Fieldbook

COLUMBIA LAND TRUST

FALL 2025

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Conserving and caring for the vital lands, waters, and wildlife of the Columbia River region through sound science and strong relationships.

Water Moves Earth

PG. 4

Cover photo: A wetland in the Grays River watershed.

Inside cover: Oak habitats support more than 200 species of wildlife, making them a high conservation priority. Photo by Ian Shive.

Columbia Land Trust has earned accreditation from the Land Trust Alliance, which recognizes land trusts that adhere to national standards for excellence, uphold the public trust with rigorous ethical standards, and take steps to ensure that conservation efforts are permanent.

Wetland Appreciation

Land Steward Helen Gavrilov stands amidst native grasses, rushes, and sedges at Nelson Creek Swamp.

Wetlands are teeming with life, even more than we think. In my role as a Land Steward, I spend much of my summers squelching through muck while carrying a load of monitoring equipment to reach our designated monitoring plots in the Grays River watershed. (You can read all about this work on page 4). Navigating a wetland can be arduous and frustrating, as we are typically making our way through dense vegetation like cattails, wapato, and willows. These plants are often so tall that you can't see straight ahead and so dense that you can't see where you are stepping! One does not simply "walk" through a wetland—but rather sloshes, bushwhacks, wades, and sometimes even crawls. But it is such a treat to stumble upon an old marsh wren nest, a fresh beaver chew, or a bumble bee visiting a wapato flower. It's even more exciting to catch a glimpse of elusive wildlife, like a Virginia rail flying, a mink scampering along a bank, or a salmon making its way upriver.

It is inspiring to see thriving wetlands where a few years ago there was a monoculture of invasive reed canarygrass, like at Kandoll in the lower Grays River watershed. This wetland, which the Land Trust reconnected and restored, is now full of life. Restoration work is never really complete, but seeing positive results so soon after initial phases of restoration gives me hope for the future. From young salmonids and adult fish, to mink, river otters, elk, deer, coyotes, and even bears, the diversity of wildlife that live in these places makes me so happy! And none of this would have been possible without your support.

Another favorite wetland of mine is a Land Trust site in the Washougal River watershed. There is a spectacular series of beaver dams that have been here for decades and together create a large pool complex. This rich habitat is utilized year-round by wildlife including wood ducks, Canada geese, great blue herons, mallards, songbirds, river otters, cougars, coyotes, bears, deer, elk, dragonflies, and rough-skinned newts. The dams serve as water crossings for land mammals, while other animals use the area to rest, forage, and play.

They're not the most photogenic landscapes, nor the most accessible, but wetlands like these play an important role in supporting wildlife and people alike. Spending summers monitoring and stewarding our tidal wetlands reminds me why we do what we do. Your support in protecting these vital ecosystems is crucial for the future of the Northwest. These victories that we achieve together give me peace, inspiration, and motivation to keep going.

– **Helen Gavrilov,** *Land Steward*

Columbia Land Trust

columbialandtrust.org
connect@columbialandtrust.org

@ColumbiaLandTrust
Columbia Land Trust
columbia-land-trust

Main Office
850 Officers Row
Vancouver, WA 98661
(360) 696-0131

Astoria
1 12th St.
Room #203
Astoria, OR 97103

White Salmon
105 East Jewett Blvd.
White Salmon, WA
98672

Executive Director
Meg Rutledge, PhD

Water Moves Earth

MONITORING SEDIMENT ACCUMULATION IN THE GRAYS RIVER WATERSHED

Sediment plays a powerful role in shaping river systems and the surrounding landscapes. While you may primarily think of rivers as moving water, that water also transports large amounts of sediment downstream, where it is eventually deposited along the water's path. Modern land management practices like dam construction and industrial timber harvest have modified this sediment transport system, causing sediment to pile up in some places and vanish from others. As Columbia Land Trust works to restore river and wetland systems, sediment accretion (or lack thereof) is one of the many environmental factors we monitor, evaluate, and plan for.

