



**US Army Corps
of Engineers** ®
Portland District

Environmental Assessment



United States
Department of
Agriculture

Forest
Service



June 2013

Adult Salmonid Release Site Improvements

**U.S. Army Corps of Engineers
Portland District**

Willamette National Forest

Marion, Linn and Lane Counties, Oregon

T9S R5E Sec.36; T9S R7E Sec.21; T10S R6E Sec.23; T13S R3E Sec.36; T17S R5E
Sec.36; T18S R3E Sec.26; T19S R4E Sec. 27

Information Contact: Nikki Swanson
Aquatics Program Manager
Willamette National Forest
3106 Pierce Parkway, Suite D
Springfield, Oregon 97477
Phone: 541-225-6300

Tim Kuhn
Project Manager
U.S. Army Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Table of Contents

Summary i

1.0 Introduction 1

Document Structure 1

Background 1

Purpose and Need for Action 2

Proposed Action 5

Decision Framework 4

Public Involvement..... 7

Tribal Consultation..... 8

Issues8

2.0 Alternatives, including the Proposed Action9

Alternatives 10

Design Elements Common to All Action Alternatives 10

Comparison of Alternatives..... 12

3.0 Existing Conditions and Environmental Consequences 13

Past, Present and Reasonably Foreseeable Future Activities 13

Fisheries..... 14

Wildlife..... 16

Botanical Resources 24

Hydrology and Soils..... 26

Wild and Scenic Rivers and State Scenic Waterways 28

Recreation and Scenic Resources 30

Fire and Fuels 32

Transportation System..... 33

Heritage and Cultural Resources 34

Socioeconomics..... 36

Environmental Justice 36

Wilderness, Inventoried Roadless Areas, Potential Wilderness Areas..... 37

Other Environmental Consequences 37

Compliance with other laws and regulations.....38

Consultation and Coordination..... 45

References..... 46

Maps and Site Drawings 47

SUMMARY

The US Army Corps of Engineers (Corps), Portland District, in cooperation with the Willamette National Forest (WNF) proposes to improve adult salmonid release sites located on lands managed by the WNF.

Currently the Corps and the Oregon Department of Fish and Wildlife (ODFW) capture adult fish below the dams and transport them by truck to various locations in the watersheds above the dams where they are released. The objective of the fish transporting is to provide adult salmonids access to the habitat above the dams to complete their life cycle, including spawning, as well as for nutrient cycling and production of forage fish for bull trout (*Salvelinus confluentus*). The current method for moving the fish from the transport trucks varies by site but is often limited by terrain and poor access to desirable pools in the rivers/streams. This results in excessive and rough handling of the fish during the release process increasing the physiological stress on the fish. As a result mortality rates are elevated, spawning success is reduced. The Corps and ODFW requested that the WNF assist them in the restoration program by allowing access to release on the WNF to make them more “fish friendly” and providing access to other desirable release sites while minimizing or avoiding potential adverse site impacts created by the truck transport and release operations.

In July 2008, the National Marine Fisheries Service (NMFS) issued their Biological Opinion (BiOp) on the effects of continued operations and maintenance of the Corps’ thirteen dams and reservoirs in Oregon’s Willamette River Basin (Willamette Project) to species under their jurisdiction that are listed under the Endangered Species Act (ESA). The NMFS concluded that the Corps proposed action was not sufficient to avoid jeopardy or adverse modification of designated critical habitat for two fish species: Upper Willamette River (UWR) Chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*). The NMFS 2008 BiOp included a reasonable and prudent alternative (RPA) to the Corps’ proposed action that if implemented, would avoid the likelihood of jeopardy to listed species or adverse modifications to their critical habitats. The RPA includes specific measures for fish passage, water quality, flows, water contracts, habitat improvements, and hatcheries. Specifically, RPA measure 4.7, requires the Corps (as the lead Action Agency [The Bureau of Reclamation and Bonneville Power Administration are co-Action Agencies for the Willamette Project consultation]) to complete a site/concept study that will identify at least four to six potential locations suitable for new adult fish release sites within affected Willamette Basin tributaries upstream of Corps’ dams and construct selected sites.

The purpose of the project is to improve the release of fish to reduce stress during handling and meet the requirements of RPA 4.7. This would be done by improving the truck access to and provide site-modifications at seven release sites identified by the Corps, ODFW, WNF, and NFMS on lands managed by the WNF. The desired condition is to improve access to and provide site modifications that would improve fish survival while minimizing or avoiding adverse impacts of the transport trucks at the release sites. In their initial request to the WNF, the Corps identified ten sites for improvement and release of the adult salmonids.

These ten sites were identified in the public scoping for this project. Since then, the Corps has modified their proposal for improvements to seven sites on the WNF, eliminating three of the proposed fish release sites.

Two action alternatives and the No Action alternative are considered with this environmental assessment. Both action alternatives would include low impact development of sites for temporary or long term use depending on the success of the out-planted salmon in completing their life cycle objectives; construction and use of light infrastructure such as pre-cast concrete anchors and pipes, placed above existing grade and Ordinary High Water (OHW) to minimize ground disturbing activities and conflicts with river flow; improving transport truck access by minor vegetation clearing, importing commercially-sourced crushed rock for surfacing where necessary and constructing turn-around areas; and installing gates and other safety barriers to limit unauthorized vehicle access to the edge of the river. Alternative 1 would include improvements to the seven release sites requested by the Corps. Alternative 2 would include improvements to six release sites, excluding the Maria Villa release site on the upper Breitenbush River. Alternative 3 is no action.

1.0 INTRODUCTION

Document Structure

The Corps and the WNF prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- *Introduction:* The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on issues raised by the public and other agencies and are consistent with the purpose and need of the proposed action. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Affected Environment and Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Willamette National Forest Supervisors Office in Springfield, Oregon and/or the Portland District Office in Portland, Oregon.

Background

Dams in the Willamette Basin impede the upstream migration of fish species. Adult salmon and steelhead are trucked around the dams to provide passage to high quality spawning habitat on Federal Lands. ODFW and the Corps complete the transfer and release of adult salmonids into tributaries upstream of several Corps dams in the Willamette basin. Access to this habitat was considered essential to the species recovery in recovery plans for threatened spring Chinook salmon and winter steelhead.

Many of the existing release sites have relatively poor river access, forcing drivers to release fish using methods such as sliding fish on tarps or using collapsible hoses that elevate stress or cause direct or delayed injury or mortality. Some sites are located at river access points

that experience heavy recreational pressure, leading to disturbance, harassment, or poaching of released fish. New and improved release sites would allow safe transfer of fish from the truck, adequate recovery in pools without recreational pressure or poaching, and reasonable proximity to quality holding and spawning habitat.

In July 2008, the National Marine Fisheries Service (NMFS) issued their Biological Opinion (BiOp) on the effects of continued operations and maintenance of the 13 dams and reservoirs in Oregon's Willamette River Basin (Willamette Project) to species under their jurisdiction that are listed under the Endangered Species Act (ESA). The NMFS concluded that the Corps' proposed action was not sufficient to avoid jeopardy or adverse modification of designated critical habitat for two fish species: Upper Willamette River (UWR) Chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*). The NMFS 2008 BiOp included a reasonable and prudent alternative (RPA), identifying specific measures modifying the Corps' proposed action that, if implemented, would avoid the likelihood of jeopardy to listed species or adverse modifications to their designated critical habitats. The RPA includes measures for fish passage, water quality, flows, water contracts, habitat improvements, and hatcheries. Specifically, RPA measure 4.7 requires completion of a site/concept study that will identify at least four to six potential locations suitable for new adult fish release sites within affected Willamette Basin tributaries upstream of Corps' dams and construct selected sites.

The Corps, ODFW, and the WNF evaluated existing tributary release sites for improvements and new sites were investigated to provide additional release site opportunities. The proposed action would improve sites to make it easier for fish transport trucks to approach the water's edge and to have "fish friendly" pipes in place on site to carefully release threatened spring Chinook salmon and winter steelhead. These sites are located throughout the WNF.

The effect of this measure would reduce stress and associated pre-spawning mortality, ultimately increasing the percent of adult fish that successfully spawn, leading to increased productivity above the dams. This measure would also decrease adverse effects on critical habitat by providing a component of safe passage.

Purpose and Need for Action

The purpose of this proposal is to improve the truck access to and provide site-modifications at seven release sites identified by the Corps on the WNF as part of the on-going adult salmon and steelhead release program and to meet the requirements of RPA 4.7 from the 2008 NMFS Willamette Project BiOp. The project is needed because the existing condition is that current access for the release sites is limited by terrain or poor road conditions, increasing the excessive and rough handling of the fish. This consequently lowers survival and spawning rates of the adult salmon that are released into the streams. The desired condition is to improve access to and provide site modifications that would minimize handling and physiologic trauma to the fish during release, thereby improving the adult fish survival and spawning opportunities. The site modifications will also minimize or avoid adverse impacts of the transport trucks at the release sites.

Management Direction

There are several existing planning documents that direct or guide the project:

Guidance (non-NEPA documents)

Breitenbush Watershed Analysis (USDA 1996)

Upper North Santiam Watershed Revision (USDA 2007)

South Santiam Watershed Assessment (USDA 2000)

Update South Fork McKenzie River Watershed Analysis (USDA 2010)

Fall Creek Watershed Analysis (USDA 1995)

North Fork of the Middle Fork Willamette River Watershed Analysis (USDA 1995)

NMFS' Willamette Basin Biological Opinion (2008)

Engineer Regulation 1105-2-100: Corps of Engineers Planning Guidance Notebook

Forest Plan

All actions on the National Forest including this adult salmonid release site improvements are guided by the *Willamette National Forest Land and Resource Management Plan (LRMP, USDA 1990) as amended by the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest Plan, USDA and USDI 1994, as amended)*.

The assessment is tiered to the following Environmental Impact Statements and plans which are incorporated by reference:

- The Willamette National Forest Land and Resource Management Plan Environmental Impact Statement, as amended (USDA, 1990) (LRMP)
- The Northwest Forest Plan and Record of Decision and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Related Species with the Range of the Northern Spotted Owl (USDA, USDI 1994)
- The Forest Plan as amended by the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (USDA, USDI 2001)
- The Environmental Impact Statement and Record of Decision for Preventing and Managing Invasive Plants (USDA 2005)

The Willamette NF LRMP provides management direction through the designation of specific management areas and standards and guidelines specific to these designations.

- Management Area 15, Riparian Areas (all proposed release sites)
- Management Area 6e, Wild and Scenic River, North Fork of the Middle Fork Willamette (Site #1, River Mile 19.3)

- Management Area 6c, Wild and Scenic Rivers- Recreation, Study Rivers (Coopers Ridge Site – North Santiam River; USGS Gage Site and Maria Villa Site – Breitenbush River; Homestead Site – South Fork McKenzie River)
- Management Area 12a, Developed Recreation (Homestead Site)

The Northwest Forest Plan amended the Willamette NF LRMP by establishing new and additional Management Areas and standards and guidelines.

Riparian Reserves: All of the proposed adult fish release site improvements are within Riparian Reserves. Riparian Reserves are one component of the Aquatic Conservation Strategy outlined in the Northwest Forest Plan ROD (USDA Forest Service, 1994). Riparian Reserves “provide [areas] along all streams, wetlands, ponds, lakes, and unstable and potentially unstable areas where riparian-dependent resources receive primary emphasis” (Northwest Forest Plan, p. A-5). They also serve to “improve travel and dispersal corridors for many terrestrial animals and plants, provide greater connectivity within the watershed,” and serve as connectivity corridors among Late-Successional Reserves (USDA and USDI, 1994, A-5 and B-13).

The Northwest Forest Plan also established Aquatic Conservation Strategy Objectives (ACSO) to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands by maintaining and restoring ecosystem health at watershed and landscape scales. Section 3.0, Affected Environment and Environmental Consequences, discloses effects of the proposed fish release sites to Riparian Reserves and ACSO consistency for this project. Management activities may occur within Riparian Reserves in this project only if they maintain and restore the riparian dependent species and their requirements.

None of the proposed release sites are within Late Successional Reserves or Adaptive Management Areas as designated in the Northwest Forest Plan amendment.

Decision Framework

This analysis will evaluate and disclose the environmental impacts of the fish release site improvements proposed for construction by the Corps and the access and use of these sites by ODFW and/or Corps fish transport trucks.

The Corps is the lead Federal agency for developing the Adult Salmonid Release Site Improvements project. The WNF agreed to join the Corps as a cooperating agency for the purposes of satisfying NEPA requirements because they have special expertise in land and resource management, particularly fish and wildlife management, in the locations currently considered for adult fish release. In addition, the ODFW was requested to be a cooperating agency, but did not respond to the request. However, they continue to coordinate on fish transport and delivery.

The Corps and WNF each have various roles and decisions in approval of the proposed project. More specifically, the Portland District Corps is proposing the project and would fund the construction to improve adult fish release sites and WNF would issue a Special Use permit authorizing the improvement work to occur on Forest Service lands and the on-going

use and maintenance of the sites based on consistency of the project with their various land management requirements.

Given the purpose and need for the adult salmonid release site improvements and the issues identified by the public, agencies and Tribes, each agency administrator (Corps and WNF) will review the alternatives, including the No Action alternative, in order to make the following decisions:

- Select either Alternative 1 or Alternative 2 for release site improvements and operation of the adult salmonid release sites,

Or

- Select the No Action which would not allow the proposed adult salmonid release site improvements.

Proposed Action

The Corps is proposing the following actions to meet the desired condition of providing “fish friendly” release sites by improving fish release truck access and installing fish conduits (plastic pipes) to move adult salmonids from the truck to a holding pool.

The Forest Service is proposing to issue a Special Use Permit for a term of five years, as authorized in the Organic Act of 1897, and associated Operations and Maintenance Plan authorizing the Corps to make improvements on lands managed by the WNF and use of the sites by ODFW and/or Corps fish transport trucks for the purpose of releasing adult salmonids upstream of Corps dams.

Fish transport truck access would be improved by clearing small trees and brush and importing crushed rock for surfacing where necessary. The fish conduit would consist of pipes and support structures above the OHW area. Fish conduits needed below OHW would be deployed during fish release and removed/retracted above high water when not in use. Where necessary to prohibit unauthorized vehicles from driving too close to the stream, gates would be installed. Non-vehicular access would still be provided and release areas would be signed so that area users would be aware of the fish releases. The proposed action would also permit ODFW and/or Corps transport trucks to access these sites during the period of May to October for the purpose of releasing the adult salmonids.

The proposed action would include the following site-specific adult salmonid release site improvements on the WNF. The Corps has modified the delivery pipe design from the piping systems presented in the public scoping letter. The new design does not require any permanent or semi-permanent pipe supports below the OHW mark for any of the release sites and would allow the “removable” pipe to be stored on-site inside the permanent pipe structure.

Coopers Ridge Road Site, North Santiam River (T10S, R6E, Sec. 23)

- Use existing road shoulder about 10 feet wide. Local shoulder may be widened additional 10 feet if required. No improvements to existing road required.
- Clear overhead branches and bushes less than 4-inch diameter to achieve access for

fish delivery truck.

- Install traffic barrier in front of entry portal, i.e. Jersey Barriers.
- Place a concrete block (2'x2'x4') above OHW.
- Install the fish delivery pipe.
- Est. 12-25 transport truck visits, May-October

USGS Gage Site, Breitenbush River (T9S, R5E, Sec. 36)

- Remove and dispose of existing damaged gate owned by USFS and replace with new gate.
- Repair minor erosion in existing access road.
- Import crushed surface aggregate and re-grade the turnout site for the fish delivery truck
- Place two-foot diameter logs with concrete anchors on perimeter of truck turn-out for safety.
- Install the fish delivery pipe
- Est. 8-15 transport truck visits, May-October

Maria Villa Chapel Site, Breitenbush River (T9S, R5E, Sec. 21)

- Corps would coordinate with WNF for access through existing gate. No new gate required.
- Import crushed surface aggregate, improve about 200 feet of road leading to site, and re-grade the turnout site for the fish delivery truck
- Working around existing trees, no tree removal allowed.
- Place a concrete block (2'x2'x4') above OHW.
- Install the fish delivery pipe
- Est. 8-15 transport truck visits, May-October

Gordon Road Site, South Santiam River (T13S, R3E, Sec. 36)

- Install new gate at entrance of existing driveway
- Place boulders on either side of gate to control OHV entrance
- New gravel driveway extension
- Remove 3-6 small (<5" diameter) trees and one 5-12" diameter tree
- Place a concrete block (2'x2'x4') above OHW.
- Install entry portal for receiving fish from the delivery truck.
- Install the fish delivery pipe.

- Est. 40-60 transport truck visits, all year

Homestead Camp Ground Site, South Fork McKenzie River (T18S, R5E, Sec. 36)

- Install new gate (traffic barrier). USFS to remove existing gate. No road improvements required at existing campground.
- Clear overhead branches, shrubs and small trees (<4" diameter) to improve access for fish delivery truck.
- Remove one (approximately 12" diameter) big leaf maple to allow truck access.
- Place a concrete block (2'x2'x4') above OHW.
- Install the fish delivery pipe.
- Est. 20-30 transport truck visits, May-October

Gold Creek Site, Fall Creek, Middle Fork Willamette (T18S, R3E, Sec. 26)

- Install gate as a traffic barrier
- Repair minor erosion in existing asphalt access road using pre-cast concrete panels to restore truck access to the river bed.
- No portal or pipe required.
- Est. 30-40 truck visits, May-October

Disp. Site #1 River Mile 19.3, North Fork Middle Fork Willamette (T19S, R4E, Sec. 27)

- Relocate onsite the existing boulders blocking access to primitive site. Install a gate as a traffic barrier.
- Import crushed surface aggregate and improve about 200 feet of road leading to site, and re-grade the turnout site for the fish delivery truck.
- Clear overhead branches and shrubs (<4" diameter) to achieve access for fish delivery truck.
- No fish delivery pipe required.
- Est. 30-40 transport truck visits, May-October

Public Involvement

The proposed improvements to the adult salmonid release sites were first listed in the WNF Schedule of Proposed Actions January 2013 and subsequently in April 2013. In January

2013, letters were sent to interested public, individuals that have expressed interest in these types of Forest activities, and adjacent property owners were applicable.

