



Final Environmental Assessment

Wildfire Fuels Reduction Project

Kittitas County, WA

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Acronyms and Abbreviations

APE	Area of Potential Effects
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
County	Kittitas County
dbh	diameter at breast height
DNR	Washington Department of Natural Resources
EA	Environmental Assessment
Ecology	Washington Department of Ecology
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FMO	foraging, migrating and overwintering
FPPA	Farmland Protection Policy Act
ICC	International Code Council
KCCD	Kittitas County Conservation District
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OHWM	ordinary high water mark
PDM	Pre-Disaster Mitigation
SHPO	State Historic Preservation Office
URS	URS Group, Inc.
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WACCIA	Washington Climate Change Impact Assessment
WDFW	Washington State Department of Fish and Wildlife
WISAARD	Washington Information System for Architectural and Archaeological Records Data

WNHP	Washington Natural Heritage Program
WRCC	Western Regional Climate Center
WSDOH	Washington State Department of Health
WSHP	Washington State Horse Park

Glossary

Alluvium: Loose, unconsolidated soils that have been eroded and reshaped by water in some form.

Area of Potential Effects: Geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking.

Best Management Practice: Environmental protective measure for conducting projects in an environmentally responsible manner.

Colluvium: Loose, unconsolidated soils that have been deposited at the base of hillslopes.

Defensible space: Clearings between wildland vegetation and structures.

Ephemeral channel: Channel that holds water only during and immediately after rain events.

Fuels reduction: Removal of excess flammable vegetation through thinning, limbing, or other methods to reduce the potential for severe wildfires.

Limbing: Removal of large tree limbs to reduce fuel load and the potential for crown fires.

Loam: Well-drained soils composed of sand, silt, and clay in relatively even proportions.

Loess: Deposits of silt that have been laid down by wind action.

Ordinary high water mark: Point on a bank or shore up to which the presence and action of the water leaves a distinct mark by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic.

Residuum: Remaining soil after soluble elements have dissolved.

Prescribed burn: Any fire ignited for vegetation management.

Slash: Vegetative debris created by property clearing, right-of-way clearing, and forest management activities.

Suppression: Response to wildland fire that results in the curtailment of fire spread and elimination of all identified threats from the fire.

Thinning: Partial removal of trees, branches, or shrubs from a stand to reduce fuel loads.

Wildfire: Unwanted wildland fire.

Wildland-urban interface: Line, area, or zone where structures and other human development meet or intermingle with vegetative fuels in wildlands.

SECTION ONE INTRODUCTION

Kittitas County, Washington, has applied for fiscal year 2013 funding under the Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation (PDM) grant program for financial assistance for the Wildfire Fuels Reduction Project in Kittitas County (County) (Proposed Action) in central Washington.

The Proposed Action in Kittitas County targets the communities of Hidden Valley, Pine Loch Sun, and Sky Meadows. Appendix A, Figures 1 through 4, show the project area.

The objective of the PDM grant program is to provide funding for pre-disaster mitigation planning and projects that primarily address natural hazards in States, Territories, and for federally recognized Indian Tribes to reduce risks to vulnerable populations and structures while also reducing reliance on funding from actual disaster declarations.

This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. §§ 4321–4327); the President’s Council on Environmental Quality (CEQ) regulations to implement NEPA (40 CFR Parts 1500–1508); and FEMA’s regulations implementing NEPA (44 CFR Part 10). FEMA is required to consider potential environmental impacts before funding or approving actions or projects.

The purpose of this EA is to analyze the potential environmental impacts of the Kittitas County Wildfire Fuels Reduction Project. FEMA used the findings in this EA to determine that no Environmental Impact Statement is required and a Finding of No Significant Impact (FONSI) be issued.

SECTION TWO PURPOSE AND NEED

The purpose of the PDM grant program is to reduce overall risks to vulnerable populations and structures, while also reducing reliance on funding from actual disaster declarations. The purpose of the Wildfire Fuels Reduction Project is to help protect residents and firefighters in the project area in the event of a wildfire and to reduce the potential impacts of a catastrophic wildfire in the communities. The need for this action is detailed below.

According to the *Kittitas County Wildfire Protection Plan* (Kittitas County 2009), the Washington Department of Natural Resources (DNR) has rated the wildfire hazard in Hidden Valley, Pine Loch Sun, and Sky Meadows as extreme. The *Kittitas County Wildfire Protection Plan* lists the following wildfire risk factors for the three communities:

- Hidden Valley – Rough gravel roads, steep slopes, and canyons surrounding homes; heavy timber and slash within 30 to 70 feet of most homes; and most of the area outside a fire district.
- Pine Loch Sun – Steep and graveled roads, development on steep slopes that mostly exceed 30 percent, and timber and heavy brush within 30 feet of most homes.
- Sky Meadows – Narrow brushy roads, steep elevation gain with many slopes exceeding 40 percent, heavy timber and brush, very little defensible space, mostly recreational areas, and inadequate fire flow from water source.

Hidden Valley, Pine Loch Sun, and Sky Meadows were established in the 1960s and 1970s and have few fire protection mechanisms in place. The *2006 International Wildland-Urban Interface Code* (ICC 2006) requires property owners of new construction to meet building construction and defensible space requirements, but the County does not have the authority to mandate these requirements for owners of properties that were constructed before 2006. Some property owners have participated in the Firewise program (explained below), but many have not adopted defensible space measures because of time, expense, competing concerns, misperceptions about wildfire risks, or a lack of awareness that they share responsibility for fire protection (Kittitas County 2009).

The total of approximately 3,351 acres in the project area contain 1,245 lots, and approximately 764 of the lots have structures. There are many primary and secondary residences and State and Federal lands in Kittitas County with dangerous levels of high-hazard fuels adjacent to the extreme wildfire risk areas that are included in the Wildfire Fuels Reduction Project, which create additional hazards for wildfire in the larger vicinity (2013 PDM grant application).

Much of the residential development in the County in the past 7 years has occurred in the wildland-urban interface in areas identified as having an extreme wildfire risk. A wildland-urban interface analysis conducted by the National Fire Protection Association for Kittitas County found that 33 percent of the County is classified as high risk for wildfires (Kittitas County 2012).

In the 2012 and 2013 fire seasons, four major wildfires occurred in the County (Taylor Bridge, Table Mountain, Colockum Tarps, and Manastash Ridge), resulting in the decimation of more than 143,000 acres, the loss of more than 115 structures, and a cost of more than \$70 million for fire suppression and repair of damage to infrastructure and properties. Recovery from the four wildfires is projected to occur over the next 5 years, stressing the County's already limited resources (2013 PDM grant application).

SECTION THREE ALTERNATIVES

This section discusses the No Action Alternative, the Proposed Action, to which FEMA funding would contribute, and the alternatives that were considered and dismissed.

3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no FEMA-funded fuels reduction mitigation would occur in the project area. Wildfire risk in the wildland-urban interface (WUI) would continue as a result of existing, untended heavy ladder fuels and poor access for emergency responders. At-risk property owners would continue to implement wildfire mitigation activities on their own initiative or as otherwise assisted or required by the County or homeowners insurance providers.

3.2 PROPOSED ACTION

The description of the Proposed Action is based primarily on the March 2013 PDM grant application, information collected during site visits in June and August of 2014, and updates from Kittitas County and Kittitas County Conservation District (KCCD).

Kittitas County would work with the local fire districts and KCCD to implement the Proposed Action. The Proposed Action consists of the following components which would be implemented only for the property owners in the project area who elect to participate in the Proposed Action.

- Assessment of the wildfire threat to the property.
- Development and implementation of a fuels reduction and vegetation management plan for the property. Ladder fuels and other biomass would be removed using chainsaws, chippers, brush mowers, and masticators. Limited ground disturbance would occur during fuels reduction. Vegetative debris would be chipped onsite or piled.
- Creation of a defensible space around the property. A properly maintained defensible space protects a structure from surrounding wildfires and provides a relatively safe area for firefighters in which to work. The defensible space would be created according to Firewise program guidelines.

The Proposed Action would be implemented according to the Firewise guidelines for defensible space in Introduction to Firewise Principles (NFPA 2009). The National Fire Protection Association (NFPA) Firewise program is sponsored by the U.S. Forest Service (USFS), U.S. Department of the Interior, and National Association of State Foresters.

The Firewise guidelines for defensible space (NFPA 2009) include the following:

- Create a defensible space zone with at least a 30-foot radius and out to 200 feet around a structure's foundation. The radius may be expanded to provide additional defensible space around structures on steep slopes. Fuels reduction could occur on properties as large as 10 acres, but treatment would be more intense closer to structures in the defensible space zone.
- Plant grass and small islands of fire-resistant plants in the defensible space.
- Trim trees in the defensible space so the lowest branches are 6 to 10 feet above the ground.
- Space plants in the defensible space so the plants or plant canopies do not touch; use wider spacing along slopes.
- Plant fire- or drought-resistant plants in the defensible space.
- Do not remove all vegetation in the defensible space because doing so could increase soil erosion, especially on the sloped areas, which are found in much of the project area.

Appendix A, Figure 5, illustrates the Firewise guidelines, and Figure 6 shows an example of a treated property that was protected from a wildfire.

The County's requirements for fuels reduction projects listed in Appendix B would also be followed. The requirements pertain, for example, to dead and downed materials, stumps and standing dead trees, and live tree pruning and spacing.

Vegetation management activities would be exempt from the County's Critical Area Ordinance (Kittitas County 2014a). The Washington State Growth Management Act requires counties to have regulations to protect critical areas, including: wetlands, critical aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas.

Removal of trees 8 inches in diameter at breast height (dbh) or greater would be prohibited within 100 feet of water bodies with known presence of fish species listed under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §§ 1531–1544), or as otherwise specified during ESA consultation (NOAA 2014) (see Section 4.3.2). The prohibition would be applied 100 feet from the ordinary high water mark (OHWM) on each side of the following water bodies with known presence of ESA-listed fish species: Cle Elum Lake, Teanaway River, and Swauk Creek. No work would be allowed in wetlands.

The project area consists of extreme fire risk areas in the communities of Hidden Valley, Pine Loch Sun, and Sky Meadows. The project area comprises approximately 3,351 acres that contain 1,245 lots, and approximately 764 of the lots have structures.

Up to 300 structures could be protected depending on property owner participation and funding in the Proposed Action. This would comprise up to about 1,100 total acres treated, as distributed across the three target communities.

The County's goal for the Proposed Action is a minimum of 20 percent of property owner participation, but because of the recent wildfires in the County, participation is expected to be 40 percent or more. A participation of 20 percent would be as follows:

- Hidden Valley has 131 lots, and 53 have structures. Property owners of 10 of the lots with structures would need to participate for 20 percent participation. More than 25 property owners have expressed interest in fuels reduction assistance to date, and more are anticipated to participate because Hidden Valley was in the Taylor Bridge Fire footprint. However, adherence to the no-work buffer established for ESA-listed fish-bearing water bodies could reduce the acreage treated in Hidden Valley along the Teanaway River.
- Pine Loch Sun has 521 lots, and 371 have structures. Property owners of 74 of the lots with structures would need to participate for 20 percent participation. More than 87 property owners have expressed interest in fuels reduction assistance to date, and more than 100 property owners are expected to participate.
- Sky Meadows has 593 lots, and 340 have structures. Property owners of 68 of the lots with structures would need to participate for 20 percent participation. More than 38 property owners have expressed interest in fuels reduction assistance to date, and more are expected to participate.

Participating property owners would be required to sign a 10-year maintenance contract with the KCCD that specifies the required annual maintenance. Scheduled maintenance activities would be conducted annually generally during the Firewise Community Days events, which take place during the spring after snow-melt. Maintenance of fuel treatment and mitigation would be reviewed by property owners and community committees. The review would be conducted within 1 year after fuels reduction, and additional maintenance and mitigation would be conducted as needed after each annual reassessment.

The site assessment and treatment plan would be documented for each participating property. Mitigation measures including avoidance and minimization measures would be incorporated into the project to limit the potential for adverse impacts to wildlife, water and cultural resources. Prior to project completion, an operations and maintenance plan would be developed by KCCD and submitted to FEMA for approval.

3.3 ALTERNATIVES CONSIDERED AND DISMISSED

Two alternatives were considered and dismissed: reducing fuel loads through prescribed burning and replacing flammable structural materials with fire-resistant materials.

Prescribed burning was considered for areas beyond the 30-foot radius of structures, but the risk of an escaped fire would be high. Multiple burn locations would be required throughout the project area to effectively manage fuel loads. Prescribed burning is most effective in areas with light fuel loads. The risk to the residual forest increases where fuels are heavy and at higher elevations. Large stands of dead and dying pine, fir, and spruce trees in the County are easily ignitable fuels and create potentially unpredictable scenarios for prescribed burning. Surveys indicate that mortality of large stands of dead and dying pine, fir, and spruce trees is increasing throughout the County from the western pine beetle, douglas-fir beetle and western spruce budworm (Kittitas County 2009). Because of the potential risk presented by the existing ignitable fuels, the prescribed burning alternative was dismissed.

Replacing flammable structural materials with fire-resistant materials was also considered, but this alternative would not address the lack of defensible space or the presence of heavy fuel loads and would be potentially more costly and less effective than vegetation removal. No other practicable alternatives were identified.

SECTION FOUR AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section discusses the potential impacts of the No Action Alternative and the Proposed Action on six categories of environmental resources (physical, water, biological, cultural, socioeconomic, and recreation). The potential cumulative environmental impacts are also discussed (see Section 4.7).

The impact analysis follows the same approach for all resource categories. When possible, quantitative information is provided to establish potential impacts, and the potential impacts are evaluated qualitatively based on the criteria listed in Table 4-1.

Table 4-1: Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/negligible	The resource area would not be affected, or changes would either be non-detectable or if detected, the effects would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have both localized and regional impacts. Impacts would be within or below regulatory standards, but historical conditions would be altered temporarily. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes to the resource would be readily measurable and would have substantial consequences on local and regional levels. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, but long-term changes to the resource would be expected.

Impacts are predicted based on the degree of change or loss of the resource from the baseline conditions. Impacts may be direct or indirect. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by an action and occur later or are farther removed from the area but are still reasonably foreseeable (40 CFR Part 1508).

4.1 PHYSICAL RESOURCES

4.1.1 Geology and Soils

The major geological features in Kittitas County are the Cascade and Wenatchee Mountains on the west and north, respectively; the Yakima River Valley in the central portion of the County; and the Boylston and Saddle Mountains in the southeast along the Columbia River. The Swauk formation is a non-marine sedimentary formation underlying the Cle Elum River drainage. It is composed of conglomerate sandstone and shale interbeds and dates to the Tertiary Period from 65 million years to 1.6 million years ago.

Other bedrock formations in Kittitas County include metamorphic rocks, granite intrusions, and thick sequences of volcanic and marine sedimentary rock (Kittitas County 2012).

From the Cascades, the topography slopes generally downward to the east and south in the Yakima River Valley to the Columbia River. The eastern part of the County consists of low, rolling to moderately steep glacial terraces and long, narrow valleys, and the southeast section of the County is characterized by moderately steep to steep glacial terraces and steep, rough, broken mountain foothills (Kittitas County 2012).

Most of the soils in the County formed in residuum and colluvium derived from basalt with loess in the upper part. Other soils formed in alluvium, glacial till, glacial outwash, lacustrine deposits, volcanic ash, and residuum and colluvium derived from sedimentary, metamorphic, and igneous rock. Major soil types in the project area include Yalelake sandy loam, Cattcreek loamy sand, Bickleton silt loam, Underwood loam, Colter cindery sandy loam, Rockly-Rock outcrop complex, Firoke ashy fine sandy loam, and Swauk-Qualla complex (USDA 2014).

The Farmland Protection Policy Act of 1981 (FPPA), as amended (7 U.S.C. §§ 4201 et seq.), requires that Federal agencies minimize the extent to which their programs contribute to the unnecessary conversion of prime farmland, unique farmland, and land of statewide or local importance to non-agricultural uses. Farmlands subject to FPPA requirements may be forestland, pastureland, or cropland but cannot be urban built-up land. The project area contains the following areas of prime farmlands and farmlands of statewide or unique importance: approximately 520 acres in Hidden Valley, 67 acres in Pine Loch Sun, and 593 acres in Sky Meadows.

4.1.2 Air Quality

The Clean Air Act of 1970, as amended (CAA) (42 U.S.C. §§ 7401–7661) requires that States adopt ambient air quality standards. The standards have been established to protect the public from potentially harmful amounts of pollutants.

Under the CAA, the U.S. Environmental Protection Agency (EPA) establishes primary and secondary air quality standards. Primary air quality standards protect the public health, including the health of sensitive populations such as people with asthma, children, and older adults. Secondary air quality standards protect public welfare by promoting ecosystems health and preventing decreased visibility and damage to crops and buildings (USEPA 2014).

The EPA has set national ambient air quality standards (NAAQS) for the following six criteria pollutants: ozone (O₃), particulate matter (PM_{2.5}, PM₁₀), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), and lead (Pb) (USEPA 2014).

Wildfires emit smoke that is a mixture of gases and fine particles which include ozone, carbon monoxide, and particulate matter (PM 2.5).

Communities exposed to wildfire smoke are advised to check current Ecology air quality information and public health messages. Other recommendations include staying inside as much as possible, avoiding outdoor physical activity, keeping windows and doors closed, and recirculating air conditioners. Generally, those that are most at risk by wildfire smoke are older adults, children, pregnant women, smokers, and individuals with respiratory infections or diabetes (WSDOH 2014).

The nearest air quality monitoring station to the project area is in Ellensburg. The station has a current air quality advisory rating of “good,” which indicates that air pollution is minimal and there is little health risk (Ecology 2014).

4.1.3 Climate Change

Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (CEQ 2010) contains guidance on how Federal agencies should consider climate change in their decisions and suggests that quantitative analysis should be done if an action would release more than 25,000 metric tons of greenhouse gases per year.

Kittitas County and the Yakima River Basin are east of the Cascade Range in the rain shadow and generally have warm, dry summers and cold, moist winters. During the winter, colder temperatures and higher precipitation occur in the Cascades and the surrounding foothills. Cle Elum, which is southeast of the project area, has an average annual precipitation of 23 inches of rainfall and 83 inches of snowfall. Temperatures in degrees Fahrenheit range from highs in the 80s in the summer to the 30s in winter and lows in the 30s in the summer to the 20s in the winter (WRCC 2013). The five types of severe weather events that occur in Kittitas County are thunderstorms, damaging winds, hail storms, heavy snowfall associated with winter storms, and flash flooding (Kittitas County 2012).

Global and regional climate change is expected to accelerate in the coming decades. According to the *Washington Climate Change Impacts Assessment* (Climate Impacts Group 2009), temperatures could increase by 2 degrees (Fahrenheit) by the 2020s, 3.2 degrees by the 2040s, and 5.3 degrees by the 2080s. Because of increased summer temperature and decreased summer precipitation, the area burned by fire regionally is projected to double by the 2040s and triple by the 2080s (Climate Impacts Group 2009). Generally, hotter and drier conditions contribute to larger wildfires and longer fire seasons. Increased fire probability in the region as a result of changing climatic conditions in the coming years could increasingly put communities in the WUI at risk.

4.1.4 Consequences of Alternatives

No Action Alternative

Under the No Action Alternative, FEMA would not provide funding for vegetation removal; however some wildfire mitigation activities would be expected to continue as initiated by property owners, through existing local programs/requirements, or as required by homeowners insurance providers. There would be no impacts to geology. Soil resources in the project area would be affected by erosion if vegetation is burned in a catastrophic wildfire; steep slopes would be particularly affected. A significant loss of mature vegetation along steep slopes could increase the risk of landslides and thus risks to proximate structures and infrastructure.

In the event of a wildfire, air quality would likely decline putting the elderly, school children and other vulnerable populations at risk. Depending on the air quality advisory, the public could be advised to change their daily activities including outdoor work and essential errands and school cancellations could occur. If the risk of wildfires increases as a result of climate change, the project area could be even more vulnerable to wildfire impacts in the decades ahead. Although wildfires are a natural element of an ecosystem, a large wildfire can release more than 25,000 metric tons of greenhouse gases, thereby incrementally contributing to overall climate change. Adverse impacts would range from minor to moderate, depending on the severity and location of a wildfire and subsequent air pollution and soil erosion.

Proposed Action

Adverse impacts to geology and climate would be negligible based on the scale of the project and limited ground-disturbing activities. Ground-disturbing activities may occur if shrub and tree roots are removed. However, in most cases, thinning and limbing would provide sufficient fuels reduction, and complete removal of shrubs and trees (including roots) would be limited.

Some soil could be disturbed during project activities, but adverse impacts would be negligible based on the low-impact nature of vegetation removal by hand and the proposed protective stream buffers. Since the project does not involve changes in land use, no impacts to prime or unique farmlands would occur.

Fuels reduction activities would occur on a localized scale and focus on protection of structures in contiguous areas, thus likely reducing the spread/severity of wildfires. Reducing the risk or severity of wildfires would generally be a positive effect to air quality and climate change because of the consequent reduction in air pollution and greenhouse gas releases.

4.2 WATER RESOURCES

4.2.1 Surface Water

The Proposed Action is located in the Upper Yakima subbasin (Water Resource Inventory Area 39), and Hidden Valley, Pine Loch Sun, and Sky Meadows are located in smaller nested subwatersheds and associated stream networks (USGS 2014).

Hidden Valley

The Teanaway River and its tributaries flow through the northwestern part of Hidden Valley in the Teanaway River subwatershed. Swauk Creek and several of its tributaries flow along the eastern side of Hidden Valley in the Swauk Creek subwatershed. Teanaway River and Swauk Creek are Shorelines of Statewide Significance. Both the Teanaway River and Swauk Creek contain a known fish-bearing tributary that flows through a property in the project area.

Pine Loch Sun

Four tributaries flow west from Pine Loch Sun to Cle Elum Lake in the Middle Cle Elum River subwatershed, and five tributaries flow south from Pine Loch Sun to Cle Elum River in the Lower Cle Elum River subwatershed. Cle Elum River is a Shoreline of Statewide Significance, and one Cle Elum River known fish-bearing tributary flows through the project area.

Sky Meadows

Six streams, including Thornton Creek, flow through Sky Meadows, and all are tributaries of the Yakima River in the Crystal Creek-Yakima River subwatershed. The Yakima River is a Shoreline of Statewide Significance, and one known fish-bearing tributary flows through the project area.

The Upper Yakima subbasin is on the eastern side of the Cascade Mountains in south-central Washington, and it drains 1,594 square miles from its headwaters to its downstream boundary at Umtanum Creek. Headwaters begin in the Wenatchee National Forest, which is to the north and west of the Yakima River, and is predominantly forests and shrubs at elevations that reach approximately 8,184 feet. Snowpack and glacier runoff together with precipitation provides most of the water for irrigation and streamflow. Headwaters of tributaries east of the Yakima River originate at relatively lower elevation reaches of approximately 3,950 feet. These headwaters are not part of the Cascade Range but instead transition to the Columbia Plateau where vegetation is primarily shrub steppe with deciduous vegetation and conifers at higher elevations. Snowpack is ephemeral and contributes far less water to the system when compared to the Cascades (Ecology 2005).

4.2.2 Water Quality

Section 303(d) of the Clean Water Act of 1977, as amended (33 U.S.C. § 1313(d)(2)), establishes requirements for States and Tribes to identify and prioritize water bodies that do not meet water quality standards. Data from Ecology were queried to determine whether any streams in the project area are considered impaired or waters of concern. No streams in the project area are considered Section 303(d) impaired streams. Some stream segments north of the project area in Hidden Valley, Pine Loch Sun, and Sky Meadows contain stream segments that are rated Category 1 and Category 5. Category 1 stream segments meet tested standards for waters, and Category 5 stream segments are polluted waters that require water quality improvements.

Swauk Creek on the eastern side of Hidden Valley has a Class 5 rating for temperature just north of the project area. Cle Elum River has a Class 5 rating for temperature north and south of Cle Elum Lake, but these are outside the Pine Loch Sun project area. Segments of the Yakima River upstream of the Sky Meadows project area have a Class 5 rating for dissolved oxygen and temperature and a Class 1 rating for ammonia-nitrogen, arsenic, bacteria, and pH (Ecology 2012).

Two water quality improvement projects are currently active in the Upper Yakima subbasin (Water Resource Inventory Area 39): the Upper Yakima Multi-parameter Project and the Teanaway River Project. The Upper Yakima Multi-parameter Project has Environmental Protection Agency (EPA)-approved plans for suspended sediment, toxics, and turbidity and a plan under development for temperature. The Teanaway River Project has an EPA-approved plan for temperature (Ecology 2012).

Many fish species require cold water that holds dissolved oxygen to survive, and a lack of riparian shade, excessive sediment load, and low stream flow can increase stream temperature. Land management activities, including forest management, can affect temperature adversely when vegetation adjacent to streams is damaged, erosion of stream banks and sediment into streams is increased, and instream flow is reduced (Ecology 2012).

4.2.3 Wetlands

Executive Order (EO) 11990, Protection of Wetlands, requires Federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided.

According to the National Wetland Inventory (USFWS 2014b), approximately 42 acres of wetlands are located in Hidden Valley and Sky Meadows, primarily associated with Teanaway River and Swauk Creek. Wetlands associated with Teanaway River and its tributaries on the northwestern part of Hidden Valley have affected approximately 17 acres of freshwater emergent wetlands, freshwater forested/shrub wetlands, and riverine wetlands.

Wetlands associated with Swauk Creek and several of its tributaries on the eastern side of Hidden Valley have affected approximately 24 acres of freshwater emergent wetlands and freshwater forested/shrub wetlands. An approximately 0.5-acre freshwater forested/shrub wetland was identified on the southwestern corner of Sky Meadows. Pine Loch Sun is located on the eastern side of Cle Elum Lake, and no wetlands have been identified.

All wetlands in the project area are likely to be adjacent to Teanaway River, Swauk Creek in Hidden Valley, or other seasonal drainages. Much of the Pine Loch Sun and Sky Meadows project sites are on steep slopes dominated by upland forest, which would not favor the development of wetlands. No wetlands were observed within upland forest areas during a reconnaissance site visit in August 2014.

4.2.4 Floodplains

EO 11988, Floodplain Management, requires Federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Flood Insurance Rate Maps for the project area, Panels 5300950262B, 5300950266B, and 5300950267B (all effective 1996), show floodplains associated with Teanaway River and Swauk Creek (FEMA 1996) that are designated Zone A, which is subject to inundation by the 1-percent-annual-chance flood event (100-year floodplain). Portions of the floodplains are located in developed areas near residential structures in Hidden Valley. The hillsides surrounding Teanaway River and Swauk Creek are characterized by moderate to steep slopes, which result in floodplains that are generally between 300 to 1,000 feet wide.

