

Wallowa Falls Hydroelectric Project
FERC Project No. P-308
Revised Study Plans - Terrestrial
December 2011

Prepared by:
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Hydro Resources
825 NE Multnomah, Suite 1500
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For Public Review

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1.0 INTRODUCTION

PacifiCorp Energy filed a Notice of Intent (NOI) and the associated Pre-Application Document (PAD) to commence the Federal Energy Regulatory Commission's (FERC) Integrated Relicensing Process (ILP) of the Wallowa Falls Hydroelectric Project on February 22, 2011. As part of the FERC Integrated Relicensing Process, prospective license applicants are required to submit relevant resource study plans (18 cfr 5.11).

During compilation of the PAD, PacifiCorp found there was limited information on terrestrial species and habitat specific to the Project Area. However, through agency comments on the PAD, review of historical documents, review of applicable and available databases, PacifiCorp was able to identify adequate information to indicate that rare plants, protected wildlife species, and their associated habitats exist within the Project Area.

In consideration of available information, PacifiCorp proposes 5 terrestrial resource studies to gain information on local resources and potential impacts of the Wallowa Falls Hydroelectric Project on these resources.

Proposed studies include:

- Special Status Plant Study
- Noxious Weed Study
- Riparian and Wetland Study
- Vegetation Cover Type Study
- Wildlife Observation Study

This Study Plan is intended to fulfill 18 cfr 5.9(b) of the FERC Integrated License Process and contains the following information:

1. A description of the goals and objectives of each study proposal and the information to be obtained;
2. If applicable, explanation of relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
3. If the requester is not a resource agency, explanation of any relevant public interest considerations in regard to the proposed study;
4. Description of existing information concerning the subject of the study proposal, and the need for additional information;
5. Explanation of any nexus between Project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results will inform the development of license requirements;
6. Explanation how any proposed study methodology is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge;

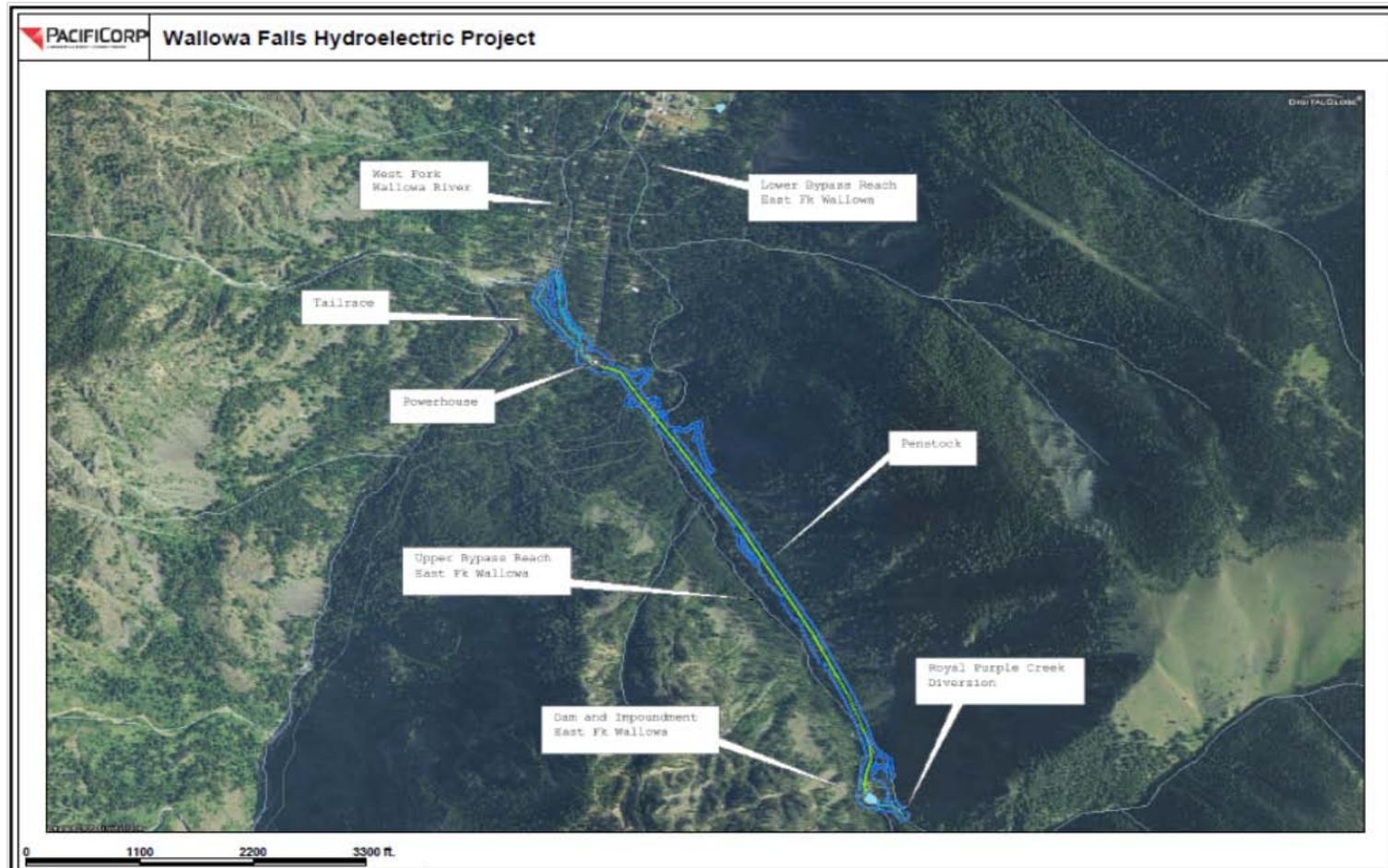
7. Describe considerations of level of effort and cost, as applicable, and why proposed alternative studies would not be sufficient to meet the stated information needs.

2.0 PROJECT AREA

The Wallowa Falls Hydroelectric Project is located on the East Fork Wallowa River approximately 11 miles outside of the City of Joseph in Northeastern Oregon. The Project (Figure 2.0.1) impoundment/forebay lies over 1,600 meters above mean sea level. The Project operates as run-of-river; therefore there is no measurable storage. Water is instead diverted from the forebay into a flow line and penstock to the generating turbine in the Project powerhouse. Water exits the turbine and flows into an approximately 300 meters long tailrace channel that discharges into the West Fork Wallowa River. This channel has an average wetted-width of 3.1 meters and an average depth of 0.3 meter. Other specific components of the Project include:

- (1) a 0.6-meter high, 2.8-meter-long concrete diversion dam with a 0.3-meter-wide spillway on Royal Purple Creek, which is a tributary to the East Fork Wallowa River and at elevation 1,824 meters;
- (2) a 75-meter-long, 20-centimeter diameter PVC (polyvinyl chloride) pipeline discharging flows into the Wallowa Falls forebay approximately 62.5 meters upstream of the East Fork Wallowa River dam;
- (3) an 5.5-meter-high, 38-meter-long, buttressed rock-filled timber crib dam with impervious gravel and asphalt core, having a 9-meter-wide spillway, at elevation 1766 meters on the East Fork Wallowa River;
- (4) a 0.2-acre forebay;
- (5) a 1,734-meter-foot-long steel penstock varying in diameter from 46 centimeters to 41 centimeters;
- (6) a powerhouse containing a single generating unit with a rated capacity of 1,100 kilowatt operating under a head of 356 meters producing an average annual energy output of 7.0 GWh;
- (7) a tailrace discharging Project flows into the West Fork Wallowa River; and,
- (8) a 6-meter-long, 7.2-kilovolt (kV) transmission line which connects to Wallowa Falls substation.