Eleven letters and emails were received in response to the public involvement letters. Comments included:

- Support for the proposed action
- Concern about potential adverse impacts on the northern spotted owl and its critical habitat due to disturbance during construction and on-going fish transport.
- Concern about potential adverse impacts to a meadow and stream bank erosion at the proposed Maria Villa site on the Breitenbush River
- Concerns about increased fish transport truck traffic in the Devils Creek-Breitenbush Forest Service summer cabin tract creating noise disturbance for cabin owners and potential safety issues in the cabin areas.
- Concerns about potential adverse impacts to the domestic water quality supply of the Breitenbush Hot Springs Retreat and Conference Center which has a water intake downstream from the proposed Maria Villa site.
- Concerns about the potential for the release sites to impact the future operation and maintenance of the hydroelectric plant currently owned and operated by the Breitenbush Hot Springs Retreat and Conference Center downstream from the Maria Villa site.
- Opposition to salmon collection facility at Big Cliff dam and related activities including fish collection, transport, and release in watersheds above Detroit dam.

Tribal Consultation

The consultation letter for the Adult Spring Chinook Release Site Improvements was mailed to tribal contacts including the Confederated Tribes of Coos, Lower Umpqua and Siuslaw, Coquille Tribe, Cow Creek Band of Umpqua Indians, Confederated Tribes of Grand Ronde, The Klamath Tribe, and Confederated Tribes of Siletz Indians of Oregon on January 13, 2013. One comment was received from the Confederated Tribes of the Grand Ronde Tribe in support of the proposal and emphasizing importance to “minimize ‘shipping effects’ of fish around hydrosystem projects and get these fish into better spawning habitat.”

Issues

The Corps and the Forest Service separated the issues into two groups: key and other issues. Key issues describe a dispute or present an unresolved conflict associated with potential environmental effects of the proposed action. Key issues are used to formulate alternatives, prescribe design elements and focus the analysis of environmental effects. Key issues are tracked through issue identification (Section 1), alternative development and description (Section 2), and affected environment and environmental consequences (Section 3). Other issues were identified as those outside the scope of the proposed action; already decided by law, regulation, Forest Plan, or other higher level document; irrelevant to the decision to be made; or conjectural and not supported by scientific or factual evidence.

Key Issues

- Direct and indirect impacts of the proposed Maria Villa release site – Both Breitenbush Hot Springs Resort and Conference Center and cabin owners in the WNF Devils Creek summer home lease tract expressed concerns of the proposed improvements and use of the release site; future impacts on the resort's hydropower, water intake quality, fish transport truck traffic in the summer home lease area and through the meadow adjacent to the summer home tract.

Other Issues

- Best Management Practices would be used during all construction activities. The only improvements (pipe stands, road improvements, etc.) that would be constructed below the OHW mark for any river or stream is replacing an eroded asphalt ramps with pre-cast concrete panels at the Gold Creek site. This action would be restricted to July 1-August 31 to prevent any stream bank erosion or sediment from reaching live water.
- Disturbance to Northern Spotted Owl for sites located in Critical Habitat: All proposed release sites are greater than .5 miles from known NSO activity centers so no disruption or disturbances of owl nesting are expected. Four proposed sites are within NSO Critical Habitat but site evaluations indicate that only one trees >12 inches diameter (a 12" diameter big leaf maple at the Homestead site) would be removed by the proposed improvements One tree 5-12" diameter and a few smaller trees (<5" diameter) might be pruned or removed at other sites. Neither action would result in a measureable change in owl habitat at the stand scale.
- Fish collection facility at Big Cliff dam: The proposed action addresses only adult salmonid release site improvements proposed by the Corps. The operations of the Corps facilities off the WNF and its on-going programs such as adult fish capture and release are not within the scope of this decision.

2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This section describes and compares the alternatives considered for Adult Salmonid Release Site Improvements project. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternatives

Alternative 1 - Proposed Action – Seven Release Sites –Preferred Alternative

The seven release site improvements would be constructed as described in the Proposed Action section. The WNF would issue a Special Use Permit authorizing the Corps to make the release site improvements and for operation of the sites by ODFW and/or Corps fish transport trucks.

Alternative 2 – Six Release Sites (Maria Villa site excluded)

This alternative would be identical to Alternative 1 with the exception that the Maria Villa site would not be included as a release site. No improvements would be made to the Maria Villa site and a Special Use Permit would not be issued for ODFW and/or Corps transport trucks to release adult salmonids at that site.

No Action

Under the No Action alternative, the proposed adult salmonid release site improvements would not be constructed. The Corps and ODFW would continue to implement the recovery plan action of releasing the adult salmonids by using currently available access and means of release.

Design Elements Common to All Action Alternatives

The following design elements have been built into the design of all action alternatives to ensure compliance with Forest Plan standards and guidelines, laws, regulations and other policies. In response to public comments on the proposal, design elements were developed to ease some of the potential impacts the action alternatives may cause.

General (all sites)

- All gates will be designed with a double-pin or double locks to allow access for either ODFW and/or Corps fish transport trucks or Forest Service personnel. Forest Service locks at each gated site will be coordinated with the appropriate District Ranger.

Heritage & Cultural Resources

- All historic properties and archaeological sites eligible or potentially eligible to the National Register of Historic Places (NRHP) must be avoided during all project activities. Project managers must work with the staff archaeologist to insure protection of the potentially eligible cultural sites.
- Changes to the current project parameters to and or the addition of any new release sites, will require consultation with the staff archaeologist in order to protect all known and as yet undiscovered cultural resources.
- Additional project activities planned outside of the area defined as the area of potential effect in the cultural resource inventory must be coordinated with the staff

archaeologist prior to initiation. This includes the establishment of new fish release sites, improvements to access, removal of roadside danger trees, and any and all potentially ground disturbing activities.

- In addition to surface or subsurface evidence of cultural resources already noted in the proposed project area, there always remains the possibility that buried prehistoric or historic cultural resources are present and could be exposed during project activities. If cultural resources are encountered during the course of this project, ground-disturbing activities in the vicinity of the find shall be suspended, in accordance with federal regulations, and the staff archaeologist notified to evaluate the discovery and recommend subsequent courses of action.

Fire and Fuels

- Vegetation cut to allow truck access will be lopped and scattered into the surrounding site; chipped and scattered on-site; or removed.

Botany (all improvement sites)

- All aggregate/gravel or fill used in construction or reconstruction of road shall be from a certified weed-free source
- All equipment used for construction shall be clean of any dirt, vegetation or other material that could carry weed seed

Wild & Scenic Rivers

- Exposed concrete at portals will be colored to blend with native soils and background, i.e. tan or brownish color.
- Any exposed steel at portals, i.e. pipe supports, will be painted to blend with background, i.e. tan or brownish color.
- At sites where new or replacement gates are installed, they will be painted to meet Forest Service specifications.

Wildlife

- No site improvement construction activities will occur from May 1 to July 15 at the following proposed release sites to reduce impacts to nesting harlequin ducks and newly hatched ducklings: Maria Villa, USGS Gauge Station, Coopers Ridge Road and Gordon Road. This restriction may be waived if the particular site is surveyed by the District biologist and found to be unoccupied during the year of construction.

Soils and Water

- Do not allow water used in aggregate processing, concrete curing, foundation and concrete cleanup, equipment washing, and other waters to enter any water course.
- Utilize erosion control BMPs when conducting ground disturbance to prevent sediment from reaching the live water.
- Use pea gravel rather than sand if bags are required for support during installation or use of fish release pipes.

- In-stream work at the Gold Creek site will be restricted to the period of July 1 – August 31.
- If existing road shoulder widening is needed at the Cooper Ridge site, work plans will be approved by WNF engineering section; no side-casting of material will be permitted

In addition to these project design elements, the Forest Service 2400-7 Special Use Permit that the WNF would issue to the Corps authorizing the improvements includes standard provisions for resource protection.

- Compliance with all federal, state, and local environmental laws and regulations,
- Taking measures to prevent and discourage vandalism,
- Controls and restrictions on pesticide use,
- Archaeological - paleontological discovery and notification requirements,
- Compliance with Native American Graves and Repatriation,
- Habitat protection of threatened, endangered, or sensitive species,
- Restrictions on and consent to store hazardous materials,
- Cleanup and remediation provisions.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives. The effects or outputs that vary by the alternatives considered in this analysis and provide a comparison among them are summarized in Table 1.

Table 1 Summary of Alternative Effects and Outputs

Effects/Outputs	No Action	Alternative 1	Alternative 2
Impacts to users near Maria Villa site	No impacts to cabin owners or resort	Seasonal impacts to cabin owners/ resort from 1-2 truck trips/week	No impacts to cabin owners or resort
No. of improved fish release sites; meeting RPA 4.7 in	No improved release sites; fail to meet RPA 4.7 in	7 improved release sites; meets RPA 4.7 for upper	6 improved release sites; no release site in upper Breitenbush River;

BiOp	BiOp	watersheds	meets RPA 4.7 for upper watersheds
------	------	------------	------------------------------------

3.0 EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the previous section.

Past, Present and Reasonably Foreseeable Future Activities

This section provides a summary of past, present, and reasonably foreseeable activities in the project area and other relevant analysis scales. The Council on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” The cumulative effects analysis in this document is also consistent with the U.S. Forest Service’s National Environmental Policy Act (NEPA) implementing regulations (36 CFR 220.4(f)) (July 24, 2008), which state, in part:

CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions. Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. The final analysis documents an agency assessment of the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment. With respect to past actions, during the scoping process and subsequent preparation of the analysis, the agency must determine what information regarding past actions is useful and relevant to the required analysis of cumulative effects. Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal. The CEQ regulations, however, do not require agencies to catalogue or exhaustively list and analyze all individual past actions. Simply because information about past actions may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decision making. (40 CFR 1508.7)

The area of consideration for evaluating past, present, and reasonably foreseeable future for all resources is the existing road network used by the fish release trucks, fish release site project footprint, and the salmonid spawning reaches in the vicinity of each release site.

Past Activities

The construction of the Corps dams in the Willamette basin resulted in the loss of access for aquatic species, in particular native salmonids and resident fish, to spawning and rearing

habitat in the upper parts of watersheds above the dams. Timber harvest, road building, and recreational development have also contributed to degraded aquatic habitat necessary to support anadromous salmonids.

All of the proposed release sites utilize existing road access in riparian reserves. These existing roadways were developed 30 or more years ago for a variety of uses including administrative use (USGS gage site), recreation use (Maria Villa, Homestead, Site 1) or as part of the general forest transportation system (Gold Creek). In the immediate locations of the proposed release sites, impacts to the riparian vegetation are limited to minor road clearing and/or incidental recreation activities such as dispersed campsites.

Present Activities

The present activities are similar to the past activities; occasional use and access either for administrative or recreational use.

Reasonably Foreseeable Future Activities

A variety of approved projects and project proposals exist for various riparian reserve improvement projects within the watersheds where the release sites are proposed. These include projects to improve streamside impacts (Respect the River projects) introduction of large woody material into streams, riparian thinning, and riparian vegetation planting projects. No riparian improvement projects are currently planned within the vicinity of any proposed release sites.

Fisheries

The proposed adult salmonid release sites and improvements are located along rivers and streams that either currently have or have historically supported populations of spring Chinook salmon and/or winter steelhead. In addition to these species, the Homestead site on the South Fork McKenzie, the Gold Creek site on Fall Creek, and the Dispersed Site #1 on the North Fork Middle Fork Willamette also have populations of bull trout which is listed as threatened under the Endangered Species Act. In addition to these fish species, the rivers and tributaries to them where the release sites are located contain a variety of fish species.

Direct, Indirect, and Cumulative Effects – No Action

The No Action alternative would have no change in effects on either the federally listed fish species or other fish species in the rivers where the proposed release sites are located. The potential direct benefits to the T&E salmonid species by increasing the numbers of successfully spawning native fish in the upper watersheds and the indirect benefits to the listed resident fish, bull trout, of increased foraging opportunities would not be realized if the No Action Alternative was selected.

Direct and Indirect Effects – Alternatives 1 and 2

The proposed release site improvements have minimal ground disturbance and vegetation clearing in the riparian areas. No streamside vegetation clearing would occur. The only improvement proposed below OHW is replacing the existing eroded asphalt ramp at the Gold Creek site with pre-cast concrete panels. All work would be completed during low water period of July 1 – August 31, and no equipment would operate in the stream. No other improvement features would be constructed below the OHW level. BMPs and design criteria for access roads would result in no measureable amounts of sediment reaching the water as a result of ODFW transport truck use. Therefore, improvement construction and subsequent use of the release sites would have no adverse effects on either the listed fish species or others fish species in the adjacent rivers and tributaries. Increased survival of released adult fish and improved spawning success of released fish over the results of the current release practices and would have a beneficial effect on the listed fish species in the affected rivers and tributaries.

Cumulative Effects

Over the past decade the WNF has implemented many projects in the watersheds where the release site improvements are planned in an effort to improve native fish habitat. In addition to past projects, other projects are approved or planned in the watersheds. Increased survival of released adult salmonids and improved spawning success of the released fish would have a beneficial cumulative effect when considered with the habitat improvements that have been made and are planned for the affected rivers.

Threatened and Endangered Fish

In addition to spring Chinook salmon and winter steelhead listed species that are an integral aspect of the overall purpose and need for the proposed action, several of the rivers where the release site improvements are proposed also are identified as critical habitat for bull trout. Native salmonids play an important role in bull trout habitat providing a forage base that existed historically in these watersheds. Alternatives 1 and 2 would increase the number of adult fish in the upper watersheds and bull trout critical habitat, increase survival and spawning success of the released adult salmonids, thereby supplying an historically important component of bull trout habitat.

Conclusion

The proposed release site improvements may affect but are not likely to adversely affect spring Chinook salmon, bull trout and their designated critical habitat because the project will have a beneficial effect on listed fish. The proposed release site improvements will have no effect on Essential Fish Habitat as designated under the Magnuson-Stevens Fishery Conservation and Management Act since all proposed release sites are above impassible dams and natural migration barriers.

Wildlife

This section evaluates the effects of the proposed alternatives on wildlife species, and determines consistency with Forest Plan and other regulatory direction for wildlife management on National Forest lands.

The proposed release site improvements and the use of the seven proposed release sites in Alternatives 1 and 2 are considered a minor impact to wildlife and wildlife habitat. The intensity of the proposed improvements (clearing brush from existing roadways, minor graveling of existing roadways, installing pipe stands) is low and would have a negligible effect on wildlife populations and habitat. The scope of the project is also limited to seven small areas, all of which have an existing level of site development and/or are immediately adjacent to regularly traveled forest roads. Because of the limited scope and intensity of the proposed actions, the direct, indirect, and cumulative effects to the following wildlife areas are briefly summarized in the following paragraphs. The No Action alternative would not have any direct, indirect or cumulative effects on these wildlife areas.

Big Game

The proposed release improvement activities in Alternatives 1 or 2 would neither improve or degrade foraging or cover habitat for big game because vegetation changes are primarily limited to pruning lower limbs or clearing shrubs for truck access at four release sites and in total would impact less than one acre, all within 200 feet or less of an open road. Site improvement activities such as portal installation and road surfacing would be implemented during a period of a few days and would not create any long-term disturbance to big game. Disturbance from the occasional transport truck would be of short duration, one to three times a week primarily during May-October. This level of use would not be meaningfully above current background levels of traffic on adjacent roads. There would be no direct, indirect, or cumulative effects as a result of the Alternatives 1 or 2.

Snags

Alternatives 1 and 2 identify one live tree > 12" diameter and one 5-12" diameter tree that would be felled to accommodate the release site improvements. All of the proposed release sites are located either in administrative use areas, recreation areas, or are adjacent to open Forest Service roads that are subject to periodic and on-going hazard tree felling.

Developing the sites for fish release would not change the current management direction and need for hazard tree felling in these areas and therefore there would be no direct, indirect, or cumulative effect on existing snag habitats. The release sites are predominately located in mature forest stands with many trees to provide future snags. The removal of a one tree > 12" and one tree 5-12" would not have a measureable direct, indirect or cumulative effect on future snag recruitment in the areas immediately adjacent to and near the release sites.

Down Wood

No down wood habitat would be removed as a result of Alternative 1 or 2. The only impact to down wood may involve moving or bucking a large log if necessary to install pipe supports or truck turn-around areas. No large wood would be removed from any of the sites. Only one tree > 12” diameter would be felled as part of the release site improvements. Because there is no action involving large logs, no measureable direct, indirect, or cumulative effects would occur to the down wood habitat as a result of the either Alternative 1 or Alternative 2.