Kittitas County participates in the National Flood Insurance Program, and floodplain development permits are required prior to beginning any work on improved or unimproved properties within a 100-year floodplain. Floods and flood-related damage are common in Kittitas County. The County has experienced eight federally declared flood disasters since 1975, and the public and private costs have exceeded \$50 million. Additional non-federally declared flood disasters caused significant damage in 1998, 2006, and 2011. The County has significant floodplains along the Yakima, Cle Elum, and Teanaway Rivers, and all have a flood history (Kittitas County 2014b).

4.2.5 Consequences of Alternatives

No Action Alternative

Under the No Action Alternative, FEMA would not provide funding to reduce vegetation around residences, however some wildfire mitigation activities would be expected to continue as initiated by property owners, through existing local programs/requirements, or as required by homeowners insurance providers. Thus existing conditions and risks to water resources would not change. Properties with maintained defensible space would be expected to be less vulnerable to catastrophic wildfires and thus less likely to contribute to post-burn erosion and sedimentation of water resources. In the event of a wildfire, impacts to the water quality, including sedimentation, of water resources would be minor to moderate, depending on the size and intensity of the fire and on subsequent erosion due to the loss of vegetation. A significant loss of mature vegetation along steep slopes can increase the risk of landslides into surface waters, wetlands, and floodplains that may be below and change local hydrologic and hydraulic conditions.

Proposed Action

Local, short-term, minor impacts to surface water from sedimentation during vegetation removal could occur. To minimize impacts, no vegetation management activities would be allowed within 5 feet of a stream's OHWM. Within 15 feet of the OHWM, limbing and thinning would not be allowed on trees greater than 7 inches dbh that overhang the streams. These restrictions would minimize the release of sediments by limiting ground-disturbing activities near streams.

Long-term, minor adverse impacts to water quality, including temperature and dissolved oxygen, could occur but would be minimized by following the stream buffers described above. Ecology and the EPA do not consider the segments of Swauk Creek, Cle Elum River, and Yakima River near the project area affected for these parameters (Ecology 2012), and water quality impacts are not anticipated to increase by project activities.

Work in wetlands will be avoided. Riparian wetland areas would be avoided by restricting work within 5 feet of the OHWM of streams and within 100 feet of the OHWM for Cle Elum Lake, Teanaway River, and Swauk Creek. If work is not restricted in these water bodies, there would be potential for minor-to-moderate adverse impacts.

Impacts to floodplains or changes in flood hazards are not anticipated, largely because no construction or floodplain development is proposed. The stream buffers described above would be required and thus avoid some work in floodplains altogether. The Proposed Action would not increase flood elevations or velocities because modifications to stream banks would not occur and land in the floodplain would not be built-up. Because of the limited amount of vegetation that would be removed and low impact work and disposal methodology, there is little potential for diminishing existing floodplain values.

If work is not restricted in the stream buffers, there would be potential for minor-to-moderate adverse impacts from sediment runoff. Vegetation removal in the WUI does not promote occupancy of the floodplain.

In the long term, the mitigated properties that maintain defensible space would be expected to be less vulnerable to catastrophic wildfires and thus less likely to contribute to post-burn erosion and sedimentation of water resources. Thus depending on the scale of participation and how contiguous the mitigated properties are, the Proposed Action is expected to have a minor positive affect to water resources from the reduced wildfire vulnerabilities in treated locations.

4.3 BIOLOGICAL RESOURCES

4.3.1 Vegetation

Vegetation in the County varies from forested, mountainous terrain in the Cascades to the dry, shrub-steppe hills in the Columbia Basin. Forestlands primarily in the northwestern and northeastern parts of Kittitas County make up more than 50 percent of the County. Agricultural lands are predominant in the Yakima River Valley, which runs through the center of the County. Irrigated croplands include timothy hay, alfalfa hay, corn, potatoes, small grains, tree fruit, and livestock pasture. Forestlands transition to shrublands in the southeast part of the county as climatic conditions change (Kittitas County 2009). Cle Elum is in a transition zone between the moist coniferous forests of the Snoqualmie Pass-Easton corridor and the drier Ponderosa pine zone.

The project area is located on the eastern side of the Cascade Mountains. In this area, black cottonwood (*Populus trichocarpa*) typically occurs along streams, with groves of quaking aspen (*Populus tremuloides*) in wetter places. In lower elevation forested areas, Douglas-fir (*Pseudotsuga menziesii*) begins to appear alongside ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and western larch (*Larix occidentalis*). Typical plants of the understory are common snowberry (*Symphoricarpos albus*), bitterbrush (*Purshia* sp.), and kinnikinnick (*Arctostaphylos uva-ursi*). Grand fir (*Abies grandis*) is the prevalent tree species at middle elevations. Moist mountain meadows are common in forest openings. Damp conditions on the upper Cascade slopes promote growth of a closed-canopy conifer forest dominated by western hemlock (*Tsuga heterophylla*) and western red cedar (*Thuja plicata*) with a shrubby understory (huckleberries [*Vaccinium* sp.], Oregon boxwood (*Paxistima myrsinites*), and western twinflower [*Linnaea borealis*]). Near residential areas, landscaping trees and shrubs may also be present.

In Pine Loch Sun and Sky Meadows, dense stands of second growth Douglas-fir and ponderosa pine are dominant. The Hidden Valley area has the same forested vegetation community, with the addition of black cottonwood and quaking aspen alongside drainages. Some non-forested areas in Hidden Valley are composed of non-native grassland and/or agricultural fields.

As discussed in Section 4.3.2, the treatment areas may provide habitat for large mammals, fish, game birds, migratory birds, and other forms of wildlife and include food sources, water, breeding sites, roosting sites, and refugia.

According to the Washington Natural Heritage Program (WNHP 2014), the Washington State rare plant Suksdorf's monkeyflower (*Mimulus suksdorfii*) is located in the vicinity of the Hidden Valley project area. The site was recorded by the Nature Conservancy in 1980 on the Lookout Mountain Reserve (WNHP 2014). The plant grows in seasonally moist areas within shrub-steppe vegetation, and this is the easternmost known site in Kittitas County. Suksdorf's monkeyflower is not an ESA-listed species. No known records occur within the project area.

4.3.2 Wildlife and Fish

The US Fish and Wildlife Service (USFWS) Office of Migratory Bird Management maintains a list of migratory birds (50 CFR § 10.13). The Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. §§ 703–711), provides Federal protections for migratory birds and their nests, eggs, and body parts from harm, sale, or other injurious actions. The act includes a “no take” provision.

Common MBTA bird species of mixed conifer forest of this region include red-tailed hawk (*Buteo jamaicensis*), northern flicker (*colaptes auratus*), Steller's jay (*Cyanocitta sterlleri*), mountain chickadee (*Poecile gambeli*), red-breasted nuthatch (*Sitta canadensis*), golden-crowned kinglet (*regulus satrapa*), cedar waxwing (*Bombycilla cedrorum*), brown-headed cowbird (*Molothrus ater*).

A list of MBTA species common in Kittitas County is provided in Appendix C. Eastern Washington is part of the Pacific Flyway, and open water areas such as Cle Elum Lake are considered a stopover location for avian species. Ducks, geese, herons, egrets, grebes, and other water-loving birds congregate in the open water areas of Kittitas County. The nesting season for migratory birds is generally from March through August, depending on species and location.

Mammals that may commonly be seen in the vicinity of Cle Elum include white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), yellow-pine chipmunk (*Tamias amoenus*), Douglas' squirrel (*Tamiasciurus douglasii*), short-tailed weasel (*Mustela erminia*), and numerous bat species.

According to the Washington Department of Fish and Wildlife (WDFW), several large mammals use the project area, including winter ranges and year-round concentrations of mule deer (*Odocoileus hemionus hemionus*) and elk (*Cervus elaphus*) (WDFW 2014c).

Fish have been observed in Teanaway River in the Hidden Valley project area and include bull trout (*Salvelinus confluentus*), chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), mountain whitefish (*Prosopium williamsoni*), rainbow trout (*Oncorhynchus mykiss*), steelhead trout (*Oncorhynchus mykiss*), and westslope cutthroat (*Oncorhynchus clarki lewisi*) (WDFW 2014c).

Other typical freshwater fish species that may use streams in the project area include reidside shiner (*Richardsonius balteatus*), bridgelip sucker (*Catostomus columbianus*), largescale sucker (*Catostomus macrocheilus*), chiselmouth (*Acrocheilus alutaceus*), pikeminnow (*Ptychocheilus oregonensis*), speckled dace (*Rhinichthys osculus*), longnose dace (*Rhinichthys cataractae*), and bluegill (*Lepomis macrochirus*).

4.3.3 Threatened and Endangered Species and Critical Habitat

The Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §§ 1531–1544), was established to conserve, protect, and restore Threatened and Endangered species and their habitats. Section 7 of the ESA (16 U.S.C. § 1536) requires Federal agencies to ensure their actions do not jeopardize the continued existence of listed species and do not result in adverse modification to designated critical habitat.

The WDFW, USFWS, and the National Marine Fisheries Service databases identify 10 Threatened, Endangered, Candidate, and Proposed species with potential to occur in the project area (USFWS 2014a). Three of the 10 species are known to occur within the project area: bull trout (*Salvelinus confluentus*), steelhead, and northern spotted owl (*Strix occidentalis caurina*). The three species are discussed in more detail below.

A fourth species, the gray wolf (*Canis lupus*) ranges widely, and the Teanaway Pack is confirmed to occur throughout in the vicinity of the three housing developments in the project area. The area is considered suitable gray wolf habitat (WDFW 2014a).

The remaining six of the 10 species are either not known to occur in the general vicinity of the project area or no suitable habitat exists. The six species are:

- Endangered: Showy stickseed (*Hackelia venust*)
- Threatened: Grizzly bear (*Ursus arctos horribilis*)
- Candidate for listing: Greater sage-grouse (*Centrocercus urophasianus*) and Whitebark pine (*Pinus albicaulis*)
- Proposed for listing: Yellow-billed Cuckoo (*Coccyzus americanus*) and North American wolverine (*Gulo gulo luscus*)

These six species are eliminated from further discussion in this EA because they have no potential to occur within the project area.

Critical habitat is present in Kittitas County for bull trout, steelhead, and northern spotted owl. Critical habitat for bull trout and steelhead is present in Teanaway River and Swauk Creek, which flow through the Hidden Valley project area and Cle Elum River, which flows just south of Pine Loch Sun. Critical habitat for northern spotted owl is located in Pine Loch Sun and on the southwestern edge of Sky Meadows.

Bull Trout

Bull trout have stringent requirements for cold water and clean gravel to rear and reproduce, and spawning usually occurs in mountain streams fed by snow-melt or springs fed by snow fields (Goetz et al. 2004). The habitat components required by bull trout are often summed up as the “Four C’s” (cold, clean, complex, and connected). Bull trout exhibit patchy distributions because even under pristine conditions, the required habitat components are not ubiquitous throughout river basins.

All three portions of the project area fall within the Middle Columbia River Recovery Unit of bull trout, which is part of the Yakima River Basin. The Yakima River Basin is considered a “core area” by USFWS as part of the Recovery Plan (Reiss et al. 2012). The Teanaway River flows through the Hidden Valley project area and has known presence of foraging, migrating, and overwintering (FMO) bull trout. The Teanaway River population appears to be a resident population but may be extirpated (Reiss et al. 2012).

Swauk Creek, also located in Hidden Valley, has one known record of an adult bull trout. It was captured in Swauk Creek in 1993, approximately 0.1 mile upstream from the Yakima River (Reiss et al. 2012).

The Cle Elum River flows near the Pine Loch Sun project area, and Cle Elum Lake is immediately adjacent. These two water bodies have known presence of FMO bull trout. The Cle Elum dam was built in 1933 at the confluence of Cle Elum Lake and the lower Cle Elum River (below the lake) and is a complete fish passage barrier. If bull trout are present in Cle Elum Lake, they would be considered a resident population. The lower Cle Elum River is considered bull trout critical habitat and may be used by bull trout. However, there is no confirmed FMO presence or spawning.

Thornton Creek flows through Sky Meadows. Bull trout is not known to occur in Thornton Creek.

Steelhead

Steelhead exhibit the most complex life history of any species of Pacific salmonid. Steelhead can be anadromous (referred to as steelhead) or freshwater (referred to as rainbow trout).

The Middle Columbia River steelhead Evolutionarily Significant Unit (ESU) occurs in the project area. It includes the steelhead population up to and including the Yakima River. Almost all steelhead populations within this ESU are summer-run fish including those in the project area. A balance between 1- and 2-year-old smolt outmigrants characterize most of the populations within this ESU. Adults return after 1 or 2 years at sea. Hatchery production of steelhead in the Yakima River system was relatively limited historically and was phased out in the early 1990s. Decades of agricultural impacts have heavily affected lower reaches of most major tributaries in this ESU (Good et al. 2005).

Teanaway River and Swauk Creek in Hidden Valley are designated critical habitat for steelhead, and individuals are known to occur. Steelhead does not occur within Pine Loch Sun or Sky Meadows.

Northern Spotted Owl

Northern spotted owls live in forests characterized by dense canopy closure of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops. Although they are known to nest, roost, and feed in a wide variety of habitat types, spotted owls prefer older forest stands with variety: multi-layered canopies of several tree species of varying size and age, both standing and fallen dead trees and open space among the lower branches to allow flight under the canopy.

Typically, forests do not attain these characteristics until they are at least 150 to 200 years old (USFWS 2014c).

There are no known northern spotted owl “site centers” or nesting areas within the project area (WDFW 2014a). A 1.8-mile-radius median home range circle is typically applied to each site center by WDFW. Two of these circles overlap within the project area. They are for the site centers at Dingbat Creek, which contained a pair with young at the nest in 2005 northeast of Pine Loch Sun, and Osborn Point southwest of Sky Meadows, which contained a single owl observation in 2005. There are no site centers or home range circles in the vicinity of Hidden Valley.

Northern spotted owl habitat is mapped as present within the project area for all stages of spotted owl life history (Davis et al. 2011). Spotted owl habitat is often subdivided into the following categories (USFWS 1992; 2011):

- Nesting/roosting habitat – Forested areas used for nesting, roosting, foraging, and dispersal by spotted owls that usually have more late-seral forest characteristics than “foraging” or “dispersal” habitats.
- Foraging habitat – Forested areas used largely for foraging, dispersal, and other nocturnal activities but not nesting or roosting.
- Dispersal habitat – Forested areas used predominantly for dispersal but not nesting, roosting, or foraging.

These categories are not absolutes but instead represent generalizations and are created from modeling of forest stands. Hidden Valley is mapped as containing little suitable habitat, and it is in small pockets along the Teanaway River and near the higher elevation forested ridges. Pine Loch Sun is mapped as containing nesting/roosting habitat near the central portion of the project area where houses are at the highest density. Approximately half of Sky Meadows is mapped as nesting/roosting habitat, and all of the habitat is in the southern and eastern portions.

For more details about northern spotted owl see Appendix E.

4.3.4 Other Special-Status Species

Two species are listed in Kittitas County as Candidate Species under the ESA: greater sage-grouse (*Centrocercus urophasianus*) and whitebark pine (*Pinus albicaulis*). Candidate Species are those that have been petitioned and are actively being considered for listing as Endangered or Threatened under the ESA. Candidate Species are afforded no protection under the ESA.

Data from WDFW and WNHP were queried for known special-status species in and near the project area (WDFW 2014a and WNHP 2014). These data show no special-status species in the project area.

4.3.5 Consequences of Alternatives

No Action Alternative

Under the No Action Alternative, vegetation management activities would not be funded, however some wildfire mitigation activities would be expected to continue as initiated by property owners, through existing local programs/requirements, or as required by homeowners insurance providers. The existing high risk of vegetation loss from catastrophic wildfires would continue, as would vulnerabilities to biological resources (e.g., vegetation, wildlife, fish).

Vegetation management activities could cause minor localized and temporary disturbance to wildlife, including ESA-listed species. There would be human activity or noise associated with chainsaws, chippers, brush mowers, and masticators. Future uncontrolled wildfires, especially catastrophic fires, could affect wildlife through the loss of habitat or the mortality of individuals. These impacts to biological resources could be minor to moderate, depending on the severity and location of wildfires.

Proposed Action

Vegetation

As the defensible spaces are established and maintained, various disturbances from work crews, removal of individual small trees and brush, and hand pruning or limbing may result in local, indirect, small adverse effects to native plant communities.

Examples of the types of vegetation to be treated are ponderosa pines, Douglas firs, lodgepole pines, junipers, sagebrush, bitterbrush, and invasive species. However, many of the properties have non-native ornamental or weedy species in the potential treatment areas. Trimming or removing these plants would not negatively affect native plant communities. Because these activities have negligible ground-disturbance and would be done mostly by hand, the potential is low that new invasive plant species populations would become established or that existing populations would expand as a result of the Proposed Action.

No adverse impacts to Suksdorf's monkeyflower are anticipated from the Proposed Action. The species is not expected to be in the treatment areas, and treatments and maintenance are likely to have negligible ground disturbance.

Wildlife, Fish and Threatened and Endangered Species

Wildfire fuels reduction activities to establish the defensible spaces could have minor, localized, and scattered impacts to wildlife through habitat modification. Various factors, including changes in food sources, shelter, population density, and dispersal effort, would determine the severity of impacts to non-listed wildlife. Adverse effects from maintenance of defensible spaces would be negligible.

No permanent conversion of forested habitat to other types of habitat is anticipated as part of the Proposed Action. The project area would remain as upland forest habitat, and wildlife habitat would in general remain intact. The Proposed Action would focus only on limited thinning of existing forest and removing biomass near structures.

Temporary disturbance to wildlife could occur from the physical presence of workers and by noise generated the equipment used (e.g., chainsaws, chippers, brush mowers, masticators). The disturbance is anticipated to be of short duration (no more than a few days) on each property during the first year. The disturbance could result in temporary avoidance of the area by wildlife. Additional disturbance may occur once a year for the 10-year maintenance period. Impacts to wildlife from the temporary disturbance are considered minor because of the short duration of work on any given parcel. It is also considered minor because the most intense treatment would occur within a limited radius of existing homes and structures where localized human activity already occurs.

Work that occurs during the summer bird breeding season (generally from March through August) may have minor impacts on nesting birds and birds protected under the MBTA. The disturbance could result in abandonment of nesting efforts or displacement from preferred foraging areas, which would affect ground-nesting and shrub-nesting birds to a greater extent than birds that nest in the upper canopy of trees. Cavity-nesting birds such as woodpeckers and nuthatches may be disproportionately affected because of the emphasis on removal of dead or dying trees (snags). To minimize the potential for migratory bird effects, initial treatment activities will be precluded during the nesting season, unless a project site survey determines there would be no migratory birds affected by treatment activities. Small mammals and reptiles may lose some habitat as a result of the removal of downed wood.

The Proposed Action would benefit wildlife habitat and species by reducing the risk of catastrophic loss from future wildfires, in terms of habitat degradation and mortality.

There would be no impact to ESA-listed aquatic species (e.g., bull trout, steelhead) because of the prohibition on removal of 8-inch-dbh or larger trees near Teanaway River, Swauk Creek, and Cle Elum Lake.

Impacts to the gray wolf are not anticipated because of the location, low impact nature and short duration of work. The Proposed Action is similar to the ongoing human activity in these residential areas and the wolves, which are shy by nature, are likely to avoid these disturbances.

Impacts to the northern spotted owl are considered minor. No known nests occur within the project area. Some northern spotted owl habitat has been mapped through computer modeling as occurring in the project area in Pine Loch Sun and Sky Meadows (USFWS 1992; 2011). Jennifer Pretare, a URS Group, Inc. (URS) professional biologist, reviewed the habitat sites in the field on August 1, 2014 and determined that they are likely too young, single-layered, and too densely forested to be highly suitable for northern spotted owls. In addition, most areas contain houses. The sites may be suitable for dispersal of northern spotted owls but are not likely to contain standing snags or live trees with broken tops large enough for nesting.

The Proposed Action may benefit northern spotted owls in the long term. Wildfire appears to be the leading cause of habitat loss for the northern spotted owl (Davis et al. 2011). Reducing the risk of wildfire may prevent catastrophic wildfires in the project area and therefore prevent loss of existing forest stands.

For more details about northern spotted owl see Appendix E. For the USFWS concurrence on findings of the Biological Assessment see Appendix F.

4.4 CULTURAL RESOURCES

Cultural resources consist of locations of human activity, occupation, or use identified through field inventory, historic documentation, or oral evidence. The term encompasses historic properties as defined by the National Register of Historic Places (NRHP), including archaeological and architectural properties, as well as sites or places of traditional cultural or religious importance to Native American Tribes or other social or cultural groups.

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (16 U.S.C. § 470f), requires that activities needing Federal permits or using Federal funds undergo a review process to consider historic properties that are listed in or may be eligible for listing in the NRHP. The State Historic Preservation Office (SHPO) is the Federal agency's primary Section 106 partner. Because Section 106 is a process by which the Federal Government assesses the effects of its undertakings on historic properties, it is the primary regulatory framework used in the NEPA process to determine impacts on cultural resources.

In accordance with Section 106, FEMA has delineated the Area of Potential Effects (APE) for the project area as approximately 3,351 acres encompassing 1,245 lots in Hidden Valley, Pine Loch Sun, and Sky Meadows (see Appendix A, Figures 2 through 4).

4.4.1 Ethnographic and Historical Context

Ethnographic Period

During the ethnographic period, the project area was within the territory used primarily by the Kittitas, a Sahaptin-speaking group also referred to as the Upper Yakima who occupied the Upper Yakima Valley north of Selah and the Kittitas Valley (Ruby and Brown 1992). The Kittitas were bounded to the north by Middle Columbia River Salishans and to the south by the Yakima proper or Lower Yakima (Miller 1998; Schuster 1998). The largest Kittitas settlement of approximately 500 people was located near the present town of Thorp. Additional villages were located a few miles below Thorp, near Ellensburg, and at Kittitas.

The Kittitas were semi-nomadic with the primary subsistence activity being fishing, supplemented by hunting and gathering. They practiced a seasonal subsistence and settlement system that included wintering in semi-permanent villages along the Columbia River and its tributaries. Salmon was of primary importance and could be taken in mid-spring; people left winter villages for established fishing stations. Kittitas territory had a fishing site where groups including the Kittitas, Yakima, Wenatchi, and Columbia gathered; as many as 1,000 people gathered at this place (Anastasio 1985).

As summer progressed, families established small camps at higher elevations to gather berries, bulbs, roots, and nuts. Near the beginning of August, groups convened at the camas grounds in the Kittitas Valley (Schuster 1998). With the onset of fall, families returned from the higher country to prepare for the winter and coalesced into semi-permanent villages along the river once again. This pattern of subsistence and settlement was established throughout prehistory and persisted into the ethnographic period until Euroamerican settlement and subsequent establishment of reservations resulted in a disruption to the native economy in the Columbia Plateau by the middle of the nineteenth century.

Historical Period

Fur traders were among the first Euroamericans to frequent the Kittitas Valley during the early 1800s. Alexander Ross of the North West Company traveled the region in 1814 and observed a large tribal gathering in the Kittitas Valley (Schuster 1998). Soon after the decline of the fur trade, missionaries began to inhabit the region. Father Charles Pandosy is considered the first permanent Euroamerican settler to have lived near Ellensburg, having established a mission on Manastash Creek in 1848.

Ranching

Within 2 years of the establishment of Washington Territory, Governor Isaac Stevens signed a treaty on June 9, 1855, with Yakama Chief Kamiakin and other tribal leaders. Increased Euroamerican settlement occurred within the ceded lands as cattle ranchers patented land claims in the Kittitas Valley during the 1860s. The abundant bunchgrass and clear streams of the Kittitas Valley gave rise to a prosperous cattle industry. As early as 1861, white ranchers from the Yakima Valley grazed their cattle in the Kittitas Valley (Ochran 2014). By the late 1860s, cattle ranchers established land claims in Kittitas itself. A wagon road over Snoqualmie Pass was completed in 1867, which allowed ranchers easy, dependable access to larger markets to sell their cattle. Over the next 10 years, especially in the late 1870s, new ranches flourished and large herds of cattle grazed freely. The resulting overproduction led to declining beef prices. Prices, however, rose to earlier levels after the severe winter in 1880 to 1881 killed more than half the herds. Although the number of cattle eventually returned to early levels, overgrazing was beginning to affect the range. As a result, the Federal Government began to regulate grazing in 1897, which led to a gradual shift from open grazing to fenced pastures and hay feeding (Ochran 2014).

Mining

Gold and coal were discovered in the region in 1867 and 1883, respectively, which also contributed to increased development. Local prospectors discovered gold around Swauk Creek in 1867, but local residents were skeptical about the discovery.

The prospectors discovered more gold in 1873 and established the Swauk Mining District and mining laws.

Coal was discovered by homesteaders in 1883. In the early 1880s, coal and mineral activities began in the Cle Elum River Valley and the surrounding mountains. Early miners extracted the fossil fuel with picks, hoisted it from shafts by basket and rope, and shoveled it onto wagons by hand. The ropes and baskets were eventually replaced by mules and mule skinnners. These methods were suitable because the coal was primarily for local use.

In 1886, the Northern Pacific Company began to actively develop the region's coal deposits. By the end of the year, a railway to Cle Elum and Roslyn had been constructed, and the first shipment of coal (1,500 tons) was sent to markets to the west. At the turn of the century, several large coal concerns were mining more than a million tons of coal per year. Production peaked in the 1920s as companies introduced modern extractors, loaders and conveyors, and electric locomotives. Mining subsided because of competition from oil producers in the 1930s (Ochran 2014).

Roslyn and Cle Elum prospered because of their large coal deposits. Coal mining in the Kittitas region was initially developed by the Northern Pacific Railroad in 1886 to fuel steam locomotives. The Northern Pacific owned the Roslyn town site and many area mines. The Roslyn–Cle Elum coalfield contained eight known seams, six of which were mineable.

By 1963, the year the last mine in the region closed, Roslyn–Cle Elum had shipped more than 50 million tons of coal. Interest in reopening mines has surfaced periodically since then. Some gravel surface mining is operational today on private lands, and permits are being issued by the USFS for exploratory precious metal mining. The Swauk Mining District remains organized and is under Federal and State laws.

