

## **PART I - ADMINISTRATIVE**

### **Section 1. General administrative information**

<b>Title of project</b> Tualatin River National Wildlife Refuge Additions	
<b>BPA project number</b>	20140
<b>Contract renewal date (mm/yyyy)</b>	01/1999 (Initial Contract for FY-99)
<b>Multiple actions? (indicate Yes or No)</b>	Yes
<b>Business name of agency, institution or organization requesting funding</b> U.S. Fish and Wildlife Service	
<b>Business acronym (if appropriate)</b>	FWS
<b>Proposal contact person or principal investigator:</b>	
<b>Name</b>	Ralph D. Webber
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<b>NPPC Program Measure Number(s) which this project addresses</b> Section 11 (11.2D, 11.3E, & 11.3F) Section 7 (7.6)	
<b>FWS/NMFS Biological Opinion Number(s) which this project addresses</b>	
<b>Other planning document references</b> Oregon Trust Agreement (OTA) Planning Project, Prepared by Oregon Wildlife Managers for BPA; BPA Wildlife Mitigation Program, Final EIS; BPA Watershed Management Program, Final EIS; Assessing OTA Planning Project Using GAP Analysis, Prepared by ODFW for BPA; Status of the Interior Columbia Basin: Summary of Scientific Finding, USDA Forest Service; CTUIR Wildlife Mitigation Plan for the John Day and McNary Dams, Columbia River Basin; CTWSRO Integrated Resource Management Plan; ODFW District Wildlife Management Plans; Wy Kan Ush Me Wa Kush Wit, CRITFC. In addition, the... North Pacific Coast Ecoregion Plan (FWS); North American Waterfowl Management Plan; Pacific Coast Joint Venture, Strategic Plan; Arctic Goose Joint Venture, Strategic Plan; Oregon Governor's Salmon Recovery Plan; Aleutian Canada Goose Recovery Plan (FWS); Wetlands Concept Plan (FWS-Region 1); and Oregon's Wetlands Priority Plan.	

<p><b>Short description</b></p> <p>Secure, restore, and manage lands within the recently established Tualatin River National Wildlife Refuge to protect and enhance fish, wildlife, threatened and endangered species, and waters in the Tualatin River watershed.</p>
<p><b>Target species</b></p> <p>Canada goose, mallard, wood duck, lesser scaup, common merganser, American bittern, great blue heron, spotted sandpiper, norther harrier, bald eagle, peregrine falcon, belted kingfisher, black-headed grosbeak, yellow warbler, willow flycatcher, Lewis’s woodpecker, pileated woodpecker, western wood-pewee, western bluebird, black-capped chickadee, ruffed grouse, river otter, mink, black-tailed deer, western pond turtle, northern red-legged frog, cutthroat trout and steelhead.</p>

## Section 2. Sorting and evaluation

<p><b>Subbasin</b></p> <p>Lower Columbia, Willamette, Tualatin</p>
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### Evaluation Process Sort

CBFWA caucus	CBFWA eval. process	ISRP project type
X one or more caucus	If your project fits either of these processes, X one or both	X one or more categories
X Anadromous fish	X Multi-year (milestone-based evaluation)	Watershed councils/model watersheds
X Resident Fish	Watershed project eval.	Information dissemination
X Wildlife		X Operation & maintenance
		New construction
		Research & monitoring
		X Implementation & mgmt
		X Wildlife habitat acquisitions

## Section 3. Relationships to other Bonneville projects

***Umbrella / sub-proposal relationships.*** List umbrella project first.

Project #	Project title/description
9705900	Securing Wildlife Mitigation Sites - Oregon
	Wapato Lake Additions
	Multnomah Slough
	EE Wilson WMA Additions

**Other dependent or critically-related projects**

Project #	Project title/description	Nature of relationship
Non-BPA	METRO Greenspaces Project	Tributary Corridor Linkages

**Section 4. Objectives, tasks and schedules**

**Past accomplishments**

Year	Accomplishment	Met biological objectives?

