

# Wallowa Falls Hydroelectric Project Vegetation Management Plan

January 23, 2014

## PURPOSE

The Wallowa Falls Hydroelectric Project boundary is in a mountainous region that is heavily forested with trees of variable species, age, height, diameter, and density. The lands in the Project boundary are largely open to the public and are used extensively for year round recreation (hiking, skiing, camping, horseback riding). A dead, dying, or unstable tree may pose a serious risk to people and/or facilities. In addition to unstable trees, vegetation growing near or on hydroelectric facility (e.g. dam, spillway, and penstock) may be a potential hazard, such as increasing the threat of fire, roots penetrating or uplifting structures, or vegetation obstructing the view of a dam or other facilities preventing adequate inspections or maintenance. This document provides the procedures for implementing a consistent hazard tree and vegetation inspection and best management practices to reduce the risk of fatalities, injuries, and facility damage (e.g. fire fuels, root damage) due to vegetation. As this management plan is implemented it may need to be revised to improve methods, best management practices, and to adapt to conditions/regulations over time.

## PROCEDURE

### **Hazard Tree and Vegetation Inspection:**

The Project boundary and all PacifiCorp owned lands will have a hazard tree and vegetation inspection. The inspection will be conducted by a PacifiCorp employee or a designated contractor that is qualified to identify and assess hazards trees and other vegetation that is a risk to facilities. A qualified person is defined as an individual that has the knowledge, training, and experience in identifying risk associated from hazard trees and/or vegetation near facilities. The inspection will include a walk-through inspection to visually assess all PacifiCorp owned lands and lands within the Project boundary that have public use, parked vehicles, structures, or facilities, which include but are not limited to:

- Access road
- Campground
- Dam and spillway
- Forebay
- Leased land with structures
- Parking area along Joseph-Wallowa Lake Highway
- Penstock
- Powerhouse
- Royal purple diversion and flow line
- Storage shed
- Substation
- Tailrace

- Trails
- Transmission line

### **Inspection Schedule:**

These inspections will occur at a minimum of every other year and may occur more frequently if needed to reduce and manage hazards. Inspections should occur during the growing season; however, additional inspections may be needed to assess risks following catastrophic events (e.g., major storms, avalanche, landslides, and floods) and these can occur anytime of the year.

### **Inspection Records:**

It is essential that inspections consistently record the same information for each hazard. This is because hazards with low risk rating may only require monitoring for several years to insure that the risk doesn't progress. Also consistent and proper records will provide rationale for implementing remedial actions. Documentation should include the following items:

- Area that is being assessed. This may be specific Project facility (e.g. penstock, dam), structure (e.g. trail, bathroom), or general area (e.g., campgrounds, forebay).
- Describe the areas overall condition (e.g. vegetation, soil disturbance etc.)
- Inspection date
- Weather during inspection
- Note if the inspection is a routine biennial inspection or additional inspection following a catastrophic event.
- Assign a unique 6 digit number for each hazard for tracking purposes. This number should be used for each inspection that the hazard is assessed. The first two numbers should be the year the hazard was first identified and the last four numbers are unique. For example all hazard trees identified in 2013 would be number 130001, 130002 etc. The following information should be collected:
  - describe exact location or provide GPS coordinates
  - vegetation type (tree, shrub etc.)
  - species
  - height
  - tree diameter at breast height in inches (if applicable)
  - describe defect (see definition below)
  - describe target (see definition below)
  - determine risk rating for each hazard from tables below
  - prescribe a recommended remedial action and schedule
  - provide photograph of the hazard

**Risk Assessment:**

Each hazard will have a risk assessment completed during each inspection. This will require identifying the hazard and rating its risk potential using the tables below

<b>Hazard Rating</b>	
<b>Risk Potential</b>	<b>Extent of Defect</b>
High	Dead tree; severe or extensive decay; leaning, up-rooted trees; large (4” or greater) hanging branches, i.e., widow makers; broken, hanging tops; severe root rot. Highly defective trees; trees with root anchorage limited by erosion, excavation or undermining; trees with heavy lean; root rot; split crotches; decay; multiple deadwood 4” and greater. Fruiting bodies on butt or on the ground. Multiple fruiting bodies along length of stem. Co-dominant branches with included bark.
Medium	Trees or vegetation that show declining vigor due to one or more of defects, trees exposed to saturated soils and/or strong winds; shallow rooted trees or growing in shallow soils. Moderate lean.
Low	Healthy trees or vegetation with only minor defects and are not exposed to regular weather extremes. Healthy trees or vegetation with recent signs of damage.

For each hazard the potential target will need to be assessed for damage potential using the table below.

<b>Damage Rating</b>	
<b>Damage Potential</b>	<b>Description of Damage</b>
High	Damage to property would be severe and/or area is frequently occupied by people
Moderate	Damage to property would be moderate and/or area is occasionally occupied by people
Low	Damage to property would be low and/or area rarely is occupied with people

Once the damage and hazard ratings have been identified the risk rating can be determined using the risk assessment table below.