According to the USGS Pacific Coastal and Marine Science Center*: "At their most basic, rivers are conduits of water, transporting it from high to low ground. Suspended in this water is sediment—in many cases, a lot of it. Around the world, rivers flowing to the ocean deliver hundreds of billions of tons of sediment each year to coastal areas...Along much of the West Coast, a legacy of clear-cutting, diking and dam-building has left lasting marks on the landscape. All affect the sediment amounts in different ways. Dams hold back not only water but the sediment within it, cutting off the supply to lower reaches of the river. Dikes and channels at the river mouth, built to keep tidewater out of agricultural land, focus the river's flow into the ocean. This translates to less sediment accumulating alongshore, hastening erosion. Clear-cutting strips the land of its soil-retaining plant cover and sends a glut of sediment down waterways and into the ocean." There is variety within the category of "sediment". The term encompasses particles that are too small to see, as well as larger rocks and boulders. Different sizes of sediment serve specific functions for wildlife, a prominent example being the small gravel and cobble that spawning salmon require to lay eggs.

Sediment is transported downstream in three main ways (from largest to smallest particle size); as bedload (coarser material that rolls, slides, or bounces along the riverbed), suspended load (particles carried swiftly in moving water), and dissolved load (ions carried in solution). Peak flow events like those after heavy rainfall accelerate this movement of sediment.

The Columbia River Context

"The Columbia is the fourth largest river system in North America, and has an extensive system of hydroelectric dams," explains Land Trust Monitoring Scientist Amy Borde. The river is tidally influenced up to the Bonneville Dam (about 144 river miles from the Pacific Ocean) and this section is broadly referred to as the "estuary", where the river meets the sea.

The Columbia River Estuary has seen the loss of 68% of its tidal wetlands since the late 1800's—decreasing from more than 70,000 acres to about 23,000 today. The estuary is critical habitat for an abundance of wildlife, including juvenile salmon that feed and rest in this area on their journey to the ocean. In addition to providing wildlife habitat, estuary wetlands serve other functions including water quality improvement and floodwater storage. For these reasons, tidal reconnection and wetland restoration is a focus of the Land Trust's work near the coast.

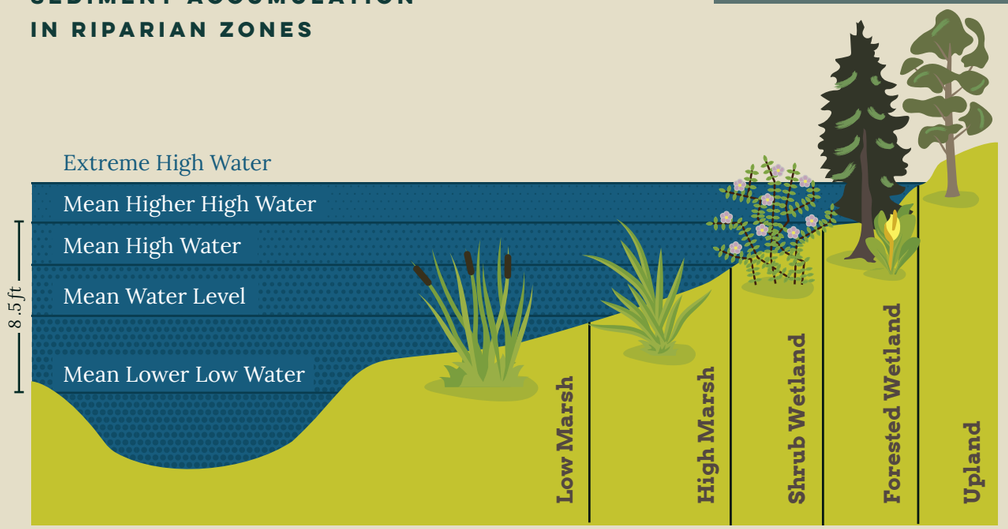
Another consequence of wetland loss is the impact on flooding. Ironically, as floodplains are diked to protect areas from flooding, the sediment and water that would have ended up in the floodplain is shunted elsewhere, causing sediment accumulation in river channels and embayments which can result in more frequent flooding of riverine areas. Tidal wetland restoration is a way that we can return lost floodplain functionality. "Sedimentation is a natural process that maintains wetland structure and function and is an indicator of wetland restoration success," said Borde.

