Final Report #921715

Metropolitan Greenspaces Restoration Project
Tualatin River National Wildlife Refuge--Parr Property

Friends of Trees
November 1999 – May 2002

Prepared by
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1. PROJECT AREA MAP & PROJECT SITE MAP: See Appendix A

2. PHOTOS: See Enclosed Disks

3. PROJECT DESCRIPTION

This project is a partnership between Friends of Trees (FOT), U.S. Fish and Wildlife Service (USFWS), Friends of the Tualatin River National Wildlife Refuge (FTRNWR), and Tualatin Riverkeepers (TR), and is made up of three interrelated components: restoration of a five-acre oak savanna, creation of a vegetative buffer along the eastern edge of the property, and vegetative enhancement of a small riparian section of an existing man-made pond. The project area, known as the Parr Property, is a 7-acre parcel within the Tualatin River National Wildlife Refuge. Restoration efforts began in February of 2000 (see timeline), and involved volunteer groups, EnviroCorps teams, contractors, and at-risk youth (Youth Tree Corps).

4. GOALS AND BENEFITS OF THE PROJECT

This project supports the goals of the Tualatin River National Wildlife Refuge, which include (1) restore native riparian vegetation communities and associated populations of indigenous fish, wildlife, and plant species of the Tualatin River Basin; (2) provide opportunities for wildlife-oriented recreation and environmental education to enhance public appreciation, understanding and enjoyment of fish, wildlife, habitats, and cultural resources, and (3) protect, restore and develop habitats for and otherwise support recovery of Federally listed endangered and threatened species and help prevent the listing of candidate species and species of management concern. Specific project goals were to use a community-based model to restore an oak savanna system, create a vegetative buffer, and enhance a riparian area using native plants.

Benefits of this project are numerous: a diversified native plant community, improved wildlife habitat, increased awareness regarding prairie systems, a model for future restoration projects, and improved water quality. Our efforts at the Parr property have resulted in the planting of several species of both woody and herbaceous vegetation. The plants will attract a greater number of wildlife species already present like the great egret, cackling Canada goose, ring-necked duck, bufflehead, greater sandhill crane, bald eagle, pileated woodpecker, northern red-legged frog and painted turtle. Moreover, with less than one percent of the Willamette Valley shortgrass prairie remaining, our efforts will provide both short-term and long-term refugia for savanna depend wildlife. This project

will also increase public awareness of the value of prairie, and provide a demonstration project to assist and inspire other prairie restoration efforts. Improved water quality is another project benefit. The diversity of tree, shrub, and herbaceous flora now present create an excellent filtration system for water flowing ultimately to the Tualatin River. The vegetation's complex root systems facilitate aggregate formation within the soil, thereby increasing the soil's filtering and water holding capacity.

5. WORK TASKS AND TIMELINES

Date or Month	Activity
2/26/00	Buffer Planting--925 native trees and shrubs
3/4/00	Riparian Planting—1225 native trees and shrubs
3/31/00	Herbicide Application
April, 2000	No Activity
5/2/00	Herbicide Application
6/7/00	Maintenance (YTC)
6/8/00	Maintenance (YTC)
6/9/00	Maintenance (YTC)
6/29/00	Watering (Contract)
7/15/00	Maintenance and Monitoring (Volunteers)
7/20/00	Maintenance (YTC)
7/21/00	Maintenance (YTC)
7/28/00	Herbicide Application
8/8/00	Maintenance (ACS)
8/19/00	Maintenance and Monitoring (Volunteers)
September, 2000	No Activity
10/9/00	Seeding with Annual Rye
November, 2000	No Activity
December, 2000	No Activity
January, 2001	No Activity
February, 2001	No Activity
March, 2001	No Activity
April, 2001	No Activity
5/18/01	Herbicide Application
6/9/01	Maintenance and Monitoring (Volunteers)
6/12/01	Maintenance (YTC)
6/26/01	Maintenance and Monitoring (EnviroCorps)
7/3/01	Maintenance (YTC)
7/4/01	Maintenance (YTC)
7/5/01	Maintenance (YTC)

7/26/01	Herbicide Application
August, 2001	No Activity
9/15/01	Maintenance and Monitoring (Volunteers)
9/25/01	Mowed Annual Rye
10/1/01	Raked thatch left from Annual Rye
10/11/01	Drilled Native Seed Mix
November, 2001	No Activity
December, 2001	No Activity
January, 2002	No Activity
February, 2002	No Activity
3/23/02	Planting—495 Oaks (*Quercus garryana*)

