03-2015.pdf">http://wdfw.wa.gov/conservation/cwcs/2015/draft_sgcn_mammals_03-2015.pdf</a>  <a href="http://wdfw.wa.gov/conservation/cwcs/2015/draft_sgcn_mammals_03-2015.pdf">Washington Department of Fish and Wildlife (WDFW). 2015. State Wildlife Action Plan Update – Public Review Copy. Washington Department of Wildlife, Olympia, Washington</a>
	<b><u>Bighorn Sheep</u></b>	Bighorn sheep habitat consists primarily of grasslands or grass/shrub habitats adjacent to, or intermixed with precipitous terrain characterized by rocky slopes, ridges and cliffs, or rugged canyons. Optimum winter range is on south-facing slopes with a predominance of bluebunch wheatgrass, Sandberg bluegrass, June grass, and Idaho fescue, or a mixture of shrubs and bunchgrasses. Bighorn sheep prefer to forage on open slopes in the winter, but will utilize forested areas for cover during storms. Climax plant communities of subalpine, grassland, shrub-grass, desert, and fire-created grassland types. Adjacent or nearby rocky slopes, ridges, cliffs, or rugged canyons	<ul style="list-style-type: none"> <li>Maintain some cover patches.</li> <li>Maintain vigorous, native grassland habitats</li> <li>Eliminate certain public uses seasonally.</li> <li>Eliminate domestic sheep grazing and limit livestock grazing on bighorn sheep ranges.</li> </ul>	Rutting occurs in November and December in northern Populations. Lambing season is mid-April to early June, depending on conditions. Migrate between winter and summer ranges. Montane populations spend the summer in alpine habitats, moving downslope into canyons in winter.	WDFW. 1991. Management Recommendations for Washington's Priority Habitats and Species. Technical Editors: Elizabeth Rodrick and Ruth Milner. May, 1991. Washington Department of Wildlife, Olympia, Washington.  California Wildlife Habitat Relationships System; California Department of Fish and Game; California Interagency Wildlife Task Group. R.A Hopkins <a href="https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=264">https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=264</a> <a href="http://explorer.natureserve.org/servlet/NatureServe?searchName=Ovis+canadensis">http://explorer.natureserve.org/servlet/NatureServe?searchName=Ovis+canadensis</a>
	<b><u>Black-tailed Jackrabbit</u></b>	Areas used include sagebrush and rabbitbrush ( <i>Chrysothamnus</i> sp.) dominated habitats as well as areas of mixed grassland and shrub. Black-tailed jackrabbits tend to occupy areas with more shrubs and less grass than white-tailed jackrabbits and are more tolerant of grazing by livestock. Size of home range varies from 20–300 ha.	<ul style="list-style-type: none"> <li>No recommendations other than general habitat protection. More research by WDFW needed.</li> </ul>	Black-tailed jackrabbits produce about 10-12 young annually, giving birth to multiple litters during a three month breeding season. Only 3.5–9% survived to 1 year of age	Washington Wildlife Habitat Connectivity Working Group (WHCWG). 2012. Washington Connected Landscapes Project: Analysis of the Columbia Plateau Ecoregion. Washington Department of Fish and Wildlife, and Department of Transportation, Olympia, WA. <a href="http://www.waconnected.org/wp-content/themes/whcwg/docs/WHCWG_ColumbiaPlateauEcoregion_2012.pdf">http://www.waconnected.org/wp-content/themes/whcwg/docs/WHCWG_ColumbiaPlateauEcoregion_2012.pdf</a>