**Objectives and tasks**

Obj 1,2,3	Objective	Task a,b,c	Task
1	Land Acquisition	a	Obtain Funding
		b	Purchase Lands
2	Restoration Management Planning	a	Implement HEP Inventories
		b	Develop Engineering & Design Plans
3	Habitat Restoration	a	Implement Management Plans
4	Monitoring & Evaluation	a	Post-Implement HEP Inventories
		b	Monitor Restored Habitats

**Objective schedules and costs**

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	04/2000	09/2000	Purchase 175 Acres	Yes	80%
2	01/2000	06/2000			1%
3	07/2000	10/2000	Restore 150 Acres	Yes	18%
4	04/2001	09/2001			1%
				<b>Total</b>	100%

<b>Schedule constraints</b> NEPA requirements and issuance of permits in association with restoration activities.
<b>Completion date</b>

FY-2004

## Section 5. Budget

<b>FY99 project budget (BPA obligated):</b>	<b>\$1,000,000 (Recommended)</b>
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### *FY2000 budget by line item*

<b>Item</b>	<b>Note</b>	<b>% of total</b>	<b>FY2000 (\$)</b>
Personnel	Initial & Terminal HEP Inventories	2%	\$25,000
Fringe benefits			
Supplies, materials, non-expendable property			
Operations & maintenance			
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Acquisition of Lands: Based on Balance of Annual Earmarked Funds for FY-99	80%	\$1,000,000
NEPA costs			
Construction-related support	Habitat Restoration	18%	\$225,000
PIT tags	# of tags:		
Travel			
Indirect costs			
Subcontractor			
Other			
<b>TOTAL BPA REQUESTED BUDGET</b>			<b>\$1,250,000</b>

### *Cost sharing*

<b>Organization</b>	<b>Item or service provided</b>	<b>% total project cost (incl. BPA)</b>	<b>Amount (\$)</b>
Bureau of Reclamation	Engineering & Design	5%	\$75,000
Ducks Unlimited	Contract Management	2%	\$25,000
<b>Total project cost (including BPA portion)</b>			<b>\$1,350,000</b>

### *Outyear costs*

	<b>FY2001</b>	<b>FY02</b>	<b>FY03</b>	<b>FY04</b>
<b>Total budget</b>	\$1,350,000	1,350,000	500,000	150,000

## Section 6. References

Watershed?	Reference
	Securing Wildlife Mitigation Sites - Oregon

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## PART II - NARRATIVE

### Section 7. Abstract

The FWS as a member of the Oregon Wildlife Coalition (OWC) is seeking funds to implement the Tualatin River National Wildlife Refuge Additions project identified under the umbrella proposal Securing Wildlife Mitigation Sites - Oregon. The Tualatin River project consists of securing, restoring, and managing lands within the established refuge to protect and enhance anadromous fish, wildlife, threatened and endangered species, and waters of the Tualatin River watershed. Established as a National Wildlife Refuge in 1992, the refuge's floodplain of seasonal and emergent wetlands, Oregon ash riparian hardwood, riparian shrub, coniferous forest, and Oregon white oak communities are among the best representative examples which remain in the Willamette Valley. The refuge's richness of habitats support wintering continental populations of high priority waterfowl species, breeding neo-tropical migratory birds, resident and migrating fish species as well as resident mammals, amphibians, and reptiles. A unique opportunity exists to expedite protection of lands through acquisition as a large number of willing sellers have come forward due to the advent of recent major floods. The Tualatin River watershed has been degraded by agriculture and urban expansion, therefore, most lands require restoration as a major focus in management. However degraded, these lands possess tremendous potential in restoration opportunities as evidenced by past projects of the refuge. When acquisition is complete, this new refuge will total over 3,000 acres of biologically diverse habitats which shall further improve storage functions of the floodplain ecosystem. HEP and biological assessment monitoring will provide pre and post restoration baseline data to determine effectiveness of habitat restoration and management practices. The project will mitigate for in-kind in-place and in-kind off-site habitat and target species losses associated with Bonneville and Detroit Dams.

