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Idaho

Ed Schriever
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Oregon

September 4, 2024

MEMORANDUM

TO: **Council Members**

FROM: **Mark Fritsch**

SUBJECT: **Update on Project #2003-011-00, Columbia River Estuary Habitat Restoration**

BACKGROUND:

Presenter: Catherine Corbett, Chief Scientist, Lower Columbia Estuary Partnership (LCEP).

Summary: Catherine will provide an update and overview of the accomplishments of this project to restore the lower Columbia River and estuary ecosystem from Bonneville Dam to the mouth (including tidal wetlands). This project builds on a regional ecosystem restoration program (i.e., Columbia Estuary Ecosystem Restoration Program (CEERP)) and works with partners to strategically identify, prioritize, implement and monitor habitat restoration actions. Funding of this project provides for multiple restoration actions and provides leverage for an integrated and collaborative based restoration program.

In addition, key restoration partners, Jason Smith from Columbia River Estuary Study Taskforce (CREST)[1] and Ian Sinks from Columbia Land Trust[2] will share implementation highlights of their collaborative efforts with LCEP.

[1] Project #2010-004-00, CREST Estuary Habitat Restoration
[2] Project #2010-073-00, Columbia Land Trust Estuarine Restoration

Relevance: Project #2003-011-00, Columbia River Estuary Habitat Restoration is one of the seven umbrella[3] projects supported by the Fish and Wildlife Program.

This presentation was requested as part of the Council recommendation associated with the Anadromous Fish Habitat and Hatchery Review in April 2022. The periodic presentation is intended to provide an update on the project's accomplishments and results. No decision is needed at the meeting.

Workplan: Fish and Wildlife Division work plan 2024; Program planning & coordination.

Background: In 1995 the states of Oregon and Washington and the US Environmental Protection Agency successfully nominated the lower Columbia River for designation as an "estuary of national significance", making LCEP one of 28 National Estuary Programs under Section 320 of the Clean Water Act. This nomination led to the development of a Comprehensive Conservation and Management Plan (CCMP). The CCMP was adopted by the federal government and states of Washington and Oregon in 1999 and within it, the region identified restoring biological integrity of the lower Columbia River. LCEP's role is to coordinate the implementation of the CCMP with restoration partners.

Since 2000, the LCEP has been implementing its restoration actions with their restoration partners (e.g., Soil and Water Conservation Districts, Columbia Land Trust, Columbia River Estuary Study Taskforce, Washington Department of Fish and Wildlife, Cowlitz Indian Tribe, and others). The program includes: restoration activities; scientific evaluation of implemented actions; datasets to identify, prioritize and develop actions, and an infrastructure for soliciting, developing, selecting and funding priority actions. The LCEP, working with its partners, continues to adapt this program to ensure a solid, scientific-based framework for strategically locating restoration and protection actions within the lower river and integrating results from emerging research and lessons learned from past actions into future planning and program implementation.

Umbrella Projects

Umbrella projects are a smaller subset of the projects (#7) currently being implemented through the Program. These umbrella projects are unique, because of the coordination role they play in a particular sub-region, and

[3] see page 2 for information regarding the Program's umbrella projects.

also because of their approach to their implementation in offering a solicitation and review process that can fund local entities to implement projects. The funding, review and selection process is much like a mini-grant program for the area. The science review that would normally occur through an Independent Science Review Panel (ISRP) review occurs at the local level with ISRP-reviewed criteria and local technical teams. While the processes differ slightly in each area the umbrella projects under this recommendation are largely defined by their approach to: 1) serve as a coordinating entity among sponsors in a particular sub-region to identify, review, and select projects; 2) use a formal project solicitation process; and 3) allocate and administer Bonneville funds to other entities for implementation.

More Info:

- Lower Columbia Estuary Partnership website

Lower Columbia River Ecosystem Restoration

Catherine Corbett

Lower Columbia Estuary Partnership

Lower Columbia River is an "Estuary of National Significance"

- One of 28 NEPs included in Clean Water Act (§ 320)
- Non-regulatory
- Collaborative - Relies HEAVILY on Partners for Implementing Management Plan
- Ecosystem-Based Management Approach

THE NATIONAL ESTUARY PROGRAM

The EPA National Estuary Program (NEP) is a unique and voluntary program established in 1987 under the Clean Water Act Amendments (CWA). A successful ecosystem-based management program, it works to restore and maintain the water quality and ecological integrity of estuaries of national significance.

To achieve these goals, NEPs involve community members and other key partners to develop and implement a management plan. Citizens are fully engaged throughout this process to ensure that local needs are addressed in this Comprehensive Conservation and Management Plan (CCMP). The CCMP contains specific actions to apply CWA programs in a way that fully supports these local priorities.

The 28 NEPs across the country have demonstrated an impressive ability to secure and leverage funds, protect and restore coastal habitats, and broaden public understanding of estuaries. NEPs have also made substantial gains in identifying environmental challenges and tackling complex water quality and ecosystem issues.

The NEP looks broadly across the watershed and recognizes the connection between upstream sources of pollution and downstream impacts. It offers an effective means of securing commitments necessary to achieve tangible environmental results.

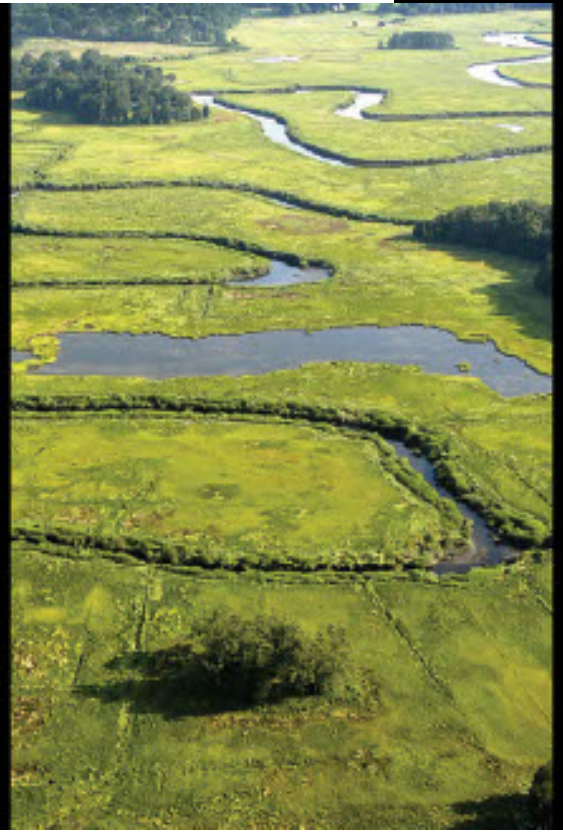


Photo Credit: Stephan Garch

THE NEP APPROACH

WHAT IS AN NEP?

Each NEP consists of a collection of stakeholders, organized in a decision-making framework that facilitates collaboration, consensus-building, and public input. NEP stakeholders typically include representatives from Federal, state and local governments, nonprofit organizations, affected business and industries, academia, and the general public. EPA is a participant and provides management guidance, along with financial and technical assistance. Together the group works to articulate common goals and take action to address a wide range of issues in their CCMP.

NEPs are guided by a director and staff that are housed in a program office located within the estuarine watershed. NEPs work to improve the health of their estuary – its waters, habitats, and living resources within a particular geographic boundary encompassing the estuary and surrounding environments.

WHAT IS THE NEP APPROACH?

- Establish a governance structure
- Involve community stakeholders as equal partners
- Engage the public throughout the decision-making process
- Collaborate to identify problems and solutions
- Build on water quality control measures and tailor them to specific places
- Set measurable goals and objectives and monitor effectiveness of actions – adjust if necessary
- Develop and implement a Comprehensive Conservation Management Plan (CCMP)

Ecosystem- Based Management Approach

CONVENES

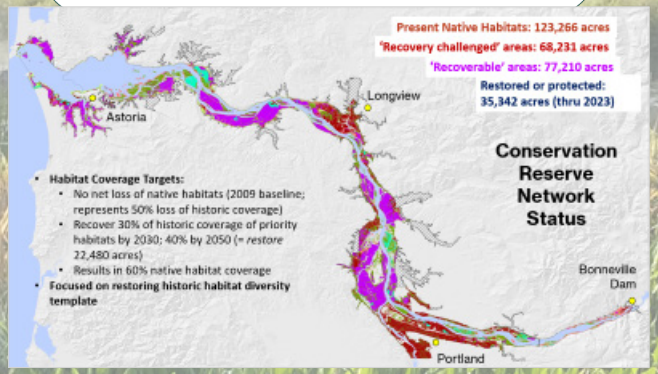
- Governance Structure that sets Vision and Goals for the NEP
- Develops and Updates Management Plan
- Facilitates and Coordinates Implementation of Management Plan
- Board of Directors
- Science Work Group
- Science to Policy Summit (annual)
- Columbia River Estuary Conference (biennial)

COORDINATES/FACILITATES

Implementation of Management Plan – Objectives/Targets

Habitat Targets (approved in 2016):

- *No net loss as of 2009 (represents 50% loss since 1870s)*
- *Recover 30% (10,382 acres) of priority* habitats by 2030*
- *Recover 40% (22,480 acres) of priority habitats by 2050*
  - *priority habitats are those most severely affected by loss, conversion
- Objectives for Water Quality, Community Involvement, Etc.



ADAPTIVELY MANAGES

Long-Term Monitoring Strategy

- Track Ecosystem Conditions Over Time
- Assess Effectiveness of Implemented Actions
  - Collect pre-and post-restoration data at all BPA-funded projects
- Use Results to Inform Vision, Objectives, and Future Actions

- *See Monitoring Project #2003-007-00*

Identify and Fill Gaps in Information and Resources
Proactive - Forward Thinking

Information

- **Landcover Dataset** – use in establishing and tracking habitat coverage targets – whether restoration keeping up with land conversions
- **Restoration Inventory** – use in tracking implementation of habitat coverage targets

Resources

- Habitat Restoration Projects in Columbia River Gorge (Horsetail Creek, Mirror Lake, Steigerwald NWR)

Climate Adaptation and Mitigation Actions

- Integrating climate adaption actions at programmatic (mapped cold water refuges, mapped sea level rise impacts) and project scales (pilot cold water refuge enhancement technique, restoration designs at Steigerwald)
- Inventorying carbon sequestration potential of conservation actions at different habitat types across lower river

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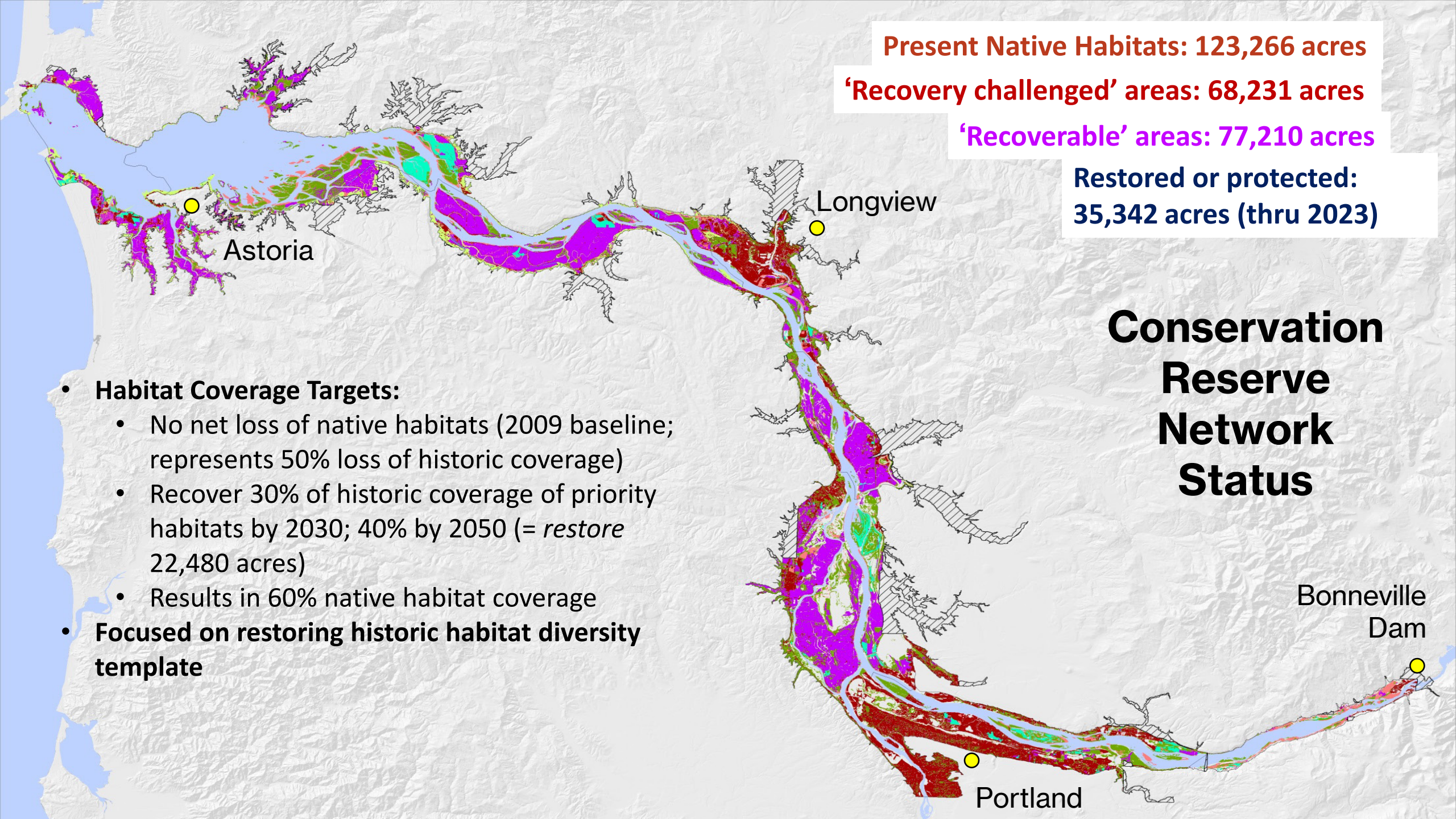
Conservation Reserve Network Status