Migratory Birds

The proposed site improvements in either Alternative 1 or 2 would fell one tree > 12” diameter, one tree 5-12” diameter, prune lower branches from existing trees and prune or remove small shrubs or trees < 4” diameter along access roads for truck clearance. The total area impacted by the brushing and road clearing is one acre or less for all release sites. This minimal amount of vegetation clearing would have no measureable direct, indirect, or cumulative effect on migratory birds in or near the release site improvements.

Management Indicator Species (Other than Northern spotted owl)

The Proposed Action alternative would have no direct, indirect, or cumulative effects on the Management Indicator Species identified in the Willamette Forest Plan. The effects on the Northern spotted owl are discussed in the following **Proposed, Threatened and Endangered Species** section.

Proposed, Threatened and Endangered and Sensitive Species

The species listed in Table 2 have been identified as either being known or suspected to be present in the proposed adult salmonid fish release sites or have suitable habitat present within the proposed release sites. No other proposed, threatened or endangered species is known or suspected to be present in the proposed release sites or has suitable habitat in the proposed release site areas.

Table 2. Status Northern Spotted Owl Habitat

Threatened Species	Known or suspected present	Suitable habitat present	Notes
Northern Spotted Owl	Yes	Yes	See following discussion

Northern Spotted Owl (Federally Listed Species - Threatened)

The only threatened or endangered terrestrial species with habitat in the proposed fish release improvement sites is the northern spotted owl. The Endangered Species Act (ESA) administered by the U.S. Fish and Wildlife Service (USFWS) provides broad protection for

threatened and endangered species. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The Act outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species and contains exceptions and exemptions as well as describing interagency cooperation. For Forest Service actions, definitions relating to “consultation” and “conferencing” are given in the FSM Supplement 2600-90-6. A Biological Evaluation or Assessment is required to document the effects of the project on federally listed species.

Guiding documents for northern spotted owl analysis include:

- The Land and Resource Management Plan, Willamette National Forest, as amended, 1990;
- The Record of Decision, for amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl, U.S. Department Of Agriculture, Forest Service and U.S. Department of the Interior, Bureau of Land Management, April 13, 1994; and
- Revised Recovery Plan for the Northern Spotted Owl, June 28, 2011.
- The Biological Assessment of NLAA Projects with the Potential to Modify the Habitat of Northern Spotted Owls – Willamette Planning Province – FY 2012-2013 and USFWS Letter of Concurrence signed on October 1, 2008 with reference number **13420-2010-I-0092, June 2, 2010.**

The general description of habitat for all seven proposed release sites is mature conifer forest in riparian areas. The specific NSO habitat type at each site is summarized in Table 3.

Table 3. Northern Spotted Owl Habitat by Proposed Release Site

Name of Site	Spotted Owl Habitat Classification	Critical Habitat (Subunit)
USGS Gauging Station	Dispersal	No
Maria Villa Chapel	Dispersal	Yes (WCS 3 ^a)
Coopers Ridge Road	Unsuitable	No
Gordon Road	Unsuitable	No
Homestead Campground	Suitable	Yes (WCS 4 ^a)
Gold Creek	Suitable	Yes (WCS 4 ^a)
Dispersed Site #1	Suitable	No

^a *Western Cascades South 3 or 4; Critical Habitat Units from NSO Recovery Plan*

Direct, Indirect, and Cumulative Effects – No Action

If the proposed release site improvements are not constructed there would be no effects to NSO habitat or populations under the No Action alternative.

Direct and Indirect Effects – Alternatives 1 and 2

The potential direct effects to the NSO would be any changes to existing habitat as a result of constructing the proposed site improvements such as road improvements, brushing, portal

construction, and pipe installation. The final site plans indicate the potential for removing one tree >12" diameter total for all sites. One 5-12" diameter tree and a few smaller trees <5" diameter may be felled to provide transport truck turn-around. Overhanging branches and shrubs may be trimmed or pruned to provide truck clearance. These impacts would not occur at all sites and on less than ¼ acre at sites where access requires clearing or approximately one acre or less for all seven release sites. This level of habitat impact would not result in any measureable change to the stand structure in the area of the release sites. The minor vegetation changes would not change the NSO habitat at the stand scale and would therefore have no effects on the NSO. No indirect effects to NSO habitat are expected.

Direct impacts could also include noise disturbance from construction activities. All proposed release site areas are greater than ½ mile from known NSO activity centers or predicted nest sites, so no disruption or disturbances of owl nesting are expected from use of mechanized equipment in association with construction and installation of the release site improvements. Once constructed, ODFW and/or Corps transport trucks would access the individual release sites on average one to three times per week during the May to October time period, depending on the specific site and the number of fish trapped during the season. The Gordon Road site may be operated later into fall and winter for releasing winter steelhead. All of the release sites are immediately adjacent to major forest arterial roads open to public traffic year-round. Any noise or disturbance from the transport trucks would be limited in time (1-3 times a week) and scope (generally 200 feet or less from an open road). Additional indirect impacts to NSO (and other wildlife) would not be meaningfully above the current background level of activities in the vicinity of the release sites. The indirect effects related to future disturbances would cause no measureable effects to the NSO.

Cumulative Effects

No past, ongoing or planned activities impacting NSO habitat are known of in the vicinity of the proposed release sites. As previously noted, the direct effects of the proposed release site improvements on NSO habitat are minimal and not measureable at the stand scale. As previously noted none of the release sites is within ½ miles of a NSO activity center or predicted nest site. Therefore, no cumulative disturbance effects to NSO habitat would be expected from implementing either Alternatives 1 or 2. The transport truck access to the constructed release sites could contribute to a potential cumulative disturbance but given the immediate proximity to existing open roads, the incremental disturbance would not be measureable.

Conclusion

This project is in compliance with the Spotted Owl recovery Plan (Revised June 28, 2011) revised recovery plan actions. The minimal potential impacts to habitat are within the level of impact consulted on for the WNF FY 2013 habitat modification programmatic Biological Opinion, so no additional consultation with the USFWS is required.

Sensitive species

Table 4 lists all sensitive species on the WNF that are either known or suspected to be present or have suitable habitat in the proposed adult salmonid release sites.

Table 4. Sensitive Species in Proposed Release Sites

Sensitive Species	Known or suspected presence	Suitable habitat present	Notes
Bald Eagle	Yes	Yes	See following discussion
American Peregrine Falcon	Yes	Foraging	Peregrines do not nest within the disruption distance of the proposed actions and the project is not at a scale that would affect foraging habitat. Determination of No Impact
Harlequin Duck	Yes	Yes	See following discussion
Fisher	No	Yes	Considered by experts to no longer occur on the WNF. Project would not affect forest habitat at a scale that relates to fisher habitat use. Determination of No Impact
Fringed Myotis	Potential	Potential	See following discussion
Townsend's Big-Eared Bat	Potential	Potential	See following discussion
Pallid Bat	Potential	Potential	See following discussion
Crater Lake Tightcoil	Very low potential	Potential	See following discussion
Cascades Axetail Slug	Potential	Potential	See following discussion
Evening Fieldslug	Very low potential	Potential	See following discussion
A Caddisfly <i>Namamyia plutonis</i>	Potential	Potential	See following discussion
A Caddisfly <i>Rhyacophila chandleri</i>	Potential	Potential	See following discussion
A Caddisfly <i>Rhyacophila leechi</i>	Potential	Potential	See following discussion

Bald Eagle

All of the proposed release sites are within mature conifer forests located in riparian areas of several major rivers on the WNF. These larger rivers and adjacent forests provide potential foraging and perching habitat for bald eagles. There are no known bald eagle nest sites within .5 miles of the proposed release sites.

Direct, Indirect and Cumulative Effects – No Action

Not constructing the release site improvements would have no direct effects on the bald eagle. Not constructing the release sites could hinder or slow the recovery of the native salmonids in the headwaters of the watersheds where the release sites improvements are proposed. An indirect effect would be a reduced potential foraging opportunities for the bald eagle as compared to an increased foraging potential if the native salmonids, a key prey species, if the fish release improvements are successful in the recovery of the salmonids.

Direct and Indirect Effects – Alternatives 1 and 2

Conifer forest stands within riparian areas provide potential nesting, perching, and foraging habitat for bald eagles. There are no bald eagle nest sites within ½ mile of the proposed release sites so there would be no direct or indirect impacts to bald eagle nesting. The proposed release site improvements (all sites) would potentially require the felling of one tree >12” diameter. Felling one larger tree would not have a direct or indirect effect on bald eagle perching habitat at the proposed release sites. The site improvements and on-going transport program that would increase the chances of successful reintroduction of the native salmonids to the upper watersheds and improved spawning success would have a positive indirect impact on bald eagle foraging in the watersheds where the release sites are located. Increasing the availability of prey in the upper watersheds would benefit bald eagle populations.

Cumulative Effects – Alternatives 1 and 2

Since there are no direct or indirect impacts to bald eagle nesting or perching habitat resulting from the proposed release site improvements and transport trucks, there is no additive or cumulative effect to the habitat. In the previous decade the WNF and other cooperators have invested in projects to improve fish habitat in these watersheds. These previous fish habitat improvements along with the proposed release site improvements for the adult salmonids will have a beneficial cumulative effect on bald eagle foraging habitat.

Harlequin Duck

Habitat for harlequin ducks exists at the proposed release sites on the Breitenbush River (USGS Gage Site & Maria Villa), on the North Santiam River (Coopers Ridge Road), and on the South Santiam River (Gordon Road). Key habitat for the ducks is the riparian forest immediately adjacent to the rivers and the river surface. The habitat is used by the ducks for nesting and rearing young. The other three release sites are not considered harlequin duck habitat.

Direct, indirect and cumulative effects – No Action

Not building the site improvements and not using the proposed sites as fish transplant sites would not have any direct, indirect or cumulative effects on the duck habitat or populations.

Direct and indirect effects – Alternatives 1 and 2

The proposed site improvement construction activities would not affect water quality or riparian vegetation at a scale that would affect the ducks. Construction activities at these sites during the nesting and rearing season (May 1 – July 15) could disturb the ducks if they are present at any of the four sites where habitat has been identified. Because the construction activities are short-term in duration (a couple of days) and limited to a single point on the stream at each site, there would be a minor effect to courtship, mating, feeding, and rearing of juvenile birds. However, there could be adverse impacts to birds if they were nesting or tending recently hatched birds in close proximity to the site when construction activities started. Prohibiting construction activities between May 1 and July 15 at the four sites identified would prevent any adverse impacts to the ducks. If a District wildlife biologist surveys a site during this time period and determines harlequins are not nesting and/or rearing young, the seasonal restriction could be waived. The on-going use of the release sites by the ODFW transport trucks at the potential harlequin sites would have a negligible impact on the ducks because the number of trips is limited in scope (average one to three visits per week), and the trucks will remain on the access roads that are immediately adjacent to regularly traveled forest roads. Alternative 2, which excludes development and use of the Maria Villa site, would not have any impact on harlequin ducks or duck habitat at that site and would have a slightly less, but negligible overall impact from transport trucks at the project level.

Cumulative effects

No other past, present or proposed activities are known of at the proposed release sites that would contribute to a cumulative effect on harlequin duck habitat or populations.

Conclusion

The proposed construction of the release site improvements and use of the four sites identified as harlequin duck habitat may adversely impact individual harlequin ducks, but is not likely to result in a loss of viability in the Planning Area (i.e. the Willamette NF) nor cause a trend toward federal listing.

Fringed Myotis, Townsend's big-eared Bats, and Pallid Bat

These bat species are known to nest and roost in tree cavities and under loose bark. It is likely that trees with these characteristics exist within or near the proposed adult fish release sites.

Direct, Indirect, and Cumulative Effects – No Action

The No Action alternative would not have any effect on bat habitat or populations.

Direct and indirect effects – Alternatives 1 and 2

The proposed release site improvements would not impact any trees that may be used for nesting or roosting by bats. Because of the short duration of proposed construction activities at the release sites, the limited distance from the sites that construction noise would disturb or harm roosting bats and the very low probability of these rare bats nesting or roosting near the site, no potential disturbances are expected to the species from the proposed site improvements. The occasional presence of a transport truck on the access road at the site is equally unlikely to disturb any bats that might be present at or near a release site.

Cumulative effects

No other past, present or proposed activities are known of at the proposed release sites that would contribute to a cumulative effect on these bat species habitat or populations.

Conclusion

The proposed adult fish release site improvements and use would have no impact on fringed myotis, Townsend's big-eared bats, or pallid bats.

Crater Lake Tightcoil and Evening Field Slug

There is a low probability that habitat for either one of these mollusk species exists in the riparian areas that would be impacted by the proposed release site improvements. Of particular concern would be areas of skunk cabbage and other perennial wetlands.

Direct and Indirect Effects – All alternatives

Because the proposed action does not result in a loss of wetlands or direct impacts to perennial wetlands, it is not considered a habitat-disturbing activity that requires surveys under FS Survey and Management direction. Brushing along roadsides will be limited to cutting back shrub vegetation that has grown into the footprint of an existing roadway path to the stream area. Evening field slug has not been documented on the Forest and there is only one known location of Crater Lake Tightcoil on the Forest. Based on the very limited habitat that would be affected, the extremely low probability that either species would occur in the project area, and the fact that any potentially affected habitat (e.g. roadside shrubs) would be very marginal habitat for either mollusk species, no direct or indirect effects to either species is expected.

Cumulative Effects

Since there are no direct or indirect effects to these mollusks and their habitat, there would be no cumulative effects associated with either Alternative 1 or 2.

Conclusion

The construction of the proposed release site improvements and the subsequent use would have no impact on Crater Lake tightcoil and evening fieldslug.

Caddisflies

The proposed release sites are within and adjacent to riparian stream habitat which is the type of habitat used by caddisflies, including the three rare species noted in Table 3. Little is known of these species specific habitat use or distribution on the Forest.

Direct and indirect Effects – All Alternatives

The proposed construction of the release site improvements and subsequent use would not have any measureable short-term or long-term effect on riparian habitat quality or result in a loss of wetlands. Only one release site would have any site improvement construction work below OHW (replacing concrete panel at Gold Creek). Potential short-term impacts to water quality during construction will be mitigated by use of Best Management Practices such as no use of equipment in-stream and limiting any in-stream work to low water periods. As a result there would be no measureable impact to water quality and caddisfly habitat.

Cumulative Effects – All Alternatives

Since there are no anticipated direct or indirect effects to these rare caddisfly species, there would be no cumulative effects.

Conclusion

The construction of the release site improvements and on-going use would have no impact on these rare caddisfly species.

Botanical Resources

Sensitive botanical species are addressed in the Forest Service Manual (FSM) 2670 and Forest-wide Standard and Guideline #158 (WNF LRMP, USDA, 1990). Special habitats are addressed in the WNF Special Habitat Management Guide (Dimling and Smith, 2010). Invasive plants are addressed in the Final EIS for Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants (USDA Forest Service PNW Region, May, 2005); Forest-wide Standard and Guideline # 259 (WNF LRMP, USDA, 1990); and the WNF Integrated Weed Management Plan (IWMP 2007). The following documents guide the treatment of competing and unwanted vegetation in the Pacific Northwest:

- Guide to Noxious Weed Prevention Practices (2001)
- Executive Order 13112 (February 3, 1999)
- Noxious Weed Control and Eradication Act (2004)
- Willamette National Forest Noxious Weed Prevention Guidelines (2005)

Current management direction mandates conservation of several categories of rare botanical species on the Willamette National Forest. Protection of federally listed Threatened and Endangered species is mandated by the Endangered Species Act. No federally listed Threatened or Endangered, nor suitable habitats for these listed plants are known to occur in the proposed adult salmonid release sites. Sensitive species are protected by USDA Forest Service regulations and manual direction (FMS 2672.4).

A prefield review was conducted using the Threatened, Endangered and Sensitive Plant/Invasive Plant Species database in NRIS to assess whether there are known sensitive, survey & manage or noxious weed populations in or adjacent to the proposed project areas. The query found no sensitive or survey and manage species in the vicinity of release sites. In addition, a review of the release sites and the proposed improvements show that no activities will occur in areas that have not already been modified or disturbed by previous activities and uses. Therefore, no additional surveys for TES plants will be required. A review of the Invasive Plant species database did identify weed populations in or near the proposed release sites as shown in Table 5.

Table 5. Weed Sites at Proposed Release Sites

Release Site/ Location	Population ID	Species
Gold Creek confluence		False brome along Rd 18 corridor
North Fork Middle Fork Site #1	0618-MF-113	False brome

Direct, Indirect and Cumulative Effects – No Action

The No Action alternative would have no effects on the botanical resources in the proposed adult salmonid release sites.

Direct and Indirect Effects – Alternatives 1 and 2

Since no sensitive or survey and manage plan populations occur within the areas identified for the release site improvements, there would be no adverse direct or indirect effect to any of these plants.

The proposed release site improvements vary from site to site but generally involve adding aggregate to existing roads or pullouts, installing new access gates, and installing fish delivery pipes. False brome is known to exist near the Gold Creek and the North Fork Middle Fork Site 1 release improvement sites. The improvements identified for these two sites would result in minimal ground disturbance, i.e. digging holes for gate posts and therefore would not create opportunities for the false brome population to spread in the

proposed release sites. Project design elements would require all aggregate imported to the sites for road improvements or portal construction to be certified from weed-free sources and the cleaning and inspection of all construction equipment prior to use. These measures would be included in the Special Use Permit issued by the WNF to the Corps and would prevent introduction of new weed populations in the release sites.

Cumulative Effects

Since there would be no direct or indirect effects to botanical resources as a result of the Proposed Action alternative, there would not be any cumulative effect either.