Figure 2.0.1. Wallowa Falls Hydroelectric Project



The bypassed portion of the East Fork Wallowa River within and near the Project Boundary is approximately 2,800 meters long from the Project diversion dam to its confluence with the West Fork Wallowa River. Gradient in this reach is high, with the upper 1,600 meters (i.e., the area between the falls and the dam) averaging approximately 19 percent and the lower 1,200 meters (i.e., the area between the falls and the confluence with West Fork Wallowa River) averaging 8.5 percent. Habitat type within the Project Area is typical of mountain valleys in that it is constrained by steep topography and mountain peaks and the valley floor and lower slopes are largely forested with areas of exposed ridges, rock outcrops, and talus slopes. The Project is adjacent to the Eagle Cap Wilderness boundary, which is known to support several rare, threatened, and endangered, and/or special status plant and wildlife species.

Figure 2.0.1 shows the overall Project vicinity and major Project features. Appendix A has the baseline relicensing maps that show the overall Project Area, major Project features, the proposed Project Boundary, and the Study Area for the terrestrial study plans.

3.0 PROPOSED TERRESTRIAL STUDIES IDENTIFIED IN PRE-APPLICATION DOCUMENT

3.1 Special Status Plant Study

3.1.1 Study Description and Objectives

The goal of the special status plant study is to identify and map any populations of special status plants within the Study Area. Special status plants are plants that are included on one or more of the following list(s) identified below and have reasonable potential to exist within the Study Area.

- United States Fish and Wildlife Service (USFWS) status that is Listed Endangered, Listed Threatened, Proposed Endangered, Proposed Threatened, Candidate, Species of Concern, and Partial Status
- Oregon Department of Agriculture Status that is Listed Endangered, Listed Threatened, Proposed Endangered, Proposed Threatened, and Candidate
- Oregon Biodiversity Information Center (ORBIC) List 1 or 2
- Regional Forester's Special Status Species Lists for Sensitive Non-Vascular and Vascular plants on the Wallowa-Whitman National Forest
- Wallowa-Whitman National Forest Strategic Plant Species List

Appendix B provides a list of the ORBIC vascular plant special status plant species in Wallowa County, their United States Fish and Wildlife Status, Oregon Department of Agriculture, and ORBIC status, brief description of habitat, and whether or not the species or its associated habitat is known to exist within in the Project vicinity. This list was originally compiled as Table 3.5-2 in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice

of Intent to Relicense and Pre-Application Document (PacifiCorp 2011). The United States Fish and Wildlife Species list for Wallowa County, Regional Forester's Special Status Species Lists for Sensitive and Strategic Non-Vascular and Vascular Plants on the Wallowa-Whitman National Forest is also provided in Appendix B.

Special status plant species found within the Study Area will be assessed for potential impacts from Project operations and provide measures to protect the population will be identified.

3.1.2 Resource Management Goals

The Wallowa-Whitman National Forest's forest management diversity and threatened, endangered, and sensitive species goals support the objectives of this study. The applicable goals are as follows (USFS 1990):

“To maintain native and desirable introduced or historic plant and animal species and communities. Provide for all seral stages of terrestrial and aquatic plant associations in a distribution and abundance to accomplish this goal. Maintain or enhance ecosystem function to provide for long-term integrity and productivity of biological communities.”

“To protect and manage habitat for the perpetuation and recovery of plants, animals, and invertebrates which are listed as threatened, endangered, or sensitive. To assure that management activities do not jeopardize the continued existence of sensitive species or result in adverse modification of their essential habitat.”

The United States Fish and Wildlife Service is the principal federal agency for administering the Endangered Species Act for imperiled plant species. Under the Endangered Species Act all federal agencies are to use their existing authority, and in consultation with the United States Fish and Wildlife Service, to conserve threatened and endangered species. This applies to the management of federal lands, federal actions, and federally-approved private actions (United States Fish and Wildlife Service 2011a).

The Oregon Department of Agriculture is the regulatory agency that administers the Oregon Endangered Species Act for state listed plants. The regulatory authority is for state-listed plants and extends only to non-federal public lands, such as state, city, county, public schools, and utilities (ORBIC 2010a).

3.1.3 Existing Information

Several data sources have identified *Botrychium* species within the Project Area, and in particular near the Project forebay. The ORBIC database has 1991 record of *Botrychium montanum* in the Project Area (ORBIC 2010b). In 1992, this plant was identified again during a botanical survey that was conducted as part of the Wallowa Falls Dam Reparation Project (PacifiCorp 1993). *Botrychium* species were relocated, but were unable to be distinguished to species. In addition, this survey identified over 157 plant species that

include 12 species of trees, 22 species of shrubs, 94 species of forbs/herbs, 6 species of ferns, and 23 species of grasses (PacifiCorp 1993).

The United States Forest Service (USFS) provided Geographic Information Systems (GIS) data received in an email from Mike Gerdis to Russ Howison on August 2, 2010 identified both *Botrychium minganense* and *Botrychium montanum* were located near the forebay on August 4, 1991. Comments received from USFS on the PAD on June 23, 2011 identified *Botrychium montanum*, *Botrychium minganense* and *Botrychium pinnatum* as being present in the Project vicinity, at or near the forebay, as well as further up in the drainage (USFS 2011b).

3.1.4 Nexus to Project

Wallowa Falls Hydroelectric Project is a run-of-river Project. Annual maintenance is typically conducted between June and August every year and may include vegetation management, forebay flushing, erosion control, and road and water conveyance system maintenance. Each of these actions has the potential to either directly or indirectly have affects to a native plant community by causing soil disturbance, having an herbicide application, and/or fluctuations in hydrology. This study will identify any rare plant locations within the Study Area, assess Project-related effects to the rare plants, and identify management practices to avoid or minimize impacts to the rare plant populations.

3.1.5 Study Area

The Study Area will include all lands owned by PacifiCorp or USFS that are within 100-meters of a Project facility as shown in Appendix A. This will include the entire area within the proposed Project Boundary as described in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document (PacifiCorp Energy 2011).

3.1.6 Methods

3.1.6.1 Pre-field Review

Prior to conducting field surveys, the special status plant lists will be updated, existing data will be compiled, literature review will be conducted, and a survey strategy developed. The list of special status plants will be compiled by reviewing current versions of the lists provided above in the Study Description and Objectives section and in Appendix B, as well as the ORBIC Plant Rare, Threatened, and Endangered Species of Oregon list.

A review of existing data will be compiled on special status plant species location within the vicinity of the Project (i.e. 2 miles of the Project Area). This data will be from all accessible data sources that will include, but is not limited to, PacifiCorp's 1993 Biological Evaluation (PacifiCorp 1993), ORBIC database, and available USFS data resources.

A literature review will be completed to determine special status plant species habitat and their habitat potential within the Study Area. This will be used to identify the low, moderate, and high habitat potential areas within the Study Area. Finally a survey strategy to maximize

effort in high and moderate habitat potential areas and still provide adequate coverage of the Study Area will be developed.