### Section 8. Project description

#### a. Technical and/or scientific background

The Tualatin River National Wildlife Refuge Additions project is an implementation component under the umbrella proposal entitled Securing Wildlife Mitigation Sites - Oregon. It consists of land acquisition, habitat restoration, and long-term management incorporating monitoring and evaluation for determining credits in fish and wildlife mitigation.

Located within the northern Willamette River basin, the Tualatin River National Wildlife Refuge was established in 1992 to restore, protect, and manage wetlands, riparian, and upland habitats for a variety of migratory birds, anadromous and resident fish, threatened and endangered species, and waters of the Tualatin River watershed. Enlistment of lands into the National Wildlife Refuge System for perpetual protection can only occur if lands in question are truly unique and special and reflect natural resources of national significance. When acquisition is complete, this new refuge will total over 3,000 acres. It will serve a wetland ecosystem in the shadow of Oregon's largest metropolitan area, Portland. Upon completion of floodplain restoration, it will serve local communities throughout the greater metropolitan area of Portland by providing additional flood storage capacity, preserving open greenspace, and enhancing water quality for an improved environment. The project area will improve floodplain ecological functions of the Tualatin River watershed as well as biological diversity. The concept of creating the refuge originated from local citizenry, cities, and governments, therefore, it enjoys a tremendous amount of public and political support. Recognizing benefits to the community were officials from both the City of Sherwood and Washington County who lobbied congress with great intensity to establish the refuge and initiate momentum for its development. Local communities within Washington County are now poised to gain many economic benefits from establishment of the refuge. Portland and the surrounding area of approximately 1.5 million people are experiencing unprecedented rapid growth and extensive development, thereby posing a threat to resources of the refuge. Specifically, growth and development of Washington County are presently at the forefront in the State of Oregon. This surge of expansion is well documented in the environmental assessment prepared for establishing the refuge.

The refuge's landscape is predominately flat bottomland bordered by uplands. Habitats consist of rivers and streams, seasonal and permanent wetlands, forested wetlands, riparian areas, grasslands, and forested uplands. Two high priority areas of management emphasis are to restore native riparian, riverine, and wetland habitats associated with the Tualatin River floodplain and to provide wildlife-dependent public use emphasizing environmental education and interpretation. Riparian, riverine, and wetlands are all high priority sub-regional habitat types as identified by the Council. Over 15 wildlife species identified in the sub-region are represented in this area. Land acquisition and habitat restoration have dominated refuge activities early-on in refuge development. The refuge has an active acquisition program well underway with approximately 1/3 of the approved 3,058 acres already owned by the FWS. A large 400 acre complex of wetland floodplain has been restored as well.

The refuge's biologically diverse wetland complex and buffer uplands provide major benefits for wintering dusky and cackling Canada geese as well as wintering continental populations of mallard and northern pintail, breeding wood ducks, numerous migrating shorebirds, breeding American bitterns and other waterbirds, migrating northern harriers, breeding black-headed grosbeaks, threatened and endangered species, fish, and over 100 species of other breeding neotropical migratory birds. Other dominant breeders of waterfowl include hooded merganser and cinnamon teal. Redheads, canvasback, and ring-necked ducks are all migration dependent and winter users of the refuge. In addition, wigion, green-winged teal, northern shoveler, gadwall, bufflehead, lesser scaup, common goldeneye, common merganser, and both tundra and trumpeter swan use the refuge for migration and wintering. The refuge provides habitat for a number of threatened and endangered and/or candidate species including the Aleutian Canada goose, bald

eagle, peregrine falcon, western pond turtle, and the northern red-legged frog. The Aleutian Canada goose has been confirmed in Washington County using wetlands for wintering habitat. Bald eagle, peregrine falcon, and the northern red-legged frog are documented species of the refuge. The western pond turtle is a confirmed species of Washington County which uses habitats found on the refuge.

The refuge's floodplain seasonal and permanent emergent wetlands, Oregon ash riparian hardwood, riparian shrub, coniferous forest, and Oregon white oak communities are among the best representative examples of these severely depleted habitats which remain in the Willamette Valley. Oregon's Division of State Land's Natural Heritage Program has referenced Oregon ash and Oregon white oak habitats as among the rarest which remain in the Valley and suggests they be considered highest in priority for protecting because of their former historical status and range of importance for promoting biological diversity. Their remanent status of today is reflected in declining populations of neo-tropical migratory birds which are heavily dependent on both communities for fulfilling breeding requirements.

