

# Forest Activities Report

JULY 1, 2018 - JUNE 30, 2019

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## Introduction

Welcome to the eleventh annual Forest Activities Report for the Corvallis Forest. This report describes activities undertaken over the past year (July 1, 2018 through June 30, 2019) to implement the Corvallis Forest Stewardship Plan, actions planned for the 2019-2020 fiscal year and a “snap shot” of conditions and trends on the City’s 2,350-acre Corvallis Forest. It was developed by City of Corvallis Public Works Department staff and Trout Mountain Forestry (consulting foresters).

The City’s overall goal for the Corvallis Forest is to provide a reliable source of high quality drinking water that surpasses all state and federal

drinking water requirements. The Corvallis Forest property includes the Rock Creek water treatment plant, which produced approximately 30 percent of the City’s annual water demand, or about 850 million gallons of water in 2018. Water quality is the

first priority for all management practices within the watershed. The Corvallis Forest also provides an opportunity to manage natural resources by restoring forest lands and terrestrial and aquatic habitats.



*Large, mature Douglas-fir trees in the Corvallis Forest.*

### Watershed Management Advisory Board (WMAB) members

David Hibbs, Chair  
Steve Rogers, Vice-Chair  
Charlie Bruce  
Mark Dolan  
Paris Edwards  
Barb Ellis-Sugai  
Richard Heggen  
Hal Brauner/Jan Napack, City  
Council Liaison

### City of Corvallis staff

Mary Steckel, Public Works  
Director  
Tom Hubbard, Utilities Division  
Manager  
Jennifer Ward/ Jeff Hollenbeck,

### Watershed Program Specialist

### Trout Mountain Forestry staff

Mark Miller  
Matt Fehrenbacher  
Shane Hetzler

# Stewardship Planning

Management of the forest is guided by the policies detailed in the Corvallis Forest Stewardship Plan (CFSP), which was adopted by the City Council in December 2006. The CFSP provides a Vision Statement for the Corvallis Forest:

***The Corvallis Forest within the Rock Creek Watershed is a professionally managed, healthy ecosystem with a diverse forest and productive habitat for all species native to the watershed.***

This Vision is further refined in a set of **Guiding Principles**:

- Conservation-based management practices demonstrate that water quality, stream health, wildlife habitat enhancement, and tree harvest can go hand in hand;
- Protecting the health and diversity of the forest and its ecosystems are top priorities;
- We are a “good neighbor” and integrated into the larger landscape, recognizing our connections to the greater watershed;
- Corvallis Forest is managed to be comprised of a variety of different ages and types of forest to provide diversity of terrestrial and aquatic habitats;
- Corvallis Forest is resilient to fire, invasive species, insects and disease;
- Access is controlled to minimize risk of fire, water contamination and invasive species introduction;
- Corvallis Forest is available for limited educational, recreational, and research opportunities;
- Corvallis Forest supports high quality water production for the City of Corvallis;
- Corvallis Forest is a generator of revenue that is primarily used to offset the cost of forest management, and secondarily helps fund the City of Corvallis water utility system.



*A colorful shelf fungus growing on Douglas-fir in the Corvallis Forest.*

The plan goes on to describe the property’s history, current resource conditions, and desired future conditions. It outlines guidance policies, management opportunities, and recommended actions in areas such as forest reserves, invasive species control, and resource monitoring. A revised and updated version of the plan was adopted by the City Council in July 2013 and is available at <https://www.corvallisoregon.gov/publicworks/page/corvallis-forest><sup>1</sup> and at the Corvallis Public Library reference section.

The Watershed Management Advisory Board (WMAB) advises the City Council on policies and activities on the Corvallis Forest, and works to promote awareness of the Corvallis Forest as a public resource. This seven-member panel of community volunteers is appointed by the Mayor and meets monthly. All Board meetings are open to the public. The WMAB works with City staff, resource specialists and consultants to implement the CFSP policies.

<sup>1</sup> The direct link to the CFSP page is: <https://archives.corvallisoregon.gov/internal/ElectronicFile.aspx?dbid=0&docid=921279>.

