

# Klamath Watershed Partnership

# 2022 Annual Report

205 Riverside Drive, Suite C, Klamath Falls, Oregon 97601



Coupled with recent drought years, the water issues of the Klamath Basin are becoming more urgent and receiving more attention outside of our local region. With that urgency has come increased federal and state spending in the basin for restoration, drought resiliency, and agricultural modernization projects aimed at improving both water quality and quantity. Much of this funding comes from the bipartisan infrastructure law signed in 2022. Large scale restoration will be required after the removal of four dams on the Klamath River both in the immediate area impacted by dam removal and upstream to improve spawning habitat for the expected return of anadromous fish. The United States Fish and Wildlife Service and Oregon Watershed Enhancement Board continue to be important partners and we can often use funds from one source to match another which expands the impact and efficiency of a single project. With the hard work of staff to secure some of this increased funding comes the addition of two new full-time staff members in 2022 to help meet the increased workload brought on by new projects.

Though riparian and wetland ecosystems often receive the most focus when it comes to watershed health, the forests, grasslands, and high desert found upland of streams greatly influence the overall health of our watershed and the quality of water found in its streams. KWP is involved in projects ranging from riparian plantings and wetland development to noxious weed control and fire recovery efforts just to name a few. We also work closely with local agricultural producers to find projects that can benefit both their land and business operations. Many of our projects strive to improve water quality and water availability in the Klamath Basin. Every downstream user is affected by upstream activities. Individual projects are identified that will benefit the landowner and overall function of the watershed.

**<u>Mission Statement</u>**: To conserve, enhance and restore the natural resources of the Klamath Basin, while ensuring the long-term sustainability of the regional economy and local communities.

To accomplish this mission, we breakdown our activities into four programs:

- 1.) Riparian/Wetland Restoration and Fisheries Conservation
- 2.) Upland Watershed and Forest Health
- 3.) Outreach and Technical Assistance
- 4.) Irrigation Efficiency and Modernization

Previously, we did not include wetland in the descriptor for the first category, but the USFWS has identified restoration/development of wetlands as one of the 3 priority treatments to improve water quality in the Klamath Basin. We have increasingly become more involved in wetland restoration and anticipate this trend continuing. Many projects don't fit neatly into just one category since many properties have multiple types of habitats and needs to address. Often, well designed projects will address multiple needs and have multiple benefits across the landscape and this holistic minded approach is a goal for KWP when planning and implementing projects. Water, wildlife, and fire don't recognize land boundaries and the more different

stakeholders that can work together on a larger scale, the greater the impact of these individual efforts will be.

## <u>Partners</u>

KWP works with a wide range of partners, including but not limited to:

Oregon Watershed Enhancement Board (OWEB), US Fish and Wildlife Service (USFWS), Natural Resources Conservation Service (NRCS), Klamath Soil and Water Conservation District (KSWCD), Oregon Department of Agriculture (ODA), The Klamath Tribes, US Forest Service (USFS), Trout Unlimited (TU), Sustainable Northwest, Oregon Department of Environmental Quality (ODEQ), The Nature Conservancy (TNC), Oregon Institute of Technology (OIT), OSU Extension, Bureau of Land Management (BLM), Oregon Department of Forestry (ODF), Oregon Department of Fish and Wildlife (ODFW), Bureau of Reclamation (BOR) Green Diamond Resource Company, Klamath County Public Works Weed Control, and many private farms and ranches throughout the county that make this work possible.

**Local Business Support** KWP strives to patronize local businesses and contractors to complete projects when possible. KWP projects not only benefit the functioning of the watershed and landowners, but bring in money to be spent in the local economy. In 2022 projects we administered spent approximately \$514,703 at local businesses and on contractors in Klamath County, \$319,273 outside of the county but regionally in Northern California and Southern/Central Oregon, and \$126,783 outside of the region. 2022 projects also led to approximately \$126,466.05 spent on government agencies located in Klamath County helping support more local jobs. Approximately \$15,277 was spent on local non-government organizations and at The Klamath Tribes Sprague River Water Quality Lab. We are proud of the multiple benefits these projects provide.

# **Riparian Restoration/Fisheries Conservation**

KWP staff completed several riparian and wetland restoration projects in 2022. We coordinated wetlands development, water quality improvements, in-stream habitat, as well as improvements to cattle management and farming operations that benefit riparian zones, improve productivity, and reduce grazing pressure while keeping ranch operations viable in the process.

