

Water Quality Restoration Plan

Southern Oregon Coastal Basin

Shady Cove-Rogue River Watershed

Bureau of Land Management (BLM), Medford District

Butte Falls Resource Area

February 2011

Hydrologic Unit Code Number	17100300707	
WQRP Area/Ownership	BLM:	22,442 acres (30%)
	Private:	50,984 acres (69%)
	State of Oregon:	607 acres (1%)
	COE:	162 acres (<1%)
	Oregon State Forest:	80 acres (<1%)
	Total:	74,275 acres(100%)
303(d) Stream Miles Assessed	Total: 8.2 miles BLM Ownership: 2.1 miles	
303(d) Listed Parameters	E. coli, Dissolved Oxygen	
Key Resources and Uses	Salmonids, domestic, aesthetic	
Known Human Activities	Agriculture, forestry, roads, urban and rural residential development, recreation	
Natural Factors	Geology: combination of river deposits, debris flows, and Cenozoic volcanics and volcanic derived sedimentary rocks Soils: derived from volcanic rocks and volcanic sedimentary rocks	

Statement of Purpose

This water quality restoration plan is prepared to meet the requirements of Section 303(d) of the 1972 Federal Clean Water Act.

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Element 1. Condition Assessment and Problem Description

A. Introduction

This document describes how the Bureau of Land Management (BLM) will meet Oregon water quality standards for 303(d) listed streams on federal lands. In July 2003, the BLM signed a memorandum of agreement (MOA) with the Oregon Department of Environmental Quality (ODEQ) defining how water quality rules and regulations regarding Total Maximum Daily Loads (TMDLs) will be met. BLM agreed to develop or revise existing Water Quality Restoration Plans (WQRPs) as described in MOA, and that they would be the TMDL Implementation Plans for BLM (ODEQ 2008). Its organization is designed to be consistent with the ODEQ's Water Quality Management Plan (WQMP) (ODEQ 2008). The area covered by this WQRP includes all lands managed by the BLM, Medford District within the Shady Cove-Rogue River Watershed. This area is referred to as the plan area or Shady Cove-Rogue River Watershed.

Beneficial Uses

The Oregon Environmental Quality Commission has adopted numeric and narrative water quality standards to protect designated beneficial uses (Table 1). In practice, water quality standards have been set at a level to protect the most sensitive uses (Table 2), fish and aquatic life (ODEQ 2008). Seasonal standards may be applied for uses that do not occur year round.

Table 1. Beneficial Uses in the Shady Cove-Rogue River Watershed (OAR 340-41-271 (ODEQ 2008))

<i>Beneficial Use</i>	<i>Occurring</i>	<i>Beneficial Use</i>	<i>Occurring</i>
Aesthetic Quality	✓	Boating	✓
Commercial Navigation & Trans	✓	Fish and Aquatic Life	✓
Fishing	✓	Hydro Power	✓
Industrial Water Supply	✓	Irrigation	✓
Livestock Watering	✓	Private Domestic Water Supply	✓
Public Domestic Water Supply	✓	Water Contact Recreation	✓
Wildlife and Hunting	✓		

Table 2. Sensitive Beneficial Uses in the Shady Cove-Rogue River Watershed

<i>Sensitive Beneficial Use</i>	<i>Species¹</i>
Salmonid Fish Spawning & Rearing	Coho ¹ , summer steelhead, winter steelhead
Resident Fish & Aquatic Life	Resident Fish: Rainbow trout, cutthroat trout, Other Aquatic Life: Central valley fairy shrimp

¹ threatened under Federal Endangered Species Act

Listing Status

Section 303 of the Clean Water Act of 1972, as amended by the Water Quality Act of 1987, provides direction for designation of beneficial uses and limiting discharge of pollutants to waters of the state. The ODEQ is responsible for designating streams that do not meet established water quality criteria for one or more beneficial uses. These streams are included on the state’s 303(d) list, which is revised every two years, and submitted to the Environmental Protection Agency (EPA) for approval. Section 303 of the Clean Water Act further requires that TMDLs be developed for waters included on the 303(d) list. A TMDL defines the amount of pollution that can be present in the waterbody without causing water quality standards to be violated. A WQMP is developed to describe a strategy for reducing water pollution to the level of the load allocations and waste load allocations prescribed in the TMDL. The approach is designed to restore the water quality and result in compliance with the water quality standards, thus protecting the designated beneficial uses of waters of the state.

At the time of this writing, the DEQ’s 2004/2006 303(d) list is the most recent release. Surface waters in the plan area do not meet water quality standards for bacteria (*E. coli*), and dissolved oxygen. The Rogue River Basin TMDL set TMDLs to address temperature and bacteria impairments and this WQRP will address those listings on BLM-administered lands. At the time of the writing of the TMDL, there were insufficient data to address the dissolved oxygen listings in the Rogue River Basin. DEQ intends to revisit the Rogue River Basin dissolved oxygen impairments when the temperature and bacteria TMDLs are reviewed, on a 5-year basis. Improvements in dissolved oxygen levels are expected to occur as a result of decreasing stream temperatures (ODEQ 2008). There are two segments, Indian Creek and Reese Creek, within the plan area that were listed in the 2004/2006 303(d) list as dissolved oxygen impaired (Table 3). Only Indian Creek has dissolved oxygen impaired segments that cross BLM-administered lands. These will be addressed in the WQRP after the TMDL is established by DEQ.

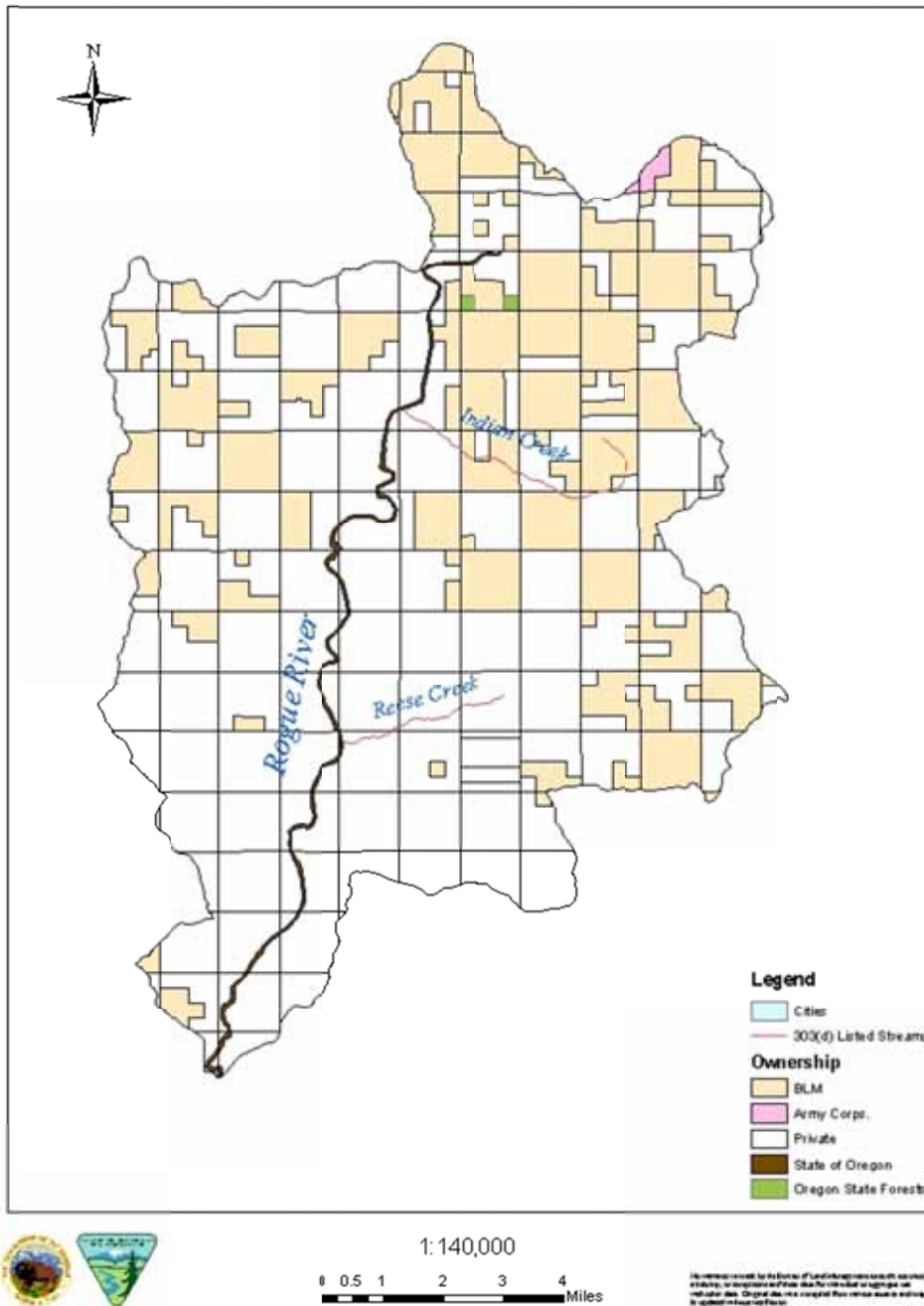
This WQRP addresses all stream listings on the 2004/2006 303(d) list for the plan area: one stream is listed for exceeding the E. Coli criterion, and two streams exceed the Dissolved Oxygen (DO) criterion (Table 3).

