
GREATER YAMHILL WATERSHED COUNCIL

Watershed Restoration
Action Plan

Approved:

November 14, 2014

Signed: _____

Marci E. Humble

(Authorized Signer)

Greater Yamhill Watershed Council

Watershed Restoration Action Plan

2013

Greater Yamhill Watershed Council

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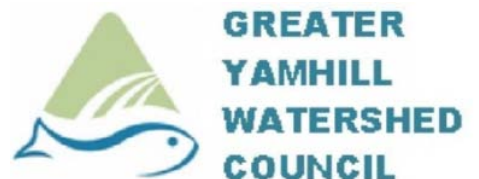
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Supported By:

Oregon Watershed Enhancement Board

Bureau of Land Management – Salem District

And other Watershed Council Partner Organizations



2013 GYWC Watershed Restoration Action Plan

Addendum 11/14/2014

This addendum is to document the GYWC's understanding that recently completed habitat studies and conservation strategies for Fender's blue butterfly and associated species (summarized below) necessitate a thorough review of and updates to the council's 2013 Watershed Restoration Action Plan to incorporate priorities for upland restoration.

Habitat Studies

HCP for Fender's Blue Butterfly on Private Lands in Yamhill County

The Yamhill SWCD and Institute for Applied Ecology (IAE) recently completed a multi-year habitat/population study for ESA-listed Fender's blue butterfly and Kincaid's lupine for private lands in Yamhill County. This study provided the data necessary for the YSWCD to draft a Habitat Conservation Plan (HCP) (Draft, March 2014).

IAE was contracted to develop an Action Plan based on the collected data, which was published alongside the draft HCP (Conservation Strategy for Fender's Blue Butterfly and Associated Habitats in Yamhill County; March, 2014). This strategic plan was developed to complement the YSWCD's HCP, as well as to serve as a stand-alone oak/prairie restoration planning document for local conservation organizations.

HCP for Fender's Blue Butterfly on Yamhill County Right-of-Ways

Yamhill County Public Works also recently completed a multi-year habitat/population study for ESA-listed Fender's blue butterfly and Kincaid's lupine for County transportation right-of-ways. The study provided the data necessary to finalize a Habitat Conservation Plan (HCP) and secure a federal ESA take-permit specific to County right-of-ways (Approved, March 2014).

GYWC Watershed Restoration Planning

The current 2013 Watershed Restoration Action Plan is aquatic/floodplain oriented. The GYWC has an important opportunity to integrate comprehensive oak/prairie restoration information and recommendations into its Watershed Restoration Action Plan now that these Fender's blue butterfly databases and associated strategic plans have been developed. The GYWC intends to broaden its Action Plan focus to a watershed approach, which encompasses the high priority habitats (upland and aquatic/floodplain) and associated species that our service area supports. In doing so, we intend to identify the particular niche that the GYWC can fill for oak/prairie restoration projects in our service area.

We are cognizant of the organizations working in this restoration arena locally and feel that the GYWC will be able to participate in a meaningful and collaborative manner with our partners. The GYWC has already taken steps to pursue these collaborations by participating in a 2014 NRCS RCPP grant funding request to support Yamhill/Polk County oak and prairie restoration. This proposal is a partnership with nearly all of the key local players in oak/prairie restoration. If awarded, the GYWC will provide much needed support for landowner recruitment and outreach. The proposal partners have strongly encouraged this role for the GYWC.

Again, our intent is to use the most current and comprehensive watershed data available to set restoration priorities and identify the actions that the GYWC will take in the coming years. Expanding our focus to include upland areas is an essential component to our watershed restoration goals. We look forward to working with our restoration partners in 2014/2015 to review our current Watershed Restoration Action Plan and to define a strategic, watershed approach that gives equal consideration to priority upland and aquatic/floodplain habitats.

Project Support and Document Preparation:

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Acknowledgements

The completion of the Greater Yamhill Watershed Restoration Action Plan was accomplished through the combined efforts of citizens, local universities, private and non-profit organizations, and public agencies.

Technical advice for the Action Plan was provided by a Technical Advisory Committee (TAC), composed of the following individuals:

Steve Wegner – Bureau of Land Management

Erik Grimstad – City of McMinnville

Chad Tillberg – Linfield College

Tom Murtagh – Oregon Department of Fish and Wildlife

Dave Stewart – Oregon Department of Fish and Wildlife

Marc Bell – Polk Soil and Water Conservation District

Tom Thomson – Polk Soil and Water Conservation District

Terry Anthony – Portland State University & Conservation Strategies

Kelsey Copes-Gerbitz – The Nature Conservancy

Marie Vicksta – Yamhill Soil and Water Conservation District

Dan Kent and **Kevin Scribner** of Salmon-Safe contributed content and valuable comments.

Funding for the development of the Action Plan was provided by the **Oregon Watershed Enhancement Board** and by the **Bureau of Land Management**.



The Greater Yamhill Watershed Council

Action Plan Summary

The Greater Yamhill Watershed Council, a non-profit organization with a volunteer board and council members, fosters community engagement in the basin to protect and enhance the health of our watershed. With the volunteerism of our community and a local sense of stewardship, we can achieve long-term watershed health.

The Greater Yamhill Watershed Restoration Action Plan advances the Council's mission to improve the health of the Yamhill River, Chehalem Creek, and tributary streams. The Action Plan is the framework and roadmap for guiding the Council's activities by pursuing the following goals:

Goal 1: Organize the Council for action

Goal 2: Concentrate the Council's activities by emphasizing actions in riparian and aquatic areas within Willamette Valley lowlands

Goal 3: Work collaboratively with organizations and residents on watershed restoration, education and outreach, and monitoring

Goal 4: Track watershed conditions and restoration success through monitoring and assessment lectures about watershed issues and fish populations;



Council meetings are held on the second Thursday night of the month and the public is encouraged to attend. In addition, the Council sponsors a variety of fun and educational activities

What can you do in your community?

- Participate in streamside tree planting and water quality monitoring;
- Mark storm drains in urban areas;
- SOLVE stream cleanups – help remove trash and unnatural debris from your creek;
- Get dressed-up and be goofy with the Council in McMinnville’s annual UFO festival Alien Parade.
- Join other residents to survey spawning salmon
- Attend lectures about watershed issues and fish populations;
- And a host of other fun activities that connect you to nature

For more information on the Council, upcoming events, and volunteer activities, visit the Council’s web site and facebook account:

<http://www.yamhillwatershedcouncil.org/>

<https://www.facebook.com/greateryamhillwatershedcouncil>

**Volunteers are the heart
of the Greater Yamhill
Watershed Council.**



Greater Yamhill Watershed Council Watershed Restoration Action Plan

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Introduction

The Greater Yamhill Watershed Council is a diverse group of community residents, landowners, environmental groups, businesses, and government agencies who work to enhance the natural resources of the Greater Yamhill Watershed. Working in collaboration with partner organizations and landowners, the Council seeks to increase understanding of the watershed and to accelerate the pace and effectiveness of watershed enhancement through voluntary restoration actions.

The Greater Yamhill Watershed Restoration Action Plan advances the Council's mission to improve the health of the Yamhill River, Chehalem Creek, and tributary streams. The Action Plan is the strategic framework and detailed roadmap intended to guide Council activities over the next five years. These activities include organizational development, voluntary restoration project implementation, building partnerships with other organizations, community and landowner education and involvement, and collecting information on watershed conditions.

