

2021

Clackamas River Invasive Species Partnership ANNUAL REPORT

Activities and accomplishments of the Clackamas River Invasive Species Partnership to prioritize and manage invasive species and associated restoration efforts in the Clackamas River Basin



Clackamas River Invasive Species Partnership



Table of Contents

Contents

| | |
|---|-----------|
| TABLE OF CONTENTS..... | 1 |
| AUTHORS AND CONTRIBUTORS..... | 2 |
| REPORT AUTHOR AND EDITOR | 2 |
| DATA CONTRIBUTORS AND AUTHORS | 2 |
| ACKNOWLEDGEMENTS | 2 |
| PARTNER ORGANIZATIONS | 2 |
| FUNDING ORGANIZATIONS | 3 |
| PARTNER REPRESENTATIVES | 3 |
| A LETTER FROM THE CRISP CHAIR | 4 |
| CRISP BACKGROUND | 5 |
| INVASIVE PLANT PRIORITIZATION..... | 5 |
| FUNDING | 6 |
| PARTNER MEETINGS | 7 |
| 2021 PARTNERSHIP PROJECTS | 7 |
| PROJECT AND COLLABORATION HIGHLIGHTS | 8 |
| CRISP SUMMARY STATS | 8 |
| KNOTWEED COLLABORATION ON DEEP CREEK AND N. FORK DEEP CREEK | 8 |
| FIRE RECOVERY EFFORTS | 9 |
| CLACKAMAS ISLANDS | 10 |
| ACCESS TO PROPERTIES..... | 11 |
| PARTICIPATING ORGANIZATION ACTIVITIES | 11 |
| 4-COUNTY CWMA | 12 |
| BUREAU OF LAND MANAGEMENT- NORTHWEST OREGON DISTRICT (BLM) | 13 |
| CLACKAMAS COUNTY - PARKS..... | 14 |
| CLACKAMAS RIVER BASIN COUNCIL (CRBC)..... | 15 |
| CLACKAMAS SOIL AND WATER CONSERVATION DISTRICT (CSWCD) | 16 |
| CLACKAMAS WATER ENVIRONMENT SERVICES (WES)..... | 17 |
| COLUMBIA LAND TRUST (CLT) | 18 |
| METRO | 19 |
| NATURAL RESOURCES CONSERVATION SERVICE- CLACKAMAS (NRCS)..... | 20 |
| NORTH CLACKAMAS PARKS AND RECREATION DISTRICT (NCPRD)..... | 21 |
| OREGON DEPARTMENT OF AGRICULTURE (ODA) | 22 |
| OREGON PARKS AND RECREATION DEPARTMENT (OPRD) | 23 |
| PORTLAND GENERAL ELECTRIC (PGE) | 24 |
| UNITED STATES FOREST SERVICE- MT HOOD NATIONAL FOREST | 25 |
| THANK YOU | 26 |

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Acknowledgements

The Clackamas River Invasive Species Partnership acknowledges the contributions of its partner and funding organizations, and the efforts of dedicated staff. Their collective efforts are making meaningful progress toward protecting the Clackamas River Basin from the spread of invasive weeds. Thank you!

Partner Organizations

- 4-County Cooperative Weed Management Area
- Bureau of Land Management- Northwest Oregon District
- Clackamas County Parks
- Clackamas County Water Environment Services
- Clackamas River Basin Council
- Clackamas Soil and Water Conservation District
- Columbia Land Trust
- Metro
- Natural Resources Conservation Service- Clackamas
- North Clackamas Parks and Recreation District
- Oregon Department of Agriculture- Noxious Weed Program
- Oregon Parks and Recreation Department
- Portland General Electric
- United States Forest Service- Mt. Hood National Forest

Funding Organizations

The following organizations have supplied cash or documented in-kind contributions to support CRISP and implementation of the *Clackamas River Invasive Species Management Plan* in 2021.

- Bureau of Land Management- Northwest Oregon District
- Clackamas River Basin Council
- Clackamas Soil and Water Conservation District
- Metro
- Oregon Parks and Recreation Department (OPRD)
- Portland General Electric
- United States Forest Service- Mt. Hood National Forest

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- **Tonia Williamson**, North Clackamas Parks and Recreation District (NCPRD)

A Letter from the CRISP Chair

April 15, 2022

CRISP members and interested parties,

Over the past year, the Clackamas River Invasive Species Partnership (CRISP) has experienced many significant challenges. Our partners have continued to endure the impacts of working under COVID-19 and its variants. Activities that were once straightforward are now complicated by ever evolving public health recommendations, logistical constraints, supply chain disruptions, budget impacts, and the inherent physical and emotional toll of living through this pandemic.

In addition, our region was transformed by the massive Labor Day wildfires that swept across much of the Clackamas River Sub-Basin in late 2020. As a result, the 2021 field season has been dramatically influenced by the post wildfire response and the ongoing recovery effort. This is a moment in time when invasive weeds pose an increased threat to the long-term health of the Clackamas.

The Valentine's Day ice storm in 2021, also created massive damage to our forests and natural areas. Many of our hardwood trees were severely damaged by this ice, littering the ground with toppled trees, down branches, and detritus resulting in more disturbance across the landscape. This created not only opportunity for invasive weeds to take hold, but greatly complicated spring control efforts.

Just a few months later we were also faced with a record-breaking heat wave that resulted in temperatures reaching 116° in our region. This unprecedented heat wave also occurred during nesting bird season, and adversely impacted already stressed trees and wildlife.

All of these challenges have greatly hindered our ability to do work effectively and efficiently. Yet despite all of these challenges the CRISP partners have been able to accomplish an amazing amount of work to help restore the health of the Clackamas over the last year. We are the solution!

The accomplishments detailed in this report are the direct result of the tirelessness efforts of our partners. They show the resilience of our partnership, and our ability to problem-solve and adapt to new challenges and circumstances in spite of extreme challenges.

Many thanks to all of you that have contributed your time and resources over the last year! You provide hope for the year ahead and for the future success of the Clackamas River Invasive Species Partnership.

Sincerely,



Samuel Leininger
Clackamas SWCD, WeedWise Manager
CRISP Chair

CRISP Background

The Clackamas River Invasive Species Partnership (CRISP) was formed in 2014 when the Clackamas River Basin Council, the Clackamas Soil and Water Conservation District, and Metro joined together to respond to the steady expansion of invasive plants within the Clackamas River Basin. In order to improve invasive species management and to support associated restoration efforts, these organizations developed the *Clackamas River Invasive Species Management Plan* in 2015 with the following goals:

- Develop and maintain a coalition of federal, state, regional, and local partners to prioritize and coordinate invasive plant control and revegetation efforts throughout the basin.
- Secure new and sustainable sources of funding to implement and maintain these efforts.
- Align local and regional policies to support implementation of plan goals.
- Promote recognition among public and private landowners within the basin of the need to actively manage invasive plants and enhance natural areas.
- Identify and prioritize sub-watersheds, natural areas, and important habitats for protection and enhancement.
- Develop an invasive plant treatment strategy that identifies and prioritizes specific invasive species management actions through the consolidation of existing efforts and resources.
- Prevent the introduction and spread of new invasive species, reduce the distribution and cover of priority invasive species, and restore priority natural areas currently infested with common, priority, or new invasive species.
- Outline a strategy to use limited resources to accomplish measurable, impactful, and lasting improvements within the basin.

