Pierce Conservation District Reforestation Carbon Program – 2020 Projects
Site #2: South Prairie Creek Preserve – Interior Floodplain Planting
Project Design Document

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PROJECT OVERVIEW

Basic Project Details

Project Name: Pierce Conservation District Reforestation Carbon Program – 2020 Projects, Site #2: South Prairie Creek Preserve – Interior Floodplain Planting
Project Number: 007
Project Type: Planting
Project Start Date: November 19, 2020
Project Location: South Prairie, Pierce County, WA
Project Operator Name: Pierce Conservation District
Project Operator Contact Information: Jayme Gordon; jaymeg@piercecd.org; (253) 845-9770 ext. 102

Project Description

Include details of where the project will take place, how many trees will be planted, what type of planting, partners, overall project goals, and any other relevant information.

This riparian planting project will restore native vegetation to an estimated 7.65 acres of floodplain habitat along South Prairie Creek, a tributary to the Carbon River in the Puyallup-White River watershed. Planting will take place in an area owned by Pierce Conservation District and Pierce County that lies between a newly constructed, half-mile long side channel and the right bank of South Prairie Creek.

This planting is part of a larger project to improve salmon habitat and restore floodplain processes. The project site had been utilized as pasture for many decades and is characterized by a mix of mostly non-native grasses and invasive weeds. Ultimately, a total of approximately 40 acres will be planted. Prior to excavation and in-stream construction, 9.8 acres were planted Fall 2017-Spring 2020, and the remainder of the site will be planted over the course of two planting seasons. This application represents the planting scheduled to occur in the 2020-2021 season. The remainder of the site expected to be planted 2021-2022 will be submitted in the 2021 application and documentation.

LOCATION AND OWNERSHIP OF PROJECT AREA (Section 1.3, 2)

Location Eligibility

Project Areas must be located in parcels within or along the boundary of at least one of the following criteria. Describe how the Project Area(s) meet the location criteria.

A. *The Urban Area boundary ("Urban Area"), defined by the most recent publication of the United States Census Bureau*
B. *The boundary of any incorporated city or town created under the law of its state;*
C. *The boundary of any unincorporated city, town, or unincorporated urban area created or designated under the law of its state;*
D. *The boundary of land owned, designated, and used by a municipal or quasi-municipal entity such as a utility for source water or watershed protection;*
E. *A transportation, power transmission, or utility right of way, provided the right of way begins, ends, or passes through some portion of A through D above.*

Ownership Eligibility

Project Operator must demonstrate ownership of property and eligibility to receive potential credits by meeting at least one of the following:

A. *Own the land, the trees, and potential credits upon which the Project trees are located; or*
B. *Own an easement or equivalent property interest for a public right of way within which Project trees are located, own the Project trees and credits within that easement, and accept ownership of those Project trees by assuming responsibility for maintenance and liability for them; or*
C. *Have a written and signed agreement from the landowner granting ownership to the Project Operator of any credits for carbon storage or other benefits delivered by Project trees on that landowner's land. If Project trees are on private property, this agreement must be recorded in the property records of the county in which the land containing Project trees is located.*

Project Area Location

Describe where the Project Area is located and how it meets the location criteria.

This project is eligible per the definition of Option A: The Urban Area boundary ("Urban Area"), defined by the most recent publication of the United States Census Bureau.

The project area is located between RM 4.0 and 4.5 on South Prairie Creek in east Pierce County, WA. It is located approximately one mile west of the town of South Prairie on property known as the "South Prairie Creek Preserve." Reference address is 13518 Pioneer Way East, Orting WA 98360.

Project Area Ownership and Right to Receive Credits

Describe the property ownership and include relevant documentation including title/filename as an attachment (Declaration of Land Ownership or Agreement from Owner to Transfer Credits.)

This project is eligible under conditions A & C: The Pierce Conservation District (PCD) owns the land, trees, and credits on part of the project area. Pierce County (PC) owns the land on the other part of the project area. There is an agreement between PC and PCD for the site prep and planting of trees for the salmon recovery project. We have attached a *Declaration of Ownership* for PCD-owned land and *Agreement to Transfer Credits* between PCD and PC.

