

Tioga Bridge and Susan Creek Day-Use Area Improvements

Swiftwater Field Office
Roseburg District
Bureau of Land Management

Environmental Assessment
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Chapter One – Introduction

In accordance with the National Environmental Policy Act (NEPA), this environmental assessment discloses the effects of the Tioga Bridge and Susan Creek Day Use Area Improvements project. This project is proposed by the Swiftwater Field Office of the Roseburg District Bureau of Land Management (BLM) in cooperation with the Federal Highway Administration – Western Federal Lands Highway Division.

A. Background and Need for Action

The North Umpqua River is a congressionally designated Wild and Scenic River (WSR) and an Oregon State Scenic Waterway. The Bureau of Land Management (BLM) administers 2,142 acres of the Wild and Scenic River Corridor, including the Susan Creek Day-Use Area and the Tioga segment of the North Umpqua Trail¹ (*Map 1: Tioga Bridge Vicinity*).

The Tioga segment runs for 16 miles between the Wright Creek and Swiftwater trailheads, making it the longest section of the North Umpqua Trail. It is underused due to its length and the level of difficulty for access. According to the Chief Medical Officer of the Glide Rural Fire Department, approximately once a year emergency medical or rescue personnel are required for incidents near the middle of the Tioga segment (2009). Difficulty accessing the interior portion of the trail can substantially delay emergency response.

In 2008, the BLM acquired 50 acres of land along the North Umpqua River from Douglas County. On this newly acquired land, there are two concrete bridge piers² located in the river near milepost 28, approximately the halfway point of the Tioga segment. The BLM proposes to construct a footbridge (hereafter referred to as the Tioga Bridge) across the existing piers to provide access over the River to the Tioga segment of the North Umpqua Trail.

The Susan Creek Day-Use Area parking lot currently accommodates passenger vehicles but is not large enough for large vehicles with a wide turning radius, such as trucks pulling trailers, to safely maneuver or park. The BLM proposes to expand the parking lot to accommodate larger vehicles.

The proposed action is also needed to achieve the management objectives of the *North Umpqua River Management Plan* (NURMP), 1992. The NURMP was developed jointly by the BLM Roseburg District, the Umpqua National Forest, and the Oregon State Parks and Recreation Department and directs the agencies involved to “provide diverse river and land based recreational opportunities” and to “manage, maintain and enhance transportation facilities for safe access to recreation facilities and opportunities within the corridor” (p.17).

This environmental assessment analyzes the impacts of expanding the Susan Creek Day-Use Area parking lot and constructing the Tioga Bridge. In addition, this assessment will analyze several connected activities, including construction of a foot trail (the Emerald Trail) and construction of gazebos at the Susan Creek Day-Use Area. All components of the proposed

¹ The Tioga Segment is a National Recreation Trail that is open to non-motorized use including hiking, mountain biking and horseback riding.

² The piers remain after flooding in 1964 washed out the Young’s Bay Bridge.

action would occur in the North Umpqua Wild and Scenic River Corridor and the Congressionally Reserved land use allocation.

B. Purpose of the Proposed Action

The purpose of the proposed action is to:

- 1) provide expanded day-use access for hikers, mountain bikers, fisherman, handicapped users and other recreationists by linking the Susan Creek Recreation Area with the North Umpqua Trail,
- 2) disperse recreation use more evenly over the 16-mile Tioga segment,
- 3) provide access to the middle of the Tioga segment for emergency response and for BLM trail maintenance needs,
- 4) expand the existing Susan Creek Day-Use Area parking lot to allow large vehicles pulling trailers to maneuver and park,
- 5) upgrade existing utility lines to meet current codes, and
- 6) meet the management objectives of the NURMP by improving the quality and diversity of recreation experiences available within the North Umpqua River corridor and by enhancing transportation facilities for safe access to recreation facilities and settings.

C. Conformance with Applicable Management Plans

The proposed action is in conformance with Roseburg District Record of Decision and Resource Management Plan (ROD/RMP) (June 1995) which directs the BLM to “*manage the Congressionally designated North Umpqua River segment as a Wild and Scenic River under the North Umpqua River Management Plan*”. It is also in conformance with the direction from the NURMP as stated on page four of this document.

D. Issues for Analysis

Issues for analysis are those that have potentially significant environmental effects and that help guide the decision maker in selecting between alternatives. Potentially significant impacts are impacts that, given the context of the action and the intensity of effects, may have significant environmental impacts. The purpose of this environmental analysis is to determine if those potential impacts are significant and to guide a rational decision making process. Issues analyzed in this EA include:

1. Impacts to the Outstandingly Remarkable Values of the North Umpqua Wild and Scenic River, which are Recreation, Scenery, Cultural Resources, Water Quality and Quantity, and Fisheries (NURMP, pp. 11-12).
2. Impacts to Special Status wildlife species within the project area.
3. Impacts to Special Status botanical species within the project area.

E. Decision Factors

The following factors will be considered when selecting among the alternatives:

- The degree to which the alternative would meet the purpose and need for action;
- The nature and intensity of impacts on resources (including, but not limited to, scenery, fisheries, wildlife and their habitat, water quality, and soil) that would result from implementation of the action alternative;
- Conformance with the ROD/RMP management direction and the NURMP;

- Compliance with applicable laws including, but not limited to, the Wild and Scenic Rivers Act, the Endangered Species Act, the Federal Lands Policy and Management Act, and the Oregon State Scenic Waterway regulations (specifically the North Umpqua River Scenic Waterway Oregon Administrative Rule (OAR 736-040-0046));
- The monetary cost of implementing each component of the action alternative; and
- Workload associated with maintenance of new or upgraded facilities and the ability of the District to assume that workload for the lifetime of the facilities.

The cost and maintenance workload associated with each project component is not described in this EA. However, these are factors that the decision maker must take into consideration when they are deciding whether or not to implement a proposed action.

Construction associated with several components of the proposed action would be conducted by contractors. There are multiple options described in Chapter Two for how construction of those three components could take place. The BLM's decision as to which options are chosen would be based upon: 1) the capabilities of the contractor selected to perform the work, 2) the monetary cost associated with each option, and 3) the nature and intensity of environmental impacts associated with each option.

Chapter Two – Discussion of the Alternatives

A. The No Action Alternative

There would not be construction of a bridge over the North Umpqua River, expansion of the Susan Creek Day-Use Area parking lot or construction of the Emerald Trail at this time. There would be no parking or turnaround for large vehicles at the Susan Creek Day-Use Area parking lot. There would be no immediate access to the middle of the Tioga segment for emergency responders or to facilitate maintenance of the North Umpqua Trail. Several management objectives of the NURMP (described in Chapter One) would not be met.

B. The Proposed Action Alternative

The proposed action alternative includes eight components. The BLM may issue separate decisions for each project component or one decision for the entire proposed action.

As demonstrated in Table 1 below, the decision(s) to implement some of the project components are connected to construction of the Tioga Bridge; therefore a decision(s) to implement these components may be dependent upon a decision to construct the bridge. Decisions may be individually issued for other components of the proposed action independent of the decision to construct the Tioga Bridge itself. Likewise, a decision to construct the Tioga Bridge does not mean that a decision(s) would be made to implement the unconnected project components.

Table 1. Components of the proposed action alternative plus maintenance of new facilities. Components shaded in gray are connected to construction of the Tioga Bridge.

<i>Project Components</i>
1. Geotechnical Drilling
2. Modification of the North Umpqua Trail
3. Construction of the Tioga Bridge
4. Expansion of the Susan Creek Day-Use Area Parking Lot
5. Construction of the Emerald Trail
6. Placement of Gazebos at the Susan Creek Day-Use Area
7. Utility Upgrades
8. Maintenance of New Facilities

1. Geotechnical Drilling

Geotechnical drilling is connected to construction of the Tioga Bridge; however, it would be completed prior to issuing a decision for the bridge. Information discovered through geotechnical exploration will be used to determine feasibility, engineering needs and costs associated with construction of the bridge.

Two to four geotechnical exploration holes would be drilled near each of the existing piers and on each side of Susan Creek at the Emerald Trail crossing (see *Construction of the Emerald Trail*) in order to determine engineering needs for bridge construction.

Each hole would be eight inches in diameter and up to 60 feet deep. All holes would be drilled above the ordinary high water mark and would be filled back in after the drilling is completed.

During the drilling operation, a slurry of water and bentonite (clay) would be used to lubricate drill heads and prevent overheating.

A drill rig may be trucked (see *Temporary Modification of the North Umpqua Trail*) or flown into the south side of the North Umpqua River by helicopter. There would be multiple drops to place and remove equipment, each lasting 5 to 10 minutes. The total duration of helicopter activity in the project area would be approximately 2-3 hours each day for approximately 1-2 days.

Access for heavy equipment to the east side of the Susan Creek crossing would be via a temporary route from Highway 138. The access route would require brushing and removal of trees to a 16 foot clearing width. The approximate number of trees over 8 inches diameter at breast height (DBH) that would be removed is shown in Table 2. Access to the west side of the crossing would be provided by an existing road that goes to the Emerald Meadow immediately to the west of Susan Creek (*Map 2: Proposed Action Area*). The Emerald Meadow was previously owned by Douglas County and by the Oregon State Department of Parks and Recreation. It functioned as a staging area for wood and debris burn piles for several years.

Table 2. Tree removal for access to the Susan Creek crossing.

SPECIES	8"-19" DBH	20"-36" DBH
Incense-cedar	7	1
TOTAL	7	1

2. Modification of the North Umpqua Trail

A 1.65 mile section of the North Umpqua Trail (*Map 2: Proposed Action Area*) would be utilized for access to the southern bridge abutment for geotechnical drilling (unless the drill rig is flown in) and construction of the bridge.

The section of the trail that would be used follows a decommissioned road. The following temporary modifications would be made in order to accommodate large equipment (including a crane, support truck, pumping devices and/or a concrete truck):

- a. A rock buttress would be removed by excavator.
- b. Two existing five foot by 16 foot wood bridges at stream crossings A and B (*Map 2: Proposed Action Area*) would be moved to the side and replaced with 18 inch temporary culverts.
- c. A four foot temporary culvert would be placed at stream crossing C.
- d. The trail would be widened to 12 feet and rocked at each of the three temporary culvert sites.
- e. The 1.65 miles of trail would be brushed to a 12 foot clearing width.

After bridge construction is complete:

- a. The rock buttress would be replaced by excavator.
- b. Two temporary culverts at stream crossings A and B would be removed, the wooden bridges would be replaced and those portions of the North Umpqua Trail would be returned to their original conditions.
- c. At stream crossing C, a new 35-foot wooden pedestrian bridge would be constructed to replace the temporary culvert.

Temporary culverts would only be in place during the dry season. The dry season is generally from mid-May to late-October, or until the onset of regular autumn rains.

3. Tioga Bridge Construction

A 270-foot prefabricated laminate wood bridge would be placed on top of the existing piers in the North Umpqua River (see Figure 1 for a picture of the proposed design and Figure 2 for a picture of the existing piers). In order to raise the bridge above the 100-year flood elevation, concrete would be poured into new forms, approximately 2-5 feet high, on top of each of the piers prior to placement of the bridge. Concrete would be delivered to each form by use of a concrete truck or other pumping device.



Figure 1: Proposed bridge design. Picture courtesy of Western Wood Structures, Inc. Tualatin, Oregon.

Bridge components would be constructed offsite and then the bridge would be placed on the piers one of two ways:

Option A: Staged Construction from the North Side. This option would require the use of a large crane (approximately 250 tons) staged on the north side of the North Umpqua River. Several trees would be removed to make room for the crane, see Table 3 for the approximate number, the species and size classes. Once the foundations are in place, the crane would place the bridge on top of the foundation sections. Traffic on Highway 138 would be restricted for a period of time. This may include full lane closure (two lanes) for up to two days to place the bridge, and then one lane closed under flaggers for up to two weeks.

Table 3. Trees to be removed for staged construction of the Tioga Bridge.

SPECIES	8"-19" DBH	20"-36" DBH
Douglas-fir	0	3
Western redcedar	1	0
TOTAL	1	3

Option B: Temporary Work Bridge. Two temporary work structures, one on each side of the river, would be constructed on the upstream side of the existing piers. The

temporary structures would span from each bank of the North Umpqua River to the nearest bridge abutment. The river channel would be leveled with gravel underneath the structures. Work would occur during the dry season, when the river level is low; therefore, gravel would not be placed in the flowing channel. Figure 2 shows a picture of the river at low flow. A temporary spread footing (such as precast concrete blocks, approximately two feet wide, two and a half feet tall and six feet long) would then be placed on the level surface by a crane or a boom truck staged on the outside of the river on each side. The temporary work bridge would be placed on top of the spread footing by crane. The structure would be in place for one in-water work period, generally July 1-September 30. At completion of construction, the temporary work bridge and the gravel fill would be removed.



Figure 2. The North Umpqua River and former Young's Bay Bridge during low flow.

Features Common to Both Construction Options

For either construction option, a small crane (approximately 100 ton) would be staged on the south side of the North Umpqua River to assist in placing the bridge. Approximately 8 hardwood trees less than 8 inches DBH would be removed for staging of the crane.

An approach, approximately 60 feet long and 10 feet wide, would be constructed from each of the existing piers to newly constructed footings on each bank of the river. Two new, concrete foundations would be constructed above the ordinary high water mark to support the approaches.

Construction of the Tioga Bridge would occur during the dry season, generally mid-May to late-October. Overwater and in-water work (such as placement of the bridge by a crane or use of a temporary work structure) would last approximately three weeks. Overall construction of the bridge would last approximately three months.

Several concrete blocks that remain from the original bridge would be removed by crane and disposed of by the contractor. Materials, bridge components and equipment may be staged in the Emerald Meadow.

4. Expansion of the Susan Creek Day-Use Area Parking Lot

A parking loop and turnaround to accommodate up large vehicles would be added to the day-use area parking lot (*Map 3: Parking Lot Expansion*). A 19 foot truck pulling a 28 foot trailer was

chosen as the design target for the parking lot because it is representative of a typical truck pulling a boat trailer. Also, the turning radius required for this type of vehicle is wider than for most recreational vehicles. Therefore, a parking lot designed to accommodate this truck/trailer combination would accommodate most long vehicles.

The parking loop would be approximately 20 feet wide and would have parallel parking for up to four truck and trailer combinations. Shoulders would be two feet wide and graveled. The loop and parking spurs would be paved with a nine inch aggregate base and three inch asphalt surfacing.

Two five foot wide pathways would be constructed from the west end of the parking area to the restroom and to the existing Susan Creek Day-Use Area trail. The trails would be 80 feet and 40 feet long respectively. They would be surfaced with four inches of aggregate base rock and three inches of asphalt. The loop would slope towards the center for drainage. One culvert would be installed to allow drainage of water from the center of the loop during periods of very heavy precipitation.

A maximum of 89 trees would be removed for construction of the parking lot. Of those trees, approximately 81 are less than 20 inches DBH, seven are Douglas-fir and Western redcedar ranging between 20 and 22 inches DBH and one is a 28 inch DBH Douglas-fir.

5. Construction of the Emerald Trail

A 0.83 mile trail (the Emerald Trail), would be constructed from the Susan Creek Day-Use Area to the proposed Tioga Bridge. The trail would be brushed and cleared to a width of 60 inches. There would be three inches of quarter-inch minus gravel surfacing. Up to five inches of organic material would be removed from the forest floor to level the trail. Organic material removed would be scattered to each side of the trail. Table 4 shows the approximate number of trees greater than 8 inches DBH that would be removed for construction of the Emerald Trail.

The trail would cross Susan Creek (perennial stream) and three intermittent streams. At Susan Creek a six foot x 90 foot wooden pedestrian bridge would be constructed on concrete or laminate wood abutments and a culvert would be placed in an adjacent low spot on the terrace. Access to the Susan Creek crossing for bridge construction would be the same as described in Geotechnical Drilling (pp. 7-8).

A five feet x 45 feet wood pedestrian bridge would be constructed across one of the intermittent streams on treated wood sill abutments. The bridge would be transported on the existing road and trail system and assembled piece by piece. No trees over 8 inches DBH would be removed for access. Excavation for the wood footings and fill would be required.

Roughly 100 feet to the southwest of the Susan Creek Bridge, the trail route is located near several old, dilapidated buildings that are no longer functional or necessary. These buildings and any associated materials (piping, concrete, wire, etc.) would be removed using an excavator and dump truck, and disposed of off-site. Following this removal, the sites would be restored to a more natural setting by reshaping the former building areas, removing the established non-native vegetation, and then re-planting the area with a mix of native plants and grasses.

The remaining two intermittent stream crossings would be excavated to the depth necessary for placement of an 18 inch plastic culvert. The culverts would be covered with indigenous soil and then the trail would be graveled. Keystone (interlocking) brick would be placed over the exposed end slopes.

Table 4. Trees >8” DBH to be removed for construction of the Emerald Trail.