Present Native Habitats: 123,266 acres

'Recovery challenged' areas: 68,231 acres

'Recoverable' areas: 77,210 acres

Restored or protected: 35,342 acres (thru 2023)



- **Habitat Coverage Targets:**
  - No net loss of native habitats (2009 baseline; represents 50% loss of historic coverage)
  - Recover 30% of historic coverage of priority habitats by 2030; 40% by 2050 (= *restore* 22,480 acres)
  - Results in 60% native habitat coverage
- **Focused on restoring historic habitat diversity template**

ADAPTIVELY MANAGES

Long-Term Monitoring Strategy

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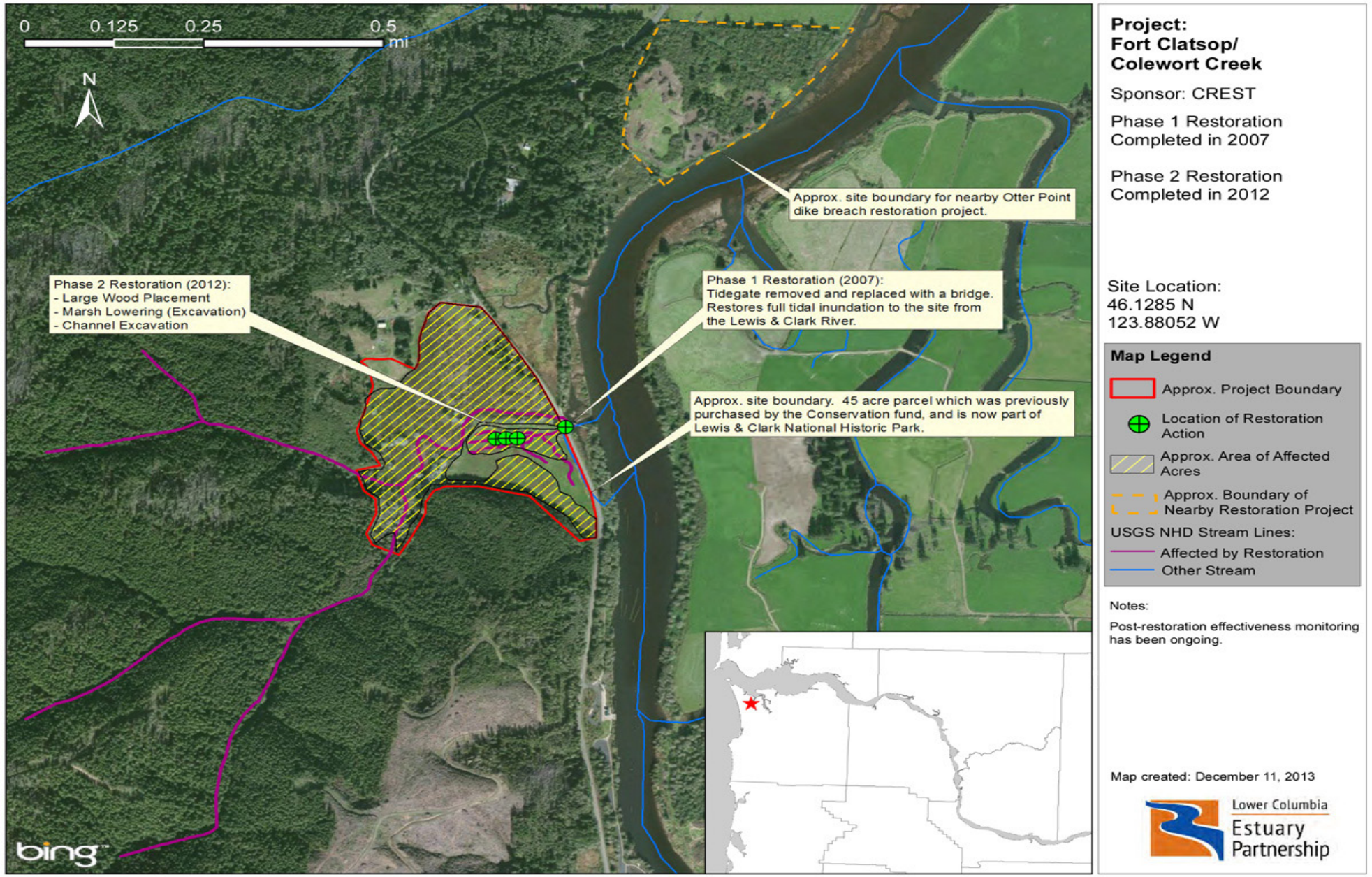
Track Actions in our Restoration Project Inventory

Geodatabase of restoration, protection projects

- >200 projects
- Track status – planned, underway, completed
- Track actions, project location, extent, types of habitats, project sponsor

Application – Compare with Habitat Coverage Targets to identify <u>gaps in actions</u>

Available Online:



Update - Implementation of Restoration Actions

Completed:

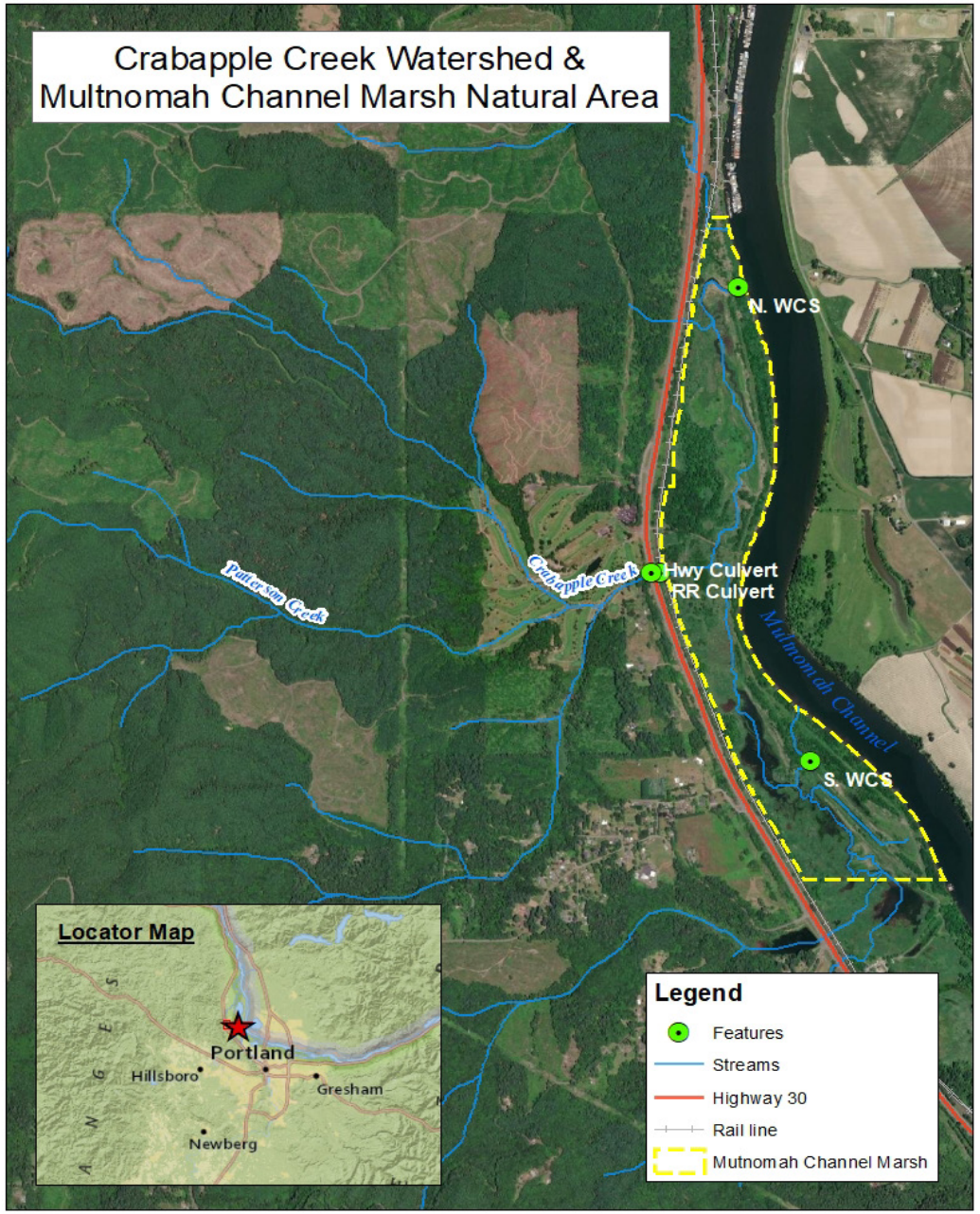
- **Steigerwald Floodplain Reconnection**
  - Reconnected 965 acres of floodplain on the mainstem
  - Removed 2.2 miles of existing levee & 0.5 mi riprap
  - Built ~1 mile of setback levees on east & west sides
  - Removed 2 water control structures, elevated canal, fish ladder
  - Moved parking lot and constructed/relocated 3.3 mi of recreation trails inc 2 pedestrian bridges & 2 viewing areas.
  - $32 million, >10 years, 10 landowners
  - Generated > 550 local jobs and added $75 million to the local economy

June 2022 Aerial of Channel 3 at Steigerwald – After Reconnection
For more information, see:
https://storymaps.arcgis.com/stories/aee7fb7fbdd74407bf447101ae7d76c0