Council Board Members

JL Liddane, Chair Watershed Resident

Erik Grimstad, City of McMinnville

Dave Hanson, Native Plant Society of Oregon

Marci Humlie, McMinnville Water and Light

Sonja Johnson, City of Newberg

Dave Riedman, Watershed Resident

Leonard A. Rydell, Yamhill County Small Woodlands Association

Bruce Sigloh, Watershed Resident

Steve Wegner, Mary's Peak Resource Area – Salem Bureau of Land Management

Council Staff

Luke Westphal, Executive Director



Watershed Council Accomplishments

Since its formation in 1995, the Greater Yamhill Watershed Council has engaged the community and landowners in a number of educational and watershed enhancement activities, including landowner workshops, riparian restoration projects, fish habitat improvements and volunteer water temperature and water quality monitoring. Some of the stream restoration projects completed by the



Council include enhancing fish habitat in Gooseneck Creek, a tributary to Mill Creek; improving upland and wet prairie habitats within Yamhill County's Deer Creek Park; and extensive riparian tree planting and invasive plant control along Muddy Creek. The Council is involved with the Palmer and Cozine Creek Pesticide Steward Partnerships (PSPs). Through water quality monitoring, the PSP identifies potential concerns and improves water quality affected by pesticide use. This partnership combines local expertise and water quality sampling results to encourage voluntary changes in pesticide use and management practices.

Development of the Action Plan



This document builds on the Greater Yamhill Watershed Council's 2005 action plan. The range of activities covered in the Action Plan include those necessary to increase the pace and effectiveness of the Council's watershed enhancement and educational actions. The Action Plan focuses on organizational development, on-the-ground restoration, building partnerships, outreach and education, and watershed

assessment and monitoring. Because these activities cannot be achieved by the Council working in isolation, the Action Plan also provides a framework for developing partnerships with local and regional organizations that are in alignment with the Council's watershed improvement mission.

The Action Plan was developed through the guidance of the Council’s Board and a Technical Advisory Committee (TAC). The TAC was comprised of representatives from partnership organizations, including Yamhill and Polk Soil and Water Conservation Districts (SWCDs), Oregon Department of Fish and Wildlife (ODFW), the Bureau of Land Management (BLM), City of McMinnville, Linfield College, The Nature Conservancy, and Portland State University. The Council Board’s Chair and Executive Director also participated in the TAC meetings.

Greater Yamhill Watershed Overview

Encompassing an area of 529,510 acres, ranging from the crest of the Coast Range to the Willamette River, the Greater Yamhill Watershed Council’s service area encompasses the Yamhill and Chehalem basins. Overall, the Greater Yamhill Watershed Council’s service area includes eight watersheds:

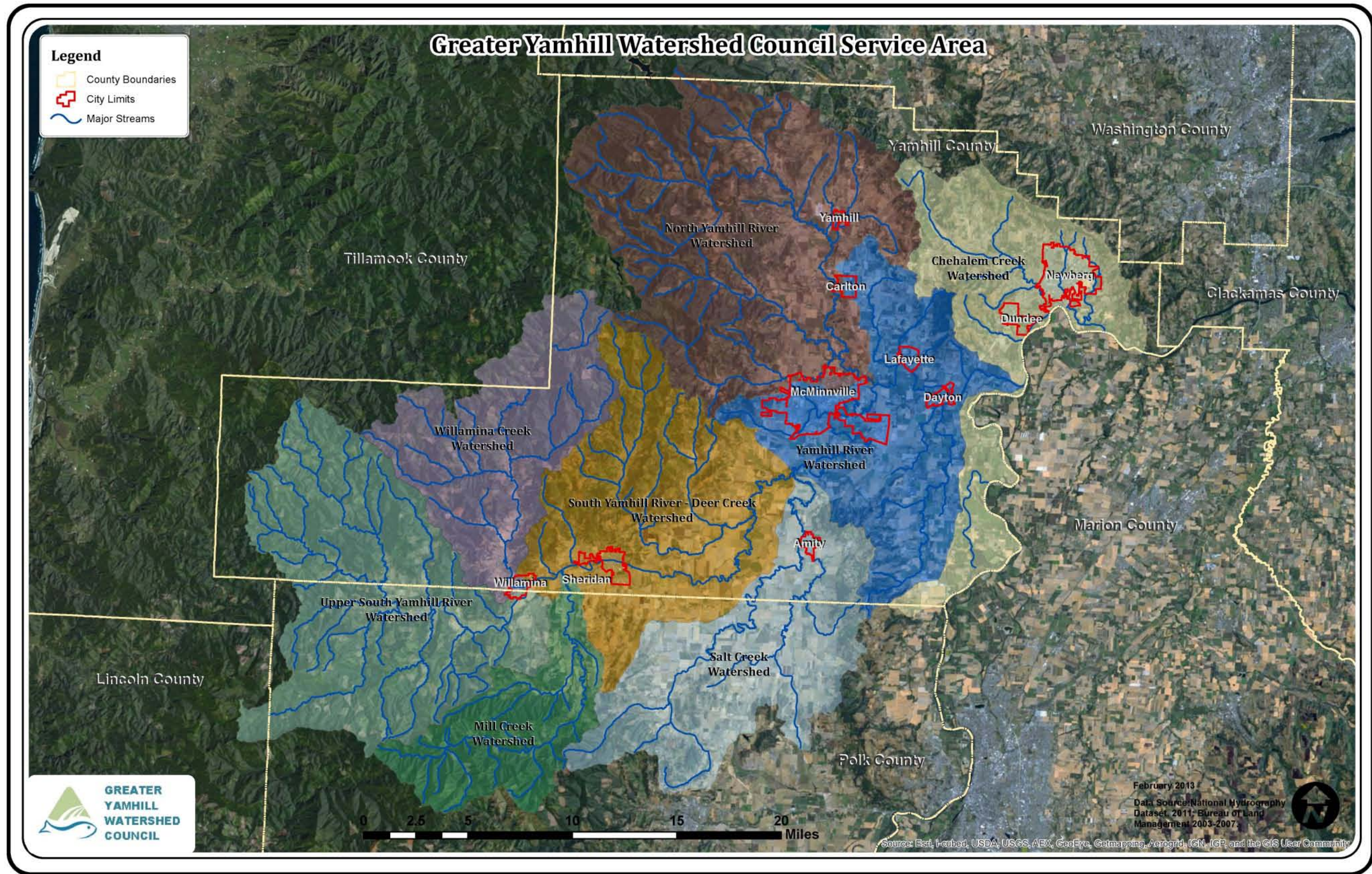
- | | |
|---------------------------|--------------------------------|
| North Yamhill River | Salt Creek |
| Willamina Creek | South Yamhill River/Deer Creek |
| Upper South Yamhill River | Yamhill River |
| Mill Creek | Chehalem Creek* |

*Chehalem Creek Watershed includes Lambert Slough, a tributary to the Willamette River.

The majority (approximately 87%) of land in the Greater Yamhill Watershed Council’s service area (hereafter, Greater Yamhill Watershed) is in private ownership with predominant land uses of agriculture and industrial forestry. The Bureau of Land Management, Confederated Tribes of the Grand Ronde, and the U.S. Forest Service manage properties in the Coast Range upland areas of the basin.

Roughly 70% of the Greater Yamhill Watershed lies within Yamhill County, with most of the remaining in Polk County. Small portions of the watershed are within Washington, Lincoln, and Tillamook Counties. There are ten incorporated cities and towns in the watershed: McMinnville, Newberg, Willamina, Sheridan, Amity, Carlton, Yamhill, Lafayette, Dayton, and Dundee.





