COAST FORK
WILLAMETTE
WATERSHED
STRATEGIC
RESTORATION
ACTION PLAN
2019-2029

Coast Fork Willamette Watershed Council and Partners

January 2019

Coast Fork Willamette Watershed Strategic Action Plan – Jan 2019

# **ACKNOWLEDGEMENTS**

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# **List of Acronyms**

BLM Bureau of Land Management
BPA Bonneville Power Administration

CREP Conservation Reserve Enhancement Program
DEQ Oregon Department of Environmental Quality

DSL Oregon Department of State Lands
DWSP Drinking Water Source Protection
EPA Environmental Protection Agency

ESA Endangered Species Act
FPA Oregon Forest Practices Act
GIS Geographic Information System

HUC Hydrologic Unit Code
LCC Lane Community College
LCOG Lane Council of Governments

LIDAR Remote sensing technology using light and radar

LRAPA Lane Regional Air Protection Agency

LWM Large woody material MMT Meyer Memorial Trust MRT McKenzie River Trust NWFP Northwest Forest Plan

NRCS Natural Resources Conservation Service

NF National Forest

ODF Oregon Department of Forestry

ODFW Oregon Department of Fish and Wildlife
ODOT Oregon Department of Transportation

OHV Off-highway vehicle
OSU Oregon State University

OWEB Oregon Watershed Enhancement Board

SLICES Spatial framework for Willamette River and floodplain monitoring

UNF Umpqua National Forest UO University of Oregon

USACE U.S. Army Corps of Engineers
USDA U.S. Department of Agriculture

USFS U.S. Forest Service

USFWS U.S. Fish and Wildlife Service

USGS U.S. Geological Survey

UWSWCD Upper Willamette Soil & Water Conservation District

#### **EXECUTIVE SUMMARY**

The Coast Fork Willamette River supports water quality and quality habitat for native fish and wildlife. The Coast Fork Willamette River basin is located at a boundary between the lowlands of the Willamette Valley and the mountainous landscapes of the Cascade and Coastal Mountains, and between the hardwood-rich forests of the Umpqua Valley and the conifer-dominated forests of the Willamette Valley. The contrasting geology and stream flows



Bake Stewart Park (photo: R. Newman, CFWWC)

of the volcanically derived soils of the Cascade Mountains to the East and the seafloor soils of the Coast Range to the West add another layer of dynamism to this rich landscape. Human land use, from forestry to farming to urban development, renders a level of complexity to the mosaic of habitats found in this region. For these reasons, one encounters a diverse set of habitat types as they journey from ridgetop to valley bottom in the Southern Willamette Valley. The river accounts for a disproportionate amount of flow in the lower Willamette main stem during the dry season due to regulation dams in the upper watershed.

Our mission is to enhance the Coast Fork Willamette Watershed through restoration, monitoring, education and stewardship. The CFWWC is not a regulatory body. We work with public and private landowners on a voluntary basis to conserve and restore riparian and aquatic habitat, cooperate with partners to monitor and maintain water quality, implement watershed education programs, focus outreach to residents, and provide a monthly forum for addressing important issues. The CFWWC is funded through a combination of local partner contributions; state, federal and private foundation grants; and private donations.

The need for the Action Plan arose from the realization that existing planning and guidance documents do not account for the current level of collaboration, investment, innovation and engagement with landowners taking place within the Coast Fork Willamette River Sub-basin. The Coast Fork Willamette Watershed Council Action Plan (CFWWC, 2007) has served as the primary guiding document for the CFWWC for 11 years. The Strategy established major goals (see inset), prescribed general strategies to achieve those goals and prioritized geographical areas that should be the focus of restoration. This plan served its purpose in providing a roadmap for the CFWWC and its partners to understand limiting factors to watershed health and areas ripe for collaboration and investment.

CFWWC strives to be fully inclusive to community members regardless of (but not limited to) race, ethnicity, nationality, culture, geography, socioeconomic status, mental or physical

ability, gender, gender identity, sexual orientation, age or religion. Environmental equity in our watershed ensures that all peoples have access to outdoor stewardship and recreation opportunities, clean water, and a healthy environment. We believe that diversity, equity and inclusion is essential to the success of the region. We recognize that we are working within our history & systems that don't benefit everyone equally. We are committed to doing our part to improve the processes. We strive to build relationships and understanding by connecting to communities which include communities of color, different socio-economic groups, indigenous peoples and other marginalized communities. We believe that these relationships will build co-created values, beliefs, ideas, and leadership that will help the watershed & communities become more resilient and able to adapt to changing environments.

A key feature of the action plan is evaluating success through monitoring frameworks and programs. Based on results of monitoring, the Council and its partners will periodically assess effectiveness of the actions in meeting the goals and objectives prescribed in the plan and make adjustments as necessary to habitat restoration treatments, drinking water quality actions, and outreach activities. As actions are completed, new priority actions may be developed and implemented to achieve goals and objectives. Goals and objectives may be modified as time goes on. In this way, the plan is a living document that will be updated regularly.



Silk Creek Park (photo: M. O'Driscoll, CFWWC)

#### 1 INTRODUCTION

The Coast Fork Willamette River supports water quality and quality habitat for native fish and wildlife. The Coast Fork Willamette River basin is located at a boundary between the lowlands of the Willamette Valley and the mountainous landscapes of the Cascade and Coastal Mountains, and between the hardwood-rich forests of the Umpqua Valley and the conifer-dominated forests of the Willamette Valley (Figure 1). The contrasting geology and stream flows of the volcanically derived soils of the Cascade Mountains to the East and the seafloor soils of the Coast Range



Brice Creek (photo: R. Newman, CFWWC)

to the West add another layer of dynamism to this rich landscape. Human land use, from forestry to farming to urban development, renders a level of complexity to the mosaic of habitats found in this region. For these reasons, one encounters a diverse set of habitat types as they journey from ridgetop to valley bottom in the Southern Willamette Valley. The river accounts for a disproportionate amount of flow in the lower Willamette main stem during the dry season due to regulation dams in the upper watershed.

Over the last century, human activities have resulted in loss of riparian forests, loss of floodplain connectivity and diversity, and altered instream habitats for native fish and wildlife species. These impacts reflect construction of flood control dams and hydroelectric projects; urban and rural development patterns; and past land use practices including agriculture and forestry (see Section 6 for more detail on impacts). Over the last 15 years, collaborative monitoring efforts show further signs of degradation in water quality. This Action Plan proposes voluntary restoration and conservation measures to address impacts within the Coast Fork Willamette River Sub-basin, which can provide the foundation from which ecological uplift in the Willamette River Basin can occur.

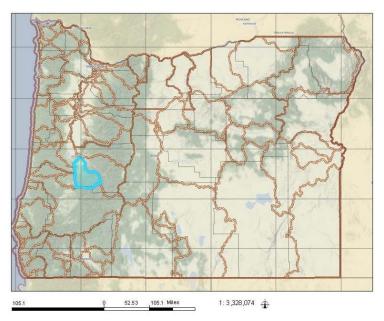


Figure 1. State of Oregon, Willamette River Basin and Coast Fork Willamette River Subbasin.

## 1.1 About the Coast Fork Willamette Watershed Council

The Coast Fork Willamette Watershed Council (CFWWC) is a local nonprofit organization that strives to enhance and restore habitat for fish and wildlife, our community, and for future generations. Currently, there is a 6-member governing Board of Directors representing residents, commercial and recreational interests, schools, utilities, and local government entities. The CFWWC employs a small staff based in Cottage Grove which is responsible for implementing projects and facilitating partnerships. The CFWWC is one of five watershed councils officially authorized by action of the Lane County Board of Commissioners (Figure 2).

Our mission is to enhance the Coast Fork Willamette Watershed through restoration, monitoring, education and stewardship. The CFWWC is not a regulatory body. We work with public and private landowners on a voluntary basis to conserve and restore riparian and aquatic habitat, cooperate with partners to monitor and maintain water quality, implement watershed education programs, focus outreach to residents, and provide a monthly forum for addressing important issues. The CFWWC is funded through a combination of local partner contributions; state, federal and private foundation grants; and private donations.

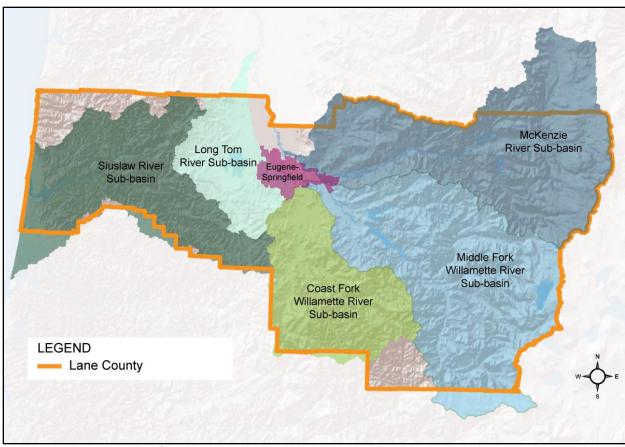


Figure 2. Lane County 5<sup>th-</sup> Field HUC Sub-basins.

### 1.2 Purpose and Need for Action Plan

The Coast Fork Willamette Watershed Strategic Action Plan (Action Plan) was developed to identify and prioritize the goals, objectives and actions relating to water quality and fish and wildlife habitat which the CFWWC and its partners seek to achieve over the next five to ten years. Actions capture both existing and conceptual programs and projects. All identified actions are voluntary, subject to local, state and federal laws, plans and regulations, and intended to be done collaboratively with a variety of partners. To the extent possible, the Action Plan identifies these partnerships. The Action Plan also identifies methods for monitoring and accounting for investments.

The need for the Action Plan arose from the realization that existing planning and guidance documents do not account for the current level of collaboration, investment, innovation and

engagement with landowners taking place within the Coast Fork Willamette River Sub-basin. *The Coast Fork Willamette Watershed Council Action Plan* (CFWWC, 2007) has served as the primary guiding document for the CFWWC for 11 years. The Strategy

# Goals of the 2007 Action Plan

- Improve Water Quality
- Improve Aquatic Habitat
- Improve Terrestrial Habitat

established major goals (see inset), prescribed general strategies to achieve those goals and prioritized geographical areas that should be the focus of restoration. This plan served its purpose in providing a roadmap for the CFWWC and its partners to understand limiting factors to watershed health and areas ripe for collaboration and investment.

The current condition of the Sub-basin, combined with existing management and regulations, does not ensure conservation or restoration of high-quality habitat in the long term. Although the overarching goals of the Strategy and findings of the 2007 Action Plan are still largely relevant, they do not account for a number of new partnerships and collaborations in the Coast Fork Willamette River Sub-basin, such as the Rivers to Ridges, the Upper Willamette Collaborative Group, the Willamette Anchor Habitat Working Group, the Willamette Valley Oak and Prairie Cooperative Group, and the Lane County Working Group (see partnerships described in section 4). These efforts will benefit from a specific comprehensive action plan to guide them. The Action Plan will provide a common vision and path forward that establishes priority actions, leverages and coordinates resources, and increases efficiencies in implementing projects and activities over the next five to ten years. For these reasons, the Council and its partners recognized the need for developing a new Action Plan and have invested time and resources in working together to complete this comprehensive plan guiding outreach, protection, and restoration actions across the Sub-basin and establish monitoring approaches that assess the effectiveness of these actions over time.

#### 1.3 Action Plan Overview

The Action Plan includes specific voluntary actions to work with willing private and public landowners throughout the Coast Fork Willamette River Sub-basin in the restoration of key fish and wildlife habitat, the protection of water quality, and implementation of outreach activities linked to habitat and resource stewardship. Restoration actions focus on aquatic, riparian, and floodplain habitat for what we define as "key species": spring Chinook salmon, bull trout, Oregon chub, Pacific lamprey, Pacific brook lamprey, and western pond turtle. Water quality protection actions focus on monitoring and a series of drinking water source protection (DWSP) programs designed to address identified threats to maintenance of the Coast Fork Willamette River's water quality. Outreach activities seek to increase awareness of and support for watershed conservation and restoration through multiple programs involving youth, private landowners and the general public.

The Action Plan utilizes a geographic term, Hydrological Unit Code (HUC), established by the U.S. Geological Survey for classifying and identifying hydrologic features such as rivers and drainage basins. The Action Plan defines geographic terms as follows:

- Basin: Willamette River Basin, classified as a 3<sup>rd</sup> field HUC (Figure 1).
- Sub-basin: major tributaries of the Willamette River, such as the Coast Fork Willamette River, classified as a 4<sup>th</sup> field HUC (Figure 1).
- Watershed: major tributaries or sections of the Coast Fork Willamette River, classified as 5<sup>th-</sup> field HUCs (Figure 3).

The Coast Fork Willamette River Sub-basin includes a total of four watersheds; Row River, Mosby Creek, Upper Coast Fork Willamette River, and Lower Coast Fork Willamette River

(Figure 3). The Action Plan covers the Coast Fork Willamette River Sub-basin with planning organized on the  $5^{th}$  -field HUC scale.