In 2022, KWP continued working with a group of conservation organizations to address largescale planning in the Upper Klamath Basin. This partnership of Klamath Basin entities is known as the Upper Klamath Basin Watershed Action Plan Team (UKBWAP Team). The team includes The Nature Conservancy (TNC), Trout Unlimited (TU), Klamath Watershed Partnership (KWP), The Klamath Tribes (TKT), Oregon Department of Environmental Quality (ODEQ), the US Fish and Wildlife Service Partners for Fish and Wildlife Program (USFWS), and the North Coast Regional Water Quality Control Board (Regional Water Board) in California. The UKBWAP Team, logos pictured below, is committed to supporting voluntary restoration actions on private lands, while assisting farmers and ranchers who must contend with concerns of water quality and water availability.



In 2022 KWP signed an agreement with USFWS to continue Phase II of the Biochar Filtration project. Work on this will continue for the next several years with the intent of improving our understanding of using biochar to filter pumped water, biochar applications for irrigation ditches, farm total maximum daily load (TMDL) applications, and the utilization of spent biochar as a potential soil amendment. Pictured below is the treatment on a partner's farm.



The Pollinator Program funded by USFWS was designed to identify areas of marginal farmland, unused space, or eroded ground that could be converted to a conservation purpose. By supporting the development of habitat through ground preparation, weed control, and introducing native species of plants beneficial to Western Monarch Butterflies, native bees and other natural pollinator species we improve the site conditions for the landowners and the natural environment. Additional support for this project was provided by Western Native Plants Nursery, Kestrel Country LLC, OWEB small grant program, and several dedicated landowners. Work crews and plants are pictured below.



Three wells were installed in 2022 utilizing the drought relief funding provided by USFWS. The Oregon Watershed Enhancement Board provided additional drought relief funding in 2022 and KWP successfully applied for this funding to install an additional 12 wells including some fencing along riparian areas where the wells will be installed. A limited number of well drillers in the region will make this a challenge in the short run, but we continue pushing to improve this opportunity for landowner financial security and healthy waterways of Klamath County.



KWP has worked with multiple partners to eradicate or limit the distribution of noxious weeds in Klamath and Lake Counties including ODA, OWEB, USFS, USFWS, Green Diamond Resource Company, Wilson Herbicide, and Klamath County Public Works. Noxious weeds take advantage of soil disturbances or other ecological conditions and can outcompete beneficial native plants. They often form monocultures that affect the ecological health and/or economic viability of the land they occupy. After the Bootleg Fire, noxious weed infestation was a major concern and KWP worked to identify priority treatment areas along roads, equipment staging areas, and fire suppression lines on Green Diamond property where transmission of seed to new areas is most likely to occur. Pictured below is a site before (left) and after (right) an herbicide treatment.



If noxious weeds are already widespread, the focus is often on lessening their presence and spread at a specific site. If a new noxious weed is found in an area, eradication can be the goal. Yellow flag Iris has recently found its way into the Klamath Basin from the south. KWP partnered with the ODA, OWEB, USFWS, Klamath County, and private landowners to survey and treat Yellow Flag Iris around Upper Klamath Lake with the hopes of stopping its spread northward. Shown below are a before (left) and after (right) photo of a treatment at a location just north of town on the shoreline of a privately owned pond near Upper Klamath Lake.



Cattle need to drink water and allowing them access to a stream seems like an easy solution. However, this can lead to water quality and riparian function problems for streams including sedimentation, erosion of streambanks, and overgrazing of riparian vegetation. Problems for the livestock owner can include lost pasture to erosion and injury to animals walking down steep banks. One solution is to fence the riparian area and provide a watering source away from the stream which KWP has done on several projects. Where it is imperative for cattle to cross a stream for additional pasture access, a crossing can be built that will minimize the impacts. Pictured below is a cattle crossing installed on the Sprague River before it is filled in with gravel. Future restoration activities will take place on this property where Whiskey Creek joins the Sprague River including riparian plantings, fencing, beaver dam analogues, and other low-tech process based restoration techniques.



One of the more unique projects KWP is involved with is the transplanting of Wocus plants from Agency Lake to Lakeside Farms. Wocus plants were once abundant in the wetland fringes of Upper Klamath Lake, but after alterations to the watershed have drastically declined in number. They provide valuable habitat to native fish, birds, and can filter and sequester nutrients that lead to toxic algae blooms. Wocus were also an important food source for The Klamath Tribes. Using techniques developed by The Nature Conservancy, KWP began transplanting these large water lilies in 2022 and will continue at new location(s) in 2023. Pictured below is a large root wad, or rhizome, of a Wocus plant (left) and successful regrowth in the fall after a spring transplanting (right).



Other work continued in 2022 at Lakeside Farms. Previous work involved the creation of wetlands to reduce total maximum daily loads (TMDL) into Upper Klamath Lake, provide habitat for waterfowl and other species, while ensuring the continued farm operations on the property. Water flowed into the new wetland for the first time in fall of 2021 and it has been hosting birds during fall and spring migrations. In spring of 2022 approximately 5,000 juvenile, endangered Lost River and shortnose suckers from the USFWS hatchery program were stocked in an existing wetland pond that was deepened to support young suckers. They will spend a few years in the rearing pond before being released into Upper Klamath Lake as adults. A channel, pictured below, was created between the rearing pond and a smaller spring-fed pond with the hope that the flowing water will encourage adult suckers to spawn.