Table 3. 2002 303(d) Listings in the Rogue River- Shady Cove Watershed (ODEQ 2008)

303(d) List	Stream Segment	Listed Parameter	Season	Applicable Rule (at time of listing)	Miles Affected
2002	Indian Creek	Dissolved Oxygen	Summer	OAR 340-041-0016(1)(a)(c)(2)	5.2
2002	Reese Creek	Dissolved Oxygen	Summer	OAR 340-041-0016(1)(a)(c)(2)	3.0
2004	Reese Creek	E. coli	Summer	OAR 340-041-0009(1)(A)	3.0
Total Stream Miles listed for Dissolved Oxygen					8.2
Total Stream Miles listed for E. coli Criteria (Summer)					3.0

Within the plan area, there are a total of 8.2 stream miles on the 2004/2006 303(d) list, of which 2.1 miles cross BLM-managed lands. The water quality limited stream reaches on BLM-managed lands are: Indian Creek, 2.1 miles for DO.

Figure 1. Shady Cove-Rogue River Watershed 303(d) Listed Streams



B. Watershed Characterization

The Shady Cove-Rogue River Watershed covers approximately 116-square miles (74,275 acres) on the border between the Klamath Mountains and the West Cascades Provinces in southwestern Oregon (Figure 2). The plan area lies between the confluences of the Rogue River with Big Butte and Little Butte Creeks. The Shady Cove-Rogue River Watershed is located in the Upper Rogue River Subbasin (Figure 3), and is the meeting place of the major tributaries to the Rogue that make up the subbasin. The Upper Rogue Subbasin is subdivided into eight watersheds: Big Butte Creek, Elk Creek, Headwaters Rogue River, Little Butte Creek, Rogue River-Lost Creek, Shady Cove-Rogue River, South Fork Rogue River, and Trail Creek (Figure 4). The major streams within the plan area are: Brush Creek, Constance Creek, Cricket Creek, Dry Creek, Hog Creek, Indian Creek, Lewis Creek, Long Branch Creek, and Reese Creek.

The Shady Cove-Rogue River Watershed is within Jackson County and includes the town of Shady Cove. Some of the peaks that define the watershed boundary are: Cedar Buttes, Green Top, Long Mountain, Upper Table Rocks, and Willy Rock. Elevation in the plan area ranges from approximately 1,200 feet at the confluence of the Rogue River and Little Butte Creek to 3,800 feet at Willy Rock