<b>Risk Assessment</b>			
<b>Risk Rating</b>	<b>Hazard Rating</b>	<b>Damage Rating</b>	<b>Action Schedule</b>
1	High	High	Immediate
2	High	Medium	Within 1 year
3	High	Low	Within 2 years
2	Medium	High	Within 1 year
3	Medium	Medium	Within 2 years
4	Medium	Low	To be determined
3	Low	High	Within 2 years
4	Low	Medium	To be determined
5	Low	Low	To be determined

## Remedial Action:

For each hazard a recommended remedial action and proposed schedule for the action needs to be documented. The proposed schedule should correspond to the Risk Assessment Action Schedule (see table above); if not then rationale for deviating from the schedule should be documented. Schedules for hazards with a risk rating of 4 or 5 should be based on the assigned remedial action. For example, if the remedial action is to monitor then the schedule would be to reevaluate in 2 years or following any catastrophic event.

The two ways to remove or reduce a risk is to remove the hazard or to remove the target. Target removal is not always achievable, but some examples include closing a parking area, closing trails, moving picnic structures, posting signs to keep people out of an area, or removing a structure. More often managing the hazard is the easiest solution for removing or reducing a risk. Some recommended actions for removing the hazard may include:

- **Tree Removal:** It may be necessary to remove a tree to reduce risk. A careful analysis of the risk rating and other management alternatives should be considered before recommending the removal of live trees. Tree removal must be conducted in a method that minimizes damage to residual vegetation.
- **Topping:** Removing the top of a hazard tree to a height that no longer poses a risk may be an option under some circumstances, and may be a more desirable option because it can enhance wildlife habitat within the Project boundary.
- **Pruning:** Pruning can be an effective method for removing hazards when branches, dead tops or multiple tops are the primary reasons for rating the vegetation as a hazard. Pruning when done properly may improve the overall the health of the tree.
- **Control Methods:** Control methods may include mechanical, chemical, and cultural and usually a combination of these methods may be needed to successfully reduce risk or to prevent risk in the future (PacifiCorp 2012). Chemical methods can only be applied to PacifiCorp lands and cannot be used on USFS lands.
  - Mechanical methods include mowing or using other hand tools to remove vegetation from an area.
  - Chemical methods are the use of herbicides or tree growth regulators to kill, reduce, or regulate growth in vegetation. It can be quite effective, but must be administered in accordance to their label and by a licensed applicator. Cultural methods modify habitat to discourage incomparable vegetation. This can be achieved by cover type conversion which provides a competitive advantage to short-growing, early successional plants, allowing them to thrive and eventually out-compete unwanted tree species.

## **BEST MANAGEMENT PRACTICES**

The following best management practices should be applied when removing or modifying vegetation.

- When feasible schedule all tree removal outside of the active nesting period for birds (March 1 to July 30)
- PacifiCorp has a special use permit with the WWNF for Project facilities that are on WWNF land that expires on December 31, 2016. The current permit requires that all trees and shrubbery that are removed or destroyed on WWNF lands need to have prior approval from the forest officer in charge.
- When feasible, trees removed on WWNF lands should be left as down woody habitat
- Debris piles should be reduced to the extent possible and spaced apart to not impede big game travel
- Avoid dropping any portion of a tree into the creek, river, or wetland

## **DEFINITIONS**

**Defects** – Any feature, fault, or flaw that lowers the strength, integrity, or utility of an affected part:

- dead tree
- dead top or large dead branches (> 5 inches in diameter)
- fire-damaged trees
- bole wounds, mistletoe cankers, conks, or fungal cankers
- leaning and/or root sprung trees
- undermined or severed root systems

The Field Guide for Danger Tree Identification and Response (Toupin et al, 2008) and Long-Range Planning for Develop Sites in the Pacific Northwest (Harvey and Hessburg 1992) provide guidelines for identifying disease and defects.

**Hazard:** For the purposes of this document it is vegetation that is one of the following:

- Vegetation, such as a tree, with an identifiable structural defect or other condition that predisposes it or part of it to failure and will potentially injure people or cause property damage in the event of its failure.
- Vegetation that is growing on or near a facility and poses a significant hazard to facilities or operations.

**Target:** The person, structure, or facility that may be damaged by the vegetation that is identified as a risk.

## REFERENCES

- Angwin, P.A., D.R. Cluck, P.J. Zambino, B.W. Oblinger, and W.C. Woodruff. 2012. Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region. Forest Health Protection Pacific Southwest Region April 2012 Report # RO-12-01. 25 p.
- Harvey, R.D. Jr., and P.F. Hessburg. 1992. Long-Range Planning for Developed Sites in the Pacific Northwest: The Context of Hazard Tree Management. Forest Pest Management Technical Paper FPM-TP039-92. Portland, Oregon: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region. 120 p.
- PacifiCorp. 2012. Transmission & Distribution Vegetation Management Program Specification Manual. June 15, 2012
- Toupin, Richard, and Michael Barger. 2005. Field Guide for Danger Tree Identification and Response. U.S. Department of Agriculture, Forest Service, Pacific Northwest Region and U.S. Department of Interior Bureau of Land Management. Forest Health Protection Technical Report Technical Paper R6-NR-FP-03-05. 56 p.