The partnership now includes 14 organizations, and their collaborative approach focuses on working cohesively across property lines and jurisdictional boundaries to reduce gaps in management and focus on weed infestations that pose the greatest threat to the watershed. For more information on the partnership and management plan, see <https://weedwise.conservationdistrict.org/partnerships/crisp>.

Invasive Plant Prioritization

Since the initial prioritization in 2015, which included 19 plant species, CRISP members have adjusted the priority weed list to its current version, which includes 27 species, listed below:

- *Ailanthus altissima*, tree of heaven
- *Alliaria petiolata*, garlic mustard
- *Brachypodium sylvaticum*, slender false brome
- *Carduus pycnocephalus*, Italian thistle
- *Centaurea diffusa*, diffuse knapweed
- *Centaurea solstitialis*, yellow star-thistle
- *Centaurea stoebe*, spotted knapweed
- *Centaurea xmoncktonii*, meadow knapweed
- *Daphne laureola*, spurge-laurel
- *Euphorbia oblongata*, oblong spurge
- *Fallopia japonica*, Japanese knotweed
- *Fallopia sachalinensis*, giant knotweed
- *Fallopia x bohémica*, Bohemian knotweed
- *Ulex europaeus*, gorse
- *Galega officinalis*, goatsrue
- *Heracleum mantegazzianum*, giant hogweed
- *Hieracium aurantiacum*, orange hawkweed
- *Hieracium caespitosum*, meadow hawkweed
- *Hieracium pilosella*, mouseear hawkweed
- *Impatiens glandulifera*, policemen's helmet
- *Ludwigia hexapetala*, water primrose
- *Ludwigia peploides*, floating primrose-willow
- *Lythrum salicaria*, purple loosestrife
- *Petasites japonicus*, Japanese butterbur
- *Potentilla recta*, sulfur cinquefoil
- *Silybum marianum*, milk thistle
- *Tribulus terrestris*, puncturevine

Funding

CRISP partners have continued to support weed control efforts in the Clackamas River Basin through investments in time and resources. Significant grant funds from the PGE *Clackamas River Hydroelectric Project Mitigation and Enhancement Fund (Clackamas Fund)* support implementation of CRISP projects. These funds have been a great asset, allowing the CRISP to address gaps in management and offset shortfalls in weed control efforts. CRISP partnering organizations have also invested significant cash and in-kind contributions over the last year. In total, the CRISP partners reported expending \$663,523¹ in contracted weed control and restoration services in 2021. The total estimated CRISP-related personnel services reported by partners in 2021 totaled 2266² hours. This work supported weed surveys and treatments on over 3977 acres of public and private land³.

After our 2016 *Clackamas Fund* award ended in 2020, the CRISP was awarded a second award of \$258,192 to fund implementation through 2023. In addition to the PGE funds, our CRISP partners contributed an additional \$138,538 to support CRISP projects and personnel in 2021. Clackamas SWCD committed \$58,910, Metro committed \$30,000, and the Mt Hood National Forest contributed \$9,990. Additionally, the MHNH also contributed \$30,000 (\$60,000 for two years) in Burned Area Emergency Response (BAER) funds to go towards weed control and survey in the Riverside Fire burned area. Similar to the BAER funds, the BLM also committed \$9,628 in Emergency Stabilization Rehabilitation (ESR) funds to be spent on Riverside burned area efforts on BLM land.

| BUDGET SUMMARY 2021 | |
|------------------------------|------------------|
| REVENUE | |
| BLM- ESR | \$9,628 |
| Clackamas SWCD | \$57,713 |
| Metro | \$30,000 |
| Mt Hood NF | \$9,990 |
| Mt Hood NF- BAER | \$30,000 |
| PGE | \$258,192 |
| TOTAL REVENUE | \$395,523 |
| EXPENSES | |
| Contracted Services | \$113,740 |
| CRISP Sponsored Projects | \$85,390 |
| USFS- Riverside BAER | \$26,397 |
| BLM- Riverside ESR | \$1,953 |
| Personnel Services | \$87,713 |
| CRISP Specialist | \$80,845 |
| CRBC Services | \$6,868 |
| TOTAL EXPENSES | \$201,453 |
| PROJECTED BALANCE | \$194,070 |
| IN KIND CONTRIBUTIONS | |
| DOCUMENTED SOURCES | |
| Contracted Services | \$462,070 |
| CRBC Contracted Services | \$2,312 |
| CSWCD Contracted Services | \$16,393 |
| Metro Contracted Services | \$440,500 |
| OPRD Contracted Services | \$2,865 |

Documented revenue and expenses from CRISP partners in 2021.

¹ This number accounts for all resources reported by CRBC, CSWCD, and Metro, as well as approved CRISP projects (which were funded by the PGE Clackamas Fund and cash matches from BLM, CSWCD, Metro, and the USFS)

² This number accounts for hours reported by CLT, CRBC, CSWCD, NCPRD, ODA, OPRD, WES, and includes hours for the CRISP coordinator.

³ This number accounts for surveys and weed treatments reported by CRBC, CSWCD, CLT, Metro, NCPRD, NRCS, ODA, OPRD, PGE, USFS, & WES.

Partner Meetings

Every year, the CRISP partners gather in July and December to discuss CRISP partner activities. In 2021, the summer meeting was attended by 11 representatives from seven partner organizations while the winter meeting was attended by 10 representatives from eight organizations. At each meeting, partners share about their activities in the Basin, and there are also updates about the budget, contractors, reports, and MOAs/IGAs. Aside from these regular meeting topics, both meetings in 2021 included discussions about the response to the Riverside Fire of 2020 on the Mt Hood National Forest, along with plans to limit the spread of invasive weeds in the burned area. Other important discussion topics in 2021 included outreach and sharing data through the ArcGIS Online platform. In December, partners also reviewed and approved 12 projects proposed for 2022.



CRISP partners met virtually twice to discuss wildfire, data sharing, and weed control projects

2021 Partnership Projects

In 2021, CRISP partners submitted 12 projects and 11 were approved and carried out. These projects were implemented using the *Clackamas River Hydroelectric Project Mitigation and Enhancement Fund*, as well as funds from other contributing partners. In response to the 2020 Riverside Fire, the USFS also provided CSWCD with funds for surveys and weed work as part of the Burned Area Emergency Response (BAER). The BLM also provided funds to CSWCD, for both the Riverside and Beachie Creek fire areas.

| Project | Sub watershed | Proposing Organization | Amount Spent |
|---|--------------------------------|------------------------|-------------------|
| Barton Park | Rock Creek/Lower Clack | Metro/CSWCD | \$ 1,940 |
| Private Property #1 (farm riparian area) | Rock Creek/Lower Clack | CRBC | \$ 1,000 |
| Clackamas County Rec Sites | Rock Cr/Clack, Dubois Cr/Clack | Clack Co Parks | \$ 1,972 |
| Private Property #2 (HOA riparian area) | Rock Creek/Lower Clack | CRBC | \$ 2,000 |
| Deep Creek | Deep Creek | CRBC | \$ 4,323 |
| Estacada Rock Riparian Area | Dubois Creek/ Clack | CSWCD | \$ 3,186 |
| Spring weeds (~100 mostly private properties) | Clackamas Basin | CSWCD | \$ 42,634 |
| Knotweed Treatment (~75 private properties) | Clackamas Basin | CSWCD | \$ 18,661 |
| Milo McIver | Dubois Creek/ Clack | OPRD | \$ 7,497 |
| Private Property #3 (forested riparian area) | Rock Creek/Lower Clack | CRBC | \$ 819 |
| Riverside Fire Surveys/Treatments- BAER/BLM | Upper Watershed/MHNF | CSWCD/USFS/BLM | \$ 28,350 |
| Upper Watershed non-fire weeds | Upper Watershed/MHNF | CSWCD | \$ 1,358 |
| TOTAL | | | \$ 113,740 |

Project and Collaboration Highlights

2021 was the fifth full year of implementation of the CRISP Management Plan, and the second year of implementing work during the Covid-19 pandemic. The partnership has adapted and grown over the years, but the initial momentum has continued. A few 2021 highlights are shared on the next few pages.