3.1.6.2 Field Surveys

Field surveys will be conducted by a qualified botanist and will use the currently accepted Intuitive-Controlled Methodology, as described in “Survey protocols for survey and manage strategy 2 vascular plants” (Whiteaker et al. 1998). In an intuitive controlled survey the botanist searches for special status plants while traversing the entire Study Area to see a representative cross section of the major habitats and topographic features (Whiteaker et al. 1998). Study areas should be surveyed intensively enough to locate all major topographic features and high probability areas and to have a representative cross-section of minor topographic features, plant associations, and moderate to low probability areas (USFS 2011). This can generally be accomplished by physically surveying at least 40 percent of the total Study Area with leaving no more than 5 percent of the Study Area not surveyed, assuming the route is walked and has a wide observational swath (USFS 2011). Areas identified as having a known record of a special status plants in the pre-field review and that may be affected by Project operations, such as the areas near the dam and forebay will be intensely surveyed to cover 100 percent of the area.

Appropriate field survey time in the Wallowa-Whitman National Forests is typically between April and September, but is dependent on both climatic conditions and topography (USFS 2011). Actual survey dates will be refined to include the phenology of special status plants that have a high likelihood of occurring within the Study Area and adjusted for the climatic condition for the 2012 growing season. Two surveys will be conducted during the 2012 growing season; one in spring to early summer (e.g. May through June) and one in the late summer (e.g. July through August).

Survey methods and processes will be documented using methods described in the Documentation Section of Wallowa Falls Botanical Inventory Methodology (USFS 2011), and Threatened, Endangered, and Sensitive Plants Survey Field Guide (USFSa 2005). Both of these documents are provided in Appendix C. All special status plants species located within the Study Area will be documented according to the instructions in Documentation Section of Wallowa Falls Botanical Inventory Methodology and the Threatened, Endangered, and Sensitive Plants Element Occurrence (USFSb 2005), which are also provided in Appendix C.

3.1.7 Progress Reporting

A study progress meeting will be held in October of 2012. A study progress report (draft Technical Report) will be made available for 30 day stakeholder review and comment in November, 2012. Stakeholder comments will be addressed in the initial study report. The initial study report will be made available for review in mid January, 2013; followed by an initial study report meeting in late January, 2013.

3.1.8 Final Product

A final Technical Report will be made available for stakeholder review in June, 2013. The final Technical Report will describe the pre-field review methods and findings, field survey methods, schedule, and results. Maps will include the Study Area, major Project features (e.g. powerhouse, roads, dam etc), survey routes, and special status plant locations. The report will discuss any Project effects on special status plants and possible mitigation measures.

3.1.9 Schedule

Component	Completion Date
Pre-field review	February-April 2012
Spring/Early Summer Survey	May-June 2012
Late Summer Survey	July-August 2012
Study Progress Meeting	October 2012
Study Progress Report	November 2012
Initial Study Report filed with FERC	January 2013
Initial Study Report meeting	January 2013
Meeting Summary filed with FERC	February 2013
Final Technical Report*	June 2013

* Assumes one season of data collection.

3.1.10 Level of Effort and Cost

Activity	Labor	Per-Diem	GIS	Total
Pre-field Review	\$5,700	\$0	\$2,850	\$8,550
Spring/Early Summer Survey	\$7,695	\$2,000	\$0	\$9,695
Late Summer Survey	\$7,695	\$2,000	\$0	\$9,695
Reporting	\$11,400	\$0	\$4,750	\$ 16,150
Total	\$32,490	\$4,000	\$7,600	\$44,090

3.1.11 References

Oregon Biodiversity Information Center. 2010a. Rare, Threatened and Endangered Species of Oregon. Institute for Natural Resources, Portland State University, Portland, Oregon. 105pp.

Oregon Biodiversity Information Center. 2010b. June 29, 2010. Oregon Biodiversity Information Center data system for rare, threatened and endangered plant and animal records within one mile of the Wallowa Falls Dam Project in T 03S R 45E Sections 29, 32, and 33, WM. Unpublished report for Kendel Emmerson, PacifiCorp Energy.

PacifiCorp. 1993. Biological Evaluation Plant Species Wallowa Falls Dam Reparation Project. Prepared by Campbell-Craven Environmental Consultants. April 15, 1993.

PacifiCorp. 2011. Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document. February 2011. Portland, Oregon.

United States Forest Service. 1990. Land and Resource Management Plan Wallowa-Whitman National Forest, as amended. United States Forest Service. On the web: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5260139.pdf.

United States Forest Service. 2005a. Threatened, Endangered, and Sensitive Plant Survey Field Guide. United States Forest Service. March 2005. Washington D.C.

United States Forest Service. 2005b. Threatened, Endangered, and Sensitive Plants Element Occurrence. United States Forest Service. On the web: www.fs.fed.us/r6/sfpnw/issssp/documents/inventories/inv-sp-tesp-eo-field-guide-2008-02.doc

United State Fish and Wildlife Service. 2011a. Endangered Species Program Overview. On the web: <http://www.fws.gov/endangered/about/index.html>.

United States Forest Service. 2011b. Wallowa Falls Hydroelectric Project, FERC Project No. 308-005 Comments on Pre-Application Document, Comments on Scoping Document No. 1, and Study Requests. On the web: <http://www.pacificorp.com/wallowafalls>.

Whiteaker, L., J. Henderson, R. Holmes, L. Hoover, R. Leshner, J. Lippert, E. Olson, L. Potash, J. Seever, M. Stein, and N. Wogen. 1998. Survey protocols for survey and manage strategy 2 vascular plants. Version 2.0. December, 1998.

3.2 Noxious Weed Study

3.2.1 Study Description and Objectives

Noxious weeds are becoming an increasing threat to native plants and habitat loss. The Wallowa Falls Hydroelectric Project is at the gateway of recreational access to the Eagle Cap Wilderness Area and is therefore vulnerable to noxious weed infestations that if left untreated could promote the spread of noxious weeds into the pristine habitats of the Eagle Cap Wilderness Area. The noxious weed study will develop baseline information on existing weeds within the Study Area and identify potential management practices for detection, control, and prevention.

The goal of the noxious weed study is to identify and map noxious weed populations on the lands and aquatic areas within the Study Area. The study will include all terrestrial and aquatic noxious weeds on the Oregon State Noxious Weed List and the Wallowa County Noxious Weed List (Appendix D). If a noxious weed is identified within the Study Area measures to control and prevent further infestation will be identified.

3.2.2 Resource Management Goals

The Wallowa-Whitman National Forest's forest management insects and disease (pests) goal is to control Forest pests to levels that are compatible with resource objectives (USFS 1990). This is achieved through implementing the following standards and guidelines (USFS 1990):

Integrated Pest Management. Use Integrated Pest Management (IPM) strategies for early detection, suppression and prevention of Forest pests and to manage pests within the constraints of laws and regulations IPM strategies include manual, mechanical, cultural, biological, chemical, prescribed fire, and regulatory means.

Control of Noxious Weeds. Aggressively pursue control of identified noxious weeds on lands where such activities are not precluded by management area direction.

Monitoring. Develop monitoring and enforcement plans for site-specific projects

3.2.3 Existing Information

To date PacifiCorp Energy is not aware of any noxious weed inventory of the Study Area and the only documented noxious weed within the Project Boundary is oxeye daisy (*Leucanthemum vulgare*) (USFS 2011). The USFWS identified a potential aquatic noxious weed in the forebay during a May 11, 2011 site visit, therefore the noxious weed survey will focus attention on the forebay. Oregon Department of Agriculture's Weedmapper database is a collection of weed locations collected from federal, state, county and local weed agencies and it has identified several state listed noxious weeds in the vicinity of the Study Area (Oregon Department of Agriculture 2011). These species include Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), meadow hawkweed (*Hieracium pretense*), myrtle spurge (*Euphorbia myrsinites*), spotted knapweed (*Centaurea maculosa*), and tansy ragwort (*Senecio jacobaea*).