SPECIES	8”-19” DBH	20”-36” DBH
Douglas-fir	1	0
Western hemlock	2	0
TOTAL	3	0

On the west end of project area near the location of the Tioga Bridge, the trail would run alongside the guardrail for Highway 138 for approximately 400 feet. On the south side of the guardrail a steep bank drops to the North Umpqua River. Construction of the trail between the guardrail and the drop off would be completed by a contractor in one of the following ways:

Option A: Construction of a retaining wall outside of the existing roadway. This option would use a retaining wall to allow for construction of the trail on the riverside of the existing guardrail. The retaining wall would be up to 250 feet long and up to 10 feet tall. The trail would be five feet wide within a seven foot tread base, and would be constructed with gravel. Several trees on the south side of the guardrail would be removed; the approximate number is shown in Table 3 as part of Option A for construction of the Tioga Bridge.

Option B: Realignment of the existing roadway. This option would realign 500-600 feet of Highway 138 by moving it five to eight feet to the north. Approximately 200 yards of material would be removed. Minimal cuts would be contained within the existing cut bank area. A new guardrail would be placed on the south side of the highway, leaving room on the existing roadbed for the Emerald Trail. Trees to be removed for realignment of the highway are shown in Table 5.

Table 5. Trees to be removed for realignment of Highway 138.

SPECIES	<8” DBH	8”-19” DBH	20”-36” DBH
Douglas-fir	*	5	0
Incense-cedar	*	1	0
Hardwoods	7	0	0
TOTAL	7	6	0

*Only hardwoods <8” DBH are included for the purpose of this analysis.

If possible with given engineering constraints, the trail would be built to the American Disabilities Act accessibility standards.

6. Placement of Gazebos at the Susan Creek Day-Use Area

Three 20-foot diameter gazebos with accompanying barbecue grills would be placed at the Susan Creek Day-Use Area (*Map 2: Proposed Action Area* and Figure 3). A concrete pad would be

poured for each one with footings for 8-inch posts. An eight inch rock base would support the concrete pad. Gazebos would be no taller than 15 feet. No trees would be removed for construction of the gazebos.



Figure 3. The Susan Creek Day-Use Area.

7. Utility Upgrades

Existing water and electric lines that run from private property on the north side of Highway 138 to the North Umpqua River would be upgraded to meet current codes. The lines cross a section of the proposed Emerald Trail.

The electric line could be buried or aerial. A licensed electrical contractor would be responsible for the design and construction of the electrical system. If buried, the line would be placed at least 18 inches deep. If it is not possible to bury the line at least 18 inches deep it may be covered with concrete. The concrete would be covered with dirt and made to blend in with the natural surroundings.

If aerial, up to three utility poles would be installed. The utility poles would be up to 25 feet high and designed to blend in with the natural surroundings. Switches, conductors and other metal parts would be coated to be non-reflective. Some trees may be de-limbed to facilitate placement of the line.

The majority of an existing irrigation water line between the river and Susan Creek Trailer Park is buried with the exception of the segment nearest the river leading to a submersible pump. If necessary the water line would be replaced and the entire line buried to a depth approved by an authorized BLM representative. No heavy equipment would operate off road nor would trees be removed for upgrade of either utility line.

8. Maintenance

Future maintenance of the proposed new facilities would be necessary as a result of normal use and natural disturbance. Maintenance of facilities located in the Susan Creek Day-Use Area (parking lot expansion and associated trails, gazebos and barbecue grills) is covered under the *Swiftwater Recreation Sites Programmatic Actions Environmental Assessment* (2003). The analysis in this environmental assessment covers maintenance of the proposed Emerald Trail and Tioga Bridge, including:

- routine trail maintenance such as brushing, graveling and moving or removing down trees;
- placement of new signs for interpretive information or to alert users to safety hazards;
- routine maintenance of new infrastructure such as bridges, culvert crossings, gazebos, and signs; and
- Removal of limbs, topping or felling of hazard trees.

Removal of hazard trees would follow guidelines from the U.S. Forest Service manual FPM-TP039-92 *Long-Range Planning for Developed Sites in the Pacific Northwest: the Context of Hazard Tree Management*. See Appendix A: *Detection and Correction of Hazard Trees on the Roseburg BLM District Recreation Sites* for a summary of those guidelines. As stated in Appendix A, in order for a tree to be considered a hazard it must have the potential to strike a target. The only targets in the area covered for maintenance by this environmental assessment are two bridges along the Emerald Trail and the Tioga Bridge itself. It is not possible to determine the exact number of hazard trees that would be removed either annually or over the lifetime of the facilities. However, given the small number of targets in the area, the BLM estimates that the number of hazard trees to be removed would average less than two per year.

Project Design Features

To minimize impacts water quality and quantity³:

1. Do not discharge contaminated or sediment-laden water, including drilling fluids and waste, or water contained within a work area isolation, directly into any waters of the State or U.S. until it has been satisfactorily treated (for example: bioswale, filter, settlement pond, pumping to vegetated upland location, bio-bags, dirt bags). Treatment shall meet the turbidity requirements below.
2. Do not cause turbidity in waters of the State or U.S. greater than 10 percent above background reading (up to 100 feet upstream of the Project), as measured 100 feet downstream of the project.
3. During construction, monitor in-stream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately meeting treatment requirements.
4. If construction discharge water is released using an outfall or diffuser port, do not exceed velocities more than four feet per second, and do not exceed an aperture size of one inch.
5. If monitoring or inspection shows that the erosion and sediment controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.
6. Implement containment measures adequate to prevent pollutants or construction and demolition materials, such as waste spoils, fuel or petroleum products, concrete cured less than 24 hours, concrete cure water, silt, welding slag and grindings, concrete saw cutting by-products and sandblasting abrasives, from entering waters of the state or U.S.
7. End-dumping of riprap within the waters of the state or U.S. is not allowed. Place riprap from above the bank line.

³ Implementation of several of the proposed actions would be carried out by the Oregon Department of Transportation (ODOT). As such, many of the water quality PDFs are standard stipulations used in ODOT contracts.

8. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
9. Treat and seal all prefabricated wood bridges off-site. Pentachlorophenol or similar water based treatment may be used if followed by an oil based sealant, such as Sickens Cetol, to prevent leaching of chemicals due to normal wear and precipitation.

To minimize impacts to soils:

10. Limit the season of operation for ground-disturbing activities by heavy equipment to the dry season to reduce the degree and area extent of soil impacts in riparian and upland areas. The dry season is generally from mid-May to late-October, or until the onset of regular autumn rains.
11. Scarify the top 10-12 inches of compacted soil in the access routes to help ameliorate soil compaction from equipment treads.
12. Where soil is disturbed or compacted, take appropriate measures to revegetate the area, control erosion and improve bank stability. This may include topsoil replacement, planting or seeding with native species, fertilization, liming, and weed-free mulching, as necessary.

To minimize impacts to Special Status species:

All Special Status species

13. Protect Special Status Species (Threatened or Endangered, proposed Threatened or Endangered, Candidate Threatened or Endangered, State listed, Bureau Sensitive, or Bureau Strategic) sites where needed to avoid listing of species and conserve candidate species, according to established management recommendations.

Wildlife Special Status species

14. If during implementation of the proposed action, any Special Status Species are found that were not discovered during pre-disturbance surveys; suspend operations and implement appropriate protective measures before resuming operations.
15. Apply seasonal disturbance restrictions to prohibit construction activities (including drilling and use of heavy equipment) during the nesting season of the northern spotted owl from March 1st – July 15th within 65 yards of unsurveyed suitable habitat; unless protocol surveys indicate: 1) spotted owls not detected, 2) spotted owls present, but not attempting to nest, or 3) spotted owls present, but nesting attempt has failed. Waiver of the seasonal restriction is valid until March 1st of the following year.
16. Apply seasonal disturbance restrictions to prohibit use of helicopters during the nesting season of the northern spotted owl from March 1st – July 15th within the appropriate disruption distance of unsurveyed suitable habitat or known activity centers. The disruption distance for Type I or Type II and Type III or Type IV helicopters are 440 yards and 220 yards, respectively, of the proposed project area. Implement seasonal restrictions unless protocol surveys indicate: 1) spotted owls not detected, 2) spotted owls present, but not attempting to nest, or 3) spotted owls present, but nesting attempt has failed. Waiver of the seasonal restriction is valid until March 1st of the following year.
17. Surveys for spotted owls are planned for completion in 2009 and 2010, contingent on funding and available personnel. If after two consecutive years of protocol surveys an owl activity center is not located within the disruption distances indicated (65-440 yards), seasonal restrictions for the proposed project implementation will not be required for the following consecutive two years. However, if new information becomes available (e.g.

incidental observation) after the two consecutive years of protocol surveys and owls are detected within or adjacent to the proposed project area, the waiver for seasonal restrictions will no longer be valid.

To prevent the introduction or spread of noxious weeds:

18. Before ground-disturbing activities (including staging of materials) begin, inventory for weed infestations. If weeds are present, pre-treat high risk sites for prevention of weed establishment and spread.
19. Locate and use weed-free project staging areas whenever possible.
20. Avoid or minimize all types of travel through weed-infested areas, or restrict travel to periods when the spread of seeds or propagules is least likely.
21. Clean all equipment before entering public lands. Clean all equipment before leaving the project site if operating in areas infested with weeds. Identify sites where equipment can be cleaned.
22. Use native seed or plants that are free of noxious and invasive weeds for re-vegetation, as determined and documented by a seed inspection test by a certified seed laboratory.
23. Monitor area for three consecutive years and provide control of newly established populations of noxious weeds and follow-up treatment for previously treated infestations.

To protect objects of cultural value:

24. The entire project area will be inventoried, using subsurface probing where appropriate, in order to define concentrations of cultural material. The discovered concentrations will be evaluated in order to determine which areas contain significant⁴ cultural deposits. Significant deposits will be mitigated using a variety of techniques, such as avoidance, filling, interpretation or data recovery.

To protect visual and scenic resources:

25. If necessary, plant native vegetative screening between the highway and the parking loop and within the loop itself, or anywhere else in the project area if need to reduce the visibility of facilities.
26. Construct all facilities using materials and a design such that they are unobtrusive and compatible with the natural scenic qualities of the area. All facilities shall:
 - a. be finished in muted tones appropriate to the natural surroundings,
 - b. have no reflective materials and have no bright colors,
 - c. use Cor-ten or self-weathering steel,
 - d. use rustic designs and native building materials whenever possible,
 - e. not exceed 30 feet in height, and
 - f. be designed and constructed that little or no soil is left exposed when construction is completed
27. Reduce earthwork contrasts by:
 - a. rounding slopes;
 - b. toning down freshly broken rock faces with gray paint;
 - c. shaping cuts and fills to appear as natural forms;
 - d. following existing grades;

⁴ 'Significant' in this context refers to cultural deposits that are likely to yield information important in prehistory or history and is defined in 36CFR60.4.

- e. designing them to take advantage of natural screening;
- f. protecting roots from damage during excavations in order to retain vegetation; and
- g. enhancing revegetation by mulching and seeding cleared areas, furrowing slopes, and replanting with native plant species.

To ensure the safety of visitors and workers in the project area:

- 28. Areas where ongoing construction and work may pose a hazard to visitors, or where the presence of visitors may pose a hazard to workers, may be closed for safety reasons at anytime. Closures may occur on Highway 138, at the Susan Creek Day-Use Area parking lot, at the North Umpqua Trail or at any other location within the project area.
- 29. If it is not deemed necessary to close an area or it is not possible, the area will be posted to alert visitors of work in the area and the presence of potential safety hazards.

Other:

- 30. The Tioga Bridge and the Emerald Trail would only be open to non-motorized traffic, with the exception of emergency vehicles or use approved by an authorized officer.
- 31. All bridges will be designed to withstand the weight of pedestrian, bicycle and horse traffic.
- 32. All excavated material may be used as fill at other locations in the project area for actions proposed in this environmental assessment.
- 33. If there is a need for more fill, material will be acquired and brought in from off-site.
- 34. Excess excavated material would become the property of the contractor and would be hauled offsite.
- 35. All trees felled within 180 feet of streams or the river will be left onsite.
- 36. For all other trees felled as a result of this project, if opportunities exist for use of large wood for placement in streams in the project area or elsewhere on the district, trees removed will be made available for that purpose. Instream restoration would be completed under separate NEPA documentation.
- 37. If trees felled for this project are not needed for instream placements, they may be left on site or made available for purchase. The decision to leave trees on site will be made on a case by case basis through coordination with area wildlife and fisheries specialists.
- 38. Removal of hazard trees will be coordinated with the area wildlife and fisheries biologists.

C. Alternatives Considered but Not Analyzed in Detail

Development of the 'Emerald Meadow'

The BLM considered developing a parking area, dump station, and host site at the Emerald Meadow (*Map 1: Vicinity*). This alternative was eliminated from further, detailed analysis because the BLM chose to limit the footprint of facilities to the location of the existing Susan Creek Day-Use Area at this time. This is due to the increased workload for maintenance staff that would be created by constructing a new parking area, restroom or other facilities at that site. If at a future date use of the day-use area increases to such a level that there is demand for more facilities, such as a campground or picnic area, development of the Emerald Meadow may be considered at that time.

Placement of the Tioga Bridge at Susan Creek Campground

The BLM considered placing the Tioga Bridge near the Susan Creek Campground to provide easier access to the North Umpqua Trail for campers. However, the North Umpqua River's Wild and Scenic River and Visual Resource Management designations require the BLM to consider impacts to scenery and visual resources that can be seen from both the North Umpqua River and the adjacent highway. Utilizing the existing bridge piers near the Susan Creek Day-Use Area would minimize the impacts to visual resources and provide considerable cost savings; therefore placement of the Tioga Bridge at Susan Creek Campground was eliminated from detailed analysis.

Directing RV's to the Susan Creek Falls Parking Lot

The BLM considered directing RV's and other large vehicles to the Susan Creek Falls parking lot rather than expanding the Susan Creek Day-Use Area parking lot to accommodate them. This alternative was eliminated from detailed analysis for the following reasons: 1) when full, the Susan Creek Falls parking lot does not have sufficient space for more than two large vehicles to maneuver, park or turn around; 2) the two Susan Creek Falls spots are intended to be used by visitors heading to Susan Creek Falls, not for Day-Use Area users or rafters with boat trailers; and 3) the Susan Creek Falls parking lot is across the highway from the Susan Creek Day-Use Area. Directing vehicles to a parking lot across the highway could lead to more people walking across the highway to reach the Day-Use Area and therefore pose a threat to public safety.

Expansion of the Susan Creek Day-Use Area Parking Lot to the West

The BLM considered expanding the Susan Creek Day-Use Area to the west, rather than to the east. This alternative was eliminated because expansion to the west would have required a more complex and costly engineering design due to the slope grade and contours in the area and removal of a larger number of trees.

Restoration of the Emerald Meadow

The BLM considered restoring the Emerald Meadow in conjunction with this project; however, at this time the BLM is not proposing to restore the meadow as that would preclude use of the site for other facilities or equipment staging for other area projects. The area would be used as a staging area for this project and therefore, with use of PDF #18, would be treated for weeds prior to project implementation. A decision to restore the Emerald Meadow and preclude its use for other purposes may be made in the future following completion of separate NEPA documentation.

Chapter Three – Affected Environment and Environmental Consequences

A. Outstandingly Remarkable Values of the North Umpqua Wild and Scenic River

1. Recreation

Affected Environment

The North Umpqua River corridor is a popular recreation destination with opportunities for white water rafting, hiking, fishing, mountain biking, camping and many other recreational activities. The area is close to the town of Roseburg, Oregon and is also on the way to several other popular recreation sites including Crater Lake National Park and Diamond Lake National Recreation Area. Additionally, several areas along the corridor have special administrative and congressional designations that attract recreation use; special designations are show in Table 6 below.

Table 6. Special recreation designations within or near the project area.

<i>Area</i>	<i>Designations</i>
Oregon State Highway 138	<ul style="list-style-type: none">• Rogue-Umpqua National Scenic Byway• Oregon State Scenic Byway• North Umpqua BLM Scenic Byway
North Umpqua River	<ul style="list-style-type: none">• Congressionally designated Wild and Scenic River – classified as Recreational• Oregon State Scenic Waterway
Tioga Segment of the North Umpqua Trail	<ul style="list-style-type: none">• BLM National Recreation Trail

Data on use of some recreation sites is collected annually by automated trail counters, river rangers, campground hosts, and observation of district recreation planners. Data from these sources is combined and estimates based on best professional judgment of area recreation planners are entered into the Recreation Management Information System (RMIS). Information on sites that do not have information entered in RMIS is based on observations and best professional judgment of area recreation planners. Descriptions of area recreation sites and current levels of use are shown in Table 7 below.

Table 7. Recreation sites within or near the project area.