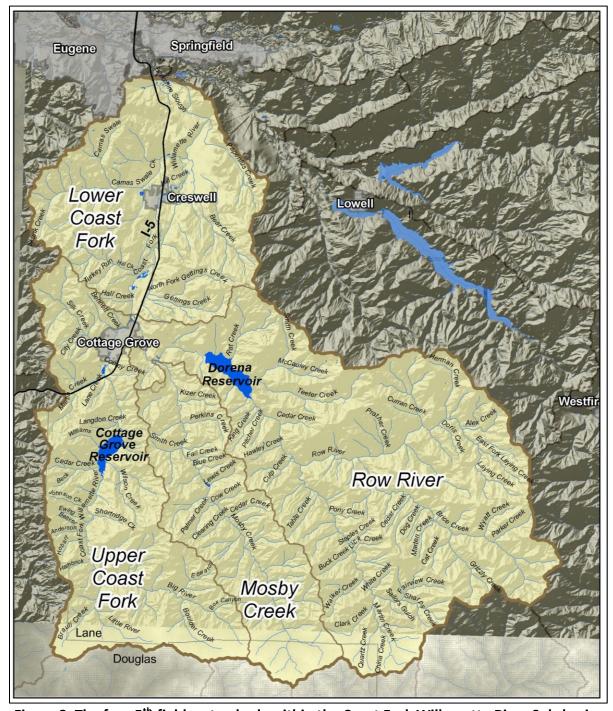


Figure 3. The four 5<sup>th</sup>-field watersheds within the Coast Fork Willamette River Sub-basin.

The following is a summary of the contents of the Strategic Action Plan.

- Section 2 describes the major outcomes expected from implementation of the plan.
   These outcomes include conservation and restoration of habitat for key species, monitoring and protection of drinking water quality, outreach and education to promote stewardship of watershed resources, and monitoring and research necessary to improve the plan and its effectiveness.
- Section 3 includes the scope, vision, and guiding principles of the plan, and describes the focus area, which is the entire Coast Fork Willamette River Sub-basin.
- Section 4 lists ongoing partnerships in the Sub-basin and the roles of key partners.
- Section 5 details priority areas and actions throughout the watershed.
- Section 6 describes how we plan to update the plan over the time period.
- Section 7 lists work completed to date throughout the watershed.
- Section 8 lists literature cited within the body of the plan.
- Section 9 provides copies of the maps used during the creation of the plan.

# **1.4 Plan Development Process**

Plan development began as a collaborative effort through the CFWWC Technical Advisory Committee (TAC) and the CFWWC Board of Directors. The CFWWC Board of Directors began their input process at the January 2017 Annual Retreat. The TAC began their input at the April 2017 meeting. Staff also consulted with local

Outcome 1: Improved habitat for key species in riparian, instream, oak prairie, wetland, and upland habitats.

Outcome 2: Maintenance and improvement of high-quality drinking water

<u>Outcome 3:</u> Enhanced public awareness, understanding, and support for watershed conservation and restoration

partners and landowners in the development of priority actions. This collaborative effort lead to agreement on a unified vision, guiding principles, and primary outcomes for the Coast Fork Willamette River Sub-basin.

CFWWC staff reported monthly to the CFWWC Board of Directors on the status of plan development and to receive direction. At its November 2018 meeting, the Council adopted the plan for public review. Public comment was solicited from residents of watershed communities, the Cities of Cottage Grove and Creswell and stakeholder organizations during the public comment period. Notices of availability of the draft plan were published in local newspapers and posted on the CFWWC and partner websites. Copies of the plan were distributed to those requesting it. The CFWWC revised the plan in response to public, partner and staff recommendations and adopted the final plan at its January 2019 meeting. In January 2019, the Coast Fork Willamette Watershed Council (CFWWC) engaged in a comprehensive and thoughtful process to develop a strategic plan for equity, diversity, and inclusion. Center for

Diversity & the Environment (CDE) facilitated a three-day Equity Engagement & Strategy Process (EESP) from January 8-10, 2019 2 with five representatives from Coast Fork to develop this strategy. Subsequently, the action plan has been updated to incorporate the aspects of diversity, equity, and inclusion into the plan. Additional efforts and revisions will be made in the two-year update requirement.

#### 2 OUTCOMES

The Action Plan is designed to achieve three primary outcomes addressing both ecological and social issues.

- Outcome 1: Improved habitat for key species spring Chinook salmon, Pacific lamprey, Pacific brook lamprey, cutthroat trout, vesper sparrow and western pond turtle - throughout the Coast Fork Willamette River Sub-basin.
- Outcome 2: Maintenance and improvement of high-quality drinking water for the City of Cottage Grove, City of Creswell, and watershed residents.
- <u>Outcome 3</u>: Enhanced public awareness, understanding, and support for watershed conservation and restoration.

### 2.1 Processes for Developing Goals, Objectives, and Actions

Outcome 1: Outcome 1 focuses on identifying actions to improve habitat for key aquatic species (fish) or aquatic-dependent species (frogs, turtles) and terrestrial species (birds, wildlife) within the Coast Fork Willamette River Sub-basin. "Key" species were defined as species which meet at least one of the following criteria: species has a final or draft federal recovery or conservation plans (USFWS and/or NMFS); species is cited as a key species within Conservation Opportunity Areas by the Oregon Conservation Strategy (ODFW, 2017); or species generally recognized to have significant biological, cultural or economic significance within the Coast Fork Willamette River Sub-basin.

#### Key Species of the Action Plan

- Spring Chinook salmon
- Pacific lamprey
- Cutthroat trout
- Pacific brook lamprey
- Vesper sparrow
- Western pond turtle

Goals, objectives, and actions to improve habitat for key aquatic species in watersheds dominated by federal ownership were developed utilizing a three-step process largely informed by *Stream and Watershed Restoration: A Guide to Restoring Riverine Processes and Habitats: Watershed Assessment, Action Development, and Action Prioritization* (Roni and Beechie, 2013). The purpose of watershed assessment is to identify causes of impairment to physical and biological processes, and show how impairments affect key aquatic species and their habitats. Using the information gathered, a table of watershed processes, the causes of impairment, and restoration actions needed to address impaired processes was created. Restoration actions were then translated into more site-specific goals, objectives, and actions (Section 8). Actions were then prioritized using a set of criteria and scoring system developed by the team and the advisory group.

In watersheds either dominated by private lands or with mixed ownership, the prioritization process relied upon previously completed assessments, conservation strategies, action plans (Table 1), professional knowledge, and current

partnerships/opportunities with private landowners. To the extent possible given data gaps, existing documents were used to identify impacted watershed processes, causes of impairment, and restoration actions needed to address impaired processes. This list of potential restoration actions was then used to help identify and prioritize more site-specific goals, objectives and actions (Section 8). Because of the predominance of private land within these watersheds, this process was heavily influenced by opportunity and existing partnerships. Limited opportunities with large-scale private landowners within the watershed made a more comprehensive and rigorous assessment and prioritization process challenging.

Table 1. Watershed Assessments, Conservation/Restoration Strategies, Action Plans and other planning documentation consulted for the development of the Action Plan. Additional documents consulted listed in Section 8.

| Plan, Source and Year   | Focus area within Coast Fork Willamette River Sub-basin            |
|---|--|
| Mosby Creek Rapid Bio-Assessment(CFWWC 2014)  | Mosby Creek  |
| Natural Resource Assessment and Strategic Action Plan (OPRD 2017)   | Lower Coast Fork Willamette  |
| WILLAMETTE RIVER FLOODPLAIN RESTORATION STUDY DRAFT INTEGRATED FEASIBILITY REPORT/ENVIRONMENTAL ASSESSMENT (USACE 2013)                                   | Lower Coast Fork Willamette  |
| THE WILLAMETTE RESTORATION STRATEGY (WRI 2001)  | Willamette Basin   |
| Willamette Subbasin Assessment (NPCC 2004)  | Willamette Basin   |
| Lower Coast Fork Willamette River Watershed<br>Assessment (ODFW 2005)   | Lower Coast Fork Willamette  |
| Water Quality Results for the Middle and Coast Fork Willamette Watersheds and Eight Small Cities in the Upper Willamette Sub-basin: 2008- 2010 (DEQ 2011) | Upper Coast Fork Willamette, Row River,<br>and Lower Coast Fork    |
| Hill Creek Management Plan (CFWWC 2015)   | Upper Coast Fork Willamette  |
| Willamette Basin Restoration Priorities Watershed Summaries (OWEB 2005)   | Coast Fork Watershed   |
| The Oregon Conservation Strategy (ODFW 2017)  | State-wide   |
| Western Oregon Aquatic Restoration<br>Strategy (BLM 2015)   | Western Oregon BLM lands including the Coast Fork Willamette River |

**Outcome 2:** Outcome 2 of the Action Plan focuses on maintenance and improvement of high-quality drinking water within the Coast Fork Willamette River Sub-basin. The Coast Fork Willamette River system is critical to maintaining both local and regional high-quality drinking water. The Row River is the sole source of drinking water for almost 10,006 residents in Cottage Grove (Cottage Grove,

2019), and the Coast Fork Willamette River is one of two sources utilized by the City of Creswell to supply water to over 4,500 residents.

Goals, objectives, and actions to maintain high-quality drinking water identified within the Action Plan were developed based on research and analysis of threats to water quality in the Sub-basin by CFWWC, the United States Geologic Survey {USGS}, University of Oregon (UO), Oregon State University (OSU), Oregon Department of Environmental Quality (DEQ), USFS, City of Cottage Grove, and City of Creswell. The following is an overview of the process used to assess various threats to water quality in the Coast Fork Willamette Sub-basin and develop mitigation strategies and incentives to improve and maintain excellent drinking water quality for future generations.

Cottage Grove's drinking water is sourced directly from the Row River and is susceptible to impacts from upstream land use. Major threats identified upstream of Cottage Grove's drinking water intake included:

- Agriculture
- Forestry Practices
- Infrastructure
- Natural Hazards
- Recreation
- Residential

Creswell's drinking water is sourced from both the mainstem Coast Fork Willamette River and wells located at Garden Lake Park. Major threats identified upstream of Creswell's drinking water intake included:

- Industrial/Commercial
- Agriculture
- Forestry Practices
- Infrastructure
- Natural Hazards
- Recreation
- Residential

Because Cottage Grove and Creswell do not have jurisdictional control over activities that occur in the Sub-basin, it is essential to work with key landowners and other stakeholders on a voluntary and collaborative basis to protect water quality. The cities, in partnership with CFWWC, have worked with multiple partners within the Sub-basin to develop several diverse and innovative water quality protection projects and outreach opportunities, which include (Full project details in Section 7):

- Mosby Creek Habitat Enhancement Project
- Smith Creek Fish Passage Enhancement Project
- Cottage Grove Riparian Restoration Project

- Fox Riparian Enhancement Project
- Taylor Riparian Enhancement Project
- Living on the Land Workshops
- Science Pub

## Drinking water protection strategies include:

- Participation in the Upper Willamette Drinking Water Protection Partners
- Conduct targeted outreach and education to private landowners in the Row River, Mosby Creek, and Upper Coast Fork Willamette Watersheds to inform them their property is in the Drinking Water Source Area.
- Conduct targeted outreach to private industry located between the City of Cottage Grove and the City of Creswell's drinking water intake facility.
- Prioritize riparian restoration efforts and removal of hazardous waste along the mainstem Coast Fork Willamette River between the City of Cottage Grove and the City of Creswell to increase resiliency prior to potential contaminations occurring.
- Collaborate with partners and regulatory agencies who provide restoration, education, and or outreach relevant to source water protection outside jurisdictional boundaries.

**Outcome 3:** Outreach and education are central to the voluntary approach to watershed stewardship in the Coast Fork Willamette River Sub-basin. Goals, objectives, and actions within the Action Plan to enhance public awareness, understanding of ecological health, and support for watershed conservation and restoration in the Sub-basin were developed based on a combination of efforts by multiple local partners. The CFWWC has worked with a variety of partners to integrate outreach and education within active watershed enhancement and monitoring projects for over ten years. The CFWWC and partners seek to engage landowners and the public through Science Pub, social media, public meetings, volunteer events, project tours, website, a monthly e-newsletter, and tabling events.

CFWWC strives to be fully inclusive to community members regardless of (but not limited to) race, ethnicity, nationality, culture, geography, socioeconomic status, mental or physical ability, gender, gender identity, sexual orientation, age or religion. Environmental equity in our watershed ensures that all peoples have access to outdoor stewardship and recreation opportunities, clean water, and a healthy environment. We believe that diversity, equity and inclusion is essential to the success of the region. We recognize that we are working within our history & systems that don't benefit everyone equally. We are committed to doing our part to improve the processes. We strive to build relationships and understanding by connecting to communities which include communities of color, different socio-economic groups, indigenous peoples and other marginalized communities. We believe that these relationships will build co-created values, beliefs, ideas, and leadership that will help the watershed & communities become more resilient and able to adapt to changing environments.

# 3 VISION, GUIDING PRINCIPLES AND SCOPE

#### 3.1 Vision

The guiding vision for the Action Plan is that the Coast Fork Willamette River Sub-basin supports exceptional water quality and habitats for all that call the Coast Fork Willamette Watershed home.