Conclusion

The proposed adult salmonid release site improvements and use will not have an adverse direct, indirect, or cumulative effect on any rare botanical plant species.

Hydrology and Soils

This section documents the effects of the action alternatives and the No Action alternative on the hydrology and soils in the proposed release sites.

Riparian Reserves

All of the proposed release sites are within the Forest Plan Riparian Management Area, MA15 and within the Northwest Forest Plan Riparian Reserves. The proposed release site improvements and use to re-establish native salmonids in the upper watersheds is consistent with the goals of MA 15 to maintain the role and function of rivers in the landscape ecology. The proposed actions are also consistent with the Riparian Reserves direction (Northwest Forest Plan, Riparian Reserves, FW-1) to design and implement fish enhancement activities in a manner that contributes to the attainment of Aquatic Conservation Strategy Objectives and (Northwest Forest Plan, Riparian Reserves, FW-4) to cooperate with federal, tribal and state fish management agencies to identify and eliminate impacts associated with habitat manipulation that threaten the continued existence and distribution of native fish stocks on federal lands.

Direct, Indirect, and Cumulative Effects – No Action

There would be no adverse effect to hydrologic or soil resources in the proposed release site areas as a result of the No Action alternative.

Direct and Indirect Effects – Alternatives 1 and 2

The ground disturbance associated with the proposed site improvements is minimal consisting of digging post holes for gate installations or replacements where specified. In addition there would also be a short (50-100 feet) road extension at one site, adding aggregate on existing roads to correct minor erosion at three sites and adding aggregate surface on about 200 feet of existing access road at one site. All of these improvements would occur away from the streams. The only improvement that would occur below OHW is replacing the currently eroded ramp at Gold Creek with pre-cast concrete panels. No other

ground-disturbing activities would occur below the OHW. In addition, Best Management Practices, such as limiting in-stream work on the Gold Creek site to the July 1-August 31, are included in project design elements and would be incorporated into the WNF Special Use Permit to authorize the improvements. As a result of the minimal ground disturbance, the limited scope and locations of the additional aggregate, and the use of BMPs, there would be no measurable increase of sediment delivery to the streams and rivers adjacent to the release sites. Vegetation clearing associated with the improvements is also minimal consisting of clearing brush and small trees along existing access roads and the felling of one tree >12" diameter and one tree 5-12" diameter. No vegetation would be cut or cleared adjacent to the rivers or that effects shade. Therefore, there would be no change to stream temperatures due to shade reduction. No permanent pipes or structures will be located below the OHW level and the seasonal pipes would be lightweight materials that would not redirect or alter water flow. As a result there would be no change to within channel conditions (i.e. channel location, slope, geometry, form) as a result of the release site improvements.

The Gold Creek release site improvements would replace an existing asphalt ramp with a concrete ramp made of pre-cast panels. Project design criteria require this work be done during low stream flows when the gravel is dry. As a result there would be no measureable increase of sediment delivery to Gold Creek and the repairs to the ramp would have a beneficial effect by eliminating current erosion on the ramp.

Release site improvements include repairing and adding aggregate to access roads where necessary to correct any existing drainage or erosion problems and to provide stable travel ways for the ODFW transport trucks. All of the access roads are on slopes <5% and all, except the Gold Creek site, terminate above the OHW level. As a result the on-going seasonal access to these sites will not result in any measureable increase in soil erosion or sediment delivery to the adjacent streams and rivers. The Gold Creek site improvements would re-establish a hardened concrete that would not result in soil erosion or sediment delivery from the ODFW or Corps fish transport trucks.

All of the release sites are within the floodplain of the stream or river they are adjacent to. None of the proposed improvements are within an identified wetland. The proposed site improvements would not impact the river's ability to access the floodplain during flooding and no wetlands would be impacted.

At the Maria Villa site, there is evidence that due to heavy stream sediment loads and deposition in the area of the release site, the river bank morphology may be expected to change over time. As a result, a movable saddle or pipe support would be necessary due to the potential for stream bank to change over time at this site. Permanent fish transfer structures would therefore be inappropriate at this site. While the proposed site improvements would not contribute to channel movement at the Maria Villa site, it is possible that the pipe location and release points may need to be moved over time to accommodate changing bank morphology.

Cumulative Effects – Alternatives 1 and 2

As discussed in the preceding section there would be no measureable direct or indirect adverse effects to hydrology or soils in the areas of the proposed release sites either from the construction of the improvements or the on-going access of ODFW transport trucks. As a result, there would be no cumulative effects from implementation of Alternatives 1 or 2.

Wild and Scenic Rivers and State Scenic Waterways

Five of the proposed adult salmonid release sites in the Proposed Action are within a federally designated Wild and Scenic River (WSR), a Wild and Scenic Study River or Wild and Scenic Eligible River as identified in the Forest Plan, or a State Scenic Waterway (Table 6). The Dispersed Site #1 is in the North Fork Middle Fork Willamette Designated WSR, and management direction is found in the NFMF Willamette WSR Management Plan and Willamette Forest Plan, Management Area 6e. The other release sites are located in river corridors that were determined to be study rivers or eligible for inclusion into the National Wild and Scenic River System through the 1990 Forest Land Management Planning process, as prescribed in the Wild and Scenic Rivers Act. The study and eligible river corridors are classified as potential “Recreation” rivers based on identified Outstandingly Remarkable Values (ORV). These rivers are managed to meet standards and guidelines prescribed for Wild and Scenic River in Forest Plan Management Area 6c. All eligible river segments are managed as prescribed in the Forest Plan until suitability has been determined. Suitability studies have not been completed for the study or eligible rivers affected by this project. The Homestead site is also within a State Scenic Waterway.

Table 6 shows the proposed release sites that are within WSR river corridors, the WSR classification and the ORV for the river segment where the proposed release site is located.

Table 6. Wild and Scenic River Status, Class and ORV

Site	River	WSR Class	ORV	Status
USGS Gauge Site	Breitenbush	Recreation	Recreation	Eligible
Maria Villa	Breitenbush	Recreation	Recreation	Eligible
Gordon Road	South Santiam	Recreation	Scenic, Wildlife, Cultural	Eligible
Homestead	South Fork McKenzie	Recreation	Scenic, Recreation, Fish, Prehistoric	Study
Dispersed Site #1	NFMF Willamette	Recreation	Ecological, Geology, Water Quality	Designated

Direct, Indirect and Cumulative Effects – No Action

The No Action alternative would have no impacts on the WSRs. The No Action alternative would not change the existing conditions of the study or eligible Wild and Scenic Rivers, therefore, would not preclude their eligibility status into the National Wild and Rivers System.

Direct and Indirect Effects – Alternatives 1 and 2

The primary consideration is if the improvements proposed for the release sites and the release of the fish at the site would have adverse effects on the ORVs for the river segment where the site is proposed, thereby potentially excluding future consideration for designation as a WSR. The minor changes to the sites including road graveling, brush clearing, placing pipes would not have an adverse impact on ORVs of recreation, cultural, prehistoric, and ecological or water quality at any of the sites. The proposed release site improvements at the Homestead release site would benefit the fish ORV by improving native salmonids populations and survival rates in the South Fork McKenzie. The scenic impacts of the proposed improvements (pipe portals, permanent pipe structures) are consider “point impacts”, that is something that would be viewed only briefly either from a boater on the river or motorist on an adjacent road. The release site improvements would not change overall scenery at the site, i.e. forest type, tree size. Also project design elements include measures to minimize the “point impact” of the permanent site improvements by coloring them to blend with the existing vegetation and background. Since the release sites are located in riparian areas, the existing shrubs and small trees would obscure the view of the improvements. Therefore, there will not be an adverse direct or indirect effect on the scenery ORVs at any of the proposed release sites. The goals for the Oregon State Scenic Waterway Program for designated scenic areas is “Scenic Areas will be administered to maintain or enhance their high scenic quality, recreational value, fishery, and wildlife habitat, while preserving their largely undeveloped character and allowing continuing agricultural uses.” The Homestead site is located in a “decommissioned” Forest Service developed campground. Based on the preceding analysis of scenic impacts, the proposed release site improvements at the Homestead site would be consistent with the Oregon State Scenic Waterway designation.

Cumulative Effects – Alternatives 1 and 2

Since there would be no direct or indirect effects to WSR as a result of the Alternatives 1 or 2, there would not be any cumulative effect either.

Conclusion

The adult salmonid release site improvements and use of those sites would have no direct or adverse effect on the ORV’s, water quality and free-flowing character for which the affected rivers were deemed eligible into the National Wild and Scenic Rivers System. The release site improvements at Dispersed Site #1 on the NFMF Willamette River are consistent with the WSR Management Plan for that river.

Recreation and Scenic Resources

This section evaluates the effects of the proposed alternatives on recreation use and scenic resources in or near the proposed release sites and determines consistency with Forest Plan and other regulatory direction for these resources on National Forest lands.

Scenic

Direct, Indirect and Cumulative Effects – All Alternatives

The proposed release sites fall within Forest Plan management areas that prescribe a visual quality of either “retention” or “partial retention” (MAs 11d, e, f). The proposed project effects on the scenic values of the five release sites in WSR corridors were discussed previously. The basis for concluding that the proposed site improvements would not have an adverse impact on the scenery ORVs in the WSR corridors also holds true for meeting the highest Forest Plan visual quality objective of retention. There would be no adverse direct, indirect or cumulative effects to scenic resources as a result of the release site improvements and use and the proposed actions would be consistent with Forest Plan management direction for visual quality. The No Action alternative would not affect scenic resources.

Recreation

The seven proposed release sites have a variety of current access for recreation and a variety of recreation uses. Table 7 summarizes the current public access and recreation uses.

Table 7. Existing Recreation Access and Use

Site	Current Access	Recreation Use
USGS Gauge Site	Gated – No public vehicle access	Administrative Use, no recreation
Maria Villa	Adjacent to open roads, public vehicle access	Adjacent to FS Summer home tract and private resort, moderate dispersed use
Coopers Ridge	Adjacent to open road/bridge over North Santiam River	Light dispersed use
Homestead	Gated – No public vehicle access	Light dispersed use (decommissioned developed campground)
Gordon Road	Public vehicle access	Light dispersed use
Gold Creek	Public vehicle access to stream	Light dispersed use
Dispersed Site #1	Placed boulders to restrict public vehicle access to primitive campsite	Light dispersed use.

Direct, Indirect and Cumulative Effects – No Action

The No Action alternative would not have any effects on current levels or types of recreation uses at the proposed release sites.

Direct and Indirect Effects – Alternative 1

Construction of the proposed release site improvements and use of the release sites by the ODFW and/or Corps transport trucks would have minimal effects on recreation use at the USGS Gauge, Coopers Ridge, Homestead, and Gold Creek release sites. The improvements at these sites would not change current public access. The sites are currently only lightly used for dispersed recreation activities and the presence of an ODFW transport truck for an hour or two, one to two times a week (at the most) during the summer and early fall months would impact few, if any public users, and would not have a noticeable impact on recreation uses at these sites.

The proposed release site improvements would change current vehicle access at the Gordon Road and Dispersed Site #1 release sites by installing gates on the release site access roads. Again, since current recreation use of these sites is limited to light, dispersed use the change in public vehicle access would not adversely impact recreation uses in the area. At the Dispersed Site #1, the Forest has used strategic placement of rocks and boulders to limit access to a primitive riverside campsite so installation of a gate would not change current public vehicle access to this site. The presence of an ODFW transport truck for an hour or two, a maximum of one to three times a week would not deter or change current recreation use at these sites.

Access to the Maria Villa release site would be on open FS roads that currently provide access to approximately 99 summer home owners (FS leases). The Corps estimates that this particular site would be used 8-15 times over an approximately 21 week period of May – October each year, or approximately one to two ODFW and/or Corps transport truck trips on cabin access roads every two weeks during the summer/early fall season. While this additional use would be minor based on current level of vehicle use on these roads during the summer/early fall time period, the type of traffic (tank transport truck versus cars or pickups) could be noticeable to residents. It is expected that transport truck drivers would follow speed limits on the cabin access roads so there would be no safety issues to other drivers or pedestrians in the cabin area.

A portion of the road that the fish transport trucks would use to access the Maria Villa site crosses a small meadow adjacent to the summer home tract that is used by cabin owners for their annual meeting and occasional group picnics and gatherings. Truck traffic during these events in the meadow would be disruptive to the users. Also, because of the Maria Villa release site's close proximity to the summer cabins and the resort it would likely have a higher level of dispersed use than the other proposed release sites. The proposed release site improvements would be noticeable to the dispersed recreation user (hikers, picnickers, etc.) but would not be inconsistent with other nearby streamside developments in the resort area and the cabins, and would not deter dispersed recreation uses.

Cumulative Effects – Alternative 1

There would not a measurable cumulative effect on recreation uses at most of the proposed release sites because the direct and indirect effects on recreation would be minimal. The addition of a gate and repositioning of boulders at the Dispersed Site #1 release site could have a beneficial cumulative effect of eliminating vehicle access to the primitive campsite that the Forest was attempting to achieve with the initial boulder placement.

Direct and Indirect Effects – Alternative 2

The direct and indirect effects of Alternative 2 on recreation uses would be the same as described for Alternative 1 with the exception of the Maria Villa release site. Alternative 2 would not make the release site improvements at the Maria Villa and the WNF would not issue a Special Use permit for site improvements or use by ODFW and/or Corps transport truck at this site. As a result, the potential, although minimal adverse impacts to recreation users, including current summer home owners/FS leases and adjacent resort uses as discussed in the previous section, would not occur under this alternative. There would be no additional traffic/transport truck traffic on the cabin access roads and no streamside improvements that would be noticed by dispersed recreation users along this section of the Breitenbush River.

Cumulative Effects - Alternative 2

The cumulative effects on recreation would be the same as previously discussed for Alternative 1. There would be no cumulative effects on recreation users in or near the Maria Villa release site since no improvements would be implemented and the site would not be used for adult fish releases.

Fire and Fuels

The follow section describes fire and fuels direct, indirect and cumulative effects for the proposed actions within the areas identified for adult salmonid release site improvements. The WNF Forest Plan FEIS and Record of Decision (ROD) establish Management Standards and Guidelines for treatment, maintenance, or reduction of hazardous fuels to achieve the desired future condition.

The proposed release sites are typical mature conifer riparian area forests with fuels typical of that forest type. The proposed release sites are located adjacent to regularly traveled forest roads and have been used for dispersed recreation or administrative use which creates some increased risk of fire ignitions during the summer and fall. Alt. Site #1 on the North Fork of the Middle Fork is identified as an emergency water source for fire suppression.

Direct, Indirect and Cumulative Effects – No Action

The No Action alternative would have no effects on fuels at the proposed release sites or risk of fire ignition.

Direct and Indirect Effects – Alternative 1 and 2

The proposed release site improvements would have little or no effect on fuel loading in the release site areas. The project design element to lop and scatter, chip, or remove the slash generated by improving clearance for the transport trucks on the access roads would result in no measurable increase fuel loadings in the release sites. The ODFW transport trucks would remain on the graveled access roads and would not increase the risk of fire ignition during fire season. At the release sites where the improvements will replace existing gates, the potential for fire ignitions from dispersed recreationists could be reduced. The North Fork Middle Fork Dispersed Site 1 is currently identified and used as an emergency water source for fire fighting. The gate at this site would be designed with a double pin locking mechanism that would continue to allow Forest Service access for an emergency water source. (All gates installed at the release sites would be of the double pin type to allow Forest Service access as well as Corps and ODFW access.) There would be no adverse effects to fuel loadings, no increased fire risk, and no currently available emergency water sources would be affected by the Proposed Action alternative.

Cumulative Effects

Since there would be no measurable direct or indirect effects to fuel loading and fire risk as a result of the proposed adult salmonid release site improvements and use, there would be no cumulative effects. Forest Service access to water sources for fire emergencies would not be affected by the Proposed Action alternative and therefore there would be no cumulative effect.

Transportation System

The proposed release sites are all accessed by FS roads currently open to the public. No changes or improvements are proposed to FS system roads at any of the release sites with exception of the Coopers Ridge site where there is the possibility of widening the existing shoulder on the Coopers Ridge road if necessary to provide approximately 10 feet for fish transport truck pull out of the roadway. Other road work in the release sites would be limited to existing access and spur roads and is summarized in Table 8. Fish transport trucks would use various FS roads, primarily paved arterial roads, to access the release sites. Once at the release sites, the local spurs or access roads would provide access to the pipe portals.

Table 8. Proposed Release Sites and Road Improvements

Site	Local spur road/access road improvements
USGS Gauge Site	Repair minor erosion; add aggregate for truck turnout/turnaround site
Maria Villa	Add aggregate and improve approx. 200 feet of existing access road.
Coopers Ridge	No spur/access road, possible widening of existing road shoulder
Gordon Creek	50-100 foot extension of aggregate surface driveway; install gate and place boulders to control OHV access

Homestead	No road improvements
Gold Creek	Repair erosion to existing ramp, replace existing eroded asphalt
Dispersed Site #1	Add aggregate to approx. 200 feet of existing access road; add gate and reposition boulders to limit vehicle access

Direct, Indirect and Cumulative Effects – No Action

The No Action alternative would have no effects on FS roads.

Direct and Indirect Effects, Alternatives 1 and 2

There would be no direct or indirect effects to the FS transportation system resulting from the proposed release site improvements. The minor spur road improvements listed in Table 8 will not increase the FS open road system. ODFW and/or Corps transport trucks would travel on the existing FS road system, primarily paved arterial roads to access the improved release sites. Current efforts to transport and release adult salmonids upstream of Corps dams result in ODFW and/or Corps transport trucks using many of the same roads. The potential number of ODFW and/or Corps transport truck trips is not unusual for these roads which currently are used for public travel and permitted uses such as log haul and would be consistent with the designed use of these roads.