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The watershed's human population is growing. In 2012, Yamhill County's population estimate is 100, 550, a considerable increase over the U.S. Census' 1990 population estimate of 65,551 (PSU Population Research Center 2012 <http://www.pdx.edu/prc/home>). Much of the population growth has been concentrated in the Greater Yamhill Watershed's towns and cities.

Aquatic habitats and fish populations



The Yamhill River and Chehalem Creek begin in the Coast Range and foothills. These streams meander through the valley and past communities such as Sheridan, McMinnville, and Newberg before reaching the Willamette River. The watershed's streams are bordered by forests, wetland areas and other water-associated, or "riparian vegetation", that provides shade and other important habitat for wildlife and fish. Historically, the Yamhill River was characterized by a wide band of riparian and floodplain forests with an active channel meandering across the floodplain. Over the last 100 years, various land use practices have dramatically reduced the amount of streamside vegetation and the ability of the channels to migrate across their floodplains.

Cutthroat trout spawn and live their lives within the Greater Yamhill Watershed's streams, including Chehalem Creek. Coho salmon, winter steelhead, and lamprey are present in the watershed. These species are anadromous—fish that spend their adult life at sea and breed in freshwater. Another anadromous fish, Chinook salmon, do not spawn in the watershed, but young salmon from Cascade Range spawning streams will move from the Willamette River into the lower Yamhill River during the higher winter and early spring flows as they make their slow journey to the ocean. Coho salmon, which are weaker swimmers than Chinook salmon and could not ascend Willamette Falls, were not historically present in the watershed. With the addition of a fish ladder at the falls, coho are now accessing spawning areas in the Yamhill River and other Willamette River tributaries and their populations are growing.



As a result of habitat modifications, historical overfishing, and other factors, Willamette River Basin Chinook salmon and steelhead trout populations have declined to alarming levels, and the larger reproductive units they belong to—the Upper Willamette River Chinook evolutionarily significant unit (ESU) and the Upper Willamette River steelhead distinct population segment (DPS)—are listed as threatened under the ESA.



While the majority of Willamette River Basin winter steelhead spawn in tributaries on the east side of the basin flowing out of the Cascade Range (e.g., Molalla and Santiam Rivers), steelhead do spawn in the west-side Coast Range tributaries. The Oregon Department of Fish and Wildlife (ODFW) recognizes the Yamhill, Tualatin, and Luckiamute Rivers as containing west-side steelhead populations. While these steelhead populations are not as large as the east-side populations, steelhead production from west-side tributaries, including the Yamhill River, help buffer or compensate for the other populations and contribute to the population's recovery.

The majority of Upper Willamette winter steelhead, including the fish returning to the Greater Yamhill Watershed's streams, return to freshwater in January through April, pass Willamette Falls from mid-February to mid-May, and spawn in March through June, with peak spawning in late April and early May. Steelhead can migrate far upstream to spawn in smaller, higher gradient tributaries. Juvenile steelhead rear in streams for one to four years (most often two years), then migrate in April through May downstream through the Willamette River and Columbia River estuary into the ocean.

Historically, the Willamette Basin lamprey population was the largest in the Columbia River Basin. Pacific lamprey has seen dramatic population decline throughout the Pacific Northwest and the number of lamprey passing Willamette Falls has also fallen precipitously. The reasons for the population decline are not well understood, but lamprey passage problems at Willamette Falls, dams, and road crossings have contributed to the population's decline.



Lamprey begin to migrate from the ocean in the early spring, moving into the Willamette River and then up the tributary rivers and small streams. The adults reside in freshwater for approximately a year before spawning. Little is known about Willamette Basin lamprey behavior or distribution during the adult migration and holding period.

Recent studies sponsored by the Confederated Tribes of the Grand Ronde and other organizations have provided preliminary information on Willamette Basin lamprey migration patterns. These studies indicate that a significant proportion of the Willamette Basin's lamprey population migrates into the Yamhill River where they spawn in small tributary streams, such as Agency Creek, a tributary to Willamina Creek. After emergence from the stream gravels, larval lamprey burrow in silt and fine sediment substrates where they rear and feed on detritus and other organic material for 4 to 8 years, after which they undergo metamorphosis and migration to the ocean.

Upland habitats and wildlife

The Greater Yamhill Watershed includes extensive forested areas within the Coast Range and foothills. As the watershed transitions from the forested areas into the flat, broad Willamette Valley the landscape becomes very diverse: farms, wineries, woodlots, homes, and small urban centers are interspersed with natural environments, including rare Willamette Valley habitats such as oak woodlands and prairie grasslands.

The increasingly rare native upland habitats are home to important plant and wildlife species. One example is Kincaid's lupine. This lupine, which grows in native prairies that have been virtually eliminated from the Willamette Valley as a result of conversion to agriculture, urbanization, and other development, is threatened in the wild. Fender's blue butterfly, which is protected under the federal Endangered Species Act (ESA), needs Kincaid's lupine to survive. The butterfly's larvae eat the plant's leaves during the fall then crawl down the stem and hide among the roots during the mild winters. In spring, the larvae re-emerge and eat more leaves and then form cocoons.



Fender's blue butterfly on Kincaid's lupine

Watershed Restoration Partner Organizations

Organizations are achieving a lot in the watershed – below are some examples of what is happening in restoration with a focus on partnerships and how upland restoration is being achieved.

Yamhill and Polk Counties

In 1995, recognizing the importance of conserving the natural resources of the watershed, Polk and Yamhill Counties formed the Greater Yamhill Watershed Council (then named the Yamhill Basin Council) to identify problems and needs in the watershed and to develop an action plan. Polk and Yamhill Counties own and manage significant acreage across the Greater Yamhill Watershed. Yamhill County is a key partner for the proposed Yamhales Westsider Trail, which would provide a multi-use trail connecting from McMinnville to Gaston following an unused rail line. Yamhill County Parks manages a variety of parks and natural areas, most of which are located near water bodies. Yamhill County Parks implements land management practices to protect water quality, including the protection and enhancement of riparian and wetland areas, greatly limiting the use of fertilizers and pesticides, landscaping with native plants, and controlling invasive plant species. Yamhill County Parks is also a key partner for the proposed Yamhill River Watertrail, which is being led by a committee of local residents and organizations. Polk and Yamhill County Public Works Departments are engaged in discussions with the Greater Yamhill Watershed Council to address high priority fish passage barriers. Polk County is currently partnering with the Greater Yamhill Watershed Council to acquire funding to address a high priority fish passage barrier in the Mill Creek watershed. Yamhill County Public Works is also finalizing a Habitat Conservation Plan (HCP) to protect upland prairie species on County lands, including two federal and state listed species: Kincaid’s lupine and Fender’s blue butterfly.



Cities

A number of local municipalities are active in the restoration and preservation of natural resources in the Greater Yamhill Watershed. The City of Newberg is leading efforts to improve urban water quality through their Willamette Total Maximum Daily Load (TMDL) Implementation Plan. The City of McMinnville has partnered with a variety of local conservation groups to conduct water quality monitoring programs, riparian plantings, and storm drain markings in partnership with the GYWC. The City of Dundee established the 20-acre Harvey Creek Trail and partnered with the Greater Yamhill Watershed Council to replace a fish passage barrier culvert. The City of Sheridan worked with the Council to restore riparian vegetation along the South Yamhill River. The City of Carlton partnered with the Council to plant trees along the North Yamhill River at Wennerberg Park. In addition, the Cities of Carlton, Dayton, Dundee, Lafayette, McMinnville, Newberg, Sheridan, and Willamina provide sponsorships for the Greater Yamhill Watershed Council's programs.