In the short term, by 2029, we envision the following:

- a Sub-basin where water quality is continually improved and maintained through a wide range of voluntary programs;
- habitat conservation and restoration is accelerated through a regional programmatic approach;
- habitat for key species within high priority locations has been measurably improved;
- high functioning partnerships have expanded and continue to address on-the-ground issues;
- outreach programs continue to involve youth and local communities in active watershed stewardship; and
- diverse voices are included and encouraged in project planning, outreach events, regional monitoring efforts, and stewardship events.

# **3.2 Guiding Principles**

- 1. The Action Plan will be a comprehensive effort to implement actions on a sub-basin scale.
- 2. Actions will reflect the need to conserve existing high-quality habitat while restoring degraded habitat to the extent possible. Protection of existing high-quality healthy habitats (riparian, oak, instream) is less expensive than restoration of degraded systems.
- 3. Actions will be based on process-based (physical and biological) restoration principles.
- 4. Outreach to communities, especially to underrepresented or marginalized communities, is essential to increase awareness of watershed values.
- 5. Protection of drinking water quality provide significant social and economic benefits for the local communities, as well as to the region as one of the two headwater tributaries to the Willamette River System.

While not originally included in the plan, diversity, equity, and inclusion (DEI) have been weaved throughout this plan to ensure that all who live, work, and recreate in the watershed feel like they are welcome and a part of the CFWWC. Successful diversity initiatives require a champion – someone who understands transformative power and benefit of divert to an organization, its people, and culture. Through implementation of this plan, CFWWC will become a champion in our region for diversity, equity, and inclusion in the environmental sector. Creating greater diversity, equity, and inclusion is a process and this plan provides the foundation and strategy to integrate DEI efforts forward in the Coast Fork Willamette and the projects and programs that are developed as a result of implementation of this plan. Key partners that are committed to DEI efforts and have been working with CFWWC in

implementing change have been specified in Section 4 in both the high-preforming partnerships section and the principle partners section.

### 3.3 Area Covered by the Action Plan

The plan covers the Coast Fork Willamette River Sub-basin (USGS 4<sup>th</sup>-Field HUC), from the headwaters to the confluence with the Middle Fork Willamette River. Strategic actions to conserve and improve habitat for key species are organized by USGS 5<sup>th</sup>-Field watersheds. Priority conservation and enhancement actions are described for four of the sub-watersheds. Monitoring, assessment, and outreach activities will occur throughout the Sub-basin and will be implemented with priority consideration to include diversity, equity, inclusion, and environmental justice. Drinking water protection efforts occur primarily in the Row River, Mosby Creek, and Upper Coast Fork Willamette sub-basins as they provide the drinking water for the City of Cottage Grove and the City of Creswell located in the watershed. The Lower Coast Fork Willamette Watershed provides an opportunity for an increased regional importance for drinking water. The realities of future downstream pressures for additional drinking water supplies elevates the priorities secondarily to encapsulate the entire system.

The Coast Fork Willamette River is the southernmost, low-elevation watershed in the Willamette Valley. Mt. Pisgah and Spencer's Butte define the drainage basin in the north, the Coast Range in the west, the low-elevation Cascades to the east, and the 'Calapooia Divide' to the south separates the Willamette and Umpqua Rivers. Located in Lane and Douglas Counties, our 667 square mile watershed is 6% of the entire 11,400 square mile Willamette River watershed.

The watershed contains two major reservoirs, Dorena Reservoir and Cottage Grove Reservoir. The major tributaries to the Row River, which is dammed to form Dorena Reservoir, are Layng Creek and Sharps Creek. The Row River flows out of Dorena Reservoir to join the Coast Fork Willamette River just south of the town of Saginaw. The Coast Fork Willamette River is dammed to form the Cottage Grove

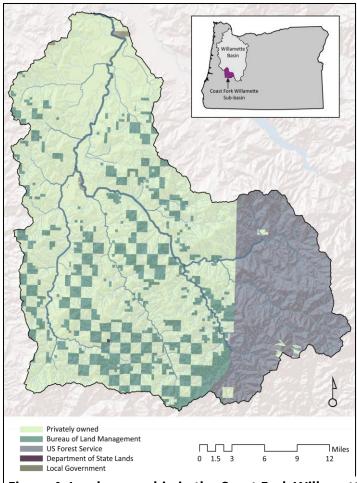


Figure 4. Land ownership in the Coast Fork Willamette Watershed

Reservoir. Mosby Creek is the only free flowing major tributary to the Coast Fork Willamette River. Years of reduced peak flows as well as reduced flooding due to dam building in the Willamette River basin have caused a reduction in channel complexity of the Willamette River and its tributaries. The more complex a streams channel is (i.e., the existence of logs, many channels and pools, and a winding path), the higher ability the stream must hold a healthy fish population. Streams are often straightened and simplified when they become urbanized and this along with reduced peak flows often decreases channel complexity, as it has in the Willamette River Basin.

The highest elevation in the watershed is 5,928 feet (1,807 meters) at Fairview Peak, while the elevation of the Coast Fork Willamette River floodplain is approximately 450 feet.

Since 95% of Willamette Valley is in private ownership, the key to restoring and protecting priority habitats is cooperation with landowners. As the purpose of Oregon's watershed councils is to facilitate this voluntary cooperation in restoration efforts, the format of this document is meant to be succinct and easy to understand.

The plan addresses both public and private sectors. All proposed actions are voluntary and are subject to approval by landowners and governed by applicable plans, laws and regulations. On federal lands all actions are subject to the National Environmental Policy Act (NEPA), the ESA, the Northwest Forest Plan and applicable agency plans. The U.S. Forest Service's Watershed Condition Framework (USFS, 2011), BLM's Environmental Assessment and Record of Decision for Aquatic and Riparian Restoration Activities (BLM, 2010) and Western Oregon Aquatic Restoration Strategy (BLM, 2015) will help guide actions on public lands. The Weyerhaeuser Company owns and manages a large share of private timberland in the lower and middle portions of the Sub-basin, often intermingled with BLM land, and opportunities exist to cooperate with these two landowners to improve aquatic and riparian habitat on their lands.

# 4 **GOVERNANCE/PARTNERSHIPS**

There are high-performing partnerships in the Coast Fork Willamette River Sub-basin addressing the outcomes of the Action Plan. These include:

- City of Cottage Grove Urban Forestry Committee: The Urban Forestry Citizens Advisory Committee was created on December 12, 1994 by the City Council. The charge given to the original committee was to assist in developing an urban forestry plan for the City of Cottage Grove; make recommendations to the City Council regarding urban forestry; and seek grants to improve the quality of our urban forest. Since the Urban Forestry Committee began its work, Cottage Grove has been named Tree City, USA for over 25 years and holds an annual Arbor Day observance.
- City of Creswell Parks and Tree Board: The Parks and Tree Advisory Board consists of six (6) members who are appointed by the Mayor with consent of the Council and serves as an advisory body to the Council. The Parks & Trees Advisory Board meets on an as-needed basis and as directed by the Council. This board advises the Council in developing, planning for, and maintaining the various parks, open space, trees, and recreational facilities in which the City of Creswell has an interest.
- Rivers to Ridges Partnership: The Rivers to Ridges Partnership is dedicated to improving the quality of life for residents in the upper Willamette Valley by working together to protect and enhance the region's land and water resources and their ecosystem functions and values; and to provide environmental education and compatible outdoor recreation opportunities as outlined in the Rivers to Ridges Metropolitan Regional Parks and Open Space Study Vision and Strategies document. The vision of the Rivers to Ridges Partnership is further refined in the Willamette River Vision and Action Plan and the Ridgeline Vision and Action Plan. CFWWC joined the Rivers to Ridges Partnership in 2014. Members include CFWWC, BLM, City of Eugene, City of Creswell, Friends of Bufford Park and Mount Pisgah, Lane County, Long Tom Watershed Council, McKenzie River Trust, Middle Fork Willamette Watershed Council, McKenzie Watershed Council, ODFW, The Nature Conservancy, USACE, USFWS, Willamalane, WREN, and Mount Pisgah Arboretum. Key DEI Partner.
- Row River Partnership: This group was formed in 2012 to develop new programs that
  protect and promote the Row River Trail. Member organizations are City of Cottage
  Grove, US Army Corps of Engineers, BLM, Cottage Grove Chamber of Commerce, and
  private citizens. The group is led by USACE and meets annually in January.
- **Team Cottage Grove:** TEAM Cottage Grove is committed to connecting our community through networking and making what is good even better. Team CG meets quarterly to discuss community and nonprofit needs. Key DEI Partner.
- Upper Willamette Drinking Water Protection Partnership: This group began meeting in January 2014 and serves to advise the local utility providers on restoration projects and align project planning efforts in the Drinking Water Source Protection Areas. Members are USFS, MRT, CFWWC, BLM, UWSWCD, City of Cottage Grove, City of Creswell, Weyerhaeuser and ODFW. While not an official member, EWEB has been attending

meetings as they consider the potential of a second source on the Willamette River Mainstem. The group is convened by CFWWC and meets annually in January or February.

- Upper Willamette Stewardship Network: The current partners comprising the Upper Willamette Stewardship Network (UWSN) signed a MOU formalizing the group in August 2018. The MOU was the culmination of conversations that began in earnest in December 2014. The Upper Willamette Stewardship Network is made up of six conservation focused organizations from the Upper Willamette that have partnered intentionally to create an 'impact network' structure with support and guidance from Converge (www.converge.net). The Network established a Core Team comprised of the Executive Directors (EDs) of the Coast Fork Willamette Watershed Council (CFWWC), Middle Fork Willamette Watershed Council (MFWWC), Long Tom Watershed Council (LTWC), McKenzie Watershed Council (MWC), McKenzie River Trust (MRT) and \*Friends of Buford Park (FOBP). The Executive Directors from the respective organizations met weekly to discuss mutual challenges in organizational sustainability and opportunities that deeper collaboration might provide to both reduce organizational risk and extend the collective reach of our work. Key DEI Partner. Key DEI Partner.
- VisionKeepers: The VisionKeepers Committee was created to monitor and maintain the Vision 2037 Action Plan developed by the community in 2008. The VisionKeepers Members are selected by lead partners from throughout the community to represent the various organizations that groups that are working on key elements of the Vision 2037 Action Plan. Members represented by the key partners are nominated by their organizations and appointed by the City Council. The City Council also selects and appoints representatives to the committee to represent the City and the community at large. Key DEI Partner.

Roles of the principal partner organizations involved in action plan implementation are as follows:

**BLM**: planning and implementation of riparian and aquatic habitat improvement and fish passage projects; roads management; participant in Row Basin Partnership and Upper Willamette Drinking Water Protection Partnership; outreach and education; major landowner; technical support; and funding.

**City of Cottage Grove**: implementation of storm water management plan; drinking water protection code; outreach and education program, key landowner in the urban setting (owns majority of the greenway in Cottage Grove UGB), and local match funding. Key DEI Partner.

**City of Creswell**: implementation of storm water management plan; drinking water protection code; outreach and education program, key landowner in the urban setting, and direct project funding.

**FSA**: planning and implementation of habitat improvement and fish passage projects; roads management; major landowner; technical support; outreach and education; monitoring; and funding.

**Lane County:** planning and collaboration of riparian and other stewardship projects on County lands within the Sub-basin; outreach and education.

**MRT**: conservation acquisitions and easements; landowner; planning and implementation of riparian and oak habitat enhancement projects on MRT land in cooperation with CFWWC and other partners; outreach and education; grant applications and grant management; technical support; and monitoring.

**NRCS**: planning and implementation of habitat improvement and fish passage projects; roads management; major landowner; technical support; outreach and education; monitoring; and funding.

**ODFW**: participant in Mosby Creek efforts; outreach and education; monitoring; lead the Row Basin Fisheries Fund; and technical support.

**School Districts:** South Lane and Creswell School Districts partner with CFWWC and others to implement field-based education programs. Key DEI Partner.

**U.S. Army Corps of Engineers:** planning around USACE lands; partner in Coast Fork Youth Conservation Corps; and funding partner.

**USFS**: planning and implementation of habitat improvement and fish passage projects; roads management including road decommissioning; major landowner; technical support; outreach and education; monitoring; Coast Fork Youth Conservation Crew partner; and funding. Key DEI Partner.

**USFWS**: planning and implementation of habitat improvement and oak prairie projects; technical support; outreach and education; monitoring; and funding.

**UWSWCD**: planning and implementation of riparian habitat improvement projects, cattle exclusion systems and manure management devices, especially on agricultural land..

**Weyerhaeuser Company**: major landowner; roads management; culvert replacements; cooperator in implementing fish habitat improvement projects; technical support; and funding.

# 5 Priority Actions and Desired Outcomes

The Coast Fork Willamette River basin is located at a boundary between the lowlands of the Willamette Valley and the mountainous landscapes of the Cascade and Coastal Mountains and between the hardwood-rich forests of the Umpqua Valley and the coniferdominated forests of the Willamette Valley. The contrasting geology and stream flows of the volcanically derived soils of the Cascade Mountains to the East and the seafloor soils of the Coast Range to the West add another layer of dynamism to this rich landscape. Human land use, from forestry to farming, to urban development adds another level of complexity to the mosaic of habitats found in this region. For these reasons, one encounters a diverse set of habitat types as they journey from ridgetop to valley bottom in the Southern Willamette Valley.