# Economic Context

Overall, the economy is strong, construction is steady, interest rates remain favorable, and unemployment is at new lows. However, a continuing trade war and softening consumer confidence cloud this generally rosy picture. Local log markets continue to be strong, though seasonal fluctuations have been more pronounced. An increasingly tight labor market has created a shortage of skilled workers in all fields, and wages are rising. As a result, logging, hauling and forest labor costs are all increasing.

Earlier this year, two mills closed in southwest Oregon: the Georgia Pacific Coos Bay stud mill, and Swanson Group's veneer plant in Glendale. While located outside our regular log supplier circle, the closures caused ripples in the Willamette Valley, as some of the excess supply from down south found its way into our markets.

Locally, a major winter storm dumped over 2 feet of heavy wet snow in parts of Lane and Douglas Counties, toppling millions of board feet and leaving some communities without power for weeks. Forestland owners were quick to salvage what they could. The oversupply flooded local small log markets. Some mills even suspended outside log purchases, though by September this was largely worked out.

# Weather and Climate

After a string of extended hot, dry and smoky summers, this year's mild weather came as a welcome relief. Winter's snowpack was above average, and the summer saw relatively seasonal temperatures and frequent mid-season rains, creating optimum conditions for seedling survival. The summer fire-season was thankfully uneventful, at least in the mid-Willamette Valley.

Effects of drought continue to be seen in fir mortality on marginal valley-fringe sites. This is likely to be a long-term effect of climate change. Fortunately the Corvallis Forest with deep, productive soils and ample precipitation has been spared any significant mortality.

Efforts we are taking to mitigate against climate change include thinning dense stands to maintain tree vigor, retaining hardwoods and "Legacy" trees to build-in resilience to wildfire, and planting diverse stands with species tailored to each site. Protecting existing old growth stands, and growing trees to older ages are well-acknowledged methods to capture more carbon and store it on site.

*Incense cedar are planted in key areas to help the Corvallis Forest be more resilient to a changing climate.*



# Accomplishments for 2018-2019<sup>2</sup>

The following actions were initiated or completed in FY 2018-2019:



**Forest Inventory** – How well are the sustainability goals of the Corvallis Forest Stewardship Plan being realized? How are trees growing, have stand structure and habitat values been enhanced, are harvest levels truly sustainable? The best way to answer such questions is to track related forest resource measures over time. When the CFSP was instituted in 2006, baseline inventories of a suite of forest resource were conducted — typical tree measures of height, diameter, and quality, as well as habitat values like the number of snags, rotten logs, and understory vegetation. What do those values look like today?

In 2017 Trout Mountain Forestry designed a continuous forest inventory system where a subset of forest stands are measured each year. Stands are re-measured as conditions change — such as from management treatments or major natural disturbances — or when data becomes 10 years old or more. This useful management tool ensures that forest resource data is always kept current, allowing an ongoing view of how conditions change over time. How well are the sustainability goals of the Corvallis Forest Stewardship Plan being realized? How are trees growing, have stand structure and habitat values been enhanced, are harvest levels truly sustainable? The best way to answer such questions is to track related forest resource measures over time. When the CFSP was instituted in 2006 baseline inventories of a suite of forest resource were conducted — typical tree measures of height, diameter, and quality, as well as habitat values like the number of snags, rotten logs, and understory vegetation. What do those values look today?

The forest inventory maintenance and updating system was continued during 2018-2019 with an additional 200 plots sampled across the Corvallis Forest. Combined with the plots sampled during 2017-2018, approximately 1/3 of the Corvallis Forest has been inventoried. Along with field sampling, the GIS stand database was updated to reflect current conditions. A description of the Forest Inventory protocol and results are available at: <https://www.corvallisoregon.gov/publicworks/page/inventories>.

## Recent Harvests —

Harvesting planned for the 2018-2019 fiscal year were designed to address a number of forest health and habitat goals, including thinning overly dense stands, enhancing forest structure, and re-establishing conifers along Rock Creek.

