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of commitment & reference pages

Coquille Valley, Oregon Wetland Conservation and Restoration

A Proposal to
The National Coastal Wetlands
Conservation Grant Program



Seasonally flooded Winter Lake in Coquille Valley.

Submitted to:
U.S. Fish and Wildlife Service

Submitted by:
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EXECUTIVE SUMMARY

The Oregon Watershed Enhancement Board (OWEB) is requesting \$1 million in federal funds to help acquire and restore approximately 622 acres of coastal wetlands in the Coquille Valley on the southern Oregon Coast for permanent conservation, protection and restoration by the Oregon Department of Fish and Wildlife. This project is the first phase of a larger initiative by ODFW to conserve and restore approximately 3,000 acres in the lowlands along the lower Coquille River encompassing some of the most productive wetland habitats on the Oregon Coast. This is a flagship initiative for helping implement the state's wildlife action plan, the *Oregon Conservation Strategy*. The Nature Conservancy is providing technical and financial support for this effort through the Doris Duke Charitable Foundation's Northwest Wildlife Conservation Initiative.

The Coquille Valley is an expansive alluvial floodplain that extends from the Coquille River estuary near Bandon, upstream to the limit of tidal influence at river mile 42. The Coquille Valley historically supported an estimated 9,000 to 12,000 acres of tidally influenced freshwater and salt-marsh wetlands. More than 95 percent of the valley's wetlands have been diked and drained for agricultural uses. Virtually the entire valley is in private ownership, and less than 900 acres are managed for long-term conservation (Bruce Taylor, pers. comm.).

Waterfowl greatly benefit from habitat provided by the Coquille Valley during winter flooding. Winter flooding of the pasturelands creates freshwater wetlands that host the largest coastal concentrations of dabbling ducks between San Francisco Bay and the U.S.-Canada border (Lowe 2010). Historically, these floodplain wetlands also provided valuable off-channel habitat for salmon and steelhead. Diking, tide gates, and drainage ditches have eliminated fish access to these critical habitats, creating the principal bottleneck to recovery of the Coquille River's endangered and at-risk anadromous fish populations.

The project to be funded by the National Coastal Wetlands Conservation Program grant/match (Phase 1) includes purchasing three properties totaling 622 acres (including 561 acres of nationally declining wetland), and achieving about two-thirds of the restoration work needed there (this is measured by the estimated cost of restoring the properties fully; full restoration is estimated to cost \$1.6 million, and this grant/match will provide about \$1.1 million in restoration funds). Restoration work will include reconnecting historic stream channels and to the Coquille River, planting native wetland vegetation, controlling invasive species, removing a small portion of dike, placing large wood in streams, and filling in draining ditches.

Following the NCWCA grant/match, for Phase 2 we plan to do additional upland plantings, additional wetland shrub plantings, one additional channel reconnection, and additional invasive species control.

Protection and restoration of freshwater wetlands in this highly productive floodplain system would complement downstream estuarine restoration efforts under way on Bandon Marsh National Wildlife Refuge, remove one of the limiting factors to recovery of threatened coho salmon, and provide long-term security for some of the West Coast's most important habitats for migratory birds.

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PROJECT STATEMENT

A. Need

The Coquille River Valley historically had an estimated 9,000 to 12,000 acres of marshland (Benner 1992). Around 1870, European settlers began converting marshland in the valley to farmland. By 1992, only 373 acres of the valley's historic marshes remained. Conversion of these wetlands to agricultural use severely decreased habitat values and fish access, resulting in a precipitous decline in coastal coho salmon, as well as declines in foraging and nesting habitat for migratory birds and other resident wildlife.

Restoration of wetland habitat values and functions in the Coquille Valley will require commitment of a portion of the lands in this area to long-term conservation. Because most of these lands are currently in agricultural use, acquisition of fee title or conservation easements is necessary to permit restoration and long-term management of these important habitats.

B. Objectives

Funding requested from the National Coastal Wetlands Conservation program in this application (grant and match) will be used to achieve the following objectives:

- (1) Acquire fee title to approximately 622 acres in the Coquille Valley – 399 acres owned by Bandon Biota, and 223 acres owned by Roseburg Resources – to be held by the Oregon Department of Fish and Wildlife to provide permanent protection for acquired lands under long-term management by the Oregon Department of Fish and Wildlife and a conservation easement held by OWEB.
- (2) Draft a stewardship plan for the area.
- (3) Protect 622 acres of wildlife habitat, including 561 acres of nationally declining wetland.
- (4) Accomplish significant restoration of about two-thirds of our ultimate restoration objectives for these properties (this is measured by the estimated cost of restoring the properties fully; full restoration is estimated to cost \$1.6 million, and this grant/match will provide about \$1.1 million in restoration funds).
- (5) Provide a secure land base necessary for future management of Coquille Valley wetland habitats to sustain migratory birds, anadromous fish, and other native fish and wildlife.
- (6) Use the federal funds provided to leverage investment from other public and private funders (at least two) for acquisition and restoration.