Community Development

Among the first Euroamerican settlers in the Kittitas Valley were Frederick Ludi and John Goller, who in 1867 built a trading post at the site of what is now Ellensburg. By 1883, a few businesses were well established, and the town was designated as the seat of newly formed Kittitas County. The Kittitas County Fair was held near Ellensburg beginning in 1885. The Northern Pacific Railroad arrived in 1886, and the town became a center for commerce and banking and for farming and ranching families in the Kittitas Valley. A fire burned much of Ellensburg in 1889. In 1891, a normal school, the predecessor to Central Washington University, was chartered (Becker 2005a; 2005b).

By the early 1900s, agriculture began to replace ranching as the primary industry, and the completion of several irrigation projects spurred the growth of the local fruit economy. The Chicago, Milwaukee & St. Paul Railroad arrived in Kittitas County in 1909.

By the 1920s, automobile routes were well established, facilitating transportation of goods to and from the Seattle area. In 1923, the first official Ellensburg Rodeo was held in conjunction with the Kittitas County Fair and became an annual event, a tradition that has continued (Becker 2005a; 2005b).

Recent community developments include Pine Loch Sun, Hidden Valley, and Sky Meadows, which were established in the 1960s and 1970s. These communities encompass the project Area of Potential Effects.

4.4.2 Identification of Historic Properties

The identification of historic properties was completed by Sarah McDaniel, a URS professional archaeologist, and Leesa Gratreak, a URS architectural historian, both of whom meet the Secretary of the Interior's Professional Qualification Standards for their disciplines. Analysis was based on a review of digital photographs, readily available materials collected during a desktop review, and a confidential search of the Washington Information System for Architectural and Archaeological Records Data (WISAARD). The WISAARD search was conducted in July 2014 to determine the presence or absence of previously recorded properties and the extent of survey coverage in and near the Area of Potential Effects.

Above-ground Resources

Hidden Valley

One previously documented historic property is present within the Hidden Valley project area. The Zuke Barn is a gambrel-roofed building listed on the Washington State Heritage Register and may date to the 1890s.

Pine Loch Sun

No previously documented historic properties are present within the Pine Loch Sun project area. Based on available data via WISAARD, there are at least two historic houses within approximately 1,000 feet of the Pine Loch Sun project area. One residence is along the Cle Elum Lake shoreline, and others are clustered in the town of Ronald southeast of the project area near the former Roslyn Cascade Coal Mine No. 4 entrance. Most appear to date from the 1910s to mid-1950s.

Sky Meadows

No previously documented historic properties are present within the Sky Meadows project area or its immediate vicinity. The nearest inventoried historic property is more than 1 mile to the northeast.

Archaeological Resources

Hidden Valley

The most comprehensive study in the Hidden Valley project area consists of a cultural resources inventory that covered more than approximately 400 acres for a proposed property development along Highway 97 (Landreau 2007). The historic Zuke Farmstead (45KT2748) and Zuke Barn and the pre-contact Zuke Spring site (45KT2747) were identified within the Hidden Valley project area as a result of the inventory (Landreau 2007). A smaller scale survey was conducted along Swauk Creek and documented a historic railroad berm (45ST3123) (Landreau and McClean 2010). The McCallum Graves (45KT2761), Swauk Ranch Refuse Scatter (45KT2712), and Swauk Ranch Talus pits (45KT2711) were also identified as part of a forest practices application study that examined 265 acres within the eastern portion of the Hidden Valley project area (Orvald 2006; 2007).

Pine Loch Sun

No recent inventories (post-1995) have occurred within the Pine Loch Sun project area. However, a previous inventory documenting cultural resources associated with the Roslyn Coal Field formally documented one archaeological site (45KT570) as well as numerous historic mining-related features within the modern Pine Loch Sun subdivision and surrounding areas (Boreson and Shideler 1984; Shideler 1984). Site 45KT570 consists of the historic Roslyn Cascade Coal Mine No. 4 entrance. The site measures 150 feet by 30 feet and consists of a rock tunnel portal with attached snowshed, a powder house, an unidentified structure, cables, wood boards, and waste coal pile. The site is potentially eligible for listing in the NRHP and is in the southeastern portion of the project area.

Sky Meadows

No cultural resources inventories and no archaeological sites have been documented for Sky Meadows. The nearest site within 1 mile of the modern subdivision is 45KT3291, a circa 1920s cistern located about 500 feet west of the project area.

The cistern was used to provide water to the Peoh Point School/Grange and ceased to be used when the Sky Meadows subdivision was developed in the mid-1990s (Amara 2010).

4.4.3 Summary of Documented Cultural Resources

The cultural resources found within the project area are listed in Table 4-2. Seven archaeological resources consisting of historic-era sites (including a coal mine, railroad berm, refuse scatter, homestead, and cemetery) and two pre-contact-era sites (including talus pits and a camp) are found in the project area.

All archaeological resources are considered potentially eligible for listing in the NRHP. In addition, one above-ground historic property, the listed Zuke Barn, is also present.

The Hidden Valley, Pine Loch Sun, and Sky Meadows communities were established in the 1960s and 1970s. Previous cultural resources are rare primarily because the lands are privately held. However, previous inventories have occurred across approximately one-third of the Hidden Valley project area, in the easternmost portion. Because this area has a variety of historic and pre-contact site types, similar resources would be expected to occur within areas that have never been inventoried for cultural resources. Mining-related features are also likely to be present at Pine Loch Sun given its proximity to the Roslyn Cascade Coal Mine, while Sky Meadows is more likely to have evidence for rural farmsteads. Each of the three project area communities is likely to have evidence for pre-contact use given the large areal extent of the project and the variety of sensitive landforms present, such as streams, knolls, rock outcrops, and prairies.

Table 4-2: Previously Documented Cultural Resources within the Project Area

Site/Isolate No.	Name	Description	Eligibility	Community
45KT570	Roslyn Cascade Coal Mine	No. 4 entrance, 150 x 30 feet, plus coal waste piles	Potentially Eligible	Pine Loch Sun
45KT2711	Swauk Ranch Talus Pits	Three pre-contact talus pits within a 20-meter-diameter area	Potentially Eligible	Hidden Valley
45KT2712	Swauk Ranch Refuse Scatter	Bottles, glass, cans, early to mid-20th century, 55 x 30 meters	Potentially Eligible	Hidden Valley
45KT2747	Zuke Spring Site	Pre-contact camp, 60 x 50 meters	Potentially Eligible	Hidden Valley
45KT2748	Zuke Farmstead	Historic Homestead, cattle fields, c.1894, 80 x 100 meters	Potentially Eligible	Hidden Valley
45KT2761	McCallum Graves	Family interment plot with six graves dating from 1892 to 2002	Potentially Eligible	Hidden Valley
45KT3123	Swauk Logging Grade	Earthen berm, ca. 1930-1946, 50 x 4 meters	Potentially Eligible	Hidden Valley
Zuke Barn	Barn	Standing barn at Zuke Farmstead (45KT2748)	Listed on State Register	Hidden Valley

4.4.4 Consequences of Alternatives

No Action Alternative

Under the No Action Alternative, FEMA would not provide funding to reduce fuels in selected areas of Kittitas County, however some wildfire mitigation activities would be expected to continue as initiated by property owners, through existing local programs/requirements, or as required by homeowners insurance providers. Ground-disturbing activities associated with these activities would be limited. Thus, the potential to impact cultural resources is also expected to be limited.

The archaeological sites and historic property in the project area and others not yet identified would continue to be at risk to damage from wildfires.

Proposed Action

The Proposed Action would reduce fuels around residences in three rural subdivision developments in Kittitas County. Under the Proposed Action, fuels and other biomass would be removed by means of chainsaws, chippers, brush mowers, and masticators. Areas targeted for vegetation removal include at least a 30-foot radius around main residential structures. Contractors would conduct vegetation removal activities by hand, including thinning and trimming. Vegetative debris would be chipped onsite or piled. Ground-disturbing activities with the potential to impact cultural resources associated with the project are therefore expected to be limited.

Above-ground Resources

According to the SHPO, the Zuke Barn at Hidden Valley is listed on the State Heritage Register. However, because of the low impacts of the project activities and lack of work on structures, the SHPO has concurred that the Proposed Action would have no effect on National Register eligibility or listed historic and cultural resources. The Proposed Action would benefit historic buildings such as the Zuke Barn by reducing vulnerabilities from wildfires.

Archaeological Resources

The Proposed Action would occur in areas generally considered to be archaeologically sensitive, where surface or deeply buried cultural resources could be present, as evidenced by seven previously recorded sites within the project area. Additional sites are likely present that have not yet been documented.

Although direct impacts to previously documented archaeological sites are not anticipated, Kittitas County would be required to avoid these resources as a precaution to prevent even minor potential disturbances, such as pedestrian traffic across a site. In addition to avoiding known sites, to reduce the potential for impacts to cultural resources, the Proposed Action would be conditioned to maximize machinery vehicles to stay within existing roads. The vegetation thinning and trimming around residential structures would have little potential to affect archaeological resources because of the proposed low-impact methods. FEMA has determined that no additional identification or evaluation efforts are necessary, and that the Proposed Action would have no effect to historic properties.

FEMA requires all its funded ground-disturbing projects to protect cultural resources during site work. In the event of an unanticipated discovery, and in compliance with State and Federal laws protecting cultural resources, including Section 106, all work is required to cease in the immediate vicinity of the find until the appropriate parties (including the SHPO) are consulted and an appropriate resolution plan is established.

FEMA provided these Section 106 findings and determinations in a formal letter to the SHPO, and received a concurrence on August 21, 2014 (Appendix G). Additionally, Section 106 consultation letters, dated August 13, 2014, were provided to the following Indian Tribes: Yakama Nation and Confederated Tribes of Colville Reservation (Appendix H). The Colville responded on September 25, 2014 with recommended conditions regarding inadvertent discoveries and for activities outside the specified project area communities that have the potential to disturb cultural resources. No responses were received from the Yakama Nation.

4.5 SOCIOECONOMIC RESOURCES

4.5.1 Public Safety

Residential development in the WUI places communities at risk of a catastrophic wildfire and threatens public safety. Fire alerts and warnings and evacuations are designed to prepare communities to be proactive in preventing wildfires and respond immediately if an evacuation is declared. Wildfires can put homes directly at risk and also result in transportation and utility failures, flash flooding and mudslides, and air pollution concerns. Emergency responders typically coordinate with communities as wildfires approach and educate homeowners on how to protect their home and safely evacuate. It is important for the public to stay informed of the current risk of wildfire in their community and discuss an evacuation plan with their family and neighbors. Many local and state media resources (e.g., television, radio, newspaper, internet), telephone numbers, local emergency response offices, and word of mouth inform the public on wildfire risk in their area.

4.5.2 Environmental Justice

EO 12898, Environmental Justice, directs Federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations resulting from Federal programs, policies, and activities. Socioeconomic and demographic data for residents in the project vicinity were studied to determine whether the Proposed Action would have disproportionate impacts on minority or low-income persons.

Data from the 2012 Census American Community Survey 5-year estimates for Kittitas County were used to identify the minority¹ and low-income² compositions of the project area, which are located in Census Tracts 9751, 9752, and 9753. In the project area, the minority population was approximately 6 percent, and the poverty rate was approximately 10 percent (U.S. Census Bureau 2012). Because these levels are lower than in Kittitas County or Washington State, no detailed analysis for impacts to minority and low-income populations is required per EO 12898.

4.5.3 Consequences of Alternatives

No Action Alternative

Under the No Action Alternative, FEMA would not provide funding to reduce fuels however some wildfire mitigation activities would be expected to continue as initiated by property owners, through existing local programs/requirements, or as required by homeowners insurance providers. In the event of a wildfire, there would be an increased risk to public safety and emergency responders in these extreme risk communities. Rough gravel roads, steep slopes and canyons, and inadequate fire flow would likely make an evacuation and emergency response in these communities more challenging. Minority or low-income populations in the project area would not benefit along with the entire affected population from a reduction in wildfire risks.

Proposed Action

Properties with maintained defensible space would be expected to be less vulnerable to catastrophic wildfires. Reducing the risk or severity of wildfires would generally be a positive effect to public safety and emergency responders because of the consequent reduction in risk to structures, roads, utilities, and air pollution. The project area was chosen as a high priority for mitigation based solely on the need to protect residences from wildfires; demographics were not a factor in the decision. Furthermore, minority or low-income populations in the project area will benefit equally to the entire affected population from a reduction in wildfire risks.

¹ A minority is “a person who is: (1) Black (a person having origins in any of the black racial groups of Africa); (2) Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race); (3) Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or (4) American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through Tribal affiliation or community recognition)” (U.S. Census Bureau 2014).

² A person with low income is identified as “one whose median household income is at or below the Department of Health and Human Services poverty guidelines” (USHHS 2013). Income data based on Department of Health and Human Services guidelines are difficult to gather, so U.S. Census Bureau data are often used for environmental justice analyses.

4.6 RECREATION

Kittitas County is home to many recreational activities (e.g., fishing, hiking, horseback riding, kayaking, boating, biking, birding, hunting, skiing, golf). The following recreational areas are adjacent to or near the project area:

- *Okanogan-Wenatchee National Forest*. This national forest has 4 million acres and is situated along the eastern slopes of the Cascade Mountains. It stretches 180 miles from the Canadian border to the Goat Rocks Wilderness and ranges from glaciated alpine peaks, valleys of old-growth forest, and shrub-steppe conditions on the eastern edge. The basin contains marshes and meadows associated with Upper Klamath Lake and the Williamson River. Speelyi Beach Park is located along the southern shore of Cle Elum Lake (USFS 2014).
- *Teanaway Community Forest*. This DNR/WDFW managed forest has 50,272 acres and is at the headwaters of the Upper Yakima subbasin between Cle Elum Lake and U.S. Highway 97. Teanaway West Fork, Indian Camp, and 29 Pines Campgrounds are free and open to the public. Trailheads to several trails in nearby national forests are located within a community park (DNR 2014).
- *Suncadia Resort*. This planned unincorporated resort community for permanent residents and visitors is located on the southern shore of Cle Elum Lake and covers approximately 6,300 acres. The Suncadia Conservancy is a 1,200-acre conservation easement along the Cle Elum River, which is open to the public (Suncadia 2014).
- *Washington State Horse Park*. This park is located on 112 acres of gently sloping terrain and is used primarily for equestrian activities. The park has 23 recreational vehicle hookup sites and spaces for tent camping (WSHP 2014).
- *L.T. Murray Wildlife Area*. The L.T. Murray Unit of the wildlife area is 54,000 acres and is owned by WDFW, DNR, and the USFS. Camping is available in the summer, and wildlife viewing includes eagles, elk, deer, bighorn sheep, and black bears (WDFW 2014b).

4.6.1 Consequences of Alternatives

No Action Alternative

Under the No Action Alternative, FEMA would not provide funding to reduce fuels however some wildfire mitigation activities would be expected to continue as initiated by property owners, through existing local programs/requirements, or as required by homeowners insurance providers. In the event of a wildfire, ingress and egress to recreational areas could be disrupted. Depending on the size and severity of the wildfire, portions of nearby forests or parks could be damaged or destroyed. Adverse impacts would range from minor to major.

Proposed Action

Project activities would avoid recreational areas because private property is targeted in residential areas. Vegetation removal activities would be coordinated with recreational facility managing agencies, if necessary. Thinning of trees and shrubs is not anticipated to adversely affect recreational activities or viewpoints. Impacts would be negligible and temporary. Depending on the location and size of treated properties, the Proposed Action could provide some minor benefits to recreational areas by complementing wildfire mitigation that occur within them and help reduce the spread of wildfires.

4.7 CUMULATIVE IMPACTS

CEQ regulations for implementing NEPA require an assessment of cumulative effects during the decision-making process for Federal projects. Cumulative effects are defined as:

... the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR § 1508.7).

Cumulative effects were determined by combining the effects of these alternatives with other past, present, and reasonably foreseeable future actions.

Ongoing wildfire mitigation activities on neighboring tracts of land, as initiated by residential landowners and private, local, State, or Federal entities that are similar in scale to those of the Proposed Action, would further reduce the possibility of an intense and widespread wildfire in the project area.

The Kittitas County *2006 International Wildland-Urban Interface Code* (ICC 2006) requires property owners of new construction to meet building construction and defensible space requirements. The County does not have the authority to mandate these requirements for owners of properties that were constructed before 2006.

The Kittitas County Conservation District is working together with DNR, USFS, and local fire districts to educate landowners about wildfires through Firewise and other programs. In 2013, KCCD provided nearly \$500,000 in cost-share for property improvements and helped seven communities become Firewise communities (KCCD 2013). These agencies have approximately 2,900 acres of treatment projects and Forest Practice Applications in the surrounding area. Firewise is an ongoing program in Kittitas County and risk assessments and cost-shares for property improvements are continuing in 2014, with 68 acres of treatment completed as of early September (KCCD 2014).

Given the small scale and scattered distribution of acreage proposed for treatment by the Proposed Action, when combined with other activities that are planned by the County, State and Federal entities, the Proposed Action is not expected to have adverse cumulative impacts on geology or soils; air quality; climate; water resources, wetlands, or floodplains; wildlife or fish (including ESA-listed species and habitat); historic or archaeological resources; socioeconomic resources or environmental justice; or recreation because no project impacts are anticipated. Minor cumulative impacts to vegetation are anticipated, but the impacts would be limited to the project area and surrounding properties.

Cumulative impacts to wildfire adapted vegetation communities are possible as a result the treatment methodology (limited thinning, removing brush and lower limbs) altering understory characteristics. However, the impacts are expected to be minor, because this methodology may mimic some of the vegetation management effects of periodic low intensity natural wildfires. Furthermore, the cumulative effect of treating contiguous properties reduces the risk of a catastrophic wildfire and consequent widespread loss of vegetative cover. The Proposed Action when combined with other wildfire mitigation activities will reduce overall wildfire risk and benefit public safety.

SECTION FIVE AGENCY COORDINATION AND PUBLIC INVOLVEMENT

During project development, Kittitas County coordinated with surrounding jurisdictions, local agencies, and landowners in the project area. During preparation of this EA, the SHPO and the Confederated Tribes of the Yakama Nation and the Confederated Tribes of the Colville Reservation were also consulted for comment (see Appendices G and H). The USFWS was consulted for their concurrence on the Biological Assessment (see Appendix F).

FEMA initiated the NEPA scoping process by sending out a scoping notice on July 5, 2014, to federal, State, and local agencies; and interested parties. The purpose of the scoping process was to inform agencies and stakeholders about the proposed project and allow the public, organizations, agencies, and Tribes to provide comments regarding the scope of the project, the proposed alternatives, and any environmental and historic preservation issues of concern that should be considered in the draft EA. There was a 30-day period for scoping comments, which ended on August 4, 2014. No substantive comments were received.

A public notice was required for the draft EA and is included as Appendix D. The public, Tribes, and agencies had the opportunity to comment on the EA for 30 days after publication of the notice, November 11, 2014. The notice identified the action, location of the proposed site, participants, location of the draft EA, and how to submit comments. No substantive comments were received.

The *Kittitas County Hazard Mitigation Plan* (Kittitas County 2012) and the *Kittitas County Wildfire Protection Plan* (Kittitas County 2009) are relevant to public involvement efforts supporting this EA.

5.1 KITTITAS COUNTY HAZARD MITIGATION PLAN

The *Kittitas County Hazard Mitigation Plan* (Kittitas County 2012) was completed in 2012. The plan identifies hazard mitigation goals, objectives, and proposed projects that will reduce or prevent injury or damage from hazards. The lead agency developing the plan was Kittitas County and participating partners included Kittitas County Conservation District, cities, fire districts, school districts, utility districts, water districts, other local agencies, and the public.

The primary natural hazards identified in the plan were avalanche, dam failure, drought, earthquake, flood, landslide, severe weather, volcano, and wildfire. The likelihood of a major wildfire in the County in the next 25 years is rated as high, and the Proposed Action is within wildland hazard extreme and high risk areas (Kittitas County 2012).

5.2 KITTITAS COUNTY WILDFIRE PROTECTION PLAN

The *Kittitas County Wildfire Protection Plan* was completed in 2009 by the Kittitas County Fire Protection Committee in cooperation with Federal, State, and local staff and public input. The vision of the plan is to “develop and implement a countywide fire protection plan that provides for sustainable development, resident and responder safety, and the protection of both natural and man-made resources of Kittitas County.” Goals of the plan include reducing the amount of burned land and losses in the WUI, public education, targeted fuel reduction projects, and alternative treatment methods such as modifying tree stand density (Kittitas County 2009).

SECTION SIX PERMITTING, PROJECT CONDITIONS, AND MITIGATION MEASURES

No permits would be required for the Proposed Action. Activities in the project area would comply with the project's scope of work methodology described in Section 3. Kittitas County would comply with the following project conditions and mitigation measures:

- To minimize potential impacts to surface waters, no vegetation management activities would be allowed within 5 feet of a stream's Ordinary High Water Mark (OHWM); and within 15 feet of the OHWM, limbing and thinning would not be allowed on trees greater than 7 inches dbh that overhang the streams.
- Fuels reduction activities in wetlands in the target communities will be avoided. If wetlands can not be avoided, additional analysis of proposed activities and the wetland on the project site will be required to minimize impacts.
- Removal of trees 8 inches dbh or greater would be prohibited within 100 feet of the OHWM of water bodies with known presence of ESA-listed fish species or as otherwise specified during ESA consultation, including: Cle Elum Lake, Teanaway River, and Swauk Creek.
- To avoid potential noise-related disturbance to northern spotted owls, project activities would be prohibited between March 1 and July 31 within suitable nesting/roosting habitat for northern spotted owls as delineated in the Biological Assessment, Appendix A Figures 7 through 9 (9/25/2014).
- To minimize potential impacts to migratory nesting birds (see Appendix C for bird list), vegetation removal should occur from late summer to mid-winter, outside of the typical migratory bird-nesting season (March through August). If removal activities must take place during the nesting season, the County shall ensure that a qualified professional conducts a breeding bird survey on the property before removal activities begin in order to avoid disturbance or "take" as defined by the Migratory Bird Treaty Act (MBTA). Surveys should be coordinated with the USFWS to determine if a permit under MBTA is required or if other measures can be taken to address impacts to migratory birds or active nests. This information must be documented on the project site assessment/treatment plan.
- To minimize the potential for impacts to known archeological resources within the target communities, the County will be required to determine if a participating property has or is close to a known site. Site locations will be provided separately and characterized as avoidance areas. Details of sites must remain confidential. Fuels reduction activities must be avoided within the perimeter of the recorded site location plus a 250-foot buffer. This information must be documented on the project site assessment/treatment plan.

- The County is responsible for selecting, implementing, monitoring, and maintaining Best Management Practices to control erosion and sedimentation, reduce spills and pollution, and provide wetland and habitat protection. To the maximum extent practicable, vegetation removal activities beyond the immediate defensible space around a structure that involves use of mechanized equipment should be conducted in dry soil conditions and equipment staged on existing roads or previously disturbed areas.
- The County is responsible for securing all applicable local, State, and Federal permitting before site work and complying with conditions therein.
- In the event that cultural resources or including human remains are discovered during project activities, and in compliance with State and Federal laws protecting cultural resources and human remains, including Section 106 of the NHPA, work in the immediate vicinity would cease, the area would be secured, and the SHPO and FEMA would be notified in order to evaluate the discovery.
- Any change to the approved scope of work would require re-evaluation for compliance with NEPA and other laws and EOs before implementation.

SECTION SEVEN CONCLUSION

The EA evaluated environmental and historic resources that could be affected by the Proposed Action. The evaluation did not identify any significant adverse impacts associated with the resources of geology or soils; air quality; climate; water resources, wetlands, or floodplains; vegetation; wildlife or fish (including ESA-listed species and habitat); historic and archaeological cultural resources; socioeconomic resources or environmental justice; or recreation. Implementing the Proposed Action, which is relatively small scale because of the widely scattered nature of properties expected to be treated, along with any conditions outlined in the initial site assessment and treatment plan, associated with permits or approvals, is expected to avoid or minimize adverse effects associated with the action.

FEMA issued a FONSI for the Proposed Action.