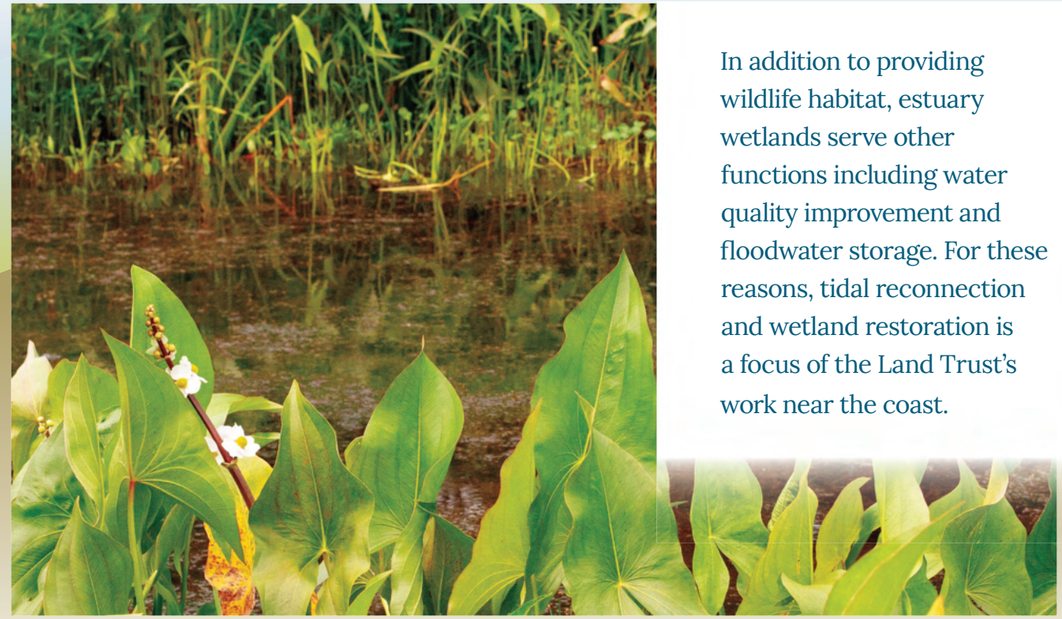
Within the estuary, Washington's Grays River watershed is a unique landscape where residents, many with deep ties to the land, face challenges related to sediment and water. The Grays River begins in steep coastal mountains where much of the forest is managed for industrial timber. Downriver, the floodplain has an extensive history of diking to create farmland. Erosion upstream, diking downstream, tidal influence from the Pacific Ocean, heavy rain, and the fact that the lower part of the Grays River also sits within the larger Columbia River floodplain, all combine to create complex conditions and flooding concerns, especially when high-water events like high tide and heavy rainyfall happen simultaneously.

Columbia Land Trust has been working in this area for more than two decades and manages about 2,900 acres across the upper and lower Grays watershed. In 2005, the Land Trust began conducting sediment specific

Accretion:
the process of growth or increase, typically by the gradual accumulation of additional layers or matter.

SEDIMENT ACCUMULATION IN RIPARIAN ZONES





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monitoring across restored wetlands we care for in the Columbia River Estuary (in addition to our ongoing long-term site monitoring).

Sediment accretion is a natural process, allowing the succession of wetland communities over time. As marshes accrete sediment and gain elevation they eventually transition into shrub wetlands or forested swamp with different plant communities. The goal of monitoring this process is to track how these restored wetlands collect and retain sediment loads. Our team installed 46 sediment accretion stakes at nine sites over 20 years. Measurements were taken annually for the first five years then every three to five years thereafter.

When the Land Trust embarks on a restoration project we do so with goals in mind for the landscape; a vision of the plant communities that will exist and how the ecosystem will function. Our monitoring efforts help us work towards these goals by better understanding sediment dynamics within a site and within the greater estuarine ecosystem, in order to predict restoration trajectories and potential vulnerability to future changes in hydrology. In general, these restored ecosystems accrete at rates that result in functional wetland ecosystems.