	Priority Wildlife Species	Habitat Requirements	Recommended Management (WDFW, USFWS etc)	Life History Facts	References
					Appendix A.3 (to report above). Habitat Connectivity for Black-tailed Jackrabbit ( <i>Lepus californicus</i> ) in the Columbia Plateau Ecoregion. <a href="http://www.waconnected.org/wp-content/uploads/2013/09/A3_Black-tailed%20jackrabbit_ColumbiaPlateau_2012.pdf">http://www.waconnected.org/wp-content/uploads/2013/09/A3_Black-tailed%20jackrabbit_ColumbiaPlateau_2012.pdf</a> WDFW. 2013. Threatened and Endangered Wildlife in Washington: 2012 Annual Report. Listing and Recovery Section, Wildlife Program, Washington Department of Fish and Wildlife, Olympia. 251 pp. <a href="http://wdfw.wa.gov/publications/01542/wdfw01542.pdf">http://wdfw.wa.gov/publications/01542/wdfw01542.pdf</a>
	Ord's kangaroo rat*	Ord's kangaroo rat tend to concentrate their activity in open areas between shrubs.	<ul style="list-style-type: none"> <li>Reduce seed predation and manmade soil disturbances.</li> </ul>	Breeding season varies by population. No information about Washington populations. Some general info: Higher reproductive rates are associated with increased precipitation and food supply and decreased population density. In a favorable growing season most females bred at least twice a year; but when population density increased females did not breed until November even though growing conditions and food supplies were favorable.	<a href="http://www.fs.fed.us/database/feis/animals/mammal/dior/all.html">http://www.fs.fed.us/database/feis/animals/mammal/dior/all.html</a>
Mammals Continued	<u>Pygmy Rabbit</u>	<p>Pygmy rabbits are on average the smallest rabbit, with large individuals weighing about 1 pound.</p> <p>Pygmy rabbits require sagebrush habitats containing both tall, dense sagebrush and deep soils.</p> <p>Up to 90% of its winter diet and up to 50% of its summer diet consists of sagebrush leaves. Most animals avoid sagebrush because of its toxic chemical defenses.</p> <p>Primarily big sagebrush (<i>Artemisia tridentata</i>), tall dense clumps Deep soils and tall sagebrush: on moist, sandy loams big sagebrush may exceed 2 m in height. Studies showed burrow sites always had greater shrub cover and taller shrubs than random sites.</p> <p>Burrows are dug in deep soils amidst sagebrush Pygmy rabbits have been observed using abandoned badger and yellow-bellied marmot (<i>Marmota flaviventris</i>) burrows, as well as natural cavities, holes in volcanic rock, rock piles, and around abandoned buildings For burrowing, rabbits will use the contours of the soil, most often digging into a slope. The most common similarity between the known pygmy rabbit sites is mound/intermound topography with dissected hillslopes adjacent to narrowly dissected alluvial areas.</p>	<p>The pygmy rabbit was listed as a threatened species in Washington in 1990 and was reclassified to endangered status in 1993. A Washington State recovery plan for the rabbit was written in 1995, with amendments in 2001, 2003, and 2011 (WDFW 1995). The Columbia Basin pygmy rabbit distinct population segment was listed by the U.S. Fish and Wildlife Service as endangered in 2001. A federal recovery plan was recently completed (USFWS 2012).</p> <p>The Columbia Basin Pygmy Rabbit, a distinct population segment of this species, is a sagebrush obligate associated with shrub-steppe in eastern Washington. Large-scale loss and fragmentation of shrub-steppe habitat were likely the primary factors contributing to decline (WDFW 2015).</p> <p>Reduce the potential for destructive fires. Reducing the risk of devastating fire will involve regulating access, requiring outdoor fire permits, and planning for quick control or suppression of fires that get started.</p> <p>Reduce the potential for mistaken identity killing of pygmy rabbits, by posting signs alerting hunters to the presence of protected pygmy rabbits.</p> <p>Improve the suitability of existing pygmy rabbit habitat (big sagebrush, deep soils, and mound/intermound topography) – consult with WDFW and other NR agencies as recommended habitat improvement measures are refined.</p>	<p>In addition to the volcano rabbit of Mexico, pygmy rabbits are the only North American rabbit that dig their own burrows.</p> <p>They dig a series of residential burrows for hiding and thermal cover. They also dig a separate natal burrow in which they place newborn young.</p> <p>Females return to the natal burrow 1-2 times per day to nurse, covering the entrance with soil after each visit. Young emerge from the natal burrow 15 days after birth.</p> <p>Pygmy rabbits mate during chasing sessions, and mating stimulates ovulation, thus they can become pregnant again immediately after giving birth.</p> <p>Pygmy rabbits, therefore, can have up to four litters of 2-7 young between February and July every year.</p> <p>Pygmy rabbits are prey for a host of sagebrush-steppe predators, including coyotes, badgers, weasels, and raptors.</p>	<p>WDFW. 2015. State Wildlife Action Plan Update – Public Review Copy. Washington Department of Wildlife, Olympia, Washington</p> <p>WDFW. 1995. Washington State Recovery Plan for the Pygmy Rabbit. Wildlife Management Program, Washington Department of Wildlife, Olympia, Washington. 73pp.</p> <p>United States Fish and Wildlife Service (USFWS). 2012. Recovery Plan for the Columbia Basin Distinct Population Segment of the Pygmy Rabbit (<i>Brachylagus idahoensis</i>). December 2012. Region 1, U.S. Fish and Wildlife Service Portland, Oregon.</p> <p><a href="http://www.actionbioscience.org/biodiversity/ship/ley.html">http://www.actionbioscience.org/biodiversity/ship/ley.html</a></p>

	Priority Wildlife Species	Habitat Requirements	Recommended Management (WDFW, USFWS etc)	Life History Facts	References
		Soils can be derived from loess, as is the case at Sagebrush Flat, or glacial parent materials.			
<b>Mammals Continued.</b>	<b><u>Rocky Mountain Elk</u></b>	<ul style="list-style-type: none"> <li>• A mixture of cover and forage areas.</li> <li>• Relative freedom from human disturbance during certain times of the year.</li> <li>• Optimal cover stands are used during heavy snow periods.</li> <li>• Calving areas, travel corridors, and wallows are sensitive features.</li> </ul>	<ul style="list-style-type: none"> <li>• Protect sensitive features of elk habitat.</li> <li>• Reduce disturbances on winter range during the winter season.</li> </ul>	Mating occurs during the fall rut, and successful bulls breed with numerous females each year. The timing of birth seems to optimize calf survival by being late enough that the risk of cold, inclement weather has passed, but early enough so that there is considerable time for calves to grow before the onset of next winter.	<p>WDFW. 1991. Management Recommendations for Washington's Priority Habitats and Species. Technical Editors: Elizabeth Rodrick and Ruth Milner. May, 1991. Washington Department of Wildlife, Olympia, Washington.</p> <p>WDFW - Living with Wildlife: Elk <a href="http://wdfw.wa.gov/living/elk.html">http://wdfw.wa.gov/living/elk.html</a></p>
	<b><u>Rocky Mountain Mule Deer</u></b>	<p><b>Habitat:</b> Mule deer are adapted to arid, rocky environments. They thrive in habitat that has all of the following characteristics:</p> <ul style="list-style-type: none"> <li>• <b>Early stages of plant growth.</b> Plants that are young and emerging are more nutritious than mature trees and shrubs.</li> <li>• <b>A mixture of plant communities.</b> Many species provide better forage than any single species.</li> <li>• <b>Diverse and extensive shrub growth.</b> More shrubs are generally preferable to fewer shrubs.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain habitat for winter browse</li> <li>• Maintain disturbance-free fawning areas and reduce disturbance in the winter.</li> <li>• Maintain minimum feasible road construction standards and maintain road densities less than 0.5 miles per mile of habitat on winter range.</li> </ul>	Males fight with each other for mates. Females reach sexual maturity at 19 months. Males reach maturity and rutting size at 3 to 4 years old. Gestation is 210 days. Females hide their fawns for a period of a week to 10 days during the summer before the fawns are strong enough to follow the females. Fawns weaned at the age of 60 to 75 days.	<p><a href="http://www.nwf.org/wildlife/wildlife-library/mammals/mule-deer.aspx">http://www.nwf.org/wildlife/wildlife-library/mammals/mule-deer.aspx</a></p> <p>Cox, M., D. W. Lutz, T. Wasley, M. Fleming, B. B. Compton, T. Keegan, D. Stroud, S. Kilpatrick, K. Gray, J. Carlson, L. Carpenter, K. Urquhart, B. Johnson, and C. McLaughlin. 2009. Habitat Guidelines for Mule Deer: Intermountain West Ecoregion. Mule Deer Working Group, Western Association of Fish and Wildlife Agencies.</p>

