

Forest Activities Report

JULY 1, 2016 - JUNE 30, 2017

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Introduction

Welcome to the ninth annual Forest Activities Report for the Corvallis Forest. This report describes activities undertaken over the past year (July 1, 2016 through June 30, 2017) to implement the Corvallis Forest Stewardship Plan, actions planned for the 2017-2018 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 2016. Water quality is the

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



*City Watershed Program Specialist, Jennifer Ward, overlooks the Rock Creek watershed from the top of Marys Peak.
(Photo: Pat Moore)*

Watershed Management Advisory Board (WMAB) members

David Hibbs, Chair
Steve Rogers, Vice-Chair
Charlie Bruce
Mark Dolan
Richard Heggen
Jessica McDonald
Jacque Schreck
Hal Brauner, City Council Liaison

City of Corvallis staff

Mary Steckel, Public Works
Director
Tom Hubbard, Utilities Division
Manager
Jennifer Ward, 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.

Consulting forester, Mark Miller, explains logging operations to WMAB members Richard Heggen, Jacque Schreck and Steve Rogers during a tour of this winter’s harvest.



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 www.corvallisoregon.gov/¹ 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.

¹ The direct link to the CFSP page is: <http://www.corvallisoregon.gov/index.aspx?page=126>.

Accomplishments for 2016-2017²

The following actions were initiated or completed in FY 2016-17:

Habitat Enhancement

Forest Diversity Thinning – Cross and Crown Logging of Carlton was the successful bidder for this year's harvest, which thinned just over 100 acres of 38-48 year-old Douglas-fir plantations. Harvest goals were to improve crown development, increase wind-firmness, encourage understory vegetation, and protect sensitive species. Habitat for the federally listed marbled murrelet was found on adjacent Siuslaw National Forest land requiring special buffer areas. Operations were scheduled to avoid the April-September active nesting period. Fortunately, the Forest's good all-weather roads and a sloping site with well-drained soils enabled winter cable yarding, which reduced both site disturbance and murrelet impacts. The thinning yielded just over one million board feet of timber, with a net sale proceeds to the City of \$450,683. Logs were sold to Seneca sawmills in Eugene and Noti, with 19 truckloads of utility poles sold to McFarland Cascade in Sheridan. The two-year sale offering was completed in one year, so there won't be another harvest on the Corvallis Forest until fall of 2018 or winter 2019.

State-of-the-art logging equipment at work on the Corvallis Forest.



Volunteers from Oregon Hunters Association and Marys Peak Alliance help with watering at Old Peak Meadow.

Old Peak Meadow – The City along with partners, Institute for Applied Ecology, Oregon Wildlife Institute, Trout Mountain Forestry, and Oregon Hunters Association, received a 2013 Coast Range Stewardship Fund grant to 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.

In 2015, volunteers joined City and IAE staff to erect wildlife exclosures and plant over 200 native shrubs, including Oregon grape, vine maple and salmonberry. The plants experienced nearly 100% survival over their first two winters. With the help of volunteers from OHA, an onsite watering system was devised. OHA and WMAB volunteers, along with City staff watered the plants through the summers of 2016 and 2017. OWI conducted bird surveys in the spring of 2016 to monitor the effectiveness of the wildlife habitat improvements. Twenty-seven species of birds were observed to be utilizing Old Peak Meadow- 9 more species than were observed before restoration efforts began in 2013. Bird surveys will continue in 2017.

² Accomplishments for prior years can be viewed in the respective Forest Activities Reports, which can be found at: <http://www.corvallisoregon.gov/index.aspx?page=143>.

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 1,339 peacock larkspur plants were counted within the boundaries of the Corvallis Forest. While this number represents a slight increase from last year’s count, hybridization of peacock larkspur with nearby populations of poison larkspur continues to be a problem. Last year, poison larkspur and hybrids were pulled when encountered, and that appears to have made a difference especially on the knoll, where the number of poison/hybrid plants was reduced from 320 to 197, and along Henkle Road where the number was reduced from 85 to 53.

The City is partnering 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. Early in the summer of 2015, seed was collected from “pure” populations at different sites in Benton County. Currently, these seeds are being grown out in a private nursery. In late 2018, they will be 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. Poison/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 observed within the greater Rock Creek watershed on national forest land.

There is increasing evidence that the expanding range of barred owls is having a negative impact on northern spotted owl populations. In 2015, 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. Not surprisingly, no northern spotted owls have been observed, but barred owl numbers are very high.

The full 2016 progress report can be found at: <http://www.corvallisoregon.gov/index.aspx?page=148>.

Bald eagle – A pair of bald eagles have nested in the City Forest for at least the past 20 years. In most years, they have successfully produced 1-2 young including one young in 2017. Besides nesting on the forest, they also forage for fish on the City reservoir.

Volunteers now monitor the nest site, as seen in the photo to the left (*photo: Charlie Bruce*).