A summer phase included a 5 to 6 acre Variable Retention harvest north of the main fork of Rock Creek designed to establish a new young mixed-species forest while maintaining the oldest and largest trees as “legacies” of the prior stand. Nearby, a pilot project removed short-lived alder from hardwood-dominated reaches along 900 feet of Rock Creek to allow re-establishing cedar and other conifers that historically provided much-needed stream shading and future in-stream structure.

A winter harvest phase is planned for FY 2019-2020 that will include additional thinning and Variable Retention to transition a dense mature single-species stand with little structural diversity to a mixed-age, mixed species forest that is closer to historical conditions.



<sup>2</sup> Accomplishments for prior years can be viewed in the respective Forest Activities Reports, which can be found at: <https://www.corvallisoregon.gov/publicworks/page/forest-activities-report>.

## Accomplishments for 2018-2019, Continued.

**Old Peak Meadow** – In 2013, the City partnered with Institute for Applied Ecology, Oregon Wildlife Institute, Trout Mountain Forestry, and Oregon Hunters Association to implement a meadow restoration project funded by the Coast Range Stewardship Fund to restore and enhance wildlife habitat on the three acre Old Peak Meadow. The multi-year project will diversify the plant species composition and vegetation structure of the meadow to increase its use by wildlife. In previous years, snags were created at the meadow's perimeter, and a prescribed burn and herbicide treatments were conducted to clear the site of invasive plants and to make way for the planting of native grasses, forbs, shrubs and oaks that occurred this past fall.

Vegetation monitoring during 2017-2018 continued to show substantial presence of oxeye daisy (an invasive non-native plant) at Old Peak Meadow. Based on herbicide effectiveness tests conducted during 2016, clopyralid herbicide treatments were initiated in the Old Peak Meadow site. Several applications are necessary, with the most recent applications occurring fall 2018. In addition to herbicide treatment, the meadow was mowed before oxeye daisy seed production to reduce subsequent recolonization and seed spread.

**Riparian Alder Conversion Project** — In 2019, three acres of even-aged riparian alder, situated adjacent to 900 feet of the main fork of Rock Creek (500 ft on south side and 400 ft on north side) was treated for enhancing future riparian habitat and stream shading. Because the riparian area adjacent to about one mile of streams in the watershed consists of same-aged alder trees, the overstory shading the stream would disappear at about the same time when the alder trees reached the end of their lifespan and die. Alder trees typically live no longer than 100 years and the trees along Rock Creek are about 50 years old. A special harvest type, called a hardwood conversion, can be implemented when these conditions are present. The Rock Creek alder conversion project removed most alder trees except for those immediately along the stream that continue to provide important shade. The remainder of the site retains all native vegetation, including shrubs and small trees to facilitate the development of a diverse and healthy riparian habitat. Additionally, long-lived conifer trees, in particular western red cedar, will be planted in the site which will grow to shade the stream for longer intervals than alder (longer than 100 years) and will eventually become a source of decay resistant in-stream wood that will continue to provide healthy stream conditions for fish and other aquatic organisms. Because alder trees are an important source of food resources (insects) and nutrients that support both aquatic and terrestrial biodiversity, a balanced mix of alder and conifer trees in riparian zones will be maintained over the long term.

Riparian alder (hardwood) conversion harvests are a special “alternate practice” provided by Oregon’s Forest Practices Act that recognizes the need for ecologically-based management practices that ensure the health of Oregon forests and streams. This treatment is a pilot project for the Corvallis Forest. Future management for long-term health of the riparian forests that provide critical services for a functioning stream ecosystem will include additional alder conversion projects in those locations where even-aged pure alder riparian stands jeopardize sustained shading of streams.



