

# APPENDIX A

## **An Evaluation of Activities Authorized by the Bridge Thin Project Environmental Assessment for Consistency with the Aquatic Conservation Strategy**

### **Introduction**

The Aquatic Conservation Strategy was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. A goal of this strategy is to maintain a "natural" disturbance regime. In addition, management activities must comply with nine objectives that are included in the strategy. A variety of tactics to accomplish these goals and objectives are incorporated into four primary components. These components are:

- **Riparian Reserves**
- **Key Watersheds**
- **Watershed Analysis**
- **Watershed Restoration**

These four components, along with Late Successional Reserves, are designed to operate together to maintain and restore the productivity and resiliency of riparian and aquatic ecosystems (Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl - USFS, BLM 1994, (ROD), pages B9-B12).

### **The Four Components**

#### **1. Riparian Reserves**

The Northwest Forest Plan defined Riparian Reserves as “portions of watersheds where riparian-dependant resources receive primary emphasis and where special standards and guidelines apply” (ROD page B12). Riparian Reserves include those portions of a watershed directly coupled to streams and rivers, that is, the portions of a watershed required for maintaining hydrologic, geomorphic, and ecologic processes that directly affect standing and flowing water bodies such as lakes and ponds, wetlands, streams, stream processes, and fish habitats (ROD pgs. B-12 and B-13).

The Quartz Creek and Minor Tributaries Watershed Analysis (Willamette N.F. - 1998) (WA) made no recommendations to adjust riparian reserve widths for the streams in the watershed, retaining the initial reserve widths from the ROD for all streams

During the analysis for the Bridge Thin project, no reductions of riparian reserve widths along any streams were proposed.

## **2. Key Watersheds**

The Northwest Forest Plan created an overlay of Key Watersheds that are intended to provide refugia for at-risk stocks of anadromous salmonids and resident fish species. Refugia are a cornerstone of the conservation strategy for these species, consisting of watersheds that provide high quality habitat or are expected to provide habitat. Two different levels of protection, or tiers, are identified, as well as non-Key watersheds (ROD page B19). In key watersheds, completion of a watershed analysis is required prior to most management activities. The Bridge Thin project area falls exclusively within non-Key Watershed designated lands.

## **3. & 4. Watershed Analysis and Watershed Restoration**

The Quartz Creek and Minor Tributaries Watershed Analysis (WA) was prepared for the Blue River Ranger District in 1998. The watershed was characterized in terms of past and current conditions, and a synthesis discussion was provided to guide development of management proposals to maintain and restore watershed conditions

The Bridge Thin Project has incorporated information from the WA into the project design. Current vegetative landscape patterns reflect past management activities that did not consider what the landscape might look like under natural disturbance regimes. Many of the proposed projects seek to create vegetative patterns, late successional stand structures, and fuel loadings that would have been typical of this landscape under the natural fire disturbance regimes that historically occurred in the area.

## **Aquatic Conservation Strategy Objectives**

The previous discussions highlighted the consistency of the Bridge Thin Project with the four components of the Aquatic Conservation Strategy. This section will outline how the activities proposed in the action alternatives conform to the nine objectives of the ACS. The information presented is summarized from Chapters 2 and 3 of the Environmental Assessment, where greater detail can be found, if needed.

### **Objective #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.**

Harvest and prescribed fire prescriptions for proposed units were developed so that the treatment would, to the extent possible, resemble the effects of the natural fire regime that historically occurred in the vicinity of each unit. The objectives for the treatments are to develop stand structures that will maintain existing habitat, while creating conditions resembling those that would occur in the presence of the historic natural fire regime. Specific treatments are also included to enhance big game habitat and to restore oak savannah habitat that has been declining as a result of past fire suppression activities

This will provide a balance between the maintenance of existing habitat for species, populations, and communities, with opportunities to develop landscape scale features with distribution, diversity and complexity typical of landscapes that developed under fire regimes that historically occurred in the area. This includes aquatic and riparian elements of the landscape.

## **Objective #2**

**Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.**

Riparian reserves, as established by the Record of Decision for the Northwest Forest Plan and re-assessed in the Quartz Creek/ Minor Tributaries Watershed Analysis have been incorporated into the design of all treatment units where streams occur. Treatments are proposed within riparian reserves, where they have the potential to enhance functions such as the development of future large wood, stand structural diversity, vegetative species richness and diversity and other late successional characteristics. Road treatments include upgrade of stream crossings to accommodate 100 year flood events, so that these events can flow through the landscape unimpeded and without the risk of catastrophic fill failures. Where needed, these crossings will be retrofitted to permit passage of fish, amphibian, and other aquatic and riparian species to and from wetland habitat located both upstream and downstream from the crossing.

## **Objective #3**

**Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.**

All harvest treatments restrict the use of ground disturbing equipment in and around streams, and provide for retention of all vegetation that is contributing to the stability of banks and channels. Where aerial yarding methods are prescribed, full suspension is required when yarding over streams to prevent disturbance of stream banks and channels.