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SECTION NINE REFERENCES

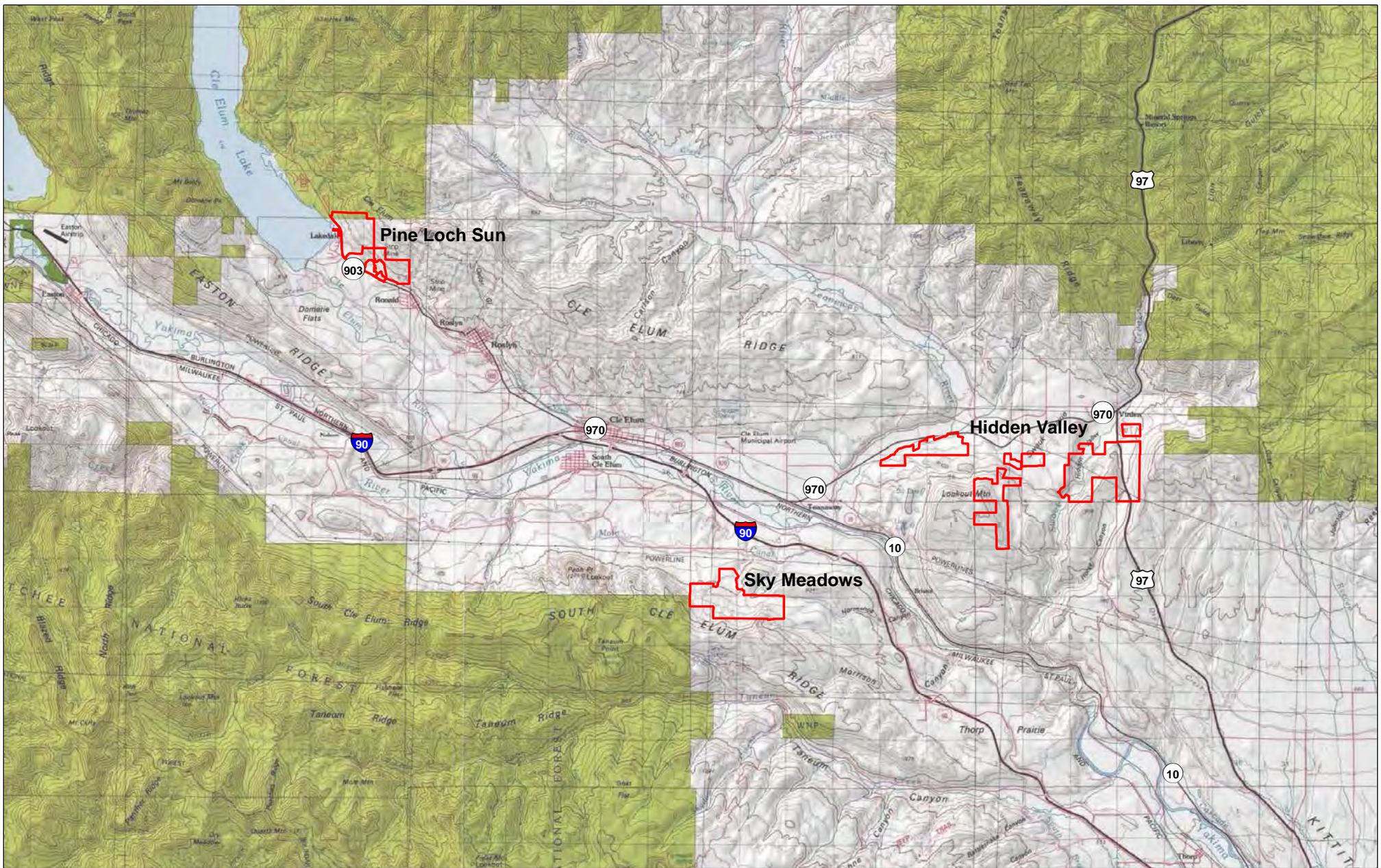
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Appendix A
Figures



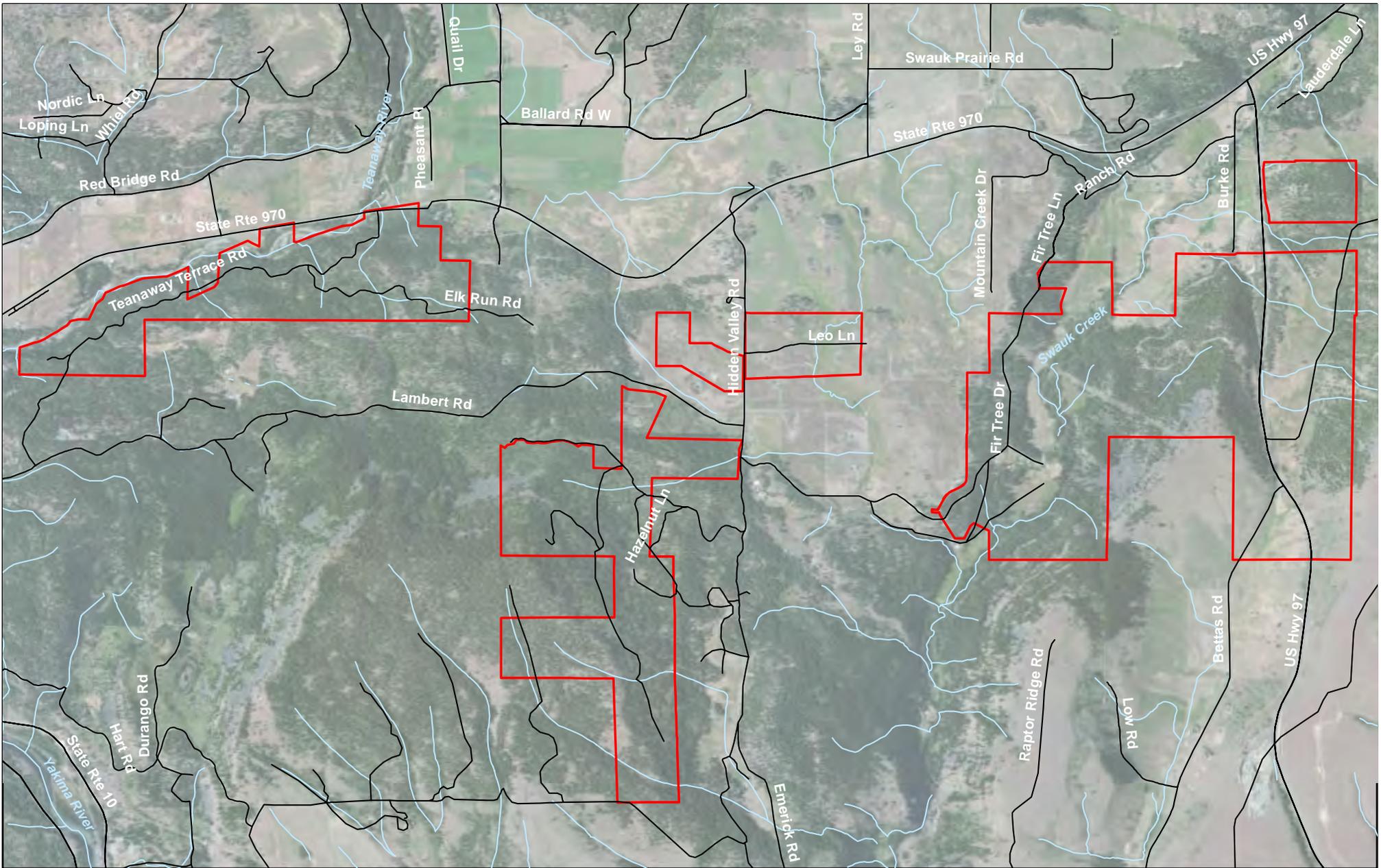
Background: ESRI USA Topo Maps.



Figure 1

Project Vicinity

Kittitas County, Washington



Background: ESRI Basemap Imagery

Legend

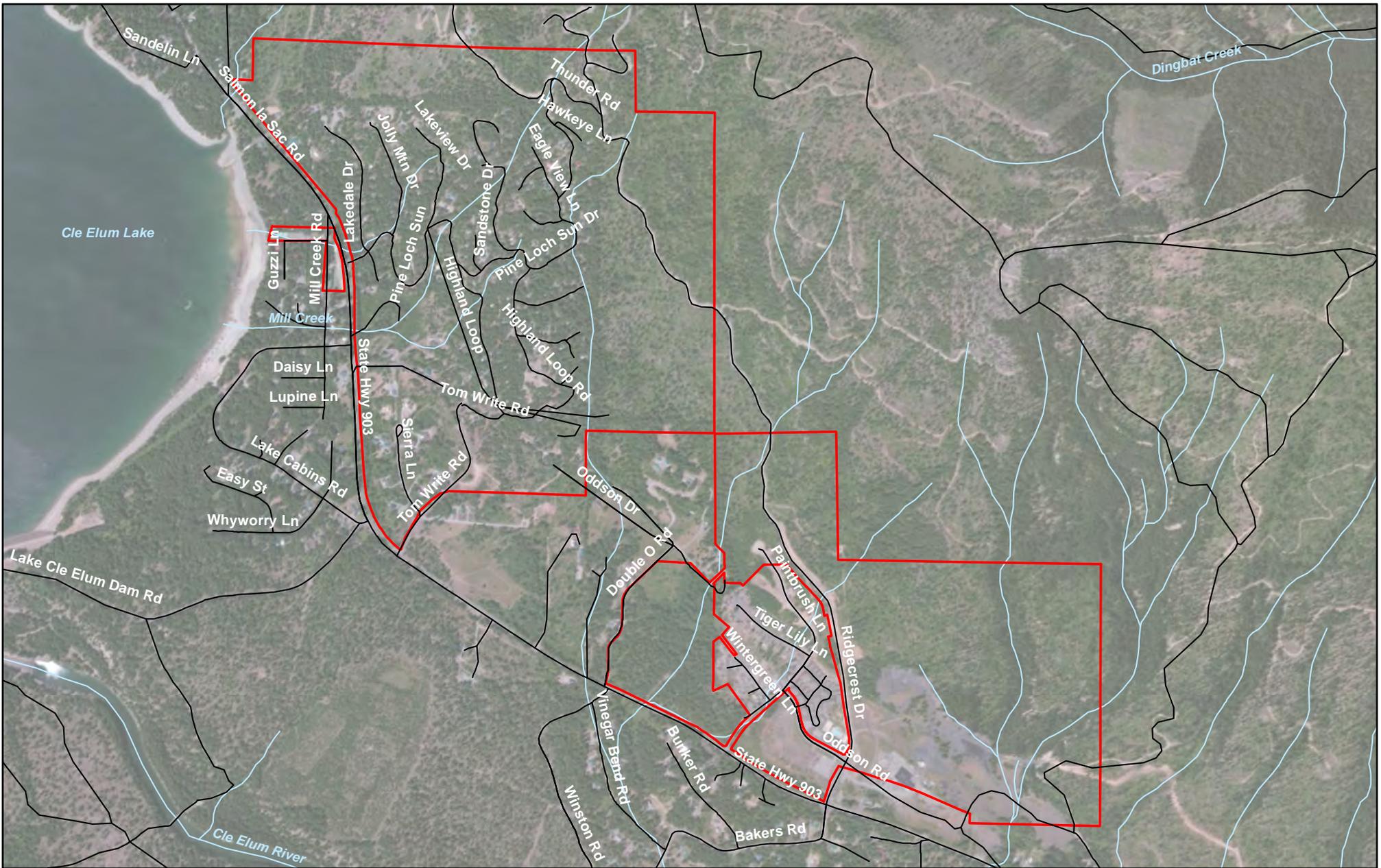
- Project Area
- Roads
- ~ Streams



Figure 2

Hidden Valley Project Area

Kittitas County, Washington



Background: ESRI Basemap Imagery

Legend

- Project Area
- Roads
- ~ Streams



Figure 3

Pine Loch Sun Project Area

Kittitas County, Washington



Background: ESRI Basemap Imagery

Legend

- Project Area
- Roads
- ~ Streams

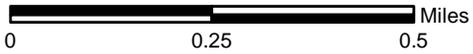
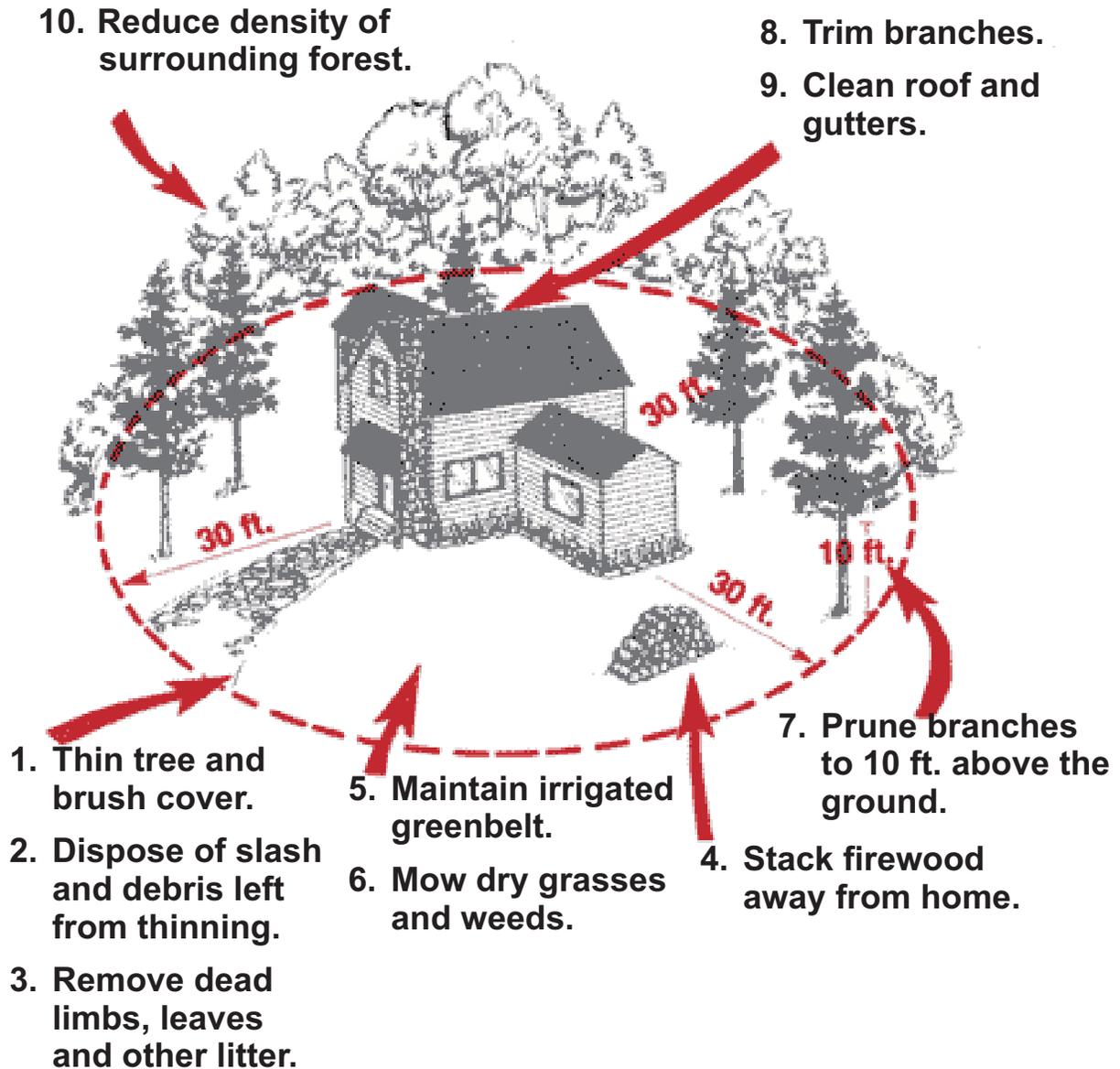


Figure 4

Sky Meadows Project Area

Kittitas County, Washington

FOLLOW THESE GUIDELINES



Source: NFPA (2009)



Source: NFPA (2009)

Appendix B
Kittitas County Prescription for Fuels Reduction

The Kittitas County Conservation District would review the project design to ensure that is consistent with Natural Resources Conservation Service and/or the Washington Department of Natural Resources standards and specifications. When approved, the design would be incorporated into the project design packet. Before initiating the project, the contractor would meet with the property owner to discuss the planned start date, operation schedule, and order of the project components.

The following Kittitas County fuels reduction prescription would be followed:

1. Dead and down material up to 10 inches in diameter will be chipped and the chips scattered over the work site. Coordinate with landowner to see if any should be left for firewood.
2. The limbs of dead and down trees greater than 10 inches in diameter will be removed and chipped and the remaining trunk will be left in place unless several trees have created a piled concentration. In this case, the remaining tree trunks will be separated by at least 10 feet from any other logs and left on site.
3. All vegetation stumps heights will be cut no higher than 2 inches above the ground. All cuts will be a flat or parallel cut to the ground.
4. Standing dead trees with red needles still attached shall be felled and treated using the dead and down prescription as required in item 1 and 2 above.
5. The Contractor will not cut any green trees from the premises that are greater than 8-inch diameter at breast height without prior approval from the Landowner.
6. Trees 8 inches and greater in diameter (DBH) will be pruned (live and dead limbs) up to a height of 15 feet. Limbs will be pruned when branches are larger than 2 inches diameter (regardless of length) or greater than 2 feet in length (regardless of diameter). No pruning will be done to a height greater than 50% of total tree height. The cut limbs will be chipped on site.
7. Trees less than 8 inches DBH will be spaced leaving 2 feet - 5 feet between crowns. Live and dead limbs will be pruned up to a height of 15 feet. Limbs will be pruned when branches are larger than 2 inches diameter (regardless of length) or greater than 2 feet in length (regardless of diameter). No pruning will be done to a height greater than 50% of total tree height. The cut limbs and stems will be chipped on site. Trees < 3 feet high do not require pruning.
8. Non-coniferous brush will be cut and chipped/mowed on site unless islands are pre designated or agreed to by the landowner.

Appendix C
Migratory Bird Species in Kittitas County

The following migratory bird species are common to the region that includes Kittitas County.

Common Name	Scientific Name	Common Name	Scientific Name
American crow	<i>Corvus brachyrhynchos</i>	Pacific wren	<i>Troglodytes pacificus</i>
American goldfinch	<i>Spinus tristis</i>	Red-breasted nuthatch	<i>Sitta canadensis</i>
American robin	<i>Turdus migratorius</i>	Red-tailed hawk	<i>Buteo jamaicensis</i>
Black-billed magpie	<i>Pica hudsonia</i>	Rufous hummingbird	<i>Selasphorus rufus</i>
Black-capped chickadee	<i>Poecile atricapillus</i>	Song sparrow	<i>Melospiza melodia</i>
Brown-headed cowbird	<i>Molothrus ater</i>	Spotted towhee	<i>Pipilo maculatus</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>	Spotted sandpiper	<i>Actitis macularius</i>
California quail	<i>Callipepla californica</i>	Steller's jay	<i>Cyanocitta stelleri</i>
Common raven	<i>Corvus corax</i>	Tree wallow	<i>Tachycineta bicolor</i>
Dark-eyed junco	<i>Junco hyemalis</i>	Warbling vireo	<i>Vireo gilvus</i>
Hairy woodpecker	<i>Picoides villosus</i>	Western kingbird	<i>Tyrannus verticalis</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>	Western meadowlark	<i>Sturnella neglecta</i>
Great horned owl	<i>Bubo virginianus</i>	Western tanager	<i>Piranga ludoviciana</i>
Killdeer	<i>Charadrius vociferus</i>	Western wood peewee	<i>Contopus sordidulus</i>
Lazuli bunting	<i>Passerina amoena</i>	White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Mourning dove	<i>Zenaida macroura</i>	Violet-green swallow	<i>Tachycineta thalassina</i>
Northern flicker	<i>Colaptes auratus</i>	Yellow warbler	<i>Dendroica petechia</i>

Source: USFWS (2014a)

Appendix D
Public Notice

AFFIDAVIT OF PUBLICATION

State of Washington, County of Kittitas, ss: Pam Shuart being first duly sworn on oath, deposes and says: That she is the Advertising Manager of The Daily Record, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the County in which it is published and it is now and has been for more than six months prior to the date of the publications hereinafter referred to, published in the English language continually as a newspaper in Ellensburg, Kittitas County, Washington, and it is now and during all of said time printed in an true copy of

KITTITAS COUNTY CONSERVATION DST

INITIAL PUBLIC NOTICE THE
is published in regular issues (and not in supplement form) of said newspaper once a week for a period of 3 consecutive week(s), commencing on the following days.

07/05/2014 07/18/2014 07/19/2014

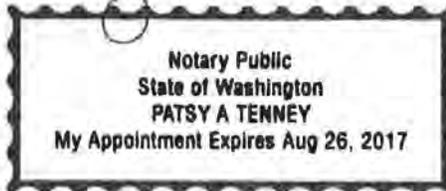
All dates inclusive and that such newspaper were regularly distributed to its subscribers during all of said period. That the full amount of the fee charged for the foregoing publication is the sum of \$617.04 the rate of \$12 per column inch for each insertion.

Pam Shuart

Subscribed to me this 21st day of July in the year of 2014

Patsy A Tenney

PATSY A TENNEY
Notary Public in and for
The State of Washington
Residing at Ellensburg,
Washington (SEAL)



INITIAL PUBLIC NOTICE

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to fund Kittitas County for a Wildfire Fuels Reduction Project (Project). Funding would be provided by the Pre-Disaster Mitigation (PDM) grant program as authorized by §203 of the Robert T. Stafford Disaster Assistance and Emergency Relief Act, 42 U.S. Code.

FEMA gives notice of the intent to prepare an Environmental Assessment (EA) for the Project, in compliance with the National Environmental Policy Act (NEPA); Executive Order (EO) 11988, Floodplain Management; EO 11990, Wetlands Protection; and EO 12898, Environmental Justice.

Kittitas County has applied for PDM to help fund the Project; with matching (25 percent) funds provided by the Kittitas County Conservation District (KCCD) and property owners. The purpose of the Project is to improve the safety of residents and reduce the risk of wildland fires through a targeted fuels reduction project in the wildland urban interface. Three developed areas in the county including Pine Loch Sun, Hidden Valley and Sky Meadows would be part of the fuels reduction Project. The Project is needed to assist property owners in these extreme fire risk areas with establishing defensible fire protection around their properties thereby improving safety for the overall communities.

Kittitas County would work with the local fire districts and KCCD to provide on-site risk assessments for each property owner that is interested to participate in the Project. A fuels reduction and vegetation management plan would be implemented when the assessment determines actions needed to create a defensible space. Work crews would remove and reduce the fuels. Each property owner would be required to sign a 10-year maintenance contract with KCCD which specifies the necessary annual maintenance activities.

Comments concerning the Project, potential alternatives, and preliminary identification of environmental issues; will be accepted from the affected public; local, state and federal agencies; Tribes; and other interested parties in order to scope the EA and inform decision-making. Comments should be made in writing, sent to the FEMA contact listed below. Comments must be received by August 4, 2014 to be considered. Additional information about the project can be obtained by contacting the applicant contact below or on the following website: www.kccd.net. Once complete, the draft EA will be made available for public comment, anticipated Fall 2014.

Responsible Official:

Science Kilner
Deputy Regional Environmental Officer
FEMA Region 10
130 228th St SW
Bothell, WA 98021-9796
science.kilner@fema.dhs.gov
(425) 487-4613 fax

Applicant Contact:

Brenda Larsen
Fire Marshal
Kittitas County
411 N Ruby St
Ellensburg, WA 98926
brenda.larsen@co.kittitas.wa.us
(509) 962-7682 fax

Publish: July 5, 18, 19, 2014

AFFIDAVIT OF PUBLICATION



State of Washington, County of Kittitas, ss: Pam Shuart being first duly sworn on oath, deposes and says: That she is the Advertising Manager of The Daily Record, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the County in which it is published and it is now and has been for more than six months prior to the date of the publications hereinafter referred to, published in the English language continually as a newspaper in Ellensburg, Kittitas County, Washington, and it is now and during all of said time printed in an true copy of

KITTITAS COUNTY CONSERVATION DST

PUBLIC NOTICE

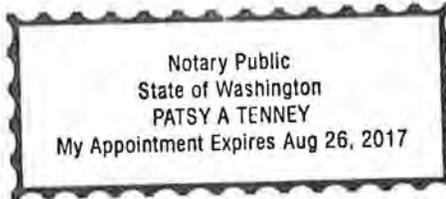
is published in regular issues (and not in supplement form) of said newspaper once a week for a period of 3 consecutive week(s), commencing on the following days.

11/11/2014 11/15/2014 11/29/2014

All dates inclusive and that such newspaper were regularly distributed to its subscribers during all of said period. That the full amount of the fee charged for the foregoing publication is the sum of \$269.87 the rate of \$8.6 per column inch for each insertion.

Subscribed to me this 2nd day of December in the year of 2014

PATSY A TENNEY
Notary Public in and for
The State of Washington
Residing at Ellensburg,
Washington (SEAL)



PUBLIC NOTICE
Federal Emergency Management Agency
Draft Environmental Assessment
Wildfire Fuels Reduction Project in Kittitas County

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide funding to Kittitas County for a fuels reduction project in Kittitas County, WA. Funding would be provided as authorized by Section 203 of the Robert T. Stafford Disaster Assistance and Emergency Relief Act.

FEMA has prepared a Draft Environmental Assessment (EA) for the proposed project pursuant to the National Environmental Policy Act of 1969 and FEMA's implementing regulations in 44 Code of Federal Regulations Part 10. The Draft EA evaluates alternatives for compliance with applicable environmental laws, including Executive Orders 11990 (Protection of Wetlands), 11988 (Floodplain Management), and 12898 (Environmental Justice). The alternatives that are evaluated in the Draft EA are (1) no action and (2) fuels reduction in the areas of Hidden Valley, Pine Loch Sun, and Sky Meadows with extreme fire risk (proposed action).

The Draft EA is available to the public for review on FEMA's Website at: <http://www.fema.gov/media-library/assets/documents/99098> and is also available for review at the Kittitas County Conservation District at 2211 W Dolarway Road, Suite #4, Ellensburg, WA 98926.

If no significant issues are identified during the comment period on the Draft EA, FEMA will finalize the Draft EA, issue a Finding of No Significant Impact (FONSI), and fund the project. The FONSI will be posted to the same website above. Unless substantive comments on the Draft EA are received, FEMA will not publish another public notice for this project.

The deadline for submitting written comments on the Draft EA is December 15, 2014, by 5 p.m. Comments should be mailed to Science Kilner, Deputy Regional Environmental Officer, FEMA Region X, 130 228th Street SW, Bothell, WA 98021; e-mailed to science.kilner@fema.dhs.gov; or faxed to 425-487-4613.

Publish: November 11, 15, & 29th 2014

Appendix E
Biological Assessment



Biological Assessment

Wildfire Fuels Reduction Project

Kittitas County, WA

FEMA-PDMC-WA-2013-002

September 25, 2014



FEMA

Federal Emergency Management Agency
Department of Homeland Security
500 C Street, SW
Washington, DC 20472

This document was prepared for:

FEMA Region X
130 - 228th Street, SW
Bothell, WA 98021

by:

URS Group, Inc.
1501 4th Avenue, Suite 1400
Seattle, WA 98101

Contract No. HSFEHQ-06-D-0162
Task Order HSFEHQ-11-J-0026

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List of Acronyms

BA	Biological Assessment
CFR	Code of Federal Regulations
dBA	A weighted decibels
dbh	diameter at breast height
DPS	Distinct Population Segment
Ecology	Washington Department of Ecology
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FMO	foraging, migrating, and overwintering
FMP	Fishery Management Plan
I-PaC	Information, Planning and Conservation
KCCD	Kittitas County Conservation District
NFPA	National Fire Protection Association
NMFS	National Marine Fishers Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
OHW	ordinary high water mark
PHS	Priority Habitats and Species
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service
WA DNR	Washington State Department of Natural Resources
WDFW	Washington Department of Fish and Wildlife

Executive Summary

Kittitas County has requested funding assistance from the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) to conduct the Wildfire Fuels Reduction Project (Proposed Action) in the Hidden Valley, Pine Loch Sun, and Sky Meadows residential areas near the City of Cle Elum in Kittitas County, Washington. A biological assessment of the potential effects of the Proposed Action on Endangered Species Act (ESA)-listed species and critical habitats is required by Section 7 of the ESA (16 U.S.C. § 1536).

The ESA-listed species that occur in the vicinity of the project area were obtained through a review of the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries websites. After the action area, defined as any area that may be directly or indirectly affected by the Federal action, was determined, the list was narrowed to the species that may be present in or that may migrate through the action area. The species are bull trout (*Salvelinus confluentus*), northern spotted owl (*Strix occidentalis caurina*), and middle Columbia River steelhead (*Oncorhynchus mykiss*). Critical habitat for all three species exists in the action area.