Yamhill SWCD

The YSWCD works to conserve, restore, and protect Yamhill County's natural resources by providing technical, financial, and educational assistance to citizens, landowners and businesses. The YSWCD owns and maintains a number of important conservation properties, including Miller Woods and Chegwyn Farms. The District has also made significant progress in the protection and restoration of upland habitats. The YSWCD is currently finalizing a Habitat Conservation Plan (HCP) to protect upland prairie species on private lands, including two federal and state listed species: Kincaid's lupine and Fender's blue butterfly.

Polk SWCD

The PSWCD is organized to promote conservation and wise use of natural resources in Polk County. In addition to implementing on-the-ground restoration and monitoring activities, the District has developed extensive outreach and education programs for youth and adults, including landowner resource management workshops, outdoor school events, college internships, and has published a variety landowner resource handbooks.



Bureau of Land Management

The BLM has significant upland and forested holdings across the Greater Yamhill Watershed, in particular the North Yamhill, Willamina, Upper South Yamhill, and Mill Watersheds. The BLM actively manages these lands to produce a consistent volume of timber while protecting and restoring water quality and native salmonid fisheries, among other natural resource concerns. Conservation activities implemented by the BLM include road sediment and erosion control, aquatic and riparian habitat enhancement, fish passage restoration, and sustainable forest thinning.

Confederated Tribes of the Grand Ronde



The Confederated Tribes of Grand Ronde is a diverse organization that provides a variety of programs and services to tribal members and surrounding communities. The Tribe's Natural Resources Department is organized to manage the natural resources of the Grand Ronde Tribes, such as upland forests and prairies, streams, fish and wildlife. Pacific lamprey is a culturally significant species to the Tribe and is found in Agency Creek. The Tribe is currently working collaboratively with Oregon State University and Cramer Fish Sciences to conduct research on Pacific lamprey behavior, migration, and distributions.

Yamhill Partners for Land and Water

The YPLW is an informal group of public and private organizations working together to protect and enhance the natural resources of the Yamhill valley area and its people by conserving significant lands & waters for wildlife habitat, for working lands, and for parks & natural spaces. The YPLW is actively working to establish a land trust presence in Yamhill County. In addition, the YPLW is particularly focused on the protection and enhancement of oak savanna and woodlands, upland and wet prairies, and populations of the federal and state listed Kincaid's lupine and Fender's blue butterfly.

Yamhill Watershed Stewardship Fund

The YWSF is a Yamhill County-based non-profit corporation dedicated to promoting knowledge and appreciation of healthy lands, waters, and wildlife in the Yamhill River valley. The YWSF provides local community grants for environmental outreach and education and sponsors annual environmental-themed film festivals.



Institute for Applied Ecology

IAE is a 501(c)(3) nonprofit organization with a mission to conserve native species and habitats through restoration, research, and education. The IAE has developed and implemented habitat restoration and conservation research programs throughout Oregon, including the introduction of federally listed Nelson's checkermallow within Deer Creek County Park in Yamhill County.



The Nature Conservancy

The TNC is actively engaged in upland conservation efforts in the Yamhill Valley. The TNC owns and manages the 630-acre Yamhill Oaks Preserve, which includes significant holdings of rare oak woodlands, upland prairies, and populations of federal and state listed Kincaid's lupine and Fender's blue butterfly. The TNC is an active member of the YPLW and has led the YPLW's strategic planning efforts.



Greater Yamhill

Watershed Issues

There are a number of environmental issues affecting the Greater Yamhill Watershed's rivers and streams. Historical practices and current land use management are contributing to poor water quality and fish habitat. Most of the watershed's streams and associated riparian vegetation and floodplains are suffering from multiple symptoms that indicate poor watershed health. The Greater Yamhill Watershed Council is dedicated to improving the watershed by addressing the range of environmental problems. The sections below outline the key issues affecting the watershed.

Hot

Stream water temperatures that are too high for healthy fish populations are a problem in the Greater Yamhill Watershed. Late summer water temperatures in large portions of the watershed's streams often exceed 65 degrees Fahrenheit, which is stressful for cold-water fish such as trout and steelhead. A key factor that contributes to these high water temperatures is loss of shade over stream channels. Removal of riparian areas or narrowing of the corridor of vegetation next to streams reduces the amount of cover over the stream, increasing sun exposure and heating the water. The Oregon Department of Environmental Quality (DEQ) has identified Greater Yamhill Watershed streams that exceed healthy temperature for fish. More than 322 miles of streams are "water quality limited" for temperature.

Watershed Issues Addressed by the Action Plan

Hot: Water temperatures exceed what is healthy for fish and other organisms.

Dry: Reduced water flows restrict stream habitat and increase water temperatures.

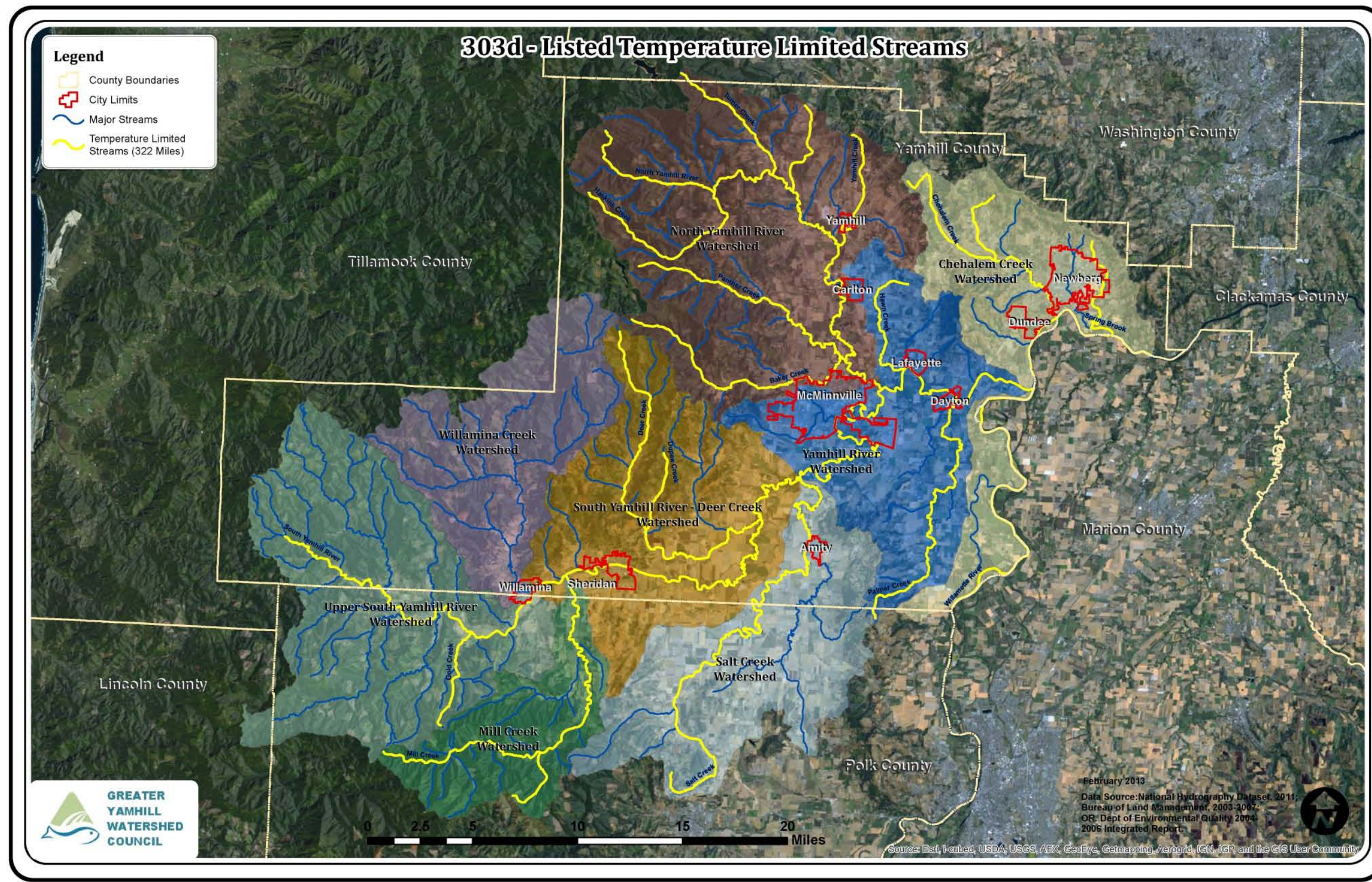
Disconnected: Road stream crossings can be barriers to fish movement; channels are disconnected from floodplains, which reduces fish habitat.