CRISP Summary Stats

CRISP partners are accomplishing a significant amount of weed control and restoration work! Although reported metrics often differ between organizations, we want to demonstrate the collective amount of work accomplished in 2021. Although impressive, the accomplishments listed here only represent a portion of the data reported from our 14 CRISP partners and should be considered conservative estimates.

- Maintained permissions for over 720 public and private properties⁴, on about 4420 parcels⁵
- Carried out surveys on 123⁶ sites totaling more than 150 miles of road and 3304 acres⁷
- Treated invasive weeds on over 344 sites totaling over 3977 gross acres⁸
- Planted 63685⁹ native plants and 265 lbs. of native seed¹⁰ at 25 restoration sites
- Spent 2266 staff hours on CRISP-related work¹¹
- Spent \$446,809 of in-kind contracted weed control and restoration services¹²
- Spent \$85,390 on contracted services for CRISP-sponsored projects.

Knotweed Collaboration on Deep Creek and N. Fork Deep Creek

Both Deep Creek and North Fork Deep Creek have established knotweed populations, though the population on Deep Creek is far worse. However, since the formation of CRISP, the situation has improved each year as a result of the good work and collaboration between CRBC, CSWCD, and Metro. Each year, the three organizations gain access to more properties to survey and treat riparian knotweed.

Through CRISP project funding, CRBC has been controlling knotweed on 17 Deep Creek properties, many of which are properties formerly enrolled in their *Shade our Streams* riparian tree planting program. Metro has been controlling knotweed on properties they own on N. Fork Deep Creek, as well as a newly purchased 35-acre property on Deep Creek near the confluence with North Fork Deep Creek. CSWCD has been conducting outreach and treating knotweed on multiple N. Fork Deep Creek private properties,

⁴ Reporting organizations: BLM, Clackamas County, CLT, CRBC, CSWCD, OPRD, & USFS

⁵ Reporting organizations: BLM, Clackamas County, CLT, CRBC, CSWCD, Metro, NCPRD, OPRD, PGE, USFS, & WES

⁶ Reporting organizations: CSWCD, Metro, MHNF, NCPRD, ODA

⁷ Reporting organizations: CSWCD, Metro, MHNF, NCPRD, ODA, PGE

⁸ Reporting organizations (sites and acreage): CRBC, CSWCD, CLT, Metro, MHNF, NCPRD, ODA, OPRD, PGE, WES

⁹ Reporting Organizations: Clack Co Parks, CRBC, Metro, NCPRD, PGE, WES

¹⁰ Reporting Organizations: CSWCD, Metro, MHNF, PGE

¹¹ Reporting organizations: CLT, CRBC, CSWCD, NCPRD, OPRD, ODA, WES

¹² Reporting organizations: In-Kind Services from CRBC, CSWCD, Metro, OPRD

and on the lower stretches of Deep Creek below the confluence. As a result of all this work, knotweed has been greatly reduced, which helps prevent it from reinfesting riparian areas of the Clackamas River.

Another result of the knotweed work is that other high priority weeds have been found. CSWCD contractors found a previously unknown patch of garlic mustard on a N. Fork Deep Creek property, and CRBC staff found a large policeman's helmet patch that spread across many properties on Deep Creek. These early detections will help prevent these weeds from spreading throughout the whole tributary.



Left: Knotweed presence on Deep Creek is steadily decreasing with the good work of CRISP partners. Right: Metro staff, Kristina Prosser assists CRBC and CSWCD staff with removing a large policeman's helmet patch on Deep Creek. Photos: Lindsey Karr

Fire Recovery Efforts

The 2020 wildfires spread across much of the Clackamas Basin, and CRISP partners responded to the need. As a result, they controlled a lot of weeds and restored valuable habitat.

In the Dowty Road Fire area, CRBC responded with a *Replant the Riverside* fundraising campaign. They raised \$18,000 and planted 4,500 native plants along 600 feet of the Clackamas River. Near the CRBC planting, CSWCD worked to control knotweed, garlic mustard, and purple loosestrife in the riparian area, as well as a large meadow hawkweed population on an upland private property that was also burned.

The Riverside Fire occurred mostly on USFS and BLM land, and both organizations provided money to CRISP for survey and weed control efforts. CSWCD worked to survey approximately 150 miles of roads and trails with the help of contractors, Metro staff, and a PSU Master's student. They focused on the 45-road system, roads and trails in the Fish Creek drainage, the entire length of 4610/Abbott Rd (a fire suppression line), and the LaDee flats OHV recreation area. The treatments focused on roadsides, campgrounds, trailheads, and trails.

ODA, PGE, and the MHNH also aided the recovery efforts in burned areas. ODA focused on the upper half of the National Forest, and on some roadsides in the Riverside Fire area. PGE surveyed and treated weeds on properties they manage within their Federal Energy Regulatory Commission (FERC) boundary. USFS staff surveyed and treated weeds in various locations and supported the work of partners.



Left: Metro staff, Chris Hagel and Kristina Prosser, assist the CRISP coordinator, Lindsey Karr with surveys in the Riverside Fire area. Center: CSWCD staff Lindsey Karr and Justin Cooley spread native seed on 5 miles of a fire suppression line. Right: The Fish Creek Campground was impacted by the fire. CRISP contractors Green Banks and Mosaic Ecology treated weeds here and in several other campgrounds. Photo: Lindsey Karr

Clackamas Islands

Islands are notoriously difficult to treat! They require boats, river access at safe locations where we have permission, the ability to transport herbicides safely, aquatic herbicide licenses, and are also more expensive. However, between islands managed by both PGE and Metro, and CSWCD reaching out to private landowners, all but one island (privately owned) are being treated or surveyed for weeds.