Update - Implementation of Restoration Actions

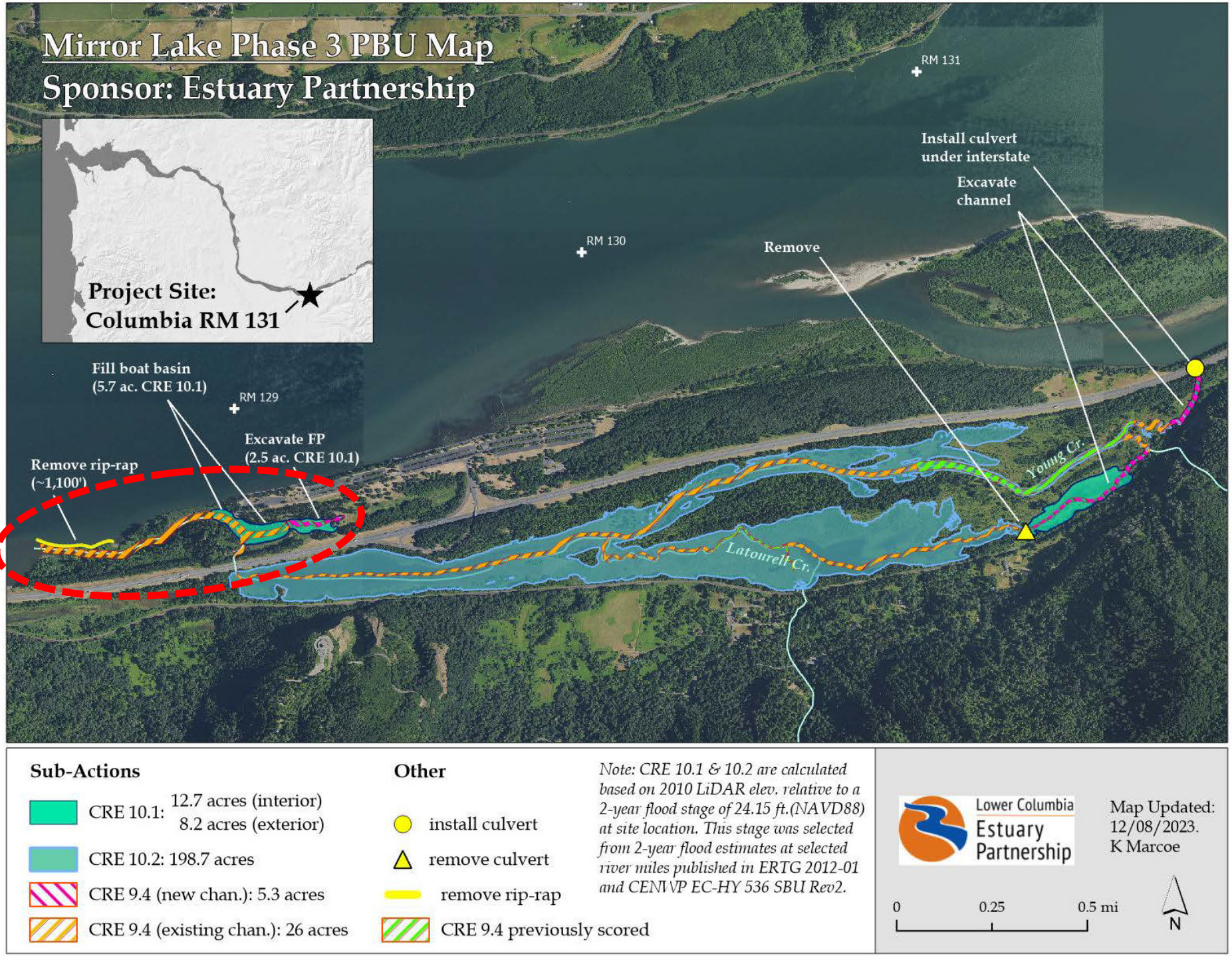
In Progress:

- **Multnomah Channel Marsh Natural Area**
  - Reconnecting 278-acre site by removing 2 water control structures, adding BDAs
  - Replacing culvert under SR 30 and UP RR to improve wildlife and fish passage to ~5 miles of stream in Crabapple and adjoining creeks
  - Partnership with Metro
- **Franz Lake National Wildlife Refuge**
  - Improve hydrologic connection, water quality and habitat conditions to 695 acres
  - Documented use by upstream salmonids
  - Partnership with USFWS



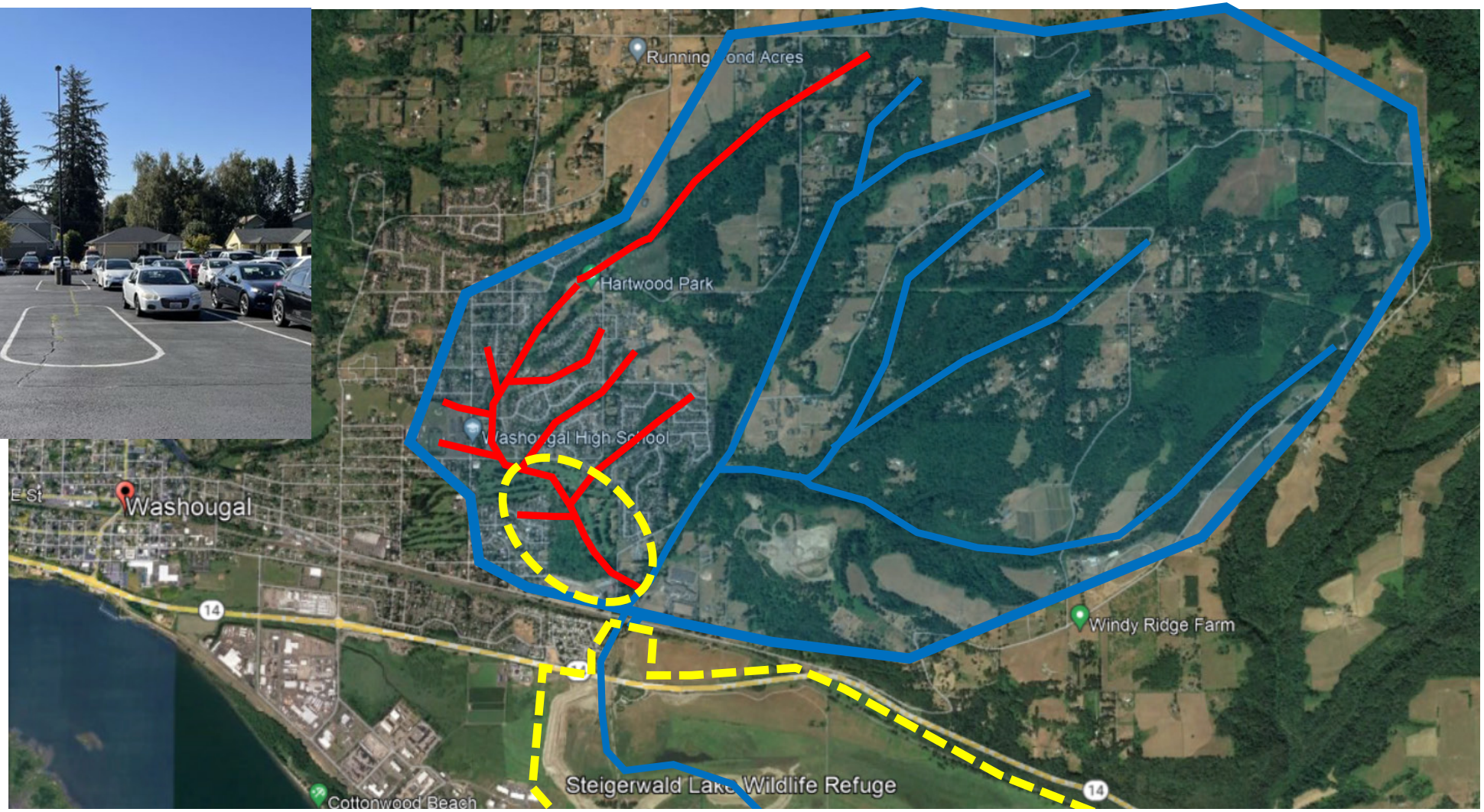
In Progress (continued):

- **Mirror Lake (Rooster Rock State Park)**
  - Install a new culvert at the upstream end of the site
  - Remove an existing culvert (reconnecting 12.7 acres of wetland)
  - Restore the boat basin to a combo of emergent and riparian habitats
  - Comprehensive reconnection of 3.14 miles of floodplain spanning 400 acres
  - Partnership with OPRD and ODOT



Other Projects:

Campen Creek – Improve hydrology and water quality to protect large investment in the Steigerwald Reconnection project



24% of Gibbons watershed but >2/3 of Gibbons watershed's impervious area
Campen Creek contributes to all of Gibbons' Creek's limiting factors
Public land available for restoration and stormwater treatment at the d/s end of the watershed

Campen Creek

Proactive Planning - Project-Specific Climate Adaptation Measures

- **Steigerwald Floodplain Reconnection Project**
  - Reconnected 965 acres of historic floodplain on the mainstem by building setback levees, removing 2.2 miles of existing levee, and removing internal water control infrastructure
  - Focusing on recovery of salmon, steelhead, and lamprey habitat and restoring passage
  - Uses a 500-year flood event as the engineering design standard (instead of 100-year traditionally required)
  - New setback levees have a living shoreline (instead of traditional riprap) for wind/wave protection
  - Restores a historical alluvial fan to provide habitat complexity and thermal cooling
  - Also reduces flood risk for some infrastructure and improves recreation opportunities

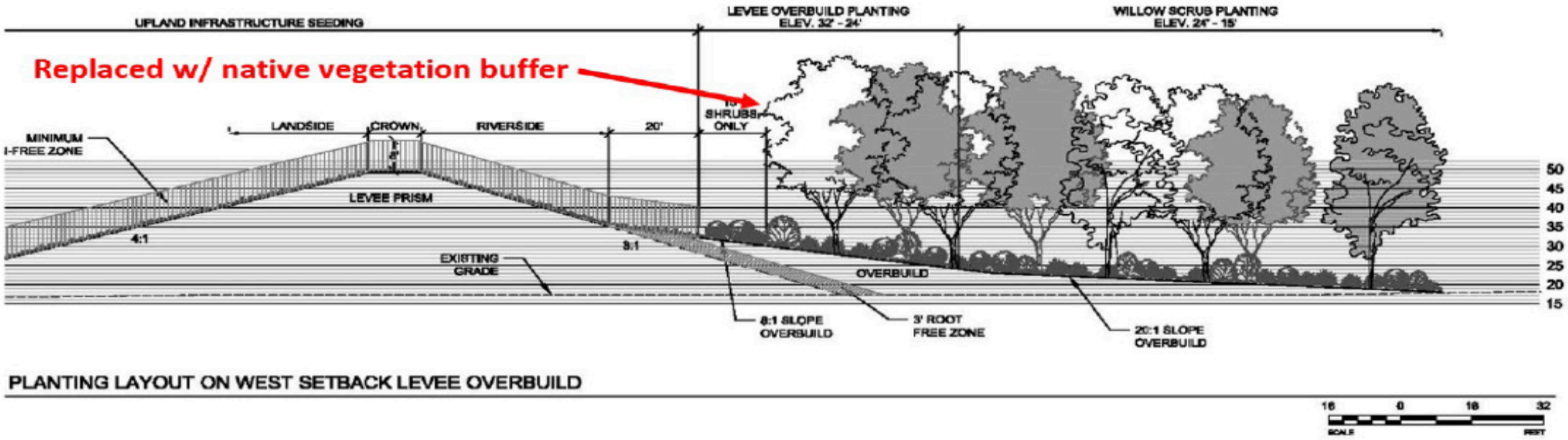


Figure 6. The living shoreline restoration design concept being implemented at the Steigerwald Flood Risk Reduction and Floodplain Restoration Project site.