The property is comprised of six Pierce County tax parcels. Parcels 0519132700, 0519132017, and 0519131030 are owned by PCD; parcels 0519132027, 0519132028, and 0519132029 are owned by Pierce County Surface Water Management. Pierce County and PCD have a landowner agreement for the planting work associated with the salmon recovery project.

1 - PCD South Prairie Declaration of Ownership
2 - PCD and PC South Prairie Agreement to Transfer Credits

Maps
Provide a detailed map of the Project Area. Also provide a map that shows the Project Area within the context of relevant urban/town boundaries. Include title/filename of relevant attachments.

1) **Map of Project Area**
Title/filename of relevant attachment(s)

SPCP Interior Floodplain Map

2) **Regional-scale map of Project Area**
Title/filename of relevant attachment(s)

SPCP Vicinity Map

PLANTING DESIGN
Describe planting design. Will the trees be planted as scattered single trees, clustered groups like parks plantings, or closely spaced such as riparian plantings?

The trees are planted throughout the project site following the CFC riparian planting method. For the 7.65-acre project area, a planting density of 401 plants/acre was used as a general guideline; this equates to 3,065 trees. They are planted throughout the site on an average of 10' spacing. Nine species of trees and woody shrubs native to the Puget Sound lowlands were selected for this site. Microtopography and specific site features influenced species selection and planting design.

Describe your data collection on Project Trees. For example, Project Operator can use the data collection sheet contained in the CFC quantification tool or your own method.

Data collection on project trees will follow the planting Monitoring Manual developed by Pierce Conservation District Habitat Improvement staff. The monitoring manual describes the protocol used to establish monitoring plots and transects within the planting area; methodology for collecting line point intercept data; and noting qualitative observations about plant conditions. We will incorporate the Forest Ecosystem modification to the traditional Tree Canopy Approach for riparian tree planting projects as described in the "City Forest Credits Planting Protocol – Riparian Planting Quantification and Monitoring, Standards and Requirements in the Pacific Northwest" document into our monitoring protocol at this project site.

MONITORING AND REPORTING PLANS
Project Operator is required to submit an annual monitoring report. The report must contain any changes in eligibility status of the Project Operator and any significant tree loss. Confirm and describe your plans for annual monitoring of this project.

As mentioned above, the Pierce Conservation District's Habitat Improvement team already utilizes a monitoring protocol. Revegetation monitoring is conducted annually via a series of randomized plots

that aim to sample 2%-5% of the planting area and 10%-20% of the installed plants. Data collected via line point intercept, photo monitoring, and vegetation height/DBH allows us to assess plant survival, species diversity, and other changes in site characteristics we expect to see over time. Also monitored within each plot is general plant health and vigor (by species). Tree canopy monitoring, as described in the "City Forest Credits Planting Protocol – Riparian Planting Quantification and Monitoring, Standards and Requirements in the Pacific Northwest" document, will be added to our monitoring protocol for Years 3, 5, and 25. Aerial imagery obtained via drone or publicly available GIS imaging will be used to assess tree canopy coverage.

The District will submit a copy of its annual monitoring report for this site to CFC. In addition to data collected by the District, any other information required by CFC will be incorporated into the report as needed.

CARBON AND CO-BENEFITS QUANTIFICATION DOCUMENTATION (Section 12 and Appendix B)
Describe which quantification approach you anticipate using. When requesting credits after planting or in Years 4 or 6, attach one of the three documents below and provide the data you have collected for Project Trees.

1) *Single Tree Quantification Tool*
2) *Canopy Quantification Tool*
3) *Riparian Quantification with CO2 calculated per acre*

If your project is a riparian planting, provide the following:

- *General location of plantings on a map*
- *Most common 4 or 5 species and numbers of trees to be planted*
- *Approximate number of trees per acre*
- *Total acreage planted*

Total Trees Planted:
3,065

Total Acreage Planted:
7.65

Number of Trees per Acre:
401/acre

Row Labels	Sum of No. Sites Planted
bigleaf maple	485
black cottonwood	650
black hawthorn	150
Douglas fir	110
Oregon ash	150
red alder	300
Sitka spruce	200
vine maple	220
western red cedar	800
Grand Total	**3065**

Table 3. Credits are based on 10%, 40%, and 30% at Years 1, 3, and 5 after planting, respectively, of the projected CO2 stored by live trees 25-years after planting. These values account for anticipated tree losses and the 5% buffer pool deduction.