Dirty: Contaminated water from poor urban stormwater management and runoff from inadequately maintained rural roads and other land use practices is contributing to poor water quality.

Simplified: Streams have lost complexity that contributes to high quality fish habitat, including deep pools and cover, due to reduced amounts of large wood in streams and land uses affecting the width and quality of streamside vegetation and the active floodplain.

Weedy: Invasive plants are non-native species that invade habitats. In riparian areas and floodplains, invasive plants replace native plants and degrade habitats.





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Dry

By its nature the Yamhill River, its tributaries, and Chehalem Creek have very low flows during the summer and early fall. Unlike many of the other Willamette Basin rivers that are fed by the high Cascade Mountains, low flows in the Greater Yamhill Watershed are not supplemented by a large snowpack, abundant groundwater, or water stored in reservoirs behind dams. The low water levels of the Greater Yamhill Watershed's streams are further reduced when water is withdrawn for agricultural and municipal uses. Low flows reduce the habitat available for aquatic species, including ESA-listed steelhead, and exacerbate high water temperatures because the low water volume heats up more quickly.

Climate change could magnify the Greater Yamhill Watershed's warm streams and low flows. There is a growing consensus that climate change is occurring at global, national, regional, and local scales. Predicted climate change is expected to affect watersheds and the abundance and persistence of many native fish, wildlife and plant species, with significant impacts on native salmon and trout.

A recent State of Oregon report, *Climate Change and Freshwater Resources in Oregon* (Chang and Jones 2010), outlines the potential impact of climate changes on watersheds. The following is a summary of how the report's predicted climate change could affect rain-dominated watersheds within the Willamette Basin:

- More extreme events such as floods and droughts.
- Higher summer air temperatures, accompanied by reduced precipitation, will decrease stream flow in the summer.
- Water temperatures will rise as air temperature increases, particularly in urban streams where natural riparian vegetation is typically lacking. The decline in stream flows will exacerbate water temperature increases because the lower volume of water will be heated up more quickly.
- Short-term droughts (3–6 months) will increase. These droughts, combined with increased frequency of heat waves, could drive the increased frequency of sustained periods of high water temperatures and lower summer flows.
- Increased evaporation due to warmer air temperatures may also result in reductions in total annual groundwater recharge.



Disconnected

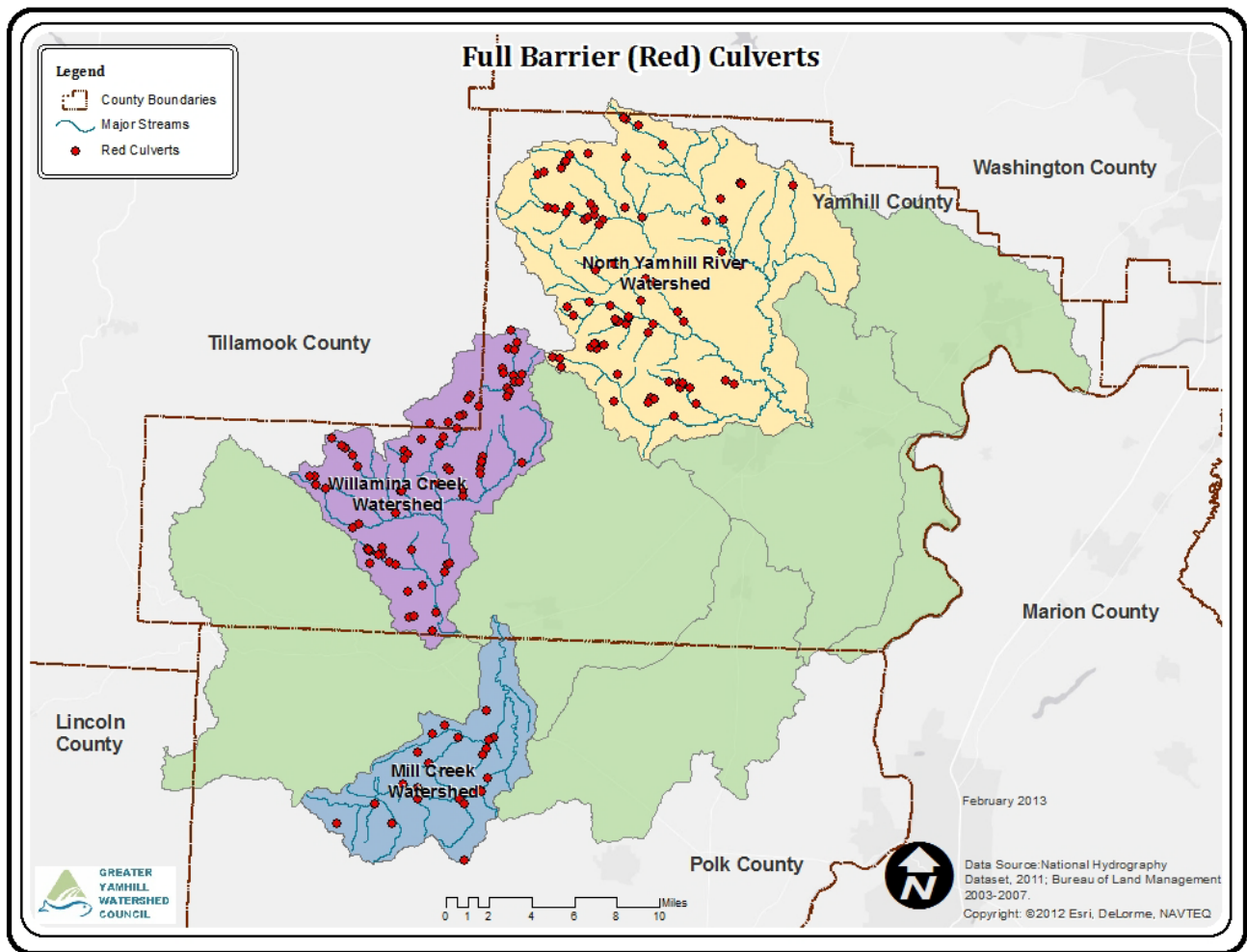


Historically rivers and streams within the Greater Yamhill Watershed could actively meander across the floodplain. Over the last 100 years, the placement of revetments and other practices have diminished the tendency for rivers and streams to meander. These actions have disconnected channels from the floodplain, reduced fish habitat by limiting access to floodplain areas during high flows, and blocked side channels.