Figure 2. Location of the Shady Cove-Rogue River Watershed

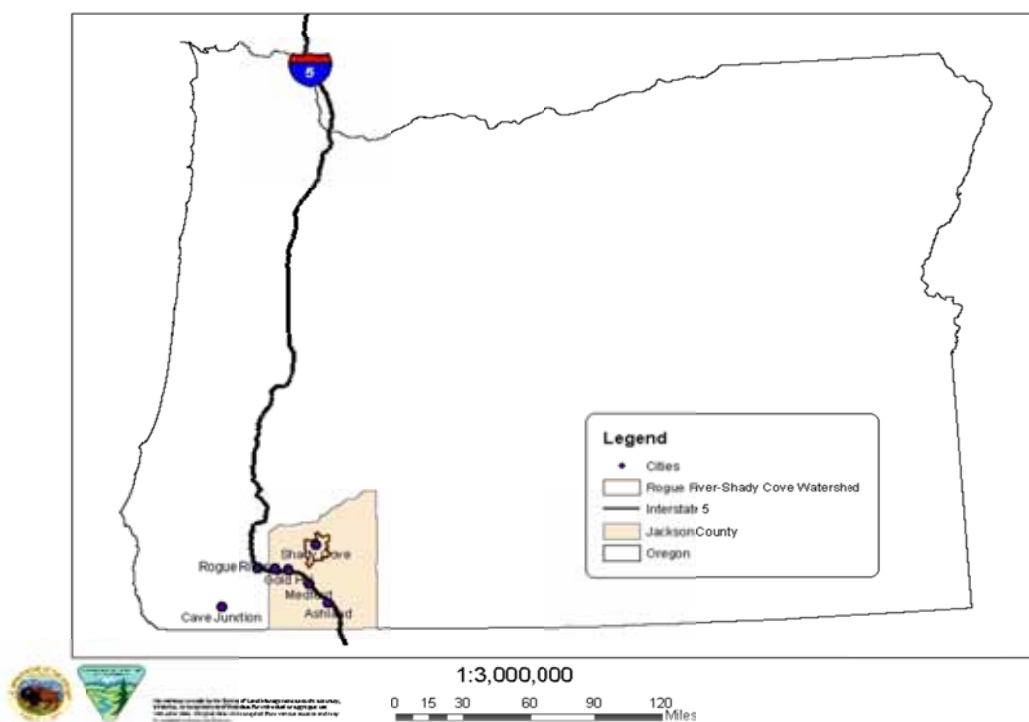


Figure 3. Rogue Basin and the Upper Rogue Subbasin

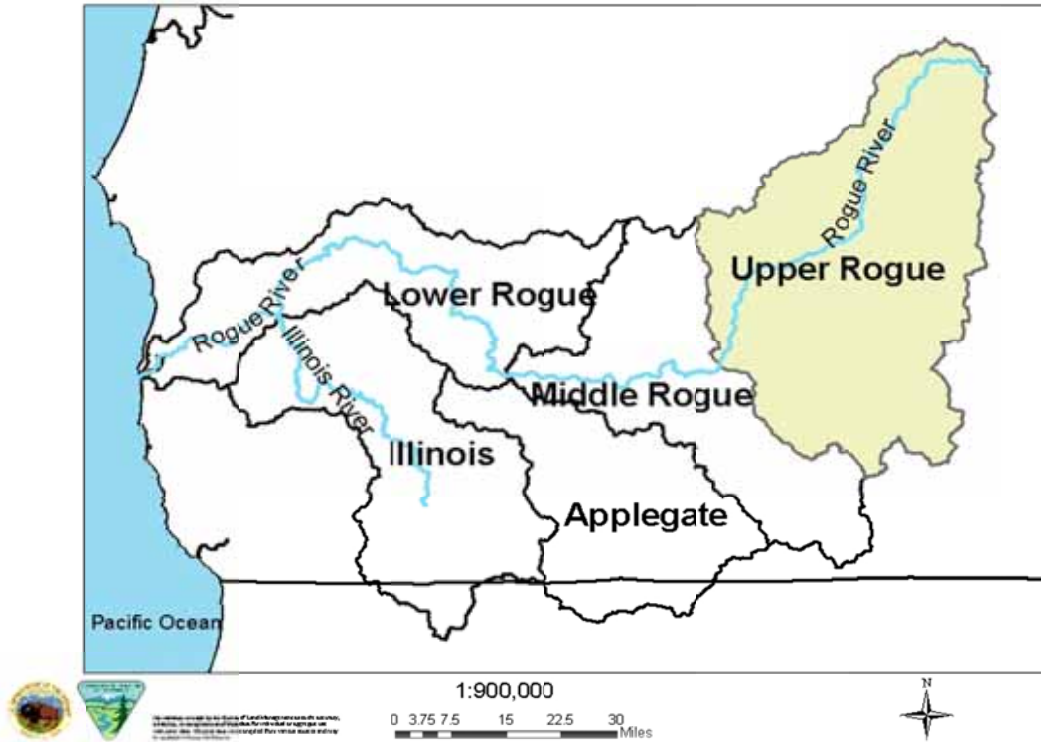
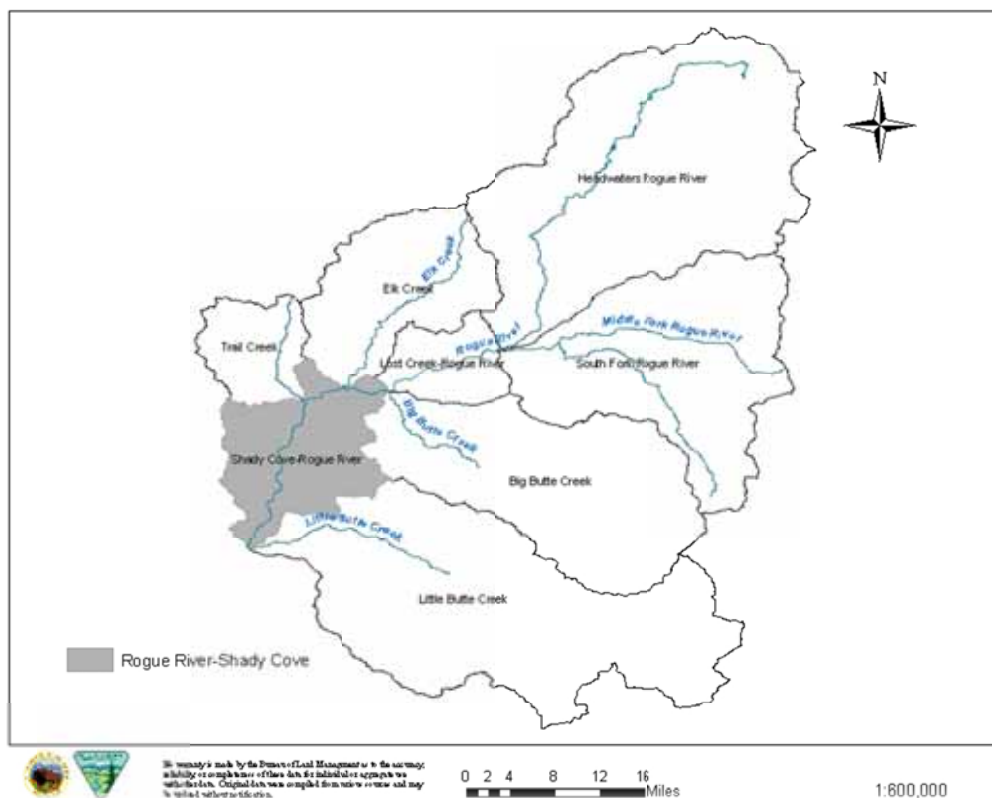


Figure 4. Watersheds within the Upper Rogue Subbasin



Land Ownership and Use

The BLM administers 30 percent of the lands within the Shady Cove-Rogue River Watershed (Table 4 and Figure 5). BLM lands are intermingled with private lands. Most of the remaining 70 percent of the plan area consists of private lands, of which approximately 7 percent are managed as industrial forest. Only 30 percent of the historic vegetation in the plan area consisted of commercial timber lands.

Ownership of the remaining privately-held land in the watershed is typically used for raising livestock or held in relatively small parcel holdings along the major streams. Substantial urban-residential and commercial land-use occurs in and around Shady Cove, and considerable residential ownership along the Rogue River throughout the plan area.

Figure 5. Land Ownership in the Shady Cove-Rogue River Watershed

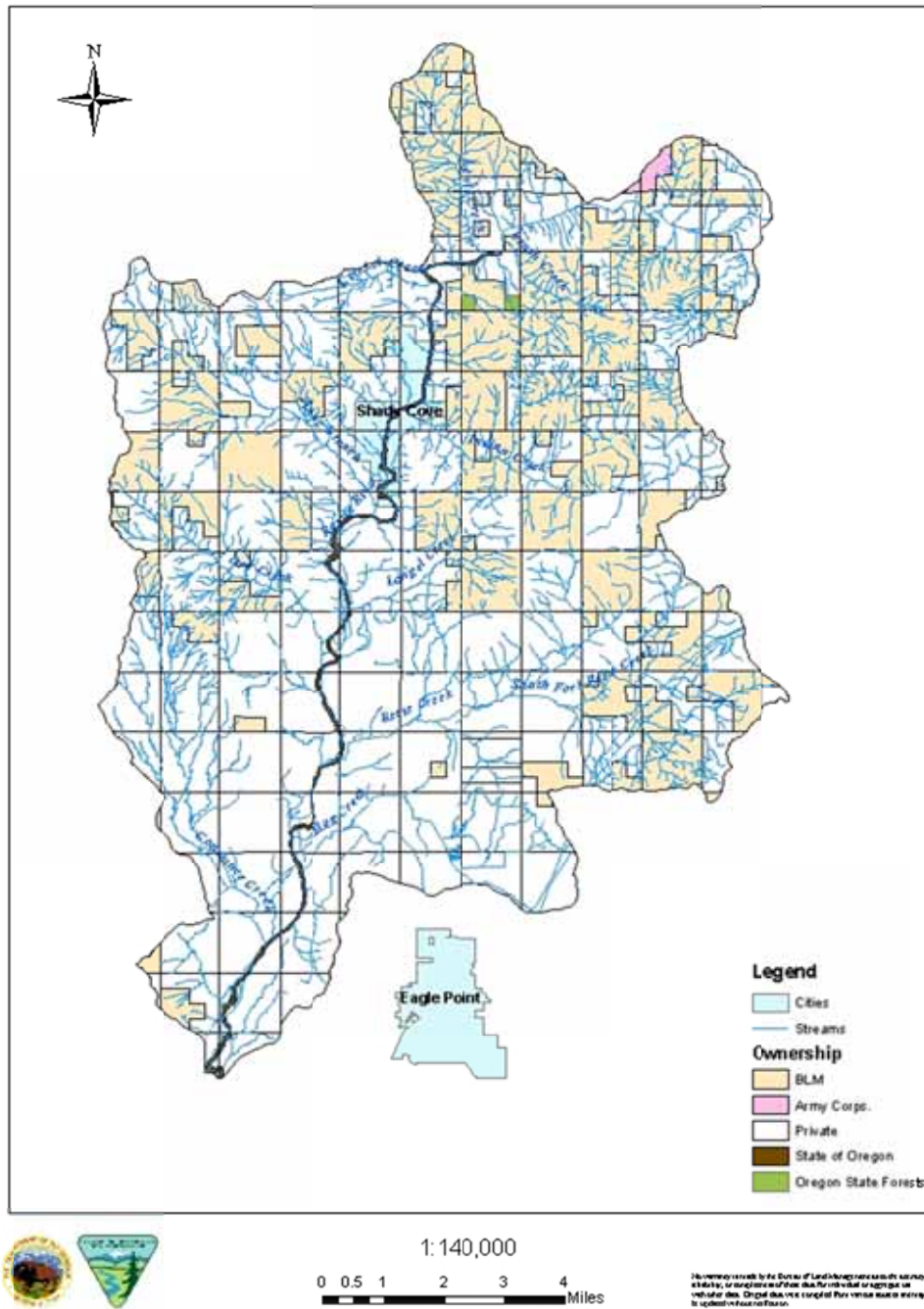


Table 4. Ownership within the Shady Cove-Rogue River Watershed

	Acres	Percent
BLM – Butte Falls Resource Area	22,442	30%
Private	50,984	69%
State of Oregon	607	1%
Army Corps. of Engineers	162	< 1%
Oregon State Forests	80	< 1%
Total	74,275	100%

Major land uses in the Shady Cove-Rogue River Watershed include agriculture, timber, and recreation. Cattle operations are the largest non-forestry agricultural venture. The BLM manages portions of 15 grazing allotments on 12,809 acres in the plan area (USDI 2010). Other agriculture in the plan area is varied and limited to mostly small acreage, domestic farms and gardens located along the major streams.