						10%	40%	30%
	No. Sites Planted	No. Live Trees	Mortality Deduction (%)	25-yr CO_2 stored (kg/tree)	Tot. 25-yr CO_2 stored w/ losses and 5% deduction (t)	10% CO_2 (t)	40% CO_2 (t)	30% CO_2 (t)
BDL	1285	1028	0.20	2,062.82	2014.6	201.46	805.82	604.37
BDM	300	240	0.20	1,277.75	291.3	29.13	116.53	87.40
BDS	370	296	0.20	604.21	169.9	16.99	67.96	50.97
BEL	0	0	0.20	0.00	0.0	0.00	0.00	0.00
BEM	0	0	0.20	0.00	0.0	0.00	0.00	0.00
BES	0	0	0.20	0.00	0.0	0.00	0.00	0.00
CEL	1110	888	0.20	1,520.44	1282.6	128.26	513.06	384.79
CEM	0	0	0.20	0.00	0.0	0.00	0.00	0.00
CES	0	0	0.20	0.00	0.0	0.00	0.00	0.00
	3065	2452		5,465.2	3758.4	375.84	1503.37	1127.53

Co-Benefits PER YEAR after 25 years (all live trees, includes tree losses)

Ecosystem Services	Resource Units Totals	Res Unit/site	Total $	$/site
Rain Interception (m3/yr)	15,616.68	5.10	$114,647.41	$37.405
CO2 Avoided (t, $20/t/yr)	150.04	0.05	$3,000.84	$0.979
Air Quality (t/yr)				
O3	0.4719	0.0002	$977.87	$0.319
NOx	0.1527	0.0000	$316.34	$0.103
PM10	0.2602	0.0001	$957.89	$0.313
Net VOCs	-1.3956	-0.0005	-$1,076.85	-$0.351
Air Quality Total	-0.5109	-0.0002	$1,175.25	$0.38
Energy (kWh/yr & kBtu/yr)				
Cooling - Elec.	163,853.41	53.46	$8,389.29	$2.74
Heating - Nat. Gas	512,906.98	167.34	$5,838.77	$1.90
Energy Total ($/yr)			$14,228.06	$4.64
Grand Total ($/yr)			$133,051.56	$43.41