<i>Site</i>	<i>Description</i>	<i>Average Visits Per Year</i>
<i>Within the Susan Creek Recreation Area</i>		
Susan Creek Campground	<ul style="list-style-type: none"> • 29 campsites for tents or trailers • Averages 83% occupancy during the summer recreation season 	11,340* (RMIS 2004-2008) (Approx. 5,500 of those visitors use a connecting trail to visit the day-use area)
Susan Creek Day-Use Area	<ul style="list-style-type: none"> • 17 parking spaces sized for passenger vehicles • Two flush toilets • Three picnics tables and barbecue grills 	7,930* (Not including the 5,500 users from the campground) (RMIS 2004-2008)
Raft Takeout/Launch	<ul style="list-style-type: none"> • 2 parking and/or loading spaces for boats trailers 	500*
Susan Creek Falls Trailhead	<ul style="list-style-type: none"> • Parking for eight passenger vehicles and 2 large vehicles • Single vault restroom 	8,180* (RMIS 2004-2008)
<i>Other</i>		
Tioga Segment of the North Umpqua Trail (Middle Portion)	<ul style="list-style-type: none"> • National Recreation Trail • Open to all non-motorized use 	800
Wright Creek Trailhead of the North Umpqua Trail	<ul style="list-style-type: none"> • U.S. Forest Service administered • Open to all non-motorized use 	Not available
Swiftwater Trailhead of the North Umpqua Trail	<ul style="list-style-type: none"> • National Recreation Trail • Open to all non-motorized use 	11,450* (RMIS 2004-2008)
Fly Fishing Holes	<ul style="list-style-type: none"> • Approximately three commonly used fishing holes on the North side of the North Umpqua River between the Day-Use Area and the Tioga Bridge Piers • Fly fishing-only area 	2,950*
<i>Total Visits Per Year</i>		Approximately 42,350 *Denotes use that was counted towards the total. Overlapping use was not counted.

The middle of the Tioga segment is currently underused due to its length and difficulty. Many recreationists are not willing or able to travel the eight miles to the middle of the segment in one day. Recreationists and local volunteers who maintain the trail have expressed a desire for access to the middle of the Tioga segment from across the river near the Susan Creek Day-Use Area. Search and rescue operations are activated an average of once a year to reach recreationists injured on this portion of the trail. When this happens, packing in equipment for emergency response or packing a patient out can be time consuming and challenging due to the limited access to this portion of the trail.

Due to nearly annual flooding, washouts and landslides, multiple repair projects are needed near the middle of the Tioga segment. Typically trail maintenance is completed annually for all Roseburg BLM managed trails; however, a backlog of maintenance projects has built up on the middle of the Tioga segment due to the complexity of access and a lack of funding. During high-water flows and winter storms, when blowdown, washouts, and landslides tend to be a problem on the trail, the only way to middle of the trail is by helicopter medivac.

Environmental Consequences

No Action Alternative

The Susan Creek Recreation Area would remain in its current condition and no or improved new recreation opportunities would be provided at the site at this time. Upgrades, maintenance and hazard tree removal may take place under the *Swiftwater Recreation Sites Programmatic Actions Environmental Assessment* (2003) or under other NEPA documentation. Annual visits to the recreation area would remain similar to past years' averages, although some increase could result from the anticipated population increases in Douglas County, Oregon⁵. Parking issues in the Susan Creek Day-Use Area and access challenges to the mid portion of the trail for emergencies and recreation maintenance crews would not be resolved at this time.

Action Alternative

The proposed actions would modify the Susan Creek Day-Use Area and the undeveloped western portion of the recreation area that includes the existing bridge piers for the Tioga Bridge and the proposed location of the Emerald Trail. The proposed actions would also modify a 1.65 mile section of the Tioga segment of the North Umpqua Trail. Impacts to recreation from individual project component as well as from the entire proposed action alternative are described below.

Geotechnical Drilling:

Geotechnical drilling for the Tioga Bridge may impact fisherman who fish in the North Umpqua River near the bridge piers. Several popular fishing holes located near the bridge piers may have the access to them closed for two to four days during drilling. Drilling at Susan Creek would occur outside of areas currently used for recreation and would be complete prior to construction of proposed the Emerald Trail thereby having no impacts on recreation.

Modification of the North Umpqua Trail:

Temporary impacts to recreation may result from the modification of the North Umpqua Trail. Modification may require temporary closure the North Umpqua Trail from the Swiftwater Trailhead. Closures would occur while temporary culverts are being placed or removed and during the times that heavy equipment is being walked to and from the south bridge pier. The closures would occur during the summer recreation season, but are anticipated to last only several hours to one day at a time and would provide for the safety of recreationists using the area.

⁵ The estimated growth rate is between 3 and 4 percent: <http://www.co.douglas.or.us/overview.asp>.

Construction of the Tioga Bridge:

Either option for construction of the Tioga Bridge would result in temporary impacts to recreationists during the construction period. Highway 138 may have full lane closures for up to two days during construction of the bridge. This may require recreationists heading east of the Tioga Bridge to take another route, potentially adding two to four hours to their drive. There may also be partial lane closures for up to two weeks that would cause traffic slowdowns through the project area.

With either construction option, tools or building materials in the vicinity of the river may pose an overhead threat to river users for up to three weeks during overwater work. Option B, the temporary work structure, could pose a hazard to boaters and would likely require closure of the area to fisherman. Although the river cannot be closed to whitewater floaters, access can be limited or eliminated on federal lands. Launch and takeout sites would be posted to warn users of the risks associated with floating in the construction zone. Passage near Susan Creek would not be permitted during placement and securing of the bridge pieces.

Once constructed, the Tioga Bridge would tie directly into the North Umpqua Trail bisecting the 16-mile Tioga segment. Construction of the bridge would provide access to the center of this long segment for maintenance operations, recreation users and emergency response personnel. The new access would:

- Increase the timeliness of repair of landslides or removal of down trees that cross the trail, reducing the number and duration of trail closures.
- Improve response time and ease of access for emergency response personnel thereby better providing for the safety of recreationists.
- Allow for easier access to improve general maintenance of the trail and therefore the overall quality of the recreation experience.
- Provide a new trailhead for day use which would increase the variety of recreation opportunities and further disperse recreation use in the area.

Additionally, the *North Umpqua River Management Plan* lists the following impacts to recreation that would result from construction of a pedestrian bridge at this location:

[...] 1) it would allow more people to hike point to point on this section of trail, 2) it would also allow people using the Susan Creek Campground and Picnic Area to cross the river and hike the North Umpqua Trail as a part of their Susan Creek recreation experience, and 3) it would provide fishing access for the south side of the river (p. 66).

Although fly-fishing access would be expanded to the south bank of the river, angler visits are not anticipated to increase and would continue to fluctuate as steelhead fish numbers vary. Fishermen in the area may be impacted by other recreationists crossing the bridge and accessing the North Umpqua Trail. Their presence may spook fish in fishing holes. Two to three parking slots along the wayside adjacent to the Tioga Bridge would be lost if the highway and guardrail were realigned as described in Option B (Figure 4).



Figure 4. Location of proposed highway realignment for construction of the Emerald Trail.

The Tioga Bridge may cause traffic and pedestrian congestion along the wayside, potentially creating a distraction for drivers.

As shown in Table 8, the BLM anticipates that construction of the Tioga Bridge and the connected Emerald Trail would lead to a 25% increase in use of area recreation facilities. However, this increase is not expected to be the result of an overall increase in recreation within the North Umpqua River Corridor. New facilities would draw users from other nearby recreation sites (specifically the Wright Creek and Swiftwater Trailheads of the North Umpqua Trail), further dispersing recreation use along the North Umpqua River corridor and reducing public congestion at the those locations. Part of the increase would be a result of visits from recreationists who are already driving the Rogue-Umpqua Scenic Byway on their way to other areas, such as Crater Lake. All estimates of use are based on the professional judgment of area recreation planners.

Construction of the Emerald Trail:

The western portion of the project area is currently undeveloped. Construction of the Emerald Trail would provide access to the proposed Tioga Bridge from the Susan Creek Day-Use Area. See Table 8 for the estimated use.

Expansion of the Susan Creek Day-Use Area Parking Lot:

Expansion of the Susan Creek Day-Use Area parking lot would occur during the dry season and would require a partial closure of the day-use parking area to recreationists for approximately six weeks during the peak summer recreation season. However, after construction is complete the expansion would better accommodate the existing levels of use and future increases that may result from the construction of the Tioga Bridge (Table 8). The increase in available parking for trailers would be expected to result in increased use of the Susan Creek Raft Launch/Takeout (Table 9).

Table 8. Estimated increase in use of area recreation sites resulting from construction of the Tioga Bridge and the Emerald Trail.

<i>Site</i>	<i>Estimated Use (Visits Per Year)</i>	<i>Increase (or Decrease) Over Existing Use</i>
Susan Creek Campground	11,340* (Approx. 5,500 of those visitors use a connecting trail to visit the day-use area)	0
Susan Creek Day-Use Area	15,930* (Not including the 5,500 users from the campground)	8000*
Raft Takeout/Launch	500*	0*
Susan Creek Falls Trail	8,180*	0*
Emerald Trail	8,000	8000
Tioga Bridge a. Use of bridge as viewpoint or to hike <1 mile in) b. Tioga Segment of the North Umpqua Trail (Middle Portion) ⁶	a. 3,550 b. 9,450	a. 3,550 b. 8,650
Highway 138 Parking (for use of the Tioga Bridge)	5000*	5000*
Swiftwater Trailhead of the North Umpqua Trail	9,000*	(-) 2,450*
Wright Creek Trailhead of the North Umpqua Trail	Not available	Use is expected to decrease ⁷
Fly Fishing Holes	2950 ⁸ *	0
Total Visits Per Year/Overall Percent Increase	52,900 *Denotes use that was counted towards the total. Overlapping use was not counted.	10,550 (25% Increase)

Table 9. Estimated increase in use of area recreation sites resulting from expansion of the Susan Creek Day-Use Area parking lot.

<i>Site</i>	<i>Estimated Use (Visits Per Year)</i>	<i>Percent Increase Over Existing Use</i>
<i>Within the Susan Creek Recreation Area</i>		
Raft Takeout/Launch	550	10%
All Other Sites	No change	No change

⁶ These users would be expected to access the Tioga segment via the Tioga Bridge.

⁷ Data on current use is not available; therefore the BLM cannot make a numeric estimate of the increase or decrease in use that may result from construction of the Tioga Bridge.

⁸ The level of use by fisherman is not expected to increase however some use may be shifted to the South side of the river. This shift is not represented in the numbers shown in Table 10.

Placement of Gazebos at the Susan Creek Day-Use Area:

During construction of the gazebos, recreationists using the Susan Creek Day-Use Area may notice the noise and construction; these impacts would be temporary. Once constructed, the gazebos would provide shelter for site users during inclement weather and on extremely hot, sunny days. They would also provide additional seating and grills that would accommodate more people at the Susan Creek Day-Use Area on a given day.

Utility Upgrades:

Utility upgrades may require closure of the proposed Emerald Trail (if constructed at the time) for several hours up to several days during the busy summer recreation season. The closure would provide for the safety of area recreationists.

Other Impacts to Recreation:

Although all proposed bridges would be designed to bear the weight of a horse, neither the proposed project nor the existing facilities are designed to attract or accommodate equestrian users. Horse use would not be encouraged or restricted unless safety, resource damage or user conflict issues were to arise. The presence of horses on the trail immediately adjacent to the highway could present a safety hazard to equestrians whose horses startle easily and any pedestrian users who may be in close proximity to those horses.

Traffic pulling off the highway and entering the highway would be expected to increase proportionally to the numbers of increased visitors, thus presenting additional congestion and safety concern on the highway.

All proposed facilities would be designed to meet accessible standards whenever possible. This could provide new handicapped accessible recreation opportunity along the North Umpqua River corridor. Once users cross the Tioga Bridge, approximately 1.65 miles of the North Umpqua Trail would be accessible.

Construction of additional facilities at the day-use area, including gazebos, the parking lot expansion, the Tioga Bridge and the Emerald Trail, would result in an increased workload for recreation maintenance crews.

2. Scenery (Visual Resources)

Affected Environment

The proposed action alternative lies entirely within the congressionally designated North Umpqua Wild and Scenic River Corridor. Scenic qualities of the River, as described in the North Umpqua River Management Plan (NURMP, p. 13), are:

[a] distinctive canyon landscape [...] generally characterized by the combination of clear, jade-green rushing water, vertical rock cliffs and spires within a mosaic of mountain meadows, geologic features and Douglas-fir/Western hemlock forests. Adding to the natural scenic quality of the North Umpqua Wild and Scenic Corridor [sic] are the locations of numerous prominent geologic features of columnar basalt, large basalt rock cliffs, [and] boulders and spires [...].

The BLM managed portion of the North Umpqua River is classified as recreational. As a result of this classification it is a Visual Resources Management (VRM) Class II. Class II direction is to manage lands for low levels of change to the characteristic landscape. Activities may be seen but should not attract the attention of the casual observer. Changes should repeat the basic elements of form, line, color, texture, and scale found in the predominant natural features of the characteristic landscape (ROD/RMP, p. 52).

The general management objectives outlined in the NURMP direct that all developments within the Corridor harmonize with the natural environment and meet Visual Quality Objectives (VQO) of retention. For retention, human activities must not be evident to the casual forest visitor (p.30). The North Umpqua River is also designated as an Oregon State Scenic Waterway. Conformance to management direction from the ROD/RMP and the NURMP ensures compliance with the Oregon State Scenic Waterway requirements.

Currently, travelers visiting the area (including motorists on the Rogue-Umpqua Scenic Byway Highway 138, floaters or anglers on the river, or hikers on the trails) can view certain man-made features of the Susan Creek Recreation Area depending upon their activity. Motorists on the roadway can observe the existing concrete piers for a very short time and a stretch of the Susan Creek Day-Use Area for approximately 0.1 mile. Hikers, bikers, and equestrians on the North Umpqua Trail may catch a glimpse of the piers while hikers and bikers on the Susan Creek Campground to Susan Creek Day-Use Area trail would pass through the Susan Creek Day-Use Area and view the current infrastructure (bathroom, picnic tables and parking lot) at that location. The view is dominated by the existing concrete piers for approximately one-third mile for floaters and anglers downriver and for approximately 0.1 miles looking upriver for anglers.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no effects to scenery and visual resources. Travelers to the area would still be able to see the existing concrete piers in the North Umpqua River and the facilities at the Susan Creek Day-Use Area, depending upon their location.

Action Alternative

Geotechnical Drilling:

Impacts to scenery and visual resources from geotechnical drilling would be temporary in nature, estimated to be 1-2 days in duration on each side of the river. Equipment would be visible to trail users, river users and motorists during drilling. Impacts to scenery from the temporary access road required for geotechnical drilling and construction of the Emerald Trail would be noticeable to users on the Emerald Trail (if constructed) due to the removal of vegetation for a 16-foot clearing width.

Modification of the North Umpqua Trail for Access:

A 1.65 mile section of the North Umpqua Trail would be utilized by construction vehicles for construction of the Tioga Bridge. All modifications made to the trail would be temporary in nature except for the construction of a 35 foot pedestrian bridge at stream crossing C (*Map 2: Proposed Action Area*). The new bridge would modify the scenery and visual resources for trail

users. Highway 138 motorists and rivers users would not be affected as these modifications would not be visible from either locale.

Tioga Bridge Construction:

With either option for placement of the bridge the use of large construction equipment and/or temporary work bridges would be evident to floaters and anglers, motorists on the highway and floaters on the river. However, impacts to scenery from the construction would be temporary limited to the three month bridge installation period.

Longer term impacts to scenery would result from the removal of trees and vegetation and from the bridge itself. Option A, staged construction from the north side of the river, would remove four trees, including three greater than 20 inches DBH. This would create small gaps that would be visible to Emerald Trail users and may be visible from the highway and the river. The gaps would slightly improve views of the river for motorists and Emerald Trail users. Option B, the temporary work bridge, would remove eight hardwoods less than 8 inches DBH creating a gap that may be visible from the North Umpqua Trail and the river.

The Tioga Bridge would be seen by the casual observer and has the potential to dominate the view and attract attention from several vantage points. However, the existing bridge piers already dominate the view and attract attention from those vantage points (Figure 5), so construction of the Tioga Bridge would not add to the number or extent of man-made facilities that dominate the view in the Wild and Scenic River Corridor. Use of project design features (PDFs) #25-27 (pp. 16-17) would ensure that the bridge blends in with the natural surroundings and conforms to the direction of the NURMP, the ROD/RMP. Depending upon the perspective of the user, the bridge could be seen as adding to the scenic qualities of the river.

The Tioga Bridge would have impacts on scenery and visual resources. The 270 foot wooden bridge would be visible to eastbound motorists on Highway 138 for less than 10 seconds and to westbound motorists for less than 5 seconds (assuming a traveling speed of 55 mph). Viewing times may be slightly longer during the fall and winter months when the leaves are absent from the hardwoods. Given the short period of time that the bridge would be in sight, it would attract the attention of motorists on Highway 138 but would not dominate their view. The bridge would have the potential to dominate the view for approximately one-third mile for floaters on the river and would have the potential to dominate the view for any anglers on the river for approximately one-third miles looking downriver and 0.1 miles looking upriver.

North Umpqua Trail users may catch a filtered glimpse of the bridge through the trees, more so in winter. Westbound Emerald Trail users would have the bridge in view for approximately 500' and it would have the potential to dominate their view. Additionally, the bridge would provide new vistas from which to view the scenery and visual resources of the Wild and Scenic River Corridor with longer and elevated sight distances.



Figure 5. Existing piers for the Tioga Bridge.

Expansion of the Susan Creek Day-Use Area Parking Lot:

Expansion of the existing parking area would impact scenery and visual resources as seen by roadway and Emerald Trail users by removing up to 89 trees, eight over 20 inches DBH. Removal of these trees would allow for travelers on Highway 138 to view parts of the parking area.

Construction of the Emerald Trail:

The trail would provide new opportunities to view the scenic qualities of the Corridor by creating vistas of the river that previously did not exist. There is a potential for river users to notice Emerald Trail users (and vice versa), but the trail itself would not be visible from the river. The four stream crossing, two bridges and two culverts, would be visible only to Emerald Trail users.