*Male alder flowers (catkins)  
Photo by: Walter Siegmund*

# Monitoring Update



**Peacock larkspur** – The Corvallis Forest Stewardship Plan includes guidelines for management of federally designated Threatened and Endangered species. A small population of peacock larkspur (a threatened Oregon prairie species) is found on City property and is inventoried every spring. This year a total of 1,638 peacock larkspur plants were counted within the boundaries of the Corvallis Forest. This is an increase from last year’s count. However, hybridization of peacock larkspur with nearby populations of poison larkspur continues to be a problem.

In previous years, the City partnered with the Corvallis chapter of the Native Plant Society of Oregon in a multi-year effort to augment peacock larkspur populations on the Corvallis Forest. In 2015, seed was collected from “pure” populations at different sites in Benton County and grown out in a private nursery. In late 2018, they were planted at a new site on the Corvallis Forest with appropriate habitat and distance from other larkspur populations.

The City continues to manage current peacock larkspur habitat on the watershed. In the fall, sites are mowed and blackberry plants cut to reduce competition. Hybrid individuals will continue to be removed as they are encountered during inventory.



**Northern spotted owl** – The Corvallis Forest is one of several areas annually surveyed for northern spotted owls by the Forest Service’s Pacific Northwest Research Station as part of the Oregon Coast Range Spotted Owl Demography Study. Currently, no spotted owls are known to be inhabiting the Corvallis Forest. However, owls have been recently observed within the greater Rock Creek watershed on U. S. National Forest land.

With increasing evidence that the expanding range of barred owls is having a negative impact on northern spotted owl populations, the US Geological Survey began a multi-year study of barred and northern spotted owl populations in the Pacific Northwest. At some study sites, barred owls are being lethally removed to determine impacts to northern spotted owls. The Corvallis Forest is one of the control sites for this study. Surveys for both barred and northern spotted owls are being conducted on the Corvallis Forest, but no barred owls are being removed. No northern spotted owls have been observed during 2018-2019, but barred owl numbers are very high.

The full 2018 progress report can be found at: <https://www.corvallisoregon.gov/publicworks/page/monitoring-and-survey-summaries>.

**Marbled murrelets** – Turnstone Environmental Consultants completed the second of a two year survey effort for marbled murrelets prior to undertaking the activities outlined in the City’s harvest plan. Biologists recorded one marbled murrelet flyover, but no nesting activity at any survey sites. A full interim report will be available by the end of 2019 at: <https://www.corvallisoregon.gov/publicworks/page/monitoring-and-survey-summaries>.



Rich Macintosh US Fish and Wildlife Service



# Monitoring Update, cont'd



**Stream temperature** – The intensive stream temperature monitoring in the Corvallis Forest, begun in 2010, was continued in 2018-2019 to evaluate consistency of trends and re-over time.

Globally, climate change monitoring shows that the last four years have been the hottest on record and the air temperatures in the Corvallis watershed fit this general trend, with 2018 the 3<sup>rd</sup> warmest year for the watershed. Elevated air temperature may increase stream temperature. Additionally, cumulative precipitation was slightly lower than average which may influence streamflow and temperature. However, overall stream temperatures were slightly cooler in

2018 than in 2017, with the exception of the mainstem of Rock Creek directly downstream from the dam which may be associated with work conducted on reservoir infrastructure.