In order to implement restoration projects that satisfy current and future needs, part of the action planning process of the CFWWC was to identify a process for developing projects. Having

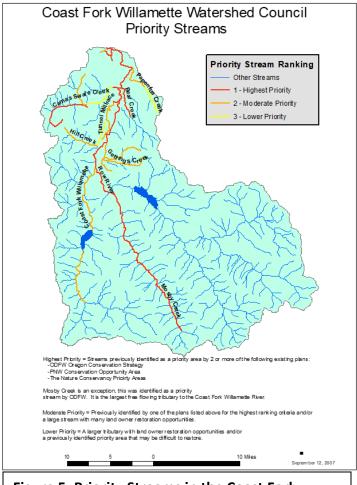


Figure 5: Priority Streams in the Coast Fork Willamette River Sub-basin.

a clear and transparent process is useful for all council committees, local landowners, and partners of the Coast Fork Council. Part of creating that process is developing a common frame of reference within which council members can discuss projects. The Plan identifies key species in the River Sub-basin as spring Chinook salmon, bull trout, Oregon chub, Pacific lamprey, Pacific brook lamprey, rainbow trout, cutthroat trout, red-legged frog and western pond turtle.

Priority actions reflect the interest of the CFWWC to identify and develop the best and current opportunities for partnership in the highest priority areas—it is intended that this is a working document that will allow for new projects to evolve and completed projects to be recorded and understood.

Goals for the Coast Fork Willamette Watershed Council Action Plan:

Goal #1: Water Quality in the Coast Fork Willamette System remains the highest priority

Objective 1.1: Mitigate temperature impairment

Objective 1.2 Reduce contamination of the mainstem and tributaries

Objective 1.3 Minimize erosion & sedimentation

Objective 1.4 Increase streamside buffers for shade and filtration

Objective 1.5 Provide learning opportunities for community members

Objective 1.6 Integrate multiple perspectives into project planning and monitoring

### Goal #2 Improve Aquatic Habitat

Objective 2.1 Improve stream channel structure & function

Objective 2.2 Restore channel connectivity and complexity

Objective 2.3 Restore floodplain habitats

Objective 2.4 Reduce the amount of non-native species in the system

Objective 2.5 Integrate multiple perspectives into project planning and monitoring

#### Goal #3 Improve Terrestrial Habitat

Objective 3.1 Enhance Western pond turtle habitat

Objective 3.2 Restore, enhance oak, prairie, and upland habitats

Objective 3.3 Reduce the amount of non-native species on the landscape

Objective 3.4 Integrate multiple perspectives into project planning and monitoring

# 5.1 Actions to Conserve and Restore Habitat by Fifth Field Sub-watersheds

#### **Lower Coast Fork Sub-Watershed**

The Lower Coast Fork Willamette consists of the river section from the confluence with the Middle Fork Willamette near Mt. Pisgah, upstream to the confluence with the Row River in Cottage Grove.

The Lower Coast Fork Watershed Assessment (2005) identified the following as priority limiting factors:

- Aquatic habitat for Spring Chinook salmon, cutthroat trout and Oregon chub including a lack of structure (such as large woody debris or vernal pools).
- Historic stream channel modification—reduction of the floodplain and riparian zone as well as channel alteration (straightening, revetments, etc.)
- Water Quality (temperature, mercury, bacteria) Wetlands (loss to development and invasive species)



Lower Coast Fork Willamette Watershed (photo: P. Bayles)

The Lower Coast Fork primary land use is agricultural and is rich with Willamette Valley Oak habitat. Willamette Valley oak habitats provide significant habitat for hundreds of native plant and wildlife species during various life stages. This loss of native habitat reduces biodiversity and negatively impacts important species that rely on these open canopy habitats including acorn woodpecker and western gray squirrel. Oaks are important ecologically at individual tree and woodland scales (Vesely and Tucker 2004). Open oak stands and a native herbaceous understory provide essential foraging habitat for the white-breasted nuthatch (present on site), and other species in the Willamette Valley (OR Conservation Strategy 2016). The loss of invertebrate biodiversity is inevitable once the site's native herbaceous understory is compromised, this limits food sources and availability for oak associated bird species. As

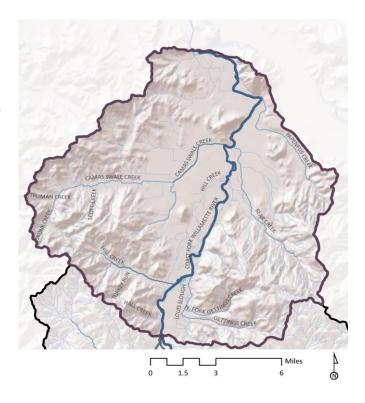


Figure 6: Lower Coast Fork Willamette River Subbasin

a result, prairie and oak-associated bird species in western Oregon specifically are declining at a rate four times faster than species whose populations are increasing (Altman 2005).

The restoration projects to be developed in the Lower Coast Fork projects will address the following watershed problems:

- Restoration of disconnected habitats and migration corridors used by native fish and wildlife due to urbanization or other land use practices.
- Disruption of fluvial processes including bank erosion and channel migration.
- Strategically protect and restore riparian forests in the floodplain and along essential tributaries.
- Reduce the infestation of off-channel habitats by invasive species and noxious weeds.
- Increase native tree and shrub populations, including culturally significant first foods, into the landscape.
- Increase native Willamette Valley Oak habitat

Table 2: High Priority Projects in the Lower Coast Fork Willamette Watershed

|                 | Project Description                      | Partners          | Status          | Goals                   |
|-----------------|--|-------------------|-----------------|-------------------------|
|                 |  |                   |                 |                         |
| Camas Swale     | Enhancement & restoration of native      | City of Creswell, | Landowner       | 1.1, 1.2, 1.3, 1.4, 1.5 |
| Restoration     | oak prairie and upland habitat and       | ODFW, USFWS,      | Recruitment /   | 2.3, 2.4                |
|                 | riparian function along Camas Swale      | BPA, NRCS/FSA,    | Project         | 3.2, 3.3                |
|                 | Creek.                                   | Multiple Private  | Development/    |                         |
|                 |  | Landowners        | Project         |                         |
|                 |  |                   | Implementation  |                         |
|                 |  |                   | w/ two          |                         |
|                 |  |                   | landowners      |                         |
| Creswell Butte  | Restoration of Creswell Butte Upland     | City of Creswell, | Project         | 3.1, 3.2, 3.3, 3.4      |
| Restoration     | Oak habitat.                             | MRT, ODFW,        | Development and |                         |
|                 |  | ODOT, Pacific     | Planning        |                         |
|                 |  | Power, Private    |                 |                         |
|                 |  | Landowners        |                 |                         |
| Cinderella Park | Riparian, side channel, flood plain      | City of Creswell, | Conceptual      | 1.1, 1.2, 1.3, 1.4, 1.5 |
| Enhancement     | and pond turtle enhancement              | Lane County,      | Project         | 2.3, 2.4                |
|                 |  | ODFW, ODOT        |                 |                         |
| Lower Coast     | Floodplain restoration project           | US Army Corps,    | Landowner       | 1.1, 1.2, 1.3, 1.4,     |
| Fork Mainstem   |  |                   | Recruitment /   | 1.5, 1.6                |
| Floodplain      | ,  |                   | Project         | 2.3, 2.4                |
| Restoration     | process. Hydrologic modeling data        | Council,          | Development/    |                         |
|                 | will be used to prioritize landowners.   |                   | Modeling and    |                         |
|                 | 1 7                                      | · ′               | Information     |                         |
|                 | prioritization and site-specific project |                   | Gathering       |                         |
|                 | planning.                                | Park,             |                 |                         |
|                 |  | Confederated      |                 |                         |
|                 |  | Tribes of Grand   |                 |                         |
|                 |  | Ronde, Lane       |                 |                         |
|                 |  | County, MRT,      |                 |                         |
|                 |  | OPRD, MMT, and    |                 |                         |
|                 |  | Multiple Private  |                 |                         |
|                 | 1/ 1/0                                   | Landowners        |                 |                         |
| Hill Creek Fish | Removal/modification of fish passage     |                   | Conceptual      | 1.1, 1.2, 1.3, 1.5, 1.6 |
| Passage         | barriers and in-stream                   |                   | Project         | 2.3, 2.4                |
| Improvement     | impoundments.                            | Resources, City   |                 |                         |
|                 |  | of Creswell,      |                 |                         |
|                 |  | irrigation        |                 |                         |
|                 |  | district.         |                 |                         |

# **Upper Coast Fork Sub-Watershed**

The Upper Coast Fork Willamette Watershed is high priority for the CFWWC, as it is the primary source of drinking water for the City of Creswell. The streams that contribute to the Upper Coast Fork Willamette extend upstream approximately 208 miles in a southerly direction and encompasses a total area of 192 square miles. The drinking water protection area includes the City of Cottage Grove and small rural unincorporated communities such as Black Butte, London Springs, Latham, and Saginaw. In general, the watershed supports a timber, agriculture, and recreation-based economy. Most of the drinking water protection area is in Lane County, with a very small area located in Douglas County under the jurisdiction of the U.S. Forest Service.

The delineated drinking water protection area is primarily dominated by managed forest land uses in the upper reaches and by residential and limited commercial development along the main rivers, creeks and Cottage Grove Reservoir. Major tributaries include the Silk Creek, Gettings Creek, Calico Creek, Big River and Little River. Most of the tributaries and water bodies in the Coast Fork Willamette watershed are listed on the 303(d) list for water quality impairment, with temperature, mercury, flow or habitat modification being the most frequent contaminants.



Figure 7: Upper Coast Fork Willamette River Sub-basin

Although mining activities are no longer occurring at

the Black Butte Mine, immediately upstream of the Cottage Grove Reservoir it is continuing sources of mercury in the basin. ODEQ's 2019 TMDL states that Furnace Creek, which is significantly impacted by historic Black Butte Mine activities and was part of a 2018 Superfund remediation action, was determined to be contributing a substantial percentage of the mercury load to the Coast Fork Willamette River.

The restoration projects to be developed in the Upper Coast Fork projects will address the following watershed problems:

- Restoration of disconnected habitats and migration corridors used by native fish and wildlife due to urbanization or other land use practices below the Cottage Grove Dam.
- Disruption of fluvial processes including bank erosion and channel migration below the dam.
- Strategically protect and restore riparian forests in the floodplain and along essential tributaries.

- Reduce the infestation of off-channel habitats by invasive species and noxious weeds.
- Increase native tree and shrub populations, including culturally significant first foods, into the landscape.
- Increase native Willamette Valley Oak habitat
- Projects specified to reduce are eliminate mercury contamination in the Upper Coast Fork Willamette.

Table 3: High Priority Projects in the Upper Coast Fork Willamette Watershed

|                       | Project Description          | Partners           | Stage          | Goals               |
|-----------------------|------------------------------|--------------------|----------------|---------------------|
| Cottage Grove         | Enhancement & restoration    | City of Cottage    | Project        | 1.1, 1.2, 1.3, 1.4, |
| Community Restoration | of native habitat and        | Grove, ODFW,       | Implementation | 1.5, 1.6            |
| Project               | riparian function of the     | USFWS, REI,        | •              | 2.1, 2.2, 2.3, 2.4  |
| •                     | greenway properties in the   | OWEB, Community    |                |                     |
|                       | Cottage Grove UGB.           | Members, Multiple  |                |                     |
|                       |                              | Private            |                |                     |
|                       |                              | Landowners,        |                |                     |
|                       |                              | Service            |                |                     |
|                       |                              | Organizations, and |                |                     |
|                       |                              | USFWS              |                |                     |
| Drinking Water Source | Prioritized efforts in the   | City of Cottage    | Landowner      | 1.1, 1.2, 1.3, 1.4, |
| Protection Area       | Row River, Mosby Creek,      | Grove, the City of | Outreach       | 1.5, 1.6            |
| Riparian Restoration  | and Upper Coast Fork         | Creswell, Oregon   |                | 2.1, 2.2, 2.3, 2.4, |
| Project               | Willamette watersheds to     | Department of      |                | 2.5                 |
|                       | conduct on the ground        | Environmental      |                |                     |
|                       | restoration. This work is    | Quality, private   |                |                     |
|                       | essential for the long-term  | landowners,        |                |                     |
|                       | protection of drinking water | McKenzie River     |                |                     |
|                       | sources for the              | Trust, Natural     |                |                     |
|                       | communities reliant on the   | Resources          |                |                     |
|                       | Coast Fork Willamette River  | Conservation       |                |                     |
|                       | surface water for drinking   | Service, Farm      |                |                     |
|                       |                              | Services Agency,   |                |                     |
|                       |                              | and Oregon         |                |                     |
|                       |                              | Department of Fish |                |                     |
|                       |                              | and Wildlife       |                |                     |

# **Mosby Creek Sub-Watershed**

The Mosby Creek Watershed is located within the Willamette River Basin and is contained within the southern boundary of the Coast Fork of the Willamette Sub-basin which is about 665 square miles in size. Elevations in the Mosby Creek Watershed vary from 665 feet above sea level to a high of 4,754 feet. The Mosby Creek Watershed covers 62,181 acres (97 square miles) of mixed ownership including timber companies, federal and local governments and private individuals. The basin supports forest lands and timber harvest, agricultural and rural residential land uses.