As part of the USFWS Bipartisan Infrastructure funding, KWP was awarded a grant to develop a Fringe Wetland Master Plan for the Keno Reach of the Klamath River. This includes work with the irrigation districts, regional landowners, and some restoration work at the Tule Smoke Club. Resource Environmental Solutions will be the primary partner developing this plan, which should involve ongoing work for the next 5 years. Pictured below is the river reach where survey work will take place with Tule Smoke Club property outlined in red.



# Upland Watershed and Forest Health

KWP project manager Leigh Ann Vradenburg has been a driver for the Klamath-Lake Forest Health Partnership whose mission is to facilitate restoration projects on public and private forestland in Klamath and Lake Counties through education, outreach, and diverse partnerships. The partnership connects landowners with resource managers to help them navigate partnering with government agencies for projects that work for them. This happens in conjunction with simultaneous forest management efforts by government agencies. For example, both private landowners and the government may conduct understory thinning that will prepare the land for a prescribed burn that can then occur across land boundaries to achieve greater resistance and resiliency to wildfire at a landscape scale. As a result of this work, local jobs are supported and project's woody byproducts support regional mills and manufacturing. Pictured below is understory before (left) and after (right) brush removal by the Oregon Department of Forestry.



OWEB has funded the Southeastern Cascades Forest and Fire Project (SCFFP) encompassing nearly 197,000 acres in western Klamath County. This project area has been identified by the Klamath-Lake Forest Health Partnership (KLFHP) as the next priority landscape for crossboundary work based on opportunities for collaboration with planned and existing projects on federal land. Wildfire does not recognize property boundaries, but there is currently no comprehensive inventory of forest resources for private land in the project area to promote or facilitate management in step with federal efforts. This project will conduct the necessary outreach and education of landowners across 21,000 acres of non-industrial private land to encourage forest stewardship and engagement in the larger effort. Remote sensing, combined with ground verification and data collection, will be conducted to provide the necessary resolution to understand the scope and scale of forest restoration needs on non-industrial private land. 2022 saw most of this initial survey work completed which will then setup landowners for future forest management plan development and project funding. The map below depicts land ownership within the project boundary and also shows part of the land of the previous and similar Chiloquin Community Forest and Fire Landscape Project.



A relatively recent upland issue in Eastern Oregon is the encroachment of Juniper trees into shrubland and grassland ecosystems. Why is this a problem - Junipers are thirsty trees. In some areas, one juniper can suck between 10 to 100 gallons of water per day from the soil. Additionally, juniper can intercept nearly a third of precipitation, which keeps much-needed rainfall from entering the soil profile. That leaves less water to feed shallow aquifers, recharge groundwater springs and support forage growth for agriculture and wildlife. In particular, this change in habitat composition is harmful to mule deer as they depend on grasses in the spring and shrubs in the fall for forage and the Juniper trees don't provide this necessary food source mule deer depend on. Two projects on the North Fork of the Sprague River have received funding from the USFWS and OWEB to complete a ridgetop to ridgetop restoration including upland, riparian, and stream health considerations. Juniper removal on the properties is just one facet of this holistic approach for landowners dedicated to the long-term restoration of their property. The left picture below is a property where Juniper removal previously occurred and the picture on the right depicts Juniper crowding and encroachment at the property referenced above that had planning take place in 2022 with removal of these Junipers scheduled for 2023.



Out of necessity, restoration after forest fires has been a focus of KWP's upland watershed and forest health in recent years. KWP received USFWS and OWEB funding to assist landowners in recovery efforts after the 242 and Bootleg fires. Initial efforts were focused on rebuilding lost critical infrastructure, such as fences that excluded cattle from riparian areas and streams. In 2022 KWP rebuilt over 4 miles of riparian fencing in the Bootleg Fire footprint on 3 different properties. Although site preparation and reforestation has been delayed due to the lack of site appropriate seedlings, KWP is making progress in the 242 Fire footprint and has five landowners lined out for planting in early 2023 with nearly 150,000 seedlings. Pictured below is a rebuilt cattle exclusion fence.