Our findings confirmed that accretion decreases as elevation increases (i.e. fine sand and silt collect at a higher rate in low-lying wetland areas). Higher elevation areas accrete more slowly. The results at one site in particular were astounding. Kandoll is a 170-acre property in the Grays River estuary that the Land Trust restored in 2013. Over 11 years of monitoring we measured eight inches of sediment accretion, which equates to about 0.7 inches of sediment increase per year. Extrapolated across the site, that adds up to about 940 dump trucks full of sediment annually!

Other research** corroborates this finding that re-connected and restored sites have higher accretion rates than reference wetlands for about 40 years , until they eventually reach elevations like those that existed prior to diking.

"This sedimentation data helps us to understand restored ecosystem processes but also provides critical data for modeling by our collaborators, which sheds light on existing flood dynamics and future flood risk," said Borde.

Monitoring efforts like these are essential to Columbia Land Trust's adaptive management approach. Long-term data informs our restoration plans and by tracking a broad range of ecosystem indicators across floodplains, forests, and prairies, we can adapt our strategies as conditions evolve. Along the way, we experiment with different methods to guide these landscapes in a positive direction. At times, the results humble us—prompting adjustments, continued testing, and further monitoring. The more we learn, the better we can care for these lands so they can thrive for the benefit of people, plants, and wildlife.

* www.usgs.gov/centers/pcmsc/news/role-sediment-coastal-resiliency
** Western Washington University (Poppe and Rybczyk 2021) https://doi.org/10.1371/journal.pone.0257244 and OSU and WWU not-yet published study of older restoration sites (https://www.youtube.com/watch?v=LWub0Ki-chA)

Wapato reflects on a wetland waterway.

Champions of Conservation

MONTHLY GIVING SPOTLIGHT

Our Evergreen Circle is a community of generous donors that support Columbia Land Trust with monthly gifts. Recurring donations are a powerful tool that provide reliable funding and enable the Land Trust to achieve our conservation goals. We are honored to share the stories of two remarkable donors and we encourage you to become an Evergreen Circle member at any monthly giving level.

Pam Garlett

"I've always been happiest in natural places: on land and in the water in the Great Lakes area where I was raised. It is my peaceful place, my recharging station. Cherishing the time I spent outdoors, while seeing landscapes being irrevocably marred, led me to seek out ways to protect these natural places now and going forward.

I became a monthly donor to Columbia Land Trust not only because their values align with mine, but because there is tangible, ongoing proof of the benefits of their restoration and stewardship work for lands, waters, and living organisms. The partnerships they have with First Nations and other groups and individuals ensure that our collective investments in conservation are successful.

My monthly donation provides Columbia Land Trust with a stable stream of funding. It's impossible to do this work alone, and I am grateful to be able to support the Land Trust. It has never been more important to do so."

Jane Van Dyke

"I have enjoyed outdoor activities and learning about the environment since my youth. In 1990, my husband and I were inspired by a newspaper article to attend a meeting about voluntary land conservation in Clark County. I was excited about this way of conserving nature, and we both became founding board members of Columbia Land Trust!

Through early discussions, we focused on voluntary land conservation, permanent protection, and stewardship. The mission was to conserve vital habitats, working forests and farms, and nature close to home. At one meeting we all brought checks and put them on the table—our first fundraising effort.

Over the years, I have continued donating to Columbia Land Trust. I especially appreciate the ease of the monthly Evergreen Circle donation program—no need to remember anything, your donation is processed automatically. Even though an individual monthly donation may be modest, they add up over time."

Today, Columbia Land Trust is flourishing thanks to the staff, volunteers, and donors that make it all possible. There have been changes since those early days, but the Land Trust is still making the world a better place.

Join the Evergreen Circle!

Monthly giving is easy! Set it up once and your donation processes automatically each month, on a day of your choosing. Email us at connect@columbialandtrust.org for assistance.