Visual impacts associated with the two options for trail construction would be slightly different. With Option A, the retaining wall would be visible to Emerald Trail users and very visible to river users as it would be constructed along the riverbank. Option B would remove approximately six conifers and seven hardwoods, all under 20 inches DBH. Removal of trees for either option would create small gaps that may be visible from the Emerald Trail, highway and river.

Placement of the Gazebos at the Susan Creek Day-Use Area:

The gazebos would be no higher than 15 feet so the tops may be visible from the bed or banks of the North Umpqua Wild and Scenic River or the North Umpqua Trail. The gazebos would not be visible from the highway but would be visible to users of the Susan Creek Day-Use Area and Emerald Trail.

Utility Upgrades:

With either option for the utility upgrades, the use of project design features would ensure that the design blends in with the natural surroundings and conform to objectives from the ROD/RMP and the NURMP. Use of PDFs #25-27 (pp.16-17) could mean that electrical boxes near the river are placed strategically so that river users would not see them or that electrical boxes, water pump and associated pipe be painted with muted colors so as to not attract attention. If electrical poles are installed they would be no taller than 25 feet and the poles, conductors,

lines and boxes would all be strategically placed and colored so that the casual trail user would not observe them. Although poles could be briefly observed by highway users, trail users and possibly river users, they would not dominate the landscape.

All Components:

For all components of the proposed action alternative, use of PDFs #25-27 (pp. 16-17) would minimize any potential long-term impacts to scenery ensure conformance with management direction from the NURMP and ROD/RMP.

3. Cultural Resources

Affected Environment

The area encompassed by the Tioga Bridge Project contains at least two archaeological sites, 35DO100 and 35DO458. Both sites have been evaluated in terms of National Register of Historic Places criteria and both have been determined eligible for listing because they possess information important in prehistory. An inventory of the newly acquired land is ongoing. Additional sites may be found, or the existing site boundaries may be altered, during the course of the inventory.

Environmental Consequences

No Action Alternative

Under this alternative the sites would continue to be affected by natural processes, such as erosion, bioturbation and weathering. Maintenance of the existing facilities would continue to affect the sites, especially 35DO458 at the Susan Creek Day-Use area. However, those actions would be mitigated on a project by project basis.

Action Alternative

Under the action alternative most of the components of the project have the potential to impact cultural resources. The modification of the North Umpqua Trail and the placement of the bridge on the piers have little potential for impacts. The remaining components, however, have a greater potential to affect resources because they would result in ground disturbance within known resources. The ground disturbance associated with geotechnical drilling at Susan Creek, expansion of the parking lot, construction of the Emerald Trail (with its attendant bridges and culverts), placement of the gazebos and utility upgrades could result in damage to and displacement of artifacts. The exact nature and magnitude of the impacts would not be known until the cultural survey is completed and all design work is finished.

As noted above in PDF# 24 (p. 16), cultural resources would be evaluated in relationship to the proposed impacts and would be appropriately mitigated. If necessary, a mitigation plan developed in consultation with the Oregon State Historic Preservation Office (SHPO) and interested tribes would be implemented prior to the beginning of construction. Mitigation measures would likely include excavation of artifacts in order to recover data and to minimize the loss of important information. Mitigation measures employed and any residual impacts

would be disclosed in the decision record(s). The SHPO has been notified of the proposed action and the mitigation plan developed during consultation would ensure compliance with Section 106 of the Nation Historic Preservation Act.

4. Water Quality and Quantity

Affected Environment

The North Umpqua River sustains a dependable flow of high quality water. Several components combine to produce the high water quality of the river, including: low turbidity (except during peak flow periods), low levels of contaminants and pollutants, cool water temperatures, and stable minimum in stream flows. The water quality and quantity of the North Umpqua River is the foundation for the other outstandingly remarkable values, such as fisheries and recreation. The North Umpqua River produces a steady flow sufficient for both recreational uses and the maintenance of fish and aquatic life (NURMP). Water quality data in the North Umpqua River has been collected by the United States Geological Survey (USGS) since 1998 at a continuous monitoring station downstream of the project area between Idlelyd Park and Rock Creek. The parameters of water temperature, pH, dissolved oxygen, specific conductance, and turbidity are collected. This data is available “real-time” at the following website:

http://waterdata.usgs.gov/or/nwis/uv?dd_cd=01%2C02%2C03%2C04%2C05&format=gif&period=7&site_no=14317450

Monitoring of the North Umpqua River over the last ten years has shown very little change in the measured parameters and the remarkably high water quality values have been maintained. Water Quality data from Susan Creek is limited, but temperature monitoring in 1999, 2002 and 2007 shows relatively cool temperatures compared to other streams of similar size in the Umpqua Basin.

Environmental Consequences

No Action Alternative

Under the No Action alternative, there would be no effect to water quality and quantity.

Action Alternative

Water Quantity

There is no mechanism for an impact to water quantity from any component of the proposed actions. As a result, existing water quantity in the North Umpqua River, Susan Creek, or any tributary would not change.

Water Quality

Expansion of Susan Creek Day-Use Area parking lot, placement of gazebos at the Day-Use Area, utility upgrades, and construction of the Emerald Trail tread (excluding stream crossings):

Each of these project elements is located on relatively flat terrain, away from defined stream channels, and bordered by adjacent areas with undisturbed vegetation, soil, and duff layers. As a result, no stream shade or future large woody material would be removed, no sediment-laden

runoff or petroleum products would reach the aquatic system, and no increases in storm flow runoff would occur. As discussed below, numerous studies on best management practice (BMP) effectiveness support this conclusion.

A study of timber harvest practices designed to control water quality impacts (Rashin et al, 2006) found that the proximity of ground disturbance to streams is an important factor controlling sediment delivery. In that study, when erosion features on hill slopes were farther than 10 meters from stream channels, sediment delivery is unlikely. Each of the project elements listed above is greater than 10 meters from a defined stream channel and is also located on flat ground – not hill slopes. The flat topography in the vicinity of these project elements would further lessen the risk of any aquatic impacts in stream channels within the project area.

The expansion of the Susan Creek Day-Use area parking lot and construction of trails would result in a total of approximately 0.86 additional acres of compacted surface spread across the entire project area. This is not likely to affect water quantity, as runoff from these compacted areas would be spread over a relatively long distance (such as along the trail) or would occur as sheet flow and be directed onto the surrounding forest floor (such as near the parking area), where it would quickly re-infiltrate into the soils and groundwater.

Although there are no specific infiltration BMPs tied to this project, the design of the proposed parking lot assures that runoff would infiltrate into the adjacent soils. Livingston (2000) found that infiltration practices can help to assure that characteristics of stormwater runoff (such as water volume, rate, timing, and pollutant load) after development closely approximate the conditions which occurred before development. That is because infiltration practices help to maintain pre-development site conditions and vegetative cover, thereby reducing stormwater volume and discharge rate, which further promotes infiltration and filtering of the runoff. The benefits of infiltration include reducing stormwater volume and peak runoff rate; recharging groundwater, which helps to replenish wetlands, creeks, rivers, lakes, and estuaries; augmenting base flow in streams, especially during low flow times; settling and filtering of pollutants as they move through the system's vegetation and surface soils; lowering the probability of downstream flooding, stream erosion, and sedimentation; and providing water for other beneficial uses. Considering the above information, the designs of these project components ensures that there is no mechanism for an impact to water quality or quantity.

Geotechnical Drilling:

At the Tioga bridge site, a maximum total of eight 8-inch diameter holes, up to 60 feet in depth, would be required for geotechnical exploration to determine appropriate bridge engineering needs. At the Susan Creek bridge site, a maximum total of eight 8-inch diameter holes up to 60 feet in depth would also be required. Based on hole diameter and maximum proposed depths, drilling of each hole could remove roughly 0.78 cubic yard of material. A maximum combined total of 12.5 cubic yards of material could be temporarily removed from these holes.

During the drilling operation, a slurry of water and bentonite (clay) would be used to lubricate drill heads and prevent overheating. To prevent this slurry from running off into surface waters and temporarily increasing turbidities, a temporary storage area would be constructed using sandbags and heavy gauge plastic sheeting. Following completion of drilling, the holes would be

filled and the remaining drilling slurry would be removed and disposed of offsite. Additionally, drilling would occur above the ordinary high water mark. Therefore, no increases in turbidity are anticipated as a result of geotechnical drilling activities.

To facilitate placement of small drilling equipment near each of the existing piers, or proposed new footing sites, small areas of vegetation clearing would be required. At each drill site, an area roughly 20 feet by 20 feet would be cleared of small trees and shrubs in order to place this equipment. No large conifers or shade-providing hardwoods would be removed during this clearing.

Modification of the North Umpqua Trail for Access:

Trail modification activities would result in vegetation removal and ground disturbance along a 1.65 mile segment of the North Umpqua Trail. Along this length, small trees and brush would be cleared to a width of 12 feet. Since this portion of the trail is located on a decommissioned road, only small trees and brush are present currently. Therefore, no over-story trees providing shade to streams would be removed. Small amounts of surface erosion are likely to occur on recently disturbed soils during the first fall rains. In the absence of a direct connection to a stream system, these sediments are unlikely to reach the aquatic system due to the filtering effect provided by the intact vegetation and duff layers adjacent to the trail (Rashin et al, 2006).

Three non-fish bearing, perennial streams would be crossed using temporary culverts and crushed rock fill. Existing wooden foot bridges would be temporarily removed, and then culverts and crushed rock would be placed on top of geotextile cloth placed along the channel bed. This cloth would facilitate easy removal of the crushed rock and culverts from the channels after all bridge construction activities are complete. During the work of culvert and gravel placement and removal it is likely that there would be small, temporary pulses of turbidity in these streams. Based upon the small volume of water in these streams during the summer months, the small footprint of the work proposed at each stream crossing, and field observations of similar work in the past, this turbidity pulse would likely persist for a maximum of approximately one hour. It is likely that some turbid waters from the tributary streams would also be evident in the North Umpqua River, near each tributary mouth. This temporary pulse of increased turbidity would dissipate quickly in the North Umpqua River, due to natural flow mixing combined with the large volume of water flowing in the river. Therefore, based on best professional judgment and experience, project related turbidity entering the North Umpqua River is expected to dissipate to non-measurable levels within approximately 100 meters.

Bridge Placements:

Placement of the Tioga Bridge, the Susan Creek Bridge, and the two bridges over smaller streams would each result in similar impacts. Each bridge would be placed on either concrete or pressure-treated wood footings. Placement and/or fabrication of these bridge footings would require excavation and removal of soils. These soils would be excavated by hand or by use of a small, tracked excavator. The spoils of this excavation would be used as fill elsewhere in the project area or be removed from the project area. This project design feature would prevent any measurable increase in turbidity near any of the proposed bridge crossings.

Chemical impacts to water quality would not be anticipated due to PDFs #1-8 (pp. 14-15) preventing green concrete spills and/or contact with flowing water. No pesticide treated wood used in bridge construction would be located within the wetted channel. PDF #9 for use of treated wood calls for fabrication offsite – resulting in no pesticide treated construction debris or sawdust entering flowing waters. In addition, all pesticide treated wood would be sealed with an approved sealant, preventing leaching of the pesticide into the waters below.

5. Fisheries

Affected Environment

Fish Populations:

Fisheries values, as described in the NURMP, include the combination of large summer run steelhead, fly-angling only restriction, and majestic scenery that has drawn anglers from all over the world. The river serves as needed habitat for a variety of resident and anadromous fish⁹ species including summer and winter steelhead, fall and spring Chinook salmon, and cutthroat trout, and is distinguished from other rivers by the large and consistent numbers of native (non-hatchery) fish in the run. The North Umpqua summer steelhead fishery is considered to be one of the most outstanding on the west coast (p. 11).

Within the boundaries of the Tioga Bridge project area, a wide variety of native anadromous and resident fish species are present. Table 10 below summarizes those fish species known to utilize habitat within the project area.

Table 10

Native Fish Found in the Tioga Bridge Project Area	
Anadromous Fish	Resident Fish
Fall Chinook Salmon	Coastal cutthroat trout
Spring Chinook salmon	Rainbow trout
Oregon Coast Coho salmon	Sculpin spp.
Winter and Summer steelhead trout	Dace spp
Coastal cutthroat trout	Redside shiner
Pacific Lamprey	Northern Pikeminnow
	Brook lamprey
	Largescale sucker

While most of these fish populations exhibit substantial variability in their populations from year to year, several species have shown consistent downtrends in their overall numbers throughout their range. Of particular importance, the Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) is currently listed as a Threatened species under the Endangered Species Act (ESA), and critical habitat for this species has been designated. The portions of Susan Creek and the North

⁹ Anadromous fish are born and reared in freshwater, migrate to the ocean to grow and mature, and then return to freshwater to reproduce.

Umpqua River within the project area are considered to be critical habitat for OC coho salmon. In addition, since both segments support coho salmon, they are considered Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act.

Other species in the Umpqua that have shown substantial and consistent population declines include the anadromous coastal cutthroat trout (*Oncorhynchus clarki*) and the Pacific lamprey (*Lampetra tridentata*). These fish have very similar habitat needs to the coho salmon, and are also found in the portions of Susan Creek and the North Umpqua River within the project area.

Fish Habitat:

Within the actions area footprint there are several intermittent and perennial streams. Of these streams, only Susan Creek and the North Umpqua River provide habitat for fish species. Approximately 600 feet of lower Susan Creek and roughly 4,000 feet of the North Umpqua River are within the project area.

The portion of the Susan Creek channel within the project area can be characterized as a relatively steep (4-5% gradient), high-energy segment. Stream substrates are dominated by cobble and small boulders, confirming the presence of relatively high water velocity and stream power during the winter and spring runoff months. Most of the habitat is characterized as fast moving riffles, with only a few small pools being present. Several pieces of large wood are present within the channel, but the majority of it has been pushed to the stream margins due to high flows. This stretch of Susan Creek does provide limited habitat for coho salmon. However, based on the relatively steep gradients, this reach of stream is likely more conducive to steelhead spawning and rearing (Burnett et al, 2007). The photos below are representative examples of aquatic habitat within this segment of Susan Creek.



Figure 6. Representative aquatic habitat in lower Susan Creek, upstream of proposed trail bridge crossing.



Figure 7. Representative aquatic habitat in lower Susan Creek, downstream of proposed trail bridge crossing.

One unique feature of Susan Creek where it joins the North Umpqua River is the presence of a relatively stable alcove pool (Figure 8) that has formed on a cobble bar adjacent to the North Umpqua River. This alcove is roughly 50 feet long by 30 feet wide, with a maximum depth of around 5 feet. Based on relatively large numbers of fish that area fisheries biologists have observed there in the Fall and Spring, this pool appears to be very important rearing habitat for juvenile Chinook and coho salmon during certain times of the year.



Figure 8. Stable alcove pool near the mouth of Susan Creek

The segment of the North Umpqua River located within the project area is typical of the habitat seen along the length of this Wild and Scenic River. The habitat is relatively stable in amount and location from year to year due to the presence of hard bedrock stream banks. These banks are extremely resistant to erosion, and do not allow the river channel to move around dramatically from year to year. While there is a consistent source of large trees in the forested stands adjacent to the river, there are relatively few pieces of large wood within the stream channel. This is a result of high stream energy, and a river system large enough to wash most large wood downstream and out of the system.

Based on the limited presence of gravel bars in the area, it is unlikely this portion of the river supports large amounts of salmon or steelhead spawning. The presence of consistently clear and cold water during the summer months, combined with large, deep pools, riffles, and runs, however, make it highly likely that this area is heavily used for rearing by juvenile steelhead and spring Chinook salmon, as well as adult cutthroat trout. In his Master's thesis, Dambacher (1991) documented a unique steelhead trait in the North Umpqua River – juveniles will actually migrate down into the main stem North Umpqua to rear, rather than remaining in the tributary streams where they hatched. This is likely an adaptation to take advantage of the high water quality and excellent habitat conditions in this river (as mentioned above). Similarly, this same high quality habitat is responsible for the presence of Spring Chinook, which are typically found in larger river systems with clear and cold water throughout the summer months.

A small number of juvenile coho salmon and juvenile cutthroat trout may also rear in this portion of the main stem, but these fish tend to favor small stream habitats with an abundance of woody material (Rosenfeld *et al.* 2000). The photos below represent typical habitat conditions in the North Umpqua River within the project area.



Environmental Consequences

No Action Alternative

Under the No Action alternative, there would be no effects to fish habitat or fish populations from construction of the proposed facilities. Fish populations would continue to exhibit natural variability from year to year.

Action Alternative

Several components of the proposed action do not have a mechanism for an aquatic impact. These components are: the expansion of Susan Creek Day-Use Area parking lot, the placement of gazebos at the Susan Creek Day-Use Area, utility upgrades, and the construction of the Emerald Trail tread (excluding stream crossings). As described in *Water Quality and Quantity*, each of these project elements is located on relatively flat terrain, away from streams, and bordered by adjacent areas with undisturbed soil and duff layers. As a result, no fish would be physically disturbed, no stream shade or future large woody material would be removed, and no sediment-laden runoff or petroleum products would reach the aquatic system. Therefore, these elements will not be discussed further.