The mainstem of Mosby Creek is about 21.5 miles in length and has a gradually sloping stream profile of low to very low gradient. The flood plain along Mosby Creek gradually widens from the confluence of East Fork and Middle Fork of Mosby Creek to the confluence of the Row River.

Mosby Creek is a headwater tributary to the Coast Fork Willamette River. Flowing northwest from the low-elevation Cascades, Mosby Creek is a free-

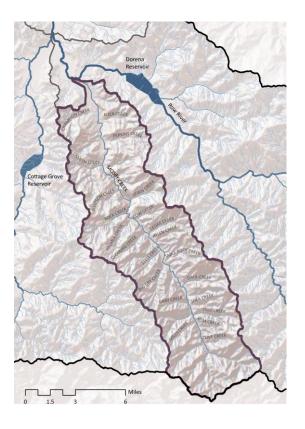


Figure 8: Mosby Creek Sub-basin

flowing stream that drains a watershed of approximately 95 square miles of predominantly Douglas fir forest uplands. Much of the Mosby Creek watershed (53%) is owned and managed by Weyerhaeuser Company, which purchased the land from Georgia Pacific in the 1970s. The Bureau of Land Management (BLM) owns approximately 35% of the Mosby watershed. The remaining 12% is in private ownership managed as rural residential and small woodlots. The southernmost Mosby ridgeline is the boundary between the Willamette and Umpqua Watersheds.

Fish species found in Mosby Creek include spring Chinook salmon, large-scale suckers, cutthroat trout, rainbow trout, sculpin, dace, whitefish, redside shiners, and brook and Pacific lamprey. Spring Chinook salmon are native to the Coast Fork Willamette Watershed, but the Mosby Creek population was not as abundant historically as in neighboring tributaries (NOAA, 2008).

The restoration projects to be developed in the Mosby Creek projects will address the following watershed problems:

- Restoration of disconnected habitats and migration corridors used by native fish and wildlife due to urbanization or other land use practices.
- Disruption of fluvial processes including bank erosion and channel migration.
- Reduce the infestation of off-channel habitats by invasive species and noxious weeds.

 Increase native tree and shrub populations, including culturally significant first foods, into the landscape.

Table 4: High Priority Projects in the Mosby Creek Watershed

|                        | Project Description            | Partners               | Stage        | Goal                |
|------------------------|--------------------------------|------------------------|--------------|---------------------|
|                        |                                |                        |              | 1 Objectives        |
| Mosby Creek            | Riparian enhancement on        | ODFW,                  | Landowner    | 1.1, 1.2, 1.3, 1.4, |
| Floodplain             | private land; seeking funding  | Private Landowners,    | Recruitment/ | 1.5, 1.6            |
| Enhancement            | for habitat assessment with    | USFWS,                 | Project      | 2.1, 2.2, 2.3, 2.4, |
|                        | Weyerhaeuser, ODFW.            | Weyerhaeuser.          | Development  | 2.5                 |
| Perkins Creek          | Floodplain reconnection        | Lane County, ODFW,     | Project      | 1.1, 1.4 1.1, 1.2,  |
| Floodplain and         | project to remove undersized,  | and private            | Development  | 1.3, 1.4, 1.5, 1.6  |
| Channel                | under designed culverts to be  | landowners             |              | 2.1, 2.2, 2.3, 2.4, |
| Reconnection           | replaced w/ bridges or correct |                        |              | 2.5                 |
| Project                | sized culverts. Riparian       |                        |              |                     |
|                        | restoration efforts along      |                        |              |                     |
|                        | Perkins Creek will also        |                        |              |                     |
|                        | increase shade with            |                        |              |                     |
|                        | establishment of native trees  |                        |              |                     |
|                        | and shrubs, large wood         |                        |              |                     |
|                        | placement, and fencing off     |                        |              |                     |
|                        | livestock.                     |                        |              |                     |
| Drinking Water         | Prioritized efforts in the Row | City of Cottage Grove, | Landowner    | 1.1, 1.2, 1.3, 1.4, |
| Source                 | River, Mosby Creek, and        | the City of Creswell,  | Outreach     | 1.5, 1.6            |
| <b>Protection Area</b> | Upper Coast Fork Willamette    | Oregon Department of   |              | 2.1, 2.2, 2.3, 2.4, |
| Riparian               | watersheds to conduct on the   | Environmental          |              | 2.5                 |
| Restoration            | ground restoration. This work  | Quality, private       |              |                     |
| Project                | is essential for the long-term | landowners, McKenzie   |              |                     |
|                        | protection of drinking water   | River Trust, Natural   |              |                     |
|                        | sources for the communities    | Resources              |              |                     |
|                        | reliant on the Coast Fork      | Conservation Service,  |              |                     |
|                        | Willamette River surface       | Farm Services Agency,  |              |                     |
|                        | water for drinking water.      | and Oregon             |              |                     |
|                        |                                | Department of Fish     |              |                     |
|                        |                                | and Wildlife           |              |                     |

#### **Row River Sub-Watershed**

The Row River is a 7th order stream, drains 375 square mile area, and is the principal tributary of the Coast Fork Willamette River. The Row River watershed is approximately 17 miles in length with variations in width to a maximum of 9 miles.

Dorena Dam impounds Row River at river mile 7.5, creating Dorena Reservoir which contains 72,050-acre feet of water and covers 1,749 acres when full. The dam was constructed in 1949 with the primary purpose of providing flood control on the downstream Willamette River. Most of the tributaries are found above the dam and flow into Dorena Reservoir, including Smith Creek. Historical data shows spring Chinook salmon spawned in the Row River and could be found as



Figure 9: Row River Sub-basin

far upstream as Wildwood Falls prior to dam construction. After construction, Pacific lamprey are the only remaining anadromous species known to have maintained spawning migrations. The dam serves as a permanent barrier to upstream movement of anadromous and native fish, and a semi-permanent barrier to downstream movement. The river above the dam is free-flowing, although plagued with undersized and under designed culverts on tributaries. These culverts only serve to magnify downstream fish passage issues for resident fish.

Streams throughout the Coast Fork Willamette Watershed are often dominated by fine-grained substrates like clay hardpan and sand, or like the creek beds below both proposed culvert replacements have eroded down to the bedrock. Cutthroat trout and brook lamprey require gravel substrate for spawning. Suitable spawning substrate only appears as streams begin increasing in gradient as they descend the Coast Range.

Temperatures in the Coast Fork Willamette mainstem and tributaries often exceed the Oregon standard during the summer and reach levels that cause physiological stress or mortality for cold-water species such as cutthroat trout and brook lamprey. Having access to cold water refugia is important for long-term sustainability of the native fish populations.

According to the BLM, there are six rock quarries within the Row River Watershed, with more in the source water area. These have historically been used to produce crushed rock aggregate for construction projects. The BLM points out that the area does have future development potential for quarry rock and leasable minerals. A small area, approximately 3 acres, is considered to have potential for gold mining.

There are also a multitude of recreational opportunities within the DWSA. Dorena Reservoir is a high-use recreational area including boating, fishing, and water sports. There are also hiking and biking opportunities, including the Row River Trail, a National Scenic Bikeway that extends the length of Dorena Reservoir from Cottage Grove to Culp Creek.

The restoration projects to be developed in the Mosby Creek projects will address the following watershed problems:

- Restoration of disconnected habitats and migration corridors used by native fish and wildlife due to land use practices.
- Disruption of fluvial processes including bank erosion and channel migration.
- Reduce the infestation of off-channel habitats by invasive species and noxious weeds.
- Increase native tree and shrub populations, including culturally significant first foods, into the landscape.

Table 5: High Priority Projects in the Row River Watershed

| Source Protection River, Mosby Creek, and Upper the City of Creswell, Outreach                   | 1.1, 1.2,<br>1.3, 1.4, |
|--|------------------------|
| Source Protection River, Mosby Creek, and Upper the City of Creswell, Outreach                   |                        |
|  | 1.3. 1.4.              |
|  | ,,                     |
| Area Riparian Coast Fork Willamette Oregon Department of   | 1.5, 1.6               |
| Restoration Project watersheds to conduct on the Environmental Quality,                          | 2.1, 2.2,              |
| ground restoration. This work is private landowners,   | 2.3, 2.4, 2.5          |
| essential for the long-term McKenzie River Trust,  |                        |
| protection of drinking water Natural Resources   |                        |
| sources for the communities Conservation Service,  |                        |
| reliant on the Coast Fork Farm Services Agency,  |                        |
| Willamette River surface water and Oregon Department   |                        |
| for drinking water. of Fish and Wildlife   |                        |
| Layng Creek         Floodplain reconnection and         ODFW, USFS         Conceptual            | 1.1, 1.2,              |
| Floodplain   large wood placement project   Project  | 1.3, 1.4,              |
| Enhancement designed to increase fish habitat  | 1.5, 1.6               |
| Project in Layng Creek.  | 2.1, 2.2,              |
|  | 2.3, 2.4, 2.5          |
| Row River Oak Enhancement & restoration of MRT, ODFW, private Landowner                          | 3.2, 3.3,              |
| <b>Restoration Project</b> native oak prairie and upland landowners, USFS, and Outreach/ Project | 3.4                    |
| habitat and riparian function USFWS Implementation   |                        |
| along Row River. w/ landowner.   |                        |
| Umpqua National Decommissioning and ODFW, USFS Project   | 1.1, 1.2,              |
| Forest Road deactivation of USFS road Implementation   | 1.3, 1.4,              |
| Decommissioning systems (including culvert   | 1.5, 1.6               |
| Project removals and floodplain  | 2.1, 2.2,              |
| reconnections) along with  | 2.3, 2.4               |
| restablishment of native   |                        |
| floodplain forest species.   |                        |
| Row River Nature Remove noxious weeds, plant City of Cottage Grove, Project                      |                        |
| Park Floodplain native vegetation, create nesting Forest Service, Kennedy Development            |                        |
| Enhancement habitat, install basking logs, School  |                        |
| enhance songbird habitat on 20+  |                        |
| acres.   |                        |

# 5.2 Actions to Protect, Restore and Monitor Water Quality and Quantity

Good water quality is fundamental for river health, as it sustains ecological processes that support native fish populations, vegetation, wetlands, and other wildlife. We also depend on clean water for drinking, irrigating crops, fishing and recreation, and to meet cultural and spiritual needs.

The water quality index includes eight water quality variables: temperature, dissolved oxygen, biochemical oxygen demand, pH, ammonia+nitrate nitrogen, total phosphorus, total solids, and *Escherichia coli* (*E. coli*) bacteria.

Objectives to protect, restore, and monitor water quality and quantity include:

- Reduction the amount of chemicals used and/or stored in the watershed, and increase hazardous material spill preparedness;
- Reduce bacteria and nutrient pollution loads into the Coast Fork Willamette River and its tributaries to reverse increasing trends of *E. coli* and nitrates by 2026; and
- Establish a watershed health monitoring framework that effectively assesses and tracks changes in: water quality and quantity; land cover and landforms; key aquatic species health; and instream habitat, in order to assess climate change impacts and effectiveness of actions.

The plan also addresses impaired habitat complexity/diversity and off-channel habitats, elevated water temperature from land uses, toxins from agricultural sources, and toxins from urban, industrial and other sources. USACE and ODFW are concurrently addressing limiting factors by improving upstream and downstream passage at dams, developing ways to better control water temperatures below dams, and addressing impacts from hatchery management.

The upper watersheds (Upper Coast Fork, Mosby Creek, and Row River) provides the drinking water for the communities reside within the Coast Fork Willamette watershed. The DEQ mapped a total of 45 potential serious contaminant sources within the City of Cottage Grove's drinking water protection area, and 50 serious potential contaminant sources within the City of Creswell's drinking water source area, all of which are in sensitive areas. The sensitive areas within the both cities drinking water protection areas include areas with high soil permeability, high soil erosion potential, high runoff potential, and areas within 1000' from the river/streams. Potential contaminant sources, if located in these areas, pose a greater potential to impact the water supply.

Using DEQ information coupled with local knowledge, the updated inventory mapped a total of 55 unique potential contaminant sources. These sources fell into seven categories:

- Agriculture
- Forestry Practices
- Industrial/Commercial
- Infrastructure

- Natural Hazards
- Recreation
- Residential

### **Agriculture**

Agricultural activities in the Drinking Water Source Area include both commercial and hobby farms. Hobby farms include backyard gardens and small livestock herds including horses, cows, sheep, and other farm animals. Larger scale agriculture activities do not presently exist within the DWSA but may in the future.

Potential non-point source pollutants associated with agriculture include sediments, nutrients, pathogens, oxygen-depleting organics, and pesticides.