3.2.4 Nexus to Project

The Project's proximity to a popular wilderness access point makes the Study Area vulnerable to noxious weed infestations and Project operations may introduce, spread, or promote noxious weeds. Routine annual maintenance is conducted as needed and may include vegetation management, accessing the dam and forebay with an all-terrain vehicle, forebay flushing, erosion control, road maintenance, and water conveyance system maintenance. Each of these actions has the potential to promote noxious weeds by introducing new noxious weed seed into an area or by disturbing soils and exposing an area for infestation. This study will identify existing noxious weeds within the Study Area, assess Project operations that may promote or spread noxious weeds, and identify management practices to detect, control, and prevent noxious weeds.

3.2.5 Study Area

The Study Area will include all lands owned by PacifiCorp or USFS that are within 100-meters of a Project facility as shown in Appendix A. This will include the entire area within the proposed Project Boundary as described in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document (PacifiCorp Energy 2011).

3.2.6 Methods

3.2.6.1 Pre-field Review

Prior to conducting field surveys, a noxious weed list for the Study Area will be compiled from the current Oregon Department of Agriculture's State Noxious Weed List and Wallowa County Noxious Weed list. Both of these lists are provided in Appendix D. These lists will be updated, if needed, to include 2012 weeds prior to doing the field surveys. The list will only include weeds on the State Noxious Weed List that are known or suspected to exist in Wallowa County.

A review of existing data will be compiled on noxious weed location within the vicinity of the Project (i.e. 2 miles of the proposed Project Boundary). This data will be from all easily accessible data sources such as www.weedmapper.org (ODA 2011), and Wallowa-Whitman National Forest.

The Study Area will be assessed to identify areas with high, medium, and low potential for noxious weeds as defined below. This information will be used to develop a survey strategy that will maximize efforts in the high potential areas and provide adequate, but a reduced effort, for moderate and low potential areas.

- High potential areas: areas with frequent or continued soil disturbance, frequent or constant exposure to weed seed vectors, or is known to have existing noxious weeds. Examples of this would include the campground, forebay, parking lot, and portions of the USFS trail within the Study Area.

- Medium potential area: areas with prior or frequent soil disturbance, but has low exposure to weed seed vectors. Examples of this would include the forebay access road, penstock, and forebay.
- Low potential areas: areas that have intact soils and a low exposure to weed seed vectors. Examples of this would include talus slopes and forested areas away from high potential areas.

3.2.6.2 Field Surveys

Field surveys will be conducted by a qualified botanist and will use the currently accepted Intuitive-controlled methodology, as described in “Survey protocols for survey and manage strategy 2 vascular plants” (Whiteaker et al. 1998). In an intuitive controlled survey the botanist searches for noxious weeds while traversing the entire Study Area to see a representative cross section of the major habitats and topographic features (Whiteaker et al. 1998). Study areas should be surveyed intensively enough to cover 100 percent of areas identified as high potential, 50 percent of the areas identified as medium potential, and 10 percent of the areas identified as low potential.

Appropriate field survey season for native plants in the Wallowa-Whitman National Forests is typically between April and September, and it is assumed that this will also be the survey season for noxious weeds (USFS 2011). Actual survey dates may be refined to include the phenology of noxious weeds that have the high likelihood of occurring within the Study Area and adjusted for the climatic condition for the 2012 growing season. Two surveys will be conducted during the 2012 growing season; one in spring to early summer (e.g. May through June) and one in the late summer (e.g. July through August).

All noxious weeds, terrestrial or aquatic, located within the Study Area will be documented on the Noxious Weed Plant Occurrence Record form provided in Appendix D. Complete instructions for marking, mapping, and documenting noxious weeds are provided in Appendix C, Wallowa Falls Botanical Inventory (see sections e, 1c, 1d, 1f, 3d, and 4) (USFS 2011).

3.2.7 Progress Reporting

A study progress meeting will be held in October of 2012. A study progress report (draft Technical Report) will be made available for 30 day stakeholder review and comment in November, 2012. Stakeholder comments will be addressed in the initial study report. The initial study report will be made available for review in mid January, 2013; followed by an initial study report meeting in late January, 2013.

3.2.8 Final Product

A final Technical Report will be made available for stakeholder review in June, 2013. The final Technical Report will describe the pre-field review methods and findings, survey strategy and schedule, survey results, and best management practices to detect, prevent, and

control noxious weeds within the Study Area. The report will include a map that shows the Study Area, major Project features, the high and medium potential areas, surveyed routes, and noxious weed locations.

3.2.9 Schedule

Component	Completion Date
Pre-field review	February-April 2012
Spring/Early Summer Survey	May-June 2012
Late Summer Survey	July-August 2012
Study Progress Meeting	October 2012
Study Progress Report	November 2012
Initial Study Report filed with FERC	January 2013
Initial Study Report meeting	January 2013
Meeting Summary filed with FERC	February 2013
Final Technical Report*	June 2013

* Assumes one season of data collection.

3.2.10 Level of Effort and Cost

Activity	Labor	Per-Diem	GIS	Total
Pre-field Review	\$1,900	\$0	\$1,425	\$3,325
Spring/Early Summer Survey	\$4,370	\$1,200	\$0	\$5,570
Late Summer Survey	\$4,370	\$1,200	\$0	\$5,570
Reporting	\$7,600	\$0	\$2,850	\$10,450
Total	\$18,240	\$2,400	\$4,275	\$24,915

3.2.11 References

Oregon Department of Agriculture. 2011. June 12, 2011 Weedmapper data for Wallowa County. On the web: http://www.weedmapper.org/wallowa_maps.html.

PacifiCorp Energy 2011. Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document. February 2011. Portland, Oregon.

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3.3 Riparian and Wetland Study

Wetland and riparian areas are important habitats because of the diverse mix of physical, structural, and biotic characteristics. Due to the unique habitat features of wetlands and riparian areas and because they serve as natural corridors or migration routes that connect patches of suitable habitat in the landscape, it is estimated that 75 percent of terrestrial wildlife species in the Blue Mountains depend on or utilize riparian and wetland areas (USFS 2010a). A Riparian and Wetland Study to assess and identify these areas is appropriate for the Wallowa Falls Hydroelectric Project.

3.3.1 Study Description and Objectives

The goal of the riparian and wetland study is to identify and map the estimated boundary of wetlands and the ordinary high water mark for rivers and streams within the Study Area. Once these areas are identified, the appropriate Riparian Habitat Conservation Area standard widths will be derived from appropriate category as described in the Wallowa Whitman Land and Resource Management Plan, as amended (USFS 1990, USFS 1995):

Table 3.3-1 Riparian Habitat Conservation Area Widths

Riparian Habitat Conservation Area Category	Minimum Riparian Habitat Conservation Area Standard Widths
Category 1 - Fish-bearing Stream	Stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance, whichever is the greatest.
Category 2 - Permanently-flowing non-fish bearing streams	Stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance, whichever is the greatest.