*Cutthroat Trout*



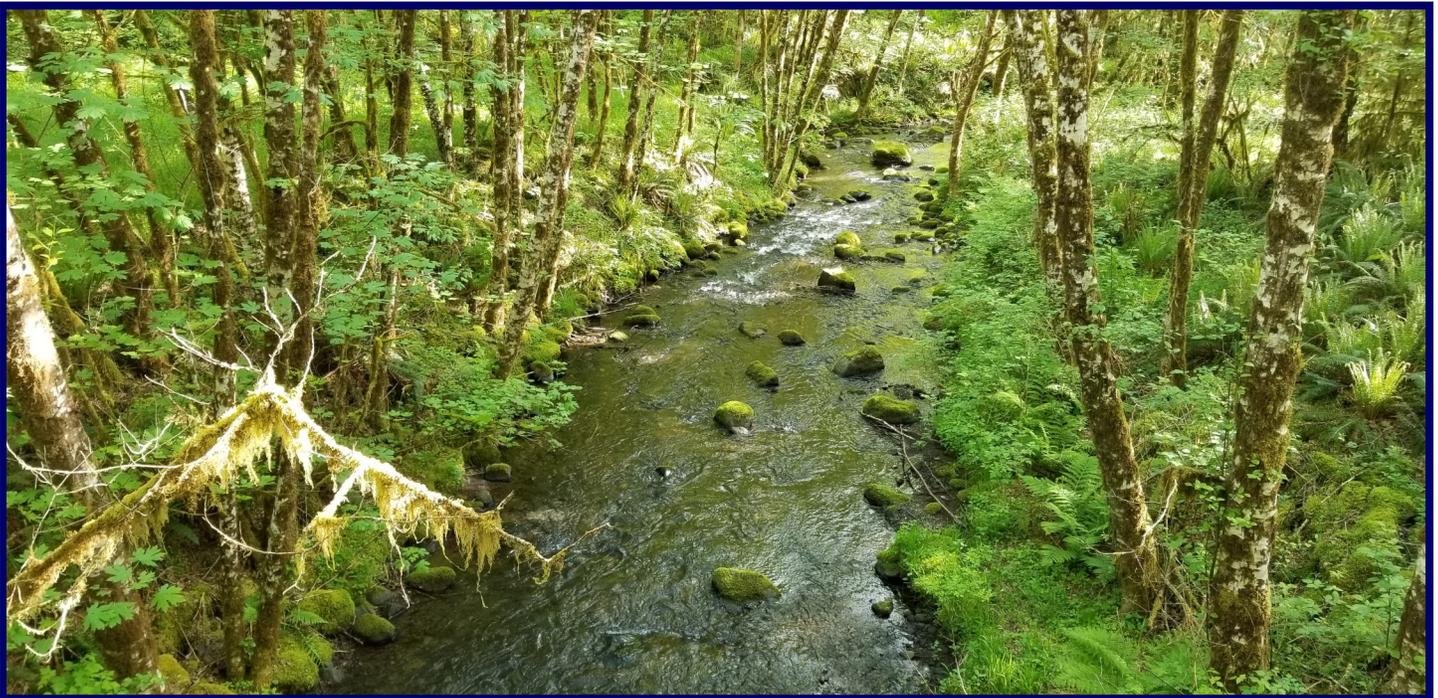
*Old Peak Meadow, looking south*



## Education and Public Use

**Access to the Corvallis Forest is controlled to prevent unauthorized access and to protect the City's water supply. However educational use is encouraged and organized tours are provided.**

**Public tour** – Annual public tours are widely advertised and have proven to be popular. Over 60 Corvallis-area citizens attended the 2019 tour held on May 23rd. Attendees visited an alder-conversion riparian treatment where David Hibbs (Oregon State University) and Mark Miller (City's consulting forester from Trout Mountain Forestry) explained the City's approach to forest management and the specifics of forest stewardship along streams. Attendees also visited the Peacock Larkspur restoration sites where Jennifer Ward (City Watershed Specialist) and Ester McEvoy (Corvallis Native Plant Society) described the process of restoring and augmenting a rare native plant population. The event included a tour of the Rock Creek Water Treatment Plant led by the plant operators. Responses from attendee surveys were very positive and indicated that the watershed is being managed in a manner consistent with the expectations of the public. One participant summed up the experience: "Really great tour! Beautiful place!"



**Press coverage** – Stories about the Corvallis Forest were published in the *Corvallis Gazette-Times*, *The City* newsletter, and the City of Corvallis website.

**Trainings/Research** – The federal Aquatic and Riparian Effectiveness Monitoring Program (AREMP) conducted field stream training for US Forest Service and Bureau of Land Management employees.

Two Oregon State University classes conducted field studies in the Corvallis Forest as part of their curricula.