Logging has occurred in the plan area since the 1850s when timber was used by settlers. It wasn't until the second half of the twentieth century that timber became a major commodity. In the last 64 years, 17 percent of BLM lands in the plan area have had been harvested selectively as mortality salvage or to lighten stand density. Historically, 34 percent of the watershed was composed of commercial softwood stands; 30 percent Ponderosa Pine and 4 percent Douglas Fir stands.

The Rogue River provides recreational fishing and rafting opportunities and is a vital draw of economic benefits to the town of Shady Cove. Dispersed camping, hunting, and horseback riding occur in the plan area.

Geology

The Shady Cove-Rogue River Watershed straddles the contact between the eastern edge of the Klamath Mountains Geologic Province (also called the Siskiyou Mountains), and the western edge of the West Cascades Province. The geology of the plan area can be mostly characterized by volcanic rocks and sedimentary rocks derived from erosion of volcanic rocks, that have formed in the last 30-60 million years. Valley-fill sediments resulting from fluvial deposits cover most of the valley flats.

The geologic materials have been subject to weathering, mass wasting and erosion processes controlled by past and present climatic conditions. Landforms in the plan area visible today are the result of continual interactions between climate and regional geology over eons of time. The Upper Table Rocks in the very southwest portion of the plan area, is made up of Eocene age basalts that flowed into ancient valleys and then proved more resistant to weathering than the surrounding rock.

The various types of rock distributed throughout the watershed affect soils. Different mineralogy, structures, inherent strength of the bedrock, and resistance to erosion and mass wasting influence the landforms. Volcanic and non-marine sedimentary rock and their associated soils are the predominant rock and soil types found in the analysis area. A wide variety of soil types are found throughout the plan area.

Climate

Mild, wet winters and hot, dry summers characterize the Shady Cove-Rogue River Watershed. During the winter months, the moist, westerly flow of air from the Pacific Ocean results in frequent storms of varied intensities. Average annual precipitation in the analysis area ranges from approximately 24 inches at the lower elevations to 36 inches at the higher elevations. Winter precipitation is predominately in the form of rain, with the majority occurring in the late fall, winter, and early spring. A mixture of snow and rain occurs between approximately 3,500 feet and 5,000 feet and this area is referred to as either the rain-on-

snow zone or transient snow zone (TSZ). The snow level in this zone fluctuates throughout the winter in response to alternating warm and cold fronts. Almost all of the plan area is at an elevation below 3,500 feet. Less than one-tenth of one percent is of the plan area is in the TSZ.

During the summer months, the area is dominated by the Pacific high pressure system, which results in hot, dry summers. Summer rainstorms occur occasionally and are usually of short duration and limited area coverage. Air temperatures can display wide variations daily, seasonally, and by elevation.

Streamflows

Although no streamflow data exists for the unregulated Rogue River tributaries within the plan area, it can be assumed based on flow information from other unregulated streams in the Rogue Basin that flows generally follow the seasonal precipitation pattern. Moderate to high flows generally occur from mid-November through April. Low flows normally coincide with the period of low precipitation from July through October.

Flow data for the Rogue River is collected at Dodge Bridge, six miles upstream from the confluence with Little Butte Creek. Gage data shows a record high flow of 87,600 cubic feet per second (cfs) in December 1964 and a record low flow of 567 cfs in February of 1977 (USGS 2010). Flow in the Rogue River in the plan area can vary with release from Lost Creek Dam, and as a result of agricultural withdrawals and municipal water diversions upstream.

Aquatic Wildlife Species

Coho salmon (*Oncorhynchus kisutch*) in the Rogue River Basin belong to the Southern Oregon-Northern California Coast Evolutionarily Significant Unit (ESU), and were listed under the Federal Register by NOAA's National Marine Fisheries Service as threatened in 1997 and reaffirmed as threatened in 2005 (ODEQ 2008). Coho salmon are present in the Shady Cove-Rogue River Watershed (Figure 6). ODFW spawning surveys show that coho salmon spawn in the first 4.7 miles of Indian Creek and 5.6 miles of Reese Creek and South Fork Reese Creek (Table 5 and Figure 6). Coho adults move up the stream to spawn as soon as flows are high enough to allow them, usually December.

The tributaries within the Shady Cove-Rogue River Watershed support runs of summer steelhead (*O. mykiss*) (Figure 7). Like coho, summer steelhead adults enter the tributaries as soon as flow levels are sufficient, usually in December. Spawning occurs in December through February, fry emerge in April and May, and most fry migrate out in May and June, often only a few days before the streams become intermittent or dry (USDI 2005).

ODFW records show current summer and winter steelhead use in several of the plan area tributaries to the Rogue River (Table 5 and Figure 7). ODFW spawning records from 1976 to 1999 show a decline in numbers of steelhead redds. Although the declining trend is obvious, the reasons for the decline are not. The drought conditions during the 1980s and early 1990s, ocean conditions, an increase in roads and culverts, reduction of riparian vegetation, extensive clearcut timber harvesting, and irrigation withdrawals can affect natural flow patterns, impacting the ability of summer steelhead to use these tributaries for spawning (USDI 2005).

Non-anadromous, resident fish species in the Shady Cove-Rogue River Watershed include cutthroat trout (*Oncorhynchus clarki*) and rainbow trout (*Oncorhynchus mykiss*) (see

Table 5 and Figure 8).

Table 5. Approximate Stream Miles of Verified Salmonid Use in the Shady Cove-Rogue River Watershed

Stream²	Spring Chinook	Fall Chinook	Coho	Summer Steelhead	Winter Steelhead	Cutthroat Trout	Rainbow Trout
Brush Creek	None	None	None	1.4	1.4	1.4	1.4
Constance Creek	None	None	None	4.9	4.9	4.9	4.9
Cricket Creek	None	None	None	0.5	0.5	0.5	0.5
Dry Creek	None	None	None	3.6	3.6	3.6	4.4
Hog Creek	None	None	None	2.5	2.5	2.5	2.5
Indian Creek	None	None	4.7	5.3	5.3	5.3	5.3
Langel Creek	None	None	None	0.1	0.1	0.1	0.1
Long Branch Creek	None	None	None	3.5	3.5	3.5	4.7
Reese Creek	0.7	0.7	5.6	9.1	9.1	9.1	9.2
Rogue River	23.1	23.1	23.1	23.1	23.1	23.1	23.1
Watershed Totals	23.8	23.8	33.4	54.0	54.0	54.0	56.1