6. PROJECT BUDGET

Category	Metro	Match	In-Kind	Actual Metro	Actual Match	Actual In-Kind	Actual Total
Personnel							
Herbicide Contractor	$2,000.00			$1,800.00			$1,800.00
Prescribed Burn (TRNWR)			$1,000.00			$0	$0
Contract Watering	$0			$400.00			$400.00
Materials, Plants & Supplies							
Native grass and forbs seed mix	$4,000.00			$2,744.93			$2,744.93
Plants	$2,013.00			$5,172.30			$5,172.30
Weed block/Mulch	$945.00			$739.00			$739.00
Staples for weed block	$250.00			$90.00			$90.00
Bamboo stakes	$201.00			$128.60			$128.60
Mouse mesh/Animal protection tubes	$234.00			$145.95			$145.95
Fertilizer	200.00			$0			$0
Flagging tape	$0.0	$50.00		$2.00	$5.25		$7.25
Tractor and driver (TRNWR)			$200.00			$1,224.00	$1,224.00
Fuel for irrigation pump and tractor (TRNWR)			$150.00			$500.00	$500.00
Other materials (TRNWR)			$0			$1,000.00	$1,000.00
Rental Fees							
No-till seed drill	$600.00			$0			$0
Maintenance Costs							
SalmonCorps	$800.00						
Youth Tree Corps			$3,600.00			$3,600.00	$3,600.00
Prescribed burn (TRNWR)			$1,000.00			$0	$0
Maintenance Labor (TRNWR)			$0			$3,060.00	$3,060.00
Professional Services							
Ecological Design and Project management (TRNWR)			$6,400.00			$4,200.00	$4,200.00
Volunteer recruitment and project management (FOT)*			$3,200.00			$4,810.00	$4,810.00
Volunteer recruitment (Tualatin Riverkeepers and Friends of Trees the Refuge)			$1,200.00			$11,760.00	$11,760.00
Volunteer Labor							
Planting, maintenance, monitoring			$5,775.00			$6,303.00	$6,303.00
Indirect / Overhead Costs							
Postage and photocopying (FOT)		100.00			Not tracked		Not tracked
Postage and photocopying (Friends of Trees the Refuge)		$50.00			Not tracked		Not tracked
Postage and photocopying (Tualatin Riverkeepers)		$50.00			Not tracked		Not tracked
TOTALS	**$11,243.00**	**$250.00**	**$23,325.00**	**$11,222.78**	**$5.25.00**	**$36,457.00**	**$47,685.03**

* Includes amount for FOT Natural Area Manager, Natural Area Coordinator and Volunteer Coordinator.

7. PROJECT STAFF/ WORKERS/ VOLUNTEERS

Friends of Trees staff included Tuck Clinehens, Natural Area Restoration Manager, Anil Devnani, Natural Area Restoration Manager, Rosemary Boardman, AmeriCorps Natural Area Restoration Coordinator, Ryan Durocher, AmeriCorps Natural Area Restoration Coordinator, and Morgan Will, Volunteer Program Manager. U.S. Fish and Wildlife Service staff included Chris Lapp, Botanist/Ecologist and John Sweitzer, Restoration Coordinator. Dana Abel was the Volunteer Coordinator for the Tualatin Riverkeepeers. Joan Patterson was the President of Friends of the Tualatin River National Wildlife Refuge.

Other organizations that aided in project implementation include Northwest Service Academy's EnviroCorps field teams, City of Portland Environmental Services, and Friends of Trees' Youth Tree Corps.

The Parr Property restoration hosted 382 planting and maintenance volunteers, including volunteers from such organizations as Committed Partners for Youth, Hands on Portland, Boy Scouts and Cub Scouts, and Intel.

8. HOW PROJECT RELATES TO THE GREENSPACES PROGRAM

This project falls within the Greenspaces program goal to " protect and enhance wetlands, stream corridors and similar remaining natural areas in the Portland metropolitan area." To illustrate, the Tualatin River National Wildlife Refuge is located in Sherwood, one of the fastest growing cities in Oregon. The wildlife refuge is composed of both upland and wetland habitats, which serve as an important resource for fish species and other freshwater inhabitants, as well as migratory and resident wildlife. In its current condition, its capacity to support large-scale biological diversity is limited. With ongoing land acquisition and restoration, this capacity will increase.

Water quality enhancement is another way this project serves to fulfill the goals of the Greenspaces program. The complex and varying depths of root systems from a large spectrum of native plants, in particular prairie species, act as a filter for water that eventually reaches the Tualatin River. Moreover, native vegetation improves water quality through precipitation interception and

evapotranspiration. In the future as the plants live out their life span, they will contribute nutrients back into the ecosystem from which new plant life will emerge.