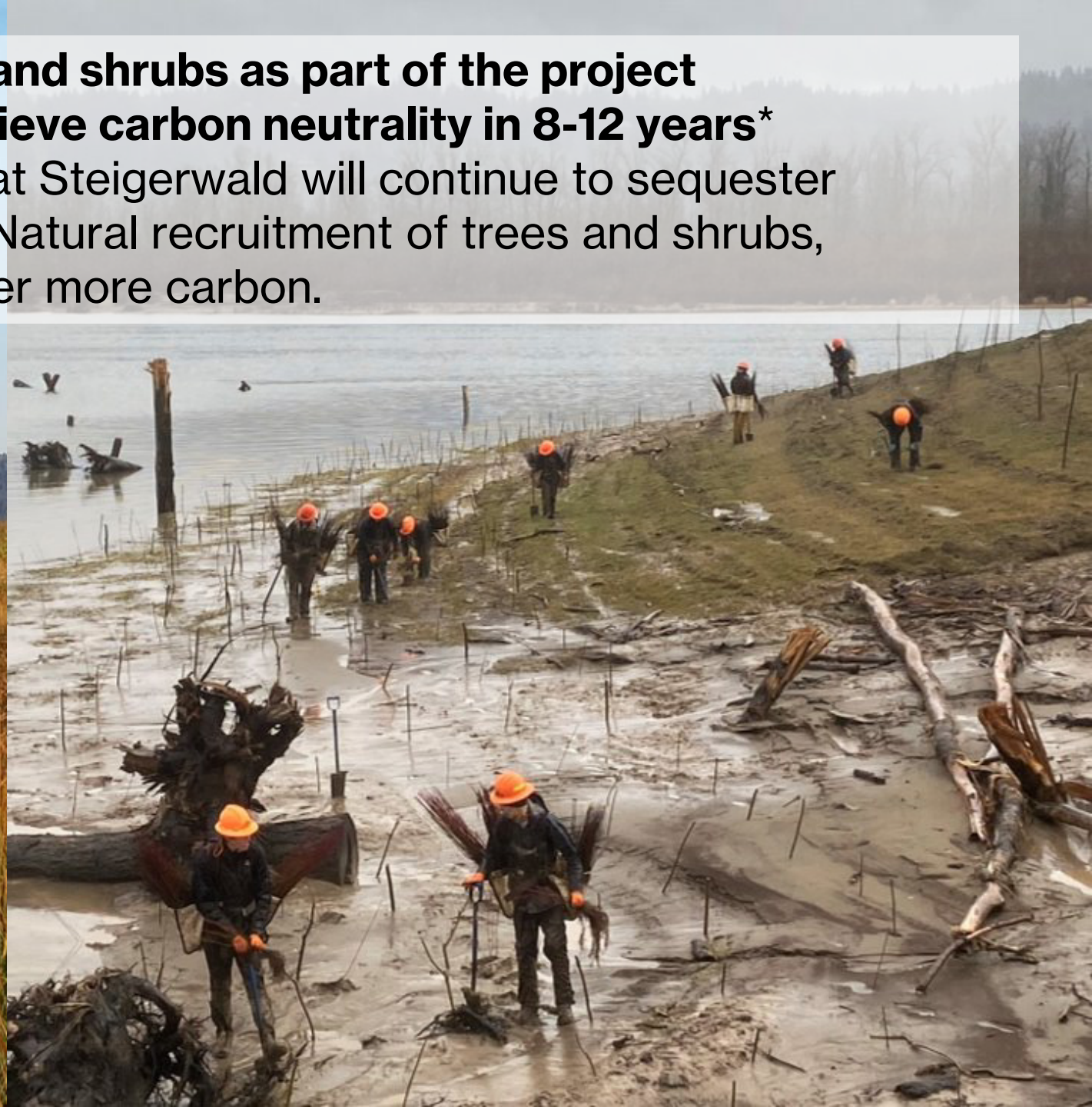
Steigerwald Floodplain Reconnection Project

Activities included:

- **1.7 million cubic yards of soil** moved with large diesel-burning construction equipment to build the setback levees and create wetlands
- Burnt **429,491 gallons of diesel** fuel
  - One gallon burns **22.6 lbs** of CO_2
  - Equates to **9,706,496** lbs of CO_2
- **1,080 cubic yards of concrete** poured for a flood wall, two bridge abutments, and other infrastructure
- **244,084 pounds of steel** installed as reinforcing bar in concrete and for pedestrian bridges spanning two floodplain channels

➢ ***Resulted in the release of @ 14,358,216 pounds of CO_2***

- **Planted over 670,000 native trees and shrubs as part of the project**
- Preliminary analysis - project will **achieve carbon neutrality in 8-12 years***
- Beyond that, the planted vegetation at Steigerwald will continue to sequester *additional* carbon far into the future. Natural recruitment of trees and shrubs, especially cottonwoods, will sequester more carbon.



CH4-C Project – studying nature's bubbles

Assess methane emission and carbon sequestration potential of emergent wetlands throughout the lower Columbia River

Funded under the BIL, in partnership with researchers from OHSU, PSU, CRITFC, and Cowlitz Indian Tribe

Phase 1: Establishing methods and study design.

Phase 2: Analysis of Environmental Influences

Phase 3: Site-Level Assessment of Carbon Dynamics by Habitat Type

Phase 4: Estuary-Wide Mapping and Model Development

Researchers from OHSU, PSU and LCEP at Tongue Point, Astoria with one of the Eddy Covariance Flux towers

Questions?

Catherine Corbett

Tel: (971) 380-3629

Email: ccorbett@estuarypartnership.org

Website:
https://www.estuarypartnership.org/

Lower Columbia
Estuary
Partnership

Columbia Land Trust

CONSERVING THE NATURE YOU LOVE

Columbia Land Trust Estuarine Restoration Project
BPA Contract: 2010-073-00

Ian Sinks, Stewardship Director

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

Where We Work

- Roughly 50 miles north and south of the Columbia River, from the high desert to the Pacific Ocean.
- 5 distinct ecoregions
- Over 65,000 acres conserved
- 40,000 acres under management

Conserved lands

Conservation areas

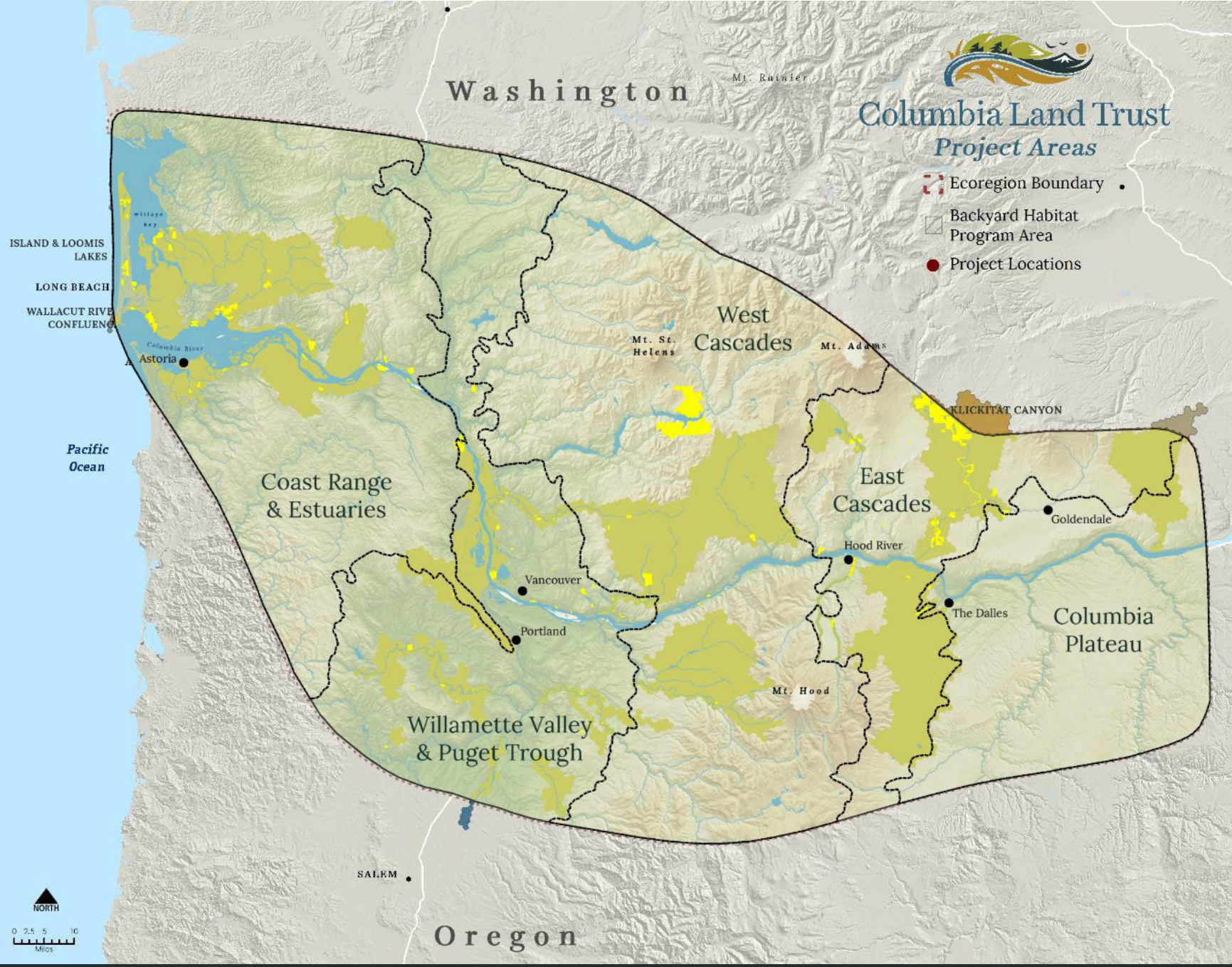
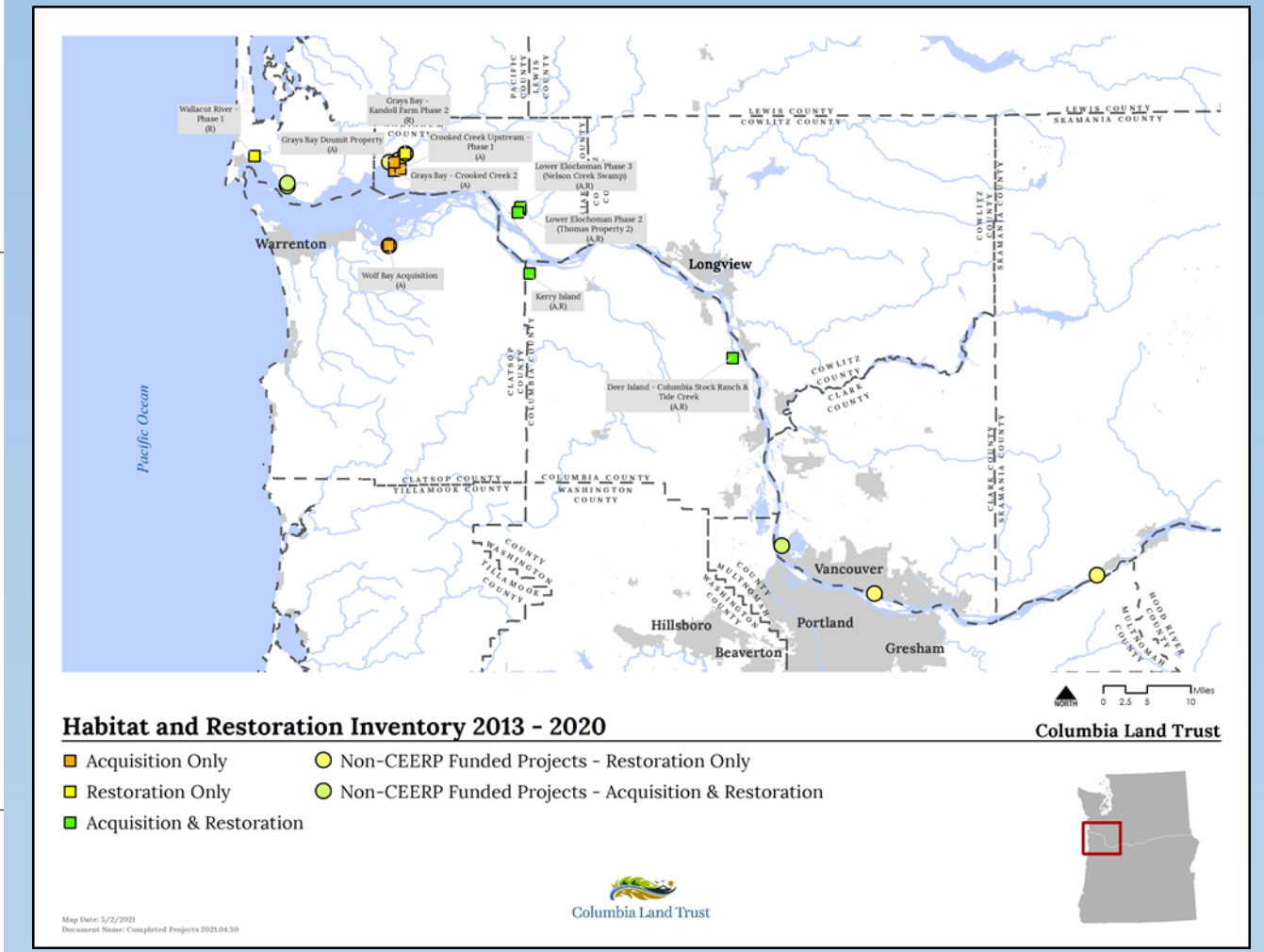


Table 1. Acquisition and Restoration projects in the lower Columbia River estuary floodplain 2013-2021

