Project Completion Report for OWEB Grant 218-3007-15619

Final Completion Summary

Tub Run Riparian & Wetland Prairie Restoration Project is located 8 miles south of Brownsville. Tub Run Creek is a tributary to the Little Muddy River. Tub Run Creek is outside of the Calapooia Watershed, although it is within the Calapooia Watershed Council's service area. Once an abundant ecosystem within the Willamette Valley, native wetland prairies have declined dramatically in extent since the mid-1800s due to a variety of factors including agricultural conversion, urbanization, drainage, and colonization by invasive and woody vegetation. Today, wetland prairie habitat is regarded as one of the most imperiled in the Willamette Valley ecoregion, with less than 2% of its historic range remaining (Johannessen et al. 1971, Towle 1982). Degraded water resources from past and current land-use practices, such as high summer water temperatures, erosion, and nutrient inputs, are chronic issues throughout the Muddy Creek basin. These types of problems have negatively affected populations of anadromous and resident salmonids and lamprey in the greater Willamette Basin. Restoration components implemented include: restoration of 36 acres of farmland to wetland prairie, and restoration of 37 acres of degraded riparian habitat. Project partners included a private land owner, US Fish and Wildlife Service, Natural Resource Conservation Service, Farm Service Agency, Linn Soil and Water Conservation District, and the Calapooia Watershed Council.

Background

Wetland prairie habitat has seen significant reductions across the Willamette Valley since the arrival of settlers in the mid 19th century. Less than 2% of its original range is estimated to remain. A number of bird species are dependent on the now rare wetland habitat type and are, as a result, now threatened. These species include: Wilson's snipe, Western bluebird, short-eared owl, and Western Meadowlark along with other prairie dependent species. Agriculture and rural development in the Willamette Valley has led to the destruction of functioning riparian habitat that leads to degraded water resources from past and current land-use practices, such as high summer water temperatures, erosion, and nutrient inputs. Habitat within the riparian zone is also at risk when it is grown in with competitive non-native invasive species such as Armenian blackberry, Teasel, and other exotic vegetation. The restoration site was previously wetland prairie habitat prior to alteration from agriculture. This project sought to return the project site to functional wetland prairie to support threatened bird species in the Willamette Valley.

Work Done

1. Re-introduced of topographic variation and more diverse species assemblages: Seven vernal pools were created through excavation in conjunction with USFWS and NRCS support with landowner labor. This activity increases site variability and supported wetland conditions on the site which in turn support a greater variety of native vertebrate and invertebrate species as well as greater water storage at the site.

2. Re-created more varied hydrologic conditions and re-connected historic Channels on Tub Run Creek: 1 pilot channel was created to reconnect historic channels on Tub Run Creek. This improved the hydrologic connectivity of the site as well as restoring historic conditions

3. Established wetland prairie native forbs/sedges/rushes/grasses: 36 acres of previously farmed land were seeded from pure live seed to reestablish native plant species appropriate to the historic conditions on the site. Native plants will better support historic site conditions as well as desirable native birds and other native species. 25,000 native wetland prairie stems and plugs were also planted throughout the 36 acre project area.

4. Re-established healthy riparian vegetation: 64,000 native trees and shrub species were planted throughout the 37 acres of riparian area and along 0.93 miles of Tub Run Creek to support historic native plant communities which better serve water quality and desirable native wildlife.

Public Awareness or Education

No public awareness activities were completed as part of this project

Lessons Learned

Restoration at Tub Run is a large and ongoing effort involving the cooperation of the landowner as well as multiple agencies and funding sources. This level of complexity can be quite daunting for the landowner. While the landowner has done a stellar job of performing the restoration work, the big lesson learned was to perform much more fine scale tracking of scope of work activities across funding sources. This did not end up being a major obstacle but involved a greater level of administrative work then originally anticipated. Additionally, a greater amount of project management time was needed than was originally anticipated. Projects of this complexity (Simply put, the number of different restoration activities being performed and the scale) require quite a lot of coordination and on-the-ground work.

Recommendations

For a project of this scale and with as many scope of work items, expect a higher level of project manager involvement and coordination between agencies and the landowner. While this project didn't involve as much in the way of engineered designs it still necessitated a lot of communication and on the ground work.

Aquatic Habitat

Vernal Pools - Water and Sediment Control Basins - Appropriate permits were obtained and the vernal pool complex was designed as a wetland and was appropriately situated outside of the stream channel and with run off and sedimentation in mind.

Riparian Planting - Riparian Planting and/or Fencing - Site suitability was assessed and appropriate species were selected. Grazing at the site and herbivory by wildlife is not a major limiting factor so fencing was not necessary. Spot application of herbicide was performed to help newly planted seedlings compete.

Revitalized Historic Pilot Channel - Whole Channel Alteration - Appropriate permits were obtained. The

historic channel was preexisting but had been disconnected by legacy agricultural practices so reconnection through excavation was appropriate and effective.