The uppermost island below the River Mill Dam (also called Frisbee Island) has been one of the most important islands to manage. In 2018, staff from Metro and CSWCD surveyed this island and found the worst population of garlic mustard they had ever seen. In the years following, CRISP funds have been used to treat this population twice a year, as well as smaller patches of knotweed and false brome. Because the seeds are numerous and can stick to mud and other debris that floats down the river, garlic mustard often spreads between floodplains. Within the



Before and after photos of garlic mustard on Frisbee Island (Left: May 2020, right: Sept 2021). Sadly, false brome has moved in! Photo: Mosaic Ecology

Clackamas Basin, about 80% of known garlic mustard patches are within the floodplain, and as seen in the map in the “Access to Properties” highlight on the next page, CRISP partners have access to much of the land near the river, meaning we are able to effectively keep this weed in check. In 2021, PGE was able to take over management of Frisbee Island, working with the same contractor as CSWCD (Mosaic

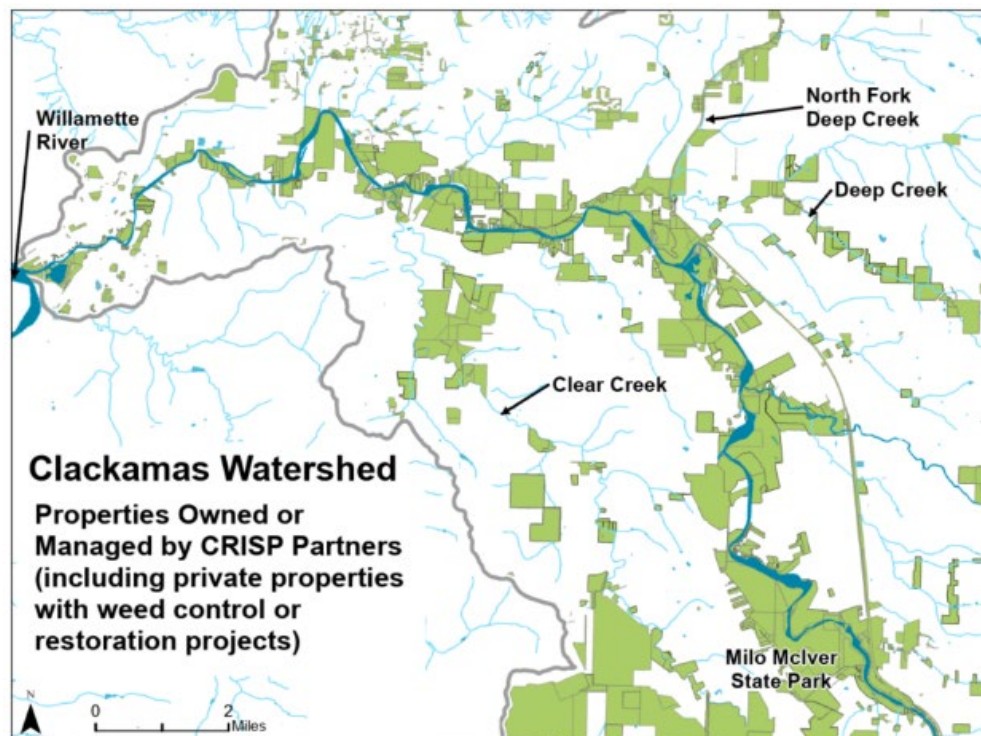
Ecology), and this collaboration means a lot of garlic mustard seeds won't be floating down the river to infest other islands and riparian areas.



Mosaic Ecology staff use rafts to access Clackamas islands for weed treatments. Photo: Mosaic Ecology

Access to properties

Thanks to the collaborative CRISP efforts, many geographic gaps continue to be filled. Some partners access and manage land that they own, while other partners conduct outreach to private landowners, while still others collaborate to make sure unmanaged public land gets treated. As a result, CRISP partners collectively have access to a lot of land!



Clackamas Basin properties collectively owned or managed by CRISP partners as of December 2021.

Participating Organization Activities

Individual organizations within the CRISP continue to accomplish an immense amount of work within the Clackamas Basin to control invasive weeds and restore degraded habitat. Many of the activities reported below have been undertaken independently of the CRISP planning efforts. They are included to illustrate the breadth and volume of work accomplished by CRISP partners to control and prevent the

spread of invasive weeds within the Clackamas Basin. We hope these activity reports will increase awareness and continue to facilitate collaboration among CRISP partners.

4-County CWMA

The 4-County Cooperative Weed Management Area (CWMA) focuses on support and enhancement of weed management across the Portland Metro region, including the Clackamas Basin. Each year, Clackamas County hosts one 4-County CWMA general meeting. In 2021, Clackamas was scheduled to host the annual field day, but due to Covid-19 concerns, CSWCSD created a virtual field day using ESRI Story Maps. [See the Virtual Tour here.](#) The 4-County CWMA also organizes and hosts the annual “Pull Together,” a large event where weed managers learn the latest news on invasive species management. Many CRISP partners and contractors were part of the 190 people in attendance at the virtual event.



Part of a comic created by Jon Wagner of East Multnomah CWCS to summarize the 2021 Pull Together.

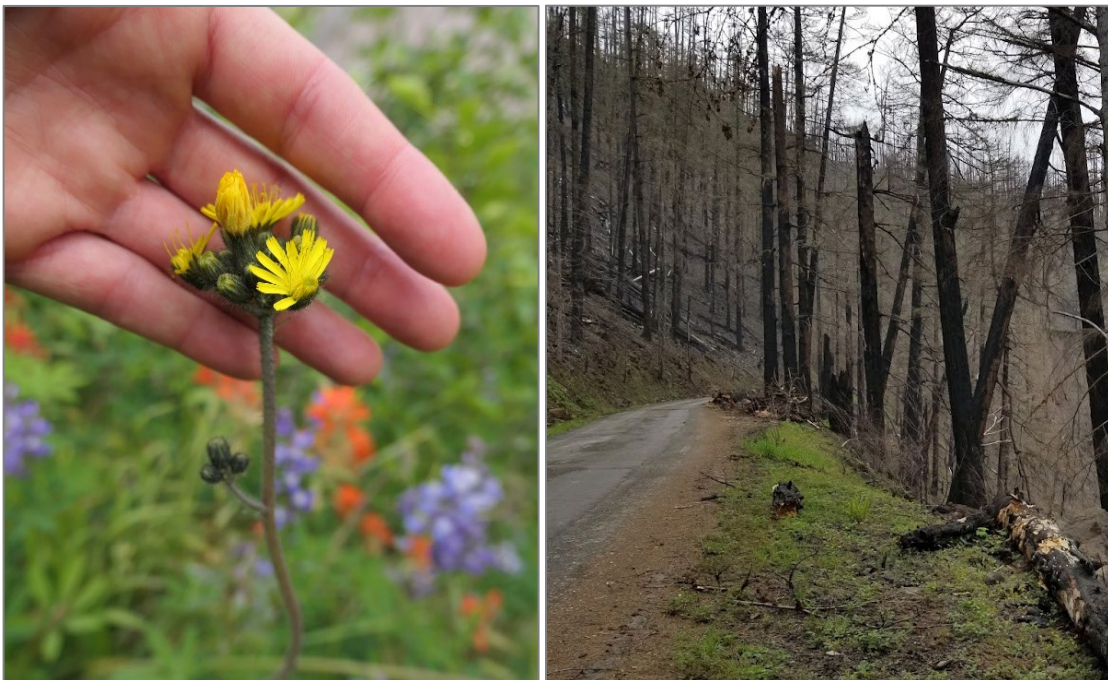
The 4-County CWMA Mapping and Data sub-committee provides support to CRISP partners through the development and maintenance of data collection standards. These standards provide guidance for collecting weed observations and treatment data. The standards are integrated with Oregon iMapInvasives to support data sharing throughout the state and region. In cooperation with the Columbia Gorge CWMA, the 4-County CWMA has also continued to develop a series of Best Management Practices guides. These guides outline control methods for 22 invasive weeds and have been made available to CWMA partners for use within their own organizations.