Fish Populations:

When operating heavy machinery in close proximity to fish-bearing streams, there is the potential for fish disturbance due to vibrations and equipment movement. Drilling activities near the North Umpqua River would be located approximately 60-80 feet away from the wetted channel edge. In Susan Creek, drilling actions would be located roughly 20 feet away from the wetted channel edge, and on a flat terrace area. Therefore, drilling activities at both sites would be located well outside the normal high water mark for each stream. Based on the best professional judgment of district fisheries biologists, these activities would also be outside of the distance where vibrations or visual stimulus would result in a fish startle response. Based on the small extent of the geotechnical drilling (4 holes at each bridge location), the short duration of the activity (less than 1 day), and the lack of immediate proximity to each respective stream channel (distances ranging from 20-80 feet away) – no fish disturbance or avoidance of the areas is anticipated as a result of this activity.

Juvenile salmonids could be disturbed as a result of heavy equipment operations in close proximity to the North Umpqua River during placement of temporary work bridges extending out from both banks. Subsequent project activities taking place from the temporary work bridges could also result in episodic fish disturbance. Based on best professional judgment and past experience of district fisheries biologists, all potential disturbance is likely to be temporary, and would not result in any measurable impacts to fish present within the project area. This is primarily due to the fact that fish have the ability to move away from any potential stressors, and then move back into the area once project work is completed.

Newly provided access to the south side of the river may result in increased fishing pressure for steelhead and trout along a 3 to 5 mile stretch in both upstream and downstream directions, as anglers take advantage of formerly inaccessible fishing areas. The new access is not likely to

draw additional anglers, but would serve to disperse those anglers already present in the area. Therefore, it is not likely that this new access would result in a net increase in fishing pressure on the North Umpqua River.

In addition, any potential impacts to physical habitat are likely to be small and temporary in nature (see below). Therefore, no measurable impacts on fish populations are predicted as a result of the proposed actions.

Fish Habitat:

Placement of base gravels and concrete block footings for use with temporary work bridges would result in localized decreases in fish habitat availability and increases in flow velocities. These changes would persist for the majority of the summer in-stream work season, but would be removed upon completion of the Tioga Bridge project. Removal of the concrete block footings and base gravels would return each respective area to its original condition. Existing channel substrates in these areas are bedrock dominated, and would not be permanently influenced by the proposed actions.

Chemical impacts to water quality would not be anticipated due to use of PDF# 6 (p. 14) preventing green concrete spills and/or contact with flowing water, and requiring refueling of motorized equipment on the paved roadway. No pesticide treated wood used in bridge construction would be located within the wetted channel. In addition, PDFs for use of treated wood call for fabrication offsite – resulting in no pesticide treated construction debris or sawdust entering flowing waters. Additional PDF's call for pesticide treated wood would be sealed with an approved sealant, preventing leaching of the pesticide into the waters below. Therefore, chemical impacts to aquatic habitat resulting from pesticide treated wood are not anticipated due to the PDF's discussed above.

As mentioned in the water quality section, no over-story trees providing shade to streams would be removed by any of the project elements. In addition, since only a small portion of the smaller understory trees would be removed within proximity to fish bearing streams, no measureable reduction in existing or future large wood recruitment is anticipated. Any trees cut within 180 feet of streams or the river would be felled and left on site (PDF# 35, p. 17), maintaining the riparian down wood component.

As seen adjacent to most ground disturbing activities, there is the potential for slight increases in turbidity during the first fall rainstorms of the year, resulting from surface erosion on recently disturbed soils. Areas of recent ground disturbance may be present near equipment access roads, and newly constructed bridge pads. This potential would be minimized or eliminated through use of PDFs requiring seeding and mulching of any areas with disturbed soils. In addition, any potential increase in turbidity would be relatively small – based on the small areas where soil disturbance would occur (approximately 38,000 square ft total). For those project elements located on relatively flat ground and lacking a direct connection to a stream system, these sediments are unlikely to reach the aquatic system due to the filtering effect provided by the intact vegetation and duff layers adjacent to the activity area (Rashin et al, 2006).

If sediment-laden waters did enter the North Umpqua River or other small streams, these pulses would be transitory in nature due to the steep channel gradients and/or high water velocities that would transport and disperse this material downstream.

Both alternatives would result in the same outcome for fish and fish habitat within the project area – and both would be consistent with the Desired Future Condition for fish and fish habitat listed in the North Umpqua River Management Plan, stated as:

Existing fish resting, rearing and spawning habitat will not be further degraded as a result of human activities. Habitat quality will improve in the North Umpqua River and its tributaries as previously disturbed riparian areas revegetate, and as new land management practices afford better protection for these areas in the future. Fish habitat restoration measures will speed this process. Sufficient habitat will be provided, both in terms of quality and quantity, to achieve the ODF&W objectives as contained in the North Umpqua Fish Management Plan.

The future condition of the North Umpqua River and its tributaries will be one in which abundant high quality habitat will be capable of supporting healthy anadromous and resident fish populations (p. 14).

B. Wildlife

Northern Spotted Owl

Affected Environment

The proposed actions would occur within a stand of approximately 34 acres of suitable habitat for the northern spotted owl. Suitable habitat for the spotted owl is used for nesting, roosting and foraging. Suitable habitat also functions as dispersal habitat, but these terms are used separately. Generally, suitable habitat is 80 years of age or older, contains large-diameter trees and snags with nesting structure, is multi-storied, and has sufficient vertical and horizontal cover to provide opportunities for nesting, roosting and foraging. The canopy closure generally exceeds 60 percent (USDI BLM 2009).

Protocol surveys for spotted owls have not been completed within two miles of the project area since the early 1990's. Therefore, it is unknown if spotted owls are currently nesting within or adjacent to the proposed project area. Based on location of historic nest sites, proximity of the stand of suitable habitat- located between Highway 138 and the North Umpqua River, and the ongoing recreational use within the area, spotted owls are not expected to nest within the 34 acres of suitable habitat; however, owls would be expected to use the habitat for foraging and roosting opportunities. Because current data is not available, this habitat analysis is based on data for historic spotted owl activity centers.

- a) *Home Range* – The home range for northern spotted owls in the Cascades Province is a 1.2 mile-radius circle (2,895 acres) surrounding an activity center (e.g. nest site) and is used by spotted owls to obtain cover, food, mates, and to care for their young. The home ranges of several owl pairs may overlap and the habitat within them is commonly shared between adjacent owl pairs and by other dispersing owls. These areas are important for

the survival and productivity of spotted owls because owls are non-migratory birds that remain in their home ranges year-round.

The entire project area is located within the 1.2 mile home range of two historic known spotted owl activity centers, Smith Springs (IDNO 2287O) and South Susan (IDNO 4018O). The closest known spotted owl activity center, South Susan is located approximately 780 yards (0.4 miles) south-southwest of the proposed project area. The Smith Springs activity center is located approximately 1,240 yards (0.7 miles) west-northwest from the proposed project area.

- b) *Core Area* – The core area is a 0.5 mile-radius circle (502 acres) used to describe the area most heavily used by spotted owls during the nesting season (USDI *et al.* 2008). Core areas represent areas defended by territorial spotted owls and generally do not overlap the core areas of other spotted owl pairs. The project area encompasses approximately nine acres of the South Susan core area.
- c) *Nest Patch* – Within the core area, the nest patch is defined as the 300 meter-radius circle (70 acres) around a known spotted owl activity center (USDI *et al.* 2008). Activities within this area are considered likely to affect the reproductive success of nesting spotted owls and are used in determination of incidental take. The project area does not include the nest patch for either of the two historic owl activity centers.
- d) *Critical Habitat* is a specific geographical area designated by the USFWS as containing habitat essential for the conservation of a Threatened or Endangered species. The entire project area is located within Critical Habitat Unit OR-27 for the northern spotted owl, as designated in the 1992 final rule.

Environmental Consequences

No Action Alternative

Habitat:

Under the no action alternative, approximately 34 acres of suitable nesting, roosting, and foraging habitat for the northern spotted owl would remain in its current condition. Of the 34 acres, approximately 0.37 acres would not be developed within the Susan Creek Day-Use Area and the suitable habitat components would not be removed and foraging opportunities would remain at its current level for the northern spotted owl.

Disturbance:

Recreational use within the Susan Creek Day-Use Area within approximately three acres of suitable habitat would also remain at current levels into the foreseeable future; averaging approximately 13,500 visits per year (see *Recreation*, pp. 19-25). In addition, the Emerald Trail would not be developed, thus disturbance within the remaining 31 acres of suitable habitat would remain at current levels. Thus, disturbance threats to the spotted owl would not be expected to increase measurably beyond current levels within the 34 acres of suitable habitat.

Action Alternative

Habitat:

All components of the proposed action, excluding the geotechnical drilling, would require the removal of hardwoods and conifers within suitable habitat for the spotted owl. The project proposes to remove approximately 125 live trees, including conifers and hardwoods up to 28 inches diameter at breast height. Approximately 36 of the 125 trees to be removed would be primarily on the west end of the proposed project area, with the remaining trees to be removed for the parking lot expansion within the Susan Creek Day-Use Area. The largest trees proposed to be removed in the parking lot expansion include seven Douglas-fir ranging between 20 and 22 inches DBH and one 28 inch incense cedar. The trees proposed for removal do not currently contain suitable structures to support nesting spotted owls. Thus, the removal of these trees is not expected to modify the suitability of the habitat as these trees do not contain characteristics likely to support nesting spotted owls.

The expansion of the Susan Creek Day-Use area parking lot would reduce spotted owl nesting, roosting, and foraging opportunities by permanently removing suitable habitat components (i.e. canopy cover, shrubs, small snags, and downed wood) on approximately 0.37 acres (0.1 percent of 34 acres) of suitable habitat. These habitat components provide natal and foraging habitat, as well as cover for spotted owl prey. While there would be reduced roosting, foraging, and nesting opportunities on 0.37 acres of suitable habitat, it would not affect overall stand age or affect the ability of the stand to function as suitable habitat.

Future hazard trees targeting either of the two bridges on the Emerald Trail or the Tioga Bridge would be removed on an as-needed basis. Hazard trees would be felled and may be left on site as downed wood on a case by case basis. To mitigate noise disturbance during the critical nesting season (March 1 through July 15) for the northern spotted owl, the removal of a hazard tree would require a seasonal restriction. If the removal of hazard trees needs to occur during the critical nesting season, emergency consultation would be initiated with the U.S. Fish and Wildlife Service.

The project would cause a negligible loss of suitable habitat (<0.03 percent) within each of the home ranges of the two historic owl activity centers. Approximately nine acres of the core area for the South Susan owl activity center is included within the proposed project area. However, the parking lot expansion is located outside of the core area; thus, there would be no loss of habitat within the core area. The placement of three gazebos would occur within the core area in the existing Susan Creek Day-Use Area. Habitat components would not be removed for the construction of the gazebos, thus there would be negligible impacts to suitable habitat.

Table 11. Northern Spotted Owl Habitat within the proposed project area.

Northern Spotted Owl Site (IDNO)		Federal Land (acres)	Habitat on Federal Lands Only (acres)			
			Suitable Habitat		Dispersal-Only Habitat	
			Current Condition	Habitat Modified* through Proposed Action	Current Condition	Habitat Modified* through Proposed Action
Smith Springs (22870)	Home Range (2,895 acres)	1,372	1,105	0.37	1,292	0
	Core Area (502 acres)	333	253	0	59	0
	Nest Patch (70 acres)	69	58	0	11	0
South Susan (40180)	Home Range (2,895 acres)	1,819	1,438	0.37	1,738	0
	Core Area (502 acres)	490	369	0	69	0
	Nest Patch (70 acres)	70	60	0	7	0

* Under the Proposed Action, suitable habitat would have a reduction in quality; however, it would maintain its function.

Disturbance:

Because the proposed project would occur within unsurveyed suitable habitat for the northern spotted owl and suitable habitat would be modified, seasonal restrictions would be required during the implementation of the proposed action from March 1 through September 30 (PDFs# 15 and 16, p. 15). However, two years of protocol surveys are planned to be completed in 2009 and 2010. If after two consecutive years of protocol surveys an owl activity center is not located within the disruption distances indicated (65-440 yards dependent on type of disturbance), seasonal restrictions for the proposed project implementation would not be required for the following consecutive two years. However, if new information becomes available (e.g. incidental observation) after the two consecutive years of protocol surveys and owls are detected within or adjacent to the proposed project area, the waiver for seasonal restrictions would no longer be valid.

After the implementation of the proposed actions, recreational use within 34 acres of suitable habitat is expected to increase, thus increasing disturbance and predation risks to spotted owls that may utilize the stand of suitable habitat. With the improvements and accommodations provided in the 34 acres of suitable habitat, the estimated use may reach approximately 22,000 visits per year (Susan Creek Day-Use area, raft launch site and the Emerald Trail). The primary increase of activity is expected along the Emerald Trail (0.83 miles) within the stand, which may include hikers, dogs, equestrians, mountain bikes, and emergency or maintenance motor vehicles. Thus, noise and visual disturbance threats to the spotted owl would be expected to increase, specifically within the 31 acres of suitable habitat on the west end of the project area where no recreational facilities currently exist; this would include the proposed Emerald Trail and a 65 yard disruption buffer along either side of the trail segment.

In addition, an increase in human activity within the stand is expected to increase predation risks to spotted owls. Human development often favors species (e.g. corvid species) adapted to

human conditions with subsequent negative effects, including increased rates of nest predation on sensitive species (Marzluff and Neatherlin 2006). Additional studies have found increased numbers of nest predators, including small mammals and American crows in campgrounds and other recreation areas. The primary reason cited for the increased predator densities in these other studies was supplemental food left behind by campers (US Forest Service 2004). Thus, an increase of human activity is expected to increase the presence of corvid species (i.e. ravens, crows, and jays) and small mammals (e.g. raccoon and opossum) within the stand, which could increase predation risks to eggs or young chicks of nesting spotted owls within the area.

After construction of the Tioga Bridge and the Emerald Trail, disturbance would be expected to increase within nine acres of habitat at the northwest edge of the South Susan spotted owl core area. Predation risks associated with increase of human activity within the core area is also expected due to the potential increase of corvid species scavenging for supplemental food items left by recreationists. Because the North Umpqua River would impede access of most small mammal predators originating from the Susan Creek Day-Use Area, predation threats to the spotted owl would not be expected to substantially increase within 95 percent of the core area (located on the south side of the North Umpqua River).

The stand is not currently expected to support nesting spotted owls. With the increased activity it would not be expected to them in the future. However, it may continue to provide roosting, foraging, and dispersal opportunities during times of low recreational use.

Bureau Special Status Species

Affected Environment

The proposed actions would occur within approximately 34 acres of structurally complex forest habitat directly impacting less than one acre of forest habitat along approximately a 0.4 mile segment of the North Umpqua River. Bureau Sensitive Species suspected to occur within the project area and that may be affected by the proposed actions, as well as other Bureau Sensitive and Bureau Strategic Species suspected to occur on the Roseburg District BLM but outside of the project area, are addressed briefly in *Appendix B: Bureau Sensitive & Bureau Strategic Wildlife Species*.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, no suitable habitat or habitat features for BLM Special Status Species would be affected. Species within or adjacent to the project area would be expected to persist at their current levels. In addition, disturbance levels due to human activity would be expected to remain at or near current levels. As stated in the *Recreation* section of this chapter, use may increase some as the population of Douglas County increases.

Proposed Action Alternative

Habitat:

The parking lot expansion portion of the Proposed Action Alternative, would permanently remove live conifer trees up to 22 inches DBH and other habitat components (i.e. canopy cover, shrubs, snags less than 20 inches DBH, and downed wood) on approximately 0.37 acres (0.1 percent of 34 acres) of structurally complex forest habitat. In addition, up to 35 small diameter trees (< 20 inches DBH) and one 28 inch incense cedar would be removed due to proposed construction activities on the west end of the stand. Removal of these components would not affect overall stand age or affect the ability of the stand to continue to function as suitable habitat for fishers and other species associated with older forests. Impacts to stream and river habitat for yellow-legged frogs, western pond turtles, and harlequin ducks would be immeasurable due to mitigations in place to address hydrological and fisheries issues.

Disturbance:

The proposed actions would increase human activity within the stand and along the river corridor during implementation of the project. After the implementation of the proposed actions, recreational use within 34 acres of suitable habitat is expected to increase, thus increasing disturbance to Special Status Species that may utilize the stand or its adjacent habitat. The Emerald Trail would parallel the North Umpqua River for approximately 0.4 miles, and therefore the primary disturbance increase is expected along the new trail segment where recreational facilities currently do not exist. Increase of human activity may cause some species, including fishers (US Forest Service 1994), harlequin ducks (Wallen 1987), and bald eagles (Grubb and King 1991) to alter their behavior or avoid the use of the stand or the portion of the river corridor that parallels the trail during high-use periods of human activity. Because bald eagles are most easily disturbed during foraging activities (Grubb and King 1991), foraging opportunities for bald eagles would also be expected to decrease along the North Umpqua River due to the placement of the Tioga Bridge and disturbance associated with use of the bridge.

C. Botany

Affected Environment

Field surveys for special status botanical species were conducted in the spring and summer of 2009 to comply with Departmental Manual 6840 directives and the Special Status Plant program.