#### **b. Rationale and significance to Regional Programs**

The Council's Fish and Wildlife Program is very clear in stating that construction and operation of the federal Columbia Basin hydropower system is a cause of habitat loss for wildlife and that it is Bonneville's responsibility to mitigate for those losses. Specifically, the program says, "The goal of this program's wildlife strategy is to achieve and sustain levels of habitat and species productivity as a means of fully mitigating wildlife losses". Acquisition of habitat units is the Council's preferred method for wildlife mitigation. This can be done either by habitat acquisition via purchase or easement and/or restoration of existing habitat to provide additional Habitat Units. The implementation component of this project consists of acquisition and restoration of lands to provide Habitat Units of high priority habitat types for target species providing crediting to Bonneville for documented hydropower losses.

This project is consistent with all known local, state, federal, and tribal laws. The NWPPC has approved similar projects in Oregon and other states. BPA has successfully implemented several projects in Oregon in the last eight years. The project is covered under the BPA Wildlife and Watershed Programmatic EIS documents (BPA 1997a, BPA 1997b, and BPA 1997c). The project is consistent with several areas of the Council's Fish and Wildlife Program. Specifically, it is consistent with Section 7.6 of the FWP which calls for watershed based habitat restoration focusing on protecting wild and natural populations. It is also consistent with Section 11 of the program which identifies wildlife resource needs.

The project will mitigate for in-kind in-place habitat and target species losses associated with Bonneville Dam. It will also mitigate for in-kind off-site habitat and target species losses associated with Willamette hydroelectric projects. Air distances from Tualatin River National Wildlife Refuge to Bonneville and Detroit Dams are 47 and 58 miles, respectively. Bonneville Dam target species to benefit include spotted sandpiper, lesser scaup, Canada goose, great blue

heron, yellow warbler, black-capped chickadee, and mink. Detroit Dam target species of river otter, black-tailed deer, common merganser, ruffed grouse, and pileated woodpecker will benefit from the project as well.

The refuge is nationally recognized for its importance in wintering significant continental populations of four goose sub-species which include dusky, cackling, taverner's, and lesser Canada geese. Other migrating and wintering waterfowl species consist of lesser scaup and common merganser as well as wigeon, green-winged teal, northern shoveler, gadwall, bufflehead, common goldeneye, and both tundra and trumpeter swan. Many marshbirds and other shorebirds including great blue herons, spotted sandpipers, long-billed dowitchers, dunlin, western and least sandpipers, common snipe, and yellowlegs take advantage of seasonal wetlands. Riparian ash woodland, riparian shrub, and white oak woodland habitats sustain habitats for neo-tropical migrants such as the yellow warbler, belted kingfisher, willow flycatcher and Lewis's woodpecker, western wood-pewee, and the western bluebird. Black-capped chickadees use these habitats as well. This wide variety of biologically diverse habitats can create a mosaic of plant communities attractive to numerous other species of migratory birds, many of which include high priority species for management such as the common loon, American bittern, northern harrier, sandhill crane, short-eared owl, sanderling, and black-headed grosbeak. Historically, meandering riverine channels and riparian shrub benefitted upstream spawning populations of native cutthroat trout and the Tualatin River provided passage functions for wild migrating steelhead. Wild steelhead populations of the Tualatin River are being considered for listing. The refuge presently provides habitat for the Aleutian Canada goose, bald eagle, and peregrine falcon.

A unique attribute of the Tualatin River project is that many partnerships are formed. Partnerships are formed with the Bureau of Reclamation, Ducks Unlimited, the Friends of the Refuge, Tualatin Riverkeepers, and the Friends of Trees in areas of wetlands planning and construction and habitat restoration and management. Terms of partnering have been formalized in writing using either cooperative agreements or letters of commitment for specific projects. Some arrangements are more long-term in nature such as that with the Bureau and Ducks Unlimited.