² including tributaries

Figure 6. Coho Salmon Distribution in the Shady Cove-Rogue River Watershed

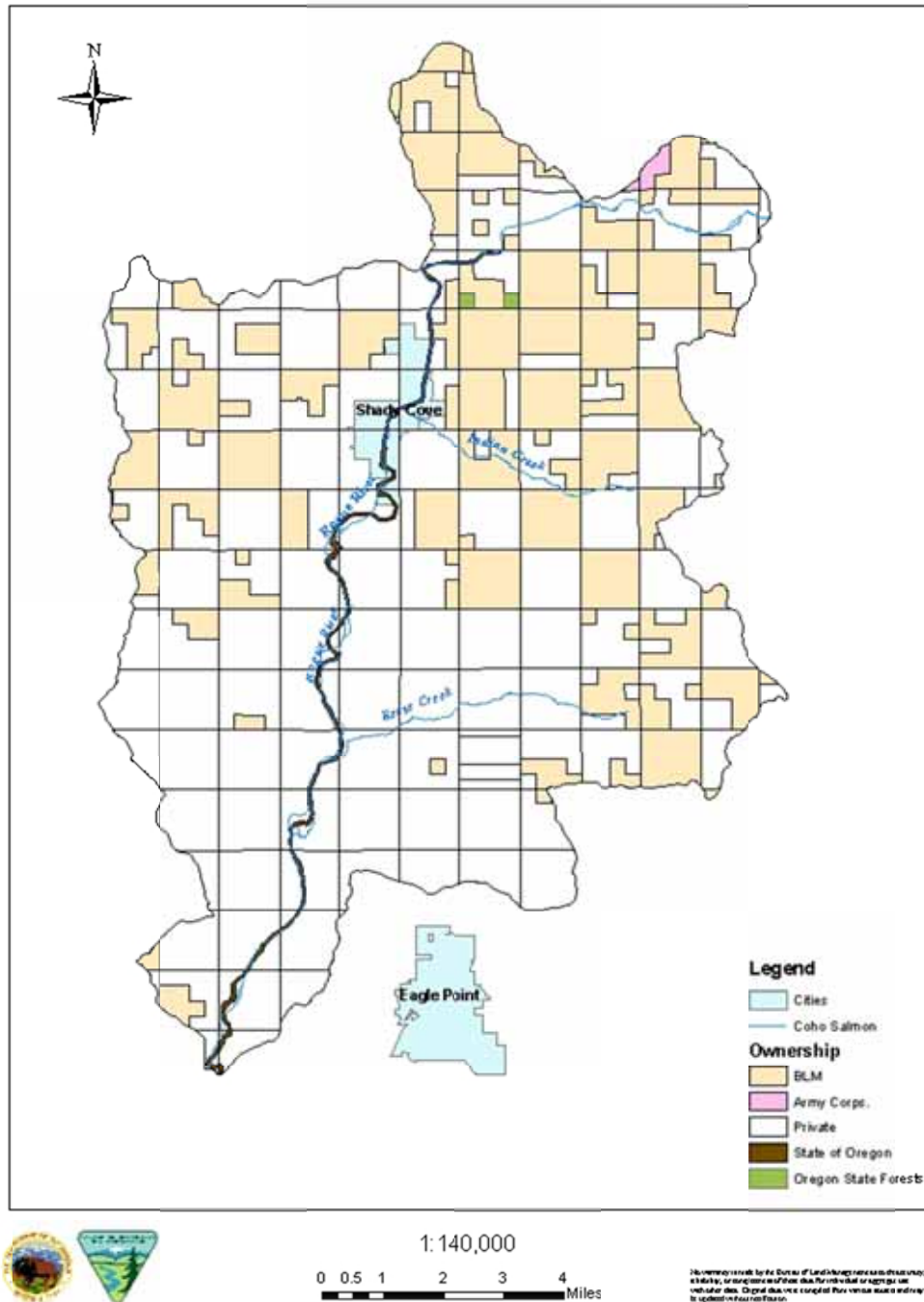
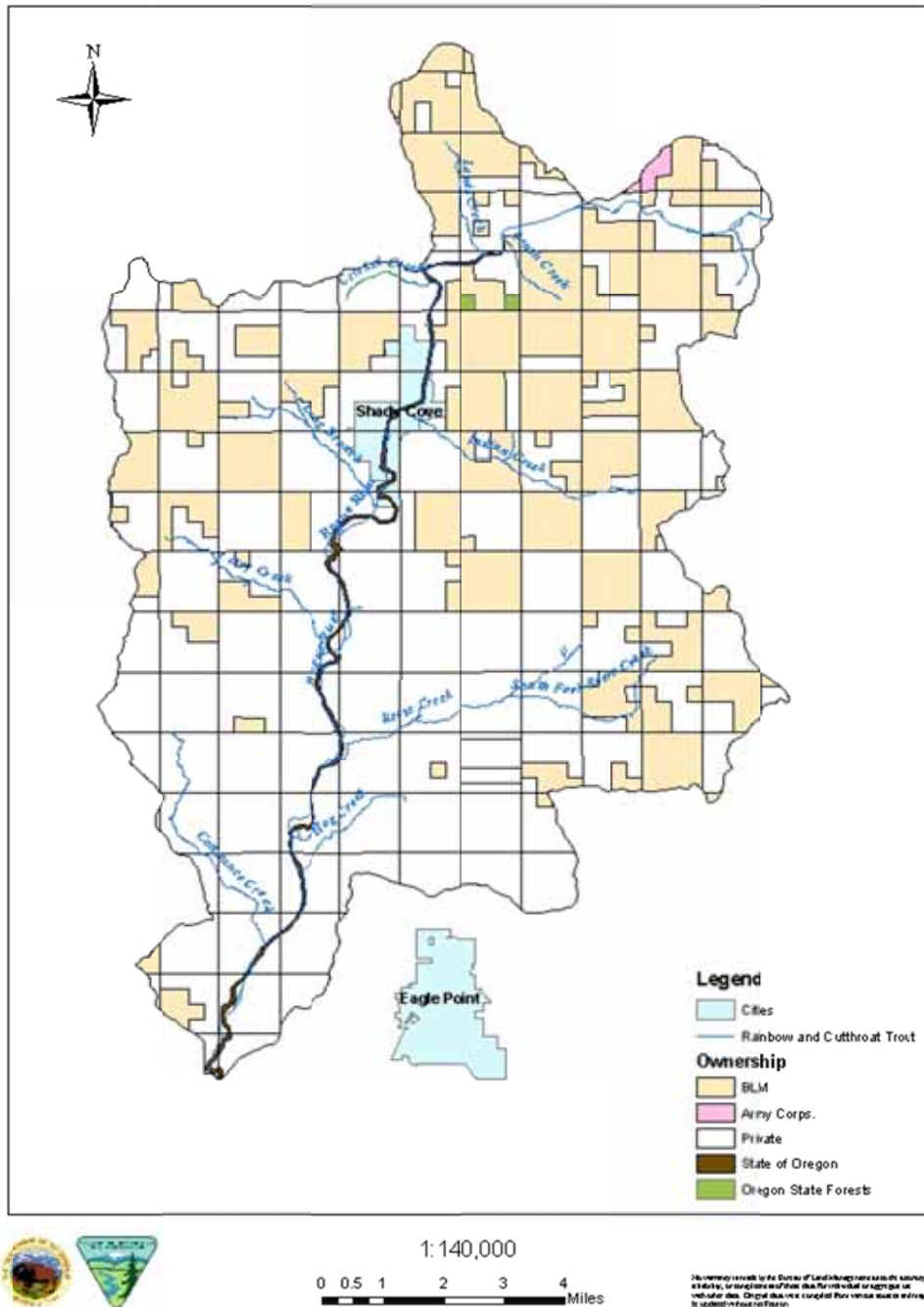


Figure 8. Resident Trout Distribution in the Shady Cove-Rogue River Watershed



Most of the major tributaries in the plan area are in highly developed areas of primarily rural residential use. Development including residences, roads, and irrigation diversions, encroach on riparian corridors, creating problems associated with high road densities, agricultural diversions, and the related runoff. The

tributaries have become channelized and exposed to increased sedimentation, reducing the potential available fish habitat.

Watershed Analysis

While the June 1995 Record of Decision and Resource Management Plan (RMP) (USDI 1995) recommended watershed analysis for the entire planning area of the Medford Bureau of Land Management, no analysis has yet been performed for the Shady Cove-Rogue River Watershed.

A summary of historical and present watershed conditions in the Shady Cove-Rogue River Watershed have been compiled from watershed analysis completed in other watersheds in the Butte Falls Resource Area (BFRA) similar to the plan area (Table 6). Additional analysis and recommendations have been included in this WQRP where the watershed analysis data was incomplete or new information was available.