The ESA species (listed or proposed for listing) that occur within Kittitas County but outside the action area include Canada lynx, grizzly bear, marbled murrelet, North American wolverine, yellow-billed cuckoo, and Ute-ladies' tresses. Gray wolf ranges widely and may occur in the vicinity of the action area but does not favor areas with human development including roads. The potential impacts from the Proposed Action on ESA species (listed or proposed for listing) that are not documented to occur in the action area were not assessed.

The potential impacts from the Proposed Action to the species that may occur in the action area and the critical habitats in the action area were evaluated based on information on the action area's existing habitat conditions and suitability for providing the life history requirements of these species. A summary of potential effects from the proposed action on ESA-listed species and critical habitats is provided in Table ES-1.

The potential impacts were evaluated based on information from a review of recent literature, the Washington Department of Fish and Wildlife (WDFW), local USFWS and NOAA Fisheries staff, and a site visit by a URS Group, Inc., biologist on August 1, 2014.

A list of EFH species protected under the Magnuson-Stevens Act was also obtained and included Chinook and coho salmon. The project would have "no adverse effect" to salmonid EFH.

Table ES-1: Potential Effects from the Proposed Action on ESA-listed Species and Critical Habitats

Species	ESA Status	Jurisdiction	Potential Effects on Species		Potential Effects on Critical Habitat
			Short Term	Long Term	
Bull trout	Threatened	USFWS	No effect	No effect	No effect
Canada lynx	Threatened	USFWS	No effect	No effect	No effect
Gray wolf	Endangered	USFWS	No effect	No effect	n/a
Grizzly bear	Threatened	USFWS	No effect	No effect	n/a
Marbled murrelet	Threatened	USFWS	No effect	No effect	No effect
North American wolverine	Proposed Threatened	USFWS	No effect	No effect	n/a
Northern spotted owl	Threatened	USFWS	May affect, not likely to adversely affect	May affect, not likely to adversely affect	No effect
Steelhead – Middle Columbia River DPS	Threatened	NOAA Fisheries	No effect	No effect	No effect
Yellow-billed cuckoo	Proposed Threatened	USFWS	No effect	No effect	n/a
Ute ladies'-tresses	Threatened	USFWS	No effect	No effect	n/a

NOAA = National Oceanic and Atmospheric Administration

USFWS = U.S. Fish and Wildlife Service

n/a = not applicable

SECTION ONE INTRODUCTION

Kittitas County, Washington, has applied for funding assistance from the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for the Wildfire Fuels Reduction Project in Kittitas County (Proposed Action).

FEMA has prepared this Biological Assessment (BA) to evaluate the potential effects of the Proposed Action on species that are listed or proposed for listing and critical habitats under the Endangered Species Act of 1973 (ESA) (16 U.S.C. §§ 1531–1544) and that are regulated by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA). Potential effects on federally listed species and critical habitats have been evaluated in accordance with Section 7 of the ESA (16 U.S.C. § 1536).

An Essential Fish Habitat (EFH) assessment is required for Federal activities that may adversely affect EFH and is included as part of the BA (50 CFR 600.05-600.930).

1.1 PROJECT AREA LOCATION

The project area is located in Kittitas County (County) and includes approximately 3,351 acres near the City of Cle Elum (see Figure 1).

The project area consists of three subareas, all of which are residential developments in the wildland-urban interface at the edge of National Forest lands and other State-owned timber or wildlife areas. The three subareas are Hidden Valley, Pine Loch Sun, and Sky Meadows.

Hidden Valley is near Swauk Prairie and Lookout Mountain. It is south of State Route 970, and most of it is west of U.S. Highway 97. The nearest town is Virden, which is at the intersection of State Route 970 and U.S. Highway 97. Teanaway River and Swauk Creek run through portions of Hidden Valley. Hidden Valley comprises 131 lots, of which 53 are built. The built lots are on Hidden Valley Road, Teanaway Terrace Road, and other smaller access roads. See Figures 1 and 2.

Pine Loch Sun is east of the southern end of Cle Elum Lake, north of State Route 903, and east of Salmon La Sac Road. The nearest town is Lakedale. Pine Loch Sun has no major creeks or rivers, but it is less than 0.25 mile from Cle Elum Lake. Pine Loch Sun comprises 521 lots, of which 371 are built. See Figures 1 and 3.

Sky Meadows is north of the Wenatchee National Forest and south of Interstate 90 and the intersection of State Route 970 and State Route 10. It is accessed via Upper Peoh Point Road and then Casassa Road. It contains the headwaters of Thornton Creek and is approximately 0.25 mile south of the Yakima River. Sky Meadows comprises 593 lots, of which 340 are built. See Figures 1 and 4.

1.2 ACTION AREA

The action area includes “all areas to be directly or indirectly affected by the Federal action and not merely the immediate area involved in the action” (50 CFR § 402.02).

The action area for the Proposed Action consists of the parcels in the three project subareas and approximately 1,815 feet beyond the project subarea boundaries where noise from chainsaws would attenuate to ambient levels. The action area is shown in Figures 2, 3, and 4.

The extent of the action area is based on the USFWS noise calculator (WSDOT 2014) and includes the following assumptions:

- Power tools to be used for removal of vegetation include chainsaws, chippers, and brush mowers and masticators.
- Chainsaws are considered the greatest source of noise, estimated at 84 maximum decibel level¹ (L_{max})dBA at 50 feet from the source.
- The ambient sound level in the project area is estimated at 45 dBA, and soft site² conditions are present.

1.3 PURPOSE AND NEED

The purpose of the Proposed Action is to enhance protection for residents and firefighters in Hidden Valley, Pine Loch Sun, and Sky Meadows; reduce the risk of wildfire to vulnerable populations and manmade structures; and reduce the potential impacts of a catastrophic wildfire. The Proposed Action would provide an incentive for property owners in the project area to establish and maintain defensible space that would reduce the risk of wildfire.

Much of the residential development in the County in the past 7 years has occurred in the wildland-urban interface in areas identified as having an extreme wildfire risk. A wildland-urban interface analysis conducted by the National Fire Protection Association for the County found that 33 percent of the County is classified as high risk for wildfires (Kittitas County 2012).

In the 2012 and 2013 fire seasons, four major wildfires occurred in the County (Taylor Bridge, Table Mountain, Colockum Tarps, and Manastash Ridge), resulting in the decimation of more than 143,000 acres, the loss of more than 115 structures, and a cost of more than \$70 million for fire suppression and repair of damage to infrastructure and properties. Recovery from the four wildfires is projected to occur over the next 5 years, stressing the County’s already limited resources.

¹ The highest value of a sound pressure over a stated time, measured at 50 feet.

² Soft site conditions include ground cover such as trees between the noise and the receptor that absorb noise energy.

Hidden Valley, Pine Loch Sun, and Sky Meadows were established in the 1960s and 1970s and have few fire protection mechanisms in place. The *2006 International Wildland-Urban Interface Code* (ICC 2006) requires property owners of new construction to meet building construction and defensible space requirements, but the County does not have the authority to mandate these requirements for owners of properties that were constructed before 2006. Some property owners have participated in the Firewise program, but many have not adopted defensible space measures because of time, expense, competing concerns, misperceptions about wildfire risks, or a lack of awareness that they share responsibility for fire protection (Kittitas County 2009).

The total of approximately 3,351 acres in the project area contains 1,245 lots, and approximately 764 of the lots have structures. There are many primary and secondary residences and State and Federal lands in Kittitas County with dangerous levels of high-hazard fuels adjacent to the extreme wildfire risk areas that are included in the project area, which create additional hazards for wildfire in the larger vicinity.³

³ PDM-C grant application (March 2013)

SECTION TWO PROJECT DESCRIPTION

The Proposed Action would assist property owners in the project area with establishing defensible space for fire protection around their properties. Up to 300 structures could be protected depending on the participation of the properties owners in the project area in the Proposed Action.

The County's goal for the Proposed Action is a minimum of 20 percent of property owner participation, but because of the recent wildfires in the County, participation is expected to be 40 percent or more. A participation of 20 percent would be as follows:

- Hidden Valley has 131 lots, and 53 have structures. Property owners of 10 of the lots with structures would need to participate for 20 percent participation. More than 25 property owners have expressed interested in fuels reduction assistance to date, and more are anticipated to participate because Hidden Valley was in the Taylor Bridge Fire footprint. However, adherence to the no-work buffer established for ESA-listed fish-bearing water bodies could reduce the number of properties treated in Hidden Valley along the Teanaway River by up to six.
- Pine Loch Sun has 521 lots, and 371 have structures. Property owners of 74 of the lots with structures would need to participate for 20 percent participation. More than 87 property owners have expressed interest in fuels reduction assistance to date, and more than 100 property owners are expected to participate.
- Sky Meadows has 593 lots, and 340 have structures. Property owners of 68 of the lots with structures would need to participate for 20 percent participation. More than 38 property owners have expressed interest in fuels reduction assistance to date, and more are expected to participate.

The County would work with the local fire districts and Kittitas County Conservation District (KCCD) to provide onsite threat assessments, implement a fuels reduction and vegetation management plan, and create a defensible space for the participating property owners. Ladder fuels and other biomass would be removed by means of chainsaws, chippers, brush mowers, and masticators. Limited ground disturbance would occur during fuels reduction and would include pedestrian and vehicle access to parcels. Vegetative debris would be chipped onsite or piled.

The Firewise program is sponsored by the U.S. Forest Service, U.S. Department of the Interior, and National Association of State Foresters. Firewise guidelines for defensible space (NFPA 2009) include the following:

- Create a defensible space zone with a 30-foot radius around a structure's foundation. The radius may be expanded by 5 to 10 feet to provide additional defensible space around structures on steep slopes.
- Plant grass and small islands of fire-resistant plants in the defensible space.

- Trim trees in the defensible space so the lowest branches are 6 to 10 feet above the ground.
- Space plants in the defensible space so the plants or plant canopies do not touch; use wider spacing along slopes.
- Plant fire- or drought-resistant plants in the defensible space.
- Do not remove all vegetation in the defensible space because doing so could increase soil erosion, especially on the sloped areas, which are found in much of the project area.

2.1 KITTITAS COUNTY GENERAL METHODOLOGY FOR FUELS REDUCTION PROJECT

Eight County requirements for fuels reduction projects are identified in the following section, which includes prescriptions for dead and down materials, stumps and standing dead trees, and live tree pruning and spacing:

1. The KCCD will review the design to ensure consistency with NRCS and or WA DNR standards and specifications. When approved, that design will be made part of the project design packet. Prior to beginning the project, the Contractor will meet with the landowner to outline the planned start date, operation schedule and order of project completion.
2. Dead and down material up to 10 inches in diameter will be chipped and the chips scattered over the work site. Coordinate with landowner to see if any should be left for firewood.
3. The limbs of dead and down trees greater than 10 inches in diameter will be removed and chipped and the remaining trunk will be left in place unless several trees have created a piled concentration. In this case, the remaining tree trunks will be separated by at least 10 feet from any other logs and left onsite.
4. All vegetation stumps heights will be cut no higher than 2 inches above the ground. All cuts will be a flat or parallel cut to the ground.
5. Standing dead trees with red needles still attached shall be felled and treated using the dead and down prescription as required in item 1 and 2 above.
6. The Contractor will not cut any green trees from the premises that are greater than 8-inch diameter at breast height without prior approval from the Landowner.
7. Trees 8 inches and greater in diameter at breast height (dbh) will be pruned (live and dead limbs) up to a height of 15 feet. Limbs will be pruned when branches are larger than 2 inches diame (regardless of length) or greater than 2 feet in length (regardless of diameter). No pruning will be done to a height greater than 50 percent of total tree height. The cut limbs will be chipped onsite.
8. Trees less than 8 inches dbh will be spaced leaving 2 feet - 5 feet between crowns. Live and dead limbs will be pruned up to a height of 15 feet. Limbs will be pruned when

branches are larger than 2 inches diameter (regardless of length) or greater than 2 feet in length (regardless of diameter). No pruning will be done to a height greater than 50 percent of total tree height. The cut limbs and stems will be chipped onsite. Trees less than 3 feet high do not require pruning.

9. Non-coniferous brush will be cut and chipped/mowed onsite unless islands are pre-designated or agreed to by the landowner.

Figure 5 shows a schematic of the treatment methodology.

2.2 PROJECT SCHEDULE

The Proposed Action would take place over approximately 2 years beginning in the spring of 2015 or as soon as project funding is secured.

Participating property owners would be required to sign a 10-year maintenance contract. Maintenance would occur once a year for up to 10 years. The maintenance would likely occur on only 1 to 2 days per year per property (cumulatively longer for all properties in the project area). The maintenance would be conducted by the property owner and/or KCCD. Maintenance methods would be similar to the methods used in the Proposed Action but would likely cover a smaller area or involve less limbing/brush chopping on each property than in the initial fuels reduction.

2.3 AVOIDANCE AND MINIMIZATION MEASURES

The following avoidance and minimization measures have been incorporated into the Proposed Action to protect and minimize the impact to ESA-listed species and their habitat. These measures have been determined to be the minimum necessary to support the effects determinations:

1. Removal of trees 8 inches dbh or greater would be prohibited within a 100-foot buffer of water bodies with known presence of ESA-listed fish species or as otherwise specified during ESA consultation.⁴ The 100-foot buffer would start at the OHWM and extend 100 feet on each side of the following lake or stream: Cle Elum Lake, Teanaway River, and Swauk Creek.
2. No vegetation management activities would be allowed within 5 feet of a stream's OHWM. Within 15 feet of the OHWM, limbing and thinning would not be allowed on trees greater than 7 inches dbh that overhang the streams.
3. Project activities would be prohibited between March 1 and July 31 each year in mapped (Figures 7, 8, and 9) northern spotted owl (*Strix occidentalis caurina*) nesting/roosting

⁴ Dale Bambrick, biologist, National Oceanic and Atmospheric Administration, written communication, July 18, 2014.

habitat as defined in the *Northwest Forest Plan – The First 15 Years (1994-2008)* (Davis et al. 2011). Project activities outside northern spotted owl nesting/roosting habitat could occur at any time of the year.

SECTION THREE EXISTING ENVIRONMENTAL CONDITIONS

3.1 KITTITAS COUNTY

Vegetation in Kittitas County varies from forested, mountainous terrain in the Cascades to the dry, shrub-steppe hills in the Columbia Basin. Forestlands make up over 50 percent of Kittitas County and are primarily in the northwestern and northeastern parts of the County. Agricultural lands are predominant in the Yakima River Valley, which runs through the center of the County. Irrigated croplands include timothy hay, alfalfa hay, corn, potatoes, small grains, tree fruit, and livestock pasture. Forestlands transition to shrublands in the southeastern part of the County as climatic conditions change (Kittitas County 2009). Cle Elum is in a transition zone between the moist coniferous forests of the Snoqualmie Pass-Easton corridor and the drier Ponderosa pine zone.

3.2 EASTERN CASCADE RANGE

The project subareas are all on the eastern side of the Cascade Mountains. In this area, black cottonwood (*Populus trichocarpa*) typically occurs along streams, with groves of quaking aspen (*Populus tremuloides*) in wetter places. In lower elevation forested areas, Douglas-fir (*Pseudotsuga menziesii*) begins to appear alongside ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and western larch (*Larix occidentalis*). Typical plants of the understory are common snowberry (*Symphoricarpos albus*), bitterbrush (*Purshia* sp.), and kinnikinnick (*Arctostaphylos uva-ursi*). Grand fir (*Abies grandis*) is the prevalent tree species at middle elevations.

Moist mountain meadows are common in forest openings. Damp conditions on the upper Cascade slopes promote growth of a closed-canopy conifer forest dominated by western hemlock (*Tsuga heterophylla*) and western red cedar (*Thuja plicata*) with a shrubby understory (huckleberries [*Vaccinium* sp.], Oregon boxwood, western twinflower [*Linnaea borealis*]). Near residential areas, landscaping trees and shrubs may also be present.

3.3 PROJECT AREA HABITAT

The project area contains no mature forest and is located primarily within upland Douglas fir and ponderosa pine forest. Photographs of the three subareas are provided in Appendix B. All three subareas were visited by a URS biologist on August 1, 2014.

3.3.1 Hidden Valley

The area called Hidden Valley comprises four blocks of parcels (see Figure 2). Hidden Valley is at a lower elevation than either Pine Loch Sun or Sky Meadows and comprises some non-forested areas. Hidden Valley has rough gravel roads and sparse development with steep slopes and canyons surrounding homes. There is heavy timber and slash within 30 to 70 feet of most homes.

3.3.2 Pine Loch Sun

Pine Loch Sun (see Figure 3) is on steep and graveled roads. The residential development is located on steep slopes that mostly exceed 30 percent. There is timber and heavy brush within 30 feet of most homes. Based on the visual inspection of the site on August 1, 2014, coniferous trees average a 18 to 22 inches dbh. The largest tree observed from public roads was approximately 27 inches dbh. Small woody debris is quite abundant in Pine Loch Sun, but large woody debris is limited. The forest is primarily even aged. The Okanogan-Wenatchee National Forest is adjacent to the northern side of Pine Loch Sun.

3.3.3 Sky Meadows

Sky Meadows (see Figure 4) comprises narrow brush-lined roads and steep elevation gain with many slopes exceeding 40 percent. Homes are surrounded by heavy timber and brush, with very little defensible space. Based on the visual inspection of Sky Meadows on August 1, 2014, coniferous trees average 16 to 20 inches dbh and the forest is even-aged. In some places, individual trees range from 28 to 38 inches dbh. Many trees in this area have dead lower limbs.

SECTION FOUR ESA-LISTED SPECIES AND CRITICAL HABITAT

A list of ESA candidate, proposed, threatened, and endangered species and critical habitat with potential to occur in the action area was obtained from the USFWS Information, Planning and Conservation (I-PaC) website on June 5, 2014, and is provided in Appendix C. Information on fish species with potential to occur in the action area was obtained from the NOAA Fisheries website, communication with area biologists, and a literature review.

The following species are on the I-PaC list but have no potential to occur in the action area because of lack of suitable habitat: Marbled murrelet (*Brachyramphus marmoratus*), Ute-ladies' tresses (*Spiranthes diluvialis*), Canada lynx (*Lynx Canadensis*), Gray wolf (*Canis lupus*), Grizzly bear (*Ursus arctos horribilis*), Greater sage grouse (*Centrocercus urophasianus*), Yellow-billed cuckoo (*Coccyzus americanus*), White-bark pine (*Pinus albicaulis*), and North American wolverine (*Gulo gulo*). There is no designated critical habitat for any of these species in the action area.

Three ESA-listed species have potential to occur in the action area: bull trout (*Salvelinus confluentus*), northern spotted owl, and middle Columbia River steelhead (*Oncorhynchus mykiss*). The action area has designated critical habitat for all three species. Table 4-1 contains the ESA-listed species in Kittitas County, their Federal status, and their presence and designated critical habitat in the action area.

The habitat requirements and use of project area for the bull trout, northern spotted owl, and middle Columbia River steelhead are provided in the following subsections.

4.1 BULL TROUT

The USFWS issued a final rule for the bull trout in the coterminous United States as a threatened species on November 1, 1999 (USFWS 1999). A recovery plan for the species was released in 2002 (USFWS 2002). On September 30, 2010, the USFWS designated critical habitat for bull trout throughout their U.S. range (USFWS 2010).

Bull trout have stringent requirements for cold water and clean gravel to rear and reproduce, and spawning usually occurs in mountain streams fed by snow-melt or springs fed by snow fields (Goetz et al. 2004). The habitat components required by bull trout are often summed up by the "Four C's" – cold, clean, complex, and connected. Bull trout exhibit patchy distributions because even under pristine conditions, the required habitat components are not ubiquitous throughout river basins.

All three action areas fall within the Middle Columbia River Recovery Unit of bull trout, which is part of the Yakima River basin. The Yakima River basin is considered a "core area" by USFWS as part of the Recovery Plan. The Teanaway River flows through the Hidden Valley project subarea and has known presence of foraging, migrating, and overwintering (FMO) bull

Table 4-1: ESA-Listed Species and Known or Likely Presence and Designated Critical Habitat in the Action Area

Species in Kittitas County	Federal Status	Presence in the Action Area	Designated Critical Habitat in the Action Area
Bull trout (<i>Salvelinus confluentus</i>)	Threatened	Documented in Teanaway River, Swauk Creek, and Cle Elum Lake.	Yes
Canada lynx (<i>Lynx canadensis</i>)	Threatened	Absent from the action area. Occurs at elevations above 4,000 feet in forested habitats. Nearest known concentration of Canada lynx is in Okanogan County.	No
Gray wolf (<i>Canis lupus</i>)	Endangered	Absent from action area. The Teanaway Pack is known to occur in the general vicinity, but wolves do not favor areas with high human activity such as roads and houses. The pack is likely to be located in the upper Teanaway River basin north of Cle Elum and west of U.S. Highway 97.	No
Grizzly bear (<i>Ursus arctos horribilis</i>)	Threatened	Absent from the action area. Current grizzly bear distribution is primarily within but not limited to the areas identified as Federal Recovery Zones. The nearest grizzly bear Recovery Zone to the project area are the North Cascades area (north-central Washington) and Selkirk Mountains area (northern Idaho, northeastern Washington, and southeastern British Columbia).	No
Greater sage grouse (<i>Centrocercus urophasianus</i>)	Candidate	Absent from the action area. Population known to occur in Kittitas County is near Yakima, WA.	No
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	Threatened	Absent from the action area. Located too far away from marine waters. No mature forest in the action area.	No
North American wolverine (<i>Gulo gulo</i>)	Proposed Threatened	Absent from the action area. Requires alpine or subalpine habitat with snow well into the spring. Known from the North Cascades and northeastern Washington.	No

Table 4-1 (Continued)

Species in Kittitas County	Federal Status	Presence in the Action Area	Designated Critical Habitat in the Action Area
Northern spotted owl (<i>Strix occidentalis caurina</i>)	Threatened	Suitable nesting/roosting habitat occurs in the action area. No known nests or observation of individuals in the action area.	Yes
Steelhead Middle Columbia River DPS (<i>Oncorhynchus mykiss</i>)	Threatened	Present in the action area. Occurs in the Teanaway River and Swauk Creek.	Yes
White-bark pine (<i>Pinus albicaulis</i>)	Candidate	Absent from the action area. Known from high elevations in Cascades.	No
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Proposed Threatened	Absent from the action area. Thought to be extirpated in Washington. Occurs in dense riparian vegetation.	No
Ute ladies' tresses (<i>Spiranthes diluvialis</i>)	Threatened	Absent from the action area. Known only in two sites in Washington (Chelan and Okanogan Counties).	No

trout habitat. The Teanaway River population appears to be a resident population and may potentially be extirpated (Reiss et al. 2012). Swauk Creek, also located in Hidden Valley, has one known record of an adult bull trout. It was captured in Swauk Creek in 1993, approximately 0.1 mile upstream from the Yakima River (Reiss et al. 2012).

The Cle Elum River flows just south of the Pine Loch Sun project subarea, and Cle Elum Lake is adjacent. These two water bodies have known presence of FMO bull trout. The Cle Elum dam was built in 1933 at the confluence of Cle Elum Lake and the lower Cle Elum River (below the lake) and is a complete fish passage barrier. If bull trout are present in Cle Elum Lake, they would be considered a resident population. The lower Cle Elum River is considered bull trout critical habitat and may be used by bull trout. However, there is no confirmed FMO presence or spawning.

Thornton Creek flows through the Sky Meadows and is a seasonal drainage swale. Bull trout are not known to occur in Thornton Creek, and there is no known presence of FMO bull trout habitat.

4.1.1 Critical Habitat

Designated bull trout critical habitat occurs in Lake Cle Elum. Part of the lake is in the action area.

4.2 NORTHERN SPOTTED OWL

Northern spotted owls live in forests characterized by dense canopy closure of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops. Although they are known to nest, roost, and feed in a wide variety of habitat types, spotted owls prefer older forest stands with variety: multi-layered canopies of several tree species of varying size and age, both standing and fallen dead trees, and open space among the lower branches to allow flight under the canopy. Typically, forests do not attain these characteristics until they are at least 150 to 200 years old (USFWS 2014a).

There are no known northern spotted owl site centers or nesting areas within the project area (WDFW 2014a). In general, northern spotted owls have not been found outside National Forest lands in many years (Krupka 2014).⁵ A 1.8-mile-radius median home range circle is typically applied to each site center by WDFW. Two of these circles overlap with the project area. They are for the site centers at Dingbat Creek, which contained a pair with young at the nest in 2005 northeast of Pine Loch Sun and the Osborn Point site center southwest of Sky Meadows, which contained a single owl observation in 2005. There are no site centers or home range circles in the vicinity of Hidden Valley.

⁵ Jeff Krupka, biologist, USFWS. personal communication, August 11, 2014.

Northern spotted owl habitat is mapped as present within the project area for all stages of spotted owl life history (Davis et al. 2011) (see Figures 6, 7, 8, and 9). Spotted owl habitat is often subdivided into distinct components (USFWS 1992, 2011):

- Nesting/Roosting Habitat – Forested areas used for nesting, roosting, foraging, and dispersal by spotted owls that usually have more late-seral forest characteristics than foraging or dispersal habitats.
- Foraging Habitat – Forested areas largely used for foraging, dispersal, and other nocturnal activities but not nesting or roosting.
- Dispersal Habitat – Forested areas predominantly used for dispersal but not nesting, roosting, or foraging.

These categories are not absolutes but instead represent generalizations and were created from modeling of forest stands as part of Davis et al. (2011).

No known northern spotted owl surveys have been conducted in the project area.

Approximately 581.5 acres of nesting/roosting habitat are located within the project area (see Table 4-2).

Table 4-2: Suitable Northern Spotted Owl Habitat within the Action Area

Type of Habitat	Hidden Valley		Pine Loch Sun		Sky Meadows	
	Project Area (Acres)	Project Area (Percent)	Project Area (Acres)	Project Area (Percent)	Project Area (Acres)	Project Area (Percent)
Dispersal habitat	795.5	40.1	177.4	29.2	222.7	31.5
Forested but no dispersal habitat	326.3	16.4	300.0	49.3	126.5	17.5
Nesting/roosting habitat	146.0	7.4	99.4	16.3	338.8	46.9
Nonforested	715.6	36.1	31.2	5.1	29.8	4.1
TOTAL	1,983.4	100	608.0	100	722.8	100

Source: Davies et al. (2011)

Hidden Valley is mapped as containing 7.3 percent suitable nesting/roosting habitat, located in small pockets along the Teanaway River, near the higher elevation forested ridges. Pine Loch Sun is mapped as containing 15.5 percent nesting/roosting habitat near the central portion of the project area where houses are at the highest density. Approximately half (46.4 percent) of Sky Meadows is mapped as nesting/roosting habitat, in the south and east (see Table 4-2).