**Appendix D**  
**Stakeholder Meeting Notes**

# 2015 Wildlife Habitat Management Plan Update

## Meeting Agenda

April 22 (1-3pm) HOB 211/212

### Meeting Intent/Goals

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- Introduce staff and stakeholders for the management plan update
- Provide brief summary of habitat improvement activities in the last five years
- Discuss Draft 2015 Plan Outline
- Identify schedule for 2015 Plan delivery

### Attendees

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WDFW; USFWS; GCPUD FWWQ Staff; Geoengineers

### AGENDA ITEMS

- 1) Group introductions, including roles and responsibilities in Plan development
- 2) Current Plan activity updates: discuss implemented habitat improvement measures
- 3) Re-orientation to Plan sites and activities (PowerPoint)
- 4) Present and discuss Draft 2015 Plan Outline
  - a) General format and layout
  - b) Goals/Objectives discussion
- 5) Discuss schedules/coordination effort for 2015 Plan delivery
- 6) Action items & agenda topics for the next meeting

## **Wildlife Habitat Management Plan Meeting 4/22/15**

### **Notes and Summary**

#### **Attendees**

Craig Broadhead (GCPUD), John Monahan (GCPUD), Fiona McNair (GeoEngineers), Patrick Verhey (WDFW), Chad Eidson (WDFW), Pete Lopushinsky (WDFW), John Hagen (WDFW), Mike Lesky (BOR), Stephen Lewis (USFWS)

#### **General Discussion**

This was the initial meeting of the Wildlife Habitat Management Plan Working Group. This group is tasked with assisting Grant PUD in the development of their updated Wildlife Habitat Management Plan for 2016-2020 management activities. Agenda topics covered were introductions, a brief summary presentation of management activities over the last five years, discussion over delivery process and format for the updated plan, and discussion over schedule and milestones.

1. Mike L. recommended the group discuss enhancing fire control and prevention measures. An option he mentioned could be partnering with BLM. The Group discussed, and agreed the cooperative agreement strategy of funding given annually to WDFW is a continued option. The Group discussed the benefits of “banking” the funds to use for future fires, addressing fuel loads, or restoration activities. Fire suppression and restoration will be a topic for the next meeting.
2. Group discussed waterfowl nesting structures and whether or not nesting habitat is a limiting factor in habitat selection within the Project. Group agreed to explore the need for enhanced protection of existing nesting habitat from recreation impacts as a preference to artificial nesting structures. (e.g., protection of island nesting habitat).
3. Greater sage grouse was a species of emphasis that was recommended by WDFW for addition to the WHMP for 2016-2020. The group will discuss this species and other species for inclusion in the future plan. A current list of priority species within the Project will be generated from the updated PHS list for the updated WHMP.
4. Group agreed that Airstrip would be a good site for focused management activity during the next plan cycle, potentially including activities like developing an intensively managed area for wildlife and completing restoration activities potentially used as advanced mitigation for project impacts. Discussion focused on the site targeting waterfowl and raptor/eagle habitat. WDFW recommended not promoting a pheasant release site at the area. WDFW expressed concern about prior plans for recreational development of the site that could impact habitat, and discouraged the use of the site for this purpose.
5. Burkett Lake also remains an area recommended for focused wildlife habitat enhancements. WDFW expressed interest in Grant PUD rehabilitating the water control structure at the outlet of Burkett Lake in order to control lake elevations to provide flexibility in management of the lake and lakes connected to Burkett.
6. The Buckshot area is substantially in a maintenance mode in terms of habitat development, but the Group wants to explore the idea of retrofitting the existing disabled access blind to improve utility, or develop a blind in a new location and re-purpose the existing “blind” as a viewing platform.
7. Patrick Verhey brought up the idea of developing longer term goals associated with wildlife management (e.g., 10 years). One of the main examples given was riparian plantings. He suggested a list of the top issues we anticipate in the next 10 years. This topic will be discussed in subsequent meetings.
8. WDFW requested Grant PUD to provide sideboards for what type of actions it would be open to as recommendations from WDFW. WDFW expressed an interest in liberalizing the existing requirement of any habitat project to be within or immediately adjacent to the Priest Rapids Project.

**Next meeting**

The next meeting is tentatively planned on May 20 at Wanapum. The intent of this meeting is to continue the development of activities for the five-year update to the 2010 Priest Rapids Wildlife Habitat Management Plan.

**Attachments**

Attached is the tentative schedule as discussed at the meeting.

Wildlife Habitat Management Plan Update											
Draft Project Schedule											
	April	May	June	July	August	Sept	Oct	Nov	Dec		
Kick-off meeting	■										
Prepare 2010-2015 Summary Report		■	■	■							
Stakeholder Review 2010-2015 Draft Report			■	■							
Group Meeting/Discussion Placeholder		■		■		■		■			
Draft 2015-2020 Proposed Actions		■	■	■	■	■	■				
Potential Field Review Dates				■	■	■					
Preperation of Final Plan						■	■	■	■		
Stakeholder Review Final Plan								■	■		
Final Edits									■	■	
Plan Submittal to FERC											■



**2015 Wildlife Habitat Management Plan  
Meeting Agenda  
May 20, 2015 (1-4pm) HOB 117**

**Meeting Intent/Goals**

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- Review notes/action items from last meeting
- Discuss Group charter / expectations
- Discuss priority management actions for 2016-2020
- Review and update schedule
- Schedule first Group field meeting

**AGENDA ITEMS**

- 1) Notes / Action Items from last meeting
- 2) Review Group Charter and expectations
- 3) Discuss management objectives and identify priorities for next plan cycle (2016-2020)
- 4) Schedule update / plan field meeting

**Action items & agenda topics for the next meeting**

# Wildlife Habitat Management Plan Meeting 5/20/15

## Meeting Notes

### Attendees

Craig Broadhead (GCPUD), John Monahan (GCPUD), Fiona McNair (GeoEngineers), Patrick Verhey (WDFW), Tom Elliot (Yakama Nation)