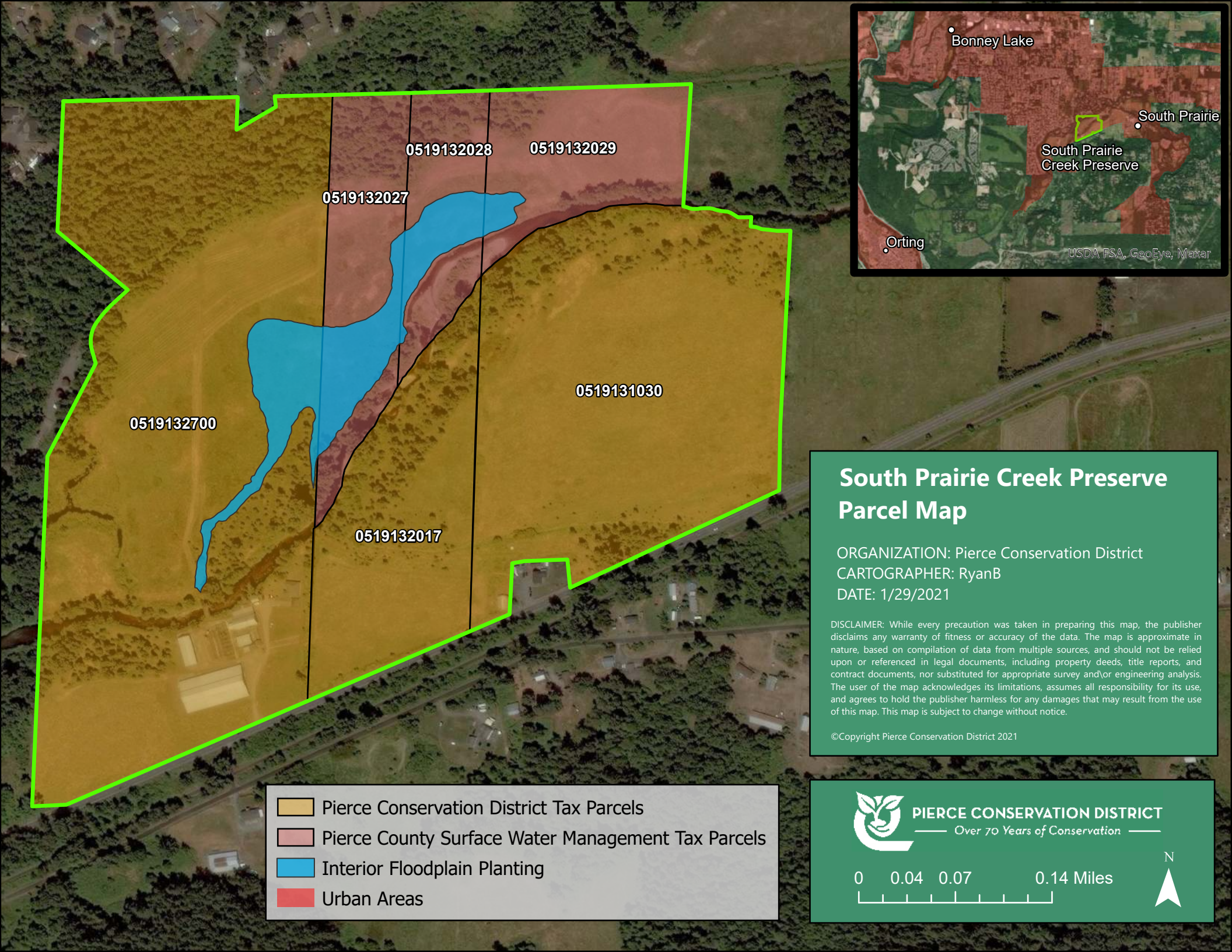
ADDITIONAL INFORMATION (OPTIONAL)

Include additional noteworthy aspects of the project. Examples include collaborative partnerships, community engagement, or project investors.

This planting occurs on contiguous properties totaling 129 acres owned by both Pierce County and the Pierce Conservation District, and the project as a whole is done in partnership with Pierce County, the Puyallup Tribe of Indians, and the South Puget Sound Salmon Enhancement Group. This project is the culmination of a multi-year effort by these partners and others to identify high-priority opportunities to improve endemic salmonid populations, many of which are threatened and endangered.