Monitoring Update, cont'd

Cutthroat trout – In 2009, the City, in partnership with Marys River Watershed Council, undertook a suite of grant-funded aquatic habitat restoration projects in Rock Creek and its tributaries. These included replacing three perched culverts and providing fish passage at two water intake structures resulting in the opening of 8 miles of habitat to cutthroat trout. Post-project snorkel surveys were conducted the summer of 2010 and have taken place each summer since.

In 2016, 1,660 cutthroat trout were observed in the lower Rock Creek watershed, the lowest number observed since surveys began in 2010. The decrease is perplexing as this was the first year since monitoring efforts began that Rock Creek delivered cooler water at its confluence with Greasy Creek than the Greasy Creek mainstem and one would expect fish to respond to the temperature differential by accessing Rock Creek rather than Greasy. The accumulating population data suggests that observations are being made on a population that is larger and more highly mobile than what exists in Rock Creek alone, and that there may be environmental factors at play in the interannual variation in abundance that are not revealed in current monitoring efforts.

The full Model Watershed Monitoring Summary can be found at: <http://www.corvallisoregon.gov/index.aspx?page=148>.



Stream temperature – The intensive stream temperature monitoring in the Corvallis Forest, begun in 2010, was continued in 2016 to test the consistency of trends and results found in previous years' data. In addition to air and water temperatures, stream flow data was collected to better analyze the heat input into Rock Creek from the reservoir spillway and dam valve channel.

Summer temperatures were, on average, slightly cooler in 2016 than 2015, which had the warmest year on record for Oregon and Washington. For most of the summer of 2016, air temperatures in the watershed were cooler than the previous year. Precipitation in the early spring was higher in 2016 than 2015, but the late spring and summer precipitation was similar for both years. Overall, the 7-day average of the daily maximum temperature was slightly cooler in 2016 than in 2015 throughout the watershed.

The interesting new factor in 2016 was the increased flows from the dam valve channel, which is fed by the bottom of the reservoir. Flows coming out of the bottom of the reservoir due to a leaky dam valve were three to four times the amount as previous years. There was a cooling effect immediately downstream for the first half of the summer below the dam, but as the reservoir heated up, the downstream temperature just below the confluence was warmer than other streams, such as the South Fork Rock Creek above the confluence.



Education and Public Use

The Corvallis Forest is gated 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 70 Corvallis-area citizens attended the spring 2017 tour held on May 25th. Attendees visited the forest stand that was thinned over the winter. Mark Miller, the City's consulting forester from Trout Mountain Forestry was on hand to interpret and answer questions. Attendees could also chat with the City's logging contractor, Bob Luoto, of Cross & Crown, who showed a video of some of the equipment that was used on site at the harvest. 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. Said a first-time participant, "[The tour] was very interesting and enjoyable. [I'm] glad to see the forest being managed sustainably."



Learning about forest management...



Learning about water treatment...



Learning about logging operations.

Education and Public Use, cont'd

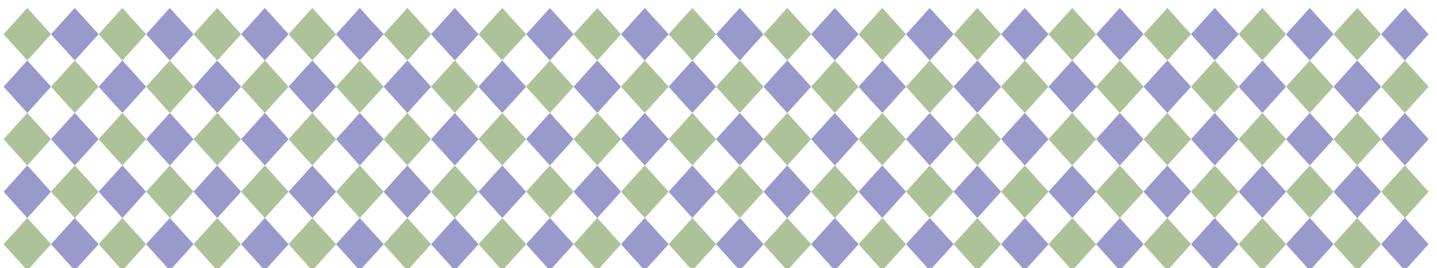
Education/Outreach –

- OSU silviculture classes visited various forest stands on the Corvallis Forest, hosted by Trout Mountain Forestry.
- The City Departments of Public Works and Parks & Recreation partnered with 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, and cutthroat trout and riparian restoration. Rock Creek plant operators guided the campers on tours of the treatment plant.
- For several years the City has cooperated with the C2C Partnership - a collaborative grassroots effort undertaking the completion of a 65-mile trail from Corvallis to the Oregon Coast. The eastern half of the trail opened this spring. This portion of the trail runs about 30 miles from Corvallis to Big Elk Campground west of Harlan, crossing some northern portions of the City watershed.
- Students from Muddy Creek Charter School took a field trip to the watershed to sample aquatic macroinvertebrates, tour the Rock Creek Water Treatment Plant and learn about the watershed as a source of Corvallis's municipal water supply.