### **c. Relationships to other projects**

The Tualatin River Additions project does not stand alone in that it relates to other areas addressed under the umbrella proposal entitled Securing Wildlife Mitigation Sites - Oregon. The projects collectively aim to achieve full mitigation to compensate for wildlife habitat losses in Oregon.

This project of the refuge compliments wetland restoration and conservation efforts of multiple jurisdictions occurring at many locations within the Tualatin River basin. Conservation efforts most widespread and near the refuge are those associated with Metropolitan Services District's (METRO) Open Greenspaces Program. METRO is purchasing lands adjacent the Tualatin River both up and downstream from the refuge to compliment protection efforts of the FWS. In addition, METRO is establishing two large open greenspace reserves north and south of the refuge. Both reserves are located within headwaters of tributary drainages which terminate upon their confluence with the Tualatin River on the refuge.

This refuge project supports numerous fish and wildlife oriented initiatives which include: the North Pacific Coast Ecoregion Plan, North American Waterfowl Management Plan, Pacific Coast Joint Venture Strategic Plan, Arctic Goose Joint Venture Strategic Plan, Oregon Governor's Salmon Recovery Plan, and several threatened and endangered species recovery plans such as those for the Aleutian Canada goose, bald eagle, and peregrine falcon. Wetlands within the project area are specifically addressed in FWS's Region 1 Wetlands Concept Plan as well as the State of Oregon's Wetlands Priority Plan. Both documents cite the refuge's wetland types as particularly important for their functional values and recognize a need for immediate acquisition, restoration, and long-term management.

Establishment of the refuge supports land use goals of Washington County as well as METRO's long range planning for responsible urban growth and development.

**d. Project history (for ongoing projects)**

The BPA Oregon Trust Agreement Planning Project (OTAP) was initiated in 1992 by the OWC to create a list of potential wildlife mitigation opportunities by priority and to attempt to determine costs for mitigating wildlife losses in Oregon. In 1995, at the request of Bonneville, the "Assessing Oregon Trust Agreement Planning Project Using GAP Analysis" project was conducted by the Oregon Department of Fish and Wildlife's Diversity Program. The primary goal of the GAP project was to prioritize and depict the contribution of each proposed mitigation site to target species and habitats as well as overall bio-diversity in the state and/or ecoregion within which it is found. GAP gathers known information about communities and the nature of their protection to identify which require protection before bio-diversity and additional species become threatened or endangered with extinction. Findings of the GAP analysis illustrated that the Tualatin River Additions project ranks high on the list of sites evaluated and should be protected.

The Tualatin River watershed has been severely degraded by agriculture and urban expansion, therefore, restoration has been a major focus for the refuge early-on in management. However degraded, these lands possess tremendous potential in restoration opportunities as can be observed from technologies developed and implemented on site by the refuge. The refuge has successfully restored hydrology characteristics on 400 acres of floodplain complex associated with the former Steinborn Dairy consisting of seasonal and permanent emergent wetlands, riparian woodland and shrub areas, and meandering riverine channel habitats. Features of restoration also included sophisticated fish passage facilities.

Past partnership contributions have consisted of the Bureau of Reclamation's in-kind commitment of wetland engineering and design services valued at \$100,000; Ducks Unlimited's financial commitment of \$300,000 in wetland restoration; and commitments by the Friends of the Refuge, Tualatin Riverkeepers, and the Friends of Trees in providing financial assistance for plant materials and in-kind labor for planting riparian vegetation.

**e. Proposal objectives**

The overall objective of the Tualatin River Additions project is to provide Habitat Units of highest

priority habitat types for target species crediting to Bonneville as called for in the Council's Fish and Wildlife Program. This initiative proposal will focus on and result in benefits to high priority waterfowl species, anadromous fish, threatened and endangered species, neo-tropical migratory birds, and mammals.