4.2.1 Critical Habitat

Northern spotted owl critical habitat is located within the action area for Pine Loch Sun but outside the project area (Figure 3). It appears that this critical habitat is mapped to include areas of the beach at Cle Elum Lake, which may be in error.

4.3 MIDDLE COLUMBIA RIVER STEELHEAD

The middle Columbia River steelhead Distinct Population Segment (DPS) is listed as threatened under the Federal ESA on March 25, 1999 (64 FR 14517), and critical habitat was designated on September 2, 2005 (70 FR 52630). A Recovery Plan was published on November 30, 2009 (NMFS 2009).

Steelhead exhibit the most complex life history of any species of Pacific salmonid. Steelhead can be anadromous (referred to as steelhead) or freshwater residents (referred to as rainbow trout or redband trout). The Middle Columbia River steelhead Evolutionarily Significant Unit (ESU) occurs in the project area. It includes the steelhead population up to and including the Yakima River. Almost all steelhead populations within this ESU are summer-run fish including those in the project area. A balance between 1- and 2-year-old smolt outmigrants characterize most of the populations within this ESU. Adults return after 1 or 2 years at sea. Hatchery production of steelhead in the Yakima River system was relatively limited historically and was phased out in the early 1990s. Decades of agricultural impacts have heavily affected lower reaches of most major tributaries in this ESU (Good et al. 2005).

Within the Hidden Valley Project area, steelhead trout are known to occur in the Teanaway River and Swauk Creek. Steelhead do not occur within Pine Loch Sun or Sky Meadows project subareas.

4.3.1 Critical Habitat

Within the Hidden Valley project subarea, the Teanaway River and Swauk Creek are designated critical habitat for steelhead.

SECTION FIVE ESA EFFECTS ANALYSIS

The following sections address the direct effects of the project on listed species including the interdependent actions, interrelated actions, and indirect effects of the project.

- Direct effects are defined as the direct or immediate effects of the project on the species or its habitat. Direct effects include those resulting from interdependent or interrelated actions (NOAA Fisheries 2004).
- Interdependent actions are those that have no independent utility apart from the action under consideration (50 CFR § 402.02). Interdependent actions are typically “because of” the Proposed Action.
- Interrelated actions are those that are part of a larger action and depend on the larger action for their justification (50 CFR § 402.02). Interrelated actions are typically “associated with” the Proposed Action.
- Indirect effects are those that are caused by or would result from the Proposed Action and would occur later but still reasonably certain to occur (50 CFR § 402.02).

5.1 BULL TROUT

The project will have **no effect** on bull trout or bull trout critical habitat because there would be no in-water work; removal of trees 8 inches or greater would be prohibited within a 100-foot buffer of water bodies with known presence of ESA-listed fish species. There would be no in-water work, and no loss of shade near known bull trout streams.

5.2 NORTHERN SPOTTED OWL

The Proposed Action may affect the northern spotted owl because suitable nesting/roosting habitat would be degraded but the project is **not likely to adversely affect** northern spotted owl because project activities would be prohibited from March 1 to July 31 each year in mapped suitable nesting/roosting habitat.

Northern spotted owls may be susceptible to noise disturbance from project actions if owls are present. The ambient noise level in the forest is generally estimated to be 45 dBA (WSDOT 2014). Chainsaws are considered to have an average maximum noise level of 84 dB (measured at 50 feet). Using a noise attenuation table for soft-site conditions (e.g., vegetated area), it is estimated that the maximum generating activity would potentially have a behavioral effect on northern spotted owls at 182 feet or less from the activity.⁶ Using the same assumptions, this noise would attenuate to ambient levels at approximately 1,815 feet from the source. Because the area has not been recently surveyed for northern spotted owls, it is possible that an active northern spotted owl nest site could be located in the Sky Meadows or Pine Loch Sun project

⁶ Assuming 84 dB for chainsaws and a behavioral effects threshold of 70 dB

subareas (in the area of suitable nesting/roosting habitat). Harassment of active nests would be avoided by implementing timing restriction in suitable nesting/roosting habitat for northern spotted owls. To avoid potential noise-related disturbance to northern spotted owls, project activities would be prohibited between March 1 and July 31 within suitable nesting/roosting habitat for northern spotted owl habitat.

Live shrubs tree limbs, dead tree limbs, large and small woody debris, and snags would be removed within suitable nesting/roosting for northern spotted owl. Removal would occur within about 30 to 40 feet of existing structures (mostly homes). Removal of this live and dead vegetation is considered degradation of northern spotted owl habitat. Because the project has a required 10-year maintenance period beyond the initial year of work, the effect is considered long term.

5.2.1 Northern Spotted Owl Critical Habitat

The Proposed Action would have **no effect** on northern spotted owl critical habitat because it does not occur within the project area. Critical habitat occurs in the action area (near Pine Loch Sun); however, there would be no removal of vegetation in this location.

5.3 STEELHEAD

The Proposed Action would have **no effect** on steelhead or steelhead critical habitat because there would be no in-water work and removal of trees 8 inches or greater would be prohibited within a 100-foot buffer of water bodies with known presence of ESA-listed fish species. There would be no in-water work, and no loss of shade near known bull trout streams.

Table 5-1: ESA Effects Determination – Listed Species

Species	ESA Status	Effects Determination
Bull trout	Threatened	No Effect
Northern spotted owl	Threatened	May affect, not likely to adversely affect
Steelhead	Threatened	No Effect

Table 5-2: ESA Effects Determination – Critical Habitat

Species	ESA Status	Effects Determination
Bull trout	Threatened	No Effect
Northern spotted owl	Threatened	No Effect
Steelhead	Threatened	No Effect

SECTION SIX COORDINATION / CONSULTATION HISTORY

Information about species or critical habitats present or likely to be present in the project area was obtained from USFWS I-PaC, WDFW Priority Habitats and Species (PHS), and NOAA Fisheries websites. Species lists are presented in Appendix C.

On August 12, 2014, a list of Federal threatened, endangered, proposed, and candidate species and critical habitats for the project area was obtained at <http://ecos.fws.gov/ipac/>.

URS biologist Jennifer Pretare discussed via phone and email the Proposed Action and ESA-listed species in the project subareas with the following agency staff:

- Dale Bambrick, NOAA Fisheries, Chief, Columbia Basin Branch (July 18, 2014)
- Gary Bell, WDFW, Wildlife Biologist (July 1, 2014)
- Vince Harke, USFWS, Lacey, WA (July 17, 2014)
- Jeff Krupka, USFWS, Wenatchee, WA (August 11, 2014)
- Patty Garvey-Darda, USFS, Cle Elum, WA (July 29, 2014)

Mr. Krupka confirmed the northern spotted owl nesting period date restrictions of March 1 to July 31 each year and discussed the northern spotted owl habitat within the project area. Mr. Bambrick recommended the 100-foot buffer on streams with ESA-listed fish species. Mr. Harke identified Davis et al. (2011) as a source of northern spotted owl habitat data. Mr. Bell provided additional detail on northern spotted owl site centers and buffers. Ms. Garvey-Darda aided in identifying sources of northern spotted owl data.

On June 3, 2014, WDFW provided database records of PHS within the vicinity of the project area, including northern spotted owl site centers.

SECTION SEVEN ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801 et seq.), as amended by the Sustainable Fisheries Act of 1996 (P.L. 104-267), requires Federal agencies to consult with National Marine Fishers Service (NMFS) on activities that may adversely affect essential fish habitat.

The objective of this Essential Fish Habitat (EFH) assessment is to determine whether the proposed action(s) “may adversely affect” designated EFH for relevant commercially, federally managed fisheries species within the action area. It also describes conservation measures proposed to avoid, minimize, or otherwise offset potential adverse effects to designated EFH resulting from the proposed action.

EFH is defined as “those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity” (16 U.S.C. § 1802(10)). For the purpose of interpreting this definition of EFH:

...*waters* include aquatic areas (marine waters, intertidal habitats, and freshwater streams) and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; *substrate* includes sediment, hard bottom, structures underlying the waters, and associated biological communities; *necessary* means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and *spawning, breeding, feeding, or growth to maturity* covers a species’ full life cycle (50 CFR 600.10); *Adverse effect* means any impact that reduces quality and/or quantity of EFH, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

The Magnuson-Stevens Act promotes the protection of these habitats through review, assessment, and mitigation of activities that may adversely affect these habitats. The significance of small-scale projects lies in the cumulative and synergistic effects resulting from a large number of these activities occurring in a single watershed.

The EFH mandate applies to all species managed under a Fishery Management Plan (FMP). In Washington, Oregon, and California, there are three FMPs covering groundfish, coastal pelagic species, and Pacific salmon. Federal agencies must consider the impact of a proposed action on all three types of EFH. Pacific salmon EFH for the Pacific coast salmon FMP includes all streams, lakes, ponds, wetlands, and other water bodies currently and historically utilized by Pacific salmon within Washington, Oregon, Idaho, and California within the specified U.S. Geological Survey Hydrologic Unit Codes. Excluded are some areas upstream of certain impassable man-made barriers (e.g., dams as identified by the Pacific Fishery Management

Council in Appendix A of Amendment 14 to the Pacific Coast Salmon Plan) (PFMC 1999), and longstanding, naturally impassable barriers (e.g., natural waterfalls in existence for several hundred years) (PFMC 2000).

Based on the available life history information, freshwater EFH for Pacific salmon consists of four major components: (1) spawning and incubation, (2) juvenile rearing, (3) juvenile migration corridors, and (4) adult migration corridors and adult holding habitat (Roni et al. 1999).

Important features of essential habitat for spawning, rearing, and migration include adequate:

1. Substrate composition
2. Water quality (e.g., dissolved oxygen, nutrients, temperature)
3. Water quantity, depth, and velocity
4. Channel gradient and stability
5. Food availability
6. Cover and habitat complexity (e.g., large woody debris, pools, channel complexity, aquatic vegetation)
7. Space (habitat area)
8. Access and passage
9. Floodplain and habitat complexity

Potential threats to these habitat features and life history components include (1) direct (hydrologic modifications), (2) indirect (loss of prey or reduction of species diversity), (3) site-specific, or (4) habitat-wide impacts that are chemical, biological, and physical in nature and may result in individual, cumulative, or synergistic consequences (Wilbur and Pentony 1999).

7.1 DESCRIPTION OF THE PROPOSED ACTION

See Section 2 for a description of the Proposed Action.

7.2 EFH IN THE PROJECT ACTION AREA

USGS hydrologic unit “Upper Yakima” is designated EFH for Chinook and coho salmon (Appendix D). Tributaries to the Yakima River within the action area provide migration corridors and essential fish habitat features and beneficial components to the various life history stages for Chinook and coho salmon. The Upper Yakima River, Cle Elum, Teanaway River, and Swauk Creek contain EFH for spring Chinook salmon (WDFW 2014). Spawning habitat is present for adult Chinook salmon in all the above waterways except Swauk Creek and rearing habitat is present for juvenile Chinook in all the streams mentioned above. The Upper Yakima River, and Teanaway River contain EFH for all life phases of coho salmon (WDFW 2014).

7.3 POTENTIAL ADVERSE EFFECTS OF THE PROPOSED ACTION

The definition of “adverse effect” is “any impact that reduces quality and/or quantity of EFH, including direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions” (50 CFR § 600.810).

Project effects may include indirect effects such as loss of prey due to vegetative management but the cumulative and synergistic effects resulting from these small-scale projects is minimized because these activities are not occurring in a single watershed, but are spread out among four different streams. Direct project effects to EFH would be avoided in the Yakima River, Teanaway River, Cle Elum River and Swauk Creek because removal of trees 8 inches or greater would be prohibited within 100 feet. In other areas, to minimize impacts, no vegetation management activities would be allowed within 5 feet of a stream’s OHWM. Within 15 feet of the OHWM, limbing and thinning would not be allowed on trees greater than 7 inches diameter dbh that overhand the streams. These restrictions would prevent the removal of vegetation cover that provides shade to EFH. These restrictions would also minimize the release of sediments by limiting ground-disturbing activities near streams. In addition, there would be no in-water work in any aquatic feature or wetland. All live and dead vegetation to be removed would be chipped and left in place to reduce the risk of erosion.

As a result of these avoidance and minimization measures, the project would not affect EFH in the Upper Yakima River or its tributaries.

7.4 CONCLUSION

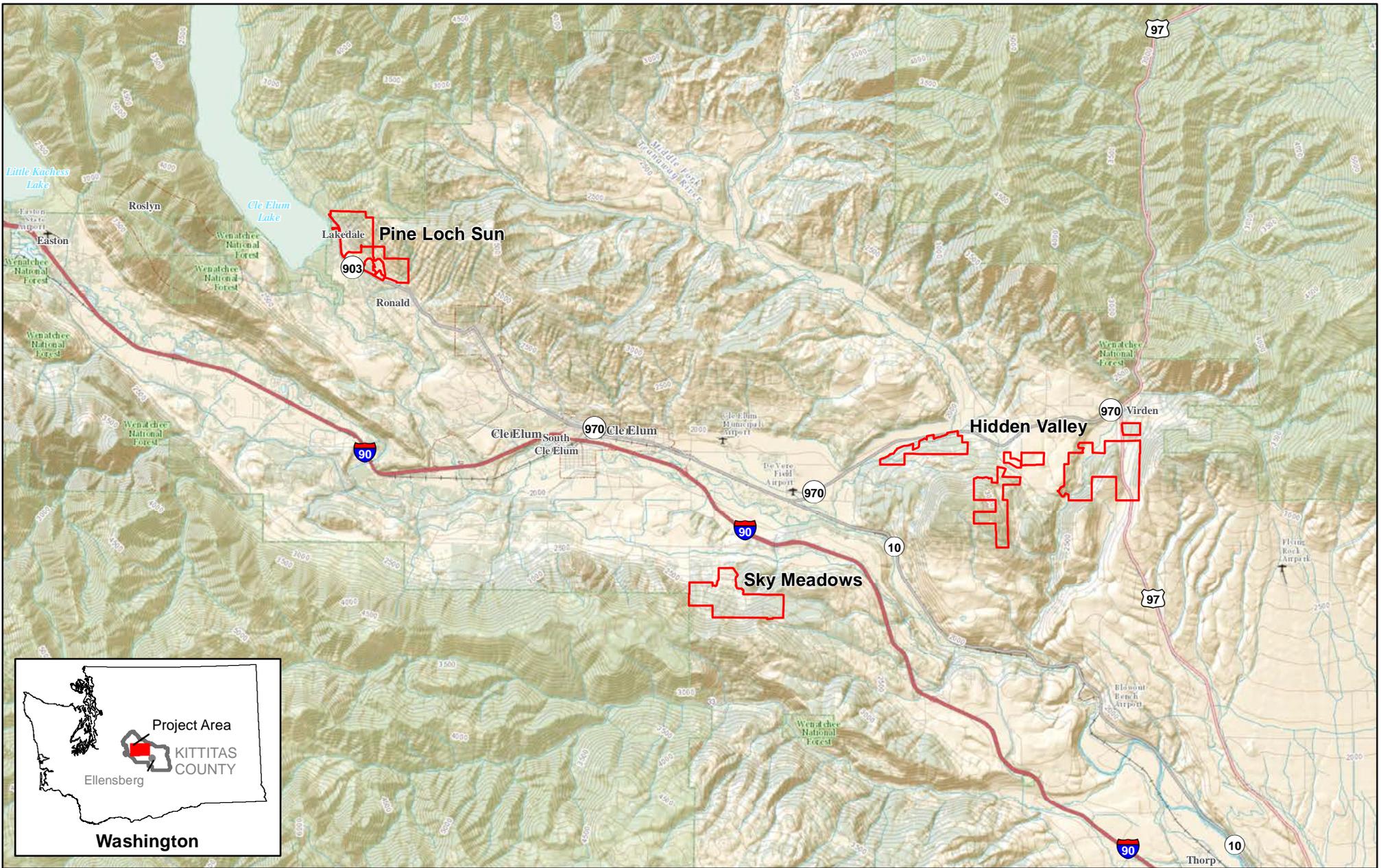
All project activities were assessed for impacts to EFH. Based on the measures to avoid and minimize impacts to creeks and other aquatic features in the project area, it is concluded the project would have “**no adverse effect**” to salmonid EFH.

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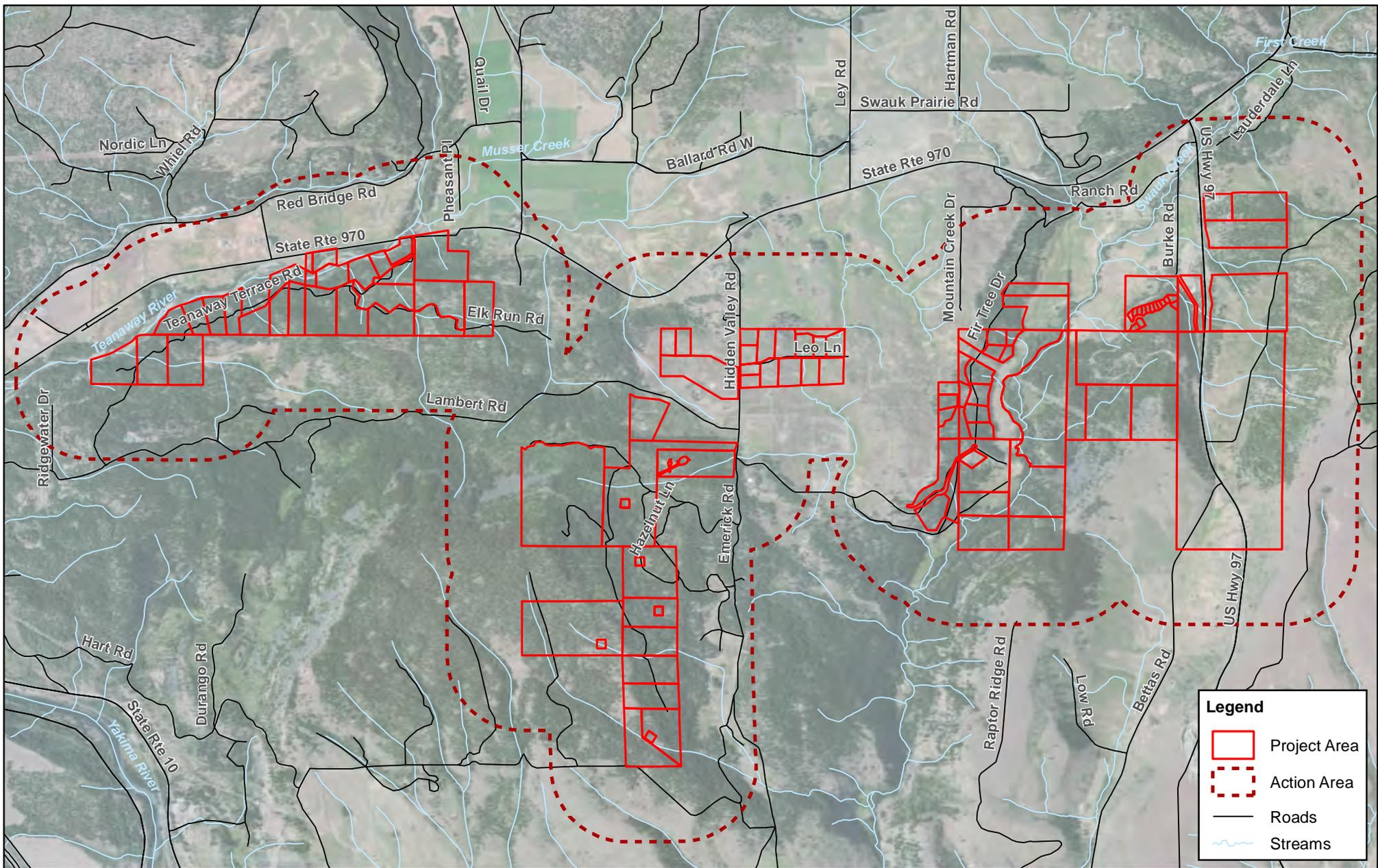
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Appendix A
Figures

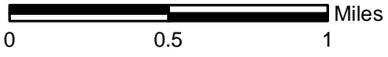


Background: ESRI Topographic Map - Small Scale.





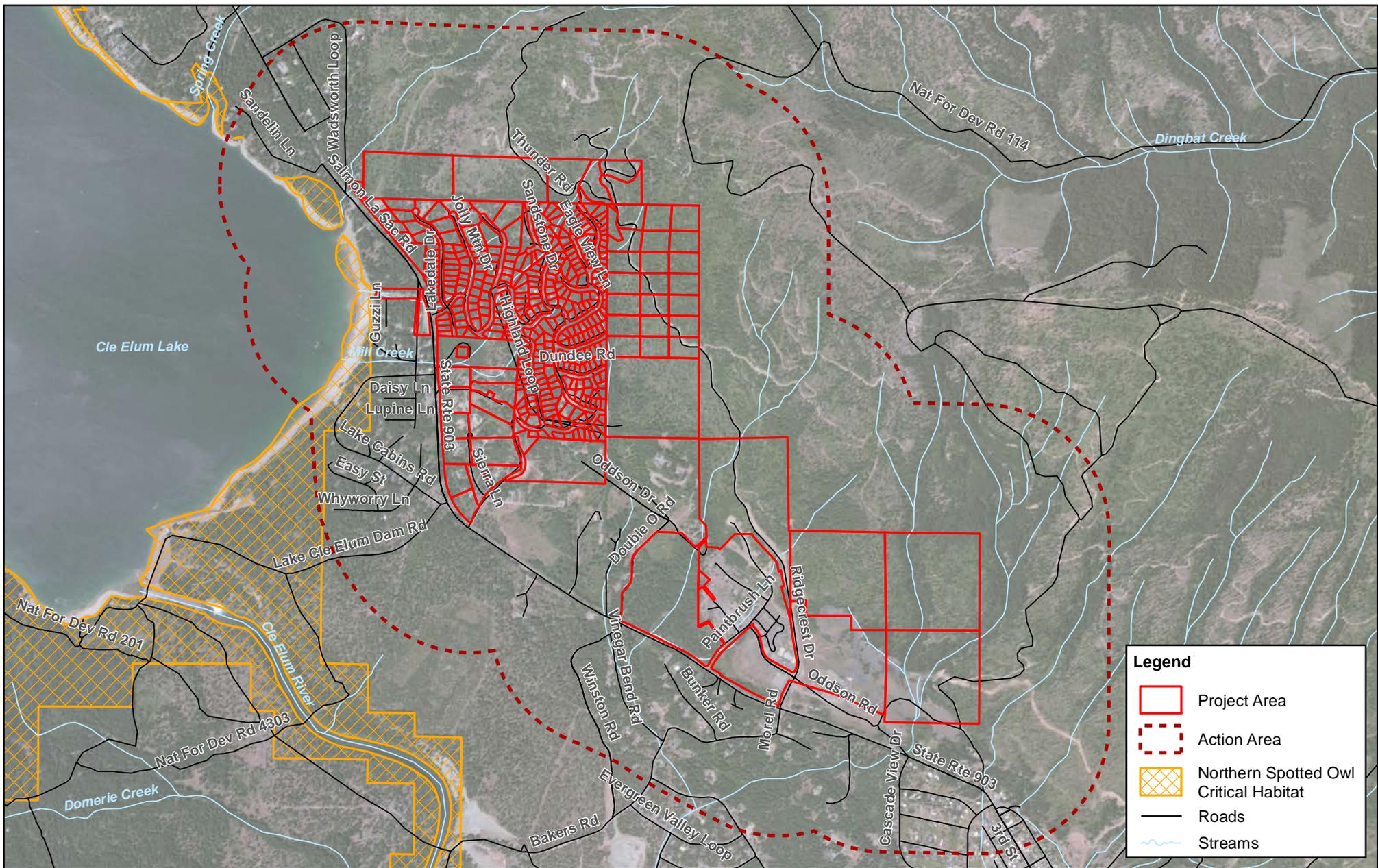
Background: ESRI Basemap Imagery



Job No. 15702626

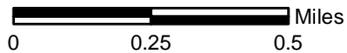
Figure 2
**Hidden Valley Project Area
 and Action Area**

Kittitas County, Washington



Background: ESRI Basemap Imagery

Northern Spotted Owl Suitable Habitat Source: Davis et al (2011)