Project Name	Acres	Columbia River Mile	Geomorphic Reach	Action Description
Acquisition Projects	**1532**			
Lower Elochoman Tidal - Property 2 (Phase 2)	105	38	B	Acquisition of altered tidal floodplain
Lower Elochoman Tidal - Nelson Creek Swamp (Phase 3)	123	38	B	Acquisition of disconnected tidal floodplain
Deer Island - Columbia Stock Ranch Acquisition	920	76	E	Acquisition of diked floodplain, river shoreline and associated upland forest
Kerry Island Acquisition	109	45	C	Acquisition of diked floodplain
Columbia Stock Ranch - Tide Creek Property Acquisition	40	76	E	Acquisition of diked floodplain
Wolf Bay Acquisition & Restoration - Acquisition	77	22	B	Acquisition of connected intertidal floodplain and channels
Grays Bay Doumit Property Acquisition	113	23	B	Acquisition of diked floodplain
Crooked Creek Upstream - Phase 1 Acquisition	19	23	B	Acquisition of diked floodplain
Grays Bay Crooked Creek 2 - Acquisition	26	23	B	Acquisition of creek channel, disconnected floodplain
Restoration Projects	**927**			
Columbia Stock Ranch - Intertidal Floodplain Restoration	37	76	E	Revegetation of intertidal floodplain outside of the levee, debris removal
Columbia Stock Ranch - Floodplain Restoration	303	76	E	Revegtation of disconnected floodplain for CWTD habitat
Lower Elochoman Tidal - Phase 2 Restoration	90	38	B	Removal of barriers to hydrology, weed control and revegetation of tidal floodplain. Builds on reconnection Phase 1 work implemented in partnership with WDFW and WDOT along SR-4.
Lower Elochoman Tidal - Phase 3 Restoration	145	38	B	Tidegate removal, creek relocation into floodplain, tidal channel excavation, floodplain complexity, revegetation
Grays Bay Kandoll Farm - Phase 2 Restoration	163	25	B	Reconnection of disconnected intertidal floodplain through levee removal, constructed channel network, LWD structures, floodplain complexity, revegetation, weed control
Kerry Island Restoration	109	45	C	Dike removal, tidal channel excavation, LWD structures, floodplain complexity, revegetation
Wallacut River - Phase 1 Restoration	80	5	A	Dike removal, tidal channel excavation, floodplain complexity, weed control, and revegetation
Non-CEERP Funded Projects				
Chinook River Acquisition	314	7	A	Modified tidal floodplain acquisition
Chinook River Restoration	214	7	A	Road decommissioning, weed control, re-vegetation
Weed Control - multiple tidal floodplain sites	300	-	A-B	Purple loosestrife control
Pierce Island Restoration	8	142	H	Weed control and revegetation
Vancouver Lake Lowland - Cranes' Landing Acquisition	526	100	F	Acquisition of disconnected floodplain for sandhill cranes and other species including CWTD
Vancouver Lake Lowland - Cranes' Landing Restoration	10	100	F	Palustrine wetland revegetation
Woods Landing Restoration	3	115	G	Terraced floodplain revegetation above chum spawning springs



CEERP

Monitoring and Science

Salmon Recovery Plans

LCEP CCMP

Estuary ESA Recovery Plan

CWTD Recovery Plan

Direct Experience

Conservation Agenda
Columbia Land Trust Conservation Priorities

Engagement and Relationship Building

Project Identification and Development

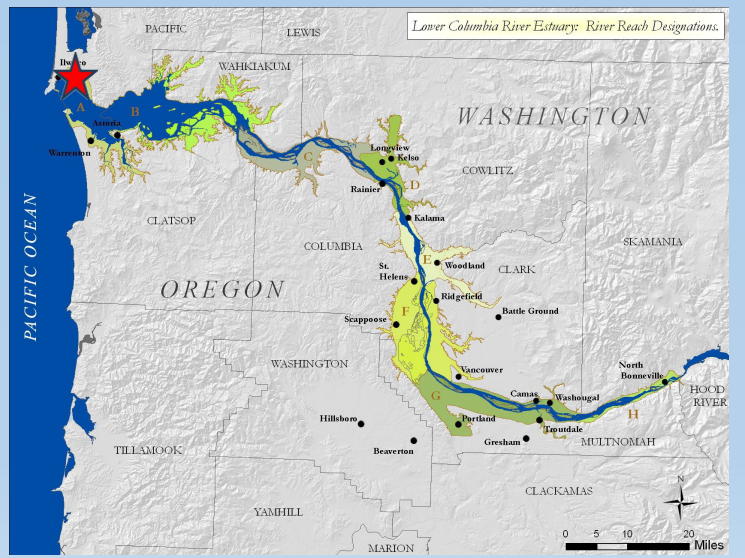
Land Trust Project: Acquisition and/or Restoration, Long-term Stewardship

Partner Project: Land Transfer and/or Restoration

Baker Bay – Wallacut River (2016)

80 Ac Restoration Project

- Dike breach
- Dike leveling
- Tide channel excavation
- Revegetation



Grays Bay – Kandoll Farm (2013) and Mill Road (2011)

203 Ac of Restoration Projects

- Dike breach
- Dike leveling
- Tide channel excavation
- Topographic complexity
- Revegetation
- RCG and Topographic Mound investigation

Kerry Island (2016)

109 Ac restoration Project

- Dike breach
- Dike leveling
- Tide channel excavation
- Topographic complexity
- Revegetation
- RCG Experiment

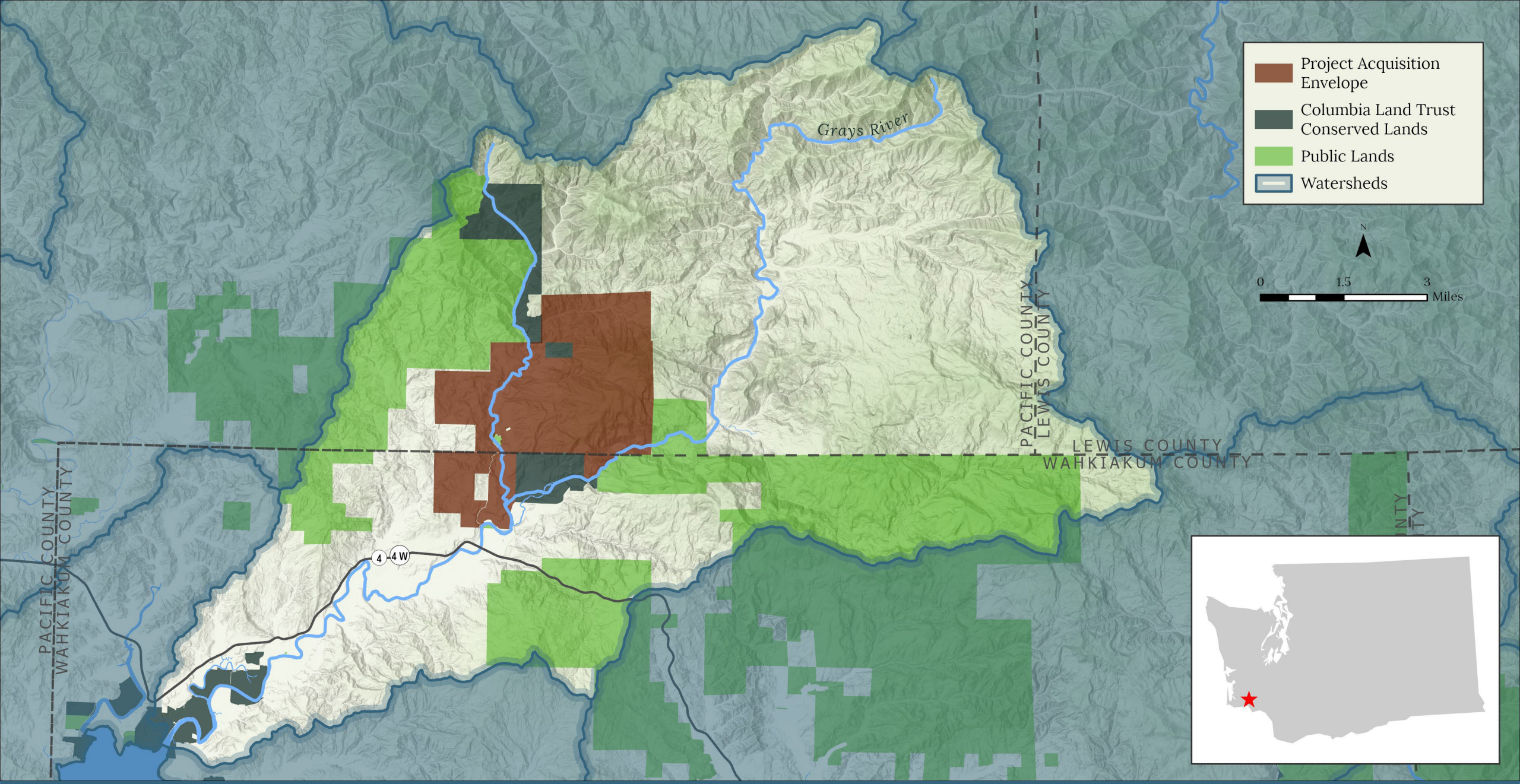
Raistakka Floodplain (2026)

109 Ac restoration Project

- Dike breach
- Dike leveling
- Tide channel excavation
- Topographic complexity
- Revegetation
- Community Engagement

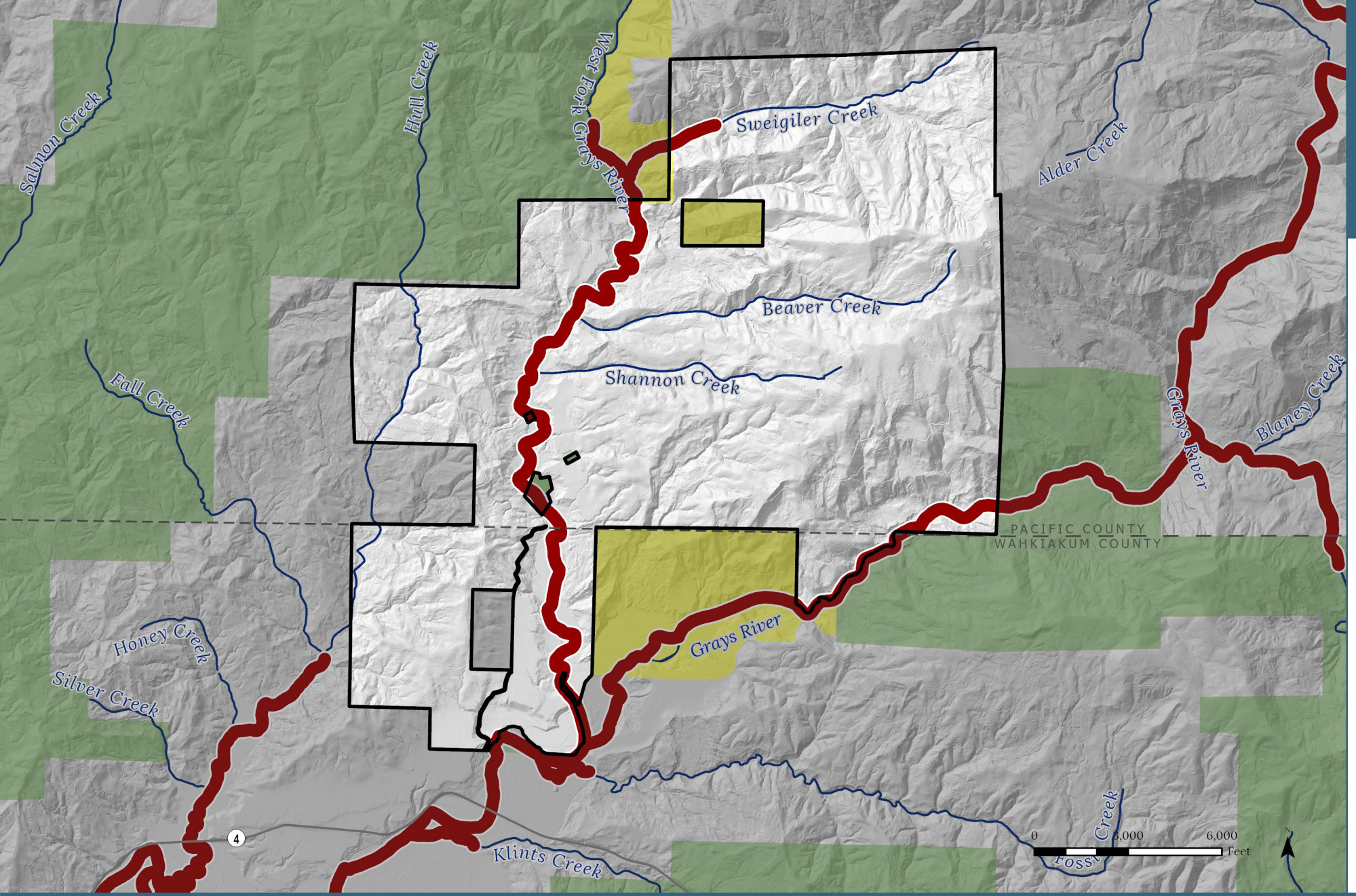
Conservation and Community Common Goals:

- Reduce flood frequency, magnitude and duration
- Flood secure communities (property and infrastructure)
  - Flood dynamics
  - Sediment accretion
  - Bank erosion and channel movement
  - Property and roadway flooding
  - Bridge scour
  - Flood control infrastructure
- Sustainable forests and forestry economy
- Sustainable agricultural economy
- Tourism economy
- Healthy fish populations
- Healthy wildlife populations
- Improved recreational access
  - Upland hunting access
  - Boat navigation in bay
  - Boat access along river
- Protect cultural and historic resources

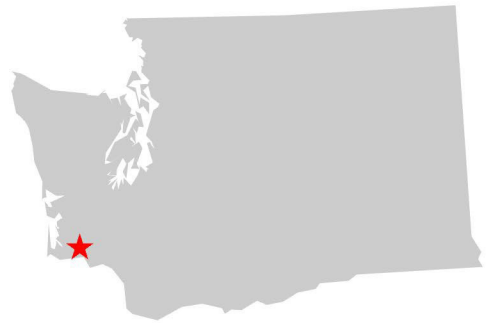

Project Acquisition Envelope
Columbia Land Trust Conserved Lands
Public Lands
Watersheds
N
0
1.5
3
Miles
Grays River
PACIFIC COUNTY
LEWIS COUNTY
LEWIS COUNTY
WAHKIAKUM COUNTY
PACIFIC COUNTY
WAHKIAKUM COUNTY
4
4 W

#24-1755 Mid Grays River Conservation Area

Fish Distribution



- Columbia Land Trust Conserved Lands
- Public Lands
- Project Boundary
- Fall Chinook



Map Created: 4/30/2024
Data: Columbia Land Trust, USDA, USGS, WA DNR, ODF

- **Conservation Strategy**
- Conservation Purpose
- Conservation Values
- Conservation Goals
- Conservation Tool
- Baseline Condition
- Stewardship Plan
- Implementation
- Compliance Monitoring
- Effectiveness Monitoring
- Stewardship Audits
- Adaptive Management

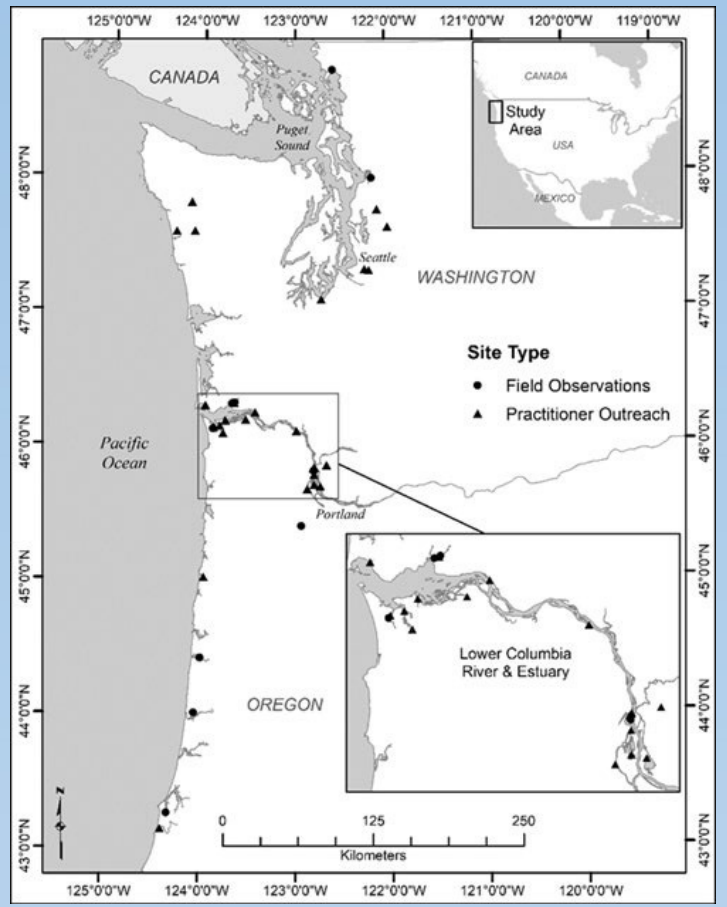
Land Stewardship

- Baseline Assessment
- Habitat Community Mapping and Conservation Classification
- Stewardship Goals, Objectives, Strategies, Actions
- Action Prioritization
- Annual Work Plan
- Ecological Integrity Assessment
- Effectiveness Monitoring

Assessment of Methods to Control Invasive Reed Canarygrass (*Phalaris arundinacea* L.) in Tidal Freshwater Wetlands

Ian A. Sinks[1*], Amy B. Borde[2], Heida L. Diefenderfer[3], Jason Karnezis[4]

In Press – Natural Areas Journal



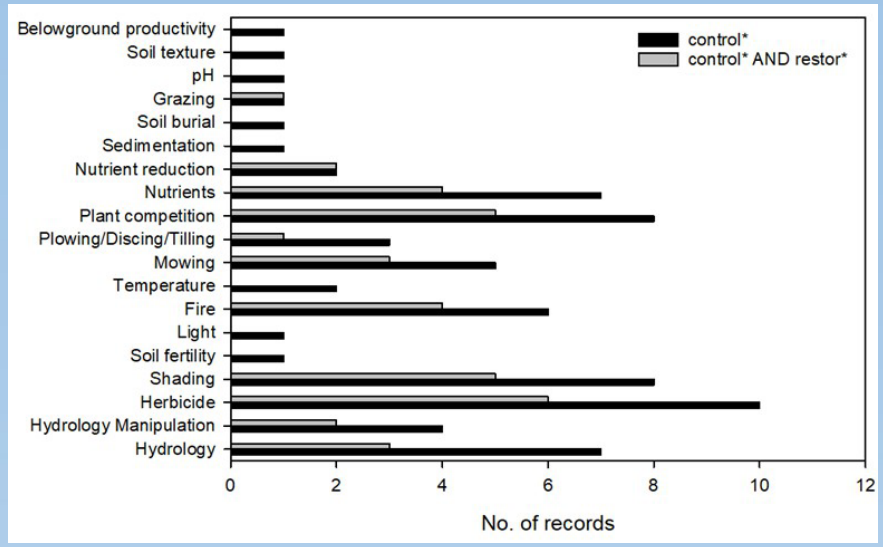
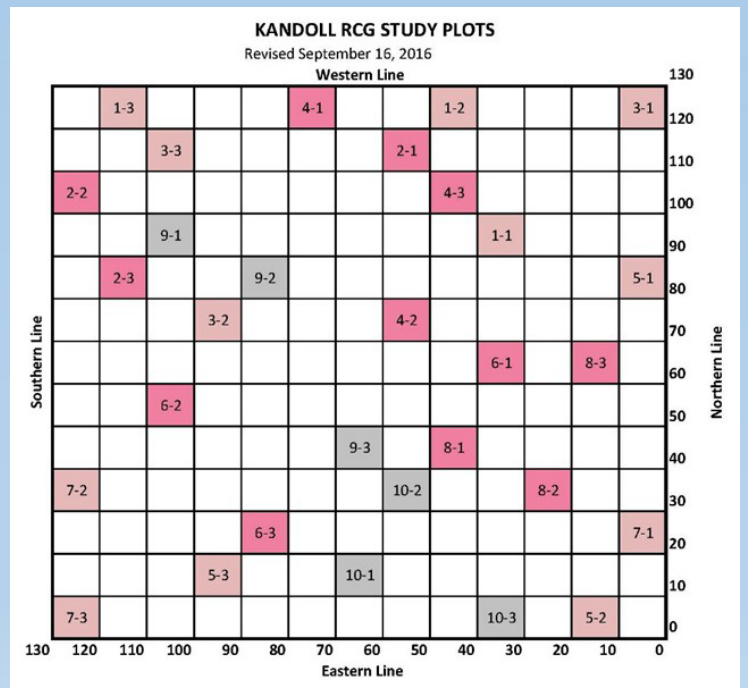


Table B.2. Treatments and controls for the RCG control study.

	ID	Spraying Season	Planting	Marsh Elevation	Kandoll	Kerry
Treatment	1	Fall only	Yes	Mid	Yes	Yes
	2	Fall only	No	Mid	Yes	Yes
	3	Fall only	Yes	High	Yes	Yes
	4	Fall only	No	High	Yes	Yes
	5	Spring and fall	Yes	Mid	Yes	No
	6	Spring and fall	No	Mid	Yes	No
	7	Spring and fall	Yes	High	Yes	No
	8	Spring and fall	No	High	Yes	No
Control	9	None	None	Mid	Yes	Yes
	10	None	None	High	Yes	Yes

Table B.4. Out-year schedule for the RCG control study.

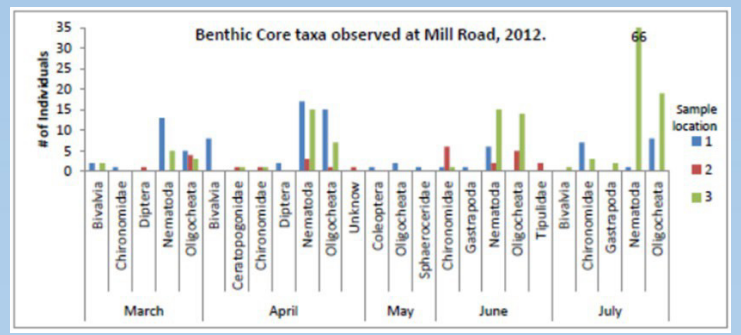
Kandoll Farm						
Activity	2016	2017	2018	2019	2020	2021
Spraying	Fall	Spring, Fall	Spring, Fall	Spring, Fall	Spring, Fall	None
Seeding	None	None	Winter	Winter	Winter	None
Sampling	Summer	Summer	Summer	Summer	Summer	Summer
Status	Complete	Complete	Complete	Complete*		
Kerry Island						
Activity	2017	2018	2019	2020	2021	2022
Spraying	Fall	Fall	Fall	Fall	Fall	None
Seeding	None	None	Winter	Winter	Winter	None
Sampling	Summer	Summer	Summer	Summer	Summer	Summer
Status	Complete	Complete	Complete*			

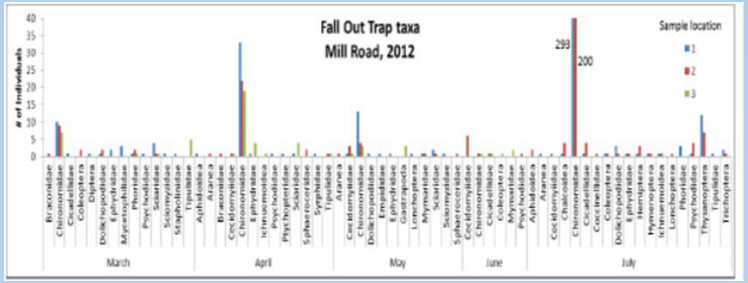


Intertidal FW Wetland RCG Experiment: Mid and High Marsh

Mean (SD) length (mm) of juvenile Chinook, coho, and chum

	Chinook	coho	chum
March	41.27* (±16.6)	37.57 (±4.3)	38.63 (±2.1)
April	45.43 (±7.4)	45.38 (±7.8)	-
May	62.83 (±24.4)	48.30 (±7.9)	-
June	56.5 (±13.4)	50.76 (±8.5)	-
July	42^	59.92 (±5.6)	-