## **Forestry Practices**

#### Timber Harvest

Forestry practices include activities related to growing and harvesting timber. Pollutants typically associated with forest practices include nutrients, sediments, organics, and heat. Erosion and subsequent sedimentation results from timber harvest, road construction, stream crossings, and high intensity fires.

Timber harvest on forested lands, including cutting and yarding, has the potential to contribute sediment, nutrients, chemical residue from fertilizer and/or pesticide applications, and organic matter runoff to stream channels. The actual impacts of these activities depend on the proximity to streams and sensitive areas such as slopes and landslide hazard areas.

## Managed Forest Land – Herbicide Application

The Oregon Forest Practices Act requires planting tree seedlings within two years after a timber harvest. Many forest landowners choose to use herbicides to control unwanted vegetation that could be detrimental to tree seedlings. Herbicides are often viewed as the most cost-effective means for reforestation purposes (ODF).

### Managed Forest Land – Road Density

Roads can be significant contributors of runoff/sediment to stream channels. They can influence the timing and magnitude of stream flows in a watershed. They can also be a barrier to some terrestrial and aquatic species (BLM, 1995).

Road-stream crossings used by motor vehicles pose a potential risk to the drinking water source. Vehicle accidents at or near crossings could lead to spilled fuel and fluids entering the source water. This situation constitutes a high-risk contaminant source in a sensitive area. In addition, access roads have the potential to contribute sediment to stream channels. Industrial forest roads, used predominantly by large logging trucks, contribute to sedimentation along the road and into the stream channel. It is estimated that 2,663 tons of sediment per year is delivered to streams via road routing in the Mosby Creek Watershed area alone (BLM, 2000).

## **Industrial/Commercial**

A variety of commercial and industrial businesses are located in the DWSA. They include logging and construction companies, nurseries, auto gas stations (both active and historic), sand and gravel operations, wood/paper processing mills, and machine shops. These represent potential point and non-point sources of pollution mainly through storm sewer runoff. Some possible contaminants include gasoline and its additives, oil and grease, SOCs, VOCs, inorganics, temperature increases, and heavy metals. Among the metals are arsenic, barium, cadmium, copper, lead, mercury, and zinc.

### Infrastructure

There are a variety of physical and organizational structures throughout the study area that are needed for the operation of local communities. They include dams, utility stations, waste transfer stations, and water treatment plants.

One dam exists in the DWSA for hydroelectric and flood control purposes. Dams and powerhouse operations typically involve the use of fuels, paints, solvents, and coolants/lubricants. Although containment facilities are present at these facility, some risk may be associated with accidental spills and overfilling. It is important that they are inspected at regular intervals to ensure they will perform properly if needed.

#### **Natural Hazards**

Harmful Algal Blooms (HABs)

Warm, calm water and nutrients contribute to the rapid growth of both green algae and cyanobacteria (blue-green algae). Blooms can occur anytime of the year, but are most common between June and September. A few types of blue-green algae can develop toxins, which, if swallowed, can cause diarrhea, nausea, cramps, fainting, numbness, dizziness, tingling, and paralysis. Skin contact can cause rashes or irritation. Children and pets are at greatest risk.

A study conducted by Oregon State University researched the risk to Willamette Valley drinking water posed by algal blooms in the region and the potential presence of toxic cyanobacteria. Based on analysis of the 2011 and 2012 bloom seasons, the report concluded that Dorena Reservoir has a low toxigenicity and appears to present low toxicity risks to the Cottage Grove drinking water supplies.

As the previous study suggests, although some blue-green algae have the potential to produce toxins under the right conditions, toxins are not always produced, and when produced, are not always at levels that are harmful (OHA, 2013). Management strategies that promote healthy riparian areas and reduce sediment delivery will address phosphorus sources and reduce the risk of blue-green algae blooms.

Testing to monitor for HABs will continue to be carried out by the Oregon Health Authority through their Harmful Algae Bloom Surveillance program. Ongoing testing is necessary to

monitor the situation, as of the 12 raw samples taken in 2013, 6 tested positive for microcystin at the intake.

#### Recreation

The areas surrounding Dorena Reservoir, as well as the Brice Creek and Layng Creek areas, have a high volume of recreation activities. This includes Corps of Engineers and Forest Service campgrounds, county and municipal parks, and multi-use bicycle trails. Dorena Reservoir is a high-use recreational area including boating, fishing, and water sports. There are also hiking and biking opportunities, including the Row River Trail, a multi-use paved trail that extends from the City of Cottage Grove to Culp Creek.

Potential contamination from these activities includes petroleum products, solvents, paints, oils and grease, and untreated or partially treated human waste (nutrients and pathogenicmicroorganisms). Sedimentation and turbidity can also be an issue. Turbidity is the measure of relative clarity of a liquid. Stream bank erosion may be caused by boaters and anglers. Soil erosion caused by off-trail hiking and other activities can increase the sediment load of the watershed.

#### Residential

Residents, particularly those who live adjacent to the river or a tributary, have an important role to play in the stewardship of the Drinking Water Source Area and maintaining excellent water quality. Several communities within the DWSA, including Disston, Culp Creek, Dorena, Saginaw and Mosby Creek, exhibit residential clusters of private properties with household and automotive refuse stored within feet of the stream banks.

Potential contamination from these areas includes urban stormwater runoff, nutrients, pathogens, metals, petroleum products, toxic chemicals, and increased biochemical oxygen demand. Not only does this result in additional expense of treating potable water, but they also have a detrimental result for fish, wildlife, and the entire ecosystem.

The DEQ/DHS guidance manual for source water assessments recommends that once the entire boundary of the source area is delineated, that "sensitive areas" be also identified and delineated within the watershed. The purpose of the sensitive area delineation is to prioritize a subset of the watershed for the contaminant inventory and protection strategies in order to focus efforts on the portion of the source area that is most susceptible to contamination.

Susceptibility can be defined as the potential for contamination in the drinking water protection area to reach the intake on the surface water body being used by a public water system for drinking water purposes. Whether or not a particular drinking water source becomes contaminated depends on three major factors: 1) the occurrence of a facility or land use that releases contamination; 2) the location of the release; and 3) the hydrologic and/or soil characteristics in the watershed that allow the transport of the contaminants to the surface water body.

The first step of a susceptibility analysis is to identify those parts of the watershed that are most sensitive to contamination. This was accomplished after the delineation phase of this assessment.

The second step involves the inventory of potential contaminant sources within the drinking water protection area. Each possible contaminant source is then categorized as a lower, moderate, or higher-relative risk to the surface water body. This step was accomplished in the inventory phase of the assessment.

The final step is to combine the results from the sensitive area and potential contaminant source inventories. The results are analyzed in terms of: current, past, and future land uses; their time-of-travel relationship or proximity to water intake sites; and their associated risk rating. Land uses and those with the highest associated risk pose the greatest threat to a drinking water supply. The presence and locations of the potential contaminant sources (full list in Appendix A) within the sensitive areas will determine where the water system has the highest susceptibility to contamination.

While on-the-ground restoration projects are the actions that we assume will contribute to a healthier river, scientifically sound assessment and monitoring of the aquatic and floodplain ecosystem and individual projects are important for creating a guiding vision, improving restoration efforts, and documenting the status and trends of river health and human communities. Monitoring ensures program reliability and accountability for all program stakeholders, funders and the public. Monitoring allows for the collection of important data and analysis needed to assess the success of program objectives over time. Based on monitoring results, the CFWWC and partners will be able to revise and improve actions. Monitoring is designed to develop and maintain relationships between the landowners and the monitoring partners. Consistency and transparency in the monitoring process will allow partners to maintain open communication and clear expectations for program participation.

The structure of project monitoring is planned as a two-tier approach: 1) watershed monitoring to assess if various investments are meeting key objectives; and 2) site-level monitoring to ensure restoration and conservation actions are meeting key objectives.

Three main actions to be taken regarding monitoring watershed condition over time will be utilized:

- Conducting repeat LiDAR flights every 4-5 years to measure change in canopy cover, structural footprints and other infrastructure (i.e., roads, levees, docks, bridges, impoundments/dams, etc.), and creek/river channel morphology;
- 2. Continuing water quality monitoring across the watershed to assess changes in baseline conditions, harmful algal bloom production, and daily water quality trends; and,
- 3. Extending the Willamette SLICES approach up into the Coast Fork Willamette Watershed Sub-basin. Current efforts end in Eugene at the confluence with the Middle Fork Willamette River.

Through the monitoring program, the CFWWC and its partners will periodically assess effectiveness of the actions in meeting the goals and objectives prescribed in the plan and adjust as necessary to habitat restoration treatments, drinking water quality actions, and outreach activities. As actions are completed, new priority actions may be developed and implemented to achieve goals and objectives. Goals and objectives may be modified as time goes on. In this way, the plan is a living document that will be updated regularly.

The partnership will assess progress in achieving goals and objectives in years 2, 4 and 6 following plan implementation. The partnership may modify treatments or actions to better achieve goals and objectives or pursue additional funding to implement actions. At the end of year 6, the partnership will review outcomes, goals, objectives, priorities and actions and the overall effectiveness and relevance of the plan. Habitat assessments for each 5<sup>th</sup> field watershed will be updated. At this juncture, the partnership may revise any elements of the plan as necessary for the next 6-year period and/or pursue a different funding strategy.

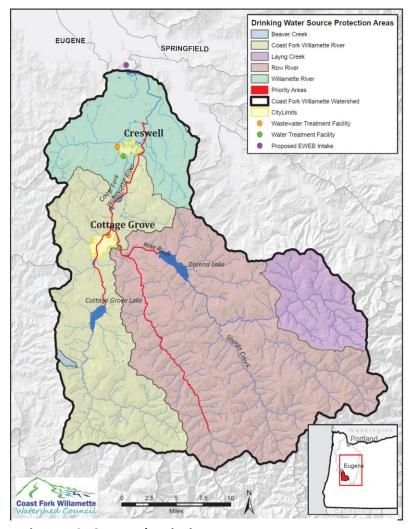
### **5.3 Actions and Priorities to Promote Education and Outreach**

The CFWWC continues to work collaboratively with partners to recruit stakeholders and encourage new projects that benefit fish, wildlife, natural ecosystems and human health. The result of the development of this plan has identified key areas that will provide the most ecologically significant impact for on the ground restoration and enhancement. This project seeks to recruit stakeholders in the prioritized regions of the Row River, Mosby Creek, and Upper Coast Fork Willamette watersheds to conduct on the ground restoration. The sensitive areas identified are drinking water sources for both the City of Cottage Grove (approximately 10,000 residents) and the City of Creswell (approximately 4,500 residents). This work is essential for the long-term protection of drinking water sources for the communities reliant on the Coast Fork Willamette River surface water for drinking water.

Targeting outreach efforts to key landowners in the prioritized sections of the Row River, Mosby Creek, and Upper Coast Fork Willamette sub-watersheds, CFWWC will be ensuring the highest ecological benefit in the most impactful areas when on the ground restoration is realized. These areas are currently used for private industry, agriculture, and residential purposes and were identified in the Drinking Water Protection Plans for Cottage Grove and Creswell. Each of these areas provides a unique opportunity and benefit for restoration. The Row River and Mosby Creek provides the drinking water for the City of Cottage Grove, provides the only salmon spawning habitat in the watershed, and has a dedicated funding stream through the Oregon Department of Fish and Wildlife for project implementation efforts in these important areas. The Upper Coast Fork Willamette River provides the drinking water for the City of Creswell and the greatest opportunity to increase water quality in the watershed by providing support to landowners and implementing future riparian and instream restoration projects.

This opportunity is timely because the City of Cottage Grove and the City of Creswell both recently adopted Drinking Water Protection Plans. The CFWWC was instrumental in the formation of both plans. Landowner engagement leading to restoration was listed as a top

priority in both plans. This process will be the first step in moving from the planning stage to the implementation stage. While the Oregon Department of Environmental Quality (DEQ) cannot officially provide letters of support due to internal policies, they will be actively involved in project development and outreach efforts. The proposed work with landowners is directly aligned with DEQ's vision for implementing projects that can help improve watershed health while protecting important beneficial uses such as drinking water. Additionally, the Eugene Water and Electric Board (EWEB) is in process to utilize the mainstem Willamette as a second source of drinking water for the City of Eugene. This would increase exponentially the number of people affected by implementation of projects



**Figure 10: Outreach Priority Areas** 

resulting from our outreach efforts in this project. Until EWEB begins construction of the second source intake facility, EWEB staff cannot invest time or resources to this effort. In the interim, CFWWC and EWEB staff are in contact sharing efforts and requesting input on proposed activities that will directly affect downstream water quality.

Stakeholder engagement and relationship building is a delicate process that takes time and resources. With implementation of this plan it is essential to devote time and resources needed to build the relationships leading to on the ground restoration and potentially acquisition. The CFWWC has a strong relationship with the McKenzie River Trust (MRT), Natural Resources Conservation Service (NRCS), and Farm Services Agency (FSA). During the process of project development, MRT would be introduced to landowners interested in selling or obtaining an easement on their property and FSA/NRCS would be brought in for landowners who could benefit from federal programs including but not limited to the Conservation Reserve Enhancement Program (CREP) or Environmental Quality Incentives Program (EQIP).