C. Benefits and Duration of Benefits

This project is a flagship initiative to implement Oregon's state wildlife action plan, the *Oregon Conservation Strategy*. Acquisition of fee title to 622 acres by the Oregon Department of Fish and Wildlife in the Coquille Valley will provide permanent protection for these floodplain habitats and benefit fish and wildlife and compatible wildlife-related human activities. Acquisition plus significant restoration work will provide the following benefits:

- Protect nesting, feeding, and nursery areas for a diverse array of at-risk fish and wildlife species,

such as Oregon Coast coho salmon, coastal cutthroat trout, bald eagle, purple martin, willow flycatcher, western meadowlark and Townsend's big-eared bat, among others.

- Provide seasonal wetland habitats to support migrating and wintering waterfowl, as well as shorebirds and other waterbirds.
- Improved water quality.
- Reduce invasive plant species, including purple loosestrife, Scot's broom, Himalayan blackberry, and reed canarygrass.
- Provide educational opportunities for students and visitors.
- Provide increased recreational opportunities such as wildlife viewing, fishing and hunting in an area of Oregon with an increasing older population that needs additional recreational space, according to the Oregon Department of Parks and Recreation (OPRD 2008).

All of these benefits take on increased importance in the face of climate change and rising sea levels. As tidal wetlands further west in the Coquille River estuary become submerged, the Coquille Valley's wetlands will become estuarine and replace some of the lost habitat.

D. Approach

The acquisition and restoration described in this grant application is part of a larger overall project by Oregon Department of Fish and Wildlife to acquire and restore up to 3,000 acres of wetlands in the Coquille Valley. Funding from the National Coastal Wetlands Conservation Grant Program, and its match, will complete Phase 1, which includes purchase of 622 acres and completion of about two-thirds of the restoration required to bring those 622 acres back to their historic condition.

Acquisition

Phase 1 acquisition activities will include contracting for appraisals, ordering preliminary title reports, contracting environmental hazard assessments, completing any necessary surveys, and ultimately purchasing fee title in the target properties and restricting the deed for permanent conservation. Project management duties will be completed by ODFW, with significant real estate help from The Nature Conservancy. ODFW will ultimately hold title to the properties, with a conservation easement to protect the properties in perpetuity for wetland conservation values held by OWEB.

The landowner (Roseburg Resources) has provided a verbal agreement to sell this property for the appraised value. If funded, the transaction would be completed as early as March 2011. The landowner of both Bandon Biota properties has provided a verbal agreement to sell the properties at full market appraised value. An appraisal has been completed for these two properties to yellow book standards.

Restoration

Restoration work will begin immediately following acquisition: about two-thirds of the restoration needed will be completed in Phase 1 (this is measured by the estimated cost of restoring the properties fully; full restoration is estimated to cost \$1.6 million, and this grant/match will provide about \$1.1 million in restoration funds). Much of the Roseburg Resources property is in historic condition and will require little restoration. Below is a list of Phase 1 restoration activities, including budgeted costs; while we realize cost was not required in this section, we think it provides additional, useful information for reviewers.

PHASE 1 restoration - Roseburg Resources (223 acres):

- Place 45 pieces of large wood in the existing stream channel and throughout the existing wetlands to provide salmonid rearing and overwinter habitat as well as habitat for reptiles and amphibians (\$72,000).
- Remove invasive species on all 240 acres of the property utilizing a combination of spray, using approved label instructions, and manual pulling (\$5,000).