Federally Listed Species

The project is within the known range of federally threatened Kincaid's Lupine (*Lupinus sulphureus ssp. Kincaidii*). Habitat for Kincaid's Lupine occurs in the project area. The project area is also within the known range of the federally endangered popcorn flower (*Plagiobothrys hirtus*); however, habitat for the popcorn flower is not present.

No Federally listed plant species were detected within the project area during surveys (*Appendix C: Botany Summary*).

Bureau Special Status Species

A population of *Dermatocarpon meiophyllizum*, a State Director's Sensitive Species, was located on the north bank of the North Umpqua River at the high water line. *Scouleria emarginata*, a State Directors Strategic list species was located on the north bank of the North Umpqua River at the high water line.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, the known populations of *Dermatocarpon meiophyllizum* and *Scouleria emarginata* would likely continue to colonize the available habitat.

Action Alternative

The effects to the known *Dermatocarpon meiophyllizum* and *Scouleria emarginata* populations would be minimal. These are compact populations that occupy an area less than 3 feet square. The populations are not within areas of proposed construction or ground disturbance. Increased foot traffic to the site would bring more people to the area and may increase off-trail use which could impact the site.

D. Issues Considered but Not Analyzed in Detail

The following issues were considered by the interdisciplinary team during the planning process, but were not considered to be related to potentially significant environmental impacts. Issues that do not have the potential to be significant would not help to guide the decision maker; therefore these issues were eliminated from further, detailed analysis.

Impacts to Soils

Impacts to soils (such as displacement and compaction) would be limited to localized areas, including: the geotechnical drilling sites; the excavation and filling for the foot bridge footings and the placement of culverts on the Emerald Trail; and the placement and removal of temporary culverts along North Umpqua Trail access route. The North Umpqua Trail access route would be located on an old roadbed, so impacts to soils would be minimal. The temporary access road to the Susan Creek foot bridge could also produce some soil compaction and displacement from the heavy drill equipment, dump truck and other equipment used to install the foot bridge.

Use of PDFs# 10-12 (p. 15) would reduce the degree and area extent of soil disturbance, displacement and compaction in the riparian and upland areas. Limiting the operation of heavy equipment to when the soils are drier reduces the amount and degree of soil compaction and displacement, since the soils have more strength to resist compaction and displacement at lower moisture levels. Designating the equipment access routes ahead of time allows for the best location to meet access needs, while reducing the area extent of impacts to soils. If needed, the surface soil (top 10-12 inches) in compacted tread areas from heavy equipment would be loosened (scarified) to help break up compacted soil. Applying mulch in exposed soil areas and/or planting vegetation or seeding would allow ground cover and vegetation to become established in the fall and winter season, to reduce any potential soil erosion. Use of the PDFs

would minimize the degree and area extent of impacts to soils, therefore this issue was not carried forward for detailed analysis.

Introduction or Spread of Noxious Weeds

A Noxious Weed Risk Assessment was developed for the project area according to BLM Manual 9015 *Integrated Weed Management* (1992). This assessment identifies the risk of an action spreading or introducing noxious weeds on the site. The assessment determined a moderate risk that weed populations increase with the disturbance from the project. However, use of PDFs# 18-23 (p. 16), such as “*before ground-disturbing activities begin, inventory for weed [infestations, if] weeds are present, pre-treat high risk sites for prevention of weed establishment and spread*”, would prevent the establishment of new weed species and reduce the opportunities for the existing populations to spread into other areas of the park. Over time, the use of the PDFs would be expected to control or eliminate noxious weed populations in the project area. In addition, the project site would be monitored for the next 3 years to determine the effectiveness of weed eradication measures. The extended outlook for the project area is for a decrease in weed populations; therefore this issue does not have potentially significant impacts and will be eliminated from further analysis.

Impacts to Air Resources Resulting from Expansion of the Susan Creek Day-Use Area Parking Lot

The BLM considered potential impacts to air resource resulting from expansion of the parking lot to accommodate large vehicles, such as trucks pulling trailers and recreation vehicles. As stated in the recreation section of this chapter (pp. 19-25), it is anticipated that the addition of parking spaces and a turnaround for large vehicles in a parking lot that does not currently have either would result in an increase in the use of the parking lot by large vehicles. This increase is expected to result from recreation vehicle-users en-route to other recreation destinations, such as the Susan Creek Campground, Crater Lake or Diamond Lake, stopping for a day hike or viewpoint or from rafters parking trucks with boat trailers at the Susan Creek Day-Use Area lot instead of at the nearby raft launch site. The Swiftwater Field Office does not anticipate that this site would become a destination for recreation vehicle users, the parking lot expansion would be located in a day-use area where no overnight camping is allowed. There is no evidence of a causal link between the parking lot expansion and increased vehicle.

Removal of trees and the paving of the parking lot expansion area would not measurably reduce carbon storage potential at the project site. Analysis of carbon storage typically relies on regional average values (USDI BLM 2008, p. 540) and there is no effective method to quantify these impacts at the scale of this project.

Due to the small degree of impacts and the lack of conclusive evidence linking parking lot expansion to increased carbon emissions or decreased carbon storage, impacts to air resources were not carried forward for detailed analysis.

Chapter Four – Contacts, Consultations, and Preparers

A. Agencies, Organizations, and Persons Consulted

The Agency is required by law to consult with certain federal and state agencies (40 CFR 1502.25).

Threatened and Endangered (T&E) Species Section 7 Consultation

The Endangered Species Act of 1973 (ESA) requires consultation to ensure that any action that an Agency authorizes, funds or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat.

U.S. Fish & Wildlife Service

Project specific consultation for the northern spotted owl is in process with the U.S. Fish & Wildlife Service at this time. Once consultation has been completed, the results will be disclosed in the project specific decision document and Finding of No Significant Impact (FONSI).

NOAA Fisheries Service

The District fisheries staff has determined that the only component of this project that would have a mechanism for an effect on Oregon Coast coho salmon is construction of the Tioga Bridge. All other components of the proposed action alternative would have no direct effects on Oregon Coast coho salmon and would not adversely modify its designated critical or essential habitat. In addition, the project design features would ensure that no indirect effects to Oregon Coast coho salmon or their habitat would occur. Therefore, those actions would not have an effect on Oregon Coast coho salmon or its habitat and further consultation with the NOAA Fisheries Service is not required.

Construction of the Tioga Bridge will require a U.S. Army Corp of Engineers Section 404 in-water work permit; therefore, consultation requirements for this component have been met under the *Standard Local Operating Procedures for Endangered Species (SLOPES IV Restoration)* (USDC NMFS 2008).

Cultural Resource Section 106 Compliance

Surveys for cultural resources are ongoing. As described in Chapter Three, compliance with Section 106 of the Nation Historic Preservation Act under the guidance of the 1997 National Programmatic Agreement¹⁰ and the 1998 Oregon SHPO Protocols will be documented for the proposed action(s). Results of surveys and documentation of compliance will be disclosed in the decision record(s) and finding of no significant impacts.

¹⁰ An agreement among the BLM, the Advisory Council on Historic Preservations and the National Conference of State Historic Preservation Officers regarding the manner in which BLM will meet its responsibilities under the National Historic Preservation Act.

Cooperating Agencies

The Federal Highway Administration would provide partial funding for the proposed action and therefore has participated as a cooperating agency in preparation of this environmental assessment. The Oregon Department of Transportation has also participated by providing technical expertise for preparation of this assessment.

B. Public Notification

Public Meeting

A public meeting was held at the Roseburg District Office on January 28, 2009 to notify the public of the proposed project. The general public was notified via a newspaper announcement. Letters of invitation were mailed to 41 adjacent landowners, registered water-rights users within one mile downstream of the project area, tribal governments, and interested members of the general public. The public meeting initiated a 30-day scoping period which ended on February 28, 2009. Eight comment letters were received regarding the general design and environmental impacts of this project. Substantive comments were considered in the design of the proposed action and in the analysis of environmental consequences.

Roseburg District Planning Updates

The general public was notified via the *Roseburg District Planning Updates* (beginning in the Spring 2009 update) which were published on the Roseburg District BLM Internet website. Electronic notification of the availability of the Roseburg District Planning Update was sent to approximately 40 addressees. These addressees consist of members of the public that have expressed interest in Roseburg District BLM projects.

State, County, and Local Government Agencies

This EA, and its associated documents, would be provided to certain State, County and local government offices including: U.S. Fish & Wildlife Service, NOAA Fisheries Service, Oregon Department of Environmental Quality, and the Oregon Department of Fish and Wildlife, if a decision(s) is made to implement the proposed action(s).

Public Comment Period

A 30-day public comment period will be provided for this EA. A Notice of Availability will publish in *The News-Review*. The public comment period begins with publication of the notice published in *The News-Review* on July 21, 2009 and ends close of business August 19, 2009. Comments must be received during this period to be considered for the subsequent decision. If a decision(s) is made to implement the proposed action(s), a notice will be published in *The News-Review* and notification sent to all parties requesting notice.

C. List of Preparers

Core Team

Gregg Morgan	Project Lead
Erik Taylor	Visual and Scenic Resources
Ron Murphy	Recreation Resources
Wardman Fong	Soils
Isaac Barner	Cultural Resources
Scott Lightcap	Aquatics
Elizabeth Gayner	Wildlife
Julie Knurowski	Botany
Chip Clough	Management Representative
Victoria Wilkins	Writer/Editor

Expanded Team (Consulted)

Randy Lopez	Engineering
Joe Keady	Timber
Jeff McEnroe	Fisheries
Dan Dammann	Hydrology
Charlene Rainville	Realty and Rights-of-Way
Fred Larew	Realty and Rights-of-Way

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Appendix A - Detection and Correction of Hazard Trees on the Roseburg BLM District Recreation Sites

A hazard tree contains some form of structural defect, a peculiar location or combination of both that present the possibility of the tree failing and causing personal injury or property damage. For a hazard to exist there must be a valuable target (e.g., structures, facilities, parking areas, benches, trails or developed high use areas).

A systematic inspection of each recreation site is carried out annually. All trees within falling distance of campsites, picnic sites, roadside viewpoints, monuments, buildings, parking lots, or any place where people congregate are examined. Every tree in the recreation site that is near a potential target (such as a bathroom, bench, interpretive sign or parking lot) is reviewed to determine whether or not it is a hazard. According to the guide *Long-range Planning for Developed Sites in the Pacific Northwest: the Context of Hazard Tree Management*:

The degree to which a tree is hazardous is based primarily on the following four factors:

- 1) its potential for failure,
- 2) its potential for striking a target,
- 3) the potential that serious damage will result, and
- 4) the value of the target(s) (Harvey and Hessburg, p. 15).

After determining whether or not a tree is a hazard, each tree is given two different ratings:

- 1) a **failure potential** from very low to very high and
- 2) a **damage potential** from very low to very high.

Trees that have medium to very high potential for both failure and damage receive additional evaluation. Each tree is bored with an 18 inch long drill bit to determine the thickness of sound, good wood at various heights on the tree. The general guideline used on District is that is that a tree must be about 1/3 sound wood. That means that a tree that is 30 inches in diameter at breast height and is hollow in the middle must have at least 5 inches of sound, good wood on either side of the tree. When the minimum sound, good wood thickness is insufficient for a tree's diameter the failure potential is considered high (Harvey and Hessburg, p. 24). If a valuable target is within reach of the tree, then the tree is topped or felled to eliminate the possibility of it hitting the target. Tree topping is used to take the weight off the top and shortens distance that the tree would hit when it falls, eliminating the potential of it reaching the target. If it is only certain limbs on a tree that are a hazard, they may be removed so that the tree can be left standing.

Appendix B - Bureau Sensitive & Bureau Strategic Wildlife Species

SSSP List Date: July 26, 2007 (IM-OR-2007-072)

The following table includes those species which are documented or suspected to occur within the Roseburg District BLM. Those Bureau Sensitive or Bureau Strategic species which are suspected or documented to occur within the project area are detailed in below and may be further discussed in the body of the EA as appropriate.

Bureau Sensitive Species. BLM districts are responsible to assess and review the effects of a proposed action on *Bureau Sensitive* species. To comply with Bureau policy, Districts may use one or more of the following techniques:

- a. Evaluation of species-habitat associations and presence of potential habitat.
- b. Application of conservation strategies, plans, and other formalized conservation mechanisms.
- c. Review of existing survey records, inventories, and spatial data.
- d. Utilization of professional research and literature and other technology transfer methods.
- e. Use of expertise, both internal and external, that is based on documented, substantiated professional rationale.
- f. Complete pre-project survey, monitoring, and inventory for species that are based on technically sound and logistically feasible methods while considering staffing and funding constraints.

When Districts determine that additional conservation measures are necessary, options for conservation include, but are not limited to: modifying a project (e.g. timing, placement, and intensity), using buffers to protect sites, or implementing habitat restoration activities (IM-OR-2003-054).

Strategic Species. If sites are located, collect occurrence data and record in corporate database.

Table B-1. Bureau Sensitive & Strategic Wildlife Species.

Species	General Habitat Requirements	Present in Project Area?	Impacts to Species	
			No Action	Proposed Action
BUREAU SENSITIVE				
American Peregrine Falcon <i>Falco peregrinus anatum</i>	Cliffs, rock outcrops; open habitats for hunting birds	No Nesting Habitat within one mile	No Effects	
Bald Eagle <i>Haliaeetus leucocephalus</i>	Late successional forests with multi-canopies, generally within two miles of a major water source	No Known Nest/ Roost Sites; Nest territory suspected within three miles	No Effect	Reduced foraging opportunities; Increase of disturbance during foraging activities
Chace Sideband <i>Monadenia chaceana</i>	Rocky, talus habitats in the Klamath Province and southwards	Out of Range	No Effects	
Columbian White Tailed Deer <i>Odocoileus virginianus leucurus</i>	Bottomlands, oak/hardwood forests; cover for fawning	Out of Range	No Effects	
Crater Lake Tightcoil <i>Pristiloma arcticum crateris</i>	Perennially wet areas in late seral forests above 2000ft elevation and east of Interstate-5; seeps, springs, riparian areas	Out of Range	No Effects	
Fisher <i>Martes pennanti</i>	Natal and foraging habitat consists of structurally complex forests; mature open forests with large live trees, snags, and down wood.	Suspected	No Effect	Negligible effects to suitable natal and foraging habitat.
Foothill Yellow-legged Frog <i>Rana boylei</i>	Low gradient streams/ponds; gravel/cobble, bedrock pools	Suspected	No Effect	Negligible effects due to mitigations for water quality and fisheries
Fringed Myotis <i>Myotis thysanodes</i>	Late-successional forest features (e.g. snags or trees with deeply furrowed bark, loose bark, cavities), caves, mines, bridges, rock crevices	Suspected	No Effect	Potential loss of small roosting snags ($\leq 20''$ dbh)

Species	General Habitat Requirements	Present in Project Area?	Impacts to Species	
			No Action	Proposed Action
Green Sideband <i>Monadenia fidelis beryllica</i>	Coast Range, riparian forests at low elevations; deciduous trees & shrubs in wet, undisturbed forest	Out of Range	No Effects	
Harlequin Duck <i>Histrionicus histrionicus</i>	Mountain Streams in forested areas on west slope of the Cascade Mountains	Documented	No Effect	No measurable effect to foraging or nesting habitat; Increase of disturbance during foraging and/or rearing of young along N. Umpqua River
Lewis' Woodpecker <i>Melanerpes lewis</i>	Open woodland habitat near water; open woodland canopy and large diameter dead/dying trees, snag cavities	No Habitat	No Effects	
Northwestern Pond Turtle <i>Clemmys marmorata marmorata</i>	Ponds, low gradient rivers; upland over-wintering habitat, CWD	Documented	No Effect	No measurable effect to nesting habitat
Oregon Shoulderband <i>Helminthoglypta herleini</i>	Talus and rocky substrates, grasslands or other open areas with low-lying vegetation	No Habitat	No Effects	
Oregon Vesper Sparrow <i>Pooecetes gramineus affinis</i>	Open habitats such as grasslands, meadows, farmlands	No Habitat	No Effects	
Pallid Bat <i>Antrozous pallidus</i>	Usually rocky outcroppings near open, dry open areas; occasionally near evergreen forests	No Habitat	No Effects	
Purple Martin <i>Progne subis</i>	Snags cavities in open habitats (e.g. grasslands, brushlands, open woodlands)	Foraging Habitat	No Effect	No measurable effect to foraging habitat
Rotund Lanx <i>Lanx subrotundata</i>	Major rivers and large tributaries with cold, well-aerated water and rocky substrate	Documented	No Effect	Negligible effects due to mitigations for water quality and fisheries
Scott's Apatanian Caddisfly <i>Allomyia scotti</i>	High-elevation (>4,000ft), cold streams in the mountainous regions of Oregon	Out of Range	No Effects	
Spotted Tail-dropper <i>Prophyaon vannattae pardalis</i>	Mature conifer forests in the Coast Range; associated with significant deciduous tree/shrub component	Out of Range	No Effects	
Townsend's Big-eared Bat <i>Corynorhinus townsendii</i>	Late-successional forest features (e.g. snags or trees with deeply furrowed bark, loose bark, cavities), caves, mines, buildings, bridges, tunnels	Suspected	No Effect	Potential loss of small roosting snags ($\leq 20''$ dbh)
Western Ridgemussel <i>Gonidea angulata</i>	Creeks, rivers, coarse substrates; Umpqua R. and possibly major tribs.	Out of Range	No Effects	
White-Tailed Kite <i>Elanus leucurus</i>	Open grasslands, meadows, emergent wetlands, farmlands, lightly, wooded areas; wooded riparian habitats close to open hunting; tall trees and shrubs	No Habitat	No Effects	
BUREAU STRATEGIC				
Broadwhorl Tightcoil <i>Pristiloma johnsoni</i>	Moist forest sites, typically with deciduous component; Coast/Cascades in WA, Coast Range in OR, as far south as Lane County	Out of Range	No Effects	
Klamath Tail-Dropper <i>Prophyaon sp. nov.</i>	Moist, open areas along streams or springs in Ponderosa Pine forests; as far North as Crater Lake	Out of Range	No Effects	
Merlin <i>Falco columbarius</i>	Coniferous forests adjacent to open habitats, along forest edges.	Winter Range	No Effect	No measurable effect to foraging habitat.
Pristine Springsnail <i>Pristinicola hemphilli</i>	Shallow, cold, clear springs/seeps; strongly spring-influenced streams, slow-moderate flow; Umpqua R. drainage	Out of Range	No Effects	
Oregon Giant Earthworm <i>Driloleirus macelfreshi</i>	Deep, moist, undisturbed soils of riparian forests.	Out of Range	No Effects	

Appendix C - Botany Summary

Date: June 24, 2009

SSSP List Date: February 8, 2008 (IM-OR-2008-038)

Those Bureau Sensitive or Bureau Strategic species which are suspected or documented to occur within the Roseburg District BLM area are detailed below and may be further discussed in the body of the EA as appropriate.