Riparian Habitat Conservation Area Category	Minimum Riparian Habitat Conservation Area Standard Widths
Category 3 – Ponds, lakes, reservoirs, and wetland greater than 1 acre	Consists of the body of the water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonal saturated soil, or the extent of moderately and highly unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake, whichever is greatest.
Category 4 - Seasonally-flowing or intermittent streams, wetlands less than 1 acre, landslides and landslide-prone areas	Must include: a. the extent of landslides and landslide prone areas b. the intermittent stream channel and the area to the top of the inner gorge. c. the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation. d. for watersheds identified as key or priority watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide prone area to a distance equal to the height of one-site potential tree, or 100 feet slope distance, whichever is greatest. e. for watersheds not identified as key or priority watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide prone area to a distance equal to the height of one-half site potential tree, or 50 feet slope distance, whichever is greatest.

Additional study objectives will include:

- describing the existing riparian and wetland habitat location, extent, and conditions,
- assess the Project operational effects on the riparian and wetland function in the Study Area, and
- identify any potential management measures or opportunities to protect and improve wetland or riparian habitat condition.

3.3.2 Resource Management Goals

The Wallowa-Whitman National Forest Land and Resource Management Plan watershed goal, which includes riparian and wetland areas, is to maintain or enhance the unique and valuable characteristics of riparian areas and to maintain or improve water quality, streamflows, wildlife habitat, and fish habitat (USFS 1990). This plan was amended in 1995 to include the PACFISH interim management direction that establish Riparian Habitat Conservation Areas for streams, wetlands, and landslide-prone areas and to provide standards and guidelines, and riparian management objectives for activities that potentially affect riparian habitat conditions, such as recreation and road management (USDA 1995).

3.3.3 Existing Information

The National Wetland Inventory is the only information on riparian and wetlands within the Study Area. It identifies the forebay as 0.44 acre freshwater pond, or more specifically as a

wetland that is palustrine consolidated bottom that is permanently flooded by a dike (USFWS 2010).

3.3.4 Nexus to Project

The Wallowa Falls Hydroelectric Project is operated as a run-of-river Project. Under the current license, daily/seasonal ramping rates, flushing flows, reservoir operations, or flood control operations are not specified. These fluctuations in hydrology can have a direct effect on riparian habitat and on hydrologically connected wetlands. Additionally, routine maintenance can include vegetation management, forebay flushing, erosion control, and road and water conveyance system maintenance. Each of these actions has the potential to either directly or indirectly affect a riparian or wetland area.

This study will identify the riparian and wetland areas, determine appropriate buffers, assess Project-related effects, and identify management practices to avoid or minimize impacts.

3.3.5 Study Area

The Study Area will include all lands and aquatic areas that are owned by PacifiCorp or USFS that are within 100-meters of a Project facility as shown in Appendix A. This will include the entire area within the proposed Project Boundary as described in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document (PacifiCorp Energy 2011).

3.3.6 Methods

Wetland and riparian boundaries will be determined in the field using best professional judgment and hydrology, soil, and vegetation characteristics as described in Wetland Delineation Manual (United States Army Corp of Engineers 1987), Regional Supplements to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Range (United States Army Corps of Engineers 2010), Oregon Administration Rules 141-085-0010 (146) Ordinary High Water Line, and Determining the ordinary high water mark on Streams in Washington State (Olson and Stockdale 2010).

3.3.6.1 Pre-field Review

A review of existing information, aerial imagery, topography, and other available data sources will be conducted prior to beginning field work. This may include available and pertinent data sources from the USFS and other state and federal agencies. The Natural Resource Conservation Service's Wallowa County Soil Survey maps will be reviewed to identify if and where hydric soils exist within the Study Area (Natural Resource Conservation Service 1996).

3.3.6.2 Field Surveys

To locate the wetland/riparian areas, field personnel will traverse through the Study Area to observe a representative sample of all major plant communities and topographic features. Areas will be observed more closely when topographic features (e.g. draws and depressions)

and/or vegetation (e.g. willows) that may support wetland or riparian areas are observed or if the area has been identified as a wetland or riparian area in pre-field data review.

Riparian area and wetlands were combined into a single study because they are closely associated to each other and are evaluated using the same environmental parameters: soil, vegetation, and hydrology. However, these parameters are defined and evaluated differently for wetlands and riparian areas. Therefore, once a stream and/or wetland is located, the boundary will be assessed differently using the methods described below.

The preferred time to indentify wetland and riparian parameters is during the growing season and following peak average flows, which is typically between mid-June and August. As such, field surveys will be completed in 2012.

3.3.7 Wetland

Wetlands will be determined based on methods and environmental parameters (vegetation, hydrology and obvious soil characteristics) as described in Wetland Delineation Manual (United States Army Corp of Engineers 1987) and the Regional Supplement for Western Mountains, Valleys, and Coast Region (United States Army Corp of Engineers 2010). Once a wetland is identified it will be classified according to the United States Fish and Wildlife Classification System (Cowardin et al. 1979).

3.3.7.1 Vegetation

Vegetation will be evaluated using the “Rapid Test for Hydrophytic Vegetation” method as described in the Regional Supplement for Western Mountains, Valleys, and Coast Region (United States Army Corps of Engineers 2010). This is where all dominant species across all strata are rated as Obligate or Facultative Wet, or Facultative based on the latest plant list approved by United States Army Corp of Engineers for the Northwest Region 9. The stratum is defined as having 5 percent or more total plant cover. If a stratum has less than 5 percent cover during the peak of the growing season, then those species and their cover values can be combined into another stratum for sampling purposes. For example, if either the tree or woody vine strata have less than 5 percent cover, then any trees or vines present may be combined with the sapling/shrub stratum (United States Army Corps of Engineers 2010). For the western mountain region the strata are as follows:

Tree stratum– Consists of woody plants 3 in. or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum– Consists of woody plants less than 3 in. DBH, regardless of height.

Herb stratum– Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size.

Woody vines– Consists of all woody vines, regardless of height.

3.3.7.2 Hydrology

Wetland hydrology is defined as the area that is inundated either permanently or periodically at mean depths less than 6.6 ft or soil that is saturated to the surface at some time during the growing season of the prevalent vegetation. This will be determined by observing any of the following (United States Army Corps of Engineers 2010):

- Surface water
- High water table
- Saturation

Evidence of recent inundation include: water marks, sediment deposits, drift deposits, algal mat or crust, iron deposits, surface soil cracks, sparsely vegetated concave surface, aquatic invertebrates, water stained leaves, and drainage patterns.

3.3.7.3 Soils

Wetlands have soils that are classified as hydric when they possess characteristics that are associated with reducing soils conditions (United States Army Corps of Engineers 1987). Determining wetland soils will not be as apparent as the hydrology and vegetation indicators; therefore if an area has wetland vegetation and hydrology then no soil evaluation will be required. If an area meets the definition for wetland vegetation or hydrology, but not both, then soils will be more closely evaluated. Site information, other than vegetation and hydrology, that indicates hydric soils may include (United States Army Corps of Engineers 2010):

- Slope - the site is level or nearly level so that surface water would collect and not readily run off.
- Slope shape – Hillside with convergent slopes so the surface or groundwater is directed toward a central stream or swale.
- Landform – Soil is on a low terrace or floodplain that may be subject to seasonal high water tables or flooding or is at the toe of a slope where runoff may tend to collect or where groundwater may emerge at or near the surface.
- Soil materials – A restrictive layer in the soil could slow or prevent the infiltration of water, perhaps resulting in a perched water table or hill slope seep. Restrictive layers include consolidated bedrock, cemented layers, layers of silt or substantial clay content, or strongly contrasting soil textures (e.g., silt over sand).