Cumulative Effects – Alternatives 1 and 2

In addition to public use on the roads that would be used by the ODFW and/or transport trucks, there is currently a variety of FS permitted road uses by timber sale purchasers, road work contractors, etc. As previously noted, the ODFW and/or Corps transport trucks have been using many of these roads in the past few years to release adult fish and would likely continue to do so even if the proposed release sites are not improved. Any increase in the number of trips due to improvements and new release sites would be minor given the total amount of private and permitted truck traffic on these roads.

Heritage and Cultural Resources

The assessment of project effects was based on the process outlined within Section 106 of the National Historic Preservation Act (NHPA) and the implementing regulations under 36 CFR Part 800 (“Protection of Historic Properties”). Most elements of the proposed project site improvements and the use of the seven fish release sites are considered minor impacts and do not pose a risk to cultural resources. In addition the proposed locations are previously disturbed and modified through road construction, as well as other past site improvements and use. As such they may be exempt from field survey under the terms of the *2006 Programmatic Agreement among the United States Department Agriculture Forest Service Pacific Northwest Region (Region-6), the Advisory Council on Historic Preservation, and the Oregon State Historical Preservation Officer regarding Cultural Resource Management in the State of Oregon by the USDA Forest Service* (Programmatic Agreement). Under the terms of the Programmatic Agreement, the Forest Heritage Specialist has the authority to determine the level of inventory appropriate to ensure the protection of historic and cultural values embodied in cultural resources.

A thorough review of existing Forest cultural resource records and maps, combined with an assessment of qualities of the landscape, was conducted in order to evaluate the potential for effects to cultural resources at each of the seven proposed sites. In areas where field inspection of the proposed release sites was deemed necessary by the Heritage Specialist, those surveys revealed no historic or archaeological resources within the proposed areas of potential effect (APE). Consultation with State Historic Preservation Officer (SHPO) was conducted under the terms of this Programmatic Agreement. It was determined that the construction of the fish release portals, and related activities, including intermittent (seasonal) removable pipe supports, access road widening and surfacing, gate installation or replacement, creation of traffic barriers (e.g., Jersey barrier or boulder placement), removal of designated small trees, and specified stump removal, would not impact any known cultural resources.

Direct and Indirect Effects – No Action

Not constructing the proposed fish release site improvements would have no effect on cultural resources because no Forest Service or USACE activities would occur that could impact cultural resources.

Cumulative Effects- No Action

As above, no cumulative effects to cultural resources would occur as a result of not constructing the proposed fish release site improvements.

Direct and Indirect Effects – Alternatives 1 and 2

No direct or indirect effects to cultural resources are anticipated because surveys did not identify any cultural resources within the APE of the proposed fish release improvement sites. Also, because ground disturbing activities are limited to a few square feet of excavation for portal bases at each location and minor road access improvements with small increases in width or turn-around sites, the probability of discovering unknown sites during project implementation is also remote. However, design and implementation criteria previously defined include provisions to notify SHPO as required by Oregon statute (ORS 358.920), as well as the local staff archaeologist, if cultural resources are discovered during excavations or other site disturbances during project implementation. Because there are no known cultural resources within the proposed release site improvement areas, the implementation of these proposed site improvements is not expected to result in any effects to cultural resources.

Cumulative Effects – Alternatives 1 and 2

The area considered for evaluating cumulative effects are the proposed release sites and the immediate surrounding areas that would be impacted during construction of the improvements and subsequent operations including truck unloading, and installation and removal of temporary pipes. No cumulative effects to cultural resources are expected if the release site improvements are approved and installed. The reasonable foreseeable continued

use of the sites for the release of adult salmonids would not contribute to a cumulative effect since no historic or archaeological resources were identified on the release sites.

Socioeconomics

The proposed adult salmonid fish site improvements are distributed across the entire WNF and potentially could affect all of the smaller rural communities within the Forest as well as the larger communities and populations adjacent to the Forest. However, the program itself is just one part of many related actions the Corps is implementing as part of the continued operation of the Corps Willamette Basin Project in their effort to implement measures prescribed in the 2008 National Marine Fisheries Service Biological Opinion for the Willamette Basin. The adult native salmonid transport and release program was identified as one action to help meet the overall goal to restore and maintain viable native fish populations in the Willamette Basin.

Direct, Indirect, and Cumulative Effects – No Action alternative

The existing adult fish transport program being implemented by Corps and ODFW would continue using the less desirable release sites which result in fewer surviving adult fish and fewer successful spawning fish in the upper watersheds. It is difficult to quantify but could affect the overall native fish program and associated socioeconomic effects by extending the time frame needed to achieve desired native fish populations or by not being able to meet that goal.

Direct and Indirect Effects – Alternatives 1 and 2

As discussed in the previous section, it is difficult to quantify the impacts of improved adult fish survival and spawning that would result from the proposed new release sites and site improvements and its related effects on the socioeconomic impacts of viable native fish populations in the Basin. It could be concluded, however, that better results in this one aspect of the overall native fish program would have beneficial effects to the associated socioeconomic impacts.

Cumulative Effects – Alternatives 1 and 2

As previously noted, the adult salmonid fish transport and release program is just one part of a series of actions being undertaken by the Corps and other federal agencies to restore and maintain viable native fish populations in the Willamette Basin. Increased success in this part of the overall program, introducing adult fish in upper watersheds and establishing natural spawning, would have a beneficial cumulative effect on the overall program goals of the 2008 Biological Opinion.

Environmental Justice

Direct and Indirect Effects – All Alternatives

All current uses of the National Forest System lands would continue, including recreation, harvesting of non-timber forest products, special-use permits, subsistence uses, and

spiritual/aesthetic uses. Effects to minority populations, disabled persons, and low-income groups would not be disproportionate with other users of the National Forest System lands.

Cumulative Effects – All Alternatives

There would be no environmental justice-related cumulative effects related to any of the alternatives.

Wilderness, Inventoried Roadless Areas, Potential Wilderness Areas

None of the proposed adult salmonid release sites are located in Wilderness or an Inventoried Roadless Area. The locations of the proposed release sites were reviewed and none are located in an area that could be considered a Potential Wilderness Area as described in FSH 1909.12.

Direct, Indirect and Cumulative Effects – All Alternatives

There would be no effects to Wilderness, Roadless Areas or Potential Wilderness Areas as a result of either implementing or not implementing the proposed release site improvements or use since none of the proposed sites are located in these areas.

Other Environmental Consequences

Irreversible and Irrecoverable Commitment of Resources

Irreversible impacts result from the use or modification of resources that are replaceable only over a long period of time. Irrecoverable commitments are opportunities for resource uses that are foregone because of decisions to use that land in another way. The minor improvements proposed for the adult salmonid release sites would not result in any irreversible or irrecoverable commitment of resources.

Relationship between Short-Term Uses and Long-Term Productivity

The release sites and proposed improvements do not affect any significant opportunities for long-term productivity for plants or animals. Improvements planned for these sites and the use to release the adult salmonids would not impact the long-term productivity potential of the site.

Relationship to Other Agencies and Jurisdictions

The WNF is responsible for managing the National Forest Service System lands in a manner that meets the applicable laws, regulations, and the planning documents, i.e. Forest Plan, Northwest Forest Plan. The WNF also is directed to cooperate with other State and Federal resource management agencies, including the Corps and ODFW to meet common goals and objectives such as restoring and maintaining viable fish populations in the Willamette Basin.

The proposed adult salmonid release sites, the associated improvements, and permit to access the sites as requested by the CORPS are examples of that cooperation.

Prime Farm Land, Range Land, and Forest Land

There are no prime farm lands, or range lands in the proposed release sites. As discussed in previous sections there would be minimal or no effects to forest lands because the proposed improvements include only minor vegetation clearing along roads and felling a small number of small trees.

Wetlands and Floodplains

The proposed release sites all occur with the floodplains of the river associated with each site. No wetlands were identified in the proposed release sites and none would be affected by the action alternatives. There are no wetlands at the proposed release site locations. Floodplain function would not be impaired by the temporary deployment of concrete blocks and fish release pipes, or access to the sites by fish release trucks, therefore no adverse effects to these recourses will occur.

Consistency with Forest Plan

All alternatives considered in this evaluation are consistent with the WNF Forest Plan (USDA 1990) as amended by the Northwest Forest Plan (USDA/USDI 1994).

COMPLIANCE WITH OTHER LAWS AND REGULATIONS

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA), 1969

NEPA requires all Federal agencies to, among other things, assess the environmental impacts of Federal projects, decisions such as issuing permits, spending Federal money, or actions on Federal lands and to consider the environmental impacts in making decisions and disclose the environmental impacts to the public. In other words, environmental considerations are fully integrated into Federal agencies decision-making process.

As part of the NEPA process, the Corps and WNF have prepared this environmental assessment and will notify the local, state, and federal agencies, appropriate Tribes, interested organizations, and the general public of the proposed action and potential environmental impacts described herein. Following public review and comment on the proposed action, the Corps and WNF will evaluate the impacts described in the EA to determine whether to either issue a Finding of No Significant Impact (FONSI) or, if impacts are determined to be significant, begin preparation of an Environmental Impact Statement.

ENDANGERED SPECIES ACT (ESA), 1973

The ESA was enacted to protect and conserve endangered and threatened species and critical habitat. Requirements established in 16 U.S.C. § 1531 ensure activities authorized, funded, and carried out by Federal agencies are not likely to jeopardize the continued existence of any listed species or result in adverse modifications to designated critical habitat of a listed

species. The US Fish & Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) (collectively the Services) share responsibility for the administration of ESA-listed species.

With the exception of the Gold Creek site, all ESA consultation will be covered under USFS programmatic consultation documents. Consultation with the NMFS has been conducted using the programmatic Biological Opinion titled, “Programmatic Activities of the USDA Forest Service, USDI Bureau of Land Management, and Coquille Indian Tribe in Western Oregon (Ref. 2010/02699)” issued on April 21st, 2011. The effects determinations for these actions are, “May Affect, Likely to Adversely Affect” Upper Willamette River Spring Chinook, Upper Willamette Winter Steelhead, and their respective Critical Habitats. The effects of construction will be within the range of effects considered in that biological opinion. Consultation with the USFWS on Columbia River Bull Trout was conducted using the programmatic consultation document titled, “Biological Opinion and Letter of Concurrence USDA Forest Service, USDI Bureau of Land Management, and the Coquille Indian Tribe for Programmatic Aquatic Habitat Restoration Activities in Oregon and Washington that Affect ESA-Listed Fish, Wildlife, and Plant Species and their Critical Habitats.” The minimal potential impacts to terrestrial habitat are within the level of impact consulted on for the WNF FY 2013 habitat modification programmatic Biological Opinion, so no additional consultation with the USFWS is required

At the Gold Creek site, the boat ramp will be constructed following the design criteria in the NMFS’ Standard Local Operating Procedures for Endangered Species to Administer Actions Authorized or Carried Out by the U.S. Army Corps of Engineers in Oregon (SLOPES IV In-water Over-water Structures) biological opinion (NMFS 2012). Email confirmation that the project is consistent with the design criteria and that the effects of construction will be within the range of effects considered in that biological opinion was received from NMFS on June 20, 2013.

MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT, 1976

This Act, Public Law 94-265 as amended, is designed to actively conserve and manage fishery resources found off the coasts of the United States, to support international fishery agreements for the conservation and management of highly migratory species. This Act established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for fisheries regulated under a Federal fisheries management plan. Federal agencies must consult with NMFS on all proposed actions authorized, funded, or carried out by the agency which may adversely affect EFH.

All of the proposed release site improvements, with the exception of the Gordon Road Site on the South Santiam River, will have no effect on Essential Fish Habitat as designated under the Magnuson-Stevens Fishery Conservation and Management Act since all proposed release sites are above impassible dams and natural migration barriers, thus EFH has not been designated in these areas. Essential Fish Habitat is designated in the South Santiam River above Foster Dam in Sweet Home, Oregon. EFH consultation with NMFS is covered under the programmatic Biological Opinion, “Programmatic Activities of the USDA Forest

Service, USDI Bureau of Land Management, and Coquille Indian Tribe in Western Oregon (Ref. 2010/02699).”

CLEAN AIR ACT (CAA), 1970

This Act (42 U.S.C. § 7401 *et seq.*) established a comprehensive policy for protection and enhancement of air quality throughout the United States. Its goals are achieved through permitting of stationary sources, restricting the emission of toxic substances from stationary and mobile sources, and establishing National Ambient Air Quality Standards. Title IV of the Act includes provisions for complying with noise pollution standards. Section 118 (42 U.S.C. § 7418) of the CAA specifies that each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or facility or (2) engaged in any activity resulting, or which may result, in the discharge of air pollutants, shall be subject to, and comply with, all Federal, State, interstate, and local requirements respecting the control and abatement of air pollution in the same manner, and to the same extent as any non-governmental entity. Corps activities resulting in the discharge of air pollutants must conform to National Ambient Air Quality Standards (NAAQS) and State Implementation Plans (SIP), unless the activity is explicitly exempted by Environmental Protection Agency (EPA) regulations.

The proposed action will not create or result in any exceedances of State or Federal emission standards and is considered to be *in compliance* with this Act.

CLEAN WATER ACT, 1972

The Clean Water Act (CWA) (33 U.S.C. § 1251 *et seq.*) established the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1977. The CWA made it unlawful to discharge any pollutant into navigable waters, unless a permit was obtained.

Section 404 – This Section authorizes the Secretary of the Army to permit the discharge of dredged or fill material into waters of the United States at specified disposal sites. Disposal sites are evaluated and authorized through the application of the Section 404(b)(1) Guidelines, further described in 40 C.F.R. part 230.

Only the Gold Creek site includes project elements that will occur below OHW. The proposed action is consistent with the Corps' Nationwide Permit (NWP) 36 (*Boat Ramps*). The Corps will include erosion control measures during construction to meet Portland District Regional Permit Conditions.

Section 401 – Section 401(a)(1) requires certification from the State in which a discharge would occur to waters of the United States and is applicable to construction and operation of facilities. The State must certify that the discharge will not violate the states' water quality standards. EPA retains jurisdiction in limited cases.

The Oregon Department of Environmental Quality (DEQ) issued their State Water Quality Certification for the 2012 NWP's on April 9, 2012. For the 2012 NWP's the DEQ certified NWP 36 (*Boat Ramps*) with only DEQ General Conditions as applicable. Applicable General Conditions include turbidity control measures (e.g., erosion control), post-construction stormwater management, and vegetation protection. To meet these requirements, the Corps will implement erosion control measures to minimize the potential that sediment will enter Fall Creek, install the pre-cast concrete panels used for the boat ramp with grooves perpendicular to placement to direct stormwater off the ramp and onto adjacent soils and vegetation to slow the release of stormwater, and finally, only minimal herbaceous vegetation directly adjacent to the existing roadway will be disturbed; no trees or shrubs will be impacted.

Section 402 – Section 402(a)(1) authorizes the EPA or states in which the EPA has delegated such authority to issue permits for the discharge of any pollutant or combination of pollutants under procedures established to implement the National Pollutant Discharge Elimination System (NPDES) program. The Oregon Department of Environmental Quality administers the NPDES through Oregon Revised Statutes (ORS) 468B. Temporary impacts to water quality should be avoided and minimized during the project's construction and staging. An Erosion and Sediment Control Plan must be developed and implemented in compliance with the Corps' existing general NPDES 1200-CA permit issued by DEQ for during-construction stormwater management. Sources covered under the Corps permit include disturbances greater than 1 acre.

Because the proposed project at Gold Creek will require disturbance to less than an acre, a specific Sediment and Erosion Control Plan is not required by the existing 1200 CA-permit. Nonetheless, the Corps will implement erosion control measure BMPs to minimize the potential that any sediment enters Fall Creek during construction.

FISH AND WILDLIFE COORDINATION ACT (FWCA), 1958

The FWCA directs federal agencies to prevent the loss and damage to fish and wildlife resources in 16 U.S.C. §§ 661-667e; specifically, wildlife resources shall be given equal consideration in light of water-resource development programs. Consultation with the USFWS is required when activities result in the control of, diversion or modification to any natural habitat or associated water body, altering habitat quality and/or quantity for fish and wildlife

This is an on-going, operational action; therefore the Section 2(a) consultation requirements of the FWCA are *not applicable*.

BALD AND GOLDEN EAGLE PROTECTION ACT, 1940

This Act provides for the protection of bald and golden eagles by prohibiting (except under certain specified conditions) the taking, possession, and commerce of such birds.

The proposed activity will not result in any modification to bald or golden eagle habitat nor will any activity occur within a half-mile of any known bald or golden eagle nests.

Therefore, there is no potential for “take” of bald or golden eagles and thus the activity *complies with* this Act.

MIGRATORY BIRD TREATY ACT, 1918

This Act makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not.

Fish release site improvements will occur after July 15 to avoid disturbance to nesting harlequin ducks; this will also result in minimizing disturbance to other nesting migratory birds. Only very minor vegetative modification is proposed and is therefore *in compliance* with this Act because the action will not result in the taking of any migratory birds.

WILD AND SCENIC RIVERS ACT, 1968

This Act applies only to rivers designated by Congress as “wild and scenic” in order to safeguard the special character of these rivers. Under this Act, Federal agencies may not assist the construction of a water resources project that would have a direct and adverse effect on the free-flowing, scenic, and natural values of a federally designated wild or scenic river.