With the ever-changing demographics in the Coast Fork Willamette watershed it is imperative that the Coast Fork Watershed Council (CFWWC) strive to fully include community members regardless of (but not limited to) race, ethnicity, nationality, culture, geography, socioeconomic status, mental/physical ability, gender, gender identity, sexual orientation, age, or religion. The CFWWC recognizes that fostering equity, diversity, and inclusion within our organization and within our community requires collaboration, communication, and active outreach to current and historically underrepresented and oppressed groups of people in our community to offer opportunities for education, participation, and employment. Current and historically underrepresented and oppressed groups of people deserve the right to speak for themselves and to fully participate in community dialogue and decision-making processes in the watershed. Environmental equity in our watershed ensures that all community members have access to clean water, and a healthy environment.

### Actions taken in outreach efforts include:

- Conduct outreach to increase the participation of landowners in voluntary conservation and restoration actions;
- Promote existing outreach programs and develop new regional programs that reflect DEI priorities and enhance middle and high school youth knowledge and understanding of watershed conservation and restoration;
- Maintain and expand opportunities for volunteers and community members to participate in the development and implementation of restoration and stewardship projects;
- Increase collaboration with other watershed councils, agencies and organizations within Lane County who are providing youth programs focusing on watershed health, water quality and fish and wildlife habitat; and
- Promote and enhance public knowledge of the historic and cultural significance, biological needs, and new research concerning key species in the Coast Fork Willamette Sub-basin, and promote the recovery of Chinook.
- Create culturally significant opportunities for participation and outreach tribal communities, people of color, LGBTQ+ communities, and other underrepresented and/or marginalized communities.
- Incorporate the CFWWC Equity and Engagement Strategy into all new project and public outreach planning and implementation efforts.

### 5.4 Accounting for Investments in the Watershed and Monitoring

Through the monitoring program described in the previous section, the CFWWC and its partners will periodically assess effectiveness of the actions in meeting the goals and objectives prescribed in the plan and make adjustments as necessary to habitat restoration treatments, drinking water quality actions, and outreach activities. As actions are completed, new priority actions may be developed and implemented to achieve goals and objectives. Goals and objectives may be modified as time goes on. In this way, the plan is a living document that will be updated regularly.

## **5.5 Funding Strategies**

The partner organizations will continue their coordinated efforts over the long term to protect drinking water quality and conserve and restore habitat. Collaborative efforts will provide long-term sources of matching funds for federal, state, and private grants. Sources of funding include Oregon Watershed Enhancement Board (OWEB) regular grants; BLM and Forest Service budgets; ODFW Restoration and Enhancement grants; local utility (power and water) ratepayer funds; local area business donations; BPA Wildlife Mitigation Program funds for acquisition and restoration; ODOT mitigation funds; Oregon Clean Water Fund; NRCS Conservation Innovation Grants; shade credit investments from the Metropolitan Wastewater Management Commission; and local match from City of Cottage Grove, City of Creswell, EWEB (once construction of the second source has begun), Emerald Peoples Utility Board, Pacific Power, Weyerhaeuser Company, and BLM.

### **6 UPDATING THE PLAN**

The partnership will assess progress in achieving goals and objectives in years 2, 4 and 6 following plan implementations. The partnership may modify treatments or actions to better achieve goals and objectives or pursue additional funding to implement actions. At the end of year 6, the partnership will review outcomes, goals, objectives, priorities and actions and the overall effectiveness and relevance of the plan. Habitat assessments for each 5<sup>th</sup> field watershed will be updated. At this juncture, the partnership may revise any elements of the plan as necessary for the next 6-year period and/or pursue a different funding strategy.

Revisions to increase DEI efforts were interjected in 2020. A conscious effort to take the plan section by section and further include and revise to better incorporate aspects of DEI will be taken at each CFWWC Board of directors meeting throughout 2020. The CFWWC Diversity, Equity, and Inclusion Learning Community was established in January 2019. Guidance from that group will be considered from the Board of Directors when revising the plan throughout 2020.

To ensure that DEI efforts remain in the forefront of our efforts assessing progress for those aspects will be considered annually throughout the life of the plan, in contrast to the bi-annual assessment of achieving the environmental goals which can take longer to achieve. Continuing to make diversity, equity, and inclusion a top marker of success will help us better achieve our implementation goals and objectives.

# 7 SUMMARY OF WORK COMPLETED TO DATE

Since 2003, over \$2.3 million has been invested in the Coast Fork Willamette Watershed for onthe-ground restoration efforts. This amount does not consider landowner outreach effort, youth education, or community outreach efforts.

| Project<br>Type | Project Name and Description   | Project<br>Start Date | Total Project Cost |
|-----------------|--|-----------------------|--------------------|
| 1 4 6 6         |  | Start Bate            | Total Project Cost |
|                 | Lower Coast Fork Willamette WS Assessment –                                |                       |                    |
|                 | This project completed an assessment of the Lower Coast                    |                       |                    |
| A               | Fork to provide historic and current perspectives on watershed conditions. | 2/12/2002             | ć 127.C2F          |
| Assessment      | watersned conditions.  | 2/12/2002             | \$ 127,635         |
|                 | Garden Lake Riparian Restoration Project –                                 |                       |                    |
|                 | The project removed invasive vegetation and otherwise                      |                       |                    |
|                 | enhance approximately 11 acres of pond habitat near the                    |                       |                    |
|                 | Lower Coast Fork/Hill Creek drainages, near Creswell.                      |                       |                    |
|                 | The areas around the ponds have been replanted with                        |                       |                    |
| Restoration     | native vegetation.   | 11/15/2006            | \$ 244,252         |
|                 | Priory Farm Restoration Project –  |                       |                    |
|                 | This project included hand removal of invasive plants                      |                       |                    |
|                 | such as Himalayan blackberry, English ivy and Scot's                       |                       |                    |
|                 | broom from the riparian area along Hall Creek. Fish trap                   |                       |                    |
|                 | data has shown both cutthroat and winter steehead use                      |                       |                    |
|                 | of the stream and Hall Creek has been identified as a                      |                       |                    |
|                 | priority under ODFW's Conservation Plan for native                         |                       |                    |
|                 | salmonids within the Lower Coast Fork of the Willamette.                   |                       |                    |
|                 | Native riparian trees and shrubs have been planted by                      |                       |                    |
| Restoration     | local youth conservation corps.  | 4/6/2007              | \$ 8,751           |
|                 | Mt. Pisgah Arboretum Riparian & Riverine Restoration -                     |                       |                    |
|                 | Preserved and enhanced the riverine associated                             |                       |                    |
|                 | wetlands at Mount Pisgah Arboretum: eradication of                         |                       |                    |
|                 | non-native invasive species, re-planted areas where                        |                       |                    |
|                 | invasives are removed with a diversity of native species                   |                       |                    |
|                 | indigenous to these system, retention of woody debris in                   |                       |                    |
| Restoration     | 10 acres.  | 6/18/2007             | \$ 18,290          |
|                 | Osgbury Riparian Restoration –   |                       |                    |
|                 | Removed non-native species and replace by self-                            |                       |                    |
|                 | sustaining native species appropriate to the riparian                      |                       |                    |
| Restoration     | buffer from 30 to 100 feet from creek side.                                | 4/18/2008             | \$ 8,236           |
|                 | STREAM Program Phase I –   |                       |                    |
|                 | Removed non-native species and replace with self-                          |                       |                    |
|                 | sustaining native species appropriate to the riparian                      |                       |                    |
| Restoration     | buffer from 30 to 50 feet from river side.                                 | 4/18/2008             | \$ 12,645          |

|             | Mosby Creek Aquatic Habitat Inventory –   |            |          |         |
|-------------|---|------------|----------|---------|
|             | Mosby Creek had two known aquatic conditions  |            |          |         |
|             | detrimental to native salmonids: elevated summer  |            |          |         |
|             | temperatures and a lack of aquatic habitat structure.   |            |          |         |
|             | Exactly where to begin addressing these large-scale   |            |          |         |
|             | problems was unknown. Comprehensive and current   |            |          |         |
|             | baseline information for Mosby Creek was unavailable,   |            |          |         |
|             | yet necessary to prioritize restoration actions in this   |            |          |         |
|             | priority sub-basin. An in-depth habitat inventory of the  |            |          |         |
|             | entire mainstem conducted by ODFW Aquatic   |            |          |         |
|             | Inventories Project provided a professional level of  |            |          |         |
|             | analysis and data sets in GIS to be used in restoration   |            |          |         |
| Monitoring  | planning for aquatic and riparian enhancement.  | 5/16/2008  | \$       | 35,300  |
|             | East Regional Park Enhancement Project –  |            |          |         |
|             | The project restored native vegetation and pond bank  |            |          |         |
|             | condition on 42 acres in three different ecosystems. All  |            |          |         |
|             | sites received initial manual or mechanical weed control  |            |          |         |
|             | treatment over the first three years and then were  |            |          |         |
|             | maintained twice a year thereafter for fat least five   |            |          |         |
|             | years. Diverse native plans and shrubs were planted in  |            |          |         |
|             | over 40 areas. The City of Cottage Grove will contribute  |            |          |         |
|             | equipment crews for implementation and maintenance  | _          |          |         |
| Restoration | of the project.   | 5/28/2008  | \$       | 301,000 |
|             | Mosby Creek Collaborative Restoration Planning –  |            |          |         |
|             | This project followed up on previous landowner forums   |            |          |         |
| Tablesian   | by recruiting interested landowners for riparian  |            |          |         |
| Technical   | restoration projects along Mosby Creek, the largest free-                                       | 44/47/2000 | <b>,</b> | 20.072  |
| Assistance  | flowing upland tributary of the Coast Fork Willamette. <b>Buford Park False Brome Control</b> – | 11/17/2008 | \$       | 29,072  |
|             | This project treated 100 acres as part of an integrated   |            |          |         |
|             | false brome control program begun in 2005 by Friends of   |            |          |         |
|             | Buford Park and Mt. Pisgah aimed at controlling false   |            |          |         |
|             | brome across the park. The Howard Buford Recreation   |            |          |         |
|             | Area (HBRA) contains some of the largest remnants of  |            |          |         |
|             | "globally endangered" plant communities, such as oak  |            |          |         |
|             | savanna, upland prairie and wetland prairie which are   |            |          |         |
|             | home to wildflower and a diversity of bird and other  |            |          |         |
|             | wildlife. Invasive species threaten both the native   |            |          |         |
|             | habitat and previous restoration activities. This project                                       |            |          |         |
|             | continued manual removal of the weed over 100 acres   |            |          |         |
|             | including a 3rd cycle on 66 acres, a 2nd cycle on 23 acres                                      |            |          |         |
|             | and extend treatment to 11 more acres. The project  |            |          |         |
|             | areas were re-seeded and replanted with natives sourced   |            |          |         |
|             | specifically for the park with the goal to develop self-  |            |          |         |
| Restoration | sustaining native plant communities.  | 4/20/2009  | \$       | 17,937  |

|             | Wright Century Farm Riparian Exclusion & Enahncement         |             |    |         |
|-------------|--|-------------|----|---------|
|             | Project-   |             |    |         |
|             | Located along the mainstem Coast Fork Willamette this        |             |    |         |
|             | 15 acre project site adjacent to Lynx Hollow State Park      |             |    |         |
|             | ,                      |             |    |         |
|             | had lost approximately 50 percent of large native trees      |             |    |         |
|             | due to increased erosion. This project fenced cattle out     |             |    |         |
|             | of the entire 5 acre riparian area and exclude               |             |    |         |
|             | neighboring cattle from watering in the stream on the        |             |    |         |
|             | landowner's northern border. Himalayan blackberry was        |             |    |         |
|             | removed and 800 native trees and shrubs planted to aid       |             |    |         |
|             | bank stability and improve wildlife habitat. An off-site     |             |    |         |
| Restoration | watering tank will be installed above the flood zone.        | 5/12/2009   | \$ | 13,011  |
|             | Mosby Creek Spring Chinook Re-establishment –                |             |    |         |
|             | Due to 19th-century log transportation techniques, the       |             |    |         |
|             | creek is characterized by a bedrock-dominated channel        |             |    |         |
|             | with little gravel suitable for salmon spawning and few      |             |    |         |
|             | deep pools for adult holding/juvenile rearing. The project   |             |    |         |
|             | began improving habitat for the threatened spring            |             |    |         |
|             | Chinook salmon along a severely compromised half-mile        |             |    |         |
|             | stretch by installing instream rock weirs, boulders, and     |             |    |         |
|             | logs. Each set of structures, featuring one channel-         |             |    |         |
|             | spanning weir and two downstream off-set weirs, and          |             |    |         |
|             | was designed to reduce velocities; increase channel          |             |    |         |
|             | complexity and hydraulic diversity; increase bedload; and    |             |    |         |
| Restoration | improve hyporheic flow.                                      | 11/5/2009   | \$ | 196,210 |
|             | Hollyer Prairie Enhancement Project –                        |             |    |         |
|             | The Hollyer Prairie Project enhanced prairie, oak            |             |    |         |
|             | woodland, and wetland ecosystems in Upper Camas              |             |    |         |
|             | Swale Creek, nine miles west of its confluence with the      |             |    |         |
|             | Coast Fork. The Coast Fork Willamette Watershed              |             |    |         |
|             | Council (CFWWC) has worked with the landowner (Helen         |             |    |         |
|             | Hollyer), US Fish and Wildlife (USFWS), and McKenzie         |             |    |         |
|             | River Trust (MRT) since 2008 to prioritize and fund          |             |    |         |
|             | restoration actions that target the rare plant               |             |    |         |
|             | communities, including protection of a population of         |             |    |         |
|             | Kincaid's lupine (Lupinus oreganus) and introduction of      |             |    |         |
|             | golden paintbrush (Castilleja levisecta). Enhancement        |             |    |         |
|             | actions focused on improving processes by reducing           |             |    |         |
|             | invasive species, mitigating altered fire regimes through    |             |    |         |
|             | mowing, targeted spot spraying of woody species, the         |             |    |         |
|             | introduction of fire to 13 acres of prairie, and thinning of |             |    |         |
|             | ash corridors and oak woodland edges. The introduction       |             |    |         |
|             | of 50 pounds of native plant seed in addition to a           |             |    |         |
|             | planting of golden paintbrush and the narrowleaf onion       |             |    |         |
|             | (Allium amplectens) will further diversify these rare plant  |             |    |         |
| Restoration | communities and ecosystems.                                  | 4/12/2011   | \$ | 60,350  |
| Restoration | communices and ecosystems.                                   | 7/ 12/ 2011 | 7  | 00,330  |