Fish passage barriers on tributary streams to the Yamhill River can pose significant problems for fish populations. Road crossing culverts are the primary fish passage barrier present in the Greater Yamhill Watershed. Culverts, which can be too high or too steep for fish to swim through, prevent fish from accessing important areas for spawning or from moving into cool tributary streams when the river warms during the summer months. With more than 1,500 road crossings within the watershed, there are a large number of potential fish passage barriers that can affect fish populations.

The Council has been evaluating fish passage at road crossing culverts in the Mill Creek, Willamina, and North Yamhill Watersheds. This information will aid in identifying culverts that are barriers to fish passage and prioritizing culvert replacement. Improving fish passage will have immediate benefits by opening more stream habitat to steelhead, cutthroat trout, and lamprey populations.





Dirty

Urban and rural areas within the Greater Yamhill Watershed contribute to poor water quality in streams. Roads, parking lots, rooftops, and other areas are “impervious” to water infiltrating into the ground.

Rainfall hitting these impervious surfaces quickly runoff the storm drain system, contributing large amounts of water carrying sediments, oils, and other contaminants into streams. In rural areas, ditches along roads that are not properly maintained, or farm fields that do not

control erosion can also transport water with sediments, pesticides and other chemicals into streams. In addition, poor land management practices can introduce other chemicals into waterways, including pesticides, and leaky septic systems and other sources can contaminate water with bacteria.



Simplified

Large wood from trees falling into stream channels provides important habitat for fish and wildlife. Large accumulations of wood in the river (i.e., log jams) help scour deep pools which tend to be cooler, and provide cover for fish and wildlife. Throughout the Greater Yamhill Watershed, there has been a dramatic reduction in the amount of wood in stream channels. Historical practices, such as log drives down the Yamhill River during the early logging of the watershed, promoted the removal of wood. Removal of riparian trees, the narrowing of the band of vegetation along channels from land use, and the conversion of conifer trees to deciduous trees such as alder, have also limited the contribution of wood into the streams.

In addition, the placement of revetments and other practices to “control” the river have diminished the Yamhill River’s tendency to meander. Together, these factors have narrowed the active floodplain and corridor of floodplain vegetation; the combined effect has been a reduction in the number of trees in the channel that contributes to quality habitat.



Weedy

Invasive plants are non-native species that invade habitats. In the Greater Yamhill Watershed's riparian areas and floodplains, invasive plants replace native plants and degrade habitats. Blackberry, Japanese knotweed, purple loosestrife, spurge laurel, and other invasive plants are aggressively taking over habitat along the Yamhill River and other streams and reducing habitat diversity and quality. Reducing vegetation quality along streams can degrade water quality and fish habitat over time by diminishing the numbers of native trees and reducing shade over channels.



Armenian (Himalayan) Blackberry displaces native riparian habitats



Reed canarygrass creates a monotypic infestation where no other plants will grow

Action Plan Structure

The Greater Yamhill Watershed Restoration Action Plan is the foundation for the Council's activities and coordinated actions with partner organizations. The Action Plan is organized around a framework that describes the overarching purpose of the plan, goals that define success, and the strategies and actions designed to achieve the goals.



Action Plan Purpose

Working in partnership with other organizations, individuals, and landowners, the Greater Yamhill Watershed Council will increase resident's understanding of the watershed and accelerate the pace and effectiveness of aquatic and riparian restoration.



Greater Yamhill Watershed Council

Action Plan Structure

Purpose → Goals → Strategies → Actions

Purpose: Broad and visionary. The reason for the Action Plan and coordinated actions

Goals: Specific outcomes that will define success

Strategies: Overall approach used to achieve the goals in alignment with the purpose

Actions: Specific activities, including where, when, and partnerships



Action Plan Goals

The purpose of the Greater Yamhill Watershed Restoration Action Plan will be accomplished by pursuing the following goals:

Goal 1: Organize the Council for action

Goal 2: Concentrate the Council's activities by emphasizing actions in riparian and aquatic areas within Willamette Valley lowlands

Goal 3: Work collaboratively with organizations and residents on watershed restoration, education and outreach, and monitoring

Goal 4: Track watershed conditions and restoration success through monitoring and assessment



Action Plan Strategies and Actions

Greater Yamhill Watershed Restoration Action Plan's strategies outline the direction and overall approach to achieve the Action Plan's goals. The strategies provide the framework for the Council's specific actions, including where and the partnerships that will be implemented to achieve the goals. The Action Plan strategies are as follows:

- Organizational health
- Partnerships with landowners and organizations
- Education and outreach
- On-the-ground-restoration
- Monitoring
- Assessment and reporting
- Fundraising



Goal 1: Organize the Council for action

The Greater Yamhill Watershed Council's organizational structure and representation contributes to the Action Plan's success. The Board's diverse representation, experience, skills, and perspectives will guide the implementation of the Action Plan and help provide outreach and communication to the broader community and partner organizations. The Board will form Technical Advisory Committees (TACs) that will provide scientific and technical guidance and review for the Action Plan's restoration projects and other activities. Council staff will implement projects under the guidance and review of the Board and TACs.



Activities pursued under this goal will include reviewing Board membership, TAC representation, and staff skills to assure alignment with the Action Plan's goals and activities. Gaps identified through this review will facilitate recruitment of new Board and TAC members and provide a framework for staff development.

Strategy: Organizational Health

Action 1-1 – Review Board membership and augment Board representation to facilitate implementation of the Action Plan

Action 1-2 – Recruit a full working Board and implement Annual Work Plans for Board Directors

Action 1-3 – Identify and pursue opportunities for Board and Staff development and training

Strategy: Partnerships with Landowners and Organizations

Action 1-4 – Form an Action Plan implementation technical advisory committee (TAC)

Action 1-5 – Identify landowners and recruit individuals from organizations who will help facilitate Action Plan implementation for Board and TAC membership



Action 1-6 – Develop and implement a communication plan to inform the general public, key partners, and stakeholders on the status of the watershed, Action Plan progress, and opportunities for engagement

Strategy: Education and outreach

Action 1-7 – Revise the Council’s website and regularly update the website and the Facebook page to facilitate community outreach

Strategy: Fundraising

Action 1-8 – Identify and recruit a range of funding sources to implement projects and to support watershed council capacity needs

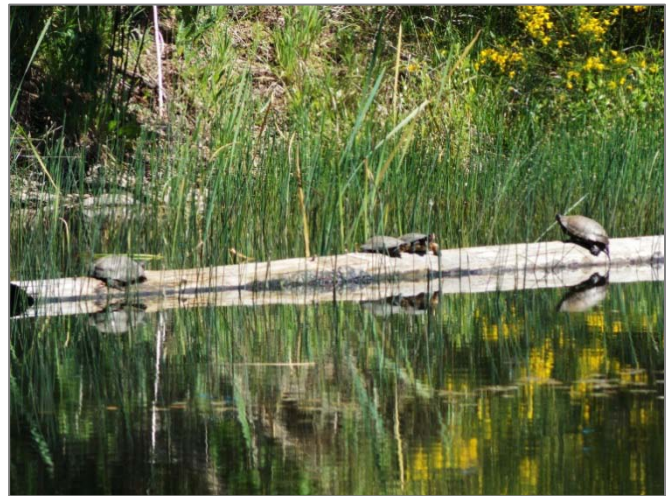
Goal 2: Concentrate the Council’s activities by emphasizing actions in riparian and aquatic areas within Willamette Valley lowlands

The Greater Yamhill Watershed Council will focus its activities within watershed areas where lowlands, agriculture, and urban areas are dominant. Relative to the forested Coast Range areas, the lowlands of the Willamette Valley, where intensive land uses are concentrated, have the poorest aquatic habitat and water quality. Within these areas, the Council will emphasize actions in streams, riparian corridors, and floodplains. It is important for the Council to stress working in the aquatic and riparian environment because other partner organizations, such as the Yamhill Partners for Land and Water, The Nature Conservancy, and the Soil and Water Conservation Districts, are focusing work in upland habitat areas such as prairies and oak woodlands. The Council will continue to work with these and other organizations, but with a concentration on stream, riparian and floodplain habitats.