Special Conditions

(b) In addition to the requirements in Exhibit C, the Project Completion Report will include the following regarding
plant stewardship:
i. List of species planted and the overall planting density.

The riparian forest was planted at a density of 2000 stems/acre and included Mahonia aquifolium, Cornus sericea, Calocedrus decurrens, Fraxinus latifolia, and Pinus ponderosa (West Valley). Wetland prairie shrubs and plugs were planted to a density of 600 stems/acre and included Rosa nutkana, Spiraea doublasii, Amelanchier alnifolia, Salix lasiandra var. lasianda, and Salix hookeriana. Herbaceous plants were seeded at a rate of 5 lbs/acre PLS and included Gilia capitata, Achillea millefolium, Aquilegia formosa, Lupinus albicaulis, Rumex salicifolius, Clarkia amoena, Eriophyllum lanatum, Grindellia integrifoloa, Lupinus polycarpus, Lupinus rivularis, Prunella vulgarus, Camassia leichtlinii, Plagiobothrys figutatus, Helianthus annuus, Downinga elegans, Juncus effusus, Juncus tenuis, Juncis bufonius, Carex unilateralis, Carex densa, Chenopodium album, and Amaranthus retroflexus.

ii. Summary of actions completed to promote plantings reaching a “free-to-grow” state, including interplanting, invasive species control, irrigation, or other activities related to plant stewardship.

Interplanting was performed intermittently during the growing seasons following initial plantings up until 2024. Herbicide application was performed as necessary (spot spraying) to help the competitiveness of native species. Maintenance is ongoing and very involved thanks to the determination of the landowner and the involvement of the NRCS and USFWS.

iii. An analysis of progress towards restoring target plant community(ies) described in the grant application.
This could be described by data on plant survival and mortality, native plant density, and/or percent cover of natives versus invasive plant species.

Riparian Forest Plantings have been extremely successful with a survival rate of about 75% which is reflected in the riparian cover of the reconstructed pilot channel. The Wetland prairie shrub plantings have seen the highest survival rate at around 80% with spiraea plantings performing particularly well. It is difficult to see from the photos because some annual ryegrass and other natives persist, but native wildflowers planted as part of this project have performed well and represent about 70% of visible cover in the spring time. Invasives and nonnatives altogether represent less than 15% of cover in the project area and are patchy. Invasive species treatment is targeted and ongoing.

iv. Photo points taken at least once during the growing season.

See Uploads

Funding Sources

Source	Indentifier	Cash	InKind Type	Inkind
Calapooia Watershed Council		$0.00	Labor	$2,500.00
Farm Service Agency		$115,296.00		$0.00
OWEB	218-3007-15619	$190,711.00		$0.00
Scott Erion - Landowner		$2,500.00	Labor	$7,650.00
USFWS		$0.00	Labor	$8,500.00

Totals

OWEB Amount	Non OWEB Cash	Inkind Total	Non OWEB Amount	OWEB Match	Total Project Cost
$190,711.00	$117,796.00	$18,650.00	$136,446.00	72.0%	$327,157.00

Uploaded Files

Image Type	File Name	Description
Final Payment Checklist	Final Payment Check List, 218-3007.pdf	Final Payment Request Checklist
Federal Lobbying Certificate	Federal-Lobbying-Certificate_TubRun1_signed (1) (1).pdf	Federal Lobbying Certificate
Land Use Form	LandUse_TubRun (3).pdf	Land Use Form
Permit (ODF, DSL or other)	TubRunPhase1_Permits.pdf	Permits
Photo (other)	TubRun_Supplemental_Growing_Season.pdf	Supplemental photopoints taken during growing season
Map	Planting design map.pdf	Supplemental Planting Design Map

Photo Point	TubRunP1_Post_PP5.jpg	Vernal pool establishment and wetland prairie restoration site, riparian planting in distance
Photo Point	TubRunP1_Pre_PP5.JPG	Vernal pool establishment and wetland prairie restoration site, riparian planting in distance
Photo Point	TubRunP1_Post_PP4.jpg	Riparian Planting Area
Photo Point	TubRunP1_Pre_PP4.JPG	Riparian Planting Area
Photo Point	TubRunP1_Post_PP3.jpg	Pilot Channel and Riparian
Photo Point	TubRunP1_Pre_PP3.JPG	Pilot Channel and Riparian
Photo Point	TubRunP1_Post_PP2.jpg	Wetland Prairie Restoration and Vernal Pool Creation Area
Photo Point	TubRunP1_Pre_PP2.JPG	Wetland Prairie Restoration and Vernal Pool Creation Area
Photo Point	TubRunP1_Post_PP1.jpg	Wetland Prairie Restoration Area
Photo Point	TubRunP1_Pre_PP1.JPG	Wetland Prairie Restoration Area
Map	TubRunPhotopointsMap.pdf	Photopoints Map
Exhibit B	218-3007 EXHIBIT B.pdf	