1. The Group discussed the Charter document. A wording change was suggested to “evaluate” instead of “summarize” the work that has occurred in the last five years. The Charter is to be considered final and is attached here for Group reference.
2. The Group discussed sage grouse as a species of concern, and indicated increased protection in high-quality habitat areas should be a priority. GCPUD would require WDFW to identify and document these areas of high quality sage grouse habitat.
3. GCPUD asked if WDFW could provide language regarding projects or potential projects that will be undertaken with the fire suppression funds in order to update the plan for FERC.
4. The Group discussed adding an introductory section to the updated plan that clearly defines the context of the plan, and what the intended use is. This would help define and differentiate the plan from other License requirements, such as the Wildlife habitat Monitoring, Information, and Education Plan, Bald Eagle Perch/Roost Protection Plan, and Shoreline Management Plan, to name a few. This introductory section would also clarify the role of the WHMP as a guidance document, and how it differentiates from a compensatory mitigation plan.
5. Goose tubs and mallard tubes: Patrick will talk to the Wildlife group at WDFW to see if they have ideas about alternative nesting structures/enhancement. Tom Elliot asked if it is possible for Grant PUD to change the type of nesting structures, or substitute enhancement or preservation of nesting habitat, because currently it is a requirement written into the License. John Monahan replied that it is possible as long there is stakeholder support and we follow the required FERC process.
6. Tom Elliot asked about whether the WHMP has specific monitoring requirements and performance standards. Response from Craig/Fiona was that some actions, as they are currently written, do have specific monitoring requirements and performance standards, but the overall goal of the WHMP is to guide management actions in the Project Area for habitat improvement and not provide mitigation for specific impacts. Goals and targets should be set for higher level functions such as replacing non-native with native and adding additional native cover in sparse areas instead of specific rigid quantification of linear feet, square feet or percent cover.

7. The suggestion was made that Grant PUD consider designating high value habitats for protection from future recreation development. This occurred in a general way when land use classifications were determined during the development of the Recreation Plan. The idea is to identify which areas could be lost to high-impact recreation in order to maintain higher quality habitat areas as disturbance free. This can occur through enhanced coordination with the Recreation Resources Management Plan.
8. Fiona mentioned that having some visual tools for the July meeting would be helpful in discussing planned actions and in what locations, for the next 5 years.
9. Discussion on locations where elk, deer, and sheep are coming down to the reservoirs or using the Project area. Some of that information is in PHS, personal observations also. This information would help identify priority areas for habitat enhancement. Patrick mentioned that WDFW Habitat Biologists could help with getting more information on wildlife use of the Project Area – and whether WDFW has maps depicting use.
  - o Richard (Rich) Finger, [Richard.Finger@dfw.wa.gov](mailto:Richard.Finger@dfw.wa.gov), 509-754-4624 ext 229. Grant/Adams District Biologist
  - o Jeffrey Bernatowicz: [Jeffrey.Bernatowicz@dfw.wa.gov](mailto:Jeffrey.Bernatowicz@dfw.wa.gov) 509-457-9304. Kittitas/Yakima District Biologist
10. Discussion on prioritization of habitat enhancement at Airstrip mostly on the south end near the sloughs and Girl Scout Island. This doesn't preclude possible capital recreation project on the north end, if it happens to come up in the future. This will require enhanced coordination with the GCPUD Lands and Recreation staff in the development of the Shoreline Management Plan and Recreation Resource Management Plan. This ties to number 7 above.
11. The Group discussed the terrestrial habitat surveys conducted prior to relicensing are a good resource for photo plots and baseline data.
12. Craig clarified the intent of the 2015 WHMP update is to update the 2010 WHMP, not write a new plan. This simplifies the task, and changes the draft reviews necessary by stakeholders. A first draft of the 2015 updated WHMP will be ready for review by August, and provided for stakeholders. See updated draft project schedule below.

#### **Next meeting**

- A field meeting was tentatively set for late June, but will be postponed pending more availability. Please let Craig know if you would like to visit the Project Area at any time.
- The next Working Group meeting at Wanapum is tentatively planned for July 8. Pending availability, this meeting date may be changed to meet as many schedules as possible.

#### **Attachments**

Attached is the tentative schedule as discussed at the meeting and the Group Charter.

**Wildlife Habitat Management Plan Update**  
**Draft Project Schedule**

	April	May	June	July	August	Sept	Oct	Nov	Dec	
Kick-off meeting	■									
Draft Updated Management Plan		■								
Stakeholder Review Draft Updated Plan					■					
Group Meeting/Discussion Dates		■		■		■		■		
Potential Field Review Dates			■	■	■	■				
Stakeholder Review Final Updated Plan								■		
Final Edits									■	
Plan Submittal to FERC										■



## Wildlife Habitat Management Plan Working Group Charter

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### Purpose

This Working Group will collaborate with Grant PUD in the update of the 2010 Wildlife Habitat Management Plan (WHMP). This update will evaluate work that has occurred in the last five years, as well as define the habitat objectives that will be undertaken by Grant PUD in the next five year plan cycle. This update will be consistent with License Article 409 of Federal Energy Regulatory Commission (FERC) Project No. 2114 for the Priest Rapids Hydroelectric Project.

### Members

Craig Broadhead, Grant PUD – Team Leader  
John Monahan, Grant PUD  
Fiona McNair, GeoEngineers  
Rex Buck, Jr., Wanapum People  
Patrick Verhey, WDFW  
Steve Lewis, USFWS  
Erik Ellis, BLM  
Myra Banks, Washington Recreation and Conservation Office  
Michael Lesky, USBOR  
Brent Billingsley, WADNR  
Leroy Adams Jr, Yakama Nation  
Andrew Fielding, Washington State Parks

Other stakeholders as designated or requested by the Working Group

### Scope

The 2010 WHMP was developed to guide Grant PUD in the conservation and enhancements of wildlife habitats within the project boundary (see attached map). As required by License Article 409, the plan is to be updated at a minimum every five years. The objective of the updated plan is to evaluate actions that have occurred in the last five years, and describe the actions that will occur during the next plan cycle (2016-2020). These actions are to be specific to the continued implementation or refinement of the management goals and objectives as described in the 2010 WHMP. In addition, new species or habitats that have emerged as requiring special management emphasis may also be incorporated into plan objectives. FERC requires that priority be given to projects that occur within and immediately adjacent to the project boundary. Activities that are outside the project area or cannot be undertaken within the purview of Grant PUD should not be considered.