Roads are a known potential source of damage to stream habitat, where improper design or location, or inadequate maintenance results in failures or roadway erosion. The Bridge Thin Project addresses this concern, by minimizing road construction in all alternatives. The only new

roads to be constructed are temporary roads located on stable locations, and all of these will be obliterated following harvest activities.

Reconstruction of portions of the existing road network that are in poor repair, replacement of undersized or old culverts, drainage improvement, and application of aggregate where necessary, will reduce chronic, low amplitude sources of fine sediment from the existing transportation system, and the potential of crossing fill failures. This will reduce the possibility of gravels and cobbles becoming embedded in fine materials in the stream channel bottoms.

#### **Objective #4 and Objective #5**

**Maintain and restore water quality 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. And**

**Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.**

Project design elements intended to maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations, as discussed above under Objective 3 provide protection to water quality from the introduction of sediment into streams and resulting effects on stream turbidity. Many of the roadwork projects and the scuba access proposal will reduce or eliminate existing sources of sediment induced turbidity.

Roads are a known potential source of damage to stream habitat, where improper design or location, or inadequate maintenance results in failures or roadway erosion. The Bridge Thin Project addresses this concern, by minimizing road construction in all alternatives. The only new roads to be constructed are temporary roads located on stable locations, and all of these will be obliterated following harvest activities. No stream crossings are proposed.

Reconstruction of portions of the existing road network that are in poor repair, replacement of undersized or old culverts, drainage improvement, and application of aggregate where necessary, will reduce chronic, low amplitude sources of fine sediment from the existing transportation system, and the potential of crossing fill failures. This will reduce the possibility of gravels and cobbles becoming embedded in fine materials in the stream channel bottoms.

In addition, where beneficial vegetative treatments are proposed within riparian reserves, effective stream shading in compliance with the Regional TMDL Implementation Strategy is retained so that stream temperatures are not impacted

#### **Objective #6 and Objective #7**

**Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The**

**timing, magnitude, duration and spatial distribution of peak, high, and low flows must be protected.**

*And*

**Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.**

Implementation of a landscape design that is intended to restore vegetative structures, landscape patterns, and disturbance regimes to a more natural condition will result in watershed conditions that more closely resemble those under which historic stream flow conditions developed.

In the short term, potential adverse effects on the timing, magnitude, duration, and spatial distribution of peak and high flows will be minimized by managing the planning sub-drainages within the analysis area to Aggregate Recovery Percentage (ARP) levels that comply with the Willamette National Forest Land and Resource Management Plan, (Willamette National Forest, 1990)

Floodplains and wetland areas were excluded from consideration for harvest activities and where treatment units occur adjacent to these features, ground based equipment that could impact the soil and result in altered ground water movement are restricted.

### **Objective #8**

**Maintain and restore the species compositions and structural diversity of plant communities 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 distribution of coarse woody debris sufficient to sustain physical complexity and stability.**

Harvest and prescribed fire prescriptions for proposed units were developed so that the treatment would, to the extent possible, resemble the effects of the natural fire regime that historically occurred in the vicinity of each unit. The objectives for the treatments are to develop stand structures that will maintain existing habitat, while creating conditions resembling those that would occur in the presence of the historic natural fire regime.

This will provide a balance between the maintenance of existing habitat for species, populations, and communities, with opportunities to develop landscape scale features with distribution, diversity and complexity typical of landscapes that developed under fire regimes that historically occurred in the area. This will create conditions that favor development species composition and structural diversity of plants across the landscape of the Bridge Thin Project Area, including riparian areas and wetlands.

Stands in riparian reserves are proposed for treatment to encourage development of large wood and late successional stand structure, where possible to do so without risk to bank and channel stability, and where effective stream shade can be retained to provide thermal regulation.

Wetlands and floodplain areas that are critical to nutrient filtering are eliminated from treatment areas and use of ground disturbing equipment adjacent to them is restricted.

Use of low severity fire is restricted to portions of riparian reserves where the risk of adverse effects on ground cover and duff retention cannot impact water quality. However, portions of riparian reserves that will be treated are expected to develop a more diverse pattern of small openings and patches, and a richer vegetative species composition and diversity.

### **Objective #9**

**Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.**

Implementation of a landscape design that is intended to restore landscape processes, vegetative structures, and landscape patterns to more natural conditions, will restore the ability of the landscape to create a rich variety of habitats for native species.

In addition, this project complies with the Northwest Forest Plan, and all of its applicable standards and guidelines. Option 9 was expected to maintain and restore late-successional and old-growth forest ecosystems, and provide adequate viability levels for all late successional species including species listed in the FSEIS ROD Table C-3. The Watershed Analyses for the McKenzie River/Quartz Creek Watershed (Quartz Creek/Minor Tributaries WA) did not identify any need for increased protection above the ROD recommendations. Adequate amounts of down woody debris will be retained on site. This project will not affect the amount or distribution of these habitats or species that use these habitats.