Press coverage – Television news KEZI out of Eugene toured the watershed in advance of the public tour and ran in-depth segments in morning, evening and nightly newscasts. Stories about the Corvallis Forest were published in the *Corvallis Gazette-Times*, *The City* newsletter, the City of Corvallis website, the Corvallis-to-the-Sea Trail newsletter and the Corvallis Public Schools Foundation newsletter.

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.
- Oregon State University students gathered raw water data from Rock Creek to analyze it for isotopes, clarity, turbidity, etc. This sampling has been going on for about 10 years and Rock Creek operators provide access to students each summer.



Education and Public Use, cont'd



Corvallis 8th graders learn about the Rock Creek watershed from an overlook on Marys Peak.

Public presentations –

- City Watershed Specialist, Jennifer Ward, participated as an interpreter for a field trip to Marys Peak for 8th graders from Cheldelin and Linus Pauling Middle Schools. Students learned about the dynamics and history of the Rock Creek watershed, and discussed potential impacts to their drinking water.
- Jennifer Ward and Watershed Management Advisory Board member, Charlie Bruce, presented an informative overview of the Corvallis Watershed to the Rotary Club of Corvallis.
- Jennifer Ward taught a class on watershed management at the American Water Works Association Short School in Eugene.
- Watershed Management Advisory Board Chair, David Hibbs, accompanied Jennifer Ward to OSU to present to the university's Stream Team. Ward and Hibbs explained the City's historic and ongoing approach to surveying cutthroat trout populations, and engaged the Team in a discussion about other strategies for monitoring the health of the watershed's aquatic ecosystems.

Economic Context

A number of favorable economic factors contributed to the strongest log prices seen in the last 10 years: a strong economy, strong dollar, low rate of inflation, low unemployment, low interest rates, and low energy costs. In addition, tariffs on Canadian lumber levied by the US beginning in April 2017 are further boosting domestic prices. High mill production, fierce competition for logs, and strong housing start numbers encourage an optimistic outlook for future logs sales.

Weather and Climate



The past year was memorable as one of extreme and record-breaking weather — both winter and summer. Fall turned rainy early and then continued as many parts of the state saw multiple months of record winter rainfall. The long wet season returned stream flows and water tables to near-normal, and brought ample accumulation to a much-depleted snowpack. Spring saw an unusually robust profusion of regrowth and floral displays, which later added to forest fuels as the summer quickly turned hot and extremely dry. Many locations went 80 days or more without significant precipitation, with long spells of unrelenting high temperatures. Forest fires and hot east winds brought heavy smoke to the Willamette Valley, from fires as far away as British Columbia. While it is too soon to say if records were broken, anecdotally, it was a hotter and smokier summer than most could recall. Climate scientists expect more of the same in the future — longer and drier summers, more extreme rainfall events, and, in general, more volatility.

Loggers working on this year's harvest had to contend with an extremely wet winter.

Activities Planned for 2017-2018

July 1, 2017 - June 30, 2018:

For FY 17-18, staff and the City's consulting forester, Trout Mountain Forestry, are undertaking the following projects:

- Initiating a rolling inventory of the vegetation of the entire forest;
- Completing 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; and
- Submission of a \$30,000 grant proposal to create snags and release legacy trees and hardwoods in the Middle Fork drainage.



A young madrone takes root on the forest floor (photo: Charlie Bruce).

The Watershed Management Advisory Board has created three working groups that will continue their efforts into the 17-18 fiscal year:

- The Finance working group is exploring the possibility of creating a reserve fund for the Corvallis Forest.
- The Habitat working group is looking at possible management activities that would benefit communities that are under-represented on the Forest, such as upland or riparian hardwoods.
- The Aquatic working group is addressing the question of how best to assess the health of the Forest's streams.

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:

- Monitoring effectiveness of habitat restoration at Old Peak Meadow and implementing adaptive management;
- Making preparations to establish a new, pure population of peacock larkspur;
- Continuing to participate in the US Geological Survey owl study;
- Monitoring stream temperatures;
- Hosting the annual public tour and providing other educational tours, programs and presentations;
- Pursuing and facilitating research partnerships.

Contractors

The following contractors were retained in FY 16-17 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.
- **Cross & Crown** conducted the FY 16-17 timber harvest.
- **Institute for Applied Ecology** has led the restoration effort at Old Peak Meadow.
- **Oregon Wildlife Institute** conducted the avian population surveys 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**



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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, Watershed Program Specialist, functions 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 throughout the forest. Funds from timber thinning harvests have allowed the City to leverage grant and cost-share funds totaling more than \$900,000.

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 <http://www.corvallisoregon.gov/index.aspx?page=126>.



Coral fungus is one of several fungi found in the Corvallis Forest (Photo: Charlie Bruce).