Questions & Discussion

Northwest Power and Conservation Council Briefing

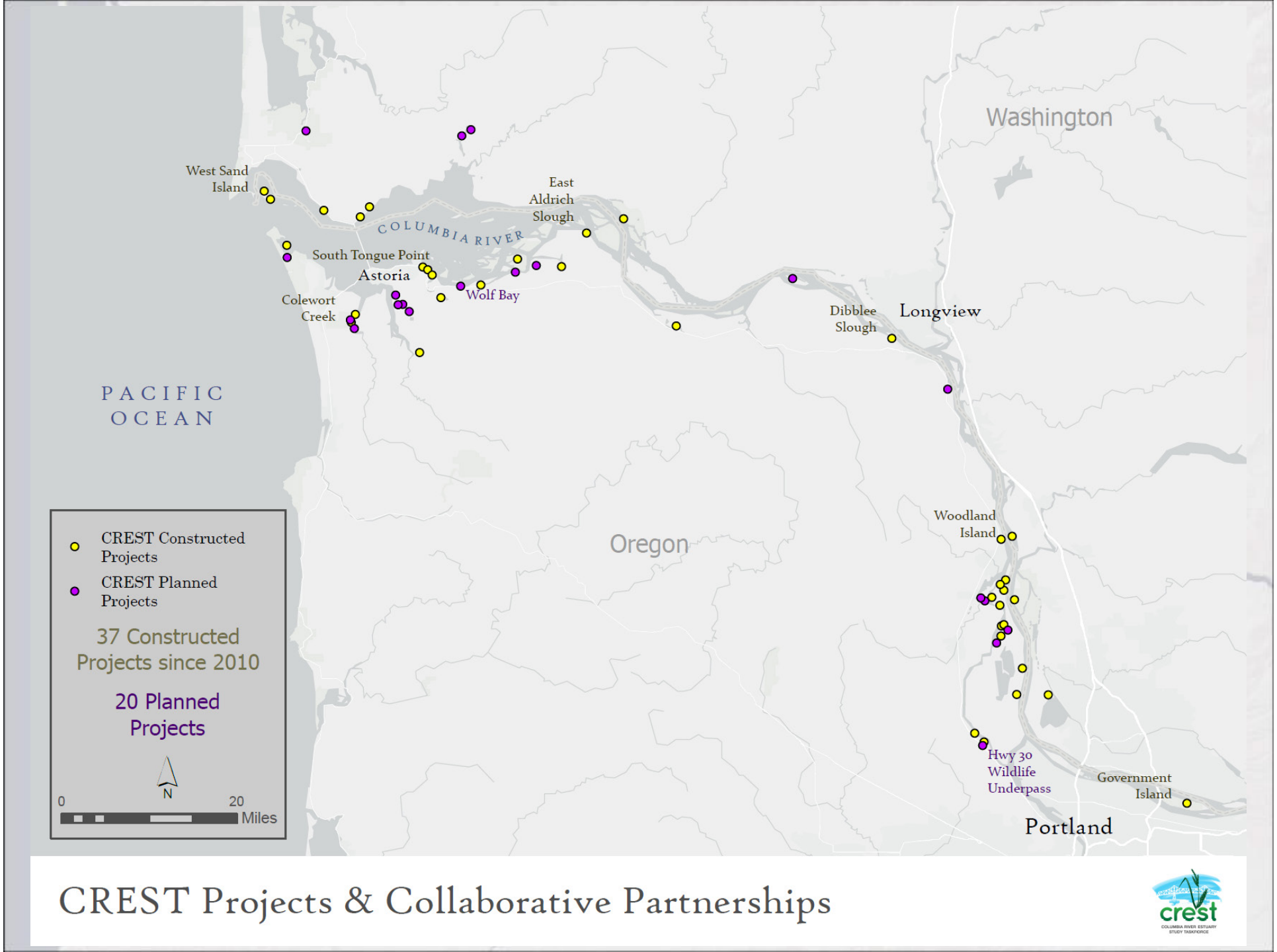
Columbia River Estuary Study Taskforce (CREST)

Who/What is CREST?

- Council of Governments serving local governments surrounding the Columbia River Estuary
- Provide land use planning and special project assistance for member jurisdictions as a regional planning body
- Assist Bonneville Power Administration and the Army Corps of Engineers with salmon recovery efforts
- CREST is a collaborative, cooperative entity working with jurisdictions, government agencies, and landowners who are interested in voluntarily working/partnering with us

History & Background

- CREST was formed in 1975 to develop the Columbia River Estuary Management Plan through a local, collaborative process
- CREDDP & Local Planning Services
- Oregon Plan for Salmon and Watersheds
- Bonneville Power Administration Contract - 2010
- Current members include jurisdictions in both Oregon & Washington: Clatsop County, Wahkiakum County, Cities of Astoria, Warrenton, Gearhart, Seaside, Cannon Beach, Ilwaco



CREST Projects & Collaborative Partnerships

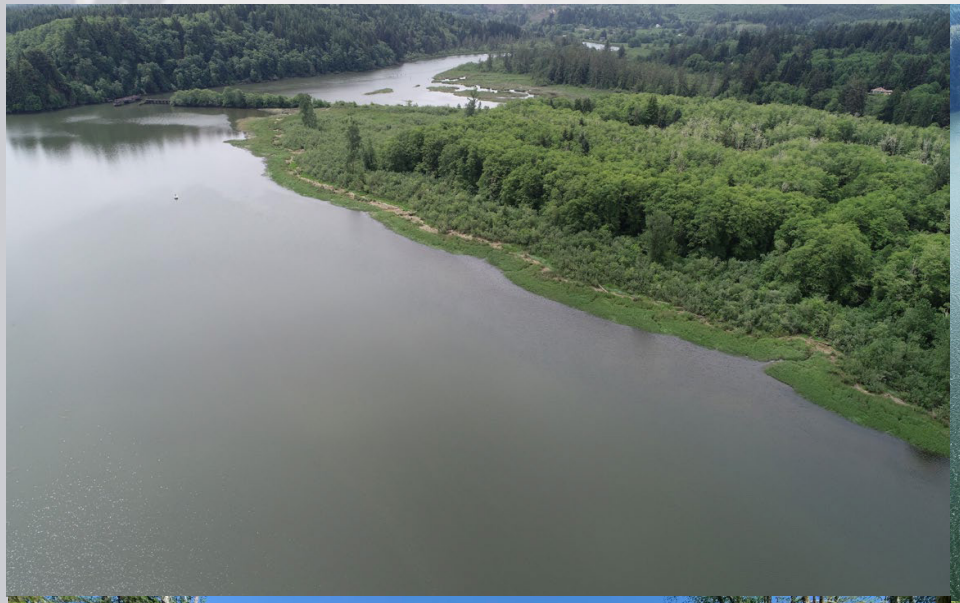
Setback Levee's, Flood Protection, Connectivity

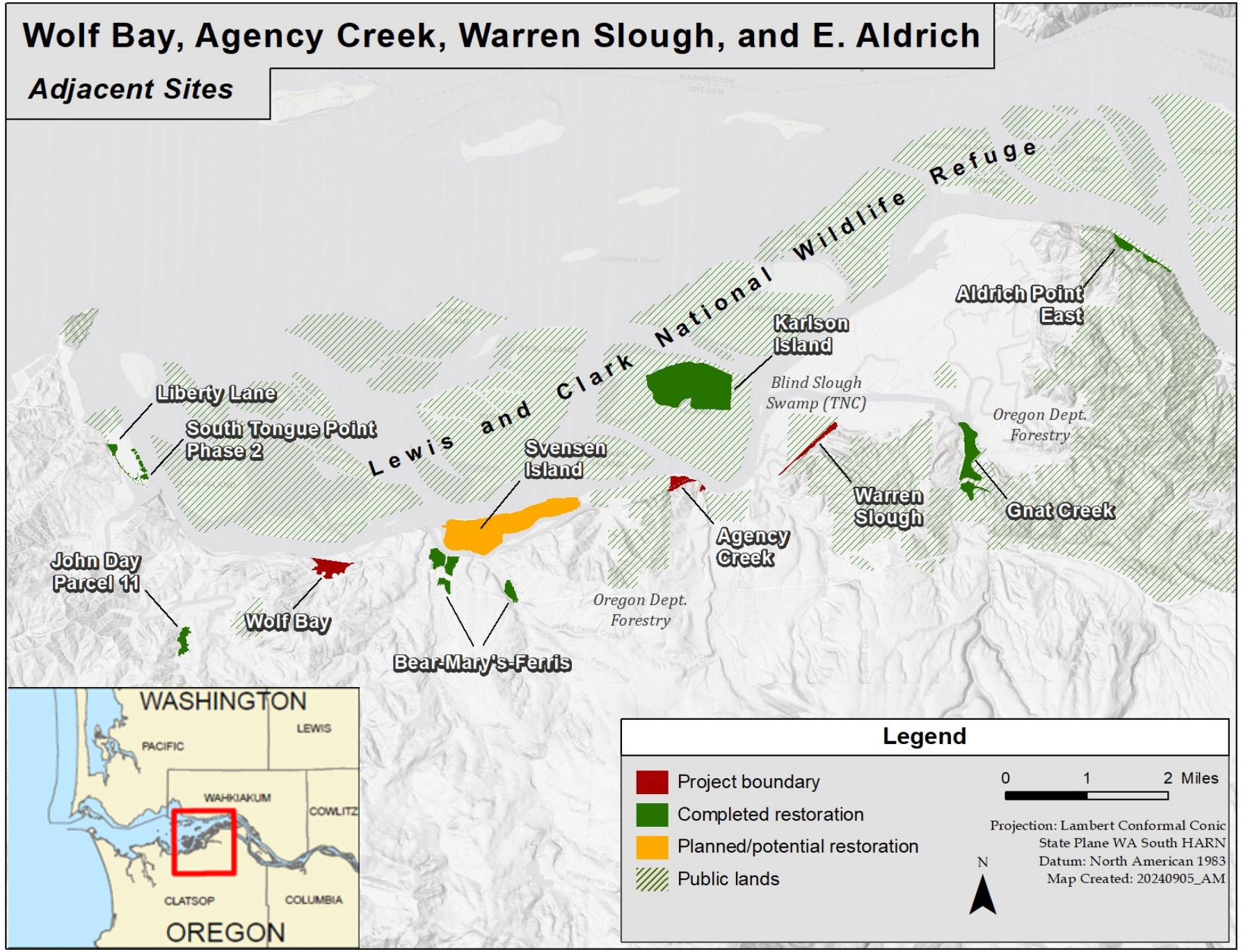
Improved Floodplain Connectivity, Fish Access, & Recreational Use

McCarthy Creek/Palensky Wildlife Area

Roadway Infrastructure, Resilience, Fish Access

South Tongue Point




Wolf Bay, Agency Creek, Warren Slough, and E. Aldrich
Adjacent Sites
Lewis and Clark National Wildlife Refuge
Aldrich Point East
Karlson Island
Blind Slough Swamp (TNC)
Oregon Dept. Forestry
Liberty Lane
South Tongue Point Phase 2
Svensen Island
Warren Slough
Gnat Creek
Agency Creek
John Day Parcel 11
Wolf Bay
Oregon Dept. Forestry
Bear-Mary's-Ferris
WASHINGTON
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
CLATSOP
COLUMBIA
OREGON
Legend
Project boundary
Completed restoration
Planned/potential restoration
Public lands
0 1 2 Miles
N
Projection: Lambert Conformal Conic
State Plane WA South HARN
Datum: North American 1983
Map Created: 20240905_AM