3.3.8 Riparian

The edge of the active channel or ordinary high water mark for all streams and rivers within 300 feet of the Study Area will be identified and mapped using the methods based on

environmental parameters (vegetation, hydrology and obvious soil characteristics) as described in Oregon Administration Rules 141-085-0010 (146) Ordinary High Water Line, and Determining the ordinary high water mark on Streams in Washington State (Olson and Stockdale 2010).

3.3.8.1 Vegetation

Areas below the ordinary high water mark are frequently disturbed resulting in a lack of vegetation or will favor vegetation that can tolerate frequent disturbance, such as willows, cottonwoods, or grasses. Depending on the frequency of disturbance the ordinary high water mark may be the lowest extent of woody vegetation or totally void of vegetation.

3.3.8.2 Hydrology

Indicators to determine the extent of high water may occur during flood events that were well above the ordinary high water mark, therefore hydrological indicators should be combined with other parameters. Indicators for the ordinary high water marks include:

- The top of the zone of washed roots
- Clear natural line impressed on a bank
- Presence of litter and debris
- Silt stained leaves, silt lines on tree trunks
- Top of the zone of washed roots (roots exposed in the bank)
- Elevation of floating debris
- Elevation below which no fine debris (needles, leaves, cones) occur

3.3.8.3 Soils

Soil indicators may not be as apparent as high water and vegetation, but obvious soil changes such as the transition area between soil and rock, gravel, or cobble and the top of a bank.

3.3.9 Progress Reporting

A study progress meeting will be held in October of 2012. A study progress report (draft Technical Report) will be made available for 30 day stakeholder review and comment in November, 2012. Stakeholder comments will be addressed in the initial study report. The initial study report will be made available for review in mid January, 2013; followed by an initial study report meeting in late January, 2013

3.3.10 Final Product

A final Technical Report will be made available for stakeholder review in June, 2013. The final Technical Report will include a map that will show all streams and wetlands identified within the Study Area and the associated Riparian Management Areas. The report will describe the field methods and will discuss any problems or deviations from the described methods in the field. Wetlands will be included in the vegetation cover type dataset, whereas

streams will be provided as an individual dataset. The Project is not expected to require any construction, removal, or fill within streams, rivers, or wetlands. Therefore, this study's final product will not be used to fulfill permitting requirements associated with removal-fill authorization.

3.3.11 Schedule

Component	Completion Date
Pre-field review	February-April 2012
Field Survey	June-August 2012
Study Progress Meeting	October 2012
Study Progress Report	November 2012
Initial Study Report filed with FERC	January 2013
Initial Study Report meeting	January 2013
Meeting Summary filed with FERC	February 2013
Final Technical Report*	June 2013

*Assumes one season of data collection.

3.3.12 Level of Effort and Cost

Activity	Labor	Per-Diem	GIS	Total
Pre-field Review	\$2,850	\$0	\$1,425	\$4,275
Field Survey	\$10,640	\$2,800	\$0	\$13,440
Reporting	\$13,300	\$0	\$3,800	\$17,100
Total	\$26,790	\$2,800	\$5,225	\$34,815

3.3.13 References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Dep. Int., Fish and Wildl. Serv., Publ. No. FWS/OBS-79/31. Washington, D.C. 181 pp.

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United States Fish and Wildlife Service. 2010a. National Wetlands Inventory. August 2010. United States Fish and Wildlife Service. On the web at: <http://www.fws.gov/wetlands/Data/Mapper.html>.

3.4 Vegetation Cover Study

Vegetation cover typing is a method for identifying vegetation communities and assessing the quantity and quality of habitat within an area. For the Wallowa Falls Hydroelectric Project this information can be used to develop a map of the baseline conditions for the Project, to identify special habitats and habitat that may support or be essential to threatened and endangered or rare species.

3.4.1 Study Description and Objectives

The goal of this study is to identify and classify vegetation cover types within the Study Area. This information will be used to create a detailed Geographic Information Systems

(GIS) database of cover types within the Study Area to show the location, distribution, and extent of these cover types.

3.4.2 Resource Management Goals

The Wallowa-Whitman National Forest's forest management diversity, wildlife, and threatened, endangered, and sensitive species goals support this study. The applicable goals are as follows (USFS 1990):

“Maintain native and desirable introduced or historic plant and animal species and communities. Provide all seral stages of terrestrial and aquatic plant associations in a distribution and abundance to accomplish this goal. Maintain or enhance ecosystem function to provide for long-term integrity and productivity of biological communities.”

“To provide habitat for viable populations of all existing native and desired nonnative vertebrate wildlife species: to maintain or enhance the overall quality of wildlife habitat across the forest.”

“To protect and manage habitat for the perpetuation and recovery of plants, animals, and invertebrates which are listed as threatened, endangered, or sensitive. To assure that management activities do not jeopardize the continued existence of sensitive species or result in adverse modification of their essential habitat.”

3.4.3 Existing Information

The Wallowa-Whitman National Forest maintains a dataset that includes geo-referenced information on vegetation cover types and the USFWS National Wetland Inventory are available for the Study Area (United States Fish and Wildlife Service 2011). Both these datasets will be used for comparison to on-the-ground conditions

3.4.4 Nexus to Project

Wallowa Falls Hydroelectric Project routine maintenance is typically conducted between June and August every year and includes as needed vegetation management, forebay flushing, erosion control, road maintenance, and water conveyance system maintenance. Each of these actions has the potential to either directly or indirectly effect habitats by causing soil disturbance, promoting noxious weeds, applying herbicide, and/or changes in hydrology. The vegetation cover type study will provide a baseline of habitat quantity and quality; identify special habitats, and habitats that support threatened, endangered, and rare species. In addition, this baseline will be used to assess the impacts of Project operations to habitats and for planning future actions to assess or avoid impacts to habitats.

3.4.5 Study Area

The Study Area will include all lands owned by PacifiCorp or USFS that are within 100-meters of a Project facility as shown in Appendix A. This will include the entire area within

the proposed Project Boundary as described in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document (PacifiCorp Energy 2011).

3.4.6 Methods

The Vegetation Cover Type Study will consist of creating a base a map in the pre-field work and verifying the data with field surveys.

3.4.6.1 Pre-field Work

An ArcMap Project map will be created with the Study Area, topography, stream and wetland data, roads, trails, and the most recent aerial imagery available. This will be used to identify the distinct plant communities and natural landscape breaks, such as ridgelines or draws, into discrete polygons. The minimum size for a polygon will be 1 acre, except for wetlands or special habitats, such as rock outcrops or aspen stands. Also other available vegetation cover type datasets, such as the Wallowa-Whitman National Forest vegetation cover type data and the National Wetland Inventory, will also be used as a spatial resource (United States Fish and Wildlife Service 2010).