## Education and Public Use, cont'd

### Education/Outreach –

- The City Departments of Public Works and Parks & Recreation continued to partner with the Marys River Watershed Council to provide watershed-focused programs for elementary and middle-school aged children attending the City's Rock Creek Camp during the month of August. City and MRWC staff led units on watershed dynamics, aquatic macroinvertebrates, cutthroat trout, and riparian restoration.
- For several years the City has cooperated with the Marys Peak Alliance to host all 8th grade students from each of the Corvallis middle schools for a day on Marys Peak. City staff explain the importance of Marys Peak as a source of the students' drinking water.
- The City welcomed Corvallis citizens, visitors, and elected leaders and staff to a tour of the watershed as an example of sustainable forest management which protects drinking water quality and ecosystem services for future generations. The tour was designed to enrich and deepen visitors' understanding of forest management models that include environmental and public health benefits.



*During the public tour 2017, Oregon legislators, including State Senator Sarah Gelser (pictured above) and State Representative, Dan Rayfield, toured the Corvallis Forest to see an example of sustainable forest management.*



# Activities Planned for 2019-2020

July 1, 2019 - June 30, 2020:

**For FY 2019-2020, City staff and consulting forester, Trout Mountain Forestry, are under-taking the following projects:**

- Phase II of Middle-fork habitat enhancement project to treat approximately 22 acres to encourage hardwood dominated forest on a south facing slope. The work will be done with hand operations to minimize impact to soils and understory vegetation.
- A winter harvest phase will include additional thinning and Variable Retention to transition a dense single-

species stand with little structural diversity to a mixed-age, mixed species forest. Harvest will include hand-falling selected trees and cable-yarding to protect sensitive soils. Large no-harvest buffers will protect large snags, older trees, and hardwoods. Also retention of “snag-pockets” will enhance habitat quality for wildlife.

- Continued work on an interactive GIS of the Corvallis Forest which will archive management activities for all the stands in the Forest and will be available for use by staff, as well as the public.

**The Watershed Management Advisory Board** continues to evaluate how best to assess the health of the Forest’s streams. The Board is considering studies on cutthroat trout, freshwater mussels, aquatic macroinvertebrates, and stream structure, temperature and flow. In early FY 2018-2019, the Board identified a range of options that will be further evaluated to guide specific questions, procedures and protocols that may be used for aquatic habitat monitoring



*Peacock larkspur seedlings take root in a greenhouse before being planted in the Corvallis Forest.*

In addition, the City will continue its mission to manage the Corvallis Forest as a healthy ecosystem with a diverse forest and productive habitat for all species native to the watershed by:

- Continued monitoring and adaptive management of Old Peak Meadow habitat restoration;
- Continued monitoring and management of peacock larkspur on Corvallis Forest property;
- Making preparations to establish a new, pure population of peacock larkspur;
- Continued participation in U.S. Geological Survey owl research;
- Continued monitoring stream temperatures throughout Corvallis Forest stream network;
- Hosting the annual public tour and providing other educational tours, programs and presentations;
- Pursuing and facilitating research partnerships., including bat surveys and university projects.

## Contractors

The following contractors were retained in FY 2018-2019 to assist staff in implementing the CFSP:

- **Trout Mountain Forestry** was the lead contractor to the City for forestry services, including resource inventory, project planning, permitting, bid preparation and solicitation, contracting, and supervision of projects. They assisted staff with WMAB meetings, public tours, annual plan development, and grant writing. Special thanks to consulting forester, Mark Miller, who assisted with the preparation of this report.
- **Bio-Surveys, LLC** was subcontracted through Marys River Watershed Council to conduct cutthroat trout surveys.
- **Turnstone Environmental Consultants** conducted marbled murrelet surveys.
- **Institute for Applied Ecology** has led the restoration effort at Old Peak Meadow.