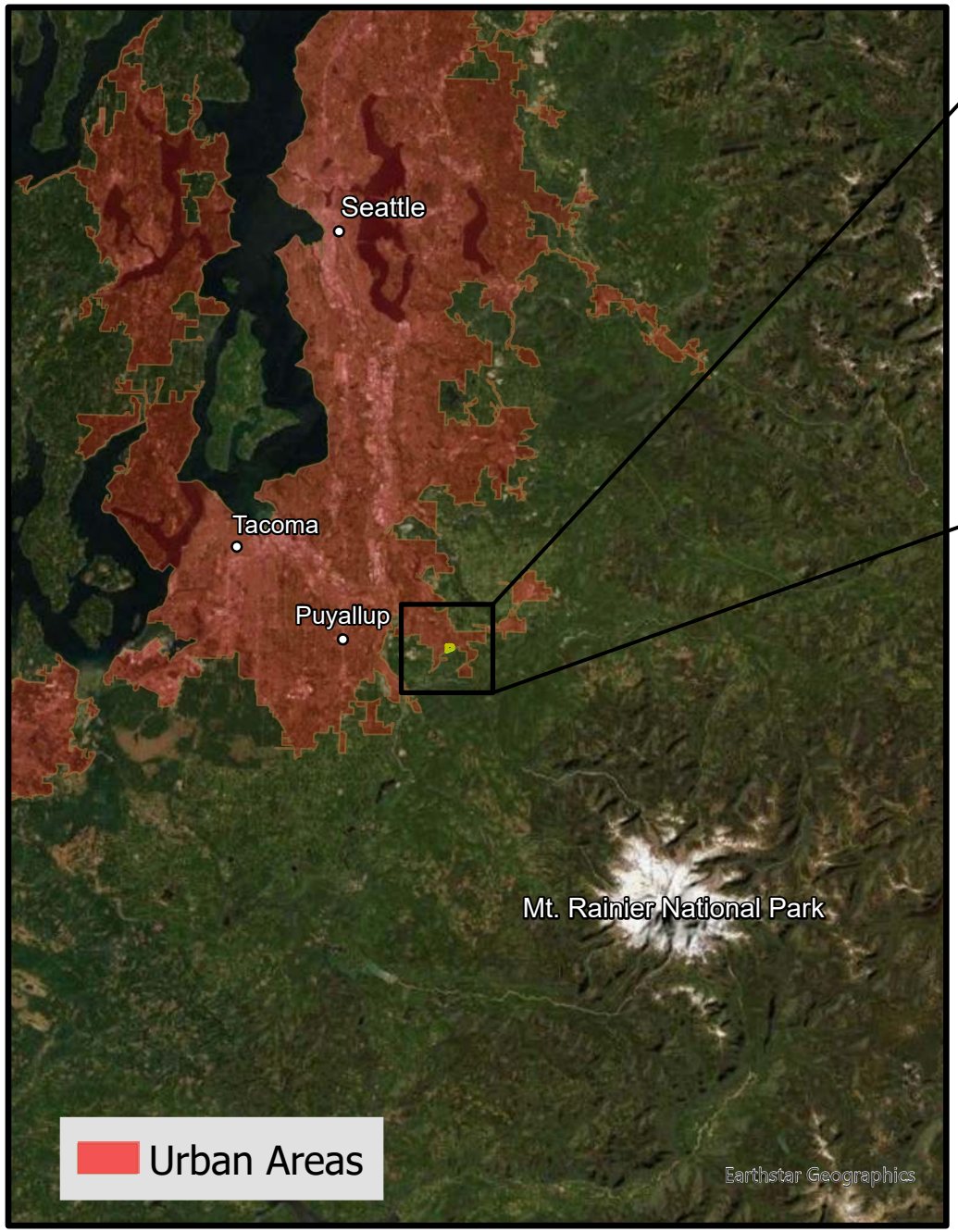
This planting is part of a larger project to improve salmon habitat and restore floodplain processes in a high priority stretch of South Prairie Creek. Construction of a half-mile side channel and instream improvements to a half-mile of South Prairie Creek are intended to support adult to juvenile out-migrant survival and productivity for spawning, rearing, foraging, migrating, and overwintering life history stages for fall Chinook, Steelhead, Coho, Chum, Pink, and Cutthroat and Bull Trout.