Table 6. Summary of Watershed Conditions on BLM-Administered Lands in the Shady Cove-Rogue River Watershed

Riparian Vegetation	
Historical Condition Present Condition	<ul style="list-style-type: none"> • Late-seral vegetation dominant. • Diverse mix of species and age classes. • Mature hardwoods and conifers with dense understory. • Diverse patchwork of vegetation across the landscape, including non-forest.
Forest Health & Productivity	
Historical Condition Present Condition	<ul style="list-style-type: none"> • Frequent, low intensity fires maintained low fuel levels and open under-story. • Forest stands had fewer trees per acre with trees of larger diameter. • Areas of open mature black oak forest. • Fire exclusion resulting in high fuel loads. • High vegetation densities resulting in low vigor and/or poor growth. • Forest stands lack resiliency.
Large Wood	
Historical Condition Present Condition	<ul style="list-style-type: none"> • Probably an abundant supply of large wood in the stream channels. • Some stream reaches lack adequate large wood. • Road stream crossings disrupt transport of wood and sediment.
Roads	
Historic Condition Present Condition	<ul style="list-style-type: none"> • Few roads before industrial timber harvesting began in the early 1950s. • Areas with high road density. • Roads in riparian areas. • High number of stream crossings with many culverts undersized for 100-year flood. • Stream network extension (due to road ditch lines) increases winter peak flows.
Flow Regime	
Historic Condition Present Condition	<ul style="list-style-type: none"> • Channel morphology developed in response to climatic conditions and natural ranges of streamflows. • Most likely, peak flows were lower in magnitude and frequency. • Summer low flows were directly related to the amount and timing of precipitation events. • Winter peak flows possibly increased by roads and harvest. • Summer low flows reduced by water withdrawals. • Flows in the Rogue River now regulated by Lost Creek Dam

C. E. coli

Introduction

Water contact recreation is the most sensitive beneficial use affected by high levels of *Esherichia coli* for freshwaters (ODEQ 2008).

The current Oregon water quality bacteria standard is found in chapter 340, division 41, section 9 of the Oregon Administrative Rules (OARs) (ODEQ 2010). The following is an excerpt from the standard that applies to nonpoint sources in the Shady Cove-Rogue Riverr Watershed.

(1) Numeric Criteria: Organisms of the coliform group commonly associated with fecal sources (MPN or equivalent membrane filtration using a representative number of samples) may not exceed the criteria described in paragraphs (a) and (b) of this paragraph:

(a) Freshwaters and Estuarine Waters Other than Shellfish Growing Waters:

(A) A 30-day log mean of 126 E. coli organisms per 100 milliliters, based on a minimum of five (5) samples;

(B) No single sample may exceed 406 E. coli organisms per 100 milliliters.

(3) Animal Waste: Runoff contaminated with domesticated animal wastes must be minimized and treated to the maximum extent practicable before it is allowed to enter waters of the State.

(4) Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing, or shellfish propagation, or otherwise injurious to public health may not be allowed.

(10) Water Quality Limited for Bacteria: In those water bodies, or segments of water bodies identified by the Department as exceeding the relevant numeric criteria for bacteria in the basin standards and designated as water-quality limited under section 303(d) of the Clean Water Act, the requirements specified in section 11 of this rule and in OAR 340-041-0061 (12) must apply.

(11) In water bodies designated by the Department as water-quality limited for bacteria, and in accordance with priorities established by the Department, development and implementation of a bacteria management plan may be required of those sources that the Department determines to be contributing to the problem. The Department may determine that a plan is not necessary for a particular stream segment or segments within a water-quality limited basin based on the contribution of the segment(s) to the problem. The bacteria management plans will identify the technologies, best management practices and/or measures and approaches to be implemented by point and nonpoint sources to limit bacterial contamination. For nonpoint sources, the bacteria management plan will be developed by designated management agencies (DMAs) which will identify the appropriate best management practices or measures and approaches

The 2004/2006 303(d) list includes one stream within the Shady Cove-Rogue River Watershed that is listed for exceeding E. coli standards which is Reese Creek (Table 7 and Figure 9). There are no E.coli-listed streams on BLM-administered lands within the Shady Cove-Rogue River Watershed.

Table 7. 303(d) E. coli-Listed Reaches in the Shady Cove-Rogue River Watershed

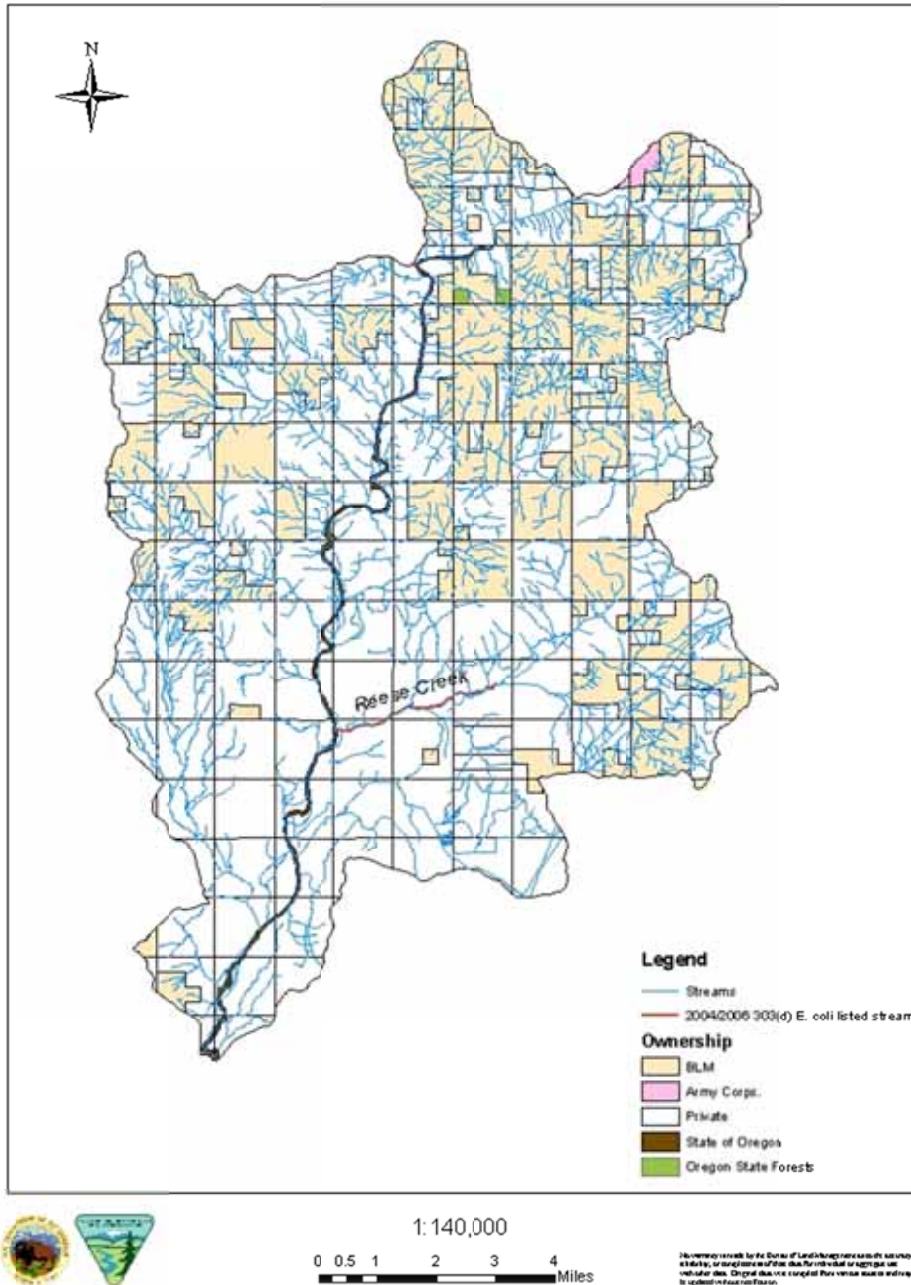
303(d) List	Stream Segment	Season	Applicable Rule (at time of listing)	Total Miles Affected	BLM Miles Affected
2004	Reese Creek	Summer	OAR 340-041-0009(1)(a)(A,B)	3.0	0.0
Total Stream Miles listed for E. coli Criteria (Summer season = June 1 –September 30)				3.0	0.0

E. coli Sources

Fecal coliform bacteria are produced in the guts of warm-blooded vertebrate animals, and indicate the presence of pathogens that cause illness in humans. E. coli is a species of fecal coliform bacteria. A variety of everyday activities cause bacterial contamination in surface waters. The largest sources of contamination include runoff from agricultural, industrial, rural and urban residential activities.