Bureau of Land Management- Northwest Oregon District (BLM)

The Bureau of Land Management- Northwest Oregon District has been collaborating with the Clackamas SWCD to treat weeds in the Clackamas Basin for many years. The Labor Day fires of 2020, including the Riverside fire, burned across many BLM-owned parcels in the Clackamas Basin and surrounding areas.

In 2021, both the BLM and CSWCD used Emergency Stabilization Response (ESR) funds to conduct weed surveys and treatments on BLM land burned by the Riverside Fire. The BLM provided Clackamas SWCD with \$9628 in ESR funds to prevent the spread of weeds in the Riverside fire perimeter and CSWCD used these funds to conduct both surveys and treatments. In coordination with contractors, CSWCD surveyed roadsides in 10 different BLM parcels, documenting weeds and treating them as necessary, including one previously unknown patch of meadow hawkweed, which is a very high priority weed in the upper Clackamas watershed. Contractors treated roadside weeds on five parcels, and these weeds included common hawkweed, European hawkweed, and meadow hawkweed on the west side of the watershed, and Scotch broom and blackberry along the BLM portion of the 4610 road.

The BLM also treated roadside weeds in 2021 and is seeking to treat all roads by the end of the FY 2022. The weed treatments in the burned area are a high priority as they will help to prevent the weeds from taking advantage of the disturbed landscape after the fire, allowing for better chances of recovery for native plants.



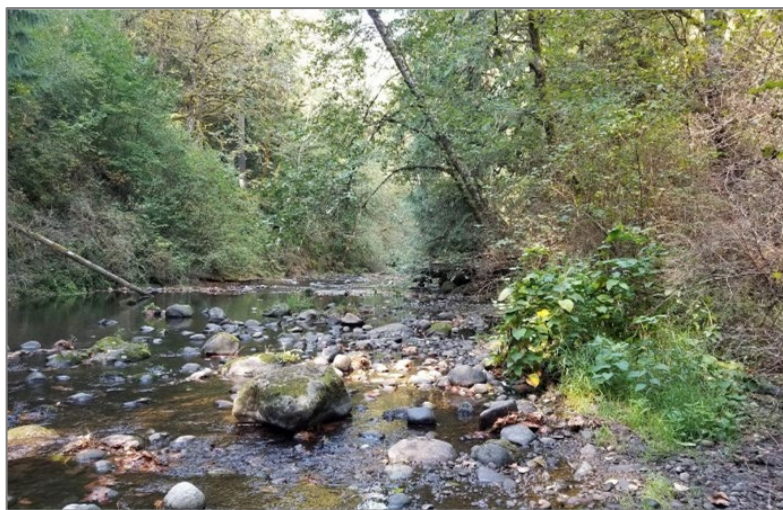
Meadow hawkweed (left) is a high priority invasive weed that can negatively impact open sunny habitats. A new roadside patch was found as a result of 2021 roadside weed surveys (right) conducted as part of the Riverside fire recovery effort. Photos: Lindsey Karr

Clackamas County - Parks

Clackamas County Parks routinely manages weeds as part of their standard park maintenance activities. In managing established parks, Clackamas County Parks serves at the interface between the public and natural areas, providing opportunities to promote outreach and education efforts to the general public. Due to the heavy use of these areas by the public, they are also threatened by the introduction of invasive species through human-mediated dispersal. Clackamas County Parks also works with the County Dumpstoppers program to address illegal garbage dumping on public lands. These dump sites have been identified as likely introduction points for new invasive weeds into the watershed.

In 2021, Clackamas County Parks planted about 1200 native plants at both Barton and Carver Parks. In addition to this restoration work, CSWCD carried out several weed control at Clackamas County Recreation sites as part of proposed CRISP projects. From 2014 to 2018, Metro did restoration work and weed treatments at Barton Park, in conjunction with their work at River Island Natural Area. However, their funding for Barton Park ended in 2018. As a result of the CRISP collaboration, partnership, and funding, Metro submitted a CRISP project proposal and CSWCD has been able to continue these weed treatments since 2019 to protect the years of work done by Metro.

At Fisherman's Bend, CSWCD treated garlic mustard to help protect plantings done by CRBC. At Billy Goat Island, a caretaker has been working to clear invasive weeds and revegetate the site, and CSWCD has been contributing to this work through the CRISP, treating both garlic mustard and knotweed. At Metzler Park, where just a few patches of knotweed are growing along the stream, CSWCD treated them, preventing larger infestations downstream. To find the source of the knotweed population, CSWCD conducted outreach to property owners upstream of Metzler Park; they obtained access to a large upstream property, found a huge population of knotweed, and treated it! At Madrone Wall, where rocky bluffs are home to nesting peregrine falcons, CSWCD worked with a contractor to control small patches of sulfur cinquefoil and false brome.



Clear Creek runs through Metzler Park, which has just a few patches of knotweed. CRISP work has prevented knotweed from spreading and protects this habitat for salmon and other aquatic life. Photo: Lindsey Karr

Clackamas River Basin Council (CRBC)

CRBC is the watershed council operating in the Clackamas Basin and foundational member of CRISP. They perform activities such as fish habitat restoration, invasive species control, revegetation, erosion and sediment control, outreach, teach workshops, and more. The watershed council also oversees CRISP projects and maintains relationships with private landowners and other entities, and they are well positioned to do so, because they are not government representatives and can build trust with citizens who might otherwise be discouraged from participating in the CRISP program.

Of the 19 projects CRBC completed in 2021, one weed control highlight was a treatment on a large private property that borders a floodplain of the Clackamas mainstem. This had much more garlic mustard over a much larger area than predicted, and after attempting to treat it with just single hand puller and a sprayer, CRISP was able to step in and use leftover project funds to treat it with a contracted crew.



A carpet of garlic mustard rosettes at a large private floodplain property. Photo: Lindsey Karr

Under the CRISP program, CRBC was also able to treat around a dozen properties along Deep Creek for knotweed (*Fallopia* spp.). These properties have been treated for several years now, and the skeletons of the previous infestation level show the knotweed has diminished by more than 80%. With the help of Metro and CSWCD staff, CRBC staff also hand pulled a substantial amount of policeman's helmet on some of these properties. The policeman's helmet population was much larger than expected, and a CRISP project has been proposed and approved for 2022 so that it can be treated by a contracted crew.



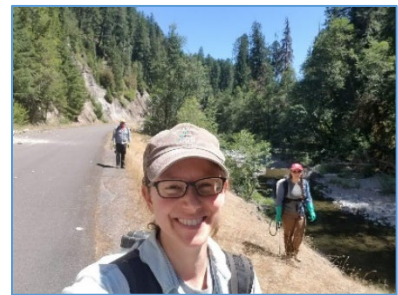
Left: Policeman's helmet in flower on Deep Creek. Right: A patch of vegetative Policeman's helmet at the North Fork Reservoir. Photos: J. Ari Sindel

Clackamas Soil and Water Conservation District (CSWCD)

The Clackamas SWCD operates an active weed control program throughout Clackamas County, spearheaded through their WeedWise program. The WeedWise program focuses on landscape scale management of invasive weeds, offering free control of priority invasive weeds as a voluntary service to county residents. The WeedWise program also maintains the Clackamas County priority weed list, found here <https://weedwise.conservationdistrict.org/weeds>. As administrator for the CRISP, the WeedWise program works to build capacity and infrastructure to support CRISP-related activities serving as a hub for CRISP-related information pertaining to the mapping of weed observations, site surveys, treatments, project sites, and priority weed information associated with the *Clackamas River Invasive Species Management Plan*.