The Bandon Biota properties, while currently offering significant wetland habitat values, will offer much more value for fish and wildlife after the following Phase 1 activities (to be funded by this proposed NCWCA grant and match):

PHASE 1 restoration - Bandon Biota / Winter Lake (286 acres):

- Complete engineering designs for reconnecting the historic channels of China Creek (\$60,000)
- Secure permits from U.S. Army Corp of Engineers and Oregon Division of State Lands to allow fill/removal activities to occur which will include dike removal and drain ditch filling (\$3,000).
- Fill in 0.3 miles of existing drain ditch to restore hydrology to this portion of the property (\$2,000)
- Remove 0.3 miles of existing dike to restore natural water function and hydrology (\$5,000)
- Reconnect 3.9 miles of China Creek to its primary and secondary channels, creating refugia habitat for salmon and other fish to overwinter, forage, and escape fast water in the main channel (\$13,000).
- Place 100 pieces of large wood in these historic channels to provide overwinter and rearing habitat for salmon, steelhead and cutthroat trout (\$39,000).
- Shape three open water habitat sites totaling 40 acres in three areas, which will involve some minor grading and planting to provide overwintering habitat for coho salmon, winter steelhead, cutthroat trout, and Pacific lamprey as well as wintering waterfowl habitat (\$3,000).
- Plant approximately 41 acres of wetland shrub vegetation (alder, ash, willow, and crabapple) (\$611,000)
- Control reed canarygrass initially through light, prescribed grazing in fenced areas, that steadily declines annually until grass is eliminated. Burning and mowing will also be used to control reed canarygrass. Grazing will cease entirely upon establishment of native shrubs capable of shading out reed canarygrass. Cows will be controlled by electric fence to prevent grazing on native shrubs, and to target grazing solely on reed canarygrass. Grazing will only be used as a temporary ecological measure exclusively used for restoration purposes, specifically to target reed canarygrass. It is a useful, inexpensive, temporary tool being used solely to control reed canarygrass until native shrubs become capable of shading out canarygrass.
- Plant approximately 5 acres with Sitka spruce, bigleaf maple, and myrtle in drier, upland areas – the higher mounds scattered throughout the lowlands (\$75,000)
- Control invasive species on the property via spraying techniques according to label instructions, and manual pulling (\$5,000).

PHASE 1 restoration - Bandon Biota / Lowe Creek (113 acres):

- Reconnect approximately 400 feet of Lowe Creek to its historic channel and floodplain that ultimately connects to the Coquille River (\$30,000)
- Plant additional 2 acres of myrtle and 7 acres of Sitka spruce along Coquille River (\$135,000)
- Continue low levels of prescribed grazing on upper, drier grounds for the sole purpose of controlling reed canarygrass

Phase 2 will not be funded by this proposal but will include the following:

Roseburg Resources:

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- Continue to control invasive species
- Reconnect historic channels identified using LIDAR technology

Bandon Biota (Winter Lake):

- Plant remaining 206 acres of property with wetland shrubs
- Continue to control invasive species

Bandon Biota (Lowe Creek):

- Plant remaining 10 acres of Sitka Spruce
- Plant remaining 2.6 acres of Myrtle to expand the existing Myrtle Grove

E. Location

The Coquille Valley is located in Coos County, 12 miles east of the town of Bandon, Oregon on the southern Oregon Coast (see Appendix 1).

The project site includes three properties under two different ownerships – Bandon Biota, and Roseburg Resources. See maps in Appendix 1.

F. Cost

Table 1: Budget

Source	Land acquisition	Restoration	Indirect costs	Total	Cash or In-kind	Fed / Non
FWS	\$400,000	\$520,000	\$80,000	\$1,000,000	cash	Federal
OWEB	\$720,000			\$720,000	cash	State
ODFW	\$115,000*			\$115,000	in-kind	State
TNC	\$65,000	\$538,000		\$603,000	cash	Private/State**
Coquille Tribe		\$5,000*		\$5,000	in-kind	Private
Coquille H.S.		\$48,000		\$48,000	in-kind	Private
Bandon H.S.		\$10,000		\$10,000	in-kind	Private
Ducks Unlmt		\$5,000*		\$5,000	in-kind	Private
Total	\$1,300,000	\$1,126,000	\$80,000	\$2,506,000		

All funds secure.

**\$188,000 of this funding will be used for planning, marked by *, plus \$63,000 of restoration budget*

***TNC hopes to be reimbursed for restoration costs by OWEB, a state source, but is committed to securing non-federal funding regardless.*

G. State Trust Fund

The U.S. Fish and Wildlife Service previously determined that Oregon's constitutionally dedicated state lottery funds for habitat conservation and watershed improvement make the state eligible for a federal cost-share of 75 percent for the National Coastal Wetlands Conservation Grant Program.