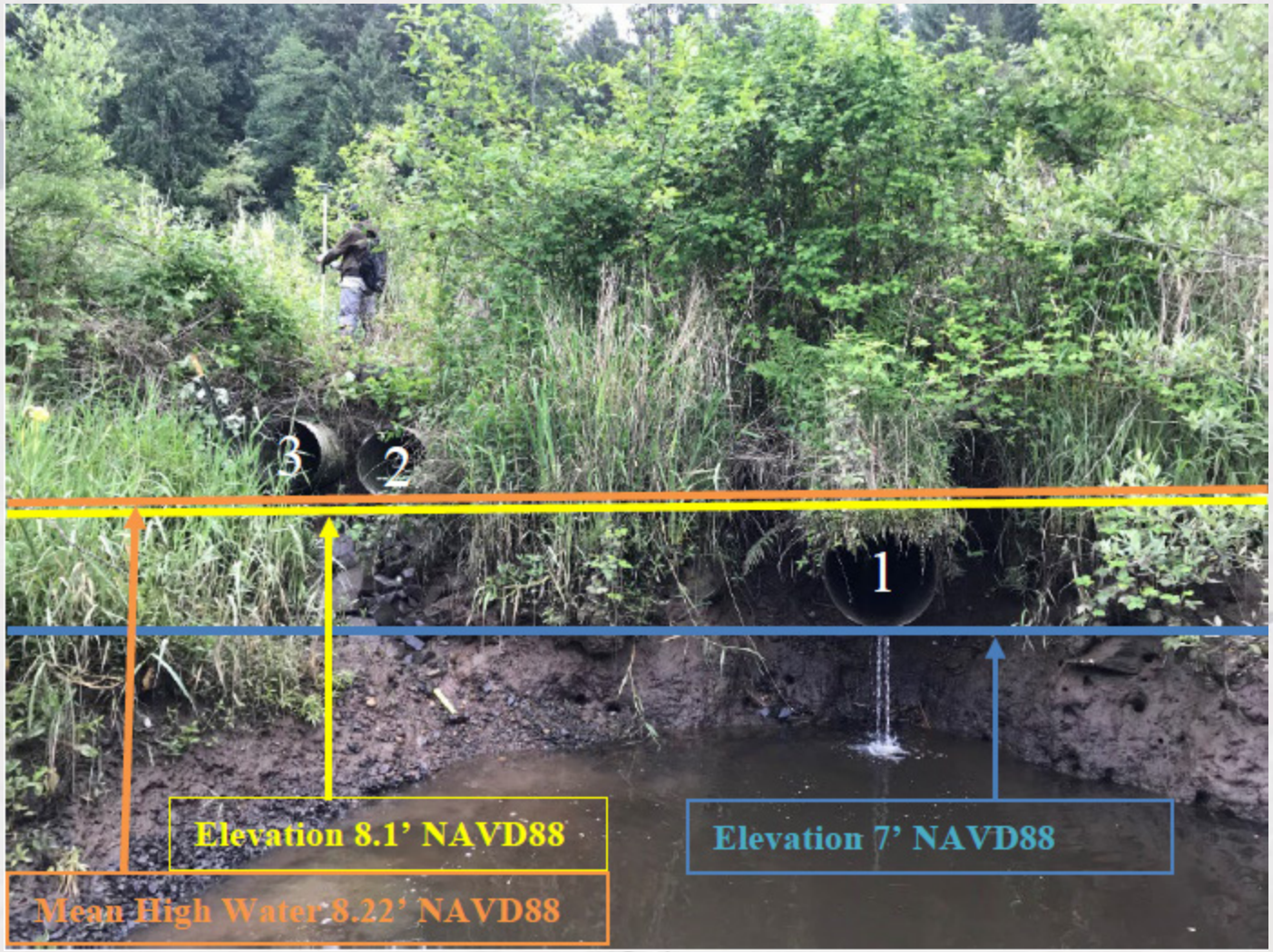
Wolf Bay Floodplain Reconnection Project

Agency Creek Floodplain Reconnection Project

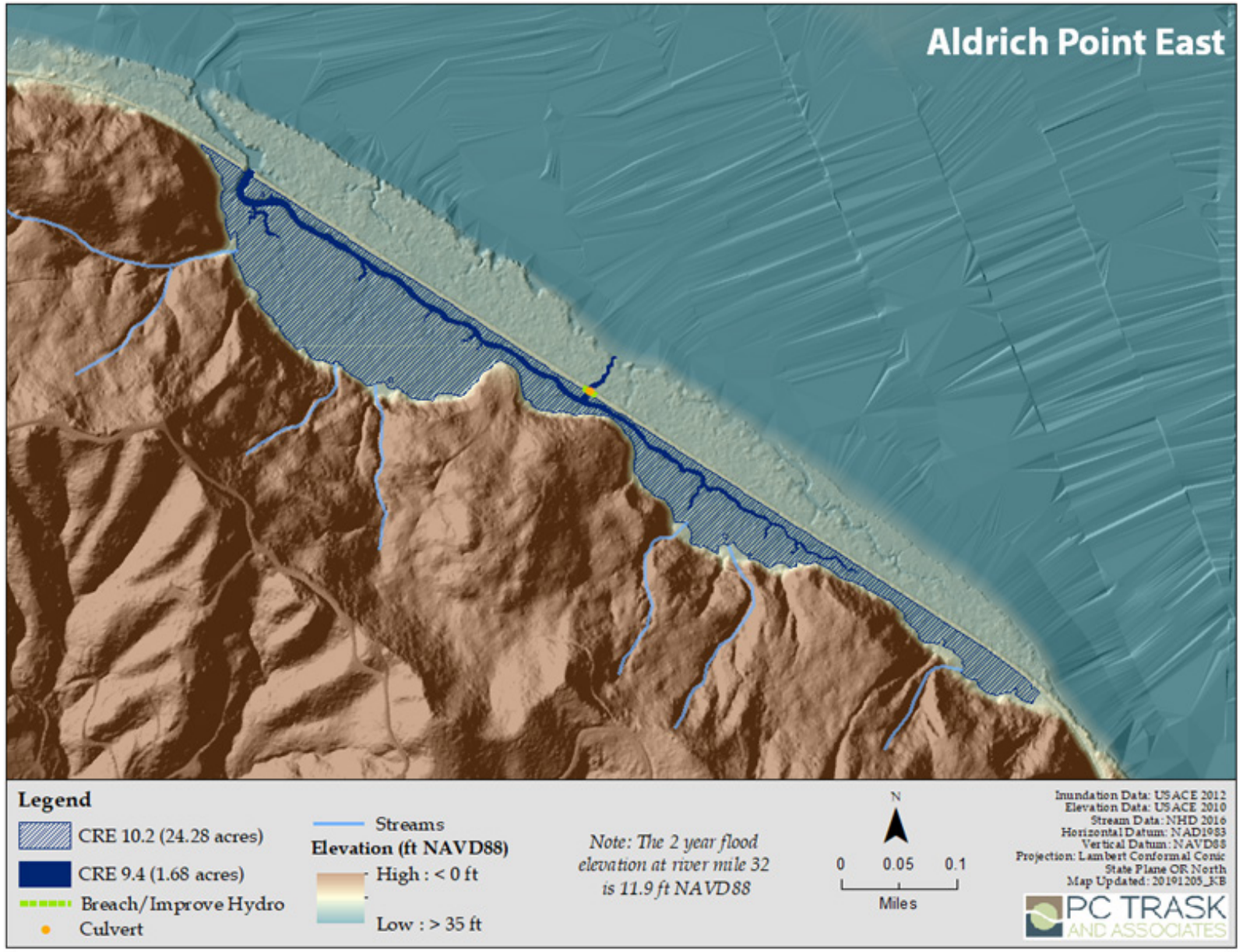
Warren Slough Floodplain Reconnection Project

Aldrich Point Floodplain Reconnection Project

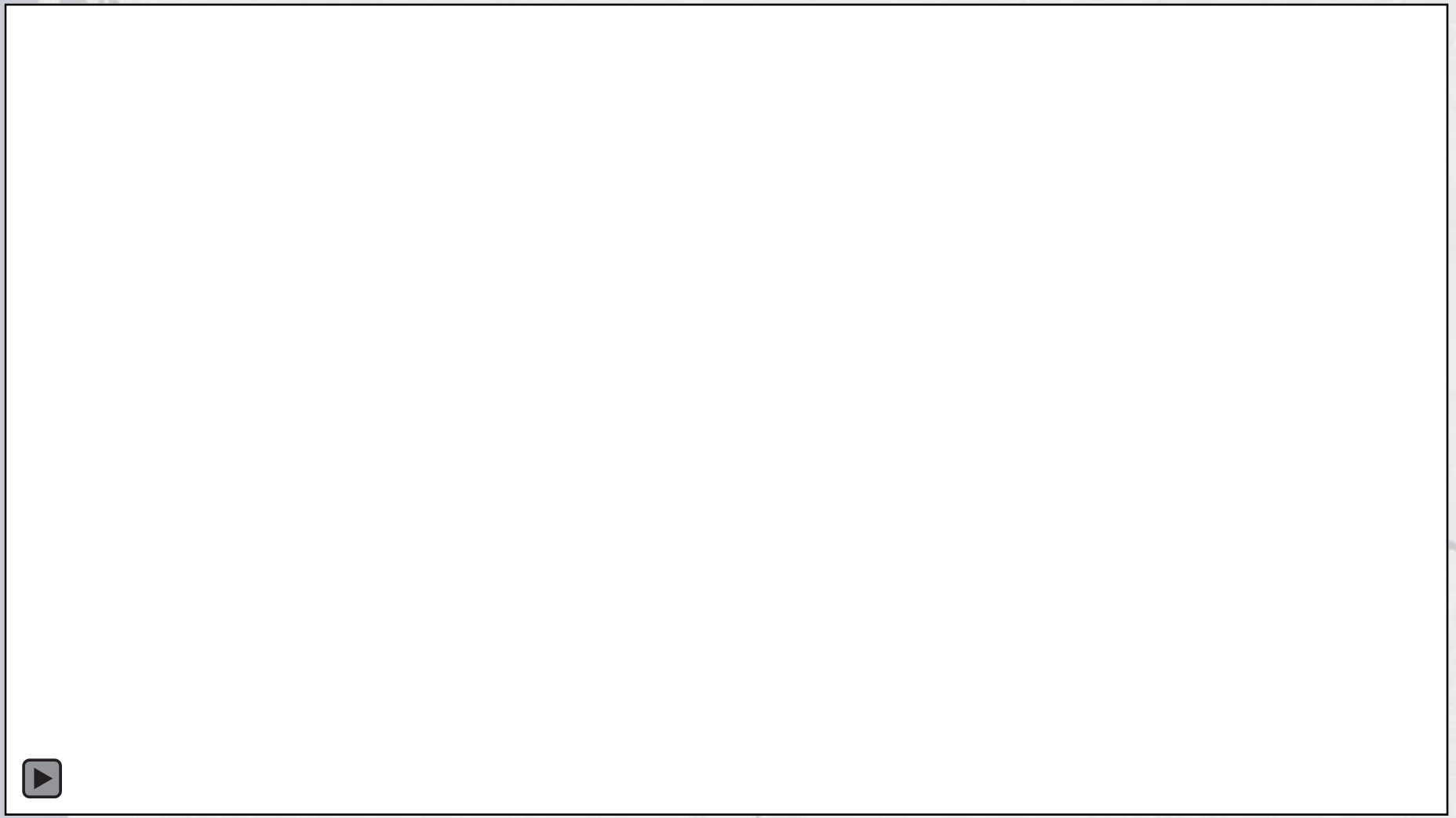
Constraints



Aldrich Point Restoration Approach



Video Interlude



Restoration in Action!

Aldrich Point Post-Restoration

Summary

With the support of our partners, CREST has successfully completed 37 projects since 2010 and currently have over 20 more in the pipeline.

Goals:

1. **Prioritize strategic initiatives** that contribute to a large, interconnected network of floodplain restoration projects, enhancing habitat for ESA-listed salmon.
    1. *Examples*: Columbia-Pacific Passage, North Unit/Sauvie, and projects aimed at improving connectivity along the Railroad corridor.
2. **Remain flexible/adaptable** to seize emerging restoration opportunities (Big or small) as they arise.

CREST relies on the strength of local communities and our project partners/funders. Every project, whether large or small, contributes to a broader impact. Each success opens new doors, furthering **salmon recovery efforts,** enhancing **water quality, flood and erosion protection, climate resilience, economic benefits, cultural and educational opportunities**, and **reducing strain on infrastructure**.

THANK YOU to our Funders & Partners!!

- Bonneville Power Administration, US Army Corps of Engineers, OR Department of Fish and Wildlife, WA Department of Fish and Wildlife, US Fish & Wildlife Service, NOAA, LCEP, CLT, NRCS, NCLC, PNNL, OHSU, National Park Service, OR State Parks, Clatsop County, Columbia County, Multnomah County, Pacific County, Wahkiakum County, City of Astoria, City of Warrenton, City of Ilwaco, OR Department of State Lands, Clatsop Tribe, Cowlitz Tribe, Chinook Tribe, Cathlamet Tribe, Grand Ronde, All the Soil and Water Conservation Districts, OWEB, SRFB, WCRRI, PPBSHF, BAFBRB, OR Department of Forestry, Hampton, Nuveen, and the countless private landowners who want to be great stewards of the land!