## **Deliverables and Expectations**

The five-year update of the 2010 WHMP will be delivered to FERC by December 15, 2015. This will require regular participation by the Working Group in facilitated meetings and field reviews, as well as independent review of working drafts.

## **Schedule and Milestones**

The Team Leader will schedule three or more facilitated meetings where ideas and plans are discussed as a group. In addition, field reviews will be scheduled as need arises. These meetings will be held at Wanapum Dam and scheduled to accommodate as many Working Group participants as possible. The milestone dates shown below are intended as placeholders only, and may change depending on need and group availability.

- ◆ Facilitated review meetings May 20, July 8, September 9
- ◆ Review and comment draft management plan, Aug 1 – Aug 21
- ◆ Review and comment final updated management plan, Nov 1 – Nov 21
- ◆ Submit updated management plan to FERC, Dec. 15

## **Communication Plan**

All activities or objectives that are refined or proposed by the Working Group are intended to be discussed as a group. The Team Leader will ensure all Working Group participants are afforded the opportunity to discuss proposed activities. The Team Leader will send meeting summary notes to all participants so all are aware of progress and expectations.



Grant County  
**PUBLIC UTILITY DISTRICT**

**2015 Wildlife Habitat Management Plan  
Meeting Agenda  
July 22, 2015 (1-4pm) HOB 118**

Phone Conference Line Information  
Dial 1-855-280-4PUD (4783)  
Extension 4609

**Meeting Intent/Goals**

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- Update and engage stakeholders in the 2015 WHMP process
- Review the intent of the WHMP, and reach agreement on process
- Identify management objectives or actions that require refinement

**AGENDA ITEMS**

- 1) Notes / Action Items from last meeting
- 2) Review plan outline
- 3) Review and discuss management objective matrices
- 4) Review plan update schedule
- 5) Action items & agenda topics for the next meeting

# Wildlife Habitat Management Plan Meeting 7/22/15

## Meeting Notes

### Attendees

Craig Broadhead (GCPUD), John Monahan (GCPUD), Patrick Verhey (WDFW), Chad Eidson (WDFW), Fiona McNair (GeoEngineers)(Call In)

- 1) Reviewed notes and action items from May 20 meeting. No comments.
- 2) The Group had a good discussion regarding the intent of the WHMP, and how it should be used. Everyone agreed that more of a long-range planning document, with a robust adaptive management approach to improving habitat, would be preferable to a five-year, short-term planning document. WDFW and Grant PUD favor enhanced communication and a collaborative approach to wildlife habitat management. This will increase the flexibility in Grant PUD management actions.
- 3) Discussion was had regarding increasing the flexibility in where Grant PUD habitat management actions might occur. Current FERC language of “within or immediately adjacent to the Project area” may limit more meaningful projects. Grant PUD is willing to investigate these opportunities, but enhanced communication will be needed to justify such actions. The Group agreed it would be good to meet and determine where high-value restoration projects may occur that can be tied to the fire suppression funding. Increased communication is warranted on defining these projects. Chad will set up a meeting with WDFW Wildlife regarding this item.
- 4) The Group discussed the use and application of mitigation ratios for habitat impacts within the current plan, and if the intent of mitigation is being met. Grant PUD and WDFW agree in principal that the 5:1 ratio for habitat restoration is often not workable, and both would like to see this objective refined to provide functional habitat restoration regardless of a ratio. It would also be helpful to refine and specify when mitigation for habitat impacts should be applied and how. The Group will continue to work on this objective as the plan update progresses.
- 5) In response to the question of limiting damage to high-value habitat sites, WDFW asked Grant PUD to explore funding or partially funding a LEO presence specific to the Project area. This has been done in the past, particularly during draw-down associated with the fracture. Patrick suggested a meeting with Enforcement to re-engage them. Grant PUD can look into this as an option, but there are several logistical details that would need worked out. Some type of pilot program may be in order. Grant PUD can add a general objective in the WHMP to work with law enforcement agencies and WDFW on increased patrols of high-value sites.
- 6) Patrick asked about the Shoreline Vegetation assessment following the fracture draw down. John stated discussions are still under way at the management level, and he is preparing a protocol for assessing vegetation.
- 7) For the purpose of updating the Wildlife Management Plan, the group agreed that a habitat-based approach would work the best to provide the greatest benefit to species, versus a species-specific approach. As an example, management actions regarding Shrub-Steppe would cover a suite of obligate species, rather than focusing on single species like sage grouse. The plan should describe this habitat approach.
- 8) The Group discussed options/feasibility regarding enhancement of aquatic habitat in the Priest Rapids Project with LWD, and the need for the LWD recruitment tool/management action. It was agreed that the

reservoirs were not the best place to invest in LWD for habitat, but Grant PUD is placing some LWD as part of the Crescent Bar off-island project. This will be a good test of functionality of habitat. Grant PUD and agencies may explore other places for LWD as habitat, particularly Burkett Lake. Caution should be used, to avoid damaging the bottom of the lake and causing draining issues. Patrick mentioned Grant PUD should determine how to manage Burkett Lake as a fishery, and let that drive any habitat enhancements. A possible enhancement measure discussed was floating mats for goose nesting, which would also provide fish cover habitat.