3.4.6.2 Field Surveys

Field surveys will be conducted to ground-truth the vegetation cover type polygon boundaries and to assign the appropriate plant association group to the polygon. Polygon boundaries will be verified and corrected using maps and ArcPad software running on a Global Positioning System (GPS) unit, which will allow for real time data correction while in the field. Each polygon will be visited. The biologist will find an area within the polygon that is representative of the vegetation and conduct a rapid vegetation assessment to collect the following data and determine the following:

- Accurate polygon locations in Universal Transverse Mercator coordinates Zone 11
- Representative photographs
- Species and estimated cover for dominant and subdominant trees and shrubs
- Estimated average DBH of dominant trees for forested habitats
- Estimated stand age
- Identify major tree/shrub/grass-forb-fern community types to determine the appropriate plant association group for each polygon by using the appropriate guides:
 - Plant Associations of Wallowa-Snake Province (Johnson and Simon 1987)
 - Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests (Crowe and Clausnitzer 1997)

- Deep Canyon and Subalpine Riparian and Wetland Plant Associations of the Malheur, Umatilla, and Wallowa-Whitman National Forests (Wells2006)
- For areas void of vegetation, the substrate (e.g., water, rock) will be identified
- Identify all special habitats or other uncommon or azonal areas within the Study Area. Special habitats are habitats that have been identified by the USFS as unique or important habitat features and include: aspen stands, cottonwood stands, mountain mahogany stands, fens, bogs, springs, wet cliffs, vernal pools, camas meadows (patches), natural caves, natural salt licks, and calcareous rock outcrops.

All data collected will be recorded on the data collection forms or as attributes to the hand-held GPS. Using this data, the appropriate plant association group will be determined and assigned for each polygon.

The appropriate field survey season for native plants in the Wallowa-Whitman National Forests is typically between April and September, and it is assumed that this is also the preferred time to do the vegetation cover type study (USFS 2011). Actual survey dates will be adjusted for the climatic condition for the 2012 growing season. The field surveys can be conducted in one visit during the 2012 growing season during the mid-summer.

3.4.7 Progress Reporting

A study progress meeting will be held in October of 2012. A study progress report (draft Technical Report) will be made available for 30 day stakeholder review and comment in November, 2012. Stakeholder comments will be addressed in the initial study report. The initial study report will be made available for review in mid January, 2013; followed by an initial study report meeting in late January, 2013.

3.4.8 Final Product

A final Technical Report will be made available for stakeholder review in June, 2013. The report will describe through maps and text the pre-field review methods and findings, field survey methods and results, a description of each plant association group identified, and identify any special or unique habitats. The report will provide an assessment of current and future Project operations and potential impacts to vegetation communities. Maps will include the major Project features (e.g. powerhouse, roads, dam etc), wetlands, streams, trails, and all plant association groups.

3.4.9 Schedule

Component	Completion Date
Pre-field review	February-April 2012
Field Survey	June-August 2012
Study Progress Meeting	October 2012
Study Progress Report	November 2012

Initial Study Report filed with FERC	January 2013
Initial Study Report meeting	January 2013
Meeting Summary filed with FERC	February 2013
Final Technical Report*	June 2013

* Assumes one season of data collection.

3.4.10 Level of Effort and Cost

Activity	Labor	Per-Diem	GIS	Total
Pre-field Review	\$2,850	\$0	\$1,900	\$4,750
Field Survey	\$9,215	\$2,400	\$0	\$11,615
Reporting	\$7,600	\$0	\$3,800	\$11,400
Total	\$19,665	\$2,400	\$5,700	\$27,765

3.4.11 References

Crowe, E.A. and R.R Clausnitzer. 1997. Mid-Montane Wetland Plant Associations of the Malheur, Umatilla and Wallowa-Whitman National Forests. Tech. Pap. R6-NR-ECOL-TP-22-97. Baker City, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region, Wallowa-Whitman National Forest. 299 p.

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<http://www.fws.gov/wetlands/Data/Mapper.html>.

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3.5 Wildlife Study

A wildlife study to document the presence of terrestrial species and, in particular, two amphibian species, the Rocky Mountain tailed frog (*Ascaphus montanus*) and Columbia spotted frog (*Rana luteiventris*), within the Project Area was requested by the Oregon Department of Fish and Wildlife (ODFW) and USFWS in the Pre-Application Document (PAD) comments and in the proposed study plan comments (ODFW 2011a, ODFW 2011b, USFWS 2011a, USFS 2011b).

3.5.1 Study Description and Objectives

The goal of the wildlife study will be to collect baseline information on the occurrence, distribution, and relative abundance of wildlife species within the Study Area. The study will document all wildlife detections with special emphasis on species identified on one or more of the following lists:

- USFWS status that is Listed Endangered, Listed Threatened, Proposed Endangered, Proposed Threatened, Candidate, Species of Concern, and Partial Status
- Oregon Department of Fish and Wildlife List of Threatened, Endangered and Sensitive Species
- ORBIC List 1 or 2
- Regional Forester's Special Status Species Lists for Sensitive Vertebrates and Federally Threatened, Endangered, and Proposed (TE&P)
- Management Indicator Species for the Wallowa Whitman National Forest (if available)

Appendix E provides a list of the ORBIC rare, threatened, and endangered, candidate, or special status wildlife species in Wallowa County, their federal, state, and ORBIC status, brief description of habitat, and whether or not the species or its associated habitat is known to exist within in the Project vicinity. This list was originally compiled as Table 3.5-1 in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document (PacifiCorp 2011). Appendix E also provides the Regional Forester's Special Status Species Lists for Sensitive Vertebrates and Federally Threatened, Endangered, and Proposed species and the Management Indicator Species list (USFS 2010). The USFWS list for Wallowa County is provided in Appendix B.

3.5.2 Resource Management Goals

The Wallowa-Whitman National Forest's forest management diversity, wildlife, and threatened, endangered, and sensitive species goals support this study. The applicable goals are as follows (USFS 1990):

“Maintain native and desirable introduced or historic plant and animal species and communities. Provide all seral stages of terrestrial and aquatic plant associations in a distribution and abundance to accomplish this goal. Maintain or enhance ecosystem function to provide for long-term integrity and productivity of biological communities.”

“To provide habitat for viable populations of all existing native and desired nonnative vertebrate wildlife species to maintain or enhance the overall quality of wildlife habitat across the forest”

“To protect and manage habitat for the perpetuation and recovery of plants, animals, and invertebrates which are listed as threatened, endangered, or sensitive. To assure that management activities do not jeopardize the continued existence of sensitive species or result in adverse modification of their essential habitat.”

The USFWS is the principal federal agency for administering the Endangered Species Act for imperiled species. Under the Endangered Species Act all federal agencies are to use their existing authority, and in consultation with the USFWS, to conserve threatened and endangered species. This applies to the management of federal lands, federal actions, and federally-approved private actions (USFWS 2011c).

The Oregon Department of Fish and Wildlife is the regulatory agency that administers the Oregon Endangered Species Act for state listed wildlife to ensure that wildlife is managed to prevent serious depletion of indigenous species and to provide recreational and aesthetic benefits for present and future generations (ORS 496.012).

3.5.3 Existing Information

There is limited available data on wildlife use within the Project Area. However within the Project vicinity (within 2.0 miles of the Project Area), both a bald eagle (*Haliaeetus leucocephalus*) nest and roosts have been documented in the ORBIC database (ORBIC 2010). The USFS comments on the PAD state that bald eagle use is high near the Project Area's campground. This is a known foraging area for eagles when kokanee (*Oncorhynchus nerka*) are spawning and the area is suspected to be a roost (USFS 2011). The ORBIC database also has a 1984 record for the Wallowa rosy-finch (*Leucosticte tephrocotis wallowa*) within the Project vicinity (ORBIC 2010).