Bureau Sensitive Species. BLM districts are responsible to assess and review the effects of a proposed action on *Bureau Sensitive* species. To comply with Bureau policy, Districts may use the following techniques:

- Evaluation of species-habitat associations and presence of potential habitat.
- Application of conservation strategies, plans, and other formalized conservation mechanisms.
- Review of existing survey records, inventories, and spatial data.
- Utilization of professional research and literature and other technology transfer methods.
- Use of expertise, both internal and external, that is based on documented, substantiated professional rationale.
- Complete pre-project survey, monitoring, and inventory for species that are based on technically sound and logistically feasible methods while considering staffing and funding constraints.

When Districts determine that additional conservation measures are necessary, options for conservation include, but are not limited to: modifying a project (e.g. timing, placement, and intensity), using buffers to protect sites, or implementing habitat restoration activities (IM-OR-2003-054).

Strategic Species. If sites are located, collect occurrence data and record in the corporate database.

Table C-1. Federally Listed & Bureau Sensitive Botanical Species.

Species	Within species range?	Habitat Present?	Species Present?	Reason for concern or no concern	Surveys Completed	Mitigation Measures
Threatened & Endangered Species						
<i>Lupinus sulphureus</i> ssp. <i>kincaidii</i> Kincaid's lupine (T)	Yes	Yes	No	Surveys performed, not detected.	May/June 2009	N/A
<i>Plagiobothrys hirtus</i> Rough popcorn flower (E)	Yes	No	No	No habitat present.	May/June 2009	N/A
Sensitive Species						
<i>Chiloscyphus gemmiparus</i> Liverwort	Yes	No	No	No habitat present.	May/June 2009	N/A
<i>Diplophyllum plicatum</i> Liverwort	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Entosthodon fascicularis</i> Moss	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Gymnomitrium concinatum</i> Liverwort	Yes	No	No	No habitat present.	May/June 2009	N/A
<i>Helodium blandowii</i> Moss	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Meesia uliginosa</i> Moss	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Schistostega pennata</i> Moss	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Tayloria serrata</i> Moss	Yes	Yes	No	Surveys performed, not detected.	May/June 2009	N/A
<i>Tetraphis geniculata</i> Moss	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Tetraplodon mnioides</i> Moss	Yes	Yes	No	Surveys performed, not detected.	May/June 2009	N/A
<i>Tomentypnum nitens</i>	Yes	No	No	No habitat present	May/June 2009	N/A

Species	Within species range?	Habitat Present?	Species Present?	Reason for concern or no concern	Surveys Completed	Mitigation Measures
Moss						
<i>Tortula mucronifolia</i> Moss	Yes	Yes	No	No habitat present	May/June 2009	N/A
<i>Trematodon boasii</i> Moss	Yes	No	No	No habitat present.	May/June 2009	N/A
<i>Bridgeoporus nobilissimus</i> Giant polypore fungus	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Cudonia monticola</i> Fungi	Yes	No	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Dermocybe humboldtensis</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Gomphus kauffmanii</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Helvella crassitunicata</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Leucogaster citrinus</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Otidea smithii</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia californica</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia dissiliens</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia gregaria</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia olivacea</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia oregonensis</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia pseudofestiva</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia scatesiae</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia sipei</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Phaeocollybia spacidea</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Pseudorhizina californica</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Ramaria amyloidea</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Ramaria gelatiniaurantia</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Ramaria largentii</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Ramaria rubella</i> var. <i>blanda</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Ramaria spinulosa</i> var. <i>diminutiva</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Rhizopogon chamalelotinus</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	N/A	N/A
<i>Rhizopogon exiguus</i>	Yes	Yes	N/A	Surveys Not	May/June 2009	N/A

Species	Within species range?	Habitat Present?	Species Present?	Reason for concern or no concern	Surveys Completed	Mitigation Measures
Fungus				Practical. ¹		
<i>Sowerbyella rhenana</i> Fungus	Yes	Yes	N/A	Surveys Not Practical. ¹	May/June 2009	N/A
<i>Bryoria subcana</i> Lichen	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Calicium adpersum</i> Lichen	Yes	No	N/A	No habitat present	May/June 2009	N/A
<i>Chaenotheca subroscida</i> Lichen	Yes	Yes	No	Surveys performed, not detected.	May/June 2009	N/A
<i>Dermatocarpon meiophyllizum</i> Lichen	Yes	Yes	Yes	Species found	May/June 2009	Outside of disturbance area
<i>Hypogymnia duplicata</i> Lichen	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Lobaria linita</i> Lichen	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Pannaria rubiginosa</i> Lichen	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Pilophorus nigricaulis</i> Lichen	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Stereocaulon spathuliferum</i> Lichen	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Adiantum jordanii</i> California maiden-hair	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Arabis koehleri</i> var. <i>koehleri</i> Koehler's rockcress	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Arctostaphylos hispidula</i> Hairy manzanita	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Asplenium septentrionale</i> Grass-fern	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Bensoniella oregana</i> Bensonia	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Botrychium minganense</i> Gray moonwort	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Calochortus coxii</i> Crinte mariposa-lily	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Calochortus umpquaensis</i> Umpqua mariposa-lily	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Camassia howellii</i> Howell's camas	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Carex comosa</i> Bristly sedge	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Carex gynodynamis</i> Hairy sedge	Yes	Yes	No	Surveys performed, not detected.	May/June 2009	N/A
<i>Carex serratodens</i> Saw-tooth sedge	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Cicendia quadrangularis</i> Timwort	Yes	No	N/A	No habitat present	May/June 2009	N/A
<i>Cimicifuga elata</i> var. <i>elata</i> Tall bugbane	Yes	Yes	No	Surveys performed, not detected.	May/June 2009	N/A
<i>Cypripedium fasciculatum</i> Clustered lady slipper	Yes	No	No	No habitat present.	May/June 2009	N/A
<i>Delphinium nudicaule</i> Red larkspur	Yes	No	No	No habitat present.	May/June 2009	N/A

Species	Within species range?	Habitat Present?	Species Present?	Reason for concern or no concern	Surveys Completed	Mitigation Measures
<i>Epilobium oregonum</i> Oregon willow-herb	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Eschscholzia caespitosa</i> Gold poppy	Yes	No	No	No habitat present.	May/June 2009	N/A
<i>Eucephalus vialis</i> Wayside aster	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Horkelia congesta</i> ssp. <i>congesta</i> Shaggy horkelia	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Horkelia tridentata</i> ssp. <i>tridentata</i> Three-toothed horkelia	Yes	No	No	No habitat present	May/June 2009	N/A
<i>Iliamna latibracteata</i> California globe-mallow	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Kalmiopsis fragrans</i> Fragrant kalmiopsis	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Lathyrus holochlorus</i> Thin-leaved peavine	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Lewisia leana</i> Lee's lewisia	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Limnanthes gracilis</i> var. <i>gracilis</i> Slender meadow-foam	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Lotus stipularis</i> Stipuled trefoil	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Meconella oregana</i> White fairypoppy	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Pellaea andromedifolia</i> Coffee fern	Yes	Yes	No	Surveys performed, not detected.	May/June 2009	N/A
<i>Perideridia erythrorhiza</i> Red-rooted yampah	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Polystichum californicum</i> California sword-fern	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Romanzoffia thompsonii</i> Thompson's mistmaiden	Yes	Yes	No	Surveys performed, not detected	May/June 2009	N/A
<i>Schoenoplectus subterminalis</i> Water clubrush	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Scirpus pendulus</i> Drooping rush	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Sisyrinchium hitchcockii</i> Hitchcock's blue-eyed grass	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Utricularia gibba</i> Humped bladderwort	Yes	No	N/A	No habitat present	May/June 2009	N/A
<i>Utricularia minor</i> Lesser bladderwort	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Wolffia borealis</i> Dotted water-meal	Yes	No	N/A	No habitat present.	May/June 2009	N/A
<i>Wolffia columbiana</i> Columbia water-meal	Yes	No	N/A	No habitat present.	May/June 2009	N/A

¹ Surveys are considered not practical for these species based on the 2003 Annual Species Review (IM-OR-2004-034).

Table C-2. Bureau Strategic Botanical Species.

Scientific Name	Roseburg Occurrence?	Occurrence in the Project Area?
Bryophytes		
<i>Cephaloziella spinigera</i>	Suspected	None Observed
<i>Grimmia anomala</i>	Suspected	None Observed
<i>Scouleria marginata</i>	Documented	Species found
Fungi		
<i>Cazia flexiascus</i>	Suspected	Surveys Not Practical. ¹
<i>Choiromyces alveolatus</i>	Suspected	Surveys Not Practical. ¹
<i>Clavariadelphus subfastigiatus</i>	Documented	Surveys Not Practical. ¹
<i>Endogone oregonensis</i>	Documented	Surveys Not Practical. ¹
<i>Glomus pubescens</i>	Suspected	Surveys Not Practical. ¹
<i>Gymnomyces monosporus</i>	Documented	Surveys Not Practical. ¹
<i>Helvella elastica</i>	Documented	Surveys Not Practical. ¹
<i>Hygrophorus albicarneus</i>	Suspected	Surveys Not Practical. ¹
<i>Mycena quinaultensis</i>	Suspected	Surveys Not Practical. ¹
<i>Nolanea verna</i> var. <i>isodiametrica</i>	Suspected	Surveys Not Practical. ¹
<i>Plectania milleri</i>	Suspected	Surveys Not Practical. ¹
<i>Psathyrella quercicola</i>	Suspected	Surveys Not Practical. ¹
<i>Ramaria abietina</i>	Documented	Surveys Not Practical. ¹
<i>Ramaria bothryis</i> var. <i>aurantiiramosa</i>	Suspected	Surveys Not Practical. ¹
<i>Ramaria concolor</i> f. <i>tsugina</i>	Suspected	Surveys Not Practical. ¹
<i>Ramaria conjunctipes</i> var. <i>sparsiramosa</i>	Suspected	Surveys Not Practical. ¹
<i>Ramaria coulterae</i>	Suspected	Surveys Not Practical. ¹
<i>Ramaria rubribrunnescens</i>	Suspected	Surveys Not Practical. ¹
<i>Ramaria suecica</i>	Documented	Surveys Not Practical. ¹
<i>Ramaria thiersii</i>	Suspected	Surveys Not Practical. ¹
<i>Rhizopogon brunneiniger</i>	Suspected	Surveys Not Practical. ¹
<i>Rhizopogon clavitisporus</i>	Suspected	Surveys Not Practical. ¹
<i>Rhizopogon flavofibrillosus</i>	Documented	Surveys Not Practical. ¹
<i>Rhizopogon variabilisporus</i>	Suspected	Surveys Not Practical. ¹
<i>Sarcodon fuscoindicus</i>	Documented	Surveys Not Practical. ¹
Lichens		
<i>Buellia oidalea</i>	Suspected	None Observed
<i>Lecanora pringlei</i>	Suspected	None Observed
<i>Lecidea dolodes</i>	Suspected	None Observed
<i>Leptogium rivale</i>	Documented	None Observed
<i>Leptogium teretiusculum</i>	Documented	None Observed
<i>Peltula euploca</i>	Suspected	None Observed
<i>Vezdaea stipitata</i>	Documented	None Observed
Vascular Plants		
<i>Camissonia ovata</i>	Suspected	None Observed
<i>Frasera umpquaensis</i>	Suspected	None Observed

¹ Surveys are considered not practical for these species based on the 2003 Annual Species Review (IM-OR-2004-034).

Appendix D- Aquatic Conservation Strategy Consistency

The Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The ACS must strive to maintain and restore ecosystem health at watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources and restore currently degraded habitats. This approach seeks to prevent further degradation and restore habitat over broad landscapes as opposed to individual projects or small watersheds. (Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl, page B-9).

ACS Components:

1. Riparian Reserves (ACS Component #1)

Riparian Reserves were established. The ROD/RMP (p. 24) specifies Riparian Reserve widths equal to the height of two site potential trees on each side of fish-bearing streams and one site-potential tree on each side of perennial or intermittent non-fish bearing streams, wetlands greater than an acre, and constructed ponds and reservoirs. The height of a site-potential tree for the Middle North Umpqua Watershed has been determined to be the equivalent of 180 feet. (Middle North Umpqua Watershed Analysis, p. 3). The majority of the project area is located within Riparian Reserves. All project components include specific PDF's that are intended to avoid or minimize adverse impacts to important Riparian Reserve functions (EA, pp. 14-17).

2. Key Watersheds (ACS Component #2)

Key Watersheds were established “as refugia . . . for maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident fish species (ROD/RMP, p. 20).” The Tioga Bridge project area is not located within a Key Watershed. There are key watersheds within the Middle North Umpqua 5th field Watershed, upstream of the project area.

3. Watershed Analysis (ACS Component #3)

In developing the project, the Middle North Umpqua River Watershed Analysis was used to evaluate existing conditions, establish desired future conditions, and assist in the formulation of appropriate alternatives. This analysis is available for public review at the Roseburg District office or can be viewed under “Plans & Projects” on the Roseburg District website at www.blm.gov/or/districts/roseburg/index.htm.

Existing watershed conditions are described in the Water Quality and Quantity (p. 30-33) and Fisheries (p. 33-38) sections of the EA and in the Middle North Umpqua River Watershed Analysis. The short and long term effects to aquatic resources are also described in these sections of the EA.

4. Watershed Restoration (ACS Component #4)

The proposed project is not an aquatic restoration project, however, numerous aquatic restoration projects have been completed over the last several years within close proximity to the project area. These projects have included the replacement of 2 barrier culverts in Honey Creek with fish-friendly structures, and placement of large wood into Honey Creek and Susan Creek (upstream of the project area).

In addition, numerous restoration projects have been completed further upstream in the watershed, on lands managed by the Umpqua National Forest. Specifically, large wood and/or boulders were added to streams in the Panther, Calf, and Copeland 6th field subwatersheds.

Range of Natural Variability within the Watershed:

Based on the dynamic, disturbance-based nature of aquatic systems in the Pacific Northwest, the range of natural variability at the site scale would range from 0-100% of potential for any given aquatic habitat parameter over time. Therefore, a more meaningful measure of natural variability is assessed at scales equal to or greater than the 5th field watershed scale. At this scale, spatial and temporal trends in aquatic habitat condition can be observed and evaluated over larger areas, and important cause/effect relationships can be more accurately determined.

Natural disturbance events to aquatic systems in the Pacific Northwest include wildfires, floods, and landslides. The fire regime in the Middle North Umpqua 5th field is characterized as “moderate”, with average fire return intervals at the watershed scale calculated between 25 and 100 years (prior to the advent of fire suppression). Due to the dynamic nature of these disturbance events, stream channel conditions varied based on the time since the last disturbance event. This resulted in a wide range of aquatic habitat conditions at the site level. In 2002, a large stand replacing fire occurred in the Apple Creek Facial and Panther subwatersheds, located in the eastern portion of this 5th field. As a result, numerous fire killed trees have entered the aquatic system over the last several years. This pulse of large wood entry will likely continue for the next several years.

Site level habitat conditions can be summarized by Oregon Department of Fish and Wildlife (ODFW) aquatic habitat surveys. This data can then be compared to ODFW “benchmark” data – which is collected from reference reaches believed to be healthy and fully functioning, with minimal human impact. These relatively unmanaged reaches represent the variability of conditions within natural stream systems as well as characteristics desirable for a variety of fish species (including salmonid habitat). Surveys conducted in Susan Creek and Honey Creek in 2006, and other streams to the east on Forest Service lands, indicate that the majority of these stream reaches are deficient in large wood (when compared to the “benchmark” data). This condition is considered typical at any given site scale, however, it is considered atypical for most streams to be devoid of wood at the same time in a larger 5th field scale. Therefore, at this larger scale, aquatic habitat conditions are considered to be outside the range of natural variability due to a lack of large wood.