Sources of bacteria from BLM-administered lands include animal feces (wild and domestic, including livestock such as cattle) and inadequate waste disposal by recreational users. Management measures used to limit the presence of livestock in stream channels or riparian zones will minimize the amount of bacterial contamination in surface water from BLM-managed lands.

Figure 9. 2004/2006 303(d) E. coli-Listed Streams for the Shady Cove-Rogue River Watershed



Element 2. Goals and Objectives

The overall long-term goal of this WQRP is to achieve compliance with water quality standards for the 303(d) listed streams in the Shady Cove-Rogue River Watershed. The WQRP identifies TMDL implementation strategies to achieve this goal. Recovery goals will focus on protecting areas where water quality meets standards and avoiding future impairments of these areas, and restoring areas that do not currently meet water quality standards.

The maintenance and improvement of water quality conditions on BLM-administered land in the Shady Cove-Rogue River Watershed would be dependent upon implementation of the Medford District RMP (USDI 1995). The RMP includes best management practices (BMPs) that are intended to prevent or reduce water pollution to meet the goals of the Clean Water Act. While no 303(d) listings occur on BLM-administered lands in the plan area, there is room for improvement of water quality conditions as stated in the Medford District RMP (USDI 1995).

Paramount to recovery is adherence to the Standards and Guidelines of the Northwest Forest Plan (NWFP) as amended, (USDA and USDI 2004) to meet the aquatic conservation strategy (ACS). This includes protection of riparian areas and necessary silvicultural treatments to achieve vegetative potential as rapidly as possible. The ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands. The NWFP requires federal decision makers to ensure that proposed management activities are consistent with ACS objectives. The NWFP amendment in March 2004 clarified provisions relating to the ACS. It explains that the ACS objectives were intended to be applied and achieved at the fifth-field watershed and larger scales, and over a period of decades or longer rather than in the short-term. Instruction memorandum OR-2007-060 (dated 5/2/2007) *Compliance with Aquatic Conservation Strategy regarding March 20, 2007 Western Washington District Court Opinion on the 2004 Aquatic Conservation Strategy Supplemental Environmental Impact Statement* goes further to state that consistency with the ACS objectives shall be conducted at the short-term & long-term temporal scale and at the site and watershed spatial scales. ACS objectives are listed on page B-11 of the NWFP Record of Decision (ROD) (USDA and USDI 1994). ACS objectives 3-8 contain guidance related to maintaining and restoring water quality. In general, the objectives are long range (10 to 100 years) and strive to maintain and restore ecosystem health at the watershed scale.

Element 3. Identification of Responsible Parties

The BLM is recognized by ODEQ as a Designated Management Agency (DMA) for implementing the Clean Water Act on BLM-administered lands in Oregon. The BLM has signed a MOA with the ODEQ that defines the process by which the BLM will cooperatively meet state and federal water quality rules and regulations. The director of ODEQ and the BLM State Director are responsible for ensuring implementation of the agency's MOA.

This WQRP covers federal land in the Shady Cove-Rogue River Watershed of the Rogue River and was prepared by the BLM, Medford District with the assistance of the ODEQ. The BLM will be responsible for implementing the management actions contained in this plan. The field manager for the BFRA within the BLM, Medford District is responsible for the creation, implementation, and maintenance of this WQRP.

This WQRP will be submitted to the ODEQ and it will be inserted in the Upper Rogue Subbasin WQMP.

It must be noted that 100 percent of the 303(d) listed stream miles in the plan area are located on lands under private jurisdiction. While partnerships with private, local, and state organizations will be pursued, the BLM can only control the implementation of this WQRP on BLM lands.

Element 4. Proposed Management Measures

The NWFP ACS describes general guidance for managing riparian reserves to meet the ACS objectives. The riparian reserves, key watersheds, watershed analysis, and watershed restoration components of the ACS are designed to operate together to maintain and restore the productivity and resiliency of riparian and aquatic ecosystems.

Specific NWFP standards and guidelines (USDA and USDI 1994, pp. C-31-C-38) direct the types of activities and how they will be accomplished. These standards and guidelines effectively serve as general BMPs to prevent or reduce water pollution in order to meet the goals of Clean Water Act compliance. Riparian reserve widths are determined from the standards and guidelines (USDA and USDI 1994, p. C-30). The reserve width for fish-bearing streams, lakes, and natural ponds in the plan area is 362 feet slope distance on each side of the stream or waterbody. Non-fish bearing streams, intermittent streams, constructed ponds, reservoirs, and wetlands receive a reserve width of 162 feet slope distance on each side of the stream or waterbody. These distances are respectively based on two-times and one-time the site potential tree height that has been estimated by the BLM for the watershed.

The Medford District RMP includes BMPs that are important for preventing and controlling nonpoint source pollution to the “maximum extent practicable” (USDI 1995, pp. 149-177). BMPs are developed on a site-specific basis and presented for public comment during the National Environmental Policy Act (NEPA) process. One element of BMP implementation includes effectiveness monitoring and modification of BMPs when water quality goals are not being achieved.

Element 5. Time Line for Implementation

The major provisions of this plan have already been implemented. Protection of riparian areas along all streams has been ongoing since the NWFP became effective in 1994. Inherent in the NWFP implementation is the passive restoration of riparian areas that ensued as a result of the riparian reserves. Implementation of active restoration activities beyond the inherent passive riparian restoration occurs in the context of watershed analysis and through site-specific projects. Restoration projects require analysis under NEPA. The timing for implementation of those activities is dependent on funding availability.

The problems leading to water quality limitations and 303(d) listing have accumulated over many decades. Natural recovery and restorative management actions to address these problems will occur over an extended period of time. Implementation will continue until the restoration goals, objectives, and management measures as described in this WQRP are achieved. While active restoration may provide immediate, localized improvement, recovery at the watershed scale is long-term in nature. The ACS contained in the NWFP (as amended, USDA and USDI 2004) describes restoration timeframes. ACS seeks to prevent further degradation and restore habitat over broad landscapes, and to individual project

sites or small watersheds. Because restoration activities are based on natural disturbance processes, it may take decades, possibly more than a century to achieve ACS objectives.

Element 6. Reasonable Assurance of Implementation

The BLM BFRA Field Manager is responsible for ensuring this WQRP is implemented, reviewed, and amended as needed. This official is responsible for all WQRPs for lands under their jurisdiction. The field manager will ensure coordination and consistency in plan development, implementation, monitoring, review, and revision. The manager will also ensure priorities are monitored and revised as needed and review and consider funding needs for this and other WQRPs in annual budget planning.

The BLM is committed to working cooperatively with all interested parties in the plan area. This includes watershed councils, other government agencies, and private entities. The problems affecting water quality are widespread; coordination and innovative partnerships are key ingredients to successful restoration efforts.

The BLM, Medford District intends to implement this plan within current and future funding constraints. Implementation and adoption of the MOA with the ODEQ also provide assurances that water quality protection and restoration on lands administered by the BLM will progress in an effective manner.

Element 7. Monitoring and Evaluation

Monitoring and evaluation have two basic components: 1) monitoring the implementation of this WQRP and 2) monitoring the physical, chemical, and biological parameters for water quality. Monitoring information will provide a check on progress being made toward achieving the TMDL allocations and meeting water quality standards, and will be used as part of the adaptive management process.

The objectives of this monitoring effort are to demonstrate long-term recovery, better understand natural variability, track implementation of projects and BMPs, and evaluate effectiveness of TMDL implementation. This monitoring and feedback mechanism is a major component of the “reasonable assurance of implementation” for this WQRP.

The NWFP and the BLM Medford District RMP are ongoing federal land management plans. The NWFP, effective in 1994, requires that if results of monitoring indicate management is not achieving ACS objectives, among them water quality, plan amendments may be required. These plan amendments could, in part, redirect management toward attainment of state water quality standards.