H. List of other current coastal actions, and how proposal fits into comprehensive natural resource plans for the area

One of the most significant actions in the Coquille watershed was the establishment in 1983 of the Bandon Marsh National Wildlife Refuge on the Coquille River estuary, owned and managed by the U.S. Fish and Wildlife Service about 10 miles downstream from the project area. The refuge started with 307 acres of salt marsh and was expanded between 2000 and 2004 to include an additional 582 acres, including more than

400 acres of diked former tidal wetlands scheduled for restoration in 2010. The project proposed in this application for Coastal Wetlands funding would complement the refuge's conservation efforts by benefiting many of the same fish and wildlife species, including anadromous fish.

In 2005, Oregon Trout and Ducks Unlimited began working with a private landowner to restore wetlands on one of the parcels proposed for acquisition here – the Bandon Biota parcel at Lowe Creek, consisting of about 80 acres of floodplain. Initial construction on the Lowe Creek project – which is reestablishing old creek channels, tidal ponds, and wetlands to reconnect the floodplain and the river – was completed in 2007. Restoration work at Lowe Creek is similar to that envisioned for the other properties proposed for acquisition here, and for future acquisitions as part of a large-scale, multi-year effort to restore 4,000 acres of historic wetland in the Coquille Valley.

In addition, the Oregon Watershed Enhancement Board (OWEB) has funded a number of other restoration and enhancement projects in the valley, through the Coquille Watershed Association, primarily to benefit freshwater and anadromous fish, but also birds and other terrestrial species. Examples include riparian fencing, reconnection of the floodplain to the Coquille River, planting native vegetation, and placing large woody debris in streams. These projects greatly improved in-stream spawning and migratory habitat for salmon, which will complement this project's work to improve off-channel wintering and rearing habitat.

OWEB has also contributed nearly \$900,000 to the restoration of the Ni-les-tun unit of the USFWS Bandon Marsh National Wildlife Refuge, along the Coquille River downstream from the project site. OWEB has contributed another \$155,000 to evaluate the effectiveness of restoration there. This current partnership between OWEB and USFWS at Bandon Marsh provides a strong base from which to grow at the Coquille Wetlands site upstream.

I. Public involvement or interagency coordination

Staff from the Oregon Department of Fish and Wildlife has held multiple meetings about the project with area landowners and a wide variety of interests, organizations, and government agencies. Below is a list of meetings:

Table 2: meetings and dates reflecting public involvement and interagency coordination

<i>Year</i>	<i>Month</i>	<i>Date</i>	<i>Meeting</i>
2008	June	17	Bob Main, candidate for Coos County Commissioner
2008	Aug	16	Ducks Unlimited
2008	Sept	10	Oregon Wildlife Heritage Foundation Board of Directors
2008	Oct	2	Oregon Wildlife Heritage Foundation Board of Directors
2008	Oct	7	The Nature Conservancy
2009	Jan	27	The Nature Conservancy
2009	Feb	11	Mike Kaiser, owner of Bandon Biota properties
2009	Feb	19	Doug Robertson, Douglas County Commissioner
2009	Feb	20	State Senator Joanne Verger and State Representative Wayne Krieger
2009	Feb	23	State Senator Jeff Kruse; State Representative Arnie Roblan; and State Representative Freeman
2009	Feb	24	Doug Robertson(Douglas County Commissioner)
2009	March	2	Coos County Commissioners Kevin Stufflebean and Bob Main
2009	March	4	Oregon Wildlife Heritage Foundation Board of Directors
2009	March	4	The Nature Conservancy
2009	March	23	Mike Kaiser, owner of Bandon Biota properties
2009	April	24	Mike Kaiser, owner of Bandon Biota properties
2009	April	27	Coquille Tribe and Coquille Watershed Association

2009	April	29	The Nature Conservancy
2009	May	4	Roy Lowe and Dave Ledig, USFWS National Wildlife Refuge System
2009	May	20	Chuck Lobdell (Ducks Unlimited) and Fred Messerle (landowner) on Winter Lake conservation plan
2009	June	2	Ducks Unlimited
2009	July	1	The Nature Conservancy
2009	July	21	Took staff from The Nature Conservancy on Coquille Valley tour
2009	July	23	Coquille Indian Tribe, re: LIDAR mapping and GPS maps
2009	July	31	Coquille Watershed Association
2009	August	12, 31	Coquille Indian Tribe on LIDAR mapping
2009	August	20	Doug Robertson, Douglas County Commissioner
2009	Sept	14	Oregon Fish and Wildlife Commission
2009	Sept	21	Gave a talk to the Oregon Conservation Group Leaders meeting
2009	Sept	28	Coquille Indian Tribe, re: mapping data
2009	Oct	14, 28	Bob Main, Coos County Commissioner
2009	Sept	15, 21	Coquille Indian Tribe, re: land mapping, map request
2009	Nov	5	Coquille Indian Tribe
2009	Dec	2	Pacific Coast Joint Venture
2010	Jan	9	Oregon Hunters Association Board of Directors
2010	March	17	Coquille Tribe