|             | Aprovecho Stream Restoration Project – Problems in Calico Creek include channel incision/headcutting, disconnection from the floodplain, blackberry and other noxious weed infestations and impaired fish habitat (lack of pools and sorted gravels) due to lack of large woody debris and historic land use |            |            |
|-------------|--|------------|------------|
|             | practices. At the Aprovecho Center site the riparian zone provides shade but is infested with weeds. An  |            |            |
|             | experienced forester and crew, with a background in  |            |            |
|             | horse logging, manually placed 50 pieces of wood   |            |            |
|             | (harvested from the nearby forest) with additional tops and rootwads in 10 locations along 1,300 ft. of stream.  |            |            |
|             | The wood acts as a grade control, increased connection   |            |            |
|             | to the floodplain, provide habitat and provide cooler  |            |            |
|             | water downstream. Weeds were removed by hand   |            |            |
| Restoration | grubbing and 100 Western cedars planted and mulched.   | 1/20/2012  | \$ 13,010  |
|             | Mosby Creek Rapid Bio-Assessment Project –   |            |            |
|             | A Rapid Bio-Assessment helped prioritize projects of   |            |            |
|             | benefit to spring Chinook, coastal cutthroat trout, and  |            |            |
|             | rainbow trout in Mosby Creek, a high-priority, free-   |            |            |
|             | flowing stream in the Coast Fork Willamette Watershed.   |            |            |
|             | Continuous temperature data was collected by volunteers. The contractor conducted a modified limiting  |            |            |
|             | factors analysis and a snorkel survey on 75 miles of   |            |            |
|             | Mosby Creek mainstem and tributaries up to 6 percent   |            |            |
|             | gradient. The resulting rapid bio-assessment report (RBA   |            |            |
|             | results and a prioritized restoration plan) was shared   |            |            |
|             | with local landowners and restoration partners, used for   |            |            |
| Technical   | restoration planning, and ultimately used to guide   |            |            |
| Assistance  | implementation of the Row Basin Fisheries Fund.  | 11/14/2012 | \$ 73,130  |
|             | Mosby Creek Spring Chinook Habitat Project Phase II -  |            |            |
|             | This Phase II project constructed five, channel-spanning   |            |            |
|             | boulder weirs to improve aquatic habitat conditions in   |            |            |
|             | 1.5 km of Mosby Creek in the Coast Fork Willamette   |            |            |
|             | watershed. This was Phase II of a multi-phase project  |            |            |
|             | that addresses long-term, systemic problems associated   |            |            |
|             | with bedrock-dominated habitat conditions in a river-<br>sized stream including: a lack of accumulated gravels,  |            |            |
|             | loss of late-season flow, temperature impairment,  |            |            |
|             | channelization, and loss of connectivity between primary   |            |            |
|             | and secondary channels. Good results from Phase I,   |            |            |
|             | efficiency associated with our operations partnership and  |            |            |
|             | the stocking of spring Chinook smolts by ODFW make this  |            |            |
|             | a time sensitive request. For this phase, one set of three   |            |            |
|             | weirs in a new project area provided habitat for all life  |            |            |
|             | stages of spring Chinook and cutthroat trout when  |            |            |
|             | complete. A second set of weirs will extend the habitat  | _          |            |
| Restoration | created in Phase I Site C and will activate a side channel.  | 4/30/2013  | \$ 194,250 |

| İ            | Coast Fork Knotweed Project Phase I –   |                        |          | ĺ                 |
|--------------|---|------------------------|----------|-------------------|
|              | Knotweed poses a serious and expensive threat to  |                        |          |                   |
|              | ·   |                        |          |                   |
|              | Willamette Valley riparian ecosystems. In the Coast Fork,   |                        |          |                   |
|              | the problem is limited but growing, there were 27   |                        |          |                   |
|              | mapped patches covering 0.9 net acres across 21 gross   |                        |          |                   |
|              | acres in all 4 subbasins in the watershed. The project was  |                        |          |                   |
|              | designed to control all of the mainstem corridor  |                        |          |                   |
|              | knotweed in the Lower Coast Fork Willamette efficiently   |                        |          |                   |
|              | and quickly, covering one of these four 4th field HUCs in   |                        |          |                   |
|              | the watershed with in depth survey and treatment. In  |                        |          |                   |
|              | addition, CFWWC surveyed and treated the major known  |                        |          |                   |
|              | infestations in the Lower Row River, Upper Row River,   |                        |          |                   |
| Danta untinu | and Upper Coast Fork River near Cottage Grove as funds  | 2/24/2044              | <b>~</b> | 11 602            |
| Restoration  | and capacity allowed.   | 3/21/2014              | \$       | 11,692            |
|              | Taylor Riparian Planting Project –  |                        |          |                   |
|              | This project treated non-native invasive weeds on 1.6   |                        |          |                   |
|              | acres of the riparian zone along Carolina Creek in Lane   |                        |          |                   |
|              | County. Following weed treatment, the area was  |                        |          |                   |
|              | replanted to create a 100' wide buffer along the creek.   |                        |          |                   |
|              | The plantings will be established in order to provide   |                        |          |                   |
|              | shade, streamside habitat, and long-term woody  |                        |          |                   |
| Restoration  | contributions to Carolina Creek.  | 3/22/2016              | \$       | 14,924            |
|              | Fox Riparian Enhancement Project –  |                        |          |                   |
|              | This project removed non-native vegetation and add  |                        |          |                   |
|              | native riparian plantings along Hill Creek in Lane County.  |                        |          |                   |
|              | The goal is to treat approximately 37 feet on both banks  |                        |          |                   |
|              | (.95 acres) of the creek to improve the overall function of   |                        |          |                   |
| Restoration  | the rinarian area   |                        |          |                   |
|              | the riparian area.  | 4/6/2016               | \$       | 13,200            |
|              |   | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project -   | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the  | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams   | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes,   | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed  | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully   | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully functioning riparian corridor contributes to water quality  | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully functioning riparian corridor contributes to water quality concerns, and anadromous fish habitat is compromised   | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully functioning riparian corridor contributes to water quality concerns, and anadromous fish habitat is compromised due to the lack of large woody debris in the system. The  | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully functioning riparian corridor contributes to water quality concerns, and anadromous fish habitat is compromised due to the lack of large woody debris in the system. The project addressed these issues by controlling noxious  | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully functioning riparian corridor contributes to water quality concerns, and anadromous fish habitat is compromised due to the lack of large woody debris in the system. The project addressed these issues by controlling noxious weeds on 40.93 acres and restored native trees and | 4/6/2016               | \$       | 13,200            |
|              | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully functioning riparian corridor contributes to water quality concerns, and anadromous fish habitat is compromised due to the lack of large woody debris in the system. The project addressed these issues by controlling noxious  | 4/6/2016               | \$       | 13,200            |
| Restoration  | My Brothers Farm Riparian Enhancement Project - Proposed riparian restoration project is located along the Coast Fork Willamette River and Bear Creek. These dams strongly influence downstream hydrologic regimes, temperature patterns, sediment transport, noxious weed encroachment, and large wood delivery. Lack of a fully functioning riparian corridor contributes to water quality concerns, and anadromous fish habitat is compromised due to the lack of large woody debris in the system. The project addressed these issues by controlling noxious  | 4/6/2016<br>10/25/2016 | \$       | 13,200<br>183,155 |

|             | Salyers Ranch Riparian Restoration Project — The Salyers Ranch Riparian Restoration Project restored riparian habitat by controlling invasive plant species and establishing a native riparian buffer. Restored riparian corridors will support a diversity of native trees, shrubs, and forbs that will provide shade over the creek and reduce erosion. Habitat restoration will benefit many species of birds, reptiles and amphibians, including the  |            |               |
|-------------|---|------------|---------------|
| Restoration | listed western pond turtles and red-legged frogs.   | 4/26/2017  | \$<br>77,393  |
| Restoration | Coast Fork Riparian Enhancement Project – This project improved floodplain habitat for native species by treating non-native invasives and planting native trees and shrubs within a 2.26 acres in the Coast Fork Willamette Watershed in Lane County.  | 6/23/2017  | \$<br>17,325  |
|             | Smith Creek Fish Passage Enhancement — The Smith Creek Fish Passage Enhancement project improved fish passage by replacing undersized culverts, improve spawning habitat by enabling gravel and woody material movement and sorting in the stream system that is currently limited by these culverts, and improve water quality by slowing water and increasing hyporheic flows as a result of more natural stream processes  |            |               |
| Restoration | restored by the proposed culvert replacements.  | 7/1/2017   | \$<br>198,279 |
|             | My Brothers Farm Riparian Enhancement Phase II - High summer water temperatures, erosion, and nutrient inputs are chronic issues throughout the Willamette basin. The project site had been impacted by grazing livestock that removed much of the stream side vegetation, compacted and disturbed soils, and broke down banks, resulting in both channel incision and the widening of stream channels. Degradation of these systems has continued by the colonization of invasive plants, reducing the habitat suitability for wildlife. This 31.64-acre project addressed habitat for native species, through management of invasive vegetation, planting native vegetation, and initial plant establishment to |            |               |
| Restoration | ensure project success and sustainability.  | 10/24/2017 | \$<br>105,445 |

|             | Carnine Upland Prairie and Oak Savanna Restoration - Open-grown Oregon white oaks within the project area are threatened by conifer encroachment and overtopping, while the understory and prairie had been heavily invaded by exotic woody vegetation and non- native grasses. The project implemented oak and prairie habitat restoration that included: (1) thinning small and large-diameter firs and oaks around legacy trees to restore 46.58 acres of oak habitat; (2) enhancing 10.09 acres of prairie that include numerous rare and culturally important plants; and (3) controlling invasive plant  |            |               |
|-------------|--|------------|---------------|
| Restoration | species.   | 4/24/2018  | \$<br>221,004 |
|             | Swale Ridge Riparian Enhancement — This 14.16-acre project restored riparian habitat to a tributary of Camas Swale (Camas Swale tributary) just west of the urban growth boundary of the City of Creswell. The tributary enters Camas Swale and flows  |            |               |
| Restoration | into the lower mainstem Coast Fork Willamette River.   | 6/15/2018  | \$<br>19,844  |
|             | River Road Riparian Restoration –  |            |               |
|             | This -0.75-acre project restored habitat within Cottage  |            |               |
| Restoration | Grove city limits.   | 6/15/2018  | \$<br>14,180  |
|             | Camas Swale Restoration: Neighbors Working Together  |            |               |
|             | These neighboring privately owned properties are uncommon in the highly populated Willamette Valley because of their size, ~2200 acres combined, and are home to large scale oak and prairie habitats. The project site has been impacted by grazing livestock that have removed much of the stream side vegetation, compacted and disturbed soils, and broken down banks, resulting in both channel incision and the widening of stream channels. Degradation of these systems has continued by the colonization of invasive plants, reducing the habitat suitability for wildlife. This 9.66-acre project is addressing habitat for native species through management of invasive vegetation, planting native vegetation, and initial plant establishment to ensure project success and sustainability. A diverse selection of native species will be planted to increase plant diversity. Re-establishing a native riparian buffer and fencing off the waterways along Camas Swale will benefit fish and wildlife habitat |            |               |
|             | and improve water quality by shading the water, filtering out fine sediments and nutrients and result in a more  |            |               |
| Restoration | resilient habitat in the face of climate change.   | 10/19/2018 | \$<br>127,115 |

Total Investments in on the ground restoration, planning, and monitoring efforts

2,356,635

\$

### 8 LITERATURE USED IN CREATION OF PLAN

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