3.5.4 Nexus to Project

The Wallowa Falls Hydroelectric Project is operated as a run-of-river Project. Under the current license, daily/seasonal ramping rates, flushing flows, reservoir operations, or flood control operations are not specified. Annual maintenance is typically conducted between June and August every year and may include vegetation management, forebay flushing, erosion control, and road and water conveyance system maintenance. Each of these actions has the potential to either directly or indirectly affect a wildlife species by causing soil disturbance, removing vegetation, and/or fluctuations in hydrology. This study will identify any special-status wildlife species within the Study Area, assess overall Project-related effects to wildlife species, and provide management practices to avoid or minimize impacts to the special-status wildlife populations.

3.5.5 Study Area

The Study Area will include all lands and aquatic areas that are owned by PacifiCorp or USFS and are within 100-meters of a Project facility as shown in Appendix A. This will include the entire area within the proposed Project Boundary as described in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document (PacifiCorp Energy 2011).

3.5.6 Methods

3.5.6.1 Pre-field Review

Prior to conducting field surveys, the special status wildlife species lists will be updated and existing data will be compiled. The list of special status wildlife will be compiled by reviewing the current versions of the lists described above in Section 3.5.1 and in Appendix E, as well as the ORBIC Rare, Threatened, and Endangered Species of Oregon list.

A review of existing data will be compiled on special status wildlife species location within the Project vicinity (i.e. 2 miles of the Project Boundary). This data will be from all accessible data sources that include, but are not limited to, ORBIC database and available data resources from USFS.

3.5.6.2 Field Surveys

Due to the size of the Study Area and the broad scope of the study objective to document wildlife presence, no formal protocol surveys will be implemented. Instead one or more biologist(s) will do a walking survey of the Study Area to document all wildlife species or sign (e.g. nest, tracks, scats, burrows, egg masses etc.) that are encountered.

Surveys will be conducted twice during 2012, once in the spring and once in the summer, and will be conducted during normal seasonal conditions (i.e., avoiding days that are excessively above or below average temperatures). The biologist(s) will walk the Study Area to cover a representative area for each general habitat type, including aquatic habitats, such as the forebay, tailrace, streams, rivers and the associated riparian habitats within the Study Area.

The surveys will be documented by recording the following for each survey day:

- Date
- Start and end survey time
- Start and end of survey weather (including temperature, cloud cover, precipitation, and wind)
- A map identifying the areas surveyed (walked) within the Project Area

The following information will be recorded for each wildlife species or sign that is encountered during a survey:

- Species detected
- Detections type (sight, sound, sign)
- Number of individuals
- Sex(s)
- Age or development stage
- Habitat type
- Time
- Location provide location on accompany survey map and obtain GPS location if possible

Both the visual-encounter and dip net surveys will be used to determine the presence/absence of amphibians, in particular the Rocky Mountain tailed and Columbia spotted frogs. Surveys will include all stream, river, and wetland habitats within the Study Area that can safely be accessed. It is assumed that because of the steep slopes and high gradient of the upper bypass reach (Figure 2.0.1) that most of this area may be inaccessible. Biologist(s) will attempt to find access points to the area and will survey any area that can safely be accessed.

Survey methods will be similar to the methods described in the Interagency Special Status Species and Sensitive Species Program Conservation Assessments (Tait 2007 and Olson 2011). Surveys will be conducted at the same time as the general wildlife observation surveys and will be timed to meet preferred time/weather conditions for observing frog activities. The visual encounter method will be conducted during both the spring and late-summer surveys using one or two biologist(s) walking along the rivers, streams, and wetlands to identify egg masses, and/or adult frogs. Dip nets will be used to capture and identify any egg masses, adults, or larvae that are observed.

The lower bypass reach, Royal Purple Creek, and the tailrace (main and side channel) will each have 10 randomly selected areas surveyed with dip nets, for a minimum total of 30 dip net stations. This will only be conducted during the late summer survey which is the optimum time to detect larva. This will be achieved by one biologist placing the dip net flush to the bottom of the stream, while the other biologist moves or lifts up all rocks, logs, and other debris that are within 2 meters upstream of the dip net to dislodge any larva. The placement of the dip net stations will be dependent on the total length of the area surveyed. For example there is approximately 335 meters of Royal Purple Creek within the Study Area. Therefore dip nets will be placed every 33 meters to meet the 10 randomly selected dip net stations.

A dip net will also be used in the forebay, but the entire area will be thoroughly searched and any egg masses, adults or larvae that are observed will be netted and identified. Because the forebay is a relatively small area (0.2 acre) with the best suitable breeding amphibian habitat along the shoreline and at East Fork Wallowa River inflow; it is assumed that the entire area can be searched and most rocks or logs within the forebay can be lifted and thoroughly searched for larva.

3.5.7 Progress Reporting

A study progress meeting will be held in October of 2012. A study progress report (draft Technical Report) will be made available for 30 day stakeholder review and comment in November, 2012. Stakeholder comments will be addressed in the initial study report. The initial study report will be made available for review in mid January, 2013; followed by an initial study report meeting in late January, 2013

3.5.8 Final Product

A final Technical Report will be made available for stakeholder review in June, 2013. The report will describe the pre-field review methods and findings, field survey methods, schedule, results with individual wildlife records, as well as a discussion on the potential effects of Project operations on wildlife. Maps will include the major Project features (e.g. powerhouse, roads, dam etc), survey routes, and the wildlife detection locations.

3.5.9 Schedule

Component	Completion Date
Pre-field review	February-April 2012
Spring Survey	April-May 2012
Late Summer Survey	August 2012
Study Progress Meeting	October 2012
Study Progress Report	November 2012
Initial Study Report filed with FERC	January 2013
Initial Study Report meeting	January 2013
Meeting Summary filed with FERC	February 2013
Final Technical Report*	June 2013

* Assumes one season of data collection.

3.5.10 Level of Effort and Cost

Activity	Labor	Per-Diem	GIS	Total
Pre-field Review	\$6,650	\$0	\$2,850	\$9,500
Spring Survey	\$5,320	\$1,200	\$0	\$6,520
Summer Survey	\$12,540	\$2,400	\$0	\$14,940
Reporting	\$9,500	\$0	\$3,800	\$13,300
Total	\$34,010	\$3,600	\$6,650	\$44,260

3.5.11 References

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APPENDIX A

Wallowa Falls Project Vicinity and Study Area Map

APPENDIX B

- Oregon Biodiversity Information Center List of Rare, Threatened and Endangered, Candidate, or Special Status Vascular Plant Species in Wallowa County
- Regional Forester's Special Status Species Lists for Sensitive Non-Vascular and Vascular plants on the Wallowa-Whitman National Forest
- Potential Sensitive Plant List – Wallowa Falls Hydroelectric Project
- Federally Listed, Proposed, Candidate Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service Which May Occur within Wallowa County, Oregon

APPENDIX C

- Wallowa Falls Botanical Inventory Methodology
- Threatened, Endangered, and Sensitive Plants Survey Field Guide
- Threatened, Endangered, and Sensitive Plants Element Occurrence

APPENDIX D

- Wallowa County Noxious Weed list
- Oregon Noxious Weed List
- Noxious Weed Plant Occurrence Record

APPENDIX E

- Oregon Biodiversity Information Center List of Rare, Threatened and Endangered, Candidate, or Special Status Wildlife Species in Wallowa County
- Regional Forester's Special Status Species Lists for Sensitive Vertebrates and Federally Threatened, Endangered, and Proposed (TE&P)
- Management Indicator Species and Forestwide Standards and Guidelines (USFS 2010)