- 9) Regarding Buckshot as a habitat management area, the Group decided most of the objectives have been achieved and the site is functioning well. Grant PUD will keep Buckshot as a managed area within the WHMP, as Chad suggested the Recreation Agreement with WDFW makes the site easier to manage. The Group will investigate the functionality of the disabled hunting blind.
- 10) Work will start this fall at Sunland Estates, which involves over 8 acres of native plant restoration. This work fits within the objective of habitat restoration, and the Group agreed Sunland should be added to the WHMP as a priority site for management. It will be difficult in this plan revision to have specific objectives, but the Group agreed the adaptive management process should work to define objectives throughout the restoration process.
- 11) The Group briefly discussed the opportunity provided by Sunland restoration for advanced mitigation. WDFW thought this might be bit early, and recommended waiting to see how adjacent property owners react to the restoration process. Grant PUD will continue investigating Sunland restoration as a habitat restoration site, and pending future discussions, Patrick can engage Carmen Andonaegui to see how WDFW could best participate.
- 12) The idea was brought up by Grant PUD that the number of eagle use surveys per year could potentially be reduced and effort focused elsewhere. WDFW agreed this may be possible, but recommended contacting agency Wildlife Biologists to get their thoughts on reducing effort and continued adequacy of census data. See Action Item 4 below.
- 13) The Group again discussed the waterfowl nesting program, particularly the adequacy of providing nesting structures in lieu of active habitat enhancement or protection. Patrick mentioned he has had initial conversations with WDFW Wildlife program regarding the feasibility of this. Early comments from WDFW are that if the structures are working, leave the number and continue to manage. Another comment was to ensure that if funding and resources are shifted away from nest structures that Grant PUD should ensure continued emphasis is on waterfowl.
- 14) The Group agreed we should evaluate the species covered in the plan and whether or not continued management emphasis is necessary. In addition, several other species were mentioned by WDFW that may be considered for future actions in the management plan. These were sage grouse, badger, northern leopard frog, burrowing owl, and pygmy rabbit. Of these, sage grouse is most likely the species with the greatest management emphasis. The habitat management approach described in #6 above, specific to shrub-steppe habitat, would provide coverage for many of these species.
- 15) Grant PUD will provide an updated draft WHMP to stakeholders for review by the middle of August. This will allow time for review prior to the September meeting.

#### **Action Items**

- 1) Chad to set up meeting with Wildlife managers to discuss and prioritize appropriate use of fire funds.
- 2) Craig to get weed control records of Buckshot to Chad.

- 3) John to follow up with Patrick regarding letters of support for a restoration water right. Patrick mentioned he could work with Teresa Scott and possibly Steve Lewis (USFWS) on a letter.
- 4) Craig to provide eagle survey data to Bernie and Rich (WDFW) to determine if fewer surveys/year would yield adequate census numbers.
- 5) Craig to provide nest box utilization data to Chad/WDFW.
- 6) Chad to contact Matthew Wilson, State waterfowl biologist, for ideas and thoughts on enhancement other than nest tubes or goose tubs.
- 7) Patrick to check with Mike Schroeder for management guidelines regarding sage grouse.

**Next meeting**

The next Working Group meeting at Wanapum is tentatively planned for September 16. Pending availability, this meeting date may be changed to meet as many schedules as possible.

**Attachments**

Attached is the tentative schedule as discussed at the meeting.

Wildlife Habitat Management Plan Update										
Draft Project Schedule										
	April	May	June	July	August	Sept	Oct	Nov	Dec	
Kick-off meeting	■									
Draft Updated Management Plan	■	■	■	■	■	■	■	■	■	■
Stakeholder Review Draft Updated Plan					■	■				
Group Meeting/Discussion Dates		■		■		■		■		
Potential Field Review Dates			■	■	■	■				
Stakeholder Review Final Updated Plan								■	■	
Final Edits									■	■
Plan Submittal to FERC										■

## **Wildlife Habitat Management Plan Meeting 9/16/15**

### **Meeting Notes**

#### **Attendees**

John Monahan (GCPUD), Craig Broadhead (GCPUD), Fiona McNair (GeoEngineers), Doris Squeochs (Wanapum).

1. The Group provided an overview of the 2015 WHMP to Doris.
2. We discussed habitat management actions that would likely require Cultural Resource oversight and review including:
  - o Planting
  - o Drill seeding
  - o Planting of cottonwood trees or other riparian trees along the reservoir in culturally sensitive areas
  - o Tree cutting/removal
3. Doris commented that the Wanapum Tribe wants to work cooperatively/collaboratively to encourage wildlife habitat enhancement in the Project. She said she is willing to come out to sites on short notice to assess and monitor habitat management actions.
4. In closing, John Monahan mentioned that the Final Draft 2015 WHMP was scheduled to be submitted to the stakeholders in early November 2015.

## Wildlife Habitat Management Plan Meeting 10/22/15

### Meeting Notes

#### Attendees

John Monahan (GCPUD), Fiona McNair (GeoEngineers), Patrick Verhey (WDFW), and Chad Eidson (WDFW).

1. The Group reviewed comments from WDFW (Patrick Verhey and Gregory Fitzpatrick) on the Draft 2015 WHMP sent to stakeholders on August 25, 2015. Comments were reviewed and discussed in chronological order.
2. Major points discussed included:
  - Remove summaries of other License Article Requirements (Section 1.3).
  - Reduce details on Noxious Weed Management Plan (Section 3.1.4) and Raptor Nesting, Roosting and Perching Structures pertaining to License Article 414 (Section 3.3.2)
  - Future collaboration with WDFW on phragmites control technologies information sharing, assessing and identifying areas of the Project suitable for preservation, and discussing lessons learned and developing improved management actions/objectives.
  - Clarifying that management actions will not discourage natural processes
  - Clarifying and refining Section 3.1.2.2 (Mitigate for Unavoidable Loss to Wildlife Habitat)
  - Use native plants only
  - Clarify which actions were performed under Article 409 vs other Articles
  - Editorial comments
3. Patrick made a specific comment that focusing wildlife habitat enhancements at recreation sites is not the best use of resources.
4. In closing, John Monahan stated that the Final Draft 2015 WHMP was scheduled to be submitted to the stakeholders in early November 2015.