Acquisition objectives under the FY-2000 proposal would secure and protect between 175 and 200 acres. A unique window of opportunity exists to expedite protection of lands within the refuge as a large number of willing sellers have come forward to the FWS due to the advent of major floods which recently occurred on the Tualatin River. Upon completion of acquisition or protection, lands within the Tualatin River National Wildlife Refuge boundary will be either federally owned or managed under conservation easement or cooperative agreement in perpetuity. The 3,000 acres of riverine floodplain is large enough to protect and buffer most significant plant communities found within the lower Tualatin River watershed. The refuge will act as the core unit for METRO's Open Greenspaces Program in Washington County because all reserve areas under their administration connect with the refuge through tributary drainages or the Tualatin River system. This conductivity provides travel lanes for wildlife, enhances ecological functions of aquatic systems, and bridges gaps in habitat fragmentation.

Management emphasis is to restore native plant communities on those lands which come under jurisdiction of the FWS. Acquisition of refuge tracts shall allow efforts to proceed for restoring seasonal and permanent wetlands, riparian flooded woodland communities with oxbow wetlands, riparian shrub along streambanks, and to a lesser extent coniferous forest, Oregon white oak and buffered grass forb uplands. Restoration objectives under the FY-2000 proposal would enhance 150 acres of floodplain habitats to full productivity levels.

Emergent wetlands and buffer uplands will benefit arctic nesting species of Canada geese, continental populations of northern pintail and mallard, other species of waterfowl and marsh and shorebirds by providing loafing areas, nocturnal roost sites, and foraging grounds to meet breeding, migratory, and winter maintenance requirements. Wetlands of the refuge function as an important staging grounds for both mallard and pintail during spring migration. Restoration and management of seasonal wetlands shall provide critical foraging habitat for pintail and mallard populations in fall, winter, and early spring. Once restored, permanent marshes will be managed to optimize open water emergent vegetation interspersed relationships for breeding and brood habitats. Wood ducks shall benefit greatly from breeding, nesting, and brood habitats gained through restoration of the Oregon ash plant community. Other dominant waterfowl breeders include hooded merganser and cinnamon teal. Redheads, canvasback, and ring-necked ducks are all migration dependent and winter users of the refuge.

Many marshbirds and other shorebirds including great blue herons, spotted sandpipers, long-billed dowitchers, dunlin, western and least sandpipers, common snipe, and yellowleg species will take advantage of restored security and feeding habitats as moist soil seasonal wetlands are flooded in fall and drawn down in spring. Riparian woodland and shrub as well as Oregon white oak woodland habitats restored will sustain species richness for neo-tropical migrants such as the yellow warbler, belted kingfisher, willow flycatcher, Lewis's woodpecker, western wood-pewee, and the western bluebird. Black-capped chickadees will flourish as well. The wide variety of

biologically diverse habitats restored shall create a mosaic of plant communities attractive to numerous other species of migratory birds, many of which include high priority species for management such as the common loon, American bittern, northern harrier, sandhill crane, short-eared owl, sanderling, and black-headed grosbeak.

Restored meandering riverine channels and riparian shrub along streambanks will re-establish upstream spawning populations of native cutthroat trout and shall improve water quality enhancing passage functions of the Tualatin River for migrating steelhead. Many of the steelhead populations in western Oregon are being considered for listing.

Restoring and/or enhancing seasonal and permanent wetlands and uplands will benefit Aleutian Canada geese by providing loafing areas, nocturnal roost sites, and foraging grounds to meet migratory and winter maintenance requirements. These habitats will also provide an increased prey base for both bald eagles and peregrine falcons which migrate and winter on the refuge. The western pond turtle and northern red-legged frog will benefit from added emergent wetland habitat and restoration of riparian shrub. Recovery plans for the Aleutian Canada goose, bald eagle, and peregrine falcon identify the need to re-establish populations in historic ranges and provide for their migration and wintering habitat requirements. Once restoration is complete, the refuge will partially fulfill biological requirements for these species as well as the northern red-legged frog and western pond turtle enhancing recovery of each species.

#### **f. Methods**

The range of actions to achieve objectives under the Tualatin River Additions project may include the preparation and conducting of land appraisals, contaminant surveys, real estate transactions; negotiating with land owners; completion of NEPA documents and permits and restoration planning activities such as wetland engineering and design; execution of restoration contracts; coordination of riparian planting projects; and conducting pre and post HEP inventory studies.