The WNF completed Section 7(a) analysis for the North Fork Middle Fork Willamette River and the South Fork McKenzie River. It was determined that the project would not affect the free-flowing nature of these rivers and would not compromise or diminish the Outstandingly Remarkable Values (ORVs). Therefore, this proposed action is *in compliance* with the Act.

NATIONAL HISTORIC PRESERVATION ACT (SECTION 106) (NHPA), 1966

This Act is designed to protect and preserve cultural resources and ensure that development does not cause harm or degradation to historic integrity and significance without consideration of the impacts of that development. Section 106 of the NHPA requires all Federal agencies to consider the potential effects of their undertakings on historic properties eligible for or currently listed on the National Register of Historic Places (National Register). Historic properties include archaeological sites, historic structures or the remnants of sites or structures, and areas of historic, cultural or traditional significance.

Consultation with State Historic Preservation Officer (SHPO) was conducted under the terms of the *2006 Programmatic Agreement among the United States Department Agriculture Forest Service Pacific Northwest Region (Region-6), the Advisory Council on Historic Preservation, and the Oregon State Historical Preservation Officer regarding Cultural Resource Management in the State of Oregon by the USDA Forest Service* this Programmatic Agreement. It was determined that the construction of the fish release portals, and related activities, including intermittent (seasonal) removable pipe supports, access road widening and surfacing, gate installation or replacement, creation of traffic barriers (e.g., Jersey barrier or boulder placement), removal of designated small trees, and specified stump removal, would not impact any known cultural resources.

Executive Order 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971

This executive order advises federal agencies to provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation. Federal agencies are directed to administer the cultural properties in a spirit of stewardship and trusteeship for future generations, initiating measures in such a way that federally owned and non-federally owned sites, structures and objects of historical, architectural or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the people.

As discussed above in the section “NATIONAL HISTORIC PRESERVATION ACT (SECTION 106) (NHPA), 1966,” the proposed action would not impact any known cultural resources.

EXECUTIVE ORDER 11988, FLOOD PLAIN MANAGEMENT, 24 MAY 1977

This executive order requires Federal agencies to evaluate the potential effects of proposed activities on flood plains and avoid possible long- and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of flood plain development wherever there is a practicable alternative. Federal agencies are directed to develop alternatives to flood plain activities, where practicable, and identify the impacts (beneficial and/or adverse) due to the action.

The proposed action will not encourage further development of the flood plain adjacent to fish release sites. Therefore the proposed project is *in compliance* with this Executive Order.

EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS, 24 MAY 1977

The purpose of this executive order is to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In planning their actions, Federal agencies are required to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided.

Based on site visits by resource specialists it is determined that the project is in compliance with this Order because the proposed action *no effects* on wetlands.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT – SUPERFUND (CERCLA), 1980

CERCLA established a method to assign liability to parties responsible for the release of hazardous wastes and established a trust fund (Superfund) for the cleanup of associated lands through either short-term removals or long-term remediation to reduce the dangers to public health and the environment associated with hazardous substances.

The location of the proposed action is not within the boundaries of a designated Superfund site as identified by the EPA or the state of Oregon, nor is the project site part of the National Priority List (<http://www.epa.gov/superfund/sites/npl/index.htm>), therefore, this Act is *not applicable* to the proposed action.

EXECUTIVE ORDER 12898, ENVIRONMENTAL JUSTICE, 11 FEBRUARY 1994

This order requires Federal agencies to minimize health impacts on subsistence, low-income, or minority communities, ensuring no persons or group of people bear a disproportionate burden of negative environmental impacts resulting from the execution of this country's domestic and foreign policies.

No subsistence, low-income or minority communities will be affected by the proposed action because no changes to land management will occur. There are no changes in population, economics, or other indicators of social well-being for this area anticipated within the near future. Consequently, the proposed action is *in compliance* with this Order because no environmental justice implications exist for this area.

ANALYSIS OF IMPACTS ON PRIME AND UNIQUE FARMLANDS - FARMLAND PROTECTION POLICY ACT, 1994

This Act, without authorizing Federal agencies to regulate the use of private or non-federal lands, encourages Federal agencies to minimize the impact of Federal programs on the unnecessary and irreversible conversion of farmland (prime or unique) to nonagricultural uses. It follows that Federal programs shall be administered in a manner that, as practicable, will be compatible with state and local government and private programs and policies to protect farmland.

The proposed action is *in compliance* with this Act because the activity will not occur on lands utilized for agricultural purposes.

EXECUTIVE ORDER 13186, MIGRATORY BIRDS, 10 JANUARY 2001

This order further strengthens the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, the Fish and Wildlife Coordination Act, the Endangered Species Act, and the National Environmental Policy Act. Federal actions resulting in any "take" (intentional or otherwise) of a migratory bird are required to develop Memoranda of Understanding with USFWS to promote the conservation of migratory bird populations and resources.

There will be no take of migratory birds (see Migratory Bird Treaty Act section above) resulting from the proposed action; therefore, the action is *in compliance* with this Order.

EXECUTIVE ORDER 13514, FEDERAL LEADERSHIP IN ENVIRONMENTAL, ENERGY, AND ECONOMIC PERFORMANCE, 5 OCTOBER 2009

Federal agencies shall increase energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; leverage agency acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which Federal facilities are located; and inform Federal employees about and involve them in the achievement of these goals.

The proposed action proposes to improve and use fish release sites through the use of existing equipment. There are no identifiable alternatives at this time. Therefore this project is *in compliance* with this Executive Order.

CONSULTATION AND COORDINATION

The Forest Service and the Corps consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM and RESOURCE SPECIALISTS:

Brett Blundon, Fish Biologist, ID Team Leader
Ramon Rivera, Fish Biologist
Doug Larson, Fish Biologist
Darrin Neff, Fish Biologist
Nikki Swanson, Fish Biologist
Bonny Hammons, Hydrologist
Lance Gatchell, Hydrologist
Johan Hogervorst, Hydrologist
David Sanders, Recreation
Matt Peterson, Recreation
Brian McGinley, Recreation
Cathy Lindberg, Archaeologist
Cara Kelley, Archaeologist
Randy Green, Fire
Brenda Hallmark, Fire
Helmut Kriedler, Engineering
Jennifer Lippert, Botanist
Joe Doerr, Wildlife Biologist
Cheron Ferland, Wildlife Biologist
Lisa Kurian, Hydrologist
Suzanne Schindler, NEPA planner
Tim Kuhn, Project Manager
Greg Smith, Environmental Resource Specialist
Jeremy Appt, Civil Engineer
Dave Leonhardt, Fisheries Biologist
John Nicholson, Real Estate Specialist

FEDERAL, STATE, AND LOCAL AGENCIES:

US Army Corps of Engineers, Portland District
Oregon Department of Fish and Wildlife

National Marine Fisheries Service
Oregon State Historic Preservation Office

TRIBES:

Confederated Tribes of Coos, Lower Umpqua and Siuslaw
Coquille Tribe
Cow Creek Band of Umpqua Indians
Confederated Tribes of Grand Ronde
The Klamath Tribe
Confederated Tribes of Siletz Indians of Oregon
Confederated Tribes of Warm Springs

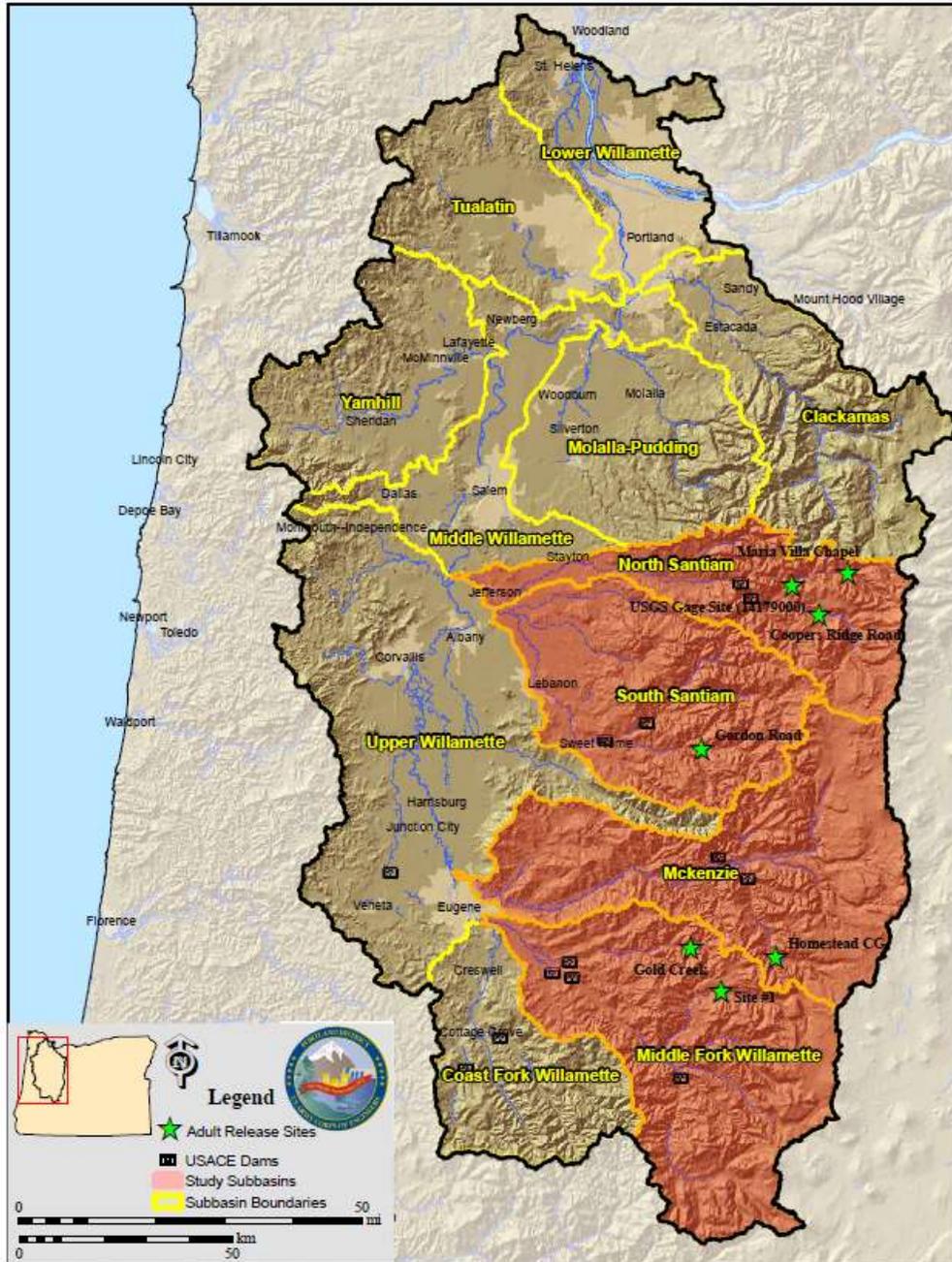
REFERENCES

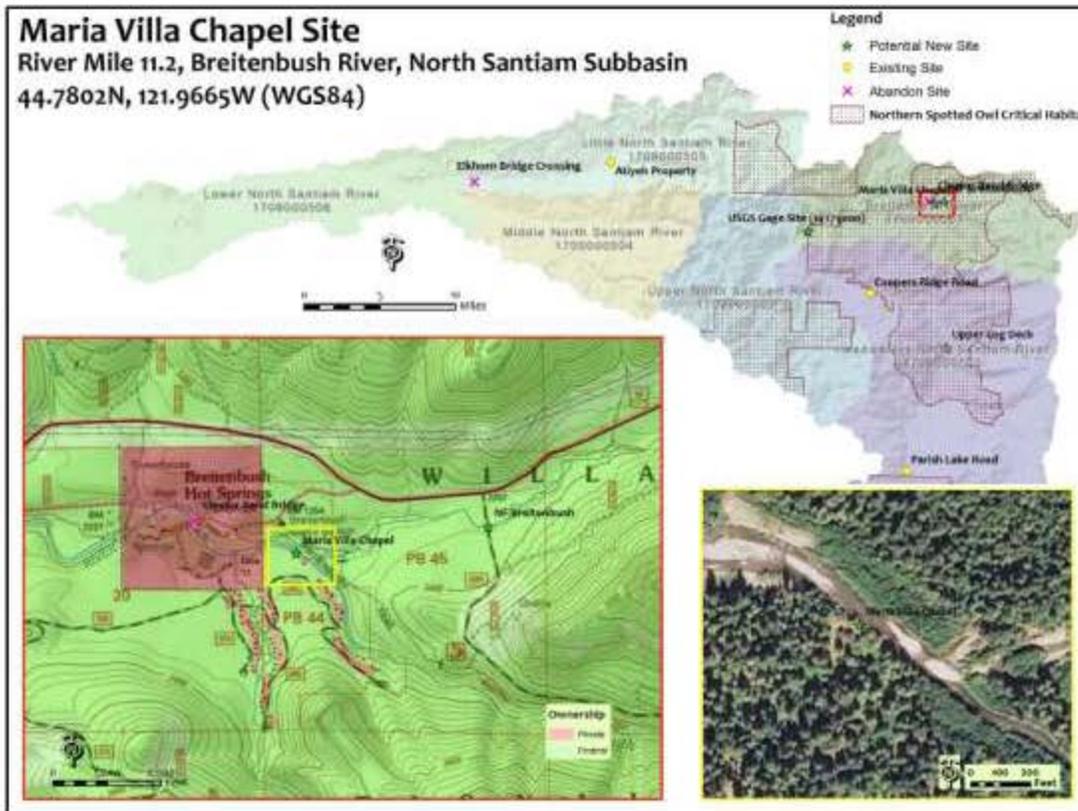
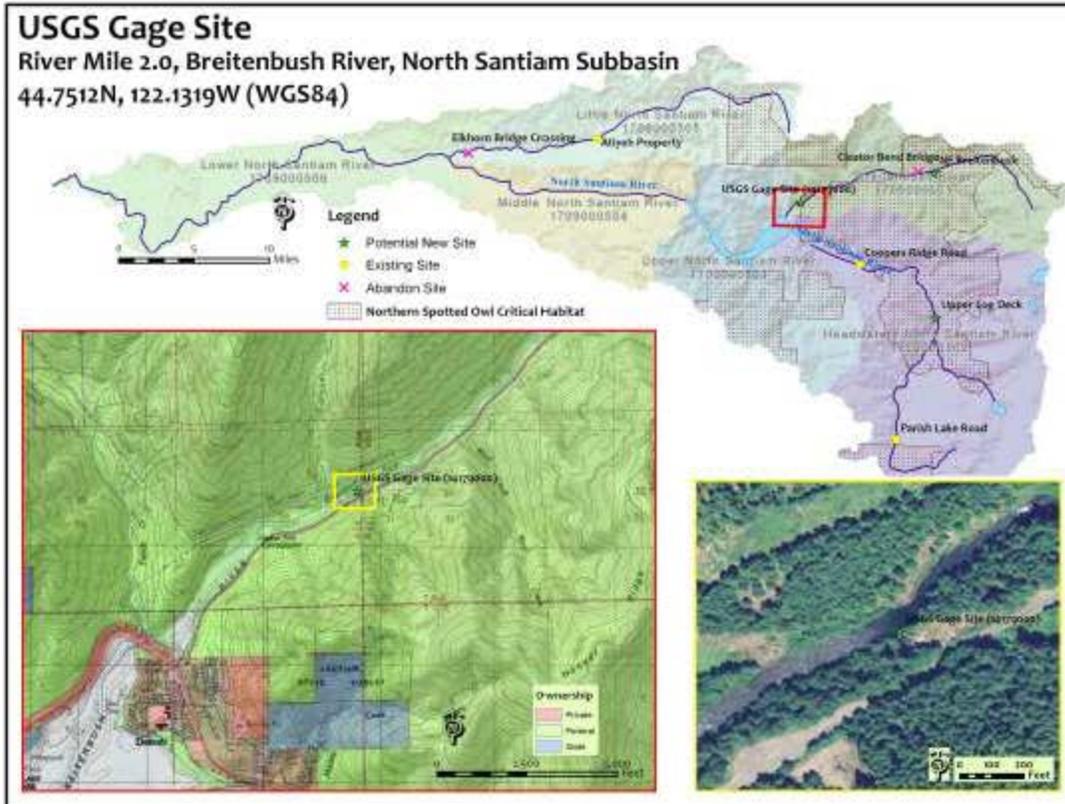
USDA Forest Service and USDI Bureau of Land Management. 1994. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standard and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl. Pacific Northwest Region. Portland, OR.