The Bootleg fire burned mostly on federal and Green Diamond Resource Company land though many private landowners were also affected. After the fire KWP partnered with GDRC on immediate efforts that focused on erosion, weed control, riparian restoration, and bull trout critical habitat concerns. Since October 2021 KWP has been working with the Oregon Department of Forestry and the Oregon Department of Fish and Wildlife to hand fall large wood into fire-impacted streams. To date KWP has covered more than 8 miles of streams, falling hundreds of trees per mile in and around the streams and tributaries/drainages. Although each stream and consequently each approach is different, general objectives related to post-fire needs include energy dissipation, sediment deposition, and instream habitat, shade, and complexity. Given the heavy grazing pressure in these open range areas, we are also strategically felling trees to partially exclude cattle from the channel and sensitive areas, like seeps and springs, and to encourage microsites for vegetation regrowth. Associated benefits of slowing water, promoting hyporheic exchange, and attenuating the hydrograph, are also critical in these dry systems. Partners have noted healthy macroinvertebrate assemblages in treated areas, as well as utilization by bull trout and other fish. Pictured below is Project Manager Leigh Ann Vradenburg observing movement of felled trees with debris and sediment capture following a flash flood event in Brownsworth Creek.



As you can see KWP strives to be proactive in addressing forest health to increase resistance and resiliency to wildfires for both small landowners and on a regional, landscape scale. In addition to this preventative work, we are proud to be available to provide technical assistance or facilitate restoration projects for small landowners and large ones like GDRC.

### **Outreach and Technical Assistance**

Some of KWP's outreach work consists of consulting with individual landowners to identify restoration opportunities that can also benefit the operations of the landowner. By developing an understanding of the goals of the landowner and working with partners, we can find common ground that achieves positive results for both. In addition to this individual outreach, KWP worked with local partners to conduct several outreach events designed to assist with economic opportunities under persistent drought conditions. Throughout the year, KWP participated in several outreach events facilitated by Sustainable Northwest informing the community on our programs or programs that could support their on-farm improvements. Shown below is an advertisement and photo of an outreach event.

# **Drought-Resilient Management**

#### **OPEN HOUSE SEMINAR**

Please join us to learn more about economic opportunities related to conservation and restoration program participation, and drought-resiliency management.

We'd also like to hear from you! Please come to share your feedback on how these organizations can best serve Klamath landowners.

#### **TUESDAY, MARCH 29th**

10AM | BLY COMMUNITY CENTER - 19140 Edler St, Bly, OR 976222PM | LANGELL VALLEY COMMUNITY CENTER - 9787 East Langell Valley Rd, Bonanza, OR 97623

#### WEDNESDAY, MARCH 30th

9AM | CHILOQUIN COMMUNITY CENTER - 140 S 1st Ave, Chiloquin, OR 97624

#### THURSDAY, MARCH 31st

2PM | OSU KBREC - 6923 Washburn Way, Klamath Falls, OR 97603



KWP also supports landowners with multiple weed eradication grants from the United States Forest Service/United States Department of Agriculture. KWP educates landowners on why noxious weeds are harmful to their land, their neighbors lands, and downstream properties. KWP advises on management strategies and partners with Klamath County Public Works to conduct treatments. Pictured below is a contractor working in a very thick stand of thistle.



# Irrigation Efficiency and Modernization Program

As part of the USDA –REDA program, 2 energy audits were completed to assist farms with their energy efficiency. These audits provide information for landowners to reduce their pumping costs and reduce the amount of water needed to irrigate their crops while still remaining productive. Audits are still available to farms and ranches in need of this service through OIT, with support of KWP, SNW, and other partners.

When people think irrigation modernization they usually think of pivot and sprinkler system advancements. However, the traditional technique of flood irrigation can use modern technology to be more efficient through laser leveling of fields. This practice uses precise survey technology to create a gentle even slope across a field and reduce the amount of water needed to flood by 33% or more. KWP is collaborating with the USFWS Partners Program to level several agricultural fields within Klamath Drainage District (KDD) to increase waterfowl habitat and increase irrigation efficiency. Pictured below is work in progress on a 196-acre field within the KDD.



## **Summary Balance Sheet as of December 31, 2022**

Klamath Watershed Partnership currently administers approximately \$4.5 million in grant funding.

### ASSETS

Current Assets		
Checking/Savin	gs \$ 142,290	.41
Accounts Recei	vable \$ 10,961	.09
Other Current A	ssets \$ 2,026	.33
Total Current Assets	<u>\$ 155,277</u>	<u>.83</u>
Fixed Assets	\$ 28,849	.87
TOTAL ASSETS	<u>\$ 164,582</u>	.79

## LIABILITIES & EQUITY

### Liabilities

Current Liabilities		
Accounts Payable	\$15,838.64	
Payroll Liabilities	\$ 33,778.33	
Total Current Liabilities	<u>\$ 49,616.97</u>	
Total Liabilities	<u>\$ 49,616.97</u>	
Equity	<u>\$114,965.82</u>	
TOTAL LIABILITIES &		
EQUITY	<u>\$164,582.79</u>	