## Partner Institutions

The work of implementing the CFSP to date would not be possible without the assistance and expertise of a large number of partner groups and institutions, including:

- **Watershed Management Advisory Board**
- **Benton County**
- **Marys Peak Alliance**
- **Marys Peak Stewardship Group**
- **Marys River Watershed Council**
- **Native Plant Society, Corvallis Chapter**
- **Oregon Department of Fish and Wildlife**
- **Oregon Department of Forestry**
- **Oregon Hunters Association, Mid-Willamette Chapter**
- **Oregon State University**
- **United State Fish and Wildlife Service**
- **United States Forest Service**



*Volunteers from Marys Peak Alliance and the Mid-Willamette Chapter of the Oregon Hunters Association help with watering at Old Peak.*



City of Corvallis  
 Public Works Department  
 P.O. Box 1083  
 Corvallis, OR 97339-1083  
 Phone: 541-766-6916  
 Fax: 541-766-6920  
 E-mail: Jennifer.Ward@corvallisoregon.gov

**Responsibility for the Corvallis Forest rests with the City of Corvallis Public Works Department, directed by Mary Steckel.**

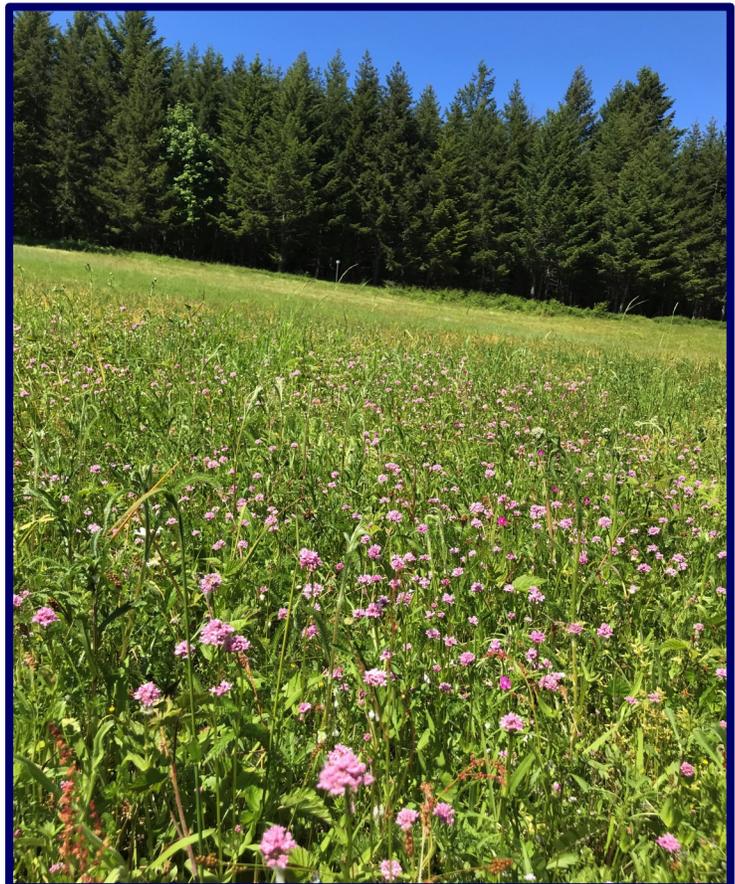
**Tom Hubbard, Utilities Division Manager, oversees watershed management and conservation programs for the City.**

**Jennifer Ward/Jeff Hollenbeck, Watershed Program Specialists, function as the City's watershed liaison, coordinating with the WMAB, project partners and consultants to implement the Corvallis Forest Stewardship Plan.**

## Conclusion

Since the CSFP was adopted in 2006, restoration and habitat enhancement projects have occurred on over 550 acres of forest, and stream improvements have increased fish access and habitat on more than 8 miles of streams. Invasive weed control and road maintenance have taken place through-out the forest. Funds from timber thinning harvests during habitat enhancement projects have allowed the City to leverage grant and cost-share funds to achieve stewardship objectives.

More detailed information on the vision, guiding principles, desired future condition, resource policies and recommended actions can be found in the Corvallis Forest Stewardship Plan at <https://www.corvallisoregon.gov/publicworks/page/corvallis-forest>.



*A sea of wildflowers blooms at Old Peak Meadow.*