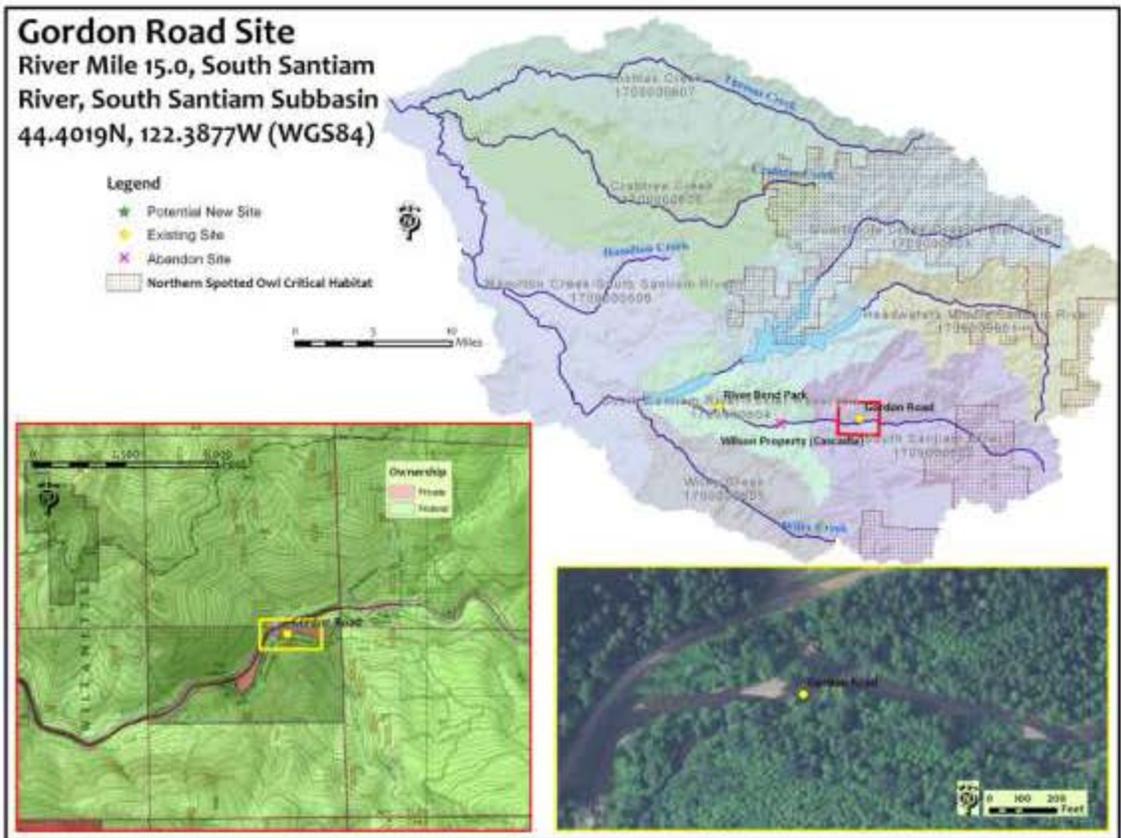
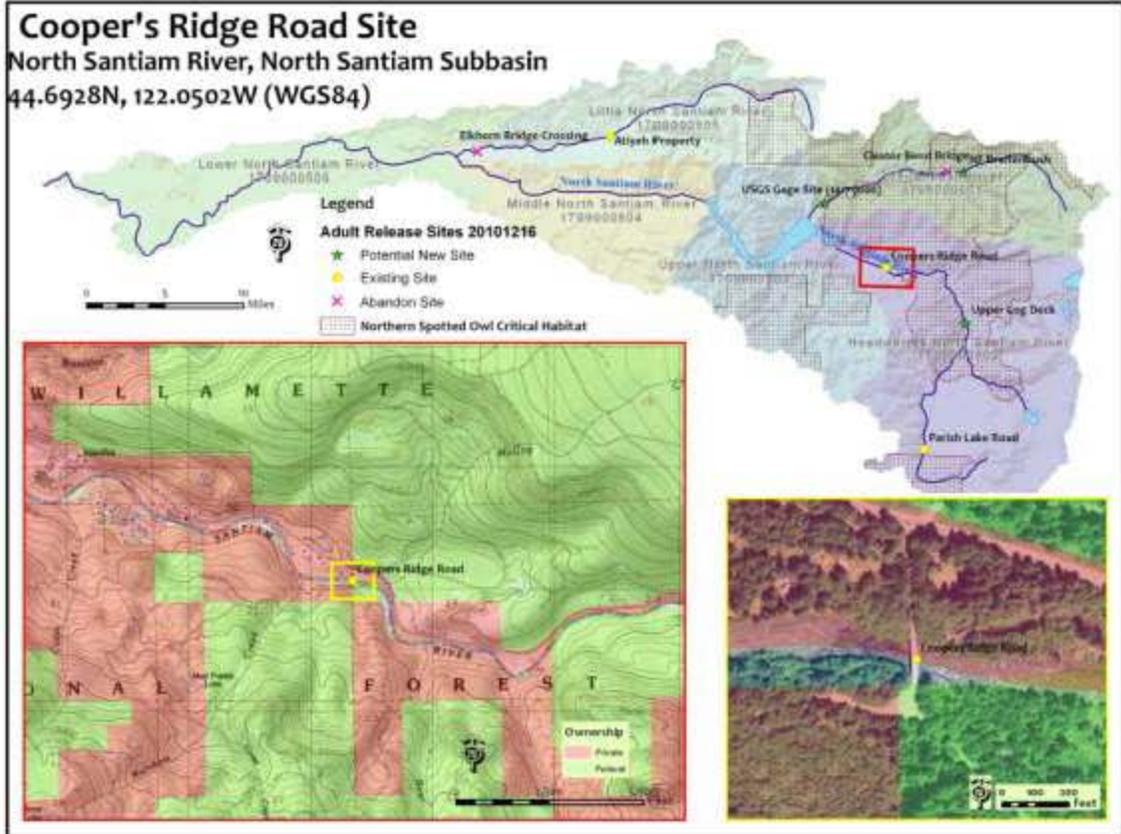
USDA, Forest Service; U.S. Department of the Interior, Bureau of Land Management. 1994. Final Supplemental environmental impact statement on management of habitat for late successional and old-growth forest related species within the range of the northern spotted owl (Northwest Forest Plan). [Portland, OR]: U.S. Department of Agriculture, Forest Service: U.S. Department of Interior, Bureau of Land Management.

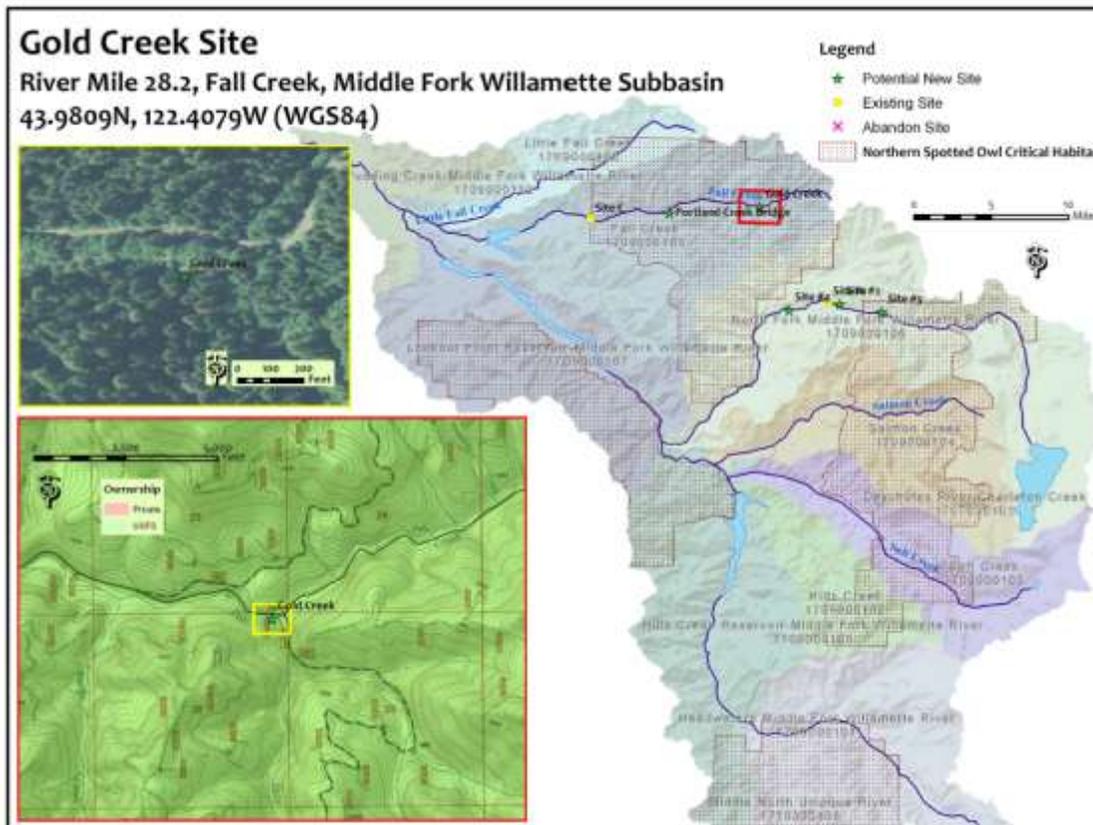
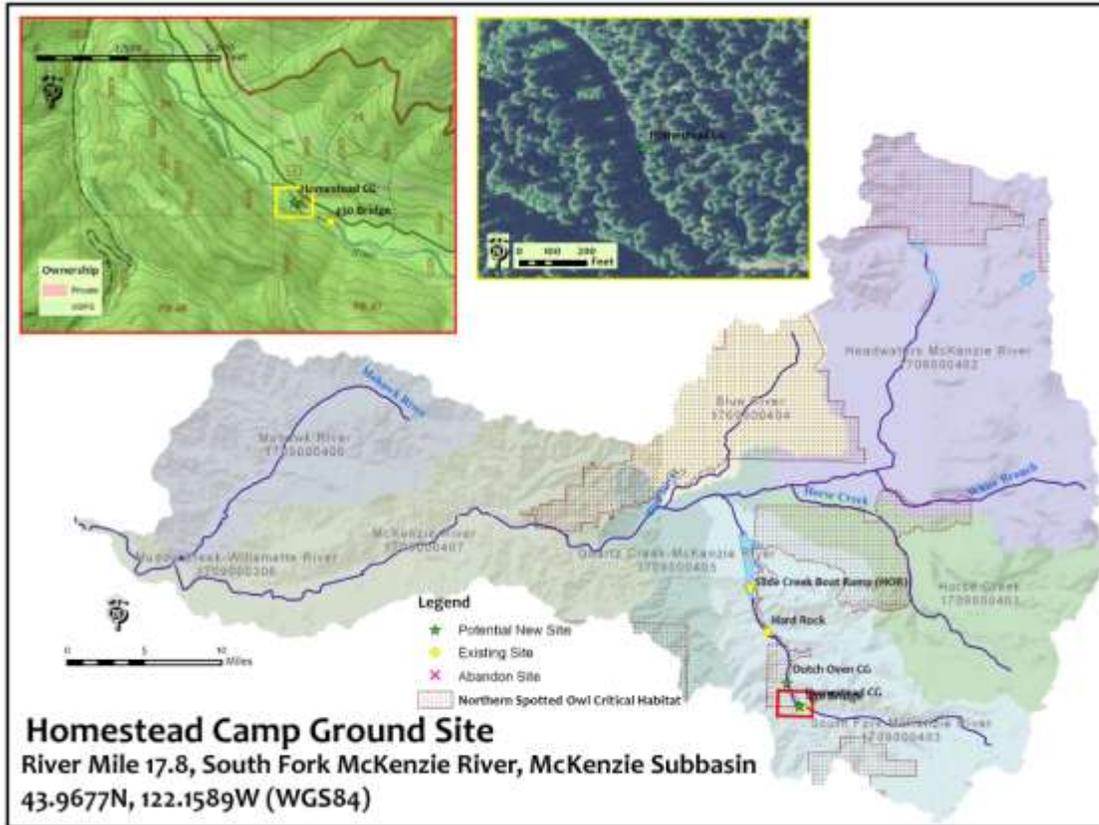
USDA Forest Service. 1990. Land and Resource Management Plan Willamette National Forest, Springfield, Oregon.