Acquisition of tracts within a reasonable amount of time is critical if progress is to be made in restoration of habitats because many parcels are hydrologically linked and topographic relief is such that enhancement work can not proceed until all lands within the scope of influence are purchased. Lands under consideration for acquisition have great potential for promoting biological diversity as they possess the necessary physical characteristics to support all historic habitat types of the river basin. They support cultural resource attributes as well. Lands about the Tualatin River, therefore, significant opportunities exist in enhancing water quality conditions of the watershed.

Wetland hydrology and associated habitats will be restored by constructing low level dikes with emergency floodplain spillways, installing water control structures and discharge pipes, constructing or installing water delivery systems, fabricating fish ladders and screens, removing drain tiles, excavating borrow areas facilitating seasonal wetland drainage, re-creating historic stream channels and oxbow swales through excavation of hydric soils, and initiating plantings of native forested wetland and riparian species of plant materials. Uplands shall be restored to a species mixture of perennial grasses and legume forbs. Upon completion of a one foot contour survey, the Bureau of Reclamation will complete engineering and design plans. Ducks Unlimited

shall be the contract manager and inspector under formal agreement with the FWS. Other Friends groups will provide in-kind labor services for planting riparian community plant materials. All construction related earthwork shall be completed under contract with local vendors or a requirements contract administered by the FWS.

HEP inventories have not yet been implemented to determine existing values of landscapes within the refuge because most floodplain habitats are presently degraded as a result of intense farming practices. Inventories will be used to obtain Habitat Unit values both before and upon completion of restoration activities to provide mitigation credit to Bonneville.

It is imperative that baseline and monitoring data be collected to document habitat conditions and associated wildlife usage both prior to and following restoration efforts if responses to changed landscapes are to be properly assessed. Over the long-term, an operational biological program will strengthen management decisions by evaluating physical site characteristics; facilitating specific objective settings for the amount, condition, and spacial requirements of habitats and affiliated wildlife species; and assessing habitat management strategies to determine their effectiveness in achieving desired results.

As the refuge moves forward in land acquisition and development, so will the necessity for habitat operations and maintenance programs. These programs will play an essential role in sustaining high quality habitats over the long-term. Programs will include water management and usage documentation, mechanical wetland manipulation such as discing to fulfill desirable aquatic plant composition objectives, dike maintenance, and many other maintenance type activities which insure proper operation of habitat related pieces of equipment.

**g. Facilities and equipment**

Acquisition and planning components of this project do not require any new facilities or equipment. Physical structures which serve habitat related functions are the only types of facilities required for implementing this project. These are all tied to restoring and regulating hydrology aspects of enhancement work.

**h. Budget**

Capital acquisitions and habitat restoration funds of \$1,250,000 are being sought under the FY-2000 budget to complete implementation components of the Tualatin River National Wildlife Refuge Additions project. The refuge has approximately 1/3 of the approved 3,058 acres already purchased. Funds would be used for acquiring new parcels and restoring lands proposed for purchase pending receipt of BPA/ FY-1999 appropriations or restoring lands presently under refuge jurisdiction. FWS and other refuge partner contributions would compliment BPA funds for both capital acquisition and/or restoration implementation components.

**Section 9. Key personnel**

Ralph D. Webber  
Refuge Manager, Tualatin River National Wildlife Refuge

Education: BS - Range Management, Washington State University, 1977

BS - Wildlife Biology, Washington State University, 1977

U.S. Fish and Wildlife Service: Active Service 21 Years, Field Station Assignments 5

Positions Served - Refuge Manager, Assistant Refuge Manager,  
Wildlife Biologist

Habitat Experience: Freshwater and Estuarine Wetlands Management

Intermountain Shrub and Forest Habitats Management

Wetland and Riparian Restoration

Fish and Wildlife Experience: Big Game, Neo-tropical Migratory Birds, Seabirds, Marine

Mammals, Bald Eagles, Waterfowl

## **Section 10. Information/technology transfer**

Monitoring and evaluation field data will be available as referenced on the FWS home page of the Internet.