COLUMBIALANDTRUST.ORG/DONATE

IDENTIFY

America's largest swallow

Western Purple Martins

SPECIES SPOTLIGHT

(*Progne subis arboricola*)

This summer, the Land Trust stewardship team, led by Monitoring Scientist Cindy McCormack, completed their annual Purple Martin nestling count at Indian Jack Slough, a wetland site along the Elochoman River where we are actively doing restoration work.

We collected data from 23 occupied gourds, which is about a 70% occupancy rate!

- **12 gourds with cold eggs** (cold eggs indicate that the female is still likely laying more eggs)
- **3 gourds with warm eggs** (indicates laying is complete and incubation has started)
- **8 gourds with nestlings**
- There were **36 total nestlings,** and the oldest nestling at the time of our visit we estimated to be about 11 days old.

"Not all Purple Martins are purple—just the adult males," noted McCormack. "They are beautiful birds. Their vocalizations are a rich mix of chortles, gurgles, and whistles. You can't help but smile when you hear them."

Each year, we install Purple Martin nesting gourds in April or early May, when the migratory birds return from South America. There are two towers with 33 total gourds, which are made of a thick white plastic to reflect sunlight and prevent overheating in summer. These human-constructed gourds provide nesting sites in places where large, natural tree cavities are scarce. Purple Martins are secondary cavity nesters, meaning they use cavities excavated by other species, usually woodpeckers. They prefer to nest in riparian, coastal, or burned areas with open space nearby and plenty of flying insects like dragonflies, wasps, beetles, flying ants, and butterflies, for them to feed on.

Purple Martins fill the bottom of the nesting cavity with grasses, straw, and small twigs and build a mud dam between the entry and the nest bowl. In the final stages of nest building, they will line the bowl with fresh cut leaves. Females lay one egg a day, and once incubation starts it takes a little over two weeks for them to hatch.

"The use of these gourds underscores the importance of the work we are doing to enhance and expand habitat at Indian Jack Slough," said Natural Area Manager Katie Pierson. "A few weeks after checking nest boxes, I saw a pair of Purple Martins investigating a natural snag near a large pond we created in a different area of the site. It is exhilarating to see new and old habitat components being used by wildlife."

This work was performed under a permit from the Washington Department of Fish and Wildlife as part of an effort to gather population information and evaluate the priority status of Western Purple Martins.

Top: Adult male (left) and female purple martins. Left: Purple martins atop a tower of nesting gourds. Inset: A newborn, just a few days old.

COLLABORATIVE LAND CARE

Reflecting on the First Year of Our Formal Partnership with Chinook Indian Nation

In November of 2024, Columbia Land Trust signed a historic Memorandum of Understanding (MOU) with the Chinook Indian Nation (CIN), formalizing and honoring our shared commitment to caring for the ancestral lands of the Chinook people. Nearly a year after its signing, the MOU has proven to be a platform for the continued building of a meaningful and impactful partnership and for advancing conservation.

As the Land Trust and CIN pursue projects together, we are dedicated to exploring funding and opportunities that uplift our shared priorities of culturally and ecologically empowering stewardship. This includes pursuing grant funding from a variety of private and public funders. We are grateful for Kalliopeia Foundation's generous support of this work, as well as the support of Oregon Lands and People Fund at the Oregon Community Foundation*.

Together, CIN and the Land Trust are also excited to be co-hosting a two-year Washington Sea Grant Coastal Resilience Fellow, who began work this September and will be part of the team through 2027. This is a fully supported position through the Sea Grant program and offers a unique opportunity for an early career professional to contribute to meaningful projects and gain access to educational and career building resources. The fellow will be focused on increasing capacity for the partnership to execute land back opportunities, expanding land and water co-management strategies, and developing internal monitoring tools and methods.