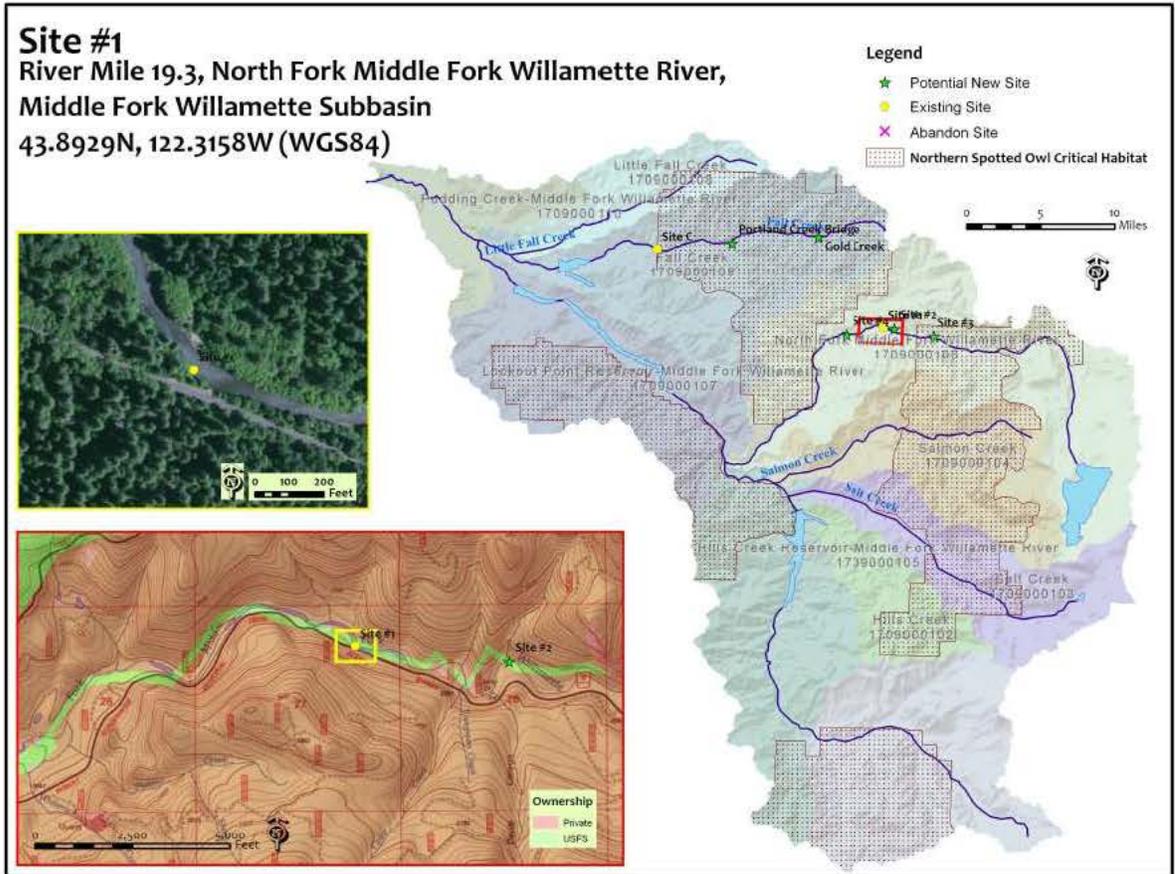
MAPS AND SITE DRAWINGS



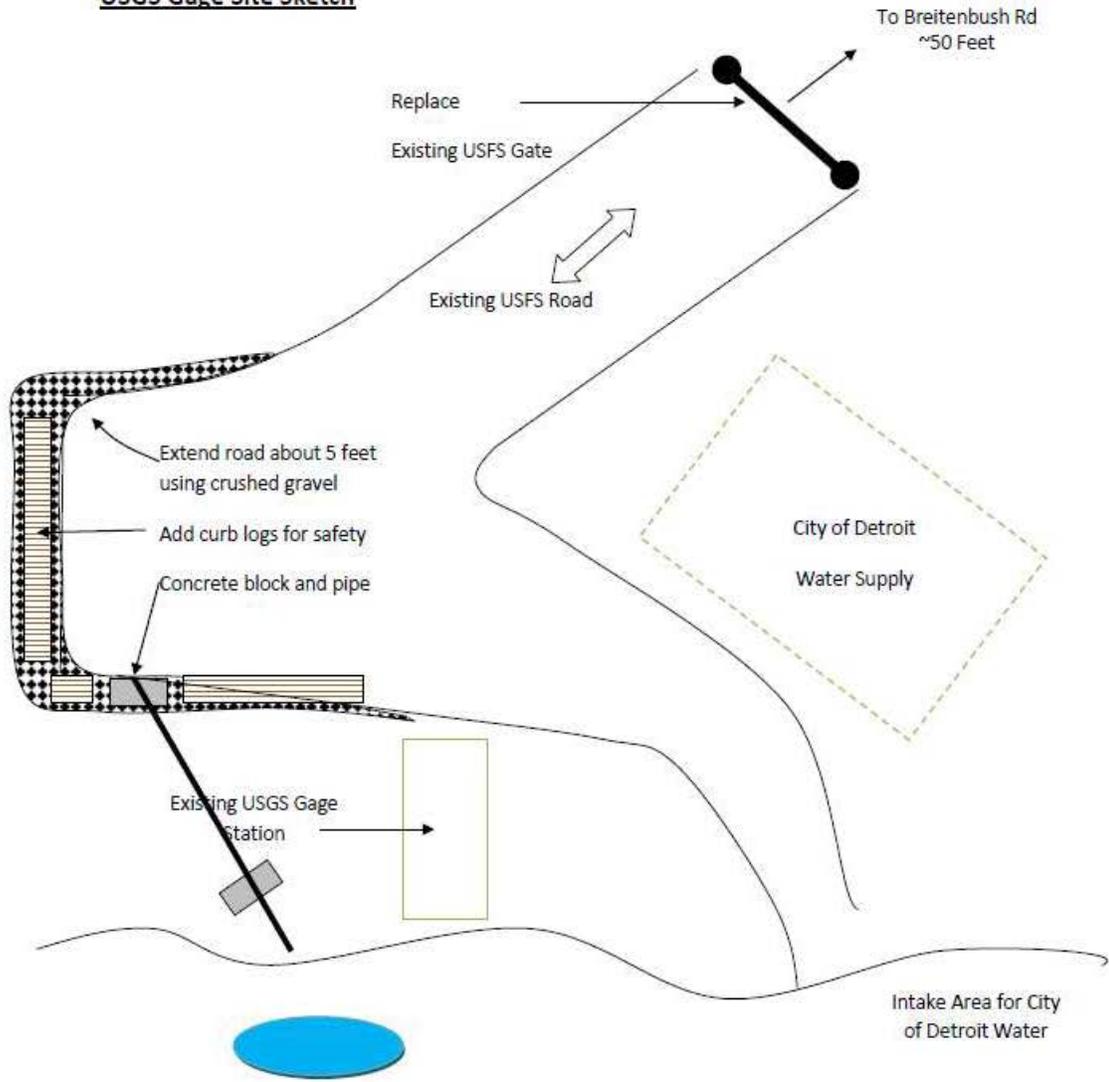




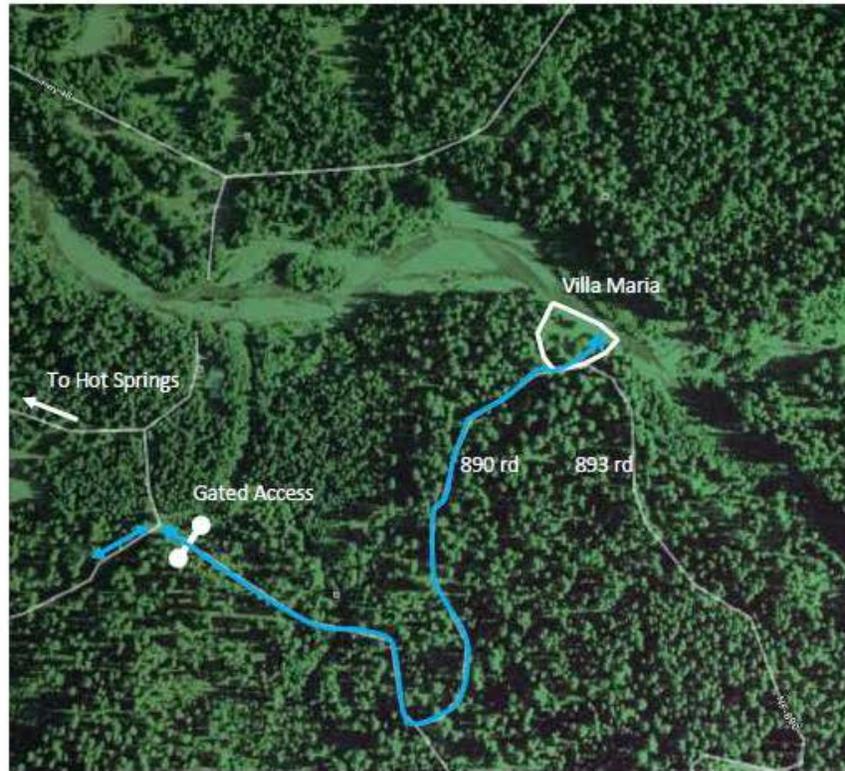




USGS Gage Site Sketch



Aerial View of Villa Maria



Truck Route 

Photos of Villa Maria meadow area



Villa Maria Land Mark

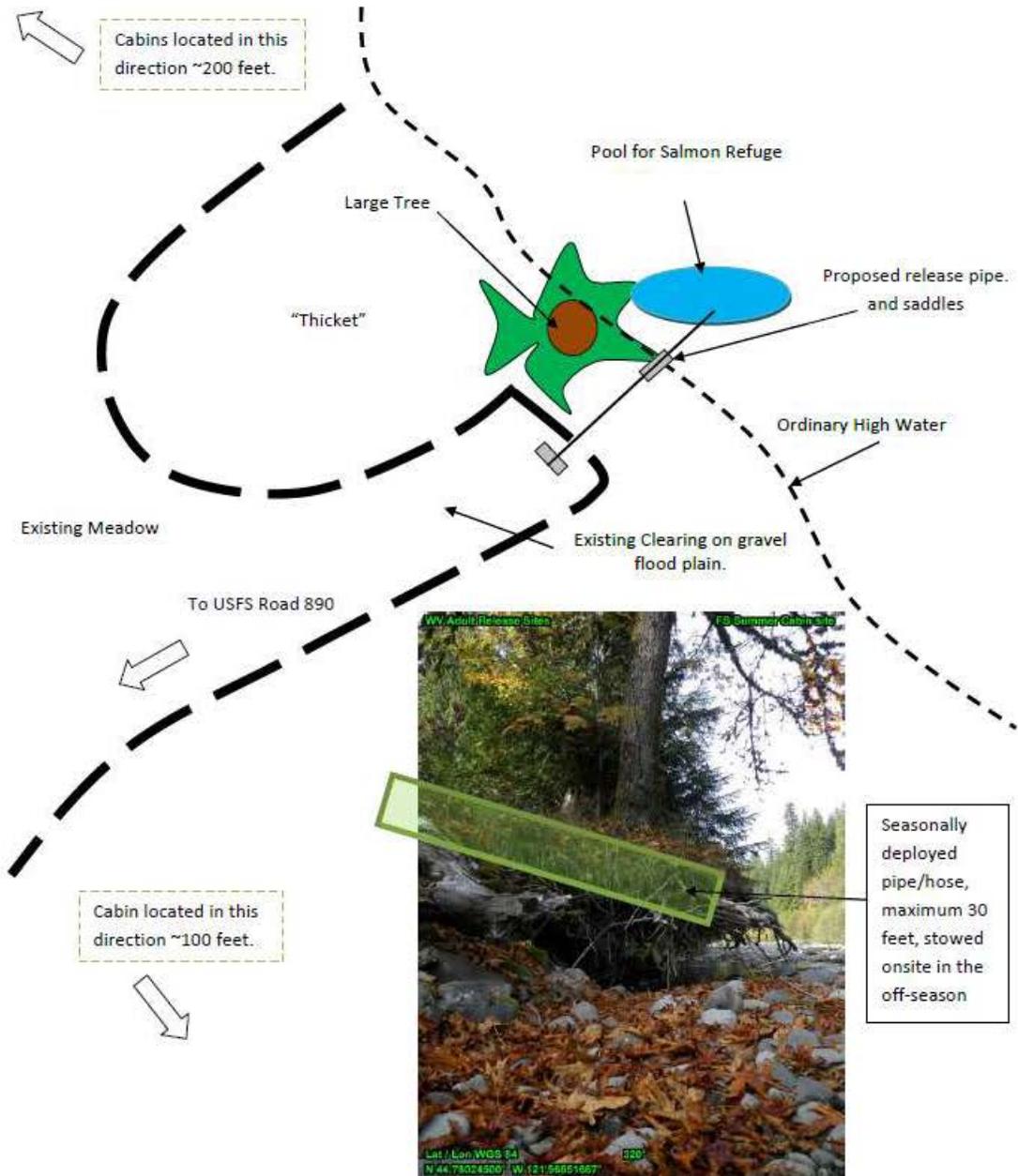
Access Road to Meadow Entrance



View of truck route through meadow

(no disturbance other than pruning branches to 14 feet)

Villa Maria Site Sketch



Coopers Ridge Site Sketch

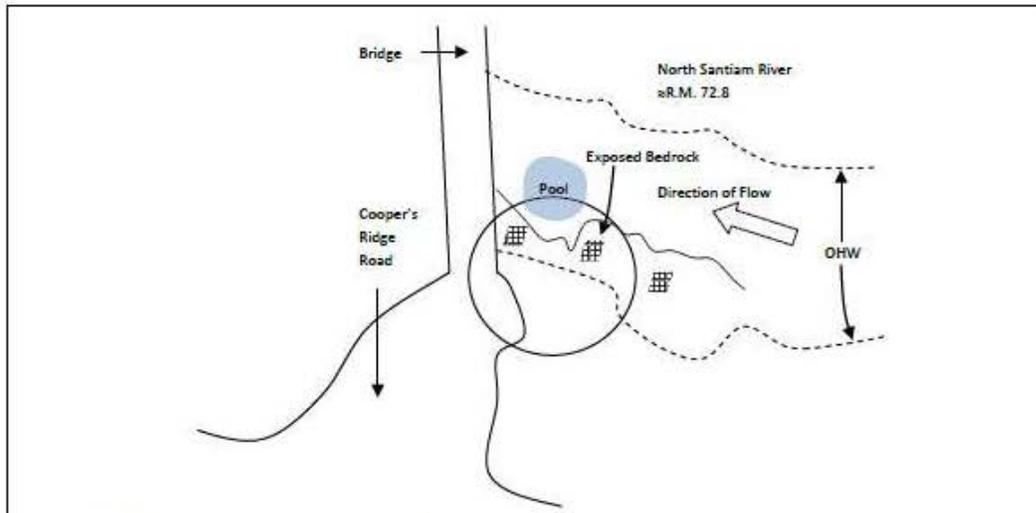


Figure 1. Cooper Ridge – Site Sketch

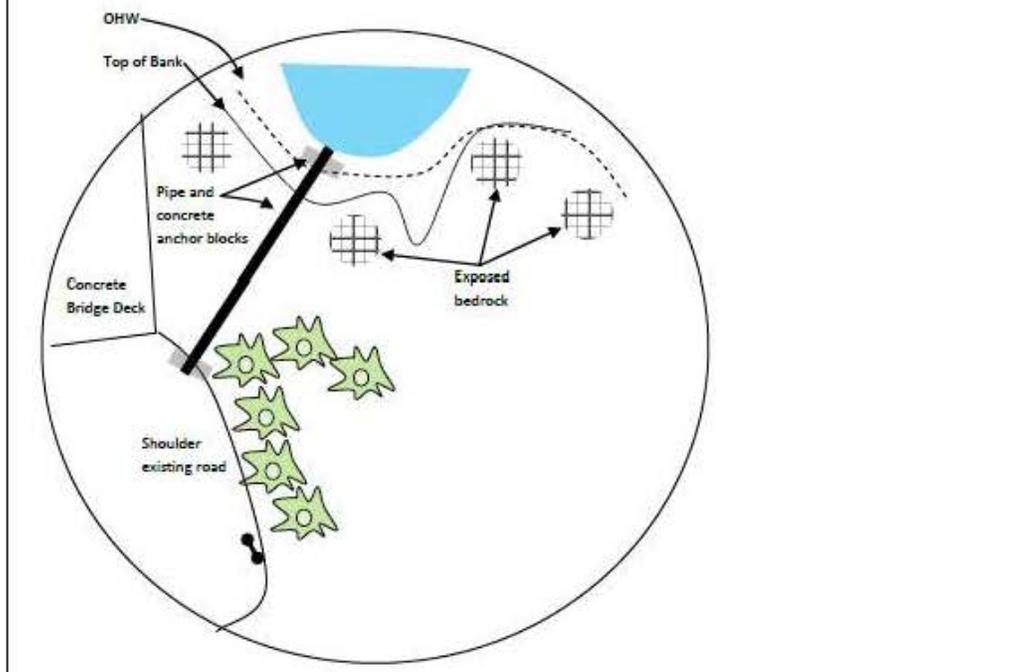
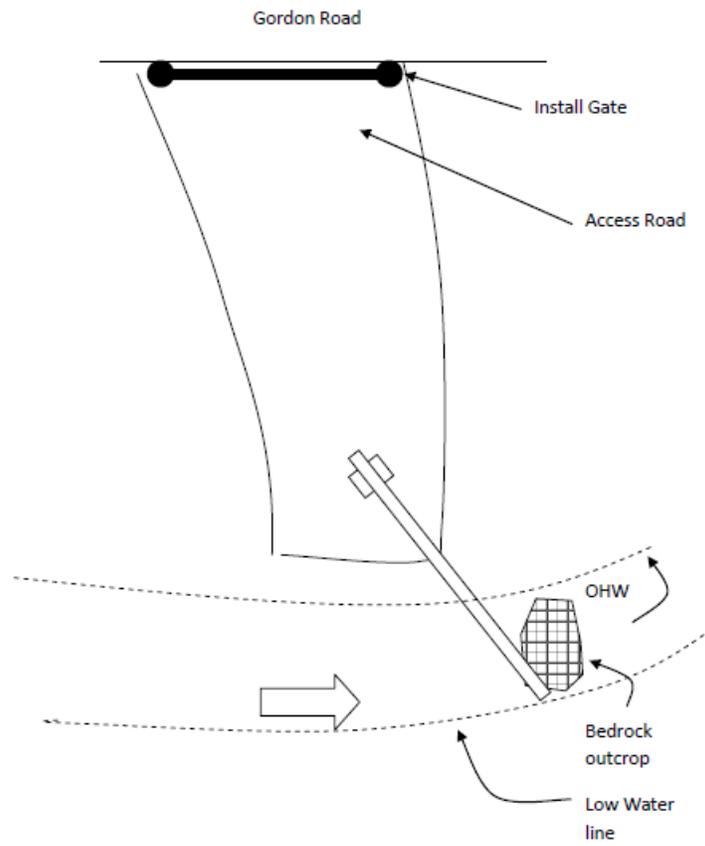


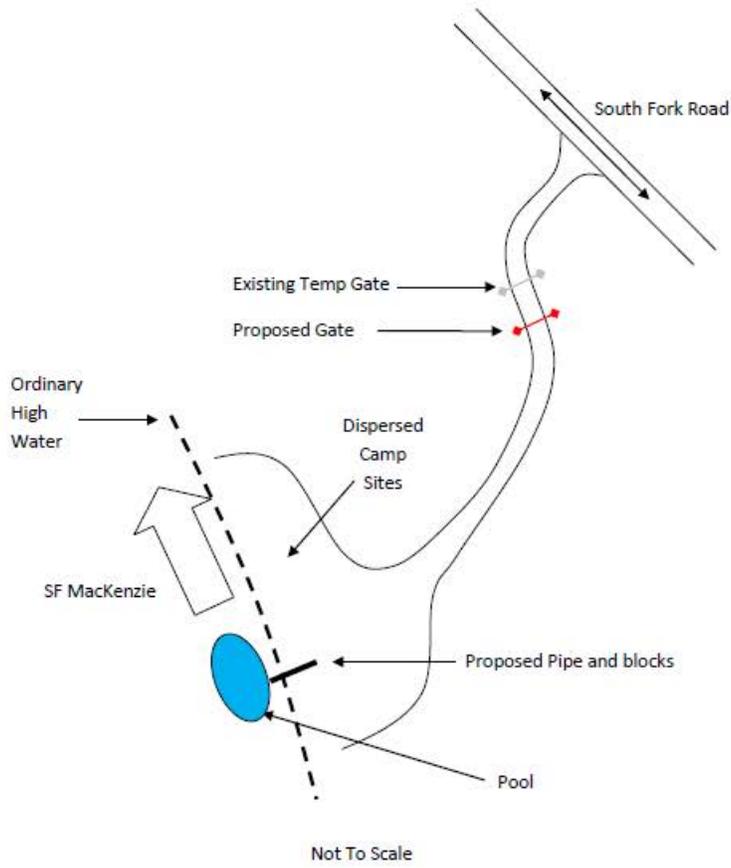
Figure 2. Cooper Ridge –Proposed Improvements with Details

Gordon Road Site Sketch

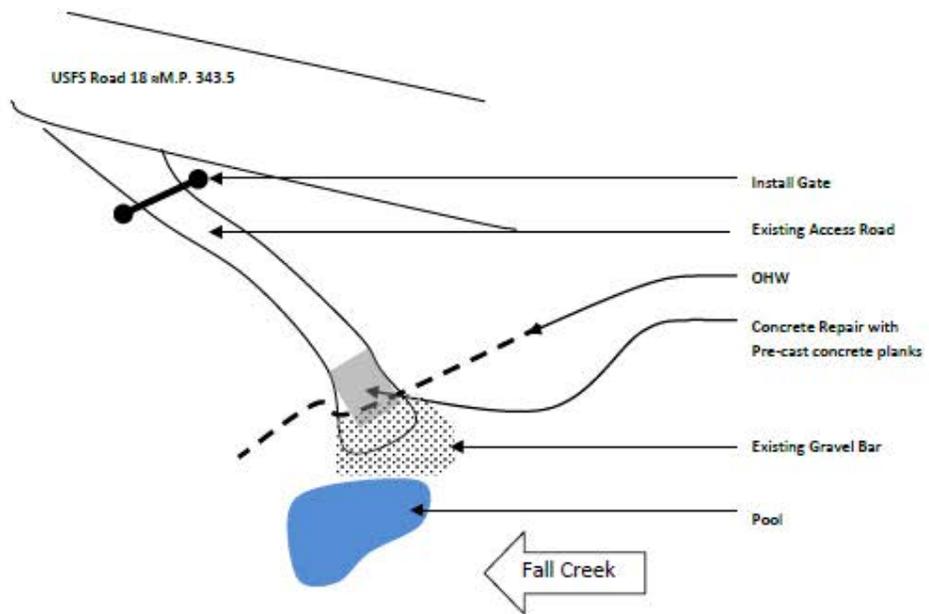


Not To Scale

Homestead Site Sketch



Gold Creek Site Sketch



Note work below OHW must be done during low flow periods only when the stream elevations are below the ramp