Every year, CSWCD conducts a massive spring weed treatment effort, and 2021 was no different with 249 treatments. With the help of contractors and the CRISP coordinator, Lindsey Karr, CSWCD treated garlic mustard at 83 sites, false brome at 23 sites, policeman's helmet at 12 sites, sulfur cinquefoil at 9 sites, and 12 other weeds across the Clackamas Basin. 2021 was especially difficult due to the February ice storms; all the woody debris made it really difficult to move around and find weeds!

Another highlight of 2021 was the work in the upper watershed, consisting of USFS and BLM land. With the help of contractors, CRISP partners, and a PSU student, CSWCD surveyed 150 miles of road in the Riverside Fire footprint, looking for weeds that could easily spread in the newly disturbed landscape. CSWCD staff also controlled weeds outside the fire area, spraying hawkweeds near Timothy Lake and controlling a large false brome population along Road 70 and the Collawash River.



Lindsey Karr, CRISP coordinator, treats false brome along the Collawash with CSWCD staff Courtney Gattuso and Justin Cooley.

Other notable 2021 CSWCD activities in the Clackamas Basin include:

- Conducted 484 total weed treatments at 222 different sites
- Sent 2 outreach mailings with 157 letters, resulting in 16 new landowners joining the program
- Hosted an annual weed ID and data collection training for contractors and CRISP partners



Clackamas SWCD manages several class A noxious weeds, listed by ODA, including (left to right) goatsrue, oblong spurge, giant hogweed, and orange hawkweed.

Clackamas Water Environment Services (WES)

Clackamas Water Environment Services (WES) conducts weed control efforts in the lower portions of the Clackamas River Basin on the natural areas they own, and on site-specific restoration projects in conjunction with their RiverHealth Stewardship Grant Program. The grants vary from year to year, but frequently involve invasive weed control activities. For example, in the 2021-22 fiscal year, the RiverHealth Stewardship Program is funding 4 groups that are conducting river restoration, erosion control projects, and outreach, which includes treating weeds or outreach to landowners for future riparian work within the Clackamas Basin.

In 2021, WES continued to maintain Carli Creek, a 15-acre constructed wetland completed in 2019 for storm water treatment. Invasive weed treatments are ongoing and will continue over the coming years to maintain the project after implementation. With the help of NCPRD, WES also continued ongoing invasive species control on its other natural areas in the Clackamas basin, including the Rock Creek Confluence site (approximately 12 acres), and the Rose Creek Natural Area (approximately 5.6 ac).



The Carli Creek site, located on the lower portions of the Clackamas River, is a constructed wetland for storm water treatment. WES has been treating weeds here after completing the planting in 2019.

WES also contracts with organizations to implement a *Watershed Health Education Program* in the North Clackamas School District, which includes lessons about invasive species. The coronavirus pandemic allowed no in-school activities for the 2020-2021 school year, so all activities were virtual or outside the school system. The Lower Columbia Estuary Partnership implemented the following: 1) Teacher Communication; 2) Distance Learning Products; 3) STEM Career Videos; 4) Clackamas Watershed 360 tour; and 5) Project Evaluation. Clackamas Community College's Environmental Learning Center implemented virtual field trips, a virtual water industry career exploration program, a community education Wildlife & Water Friendly Gardens series, and a vegetated stormwater facility maintenance program. We were unable to measure how many teachers and classes accessed the virtual lessons; however, we estimate that over 300 classes were served by these programs in 2020-21.

Columbia Land Trust (CLT)

Columbia Land Trust is a private, non-profit organization working to conserve and care for fish and wildlife habitat in the lower Columbia River region of Oregon and Washington. In the Clackamas Basin, the Land Trust owns a 23-acre forest called the McGahan Natural Area across the Clackamas River from Milo McIver State Park, and the Land Trust holds a conservation easement on a 32-acre private property near Madrone Wall Park. Columbia Land Trust has been a member of CRISP since 2017.

Clackamas SWCD has partnered with the Land Trust to control weeds at the McGahan site for the last two decades, and it shows - invasive species populations have been greatly reduced! Maintenance work continued this year with Land Trust staff controlling weeds by hand and maintaining native plantings to restore disturbed areas.

- Land Trust staff hand-pulled false brome, thistle and tansy across 2 acres of the McGahan site in the spring and early summer. Clackamas SWCD staff lent a hand to treat false brome in the fall!
- Land Trust staff-controlled vegetation around approximately 100 native trees and shrubs multiple times during the growing season.



Freshly mowed planting area at the edge of the McGahan site, with a snag that was felled to reduce hazards to the neighbor and is now creating wildlife habitat as downed wood.

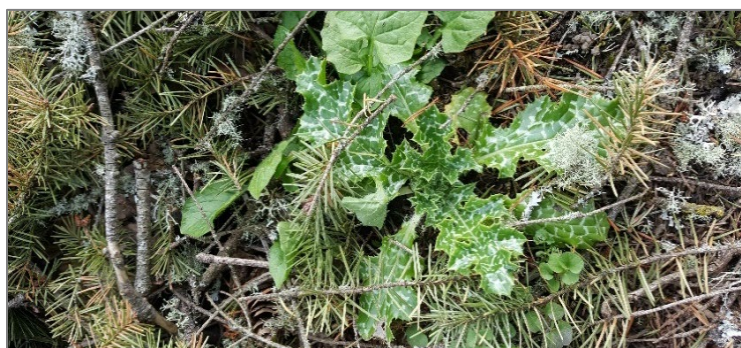
Metro

Building on the accomplishments of previous years, Metro controlled a variety of invasive weeds across its properties, thanks to the continued support of voter-approved funding. In the Clackamas Basin, many sites were the focus of extensive weed management work. Early detection and rapid response (EDRR) treatments were completed by staff and contractors. Additionally, restoration efforts spanned across Metro Natural Areas within the Clackamas Basin, including on-going efforts for site preparation, planting, plant maintenance and in-stream restoration efforts.

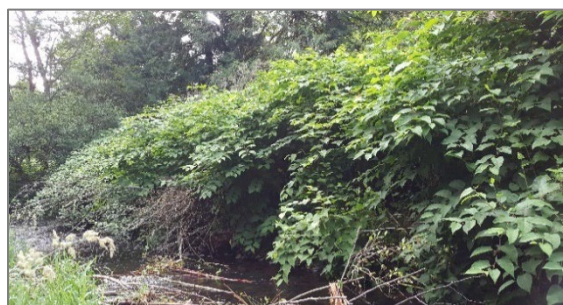
At Richardson Creek Natural Area, invasive weed control and site preparation efforts on a 17.5-acre parcel are in full swing. Robust stands of multiflora rose, hawthorn and other non-native species in a historic nursery area will be converted to native upland and wetland areas. A planting is lined up for the winter of 2022 as part of the plans to restore the property.