**Appendix E**  
**Stakeholder Comments on Final Draft of 2015 WHMP**

Submitting Entity	Date Received	Paragraph	Agency Comment	Grant PUD Response
Stephen Lewis, United States Fish and Wildlife Service (USFWS)	12/09/15	1	Thanks for providing an opportunity to review the Grant County PUD Wildlife Habitat Management Plan. Due to workload issues, we have not been able to attend the recent meetings for the wildlife charter group, but our level of participation will increase as the plan is finalized and the implementation phase begins for this updated version. We offer the following comments for your consideration. These comments pertain mostly to Section 3.1.2.2 Mitigate for Unavoidable Loss to Wildlife Habitat and Section 4.0 Adaptive Management.	Grant PUD appreciates working cooperatively with the USFWS to finalize and implement the 2015 Wildlife Habitat Management Plan for the Priest Rapids Project.
		2	Section 3.1.2.2: The 3:1 mitigation ratio seems to be reasonable in a general sense, but not all habitats are treated equal. So it's unclear why the ratio starts at 3:1 and immediately jumps to 1:1 for lower quality habitats. Why not have a 2:1 ratio for those intermediary habitats?	Grant PUD has added a fourth mitigation approach involving a 2:1 mitigation ratio scenario.
		3	Section 3.1.2.2: Who has the ultimate decision in determining whether a habitat warrants a 3:1 ratio or a 1:1 ratio?	Grant PUD staff will conduct the assessment and determine what mitigation ratio a habitat warrants using the steps listed under Section 3.1.2.2. Wildlife management plan stakeholders (workgroup members) will review and comment on the assessment and mitigation plan. Grant PUD has added language to this section indicating that a qualified Grant PUD biologist or qualified professional retained by Grant PUD will conduct the surveys and check publically available databases and maps.

		4	Section 3.1.2.2: Item 3 of this section is somewhat unclear. There is a reference to the development of a mitigation plan, but we suggest that each particular mitigation project is very specific and warrants the development of a separate plan for each one and include a component for determining success. Clarification of this item would be very useful.	The last step listed under Section 3.1.2.2 occurs after Grant PUD has determined that site meets the functional, unique, and irreplaceable habitat definitions. Grant PUD has modified the language in this section of the document to make sure it is clear that the process, after a mitigation ratio has been determined, involves development of a site-specific mitigation plan with performance standards and review by stakeholders..
		5	Section 4.0: It is not clear when the adaptive management mechanism can be initiated. The process is obviously outlined in the document, but who decides when it is initiated? Clarity on this issue would be helpful.	Section 4.1 states: “On an as needed basis, and at twice-yearly stakeholder meetings, Grant PUD will report to stakeholders on the status of actions that are in process. Grant PUD and stakeholders can evaluate findings and learn from performance.” Grant PUD will host at least two stakeholder meetings a year where they will provide updates on the progress and success of WHMP management actions. Stakeholders can comment and provide advice based on their own experiences and lessons learned.
		6	Section 4.0: Does a stakeholder needs to submit some form of written notice to initiate the adaptive management process?	Stakeholders may submit written notice throughout the year, however Grant PUD will also host at least two stakeholder meetings a year as stated above.
		7	Section 4.0: For example, if the USFWS proposes a project pertaining to sage-grouse in a particular within the 5 year check-in period, how would that particular project flesh out on the priority scale?	Grant PUD and the Wildlife Management Plan does not rate, prioritize or fund wildlife projects by stakeholders. However, Grant PUD is willing and interested in collaborating with stakeholders on projects within the Project Boundary. Any project concept that is consistent with this management plan and goals can be proposed to Grant PUD at any time.
Michael Lesky,	12/11/15	1	Just one comment and question, in the plan it states that GCPUD will partner with WDFW for	Section 3.1.3.2 of the 2015 WHMP lists the types of fire suppression measures funded by the

<p>Natural Resource Specialist, US Bureau of Reclamation</p>			<p>wildfire suppression and prevention and I think monies might be exchanged (Section 3.1.3 Fire Suppression Program Summary and Implementation).</p> <p>To my knowledge WDFW is not a fire suppression agency, I could be wrong, if I am not wrong what exactly is WDFW going to do to prevent or suppress fire. Reclamation has a management agreement with WDFW and they specifically tell me that they are not a fire suppression agency, that is DNR.</p> <p>Just curious to know more because if there has been a change then Reclamation would like to be involved in a fire suppression agreement since we do not have any fire crews or equipment. Also, are there plans to secure "Red Card" certification and training?</p> <p>Could you expand on this to me, thank you.</p>	<p>\$40,000 provided to WDFW annually. WDFW is responsible for annual reporting, when those funds are utilized. Plan language follows:</p> <p><i>“Funds from this account are to be used for: (1) revegetating burned areas, (2) revegetating areas known to burn frequently, with species carrying lesser fuel loads, (3) creating fire breaks in appropriate locations, and (4) paying for firefighting activities. The WDFW will submit a report to Grant PUD on or before February 15 of each year detailing the previous year’s expenses and summarizing all fire protection activities.”</i></p> <p>Uses have varied over the past 5 years.</p> <p>Grant PUD does not require certification or training credentials for the WDFW fire suppression funds. We recommend questions regarding certification etc. be directed to WDFW.</p>
<p>Patrick Verhey, Renewable Energy Biologist, WDFW Habitat Program</p>	<p>12/15/15</p>	<p>1</p>	<p>John, my apologies for the delay in WDFW getting comments back to you on the Wildlife Habitat Management Plan. Overall I am very pleased with the Plan.</p>	<p>Grant PUD appreciates working cooperatively with the WDFW to finalize and implement the 2015 Wildlife Habitat Management Plan for the Priest Rapids Project.</p>
		<p>2</p>	<p>One of the more substantive WDFW concerns the mitigation ratio. Currently, to meet all 3 objectives (functional, unique and irreplaceable) for higher than a 1:1 mitigation ratio is a high bar. Some high quality habitats will not meet that</p>	<p>Grant PUD, following additional consultation on the mitigation programs, has refined definitions and included 1:1, 2:1 and 3:1 mitigation ratios.</p>