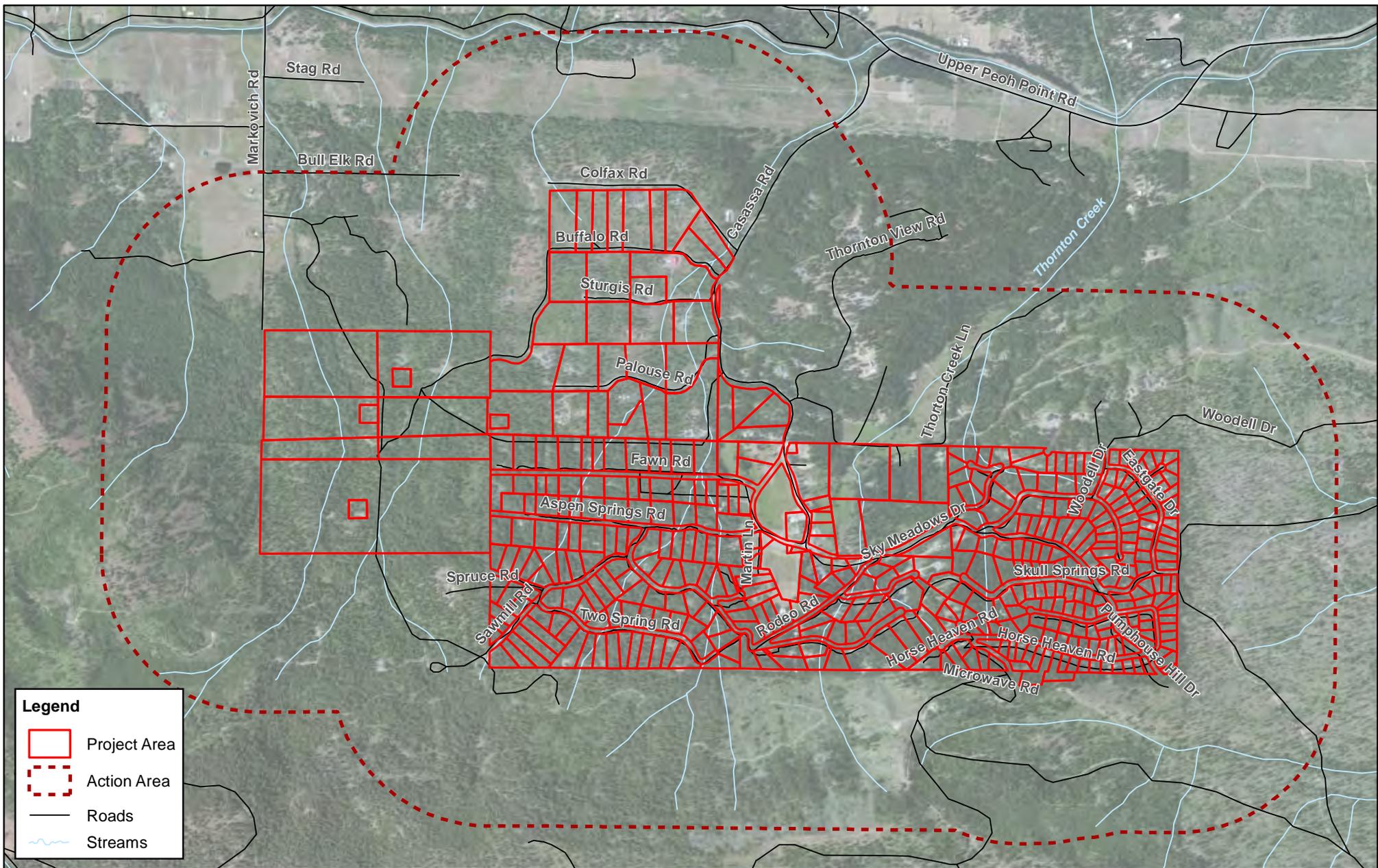
Job No. 15702626

Figure 3

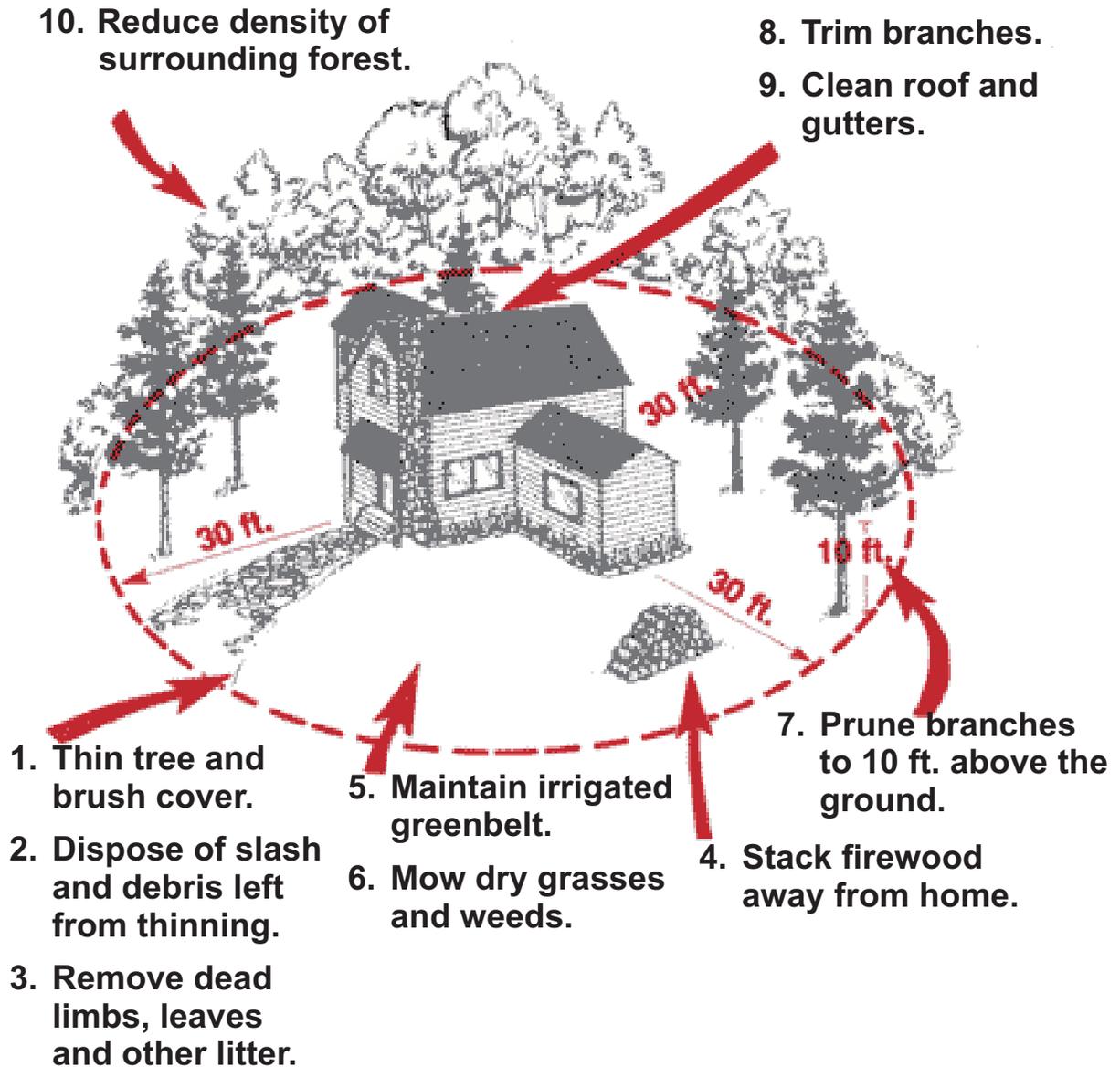
**Pine Loch Sun Project Area
and Action Area**

Critical Habitat for Northern Spotted Owl

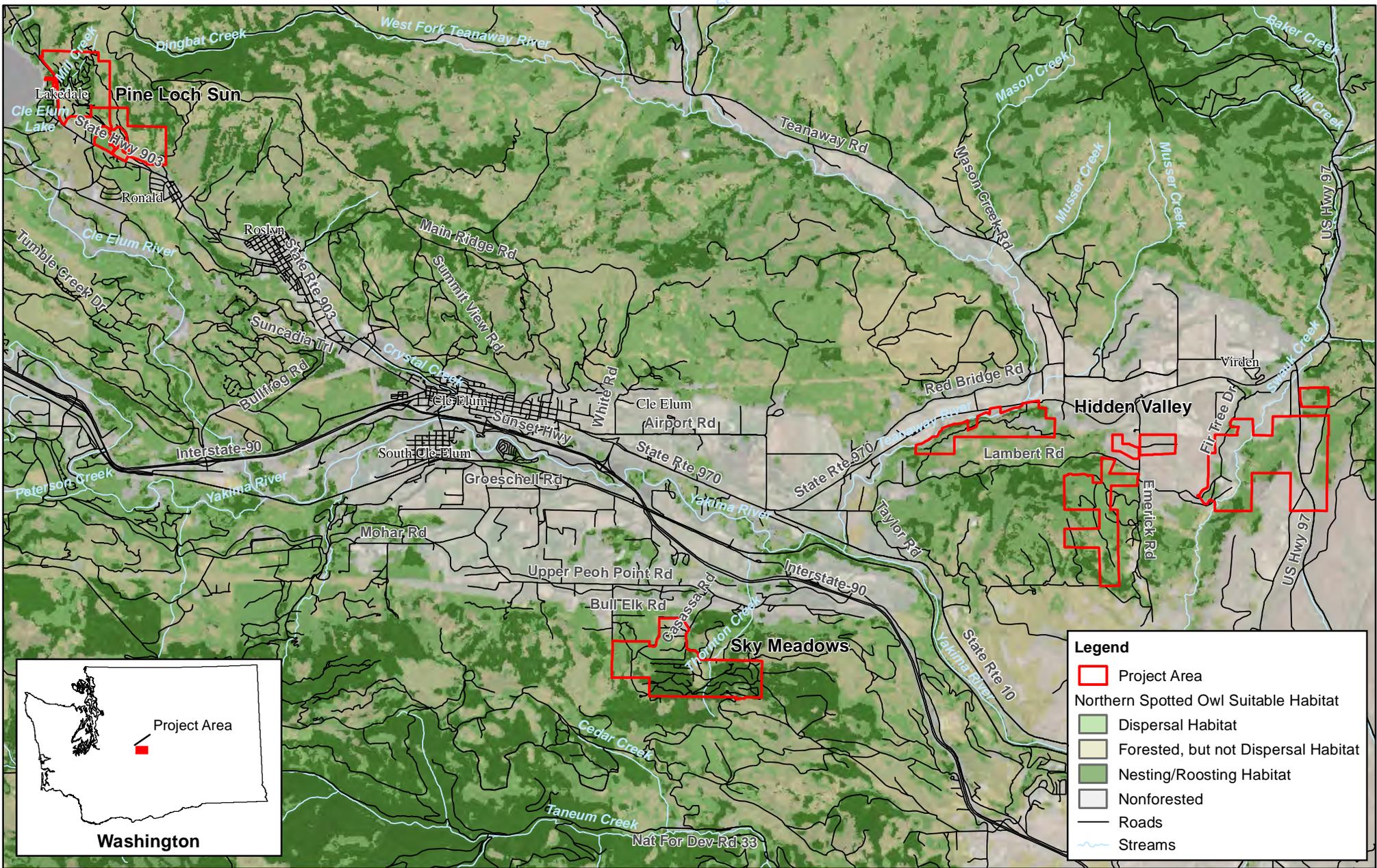
Kittitas County, Washington



FOLLOW THESE GUIDELINES



Source: NFPA (2009)



Background: ESRI Basemap Imagery

Northern Spotted Owl Suitable Habitat Source: Davis et al (2011)



Job No. 15702626

Figure 6

Project Vicinity

Suitable Habitat for Northern Spotted Owl

Kittitas County, Washington

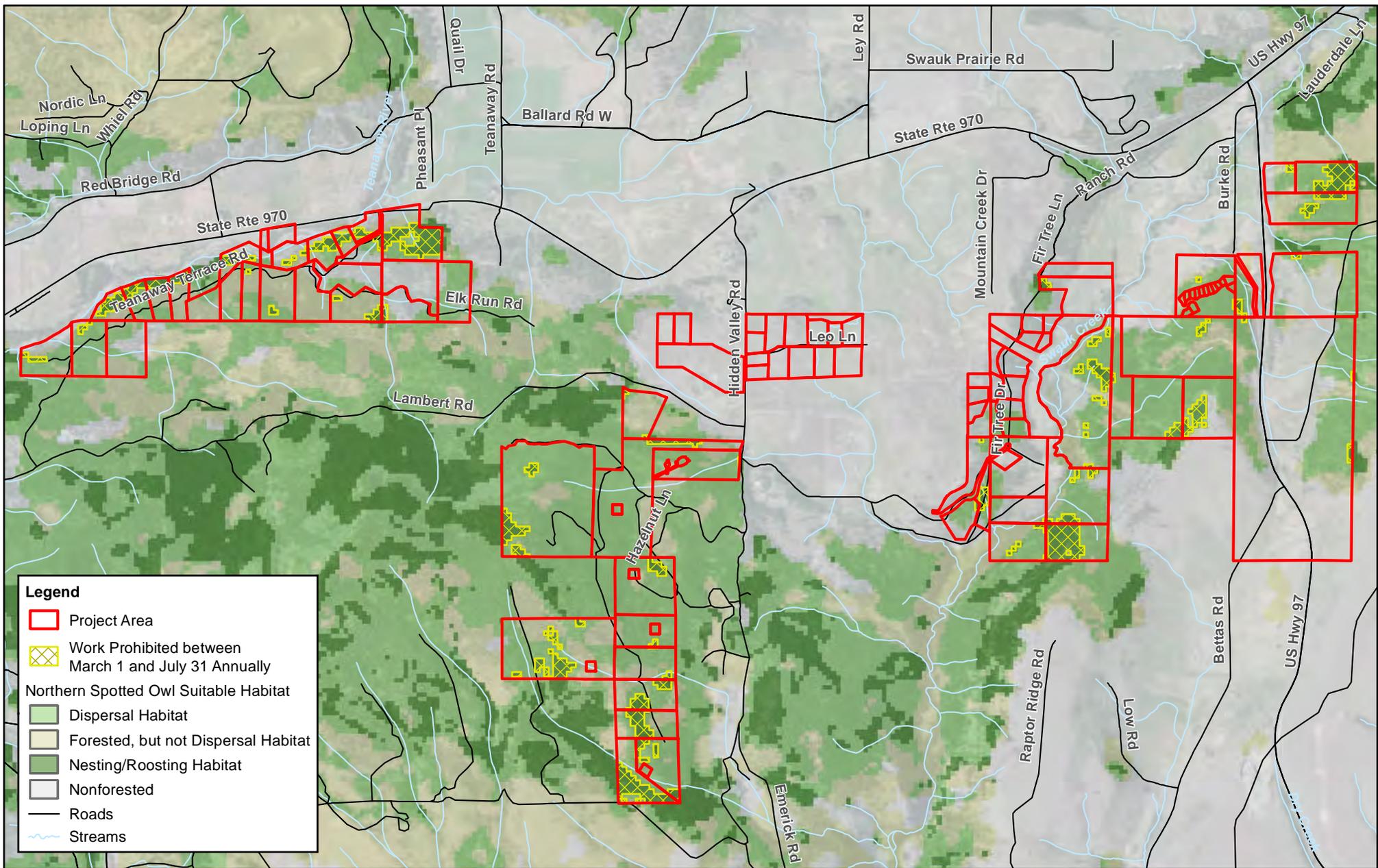
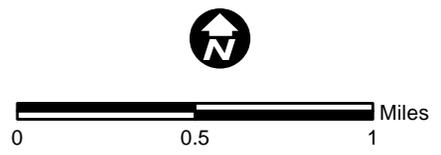


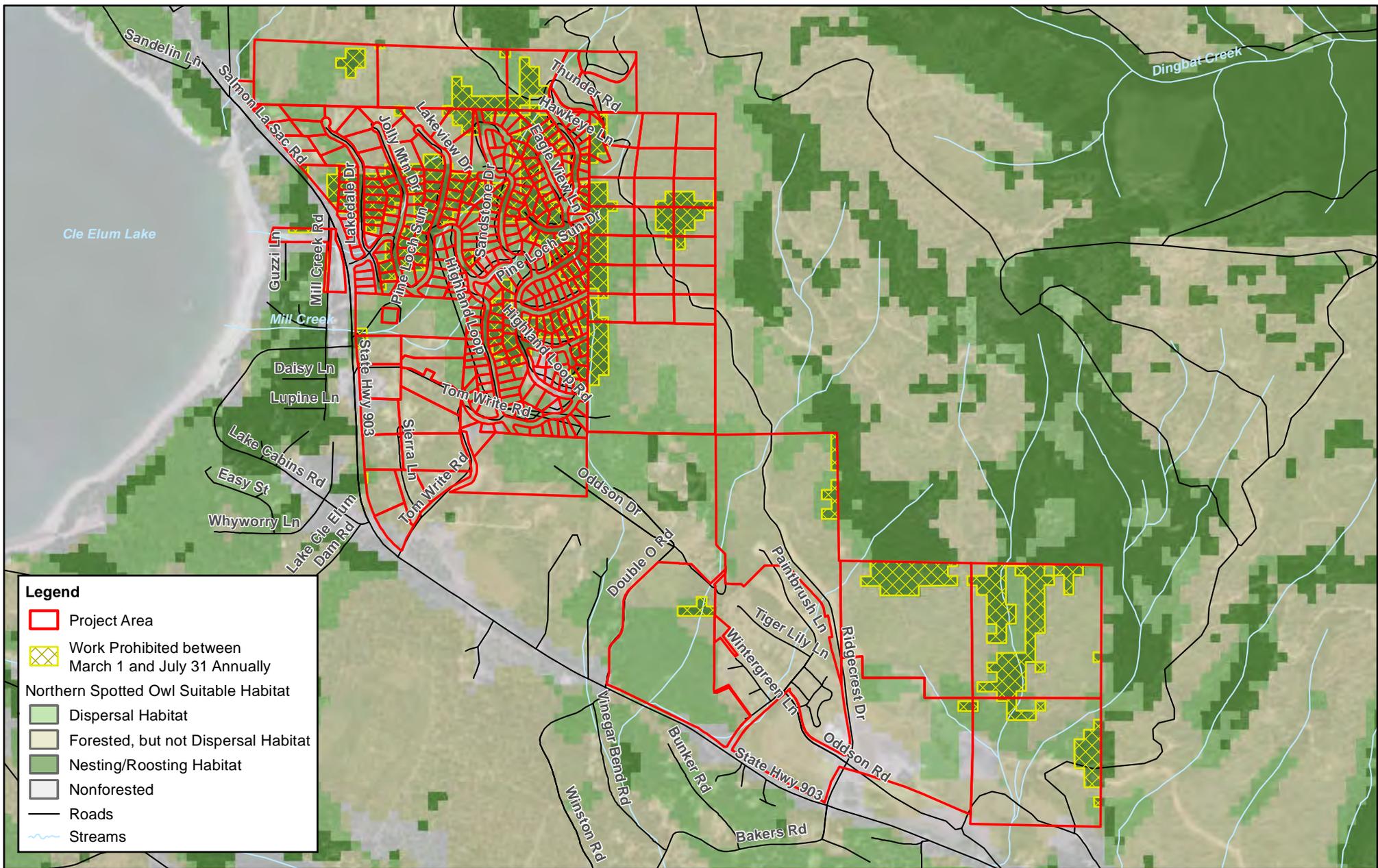
Figure 7

Hidden Valley Project Area

Suitable Habitat for Northern Spotted Owl

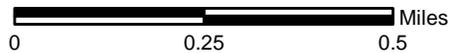
Kittitas County, Washington





Background: ESRI Basemap Imagery

Northern Spotted Owl Suitable Habitat Source: Davis et al (2011)



Job No. 15702626

Figure 8
Pine Loch Sun Project Area
 Suitable Habitat for Northern Spotted Owl

Kittitas County, Washington

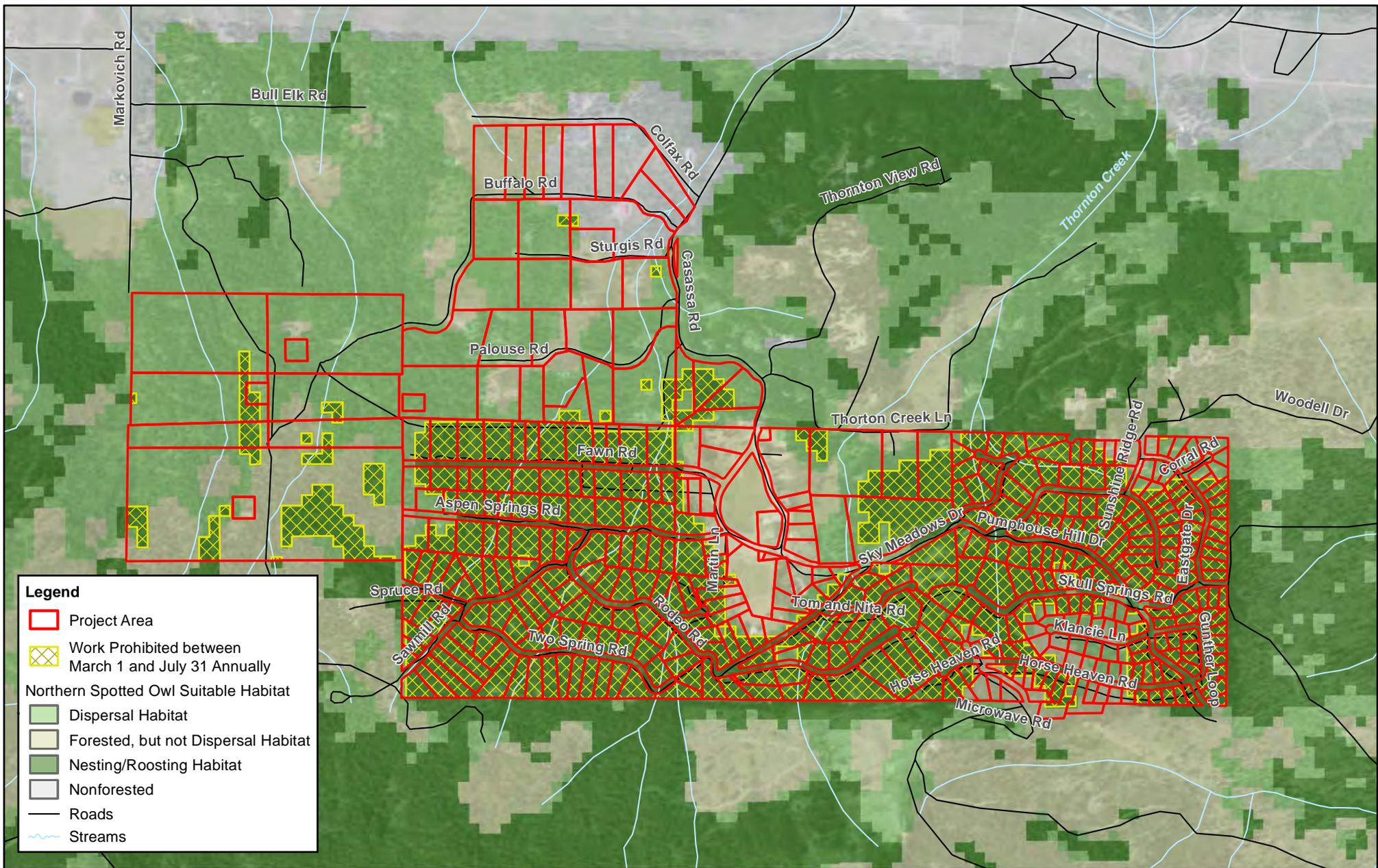


Figure 9

Sky Meadows Project Area

Suitable Habitat for Northern Spotted Owl

Kittitas County, Washington



Appendix B
Site Photographs



Hidden Valley project subarea



Hidden Valley project subarea



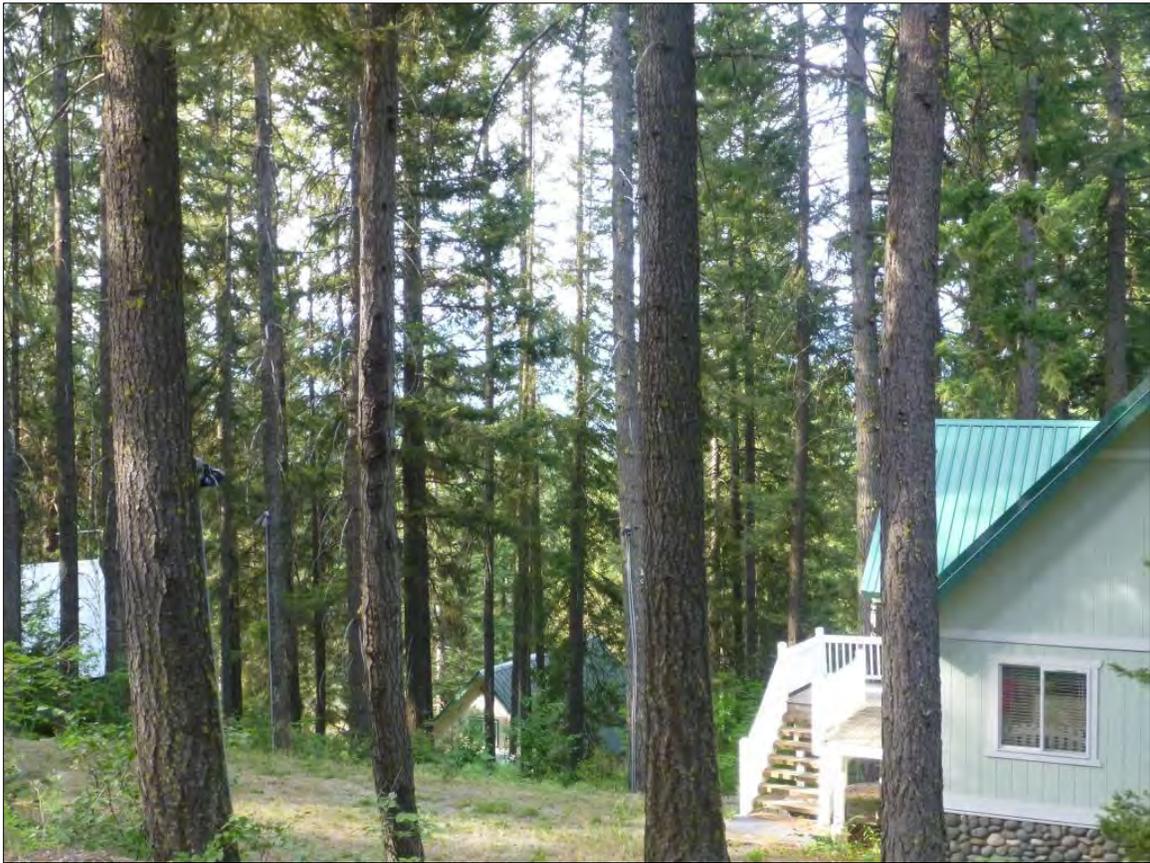
Teanaway River in the Hidden Valley project subarea



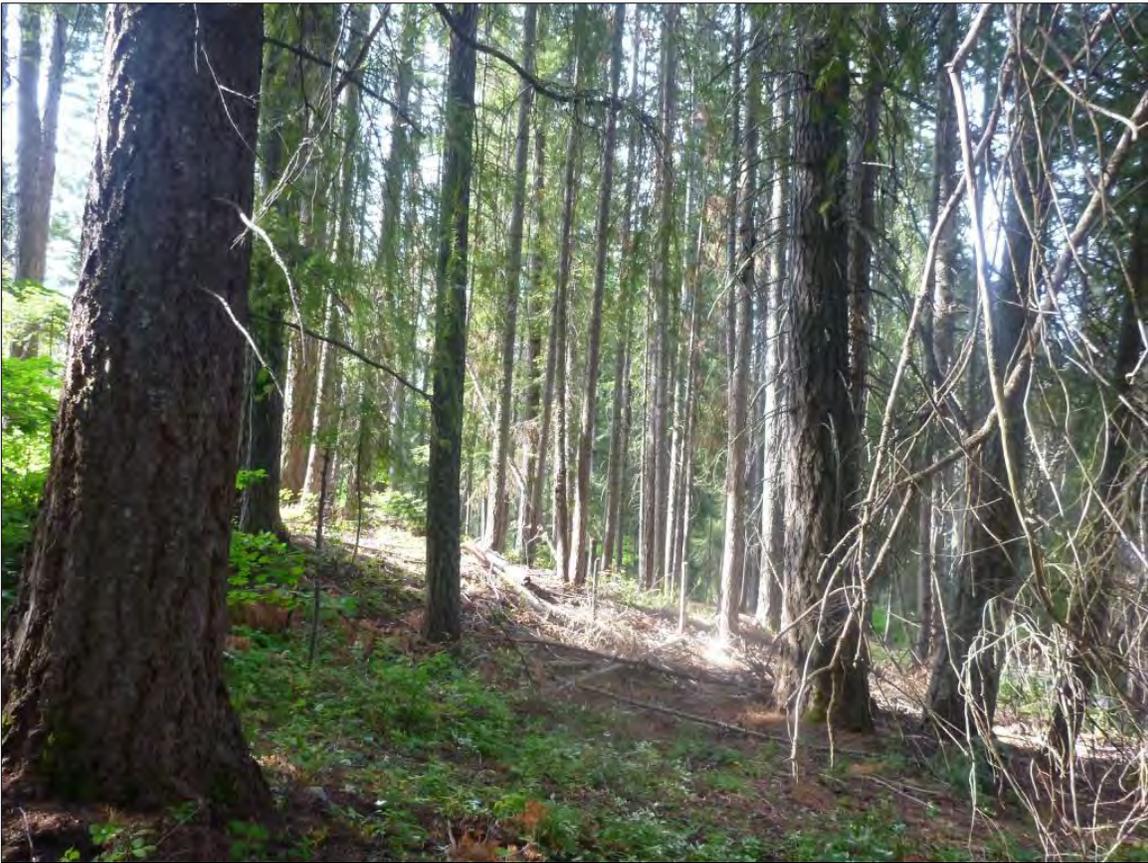
Swauk Creek, just north of the Hidden Valley project subarea