At Metro's North Fork Deep Creek South Natural Area, a native planting is planned for the winter of 2023. To prepare, a knotweed cutting treatment was done in 2021. This will help contractors to safely treat knotweed ahead of the native plantings. Other Metro-initiated CRISP activities include:

- 1890 acres across 15 sites under management
- 34 EDRR & high priority invasive species treated
- 24,730 native trees/shrubs & 150lbs of native seed planted at 4 of 15 Clackamas River sites.
- Invasive control, site prep, planting & plant maintenance utilizing 9 contract firms, with receipts totaling \$440,500 and \$30,000 in Metro CRISP cash match annually



Left – Robust population of Multiflora Rose (*Rosa multiflora*) climbing into trees at Richardson Creek NA. Right - Blessed Milk Thistle (*Silybum marianum*) rosettes found hiding out at Richardson Creek NA.



Knotweed population at North Fork Deep Creek South NA growing vigorously along the main stem of Deep Creek. Restoration contractors cut knotweed stands ahead of treatments to prepare for plantings.

Natural Resources Conservation Service- Clackamas (NRCS)

NRCS provides technical and financial assistance to local landowners through their farm bill funded programs. Within the Clackamas River Basin, weed control efforts are typically undertaken in conjunction with other conservation practices on private lands.

Current technical and financial assistance has focused predominantly on the management of common invasive weeds. The NRCS works very closely with the Clackamas SWCD Conservation Planning Program and often refers landowners to the SWCD for weed control activities. These resources are available on an ongoing basis and, where appropriate, should be considered for CRISP-related implementation.

NRCS spends cost-share funds to treat land using the conservation practices of herbaceous weed control and brush management, including forested and crop lands in both Clackamas and Multnomah Counties. NRCS is also developing a Soil Health in Pasture Livestock System Conservation Implementation Strategy (CIS) so they can target grazing and pasture lands. This would help them target livestock-related resource concerns and water quality, which often include an invasive weed control component.



A Clackamas oak savanna restoration project with a crew working to control herbaceous weeds after planting.

North Clackamas Parks and Recreation District (NCPRD)

North Clackamas Parks and Recreation (NCPRD) is a service district of Clackamas County dedicated to providing exceptional parks and recreation programs, facilities, and services. The District – which serves more than 105,000 residents in a 27-square mile area – includes the city of Milwaukie and a large area of unincorporated Clackamas County. NCPRD serves at the interface between the public and natural areas within urban portions of the Clackamas River Basin. Their properties provide a unique opportunity to promote outreach and education efforts to the public but are also under the greatest threat from the introduction of invasive species through human-induced movement. NCPRD owns and manages approximately 17.5 acres of natural area in the Clackamas watershed spread over four sites. Additionally, NCPRD assists Water Environment Services (WES) in the maintenance of approximately 21 acres on WES-owned property in the watershed.

Thanks to the Retained Receipts Project grant from the Mt Hood National Forest, NCPRD was able to complete work on six sites in 2021. The sites consisted of Rose Creek Trail (Sieben Creek), Rock Creek Confluence (Rock Creek/ Clackamas), WES Verizon Site (Rock Creek), Orchard Summit (tributary of Rock Creek), Forest Creek (Sieben Creek), and Trillium Creek (tributary of Rock Creek) and totaled almost 37 acres. NCPRD and contractors completed initial site prep consisting of weed control and removal in the fall and winter of 2020. Contractors planted 10,670 native plants between the six sites during the early spring of 2021. Circle sprays and additional rounds of weed control were accomplished in May, June, and November of 2021.

NCPRD discovered and treated previously unknown populations of knotweed, false brome, and garlic mustard at the WES Verizon site in addition to the Rock Creek confluence site. The WES Verizon site is located on the main stem of Rock Creek just downstream of Sunnyside Road. NCPRD hopes to continue treating this site on WES's behalf in 2022 and possibly submit it as a CRISP project the following year for both sites on Rock Creek. Overall highlights for NCPRD included:

- Treating 37 acres of weeds over 6 sites
- Planting 10,670 trees and shrubs



*Left: Contractors planted 1060 native plants along the banks of Rock Creek on a 7.5-acre site owned by WES.
Right: Most of these plantings were successful despite the excessive heat.*

Oregon Department of Agriculture (ODA)

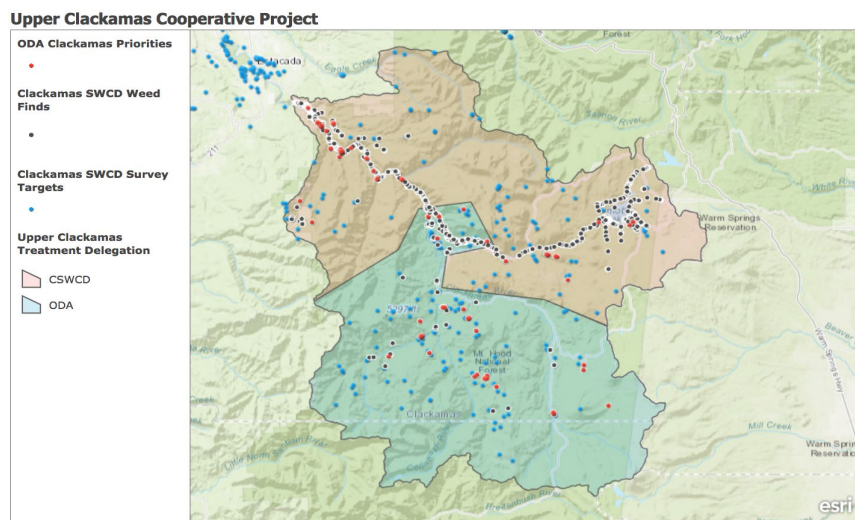
The ODA Noxious Weed Control Program serves a leadership role in managing invasive species at the state level, providing regular guidance related to risk assessment and noxious weed listings to help protect the state from new invasive weeds. In this capacity, they also support an early detection and rapid response effort to contain, control, and eradicate high priority Class A noxious weeds, which can include enforcement of noxious weed laws when applicable. ODA also supports education and outreach efforts associated with noxious weed control through the development of noxious weed brochures, their website, and associated materials.

In addition to their state-level responsibilities, ODA implements weed control within the Clackamas River Basin on behalf of the Mt Hood National Forest. Since 2018, ODA's main focus in the Clackamas Ranger District has been addressing priority weed finds resulting from the intensive survey commissioned by Clackamas SWCD in 2017.

The upper watershed was divided into two sections with ODA staff mainly treating sites in the uppermost section and Clackamas SWCD staff treating slightly lower elevation areas. ODA also monitored and treated previously known sites in the Ranger District as needed, and nearly all these areas have been showing excellent control or were absent of plants. They specifically focused on roadside patches, including the 46 road, 70 road, 4630 road, as well as treating knotweed at the Ripplebrook Job Corps site.

Clackamas Ranger Districts Weed Targets:

- Diffuse Knapweed (*Centaurea diffusa*): B-rated
- False Brome (*Brachypodium sylvaticum*): B-rated
- Japanese Knotweed (*Fallopia japonica*): B-rated
- Spotted Knapweed (*Centaurea stoebe*): B(T)-rated
- Sulfur Cinquefoil (*Potentilla recta*): B-rated



Map showing noxious weed survey locations and results from the Clackamas SWCD 2017 surveys, and the designated priorities for the Oregon Department of Agriculture.