9. WHAT WORKED / WHAT DIDN'T / HELPFUL HINTS / ADVICE

The Parr Property Restoration project was truly a learning experience. Regarding the oak savanna component of the project, site preparation proved to be critical. Even with an additional year of herbicide applications, the nonnative invasive field bindweed still persisted. The annual rye was fairly successful in temporarily suppressing the bindweed, however it required an herbicide application to prevent it from going to seed. In hindsight, the use of a sterile rye would have been preferred. Once sprayed, the rye was mowed, and resulted in a substantial amount of thatch. Before the native seed could be drilled, the thatch needed to be removed. Originally, the plan called for a prescribed burn to be conducted, which would have served multiple functions: removing the thatch utilizing an appropriate ecosystem process, providing a nutrient pulse for the newly seeded grasses and forbs, and setting back the field bindweed. Unfortunately, the refuge was unable to perform the burn.

Drilling the native mix proved to be somewhat challenging. The drill was not designed with native mixes in mind, which prevented us from utilizing the hose that discharges seed directly into the furrow. Instead, the seed was released at a greater distance from the ground resulting in less seed entering the furrow. Seed germination proved to be scattered, due in part to herbivory by geese and moisture difference across the site.

In an attempt to mimic natural systems (i.e. germination and recruitment), oaks of varying ages and sizes were planted. The idea was that instead of a homogenous stand of even aged oaks, the mixture of ages and sizes would provide both short-term and long-term vertical structure, and result in a more natural looking system. The trees were spaced at appropriate distances to accommodate high mowing in the spring and summer. Moreover, they were tubed using customized solid blue tubes, seated roughly an inch in the ground and secured with 2' bamboo. Finally, each plant was mulched using a minimum of 5 gallons of wood fiber hog fuel. The idea behind using the hog fuel was to provide a more natural/conducive substrate for soil microbes, at the same time suppressing weeds and maintaining moisture.

10. MONITORING AND MAINTENANCE PLAN

We conducted monitoring and maintenance activities starting in April through September. Initially, the monitoring protocol used was similar to that used by City of Portland, Bureau of Environmental Services. We established several random plots of five to seven feet in diameter throughout the site. Within these plots we measured tree survival, vigor and causes of death and damage. This information helped guide our maintenance plan and future planting methods. For example, if we found extensive rodent damage we increased or changed the barriers protecting the plant.

Maintenance plans primarily involved control of competing vegetation, watering, and remulching. To control the weeds we used manual labor from volunteers and Youth Trees Corps members. Beginning in April and working through September, we regularly sent groups to the site to release individual trees and shrubs from competing vegetation. Also included in our maintenance plan were replacement and/or repair of existing barriers depending on their integrity and effectiveness.

Under FOT 2001-2004 strategic vision, steward sites, the classification bestowed upon this project, receive a minimum of five years of maintenance and monitoring activities. Monitoring will consist of both transect and plot sampling, and look at several variables: survivorship, growth rate, damage, plants installation, tube status, and natural recruitment. Maintenance activities will involve watering, mulching, and removal of both nonnative invasive plants and competing vegetation. Monitoring and maintenance will be accomplished through the combined efforts of volunteers, at-risk youth, and staff from the aforementioned project partners.

11. ACCURATE COUNT OF SPECIES OF TREES AND SHRUBS PLANTED

Latin Name	Common Name	Quantity
Acer macrophyllum	bigleaf maple	300
Alnus rubra	red alder	250
Cornus sericea	red osier dogwood	200
Fraxinus latifolia	Oregon ash	325
Mahonia aquifolium	tall Oregon grape	50
Philadelphus lewisii	mock orange	25
Populus trichocarpa	black cottonwood	150
Pseudotsuga menziesii	Douglas-fir	375
Quercus garryana	Oregon white oak	495
Ribes sanguinuem	red flowering currant	75
Rubus parviflorus	thimbleberry	50
Spiraea douglasii	Douglas spiraea	200
Symphoricarpus albus	snowberry	150
	TOTAL	**2645 plants**
Bromus carinatus	California brome	54 pounds
Carex tumulicola	foothill sedge	1.125 pounds
Elymus glaucus	blue wildrye	27 pounds
Gilia capitata	globe gilia	13.5 pounds
Koeleria cristata	junegrass	9 pounds
Lotus purshiana	Spanish clover	1.125 pounds
	TOTAL	**105.75 pounds**

parr_map (960x1260x24b jpeg)

TUALATIN RIVER NATIONAL WILDLIFE REFUGE

Washington County, Oregon

Land Acquisitions Status 2001