RMP monitoring will be conducted as identified in the BLM Medford District RMP. Monitoring will be used to ensure that decisions and priorities are being implemented, to document progress toward attainment of state water quality standards, to identify whether resource management objectives are being attained, and to document whether mitigating measures and other management direction are effective.

ODEQ will evaluate progress of actions to attain water quality standards. If ODEQ determines that implementation is not proceeding or if implementation measures are in place, but water quality standards or load allocations are not or will not be attained, then ODEQ will work with the BLM to assess the situation and to take appropriate action. Such action may include additional implementation measures,

modifications to the TMDL, and/or placing the water body on the 303(d) list when the list is next submitted to EPA.

WQRP Implementation and Effectiveness Monitoring

As restoration activities that benefit aquatic resources are completed they will be provided annually to the Interagency Restoration Database (IRDA). This database was developed by the Regional Ecosystem Office (REO) to track all restoration accomplishments by federal agencies in the areas covered by the NWFP. It is a GIS-based application and is available via the Internet at the REO website (www.reo.gov). It also contains data from the state of Oregon. The IRDA is intended to provide for consistent and universal reporting and accountability among federal agencies and to provide a common approach to meeting federal agency commitments made in monitoring and reporting restoration efforts in the Oregon Coastal Salmon Restoration Initiative. Activities that are tracked include in-stream structure and passage, riparian treatments, upland treatments, road decommissioning and improvements, and wetland treatments.

In addition, implementation and effectiveness monitoring will be accomplished for restoration projects according to project level specifications and requirements.

Water Quality Monitoring

Water quality monitoring data will be used to evaluate the success of WQRP implementation and effectiveness. Ongoing monitoring will detect improvements in water quality conditions as well as the progress toward attaining water quality standards.

Core indicators of water quality and stream health including stream temperature, stream shade, and stream channel condition will be monitored on BLM-administered land if funds and personnel are available.

Monitoring results associated with compliance with this WQRP will be submitted to the ODEQ upon request.

Stream Channel Condition Monitoring

Restoration activities designed to improve stream channel conditions (i.e. road surface and drainage improvements, road decommissioning, and unstable area protection) will be included in the IRDA.

Stream Shade Monitoring

Guidelines in the Northwest Forest Plan specify that vegetation management activities that occur within the riparian reserves must have a goal of improving riparian conditions. The existing level of stream shade provided by the adjacent riparian stand will be determined prior to riparian reserve treatments that have the potential to influence water temperature. Measurement of angular canopy density (the measure of canopy closure as projected in a straight line from the stream surface to the sun) will be made in a manner that can be repeated within the portion of the adjacent stand within one tree height of the streambank at bankfull width. The measurement will occur within the stand, and not be influenced by the opening over the actual stream channel. Immediately after treatment, the shade measurement procedure will be repeated to verify that the treatment met the prescribed goals.

Stream Temperature Monitoring

Monitoring is conducted to meet a variety of objectives, thus additional long-term monitoring sites as well as project-specific, short-term sites may be used. Objectives may include: monitor long-term temperature recovery; better understand the natural temperature variability; track potential project effects; and determine the upper extent of the problem area.

Sampling methods and quality control will follow DEQ protocol. Generally, stream temperatures will be monitored from June 1 to September 30 to ensure that critical high temperature periods are covered.

Measurements will be made with sensors programmed to record samples at least hourly. Qualified personnel will review raw data and delete erroneous data due to unit malfunction or other factors. Valid data will be processed to compute the 7-day rolling average of daily maximum temperature at each site. The resulting files will be stored in the BLM's database.

Monitoring Data and Adaptive Management

This WQRP is intended to be adaptive in nature. Sampling methodology, timing, frequency, and location will be refined as appropriate based on lessons learned, new information and techniques, and data analysis. A formal review involving BLM and ODEQ will take place every five years, starting in 2010, to review the collected data and activity accomplishment. This ensures a formal mechanism for reviewing accomplishments, monitoring results, and new information. The evaluations will be used to determine whether management actions are having the desired effects or if changes in management actions and/or TMDLs are needed.

Element 8. Public Involvement

The Federal Land Policy Management Act and NEPA require public participation for any activities proposed for federal lands. The NWFP and the Medford District RMP each went through an extensive public involvement process. Many of the elements contained in this WQRP are derived from existing land use planning documents. The NEPA process requires public involvement prior to land management actions, providing another opportunity for public participation. During this process, the BLM sends scoping letters and schedules meetings with the public. The public comment period ensures that public participation is incorporated into the decision-making process.

The ODEQ has lead responsibility for creating TMDLs and WQMPs to address water quality impaired streams for Oregon. This WQRP will be provided to the ODEQ for incorporation into the Upper Rogue Subbasin WQMP. The WQMP development will include public involvement.

Element 9. Costs and Funding

Active restoration can be quite costly, especially for road upgrades and major culvert replacements. The cost varies with the level of restoration. The cost of riparian silvicultural treatments on forested lands is generally covered with appropriated funds and will vary depending on treatment type. The cost of WQRP monitoring is estimated to be \$5,000 per year and includes data collection, database management, data analysis, and report preparation.

Funding for project implementation and monitoring is derived from a number of sources. Implementation of the proposed actions discussed in this document will be contingent on securing adequate funding. Funds for project implementation originate from grants, cost-share projects, specific budget requests, appropriated funds, revenue generating activities (such as timber sales), or other sources. Potential sources of funding to implement restoration projects on federal lands include BLM Clean Water and Watershed Restoration funds, the American Recovery and Reinvestment Act, and Title 2 funds from the Secure Rural Schools and Community Self-Determination Act of 2000 (Public Law 106-393).

Projects funded by the Title 2 program must meet certain criteria and be approved by the appropriate resource advisory committee. At least 50 percent of all project funds must be used for projects that are primarily dedicated to: road maintenance, decommissioning, or obliteration; or restoration of streams and watersheds. The available funds are based on county payments.

Element 10. Citation to Legal Authorities

The Endangered Species Act (ESA) and the Clean Water Act (CWA) are two federal laws which guide public land management. These laws are meant to provide for the recovery and preservation of endangered and threatened species and the quality of the nation's waters. The BLM is required to assist in implementing these two laws. The NWFP and RMP are mechanisms for the BLM to implement the ESA and CWA. They provide the overall planning framework for the development and implementation of this WQRP.

Clean Water Act Section 303(d)

Section 303(d) of the 1972 federal CWA as amended requires states to develop a list of rivers, streams, and lakes that cannot meet water quality standards without application of additional pollution controls beyond the existing requirements on industrial sources and sewage treatment plants. Waters that need this additional help are referred to as "water quality limited" (WQL). WQL water bodies must be identified by the EPA or by a delegated state agency. In Oregon, this responsibility rests with the ODEQ. The ODEQ updates the list of water quality limited waters every two years. The list is referred to as the 303(d) list. Section 303 of the CWA further requires that TMDLs be developed for all waters on the 303(d) list. A TMDL defines the amount of pollution that can be present in the waterbody without causing water quality standards to be violated. A WQMP is developed to describe a strategy for reducing water pollution to the level of the load allocations and waste load allocations prescribed in the TMDL, which is designed to restore the water quality and result in compliance with the water quality standards. In this way, the designated beneficial uses of the water will be protected for all citizens.

Northwest Forest Plan

In response to environmental concerns and litigation related to timber harvest and other operations on federal lands, the BLM commissioned the Forest Ecosystem Management Assessment Team to formulate and assess the consequences of management options. The assessment emphasizes producing management alternatives that comply with existing laws and maintaining the highest contribution of economic and social well being. The "backbone" of ecosystem management is recognized as constructing a network of late-successional forests and an interim and long-term scheme that protects aquatic and associated riparian habitats adequate to provide for threatened and at-risk species. Biological objectives of the NWFP include assuring adequate habitat on federal lands to aid the "recovery" of late-successional forest habitat-associated species listed as threatened under the ESA and preventing species from being listed under the ESA.

Bureau of Land Management Medford District Resource Management Plan

The RMP for the BLM Medford District provides for water quality and riparian management and is written to ensure attainment of ACS objectives and compliance with the CWA.

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