Oregon Parks and Recreation Department (OPRD)

Within the Clackamas River Basin, OPRD has a major focus on the management of invasive weeds at Milo McIver State Park. OPRD has been working for the last several years to map and treat infestations of priority noxious weeds throughout the park system and has developed a management strategy for controlling these invasive weeds. Weeds of greatest focus within the park are garlic mustard (*Alliaria petiolata*), false brome (*Brachypodium sylvaticum*), meadow hawkweed (*Hieracium caespitosum*), and mouseear hawkweed (*Hieracium pilosella*). Milo McIver State Park has been identified as the upstream-most infestation of both garlic mustard and false brome in the Clackamas River Basin, and therefore, control and management of these weeds are of particular importance.

OPRD continues to work with Clackamas SWCD, CRBC, and Integrated Resource Management to manage weeds in addition to weed work that is done by in-house staff. OPRD obtained CRISP funding to support this work, complementing the OPRD funding and staff time dedicated to weed management. OPRD continued efforts in-house and with partners in 2021 to target false brome and garlic mustard within the park, working the outlying patches, trailheads, trails, riparian floodplain, and other vector areas. Milo McIver State Park has only one of five known locations of meadow hawkweed in the Clackamas Basin and its containment remains a very high priority. In 2021 the



Vortex Meadow, which contains meadow hawkweed



Garlic mustard in the pipeline disturbed area

park was able to treat a majority of the worst infestation in the Vortex Meadow with CRISP Funds.

After an early season CRISP-funded treatment for garlic mustard in the pipeline disturbed area at Milo McIver, OPRD transferred weed management and reforestation to the Oregon Department of Fish and Wildlife. ODFW followed up with a fall treatment, signed a contract to replant the area with 10,000 small shrubs and forbs and will continue to manage invasive species at the site for 3 years.

OPRD serves at the interface between the public and natural areas within the Clackamas River Basin. They have a genuine opportunity to promote outreach and education efforts to the public. OPRD staff also keep a lookout for CRISP priority weed species in its Clackamas basin properties.

Portland General Electric (PGE)

PGE's 2021 activities within the Clackamas River Basin included implementation of the Clackamas Hydro Project's Vegetation Management Plan (VMP) in accordance with Federal Energy Regulatory Commission license requirements for the Clackamas Hydro Project. The VMP is required by PGE's Federal Energy Regulatory Commission license and includes three interrelated programs: Vegetation Maintenance Program, Invasive Non-native Plant Species Prevention and Control Program, and a Revegetation Program.

Non-Native Invasive Plant Prevention and Control

PGE staff conducted manual control of small invasive non-native plant infestations and employed a licensed contractor to conduct herbicide treatments of larger infestations at multiple locations in portions of the Clackamas Hydro Project license boundary within the Mt. Hood National Forest (MHNH). Approximately 10 net acres were treated on the MHNH during 2021, focusing on sulfur cinquefoil, meadow knapweed, reed canary grass, and scotch broom. PGE also conducted routine invasive non-native plant control work on 30 net acres at PGE facilities near Estacada, at PGE's River Mill gravel pit, at Estacada Rock Products (both are sources of rock for PGE gravel augmentation projects in the Clackamas Basin), and at restoration sites. Priority species included garlic mustard, herb Robert, shiny geranium, false brome, caper spurge, and meadow knapweed. More common invasive non-native species, including Scotch broom, English ivy, tansy ragwort, Canada thistle, bull thistle, reed canary grass, and Himalayan blackberry were also treated.

PGE Revegetation and Vegetation Management

PGE applied over 50 lbs of native seed on disturbed sites located on the MHNH in 2021. These sites included PGE facilities and recreation sites. Multiple Timothy Lake recreation sites were planted with over 2,500 native trees and shrubs. PGE also installed 100 willow stakes below Timothy Lake Dam along the Oak Grove Fork as mitigation for the Timothy Lake Dam Powerhouse project.

PGE used goats to clear vegetation along a 0.5-mile segment of the Oak Grove Pipeline in July 2021. The 6-mile-long pipeline carries water from Lake Harriet to the Oak Grove Powerhouse. Goats were onsite for four days after spending several days on PGE land near Estacada, where they were fed weed-free hay to reduce the potential of bringing invasive plant seeds into the MHNH. This program might be expanded in the future and timed to also become an invasive plant management strategy.



PGE staff showing the pipeline following goat work (left side).

United States Forest Service- Mt Hood National Forest

The U.S. Forest Service works in cooperation with over 10 partners to carry out a variety of invasive weed management activities on the Mt. Hood National Forest (MHNH). Invasive plant management is a high priority for the MHNH. In 2021, the MHNH spent an estimated \$450,000 on invasive plant management program. These funds were mostly generated from timber sale receipts, with the rest coming from appropriated sources.

Priority weed control activities on the National Forest are carried out in cooperation with the ODA - Noxious Weed Control Program, Portland Water Bureau, PGE, Clackamas County, CRISP, Wasco County, Hood River County, Walama Restoration Project, Oregon Department of Transportation, Sandy Basin Watershed Council, and Bonneville Power Administration. In 2021, these treatments equated to over 1,700 gross acres of noxious weed control forest wide, 700 of which were in the Clackamas River Basin. These acres were treated by CRISP partners (CSWCD, ODA, and PGE) through agreements and retained receipts. Treatments in the Lionshead Fire were through a contract shared by the Willamette National Forest. Funding for EDRR work in three wildfires (Riverside, White River, Lionshead) were provided by the BAER program (approximately \$204,000).

The Riverside fire of 2020 left essentially all of Clackamas River Ranger District closed to the public due to safety concerns as fire recovery work continues. The first year of implementing the Riverside fire EDRR, supported by the Burned Area Emergency Response (BAER) funds, enabled CSWCD to tackle this crucial work. Access into the closed area was difficult, but after passing the hurdles, CSWCD hit the ground running. Using recommendations from the BAER report, specific areas on the District were prioritized for surveys and treatments. A graduate student from Portland State University was also part of CSWCD's team helping to document invasive plants and providing an educational Story Map on the vulnerability to invasion by slender false brome. The work accomplished was a tremendous support to the Forest that will help inform management of the slowly recovering landscape.



Mt Hood National Forest land near the Lazy Bend Campground, burned by the Riverside Fire of 2020

Finally, Mt. Hood participated in the eDNA (Environmental DNA) field study spearheaded by the USGS to test DNA collection methods. The field work involved collecting flowers visited by pollinators, in particular the Western Bumblebee (*Bombus occidentalis*), to detect arthropod DNA. Five samples from Mt. Hood NF were sent to the Pacific Northwest Environmental DNA Laboratory in Boise, Idaho for DNA extraction and preservation. This work will help improve a better understanding of pollinator species distribution throughout its range and could advance the way pollinator surveys are conducted.

Thank You

Reflecting on the many accomplishments of the Clackamas River Invasive Species Partnership, it is clear there has been an immense amount of support to help stop the spread of invasive species within the Clackamas River Basin.

We would like to thank all of the participating organizations for their many contributions. The success of the CRISP reflects the commitment of these participating organizations to the long-term health of the Clackamas River Basin.

We would especially like to thank the staff of our participating organizations who have contributed their passion, expertise, and dedication to this partnership. We would also like to thank our many funders for ensuring the viability of the CRISP and for investing in the future of the Clackamas River Basin. Thank you!