Land Trust and Tribal staff and leadership have enjoyed opportunities to be on the land and water together. Recently CIN's Lands staff and a Land Trust crew worked together along the culturally important Grays River corridor in Wahkiakum County, Washington. Before being conserved by the Land Trust, this site was managed as industrial timberland, and is now part of an ongoing restoration project. The Land Trust thinned Douglas-fir, hemlock, and alder trees from a 30-acre section of the site to expedite forest structure diversity and habitat improvements for wildlife. The leftover wood from the thinning, deemed "pulp wood" which is not commercially viable, was left for collection by the Tribe to use for cooking fish (alder) and firewood. A group of staff from CIN and Land Trust loaded two trailers full of wood and delivered them to the CIN Tribal Headquarters in Bay Center where tribal members can access it throughout the year. Smiles and the sound of chainsaws were a wonderful reminder of the powerful impact of this partnership.

** The Oregon Lands and People Project is a collaboration of the Land Trust Alliance, Coalition of Oregon Land Trusts, and Oregon Community Foundation.*

Staff from Chinook Indian Nation and Columbia Land Trust harvest wood together.

Advancing Oregon Conservation

Partnership Secures Funding To Safeguard Drinking Water, Recreation Access, and Wildlife Habitat

Northern Oregon, just east of the Cascade mountains, is home to a famously beautiful landscape, with views of Mt. Hood, Mt. Adams and the Columbia River Gorge, and habitat-rich terrain that shifts dramatically from towering forests to sunny wildflower meadows.

This region supports abundant wildlife and is home to vibrant communities that rely on these forests and open spaces for water quality, recreational access, and jobs. The challenge, and the opportunity, lies in protecting the long-term viability and connectivity of these landscapes, enabling them to continue to thrive and benefit both people and nature.

A recent award from the U.S. Forest Service brings that sustainable future one step closer. Columbia Land Trust partnered with The Conservation Fund and Oregon Department of Forestry to secure $9,315,000 in funding from the U.S. Forest Service Forest Legacy Program to facilitate the conservation of more than 14,000 acres of forestland. The lands that will be conserved include productive conifer forests as well as oak woodlands that provide habitat for hundreds of wildlife species. The project delivers a range of lasting benefits: protection of drinking water for the City of The Dalles, permanent public access for recreation across, and direct support for the region's forestry-based economy.

"Located just east of the Cascade crest, this area is an important transitional habitat zone," said Columbia Land Trust Conservation Director Nate Ulrich. "The topographic diversity in this area facilitates incredible ecological diversity. Modeling by The Nature Conservancy shows it is well above average for climate resilience and wildlife habitat connectivity. This Forest Legacy funding is critical to conserving the multiple benefits this landscape provides both now and into the future."

The award is the latest milestone in an ongoing conservation partnership between Columbia Land Trust, Twin Creeks Timber/Green Diamond Resource Company, and The Conservation Fund to conserve important forestland north and south of the Columbia River in Washington and Oregon.

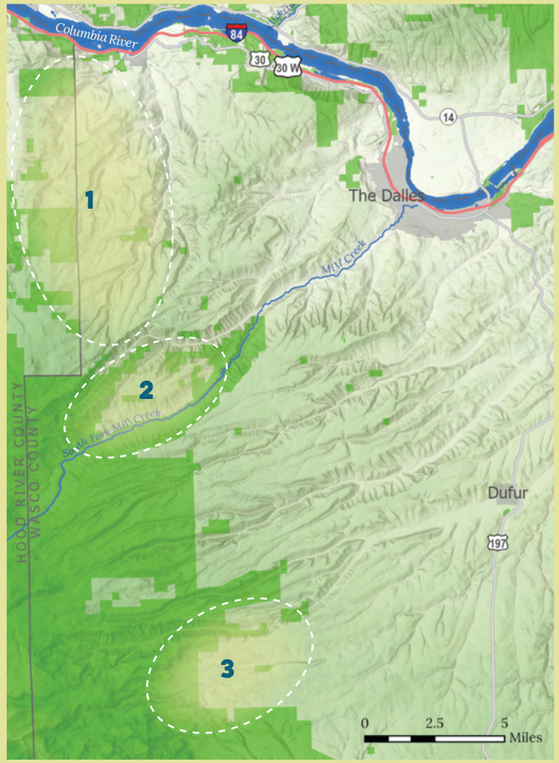
"This commitment from the federal Forest Legacy Program, made possible with the support of Senators Wyden and Merkley, represents a key step in a collaborative effort to conserve iconic forested landscapes across the Columbia River Gorge," said Kaola Swanson, Columbia Gorge program manager at The Conservation Fund. "It accelerates our momentum toward a multiyear goal of protecting thousands of acres of regional forestland, while supporting critical habitat, natural resources, and rural economies."