The Greater Yamhill Watershed Restoration Action Plan will focus activities in the five watersheds where lowlands, and associated agricultural and urban land uses, are a key landscape component:

- Chehalem Creek
- North Yamhill River
- South Yamhill River
- Salt Creek
- Yamhill River



The emphasis on areas within these watersheds does not mean the Council will not pursue projects and outreach in the other watersheds where uplands and forestry are the dominant land uses. The Council will pursue as a priority addressing fish passage barriers and opportunistic projects and partnerships focused on in-stream habitat and other projects in these other watersheds, the Forested Upland Focus Area, comprised of the Upper South Yamhill River, Mill Creek and Willamina Creek Watersheds.

Strategy: Education and outreach

Action 2-1 – Promote best management practices, including tools and programs used by OSU Extension Service, Natural Resources Conservation Service (NRCS), SWCD's, and Salmon-Safe

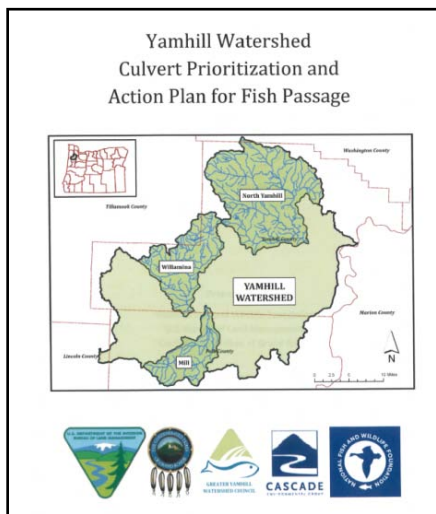
Action 2-2 – Implement volunteer program for storm-drain markings

Action 2-3 – Identify and complete at least one demonstration project in each watershed

Action 2-4 – Facilitate watershed residents' participation in salmon spawning surveys in collaboration with ODFW

Action 2-5 – Pursue outreach opportunities, including participation in local events and partnerships with the through Evergreen Museum's Wings & Waves Waterpark

Action 2-6 – Develop and implement targeted landowner/sector workshops to promote best management practices, including Salmon-Safe certifications



Strategy: On-the-ground restoration

Action 2-7 – Implement aquatic and riparian projects and best management practices

Action 2-8 – Implement fish passage improvements based on the 2013 *Yamhill Watershed Culvert Prioritization and Action Plan for Fish Passage*

Action 2-9 – Implement stormwater and Low Impact Development (LID) projects and best management practices

Action 2-10 – Implement road and agricultural sediment control projects and best management practices

Strategy: Monitoring

Action 2-11 – Implement water quality monitoring projects

Action 2-12 – Continue to participate and expand Yamhill Pesticide Stewardship Partnership (PSP)

Strategy: Assessment and reporting

Action 2-13 – Complete rapid bioassessments of fish distribution and abundance in the streams throughout the North Yamhill, Willamina, and Mill Creek watersheds

Goal 3: Work collaboratively with organizations and residents on watershed restoration, education and outreach, and monitoring

A number of organizations in the watershed are pursuing restoration and have unique expertise. Partnerships will enhance the Council’s capabilities and increase the pace and effectiveness of restoration. In addition to the organizations described on page 11 of

Partnerships

We can't do it alone!

Restoration at the scale of the Greater Yamhill Watershed is a big undertaking. Partnerships with other organizations enhance the Council’s capabilities to improve the watershed.

this plan, the Council will strive to identify other local, state and national organizations that have missions in alignment with the Council’s watershed restoration activities.

Through the development of the Greater Yamhill Watershed Restoration Action Plan, Salmon-Safe was identified as an organization that has a unique role in the watershed and that complements the Council’s mission.

Salmon-Safe, a Portland-based non-profit, has a track record of applying environmental certification in Yamhill County and beyond as a strategy to inspire water quality protection and habitat conservation. More than a decade after certifying its first farms and vineyards in Yamhill County, Salmon-Safe has become one of the nation's leading regional eco labels with more than 80,000 acres of farm and urban lands certified in Oregon, Washington, California, and British Columbia.

Salmon-Safe focuses on improving practices in these areas:

- **Riparian areas**
- **Water use**
- **Erosion and sediment control**
- **Fish passage**
- **Integrated pest management**
- **Animal management**
- **Enhancing habitat and**



Salmon-Safe has become a leading U.S. certifier of ecologically sustainable viticulture with more than 250 Oregon and Washington vineyards achieving certification, including nearly half of the wine grape acreage in Oregon's Willamette Valley. Certification for winegrowers focuses on reducing runoff from hillside vineyards and enhancement of native biodiversity on vineyard sites. The Yamhill Watershed contains the largest concentration of Salmon-Safe certified vineyards in the Pacific Northwest.

Salmon-Safe offers a series of peer-reviewed certification programs linking land management practices with the protection of agricultural and urban watersheds. Whether the site is farm, orchard, residential development, corporate or university campus, certification requires adopting management practices that protects water quality and restore habitat. With Salmon-Safe certification, landowners gain added-value in the marketplace, improve watershed habitat and water quality, and contribute to salmon recovery.

Salmon-Safe’s certification program complements the Council’s watershed restoration mission. Building on Salmon-Safe’s success with Yamhill Watershed winegrowers, the Council will engage local partners, landowners, and institutions to facilitate participation in Salmon-Safe certification. The Council will collaborate with Salmon-Safe to pursue a long-term, whole-watershed approach, targeting a range of agricultural and other sectors and land uses, including urban areas, to improve management practices at a landscape scale.

Strategy: Organizational and landowner partnerships

Action 3-1 – Define roles, responsibilities, and actions to pursue with key partners

Action 3-2 – Work in collaboration with Salmon-Safe to define, roles, responsibilities, and actions, including grant proposals and other fund-raising strategies, to pursue with Salmon-Safe

Action 3-3 – Pursue partnerships with growers, SWCD's, and Salmon-Safe to promote agriculture-focused best management practices, including Salmon-Safe certification

Action 3-4 – Pursue partnerships and projects with landowners of forested uplands, including Confederated Tribes of the Grand Ronde, BLM, and private forest landowners

Action 3-5 – Pursue partnerships with cities, corporations, residential developers, and universities to promote urban-focused best management practices, including Salmon-Safe certification

Action 3-6 – Pursue partnerships with natural area and park land management groups to promote natural area-focused best management practices, including Salmon-Safe certification

Action 3-7 – Explore collaborations with partners, including the YSWCD and Salmon-Safe, to communicate pesticide monitoring results to agricultural landowners, improve involvement in the PSP, and to promote landowner involvement in conservation practices utilized by Salmon-Safe, the YSWCD, Natural Resources Conservation Service (NRCS), and other partners

Action 3-8 – Pursue partnerships with other watershed councils to maximize staff and council resources effectively and efficiently



Goal 4: The Council tracks watershed conditions and restoration success through monitoring and assessment



The Greater Yamhill Watershed Council is committed to understanding watershed conditions in order to target restoration actions, measure progress in watershed conditions over time, and evaluate the success of on-the-ground restoration and other actions. Targeted information collection and reporting will help inform the Council, partner organizations, and stakeholders on the status of the watershed’s resources and help to target restoration activities to the locations where they are most effective.