Pine Loch Sun project subarea



Pine Loch Sun project subarea



Pine Loch Sun project subarea



Pine Loch Sun project subarea



Sky Meadows project subarea



Sky Meadows project subarea



Sky Meadows project subarea

Appendix C
Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Washington Fish and Wildlife Office
510 DESMOND DRIVE SE, SUITE 102
LACEY, WA 98503
PHONE: (360)753-9440 FAX: (360)753-9405
URL: www.fws.gov/wafwo/

Consultation Tracking Number: 01EWF00-2014-SLI-0631

August 12, 2014

Project Name: Kittitas Co. Wildfire Risk Reduction

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website:

<http://wdfw.wa.gov/mapping/phs/> or at our office website:

http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at <http://www.fws.gov/pacific/eagle/for> information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: <http://www.nmfs.noaa.gov/pr/laws/mmpa/>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:

National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Kittitas Co. Wildfire Risk Reduction

Official Species List

Provided by:

Washington Fish and Wildlife Office
510 DESMOND DRIVE SE, SUITE 102
LACEY, WA 98503
(360) 753-9440
<http://www.fws.gov/wafwo/>

Consultation Tracking Number: 01EWF00-2014-SLI-0631

Project Type: Vegetation Management

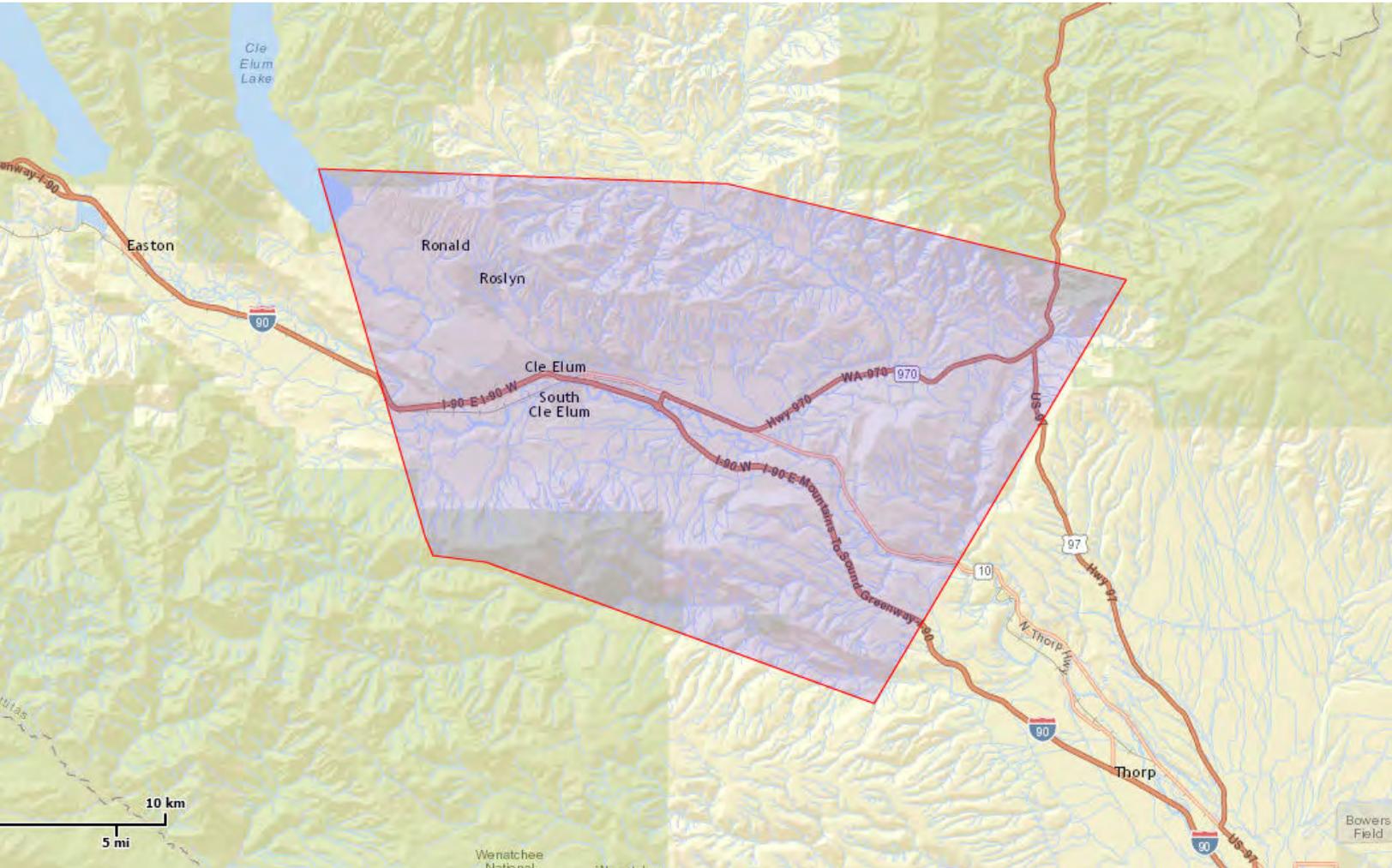
Project Description: Removal of ladder fuels and slash from urban-wildlands interface near Cle Elum, WA.



United States Department of Interior
Fish and Wildlife Service

Project name: Kittitas Co. Wildfire Risk Reduction

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-121.0791263 47.2668788, -120.8666095 47.26159, -120.6588993 47.2277247, -120.7900486 47.0778572, -120.9919223 47.1278678, -121.0194912 47.1302036, -121.023611 47.1368133, -121.0791263 47.2668788)))

Project Counties: Kittitas, WA



United States Department of Interior
Fish and Wildlife Service

Project name: Kittitas Co. Wildfire Risk Reduction

Endangered Species Act Species List

There are a total of 11 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Greater sage-grouse (<i>Centrocercus urophasianus</i>) Population: Columbia basin DPS	Candidate		
Marbled murrelet (<i>Brachyramphus marmoratus</i>) Population: CA, OR, WA	Threatened	Final designated	
Northern Spotted owl (<i>Strix occidentalis caurina</i>) Population: Entire	Threatened	Final designated	
Yellow-Billed Cuckoo (<i>Coccyzus americanus</i>) Population: Western U.S. DPS	Proposed Threatened		
Conifers and Cycads			
Whitebark pine (<i>Pinus albicaulis</i>)	Candidate		
Fishes			
Bull Trout (<i>Salvelinus confluentus</i>) Population: U.S.A., conterminous, lower 48 states	Threatened	Final designated	



United States Department of Interior
Fish and Wildlife Service

Project name: Kittitas Co. Wildfire Risk Reduction

Flowering Plants			
Ute ladies'-tresses (<i>Spiranthes diluvialis</i>)	Threatened		
Mammals			
Canada Lynx (<i>Lynx canadensis</i>) Population: (Contiguous U.S. DPS)	Threatened	Final designated, Proposed	
Gray wolf (<i>Canis lupus</i>) Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, KS, KY, LA, MA, MD, ME, MO, MS, NC, NE, NH, NJ, NV, NY, OK, PA, RI, SC, TN, VA, VT and WV; those portions of AZ, NM, and TX not included in an experimental population; and portions of IA, IN, IL, ND, OH, OR, SD, UT, and WA. Mexico.	Endangered		
Grizzly bear (<i>Ursus arctos horribilis</i>) Population: lower 48 States, except where listed as an experimental population or delisted	Threatened		
North American wolverine (<i>Gulo gulo luscus</i>)	Proposed Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: Kittitas Co. Wildfire Risk Reduction

Critical habitats that lie within your project area

The following critical habitats lie fully or partially within your project area.

Birds	Critical Habitat Type
Northern Spotted owl (<i>Strix occidentalis caurina</i>) Population: Entire	Final designated
Fishes	
Bull Trout (<i>Salvelinus confluentus</i>) Population: U.S.A., conterminous, lower 48 states	Final designated

Appendix D
Essential Fish Habitat Data for the Project Area

EFH Data Notice: Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional Fishery Management Councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.



Query Results

Degrees, Minutes, Seconds: Latitude = , Longitude =
 Decimal Degrees: Latitude = , Longitude =

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

EFH

Show	Link	Data Caveats	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
			Fresh-water Salmon	ALL	Pacific	Null
			Coho Salmon	ALL	Pacific	Null
			Chinook Salmon	ALL	Pacific	Null

EFH

Show	Link	HUC Name	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
		Upper Yakima	Chinook Salmon, Coho Salmon	All	Pacific	Pacific Coast Salmon Plan

HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Appendix F
USFWS Concurrence Letter



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office

Central Washington Field Office
215 Melody Lane, Suite 103
Wenatchee, Washington 98801-8122

October 22, 2014

In Reply Refer To:

USFWS Reference: 01EWF00-2015-I-0038

Hydrologic Unit Codes: 17-03-00-01

Mark Eberlein, Regional Environmental Officer
Federal Emergency Management Agency (FEMA)
Region X, Federal Regional Center
130 228th Street, SW
Bothell, WA 98021-8627

Dear Mr. Eberlein:

This responds to your September 30, 2014, request for initiation of informal consultation on the Kittitas County Wildfire Risk Reduction Project (Project), located in Kittitas County, Washington. Your Biological Assessment (BA) was received in the U.S. Fish and Wildlife Service's (Service) Central Washington Field Office on October 6, 2014.

The FEMA has requested Service concurrence with the determination of "may affect, not likely to adversely affect" for the northern spotted owl (*Strix occidentalis caurina*) in accordance with section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). Effects to other listed or proposed species, or their habitats, are not anticipated to occur.

The proposed Project consists of enhancing protection for residents and firefighters in three distinct residential development subareas (Hidden Valley, Pine Loche Sun, and Sky Meadows). These three subareas are located along the border of a wildland urban interface. The Project involves securing a funding source from FEMA to aid in the wildfire fuels reduction project in Kittitas County.

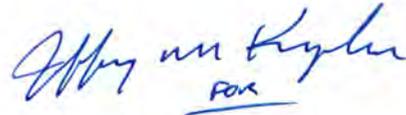
The Project BA describes effects that are either extremely unlikely to occur and/or are very small in scale. Project impacts will be insignificant in scope and discountable due to low likelihood of northern spotted owl presence in the Project area during implementation. Project activities will be prohibited from March 1 to July 31 of any given year. For additional justification of determinations refer to the Project BA. Therefore, the Service concurs with your determinations

of “may affect, not likely to adversely affect” for the northern spotted owl. Our concurrence is conditioned on the Project being implemented as described in the BA.

This concludes informal consultation pursuant to the implementing regulations of the Endangered Species Act, 50 C.F.R. § 402.13. This Project should be reanalyzed if new information reveals effects of the action that may affect listed or proposed species or designated or proposed critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to a listed or proposed species or designated or proposed critical habitat that was not considered in this consultation; and/or, if a new species is listed or critical habitat is designated that may be affected by this Project.

Thank you for your assistance in the conservation of listed species. If you have any questions or comments regarding this letter, please contact Luke Gauthier at the Central Washington Field Office in Wenatchee at (509)665-3508, extension 2009, or via e-mail at luke_gauthier@fws.gov.

Sincerely,

A handwritten signature in blue ink that reads "Thomas L. McDowell" with a horizontal line underneath the name.

Thomas L. McDowell, Acting Manager
Washington Fish and Wildlife Office

cc: Science Kilner, FEMA, Science.Kilner@fema.dhs.gov

Appendix G
SHPO Concurrence Letter



Allyson Brooks Ph.D., Director
State Historic Preservation Officer

August 21, 2014

Ms. Science Kilner
FEMA – Region X
130 – 228th Street SW
Bothell, Washington 98021-9796

RE: Kittitas County Wildfire Fuels Reduction Project
Log No: 082114-09-FEMA

Dear Ms. Kilner:

Thank you for contacting our Department. We have reviewed the materials you provided for the proposed Kittitas County Wildfire Fuels Reduction Project in Hidden Valley, Pine Loch Sun, and Sky Meadows, Kittitas County, Washington.

We concur with the determination of No Historic Properties Affected.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and the concerned tribes and this department notified.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 586-3080
email: rob.whitlam@dahp.wa.gov



Appendix H
Section 106 Consultation



FEMA

August 13, 2014

Honorable JoDe L. Goudy
Chairman, Confederated Tribes and Bands of the Yakama Nation
PO Box 151
Toppenish, Washington 98948
Attention: Johnson Meninick

**Re: FEMA Pre-Disaster Mitigation Competitive Grant Program – Section 106
Consultation, Kittitas County Wildfire Fuels Reduction Project**

Dear Chairman Goudy:

Kittitas County applied for funding under the Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation (PDM) Grant Program for a wildfire fuels reduction project. The need for this action is to enhance protection for residents and firefighters and reduce risks of a catastrophic wildfire. The proposed Undertaking is being reviewed pursuant to Section 106 of the National Historic Preservation Act. Concurrent with the Section 106 process, FEMA is preparing an Environmental Assessment (EA) for the action in compliance with the National Environmental Policy Act (NEPA).

Background

Kittitas County has an ongoing fire mitigation program among the Kittitas County Conservation District (KCCD), the Fire Marshal's Office, local fire districts, other emergency personnel and federal and state agencies, and citizens. The Kittitas County Wildfire Protection Plan (KCWPP) was released in 2009 as a countywide fire protection plan to reduce the potential for wildfire damage. KCCD is the local conservation district and runs the ongoing Firewise and fuels reduction program which educates and assists private landowners with fire protection and safety.

The KCWPP describes the wildland-urban interface as areas in the county outside of a fire district that present emergency response and fire suppression challenges. The interface can also include areas that are heavily timbered, mountainous, or sparsely populated. Areas within the wildland-urban interface with an extreme risk rating have characteristics such as rough roads, steep slopes and canyons, significant fuels, population growth, and homes without defensible space.

Proposed Undertaking

The Proposed Action would assist property owners in the extreme risk areas of Hidden Valley, Pine Loch Sun, and Sky Meadows with establishing defensible fire protection around their properties (Figure 1). These three extreme-risk communities comprise approximately 9,600 acres and between 150 to 300 properties could be protected depending on the participation rate of the project.

Kittitas County would work with the local fire districts and KCCD to provide on-site wildfire threat assessments, implement a fuels reduction and vegetation management plan, and create a defensible space for each property owner enrolled in the program. Specific site activities would include: removal of ladder fuels (brush and limbs) and limited thinning of small trees by means of chainsaws, chippers, and brush mowers and masticators. Defensible space perimeters concentrate on the first 200 feet from a structure but can include up to 10 acres for high-priority parcels. Based on the small scale of equipment to be used and types of vegetation being removed, limited ground disturbance would occur. Also, site work will be timed during dry periods to further minimize ground disturbance. Vegetative debris would be chipped on-site or piled. Work will be performed by KCCD-managed contractors.

Area of Potential Effects (APE)

The project area is located in the Upper Yakima sub-basin near the cities of Cle Elum and Roslyn, in Kittitas County (Figure 1). The project area consists of three distinct areas: Hidden Valley, Pine Loch Sun, and Sky Meadows. The Hidden Valley area is found in Section 6, Township 19 North, Range 17 East; Sections 25, 26, and 35, Township 20 North, Range 16 East; Sections 27, 28, 31, 32, 33, and 34, Township 20 North, Range 17 East on the Teanaway and Swauk Prairie, Washington U.S. Geological Survey (USGS) 7.5-minute quadrangle maps. The Pine Loch Sun area is found in Sections 1, 2, and 12, Township 20 North, Range 14 East; Sections 34 and 35, Township 21 North, Range 14 East on the Cle Elum Lake and Ronald USGS 7.5-minute quadrangle maps. The Sky Meadows area is found in Sections 7, 8, 17, and 18, Township 19 North, Range 16 East on the Cle Elum and Teanaway, Washington, USGS 7.5-minute quadrangle.

FEMA has determined that the Area of Potential Effects (APE) for the proposed project encompasses about 3,351 acres in three subdivisions of Kittitas County where project activities could occur (Figures 1-4; Photographs 1 and 2). Although specific parcels within subdivisions have yet to be confirmed, the APE is further defined as the defensible space on each.

Identification of Historic Properties

The identification of historic properties was completed by Sarah McDaniel, M.A., a URS professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for her discipline. Analysis was based upon the review of information from digital photographs, readily available materials collected during a desktop review, and a confidential search of the Washington Information System for Architectural and Archaeological Records Data (WISAARD). The WISAARD search was conducted in July 2014 to determine the presence or absence of previously recorded properties and the extent of survey coverage in and near the APE.

Cultural resources found within the project area are listed in Table 1. Seven archaeological resources consisting of historic-era sites (including a coal mine, railroad berm, refuse scatter, homestead, and cemetery) and two precontact-era sites (including talus pits and a camp) are found in the project area.

Pine Loch Sun, Hidden Valley, and Sky Meadows were established in the 1960s and 1970s. Previous cultural resource evaluations are rare, primarily because the lands are privately held. However, previous inventories have occurred across approximately one-third of the Hidden Valley project area, in the easternmost portion. Because this area has a variety of historic and precontact site types, similar resources would be expected to occur within areas that have never been inventoried for cultural resources. Mining-related features are expected to be present at Pine Loch Sun, given proximity to the Roslyn Cascade Coal Mine, while Sky Meadows is more likely to have evidence for rural farmsteads. Each of the three project areas is likely to have evidence for precontact use given the large areal extent of the project and the variety of sensitive landforms present, such as streams, knolls, rock outcrops, and prairies.

Table 1. Previously Documented Cultural Resources within the Project Area.

Site No.	Name	Description	Eligibility	Distance to Project Component	Project Component
45KT570	Roslyn Cascade Coal Mine	No. 4 Entrance; 150-x-30 ft., plus coal waste piles	Potentially Eligible	0	Pine Loch Sun
45KT2711	Swauk Ranch Talus Pits	Three precontact talus pits within a 20 m diameter area	Potentially Eligible	0	Hidden Valley
45KT2712	Swauk Ranch Refuse Scatter	Bottles, glass, cans, early to mid-20th century, 55-x-30 m.	Potentially Eligible	0	Hidden Valley
45KT2747	Zuke Spring Site	Precontact camp, 60-x-50 m	Potentially Eligible	0	Hidden Valley
45KT2748	Zuke Farmstead	Historic Homestead, cattle fields, c.1894, 80-x-100 m.	Potentially Eligible	0	Hidden Valley
45KT2761	McCallum Graves	Family interment plot with six graves dating from 1892 to 2002.	Potentially Eligible	0	Hidden Valley
45KT3123	Swauk Logging Grade	Earthen berm, ca. 1930-1946, 50-x-4 m	Potentially Eligible	0	Hidden Valley
Zuke Barn	Barn	Standing barn at Zuke Farmstead 45KT2748	Listed on State Register	0	Hidden Valley

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The project would occur in areas generally considered to be archaeologically sensitive, where surface or deeply buried cultural resources could be present, as evidenced by seven previously recorded sites within the project area. Additional sites are likely present that have not yet been documented.

Although direct impacts to previously documented sites are not anticipated, Kittitas County would be required to avoid these resources as a precaution to prevent even minor potential disturbances such as trampling. In addition to avoiding known sites, to reduce the potential for impacts to cultural resources the project would be conditioned so that tracked machinery and vehicles would work from existing roads as much as possible and work would be performed during dry periods. Vegetative debris would be hauled manually to the machinery staged on the roads. Furthermore, in the event of an unanticipated discovery, and in compliance with State and Federal laws protecting cultural resources, all work is required to cease in the immediate vicinity of the find until the appropriate parties (including the State Historic Preservation Office [SHPO]) are consulted and an appropriate resolution plan is established. Thus vegetation removal around residential structures and outbuildings is expected to have little potential to affect archaeological resources because of the proposed low impact methods.

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We have initiated consultation with the Washington State Historic Preservation Office regarding this Undertaking. We respectfully request comment or further information you wish to share regarding historic properties in the project vicinity that are of religious or cultural interest to the Tribes. This information will be used to inform further identification and evaluation efforts and to determine potential project impacts. To assist your review we have included site maps and photos. Please contact Ms. Science Kilner, Deputy Regional Environmental Officer, at (425) 487-4713 if you need assistance or have questions.

Sincerely,



Mark Eberlein
Regional Environmental Officer

cc: Phillip Rigdon, Yakama Nation (via email)
Johnson Meninick, Yakama Nation (via email)

Enclosures: Figure 1 – Project Vicinity Map
Figure 2 – Area of Potential Effects – Pine Loch Sun
Figure 3 – Area of Potential Effects – Sky Meadows
Figure 4 – Area of Potential Effects – Hidden Valley
Photographs 1 and 2

SK:bb

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bcc: Rob Little, GPD
Science Kilner, EHP
Mark Eberlein, EHP



FEMA

August 13, 2014

Guy Moura, Tribal Historic Preservation Officer
Confederated Tribes of the Colville Reservation
P.O. Box 150
Nespelem, Washington 99155

**Re: FEMA Pre-Disaster Mitigation Competitive Grant Program — Section 106
Consultation, Kittitas County Wildfire Fuels Reduction Project**

Dear Mr. Moura:

Kittitas County applied for funding under the Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation (PDM) Grant Program for a wildfire fuels reduction project. The need for this action is to enhance protection for residents and firefighters and reduce risks of a catastrophic wildfire. The proposed Undertaking is being reviewed pursuant to Section 106 of the National Historic Preservation Act. Concurrent with the Section 106 process, FEMA is preparing an Environmental Assessment (EA) for the action in compliance with the National Environmental Policy Act (NEPA).

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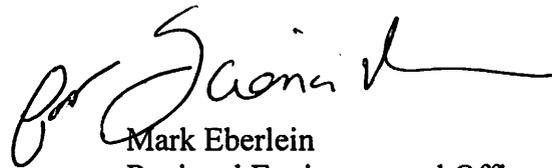
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Sincerely,

A handwritten signature in black ink, appearing to read "Mark Eberlein", with a long horizontal flourish extending to the right.

Mark Eberlein
Regional Environmental Officer

Enclosures: Figure 1 – Project Vicinity Map
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SK:bb

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bcc: Rob Little, GPD
Science Kilner, EHP
Mark Eberlein, EHP



The Confederated Tribes of the Colville Reservation

History/Archaeology Program
P.O. Box 150, Nespelem, WA 99155

(509) 634-2693
FAX: (509) 634-2694



September 25, 2014

HA# U14-272
14.0346

MEB
Mark Eberlein
Regional Environmental Officer
FEMA, Region X
130 228th Street, SW
Bothell, WA 98021-9796

RE: Kittitas County Wildfire Fuels Reduction Project

Dear Mr. Eberlein:

We received your letter initiating consultation for the wildfire fuels reduction program in Upper Kittitas County.

Please be advised that your proposed undertaking lies within the traditional territory of the Wenatchi tribe, one of the twelve tribes that make up the Confederated Tribes of the Colville Reservation (also known as the Colville Confederated Tribes or CCT), which is governed by the Colville Business Council (CBC). The CBC has delegated to the Tribal Historic Preservation Officer (THPO) the responsibility of representing the CCT with regard to cultural resources management issues throughout the traditional territories of all of the constituent tribes under Resolution 1996-29.

As the project moves forward, provided there are no ground disturbing actions, we recommend the proponent proceeds with caution and ask that the following conditions be observed:

Condition 1: Inadvertent Discoveries (43 CFR 10.4) - In the event that human remains, burials, funerary items, sacred objects, or objects of cultural patrimony are found during project implementation, the proponent or his authorized agent shall cease work immediately within 200 ft. of the find and take steps to protect the find from further damage or disruption. Then they shall contact the THPO at (509) 634-2695 to report the find. No further work shall be allowed on the project until an approved a plan for managing or preserving the remains or items is in place.

Condition 2: Post-Review Discoveries (36 CFR 800.13) - In the event that prehistoric artifacts (i.e., arrowheads, spear points, mortars, pestles, other ground stone tools, knives, scrapers, or flakes from the manufacture of tools, fire pits, **peeled trees**, etc.) or historic-period artifacts or features (i.e., fragments of old plates or ceramic vessels, weathered glass, dumps of old cans, cabins, root cellars, etc.) are found during project implementation, the proponent or his authorized agent shall cease work immediately within 200 ft. of the find. Then they shall contact the THPO at (509) 634-2695. No further work shall be allowed on the project until an approved a plan for managing or preserving the artifacts or features is in place.

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FEMA REGION X

Condition 3: Activities that have the potential to disturb cultural resources outside the specified project area should not proceed prior to a cultural resources review of potential adverse effects in the new area.

Thank you for consulting with the CCT. Please note that these comments are based on information available to us at the time of the project review. We reserve the right to revise our comments as information becomes available. If you have any questions or concerns, please contact Eric Oosahwee-Voss at (509) 634-2690 or eric.oosahwee-voss@colvilletribes.com. If you wish to speak with me, do so at (509) 634-2695.

Sincerely,

A handwritten signature in black ink, appearing to read 'Guy Moura', written in a cursive style.

Guy Moura
Tribal Historic Preservation Officer

cc: Chron; Dr. Rob Whitlam (DAHP); File (EOV)