			bar as currently defined under unique and irreplaceable habitat. One suggestion is to not place a high standard on whether species X currently occupies the habitat, but rather assess if habitat of the site could support species X. Many of the listed species have retracted ranges and do not occupy historical areas that still contain habitat. The plan might consider making a third mitigation category of 2:1 for lands that have the potential for species occupancy but are not “irreplaceable”. If you stick with the 1:1, we recommend ensuring the replacement habitat truly matches the habitat quality of the habitat impacted.	
		3	2.0 Project Area Habitat Inventory Recommend insertion of "WDFW managed" after Portions.	Comment noted and addressed.
		4	3.1.2.2 Mitigate for Unavoidable Loss to Wildlife Habitat Recommend including a brief list of applicable federal, state, and local regulations. For example WDFW's Hydraulic Project Approval (HPA) authority.	Comment noted and addressed.
		5	3.1.2.2 Mitigate for Unavoidable Loss to Wildlife Habitat There are areas of high quality habitat that are functional but may not meet both the Unique and Irreplaceable Habitat. Recommend that some areas need to be mitigated higher than 1:1 or mitigation parcels must meet all habitat qualities of habitat being taken.	Grant PUD, following additional consultation on the mitigation programs, has refined definitions and included 1:1, 2:1 and 3:1 mitigation ratios.
		6	3.1.2.2 Mitigate for Unavoidable Loss to Wildlife Habitat Devil is in the details here: Some of the animal species can be difficult to detect, so making sure	Grant PUD has included language adding detail to the assessment, mitigation design, and monitoring methodology.

			protocols include methods appropriate to the species and that qualified surveyors are used is key. Would also encourage them to submit PHS records if species or habitats are found.	
		7	3.1.3 Fire Suppression Program Summary and Implementation 3.1.3.1 Goals and Objectives Recommend inserting "target" prior to shooting. Recommend including "illegal discharge of fireworks" as a human cause of fires.	Comment noted and addressed.
		8	3.1.4 Noxious Weed Management and Control 3.1.4.1 Goals and Objectives Is this correct? Could you clarify which transmission line corridors are kept devoid of vegetations? Please be more specific.	Grant PUD added text clarifying that the Total Vegetation Management Program (TVMP) is a separate program managed under North American Electric Reliability Council (NERC) Electrical Reliability Standards FAC-003. TVMP lands are not devoid of vegetation but have specific standards required under FAC-003.
		9	3.2.1 Cliffs and Talus Slopes comma	Comment noted and addressed.
		10	Figure 2 Typical cliff and talus habitat in the Project Area How many sheep can you find in the photo? 3?	Grant PUD appreciates the careful review. Indeed we find 3 bighorn sheet in this photo as well.
		11	Figure 5 Typical Shrub/Steppe Habitat Recommend using a photo that does not showcase cheatgrass. But is representative of a healthy shrub/steppe habitat.	The habitat shown in the photo is representative of the majority of shrub/steppe habitat within the Project. The photo caption was changed to specify that it is representative of what is found in the Project Area.
		12	Figure 6 Typical Wetland Habitat Is that phragmites in the background. Do you have a photo of healthy wetland habitat?	The habitat shown in the photo is representative of the majority of wetland habitat within the Project. The photo caption was changed to specify that it is representative of what is found in the Project Area
	12/15/15	1	Table 2 Habitat Management Emphasis Areas, Objectives, and Target Species	Comment noted and addressed.

Scott Downes, Kittitas County Regional Habitat Biologist, WDFW (submitted comment in the same PDF as Patrick Verhey)			Cliffs and Talus slopes (target species) Peregrine Falcon should also be added to the list given its state listing (State Sensitive).	
		2	Table 2 Habitat Management Emphasis Areas, Objectives, and Target Species Riparian Areas Management Objectives Comment: These riparian areas are critical to passerine songbird migration along the Columbia River. Fire suppression in these areas are important.	Grant PUD agrees. Comment noted, no changes made to the document.
		3	Table 2 Habitat Management Emphasis Areas, Objectives, and Target Species Shrub/Steppe/Grassland (target species) I would add Loggerhead Shrike and possibly Sagebrush Sparrow to the list given their use of the area and both are SC.	Comment noted and addressed.
		4	Table 2 Habitat Management Emphasis Areas, Objectives, and Target Species Wetlands I would add American White Pelican to the list, given their use of the area and their listing status	Comment noted and addressed.
		5	3.3.3 Airstrip 3.3.3.1 Goals and Objectives Conduct site-clean up by removing old buildings and debris. Recommend evaluating current use of old buildings by bats; bats often use such sites for roosting and these areas can provide important habitat for bats that are lacking in other areas. If bats are found to be present and buildings must be removed, think of ways that bat boxes can be placed in areas to mitigate for impact.	Debris located at the Airstrip site was cleaned up between 2009 and 2013. No buildings suitable for bats were present at the site.
		6	3.3.3 Airstrip 3.3.3.2 Management Actions Summary Recommend deleting this section [Bald Eagle Perch/Roosting Protection Improvements (Article	At stakeholder meetings during development of the 2015 WHMP, Patrick Verhey requested deleting or clearly identifying habitat management actions completed under other License Articles. Raptor pole placement was a

			414)] as it is not the result of the implementation of the WHMP.	specific requirement in License Article 409, and that text remains. Text pertaining to License Article 414 was deleted.
		7	3.4 Waterfowl and Raptor Habitat Management While not waterfowl or raptors; consider adding some bat boxes to the riparian areas to be used by either breeding bats or migrational bats that do use these riparian areas along the Columbia. Bats can be an important component of the ecosystem and roosting areas are often limited.	Comment noted. The FERC license specifically calls for raptor poles, wood duck boxes, mallard tubes and goose tubs. Compliance with these requirements is documented in this report. No changes have been made to text of the report or plan regarding bats.
		8	Appendix C Looks like a few priority bird species are missing. Should add: --American White Pelican-use the project area to feed --Golden Eagle-nest in the area --Peregrine Falcon-nest in the area --Loggerhead Shrike-nest in the area --Might consider Sagebrush Sparrow-may nest in the area, though much more common on surrounding upland shrub-steppe lands Also might consider grouping by animal type; i.e. birds, mammals, herps. Current format is difficult to follow.	Comment noted and addressed.