This conservation project is comprised of three separate tracts in Oregon, which are described on the opposite page. The property to be acquired by The City of the Dalles is the last, major, privately-owned parcel within the drainages of The Dalles Municipal Watershed. With approximately 14,000 residents, The Dalles is the largest city in Wasco County. Nearly 80% of the city's water supply comes from surface water sources located within the watershed. With its acquisition, nearly all of the watershed will be managed by the city or the U.S. Forest Service for protection of drinking water quality.

> "[This project] protects landscape connectivity that is essential to both people and wildlife as we navigate a climate future that will be different from the past."
>
> **Nate Ulrich**
> *Columbia Land Trust*
> *Conservation Director*

Altogether, this collaborative project will help hold together a continuous forested landscape that supports an international migratory corridor for neo-tropical birds, vital winter range for culturally important deer and elk, and local jobs in the timber and recreation industries. Located in the ancestral territory of the Confederated Tribes of Warm Springs, these projects also permanently secure access for cultural uses.

"Because the lands that this project conserves are adjacent to federal and county owned forests, it protects landscape connectivity that is essential to both people and wildlife as we navigate a climate future that will be different from the past," said Ulrich. This project strategically builds upon years of conservation work by Columbia Land Trust and partners and will lead to long-lasting positive impacts."



OREGON TRACTS TO BE CONSERVED

TRACT 1

Sustainably-Managed Working Forest

10,653 acres of productive conifer forest and oak woodlands that are owned by Green Diamond Resource Company/Twin Creeks Timber. This tract will continue to be managed as working forest for sustainable timber harvest. A conservation easement held by the Oregon Department of Forestry will permanently prevent subdivision, development, or conversion, and will enable public access for recreational uses like hiking and mountain biking.

TRACT 2

Water Quality Protection

3,442 acres of ponderosa pine forest and oak woodlands that are temporarily owned by an affiliate of The Conservation Fund and will be purchased by the City of The Dalles to protect drinking water quality for City residents.

TRACT 3

Important Oak Habitat

1,965 acres of mixed conifer forest and oak woodland that supports important biodiversity and wildlife habitat. This property is match land for the broader project, but will not be purchased with Forest Legacy funding. It is temporarily owned by an affiliate of The Conservation Fund while Columbia Land Trust raises funds for its permanent conservation and management.

Columbia Land Trust

850 Officers Row
Vancouver, WA 98661

columbialandtrust.org
connect@columbialandtrust.org

@ColumbiaLandTrust
Columbia Land Trust
columbia-land-trust

Wildlife Highlights on Conserved Lands

WASHOUGAL RIVER WATERSHED

Cameras revealed a range of species utilizing this conserved wetland habitat, including a mountain lion, playful river otters, great blue herons on the hunt, wood ducks, and a coyote crossing a beaver dam. This wetland complex was created by a series of beaver dams, built decades ago, that offer valuable fish and wildlife habitat and improve hydrology.

Watch wetland wildlife!

KLICKITAT RIVER WATERSHED

A Land Trust site above the Klickitat River is part of a larger corridor of connected wild lands. Here, the conifer-dominated slopes of Mt. Adams meet Oregon white oak woodlands to the south and sagebrush steppe of the Columbia Plateau to the east, providing a range of habitat features that support a diversity of species, including American black bear. A bear and her cubs were filmed traversing this slope on a camera set up by Todd Jacobsen with Gorge Wildlife Cams. Columbia Land Trust's conservation work ensures that wild places like this remain wild for generations to come.

Watch a bear and her cubs!