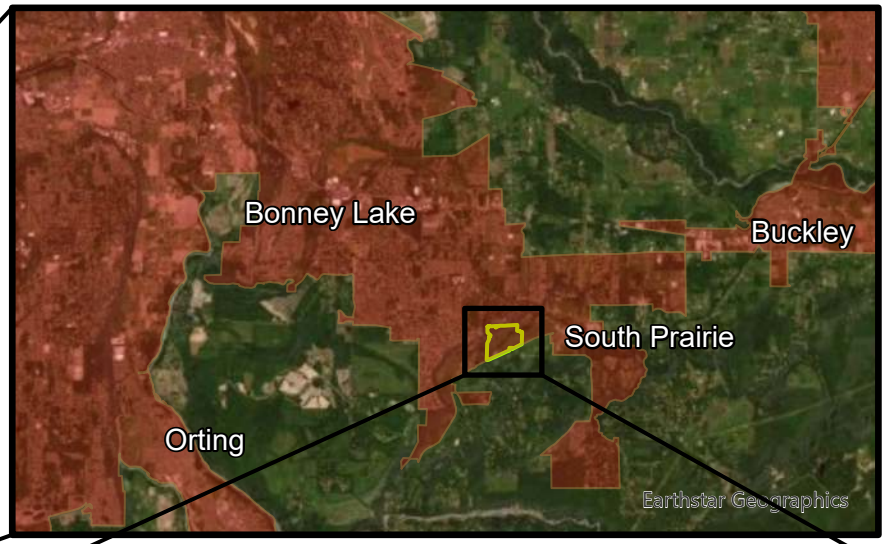
However, the long-term success of this project – and the long-term achievement of self-sustaining ecosystem processes – depends on establishment of riparian and floodplain plant communities throughout the project site. This planting effort is the final piece of the project. Over time, the trees planted now will provide erosion control; floodplain and riparian habitat and ecosystem processes; shade to lower water temperatures; and contribute to instream habitat diversity, in addition to carbon sequestration.

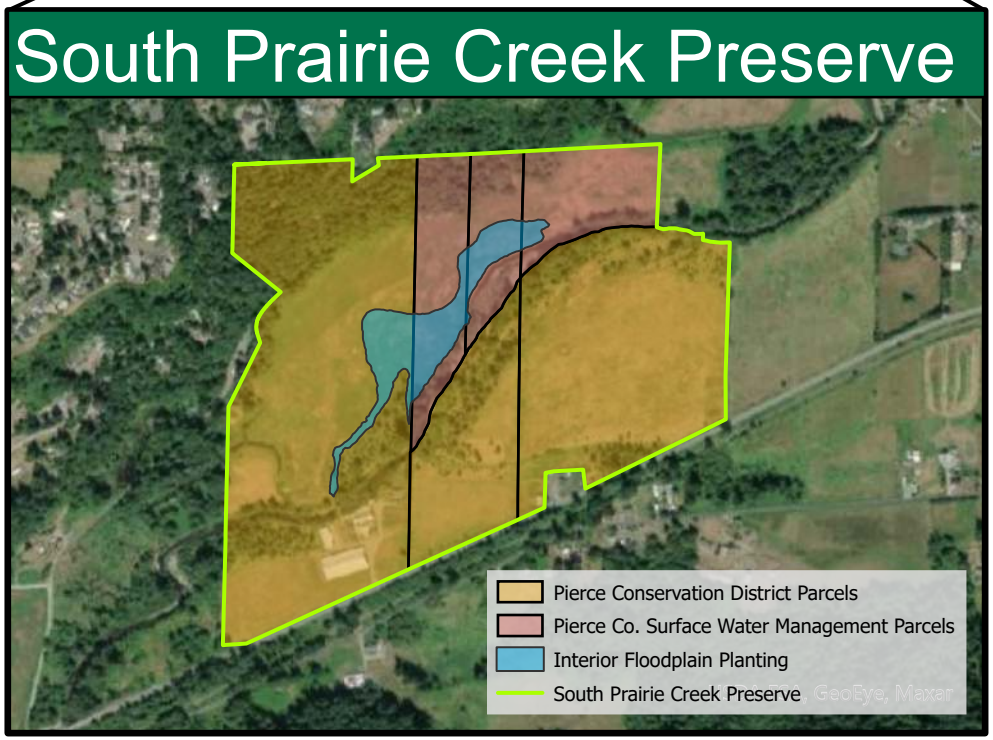


South Prairie Creek Preserve Parcel Map

ORGANIZATION: Pierce Conservation District
CARTOGRAPHER: RyanB
DATE: 1/29/2021







South Prairie Creek Preserve Vicinity Map

ORGANIZATION: Pierce Conservation District

CARTOGRAPHER: RyanB

DATE: 2/9/2021

PIERCE CONSERVATION DISTRICT

Over 70 Years of Conservation

0 0.13 0.25 0.5 Miles

N