The Council has collected information to assess watershed conditions, including water quality and fish passage barrier information. With the exception of the fish barrier information, which has been analyzed and reported, the Council’s water quality data have not been organized or summarized in a manner that provides a comprehensive assessment of the watershed conditions.

The Council, in coordination with partnership organizations, will summarize past data collection efforts and implement a systematic data collection process that is designed to assess the status of the watershed, help target restoration areas and activities, and to evaluate improvements in watershed conditions over time. The monitoring and assessment activities will include water quality collection and reporting, fish presence and spawning inventories, fish passage barrier assessments, and post-restoration project monitoring. The Council will synthesize and summarize the collected data and other information into a periodic “state of the watershed” report that will communicate findings to partner organizations, watershed residents, and other stakeholders.

Strategy: Organizational and landowner partnerships

Action 4-1 – Pursue monitoring and assessment partnerships with Confederated Tribes of the Grand Ronde, BLM, SWCDs, Cities, Counties, PSPs, and Salmon-Safe

Strategy: Assessment and reporting

Action 4-2 – Provide periodic “state of the watershed” report (synthesize water quality, rapid bioassessment, and other information)

Action Plan Phasing

Greater Yamhill Watershed Restoration Action Plan outlines actions that will be pursued over a five year period. The Greater Yamhill Watershed Council's Board and Action Plan TAC will review Council activities within the framework of the Action Plan on an annual basis. Based on this review and an assessment of staffing and funding, the Council and TAC will develop and approve a work plan that will outline the actions to be pursued through the course of the year.



Year 1 activities will focus on organizing the Council and TAC to support the implementation of the Action Plan. Year 1 activities will focus on the following:

- Review Board membership, augment Board representation, recruit working Board members, and implement Annual Work Plans for Board Directors;
- Organize an Action Plan implementation technical advisory committee (TAC);
- Develop and implement a communication plan to inform partner organizations, the watershed community, and other stakeholders about the Council's activities and opportunities for engagement;
- Pursuing partnerships with other organizations, including implementing Salmon-Safe certification in priority watershed areas;
- Pursue specific outreach activities, including the Evergreen Museum's Wings and Waves Waterpark and existing community events
- Implementing specific on-the-ground restoration projects, with an emphasis on addressing fish passage barriers;
- Identifying landowners for demonstration projects; and
- Implementing targeted monitoring and watershed assessment actions, including continued involvement in the PSPs, and collecting information on fish presence and distribution.

Appendix A: Compiled Action Plan Strategies and Actions

Action Plan Goals

Goal 1: Organize the Council for action

Goal 2: Concentrate the Council’s activities by emphasizing actions in riparian and aquatic areas within Willamette Valley lowlands

Goal 3: Work collaboratively with organizations and residents on watershed restoration, education and outreach, and monitoring

Goal 4: Track watershed conditions and restoration success through monitoring and assessment

| Strategy | Greater Yamhill Watershed Action Plan – Actions |
|------------------------------|--|
| Organizational health | Action 1-1 – Review Board membership and augment Board representation to facilitate implementation of the Action Plan Action 1-2 – Recruit a full working Board and implement Annual Work Plans for Board Directors Action 1-3 – Identify and pursue opportunities for Board and Staff development and training |



| Strategy | Greater Yamhill Watershed Action Plan – Actions |
|---|---|
| Partnerships with landowners and organizations | <p>Action 1-4 – Form an Action Plan implementation technical advisory committee (TAC)</p> <p>Action 1-5 – Identify landowners and recruit individuals from organizations who will help facilitate Action Plan implementation for Board and TAC membership</p> <p>Action 1-6 – Develop and implement a communication plan to inform the general public, key partners, and stakeholders on the status of the watershed, Action Plan progress, and opportunities for engagement</p> <p>Action 3-1 – Define roles, responsibilities, and actions to pursue with key partners</p> <p>Action 3-2 – Work in collaboration with Salmon-Safe to define, roles, responsibilities, and actions, including grant proposals and other fund-raising strategies, to pursue with Salmon-Safe</p> <p>Action 3-3 – Pursue partnerships with growers, SWCD's, and Salmon-Safe to promote agriculture-focused best management practices, including Salmon-Safe certification</p> <p>Action 3-4 – Pursue partnerships and projects with landowners of forested uplands, including Confederated Tribes of the Grand Ronde, BLM, and private forest landowners</p> <p>Action 3-5 – Pursue partnerships with cities, corporations, residential developers, and universities to promote urban-focused best management practices, including Salmon-Safe certification</p> <p>Action 3-6 – Pursue partnerships with natural area and park land management groups to promote natural area-focused best management practices, including Salmon-Safe certification</p> <p>Action 3-7 – Explore collaborations with partners, including the YSWCD and Salmon-Safe, to communicate pesticide monitoring results to agricultural landowners, improve involvement in the PSP, and to promote landowner involvement in conservation practices utilized by Salmon-Safe, the YSWCD, Natural Resources Conservation Service (NRCS), and other partners</p> <p>Action 3-8 – Pursue partnerships with other watershed councils to maximize staff and council resources effectively and efficiently</p> <p>Action 4-1 – Pursue monitoring and assessment partnerships with Confederated Tribes of the Grand Ronde, BLM, SWCDs, Cities, Counties, PSPs, and Salmon-Safe</p> |



| Strategy | Greater Yamhill Watershed Action Plan – Actions |
|----------------------------------|--|
| Education and outreach | <p>Action 1-7 – Revise the Council’s website and regularly update the website and the Facebook page to facilitate community outreach</p> <p>Action 2-1 – Promote best management practices, including tools and programs used by OSU Extension Service, Natural Resources Conservation Service (NRCS), SWCD’s, and Salmon-Safe</p> <p>Action 2-2 – Implement volunteer program for storm-drain markings</p> <p>Action 2-3 – Identify and complete at least one demonstration project in each watershed</p> <p>Action 2-4 – Facilitate watershed residents’ participation in salmon spawning surveys in collaboration with ODFW</p> <p>Action 2-5 – Pursue outreach opportunities, including participation in local events and partnerships with the through Evergreen Museum’s Wings & Waves Waterpark</p> <p>Action 2-6 – Develop and implement targeted landowner/sector workshops to promote best management practices, including Salmon-Safe certifications</p> |
| On-the-ground-restoration | <p>Action 2-7 – Implement aquatic and riparian projects and best management practices</p> <p>Action 2-8 – Implement fish passage improvements based on the 2013 <i>Yamhill Watershed Culvert Prioritization and Action Plan for Fish Passage</i></p> <p>Action 2-9 – Implement stormwater and Low Impact Development (LID) projects and best management practices</p> <p>Action 2-10 – Implement road and agricultural sediment control projects and best management practices</p> |
| Monitoring | <p>Action 2-11 – Implement water quality monitoring projects</p> <p>Action 2-12 – Continue to participate and expand Yamhill Pesticide Stewardship Partnership (PSP)</p> |
| Assessment and reporting | <p>Action 2-13 – Complete rapid bioassessments of fish distribution and abundance in the streams throughout the North Yamhill, Willamina, and Mill Creek watersheds</p> <p>Action 4-2 – Provide periodic “state of the watershed” report (synthesize water quality, rapid bioassessment, and other information)</p> |
| Fundraising | <p>Action 1-8 – Identify and recruit a range of funding sources to implement projects and to support watershed council capacity needs</p> |