This lack of large wood throughout streams in the Middle North Umpqua 5th field, and the larger Umpqua Basin is primarily a result of past management actions. Prior to the 1990's, the importance of large wood to aquatic ecosystems was not well understood, and it was often physically removed from fish-bearing streams throughout the Pacific Northwest (a process known as stream cleanout). In addition to this manual removal, there were other factors such as riparian roads, campgrounds, and riparian timber harvest that resulted in a long term reduction in the amount of future large wood available to enter stream systems. The presence of these roads and campgrounds in riparian areas resulted in compacted surfaces that are no longer capable of growing trees. In addition, any trees that fall across these roads or campgrounds are often cut into smaller pieces and removed in order to reopen the sites.

In the Middle North Umpqua 5th Field Watershed – the North Umpqua Highway has resulted in the long term reduction in potential large wood delivery from the North bank of the river. While large wood entering a major river like the North Umpqua did not often form large, channel-spanning logjams, it often contributed to important habitat development along the river edges. Based on this long term reduction in large wood from the North side of the river, it is likely that the amount of margin or edge habitat is substantially lower than levels seen prior to construction of the highway.

Because of its dynamic nature, sediment effects to streams can only be described in general terms. It is important to remember that ODFW instream habitat data is a snapshot in time. When compared to reference reaches, the amount of sand, silt, and organics in riffles (based on 2006 survey data) throughout the Middle North Umpqua appears to be similar to reference reaches (Middle North Umpqua River Watershed Analysis).

Table D-1. Individual ACS Objective Assessment.

	Site/Project Scale Assessment	5th Field Watershed Scale Assessment
ACS Objective	<u>Scale Description:</u> This project is located in the Old Fairview 6 th field sub-watershed, and within 3 distinct 7 th field drainages. The actual project work being proposed is located in the Susan Creek Recreational Area. This area is roughly 103 acres in size, and is located primarily on the flat, high terraces of the North Umpqua River.	<u>Scale Description:</u> This project is located in the Middle North Umpqua River 5 th field watershed. This watershed is roughly 123,900 acres in size. The BLM manages approximately 11,897 acres in this watershed (10%). The proposed Tioga Bridge project area (103 acres) represents 0.08% of the total watershed area, and 0.9% of the BLM-managed lands in the watershed.
1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.	The proposed action would result in 0.83 acre of ground disturbance, spread over a project area of 103 acres. While the majority of project components are located within Riparian Reserves, specific project design features would prevent impacts to aquatic resources.	This treatment would result in maintenance of this objective at the watershed scale.
2. Maintain and restore	Within the drainage, the proposed project	Within the watershed, the proposed project

<p><i>spatial and temporal connectivity</i> within and between watersheds</p>	<p>would have no influence on aquatic connectivity. Therefore this treatment would maintain the existing connectivity condition at the site scale.</p>	<p>would have no influence on aquatic connectivity. Therefore this treatment would maintain the existing connectivity condition at the watershed scale.</p>
<p>3. Maintain and restore the <i>physical integrity of the aquatic system</i>, including shorelines, banks, and bottom configurations</p>	<p>As discussed on pages 30-33 of the EA, project components would not reduce canopy closure to an extent that could potentially influence in-stream flows. In addition, project design features have been established that would prevent or minimize removal of bank rooted trees, and prevent machinery from operating within stream channels. Therefore, this treatment would maintain the physical integrity of the aquatic system at the site scale.</p>	<p>This treatment would also maintain the physical integrity of the aquatic system at the watershed scale.</p>
<p>4. Maintain and restore <i>water quality</i> necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.</p>	<p>Project design features (PDFs) would ensure that water quality would not be adversely impacted by the proposed action. PDFs such as those listed on pages 14-15 of the EA would prevent disturbance to stream channels, prevent project-related sediment from reaching the aquatic system, and minimize the duration and extent of potential elevated turbidities. Therefore, these PDFs are expected to maintain the existing water quality at the site scale.</p>	<p>Based on the information discussed at the site scale, this project would also maintain water quality at the watershed scale.</p>
<p>5. Maintain and restore the <i>sediment regime</i> under which aquatic ecosystems evolved.</p>	<p>As mentioned above, PDFs would prevent disturbance to stream channels and stream banks and intercept surface run-off allowing sediment transported by overland flow to deposit on the flat terraces before reaching active waterways. Therefore, this project would maintain the existing sediment regime.</p>	<p>Based on the information discussed at the site scale, this project would maintain the existing sediment regime at the watershed scale as well.</p>
<p>6. Maintain and restore <i>in-stream flows</i> sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.</p>	<p>As discussed on pages 30-33 of the EA, project components would not reduce canopy closure or increase compacted surfaces to an extent that could potentially influence in-stream flows. In addition, all project components are located on relatively flat terraces of the North Umpqua River. In these areas, precipitation infiltrates into the soil and is released gradually over time as groundwater. Therefore, this treatment would maintain stream flows within the range of natural variability at the site scale.</p>	<p>As discussed at the site scale, project components would not reduce canopy closure or increase compacted surfaces to an extent that could potentially influence in-stream flows. Therefore, at the larger watershed scale, this project would also maintain stream flows within the range of natural variability.</p>

<p>7. Maintain and restore the <i>timing, variability, and duration of floodplain inundation</i> and water table elevation in meadows and woodlands.</p>	<p>As discussed in #6 above, this project would maintain stream flows within the range of natural variability at the site scale. Therefore, it would also maintain stream interactions with the floodplain and respective water tables at the site scale.</p>	<p>At the watershed scale, this project would also maintain stream interactions with the floodplain and respective water tables within the range of natural variability.</p>
<p>8. Maintain and restore the <i>species composition and structural diversity of plant communities</i> in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.</p>	<p>The proposed project includes PDFs that would prevent the introduction and spread of invasive plant species (EA, p. 16). In addition, noxious weeds and other non-native vegetation currently found in the recently acquired parcels would be removed. These actions would result in a restoration of species composition and structural diversity. The proposed project also includes tree removal. The majority of the trees proposed for cutting are further than 180 feet from active stream channels, and would therefore not contribute to aquatic large wood levels. Trees cut that are within the 180 delivery distance would be left on-site after cutting, and would contribute to riparian and instream large wood levels. The amount and distribution of large woody material throughout stands in the project area would be maintained.</p>	<p>Since this project is extremely small when evaluated at the entire watershed scale, it would have a minimal influence on native plant populations. However, since the proposed project would serve to restore plant species composition and structural diversity at the site scale, it would also have this same effect at the larger watershed scale as well. From a large wood standpoint, this project would maintain the existing condition within the 5th field.</p>
<p>9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.</p>	<p>As mentioned in the discussions above, habitat functionality for aquatic and riparian habitats would be maintained through the use of the PDFs listed on pages 14-17 of the EA.</p>	<p>Since functional riparian and aquatic habitat would be maintained at the site scale, this project would also contribute towards the maintenance of this habitat at the larger watershed scale.</p>

Summary:

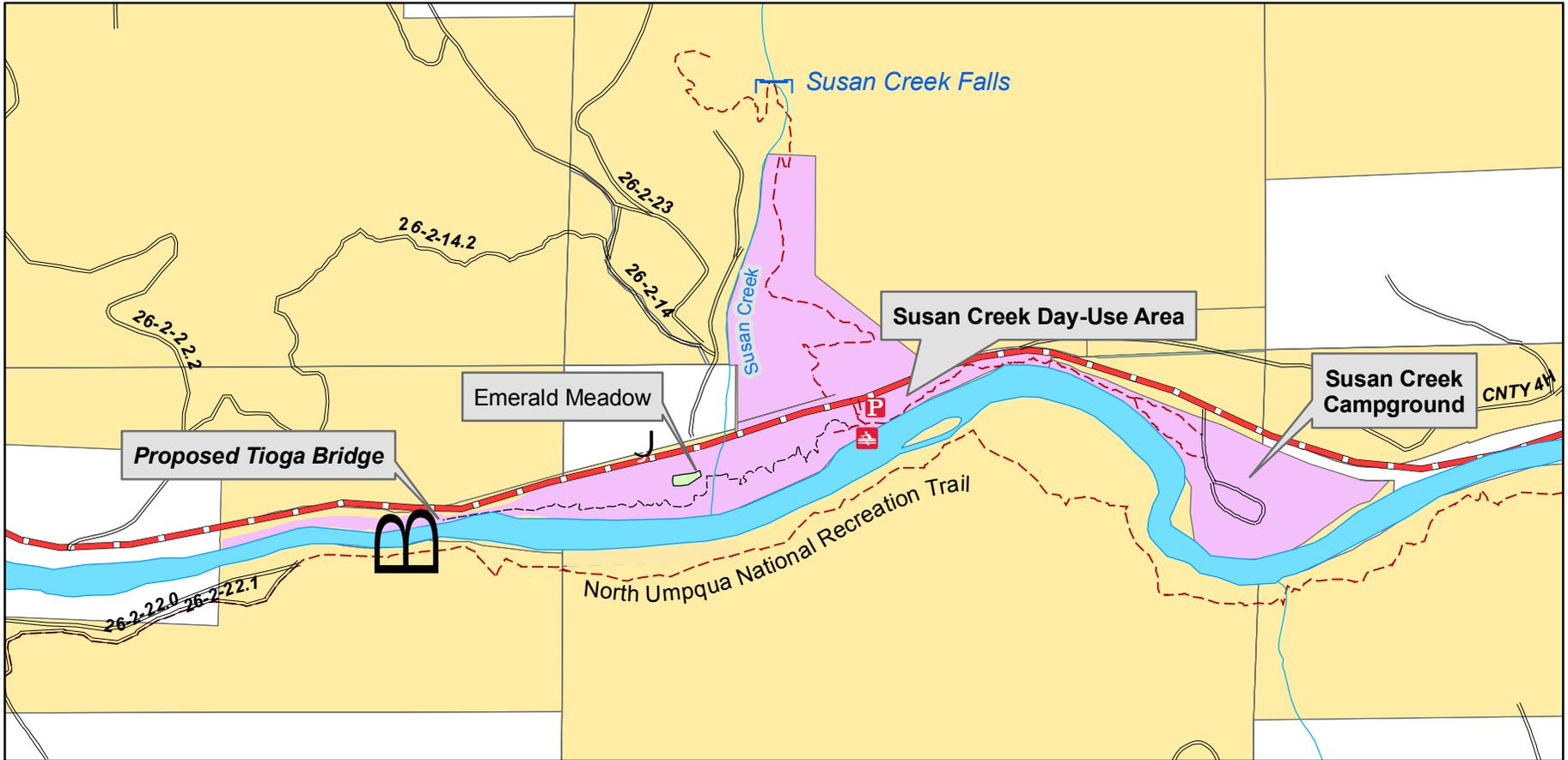
Based upon the application of protective Project Design Features, this project would not retard or prevent attainment of ACS objectives. Based upon the information listed above, the proposed action would meet Aquatic Conservation Strategy objectives at the site and watershed scale, and is therefore consistent with the Aquatic Conservation Strategy.

Appendix E - Maps

Map 1.....	Tioga Bridge Vicinity
Map 2.....	Proposed Action Area
Map 3.....	Parking Lot Expansion
Map 4.....	Northern Spotted Owl Activity Centers

Tioga Bridge and Susan Creek Day-Use Area Improvements Roseburg District, Bureau of Land Management Vicinity Map

T26S R2W, W.M.



Legend

- | | |
|--|---|
|  North Umpqua Wild and Scenic River | Ownership |
|  Susan Creek Recreation Area |  BLM Managed Land |
|  National Scenic Byway |  Private Land |
|  Existing Road |  Susan Creek Raft Launch/Takeout |
|  Existing Trail |  Proposed Parking Lot Expansion |
|  Proposed Emerald Trail | |
|  Streams | |

0 1,150 2,300 Feet



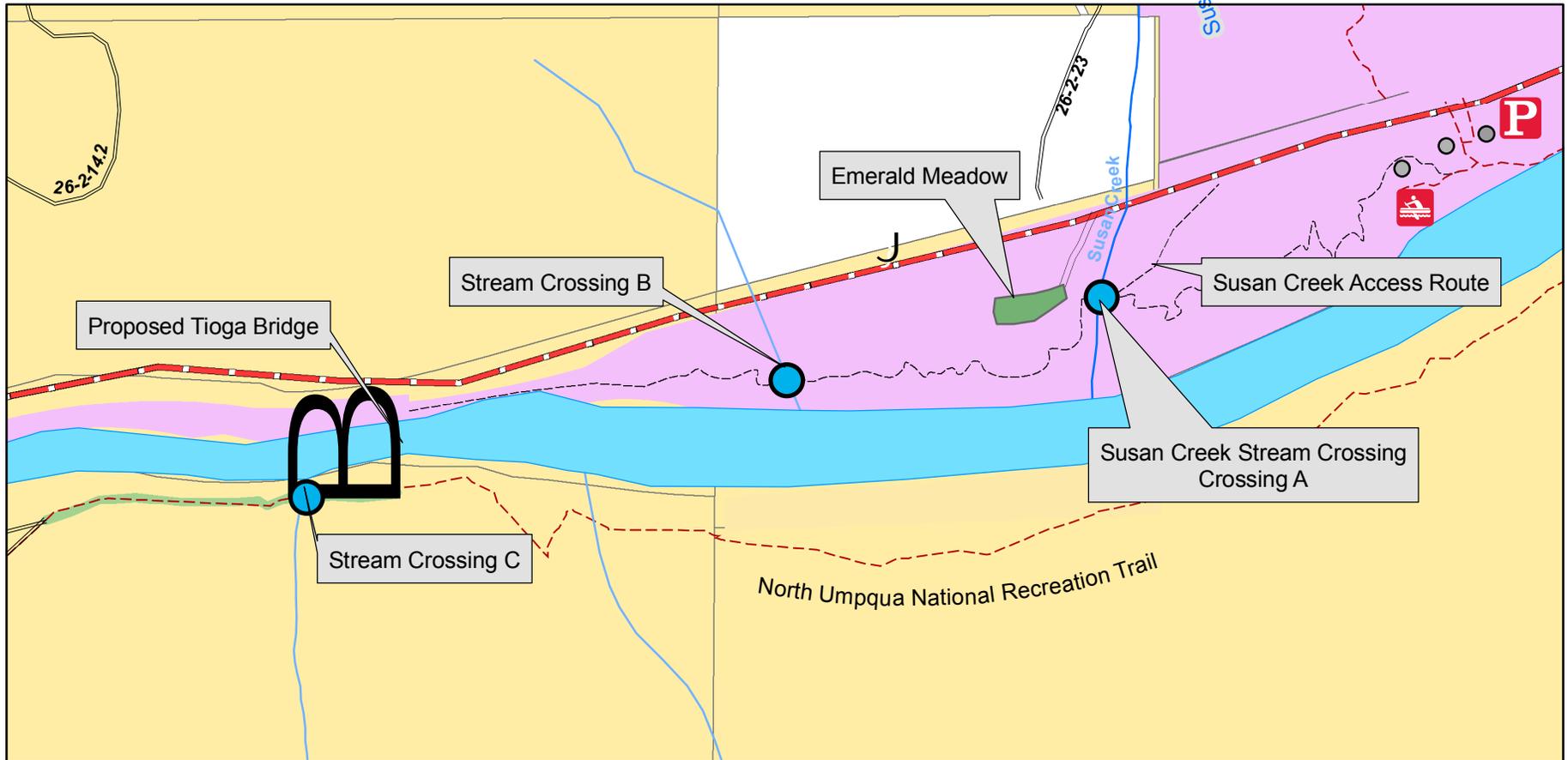
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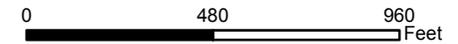
**Tioga Bridge and Susan Creek Day-Use Area Improvements
Roseburg District, Bureau of Land Management
Proposed Action Area**

T26S R2W, W.M.



Legend

- | | |
|------------------------------------|---|
| Rogue-Umpqua Scenic Byway | Existing Trail |
| North Umpqua Wild and Scenic River | Proposed Emerald Trail |
| Susan Creek Recreation Area | Existing Road |
| Ownership | Temporary North Umpqua Trail Modification |
| BLM Managed Land | Proposed Gazebo Locations |
| Private Land | Proposed Parking Lot Expansion |
| | Susan Creek Raft Launch/Takeout |

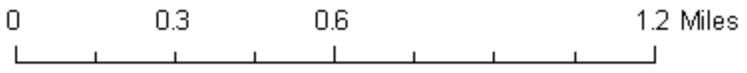


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Tioga Bride and Susan Creek Day-Use Area Improvements
 Northern Spotted Owl Activity Centers
 T26S R2W, W.M.



Legend

- Spotted Owl Activity Center
- ◻ Smith Springs Home Range (1.2 mi)
- ◻ Smith Springs Core Area (0.5 mi)
- ◻ Smith Springs Nest Patch (300 m)
- ◻ South Susan Home Range (1.2 mi)
- ◻ South Susan Core Area (0.5 mi)
- ◻ South Susan Nest Patch (300 m)
- ◻ Suitable Habitat (80+ years old)
- Proposed Trail
- ◻ Proposed Project Area
- ◻ North Umpqua River
- ◻ BLM Lands



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