J. Letters of Commitment (Appendix III)

The Nature Conservancy
Oregon Department of Fish and Wildlife
Ducks Unlimited

Coquille High School
Bandon High School
Coquille Tribe

RANKING CRITERIA

1. Wetlands conservation

The Coquille Valley is located along the lower Coquille River in the brackish tidal zone where freshwater meets saltwater. The valley historically had an estimated 9,000 to 12,000 acres of tidally influenced wetlands (Benner 1992). Maps of the valley from the late 1800s identified nearly 70 percent of the valley as timbered swamp or wooded bottom lands wetlands (estuarine intertidal forested wetlands, and palustrine forested and scrub-shrub wetlands).

Between 1870 and 1900, wetlands in this area were converted to agriculture through clearing, ditching, tide-gating, pumping and diking that occurring up until the 1950s (Benner 1992). Today only about 300 acres of these forested and scrub wetlands remain. The rest is dominated by pasture grasses.

Despite the altered vegetation cover, the valley still floods each winter, creating what is locally referred to as Winter Lake. However, in spring the wetlands are drained to ready pasture for cattle grazing.

Funds requested from the National Coastal Wetlands Conservation program will protect 622 acres of wetlands and secure management control to reverse the loss of nationally decreasing wetland types in the Coquille Valley.

Of the proposed acquisitions (622 acres), 90 percent of current acres are nationally declining wetland habitat type. This figure remains the same after Phase 1 restoration.

Table 3: Current and post-project wetland types for entire project area

NWI code	Class of wetland	Current Acres	Acres after Phase 1 restoration	nationally declining
E1UBL	[E] Estuarine, [1] Subtidal, [UB] Unconsolidated Bottom, [L] Subtidal	0.62	0.62	Unknown
E2EMP	[E] Estuarine, [2] Intertidal, [EM] Emergent, [P] Irregularly Flooded	2.14	2.14	Unknown
PEM/SSC	[P] Palustrine, [EM] Emergent, [SS] Scrub-Shrub, [C] Seasonally Flooded	5.10	5.10	Yes
PEMA	[P] Palustrine, [EM] Emergent, [A] Temporarily Flooded	90.41	90.41	Yes
PEMAd	[P] Palustrine, [EM] Emergent, [A] Temporarily Flooded, [d] Partially Drained/Ditched	0.41	0.41	Yes
PEMC	[P] Palustrine, [EM] Emergent, [C] Seasonally Flooded	48.69	48.69	Yes
PEMCd	[P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [d] Partially Drained/Ditched	283.51	243.51	Yes
PEMF	[P] Palustrine, [EM] Emergent, [F] Semipermanently Flooded	1.09	1.09	Yes
PFOB	Palustrine, Forested, Saturated		40	Yes
PFO/SSC	[P] Palustrine, [FO] Forested / , [SS] Scrub-Shrub, [C] Seasonally Flooded	4.74	4.74	Yes
PFOA	[P] Palustrine, [FO] Forested, [A] Temporarily Flooded	2.28	2.28	Yes
PSSA	[P] Palustrine, [SS] Scrub-Shrub, [A] Temporary Flooded	0.44	0.44	Yes
PSSC	[P] Palustrine, [SS] Scrub-Shrub, [C] Seasonally Flooded	124.48	124.48	Yes
PSSCx	[P] Palustrine, [SS] Scrub-Shrub, [C] Seasonally Flooded, [x] Excavated	0.29	0.29	Yes
R2UBHx	[R] Riverine, [2] Lower Perennial, [UB] Unconsolidated Bottom, [H] Permanently Flooded, [x] Excavated	11.22	11.22	No
Upland	Upland	46.34	46.34	n/a
Total		621.76	621.76	

Table 4: Current and post-restoration wetland types listed by property:

Property	NWI code	Class of Wetland	Current Acres	Post Phase 1 restoration acres	nationally declining
Bandon Biota - Winter Lake	PEMAd	Palustrine, Emergent, Temporarily Flooded, Partially Drained/Ditched	0.41	0.41	yes
Bandon Biota - Winter Lake	PEMC	Palustrine, Emergent, Seasonally Flooded	0.16	232.65	yes
Bandon Biota - Winter Lake	PEMCd	Palustrine, Emergent, Seasonally Flooded Partially Drained/Ditched	278.49		yes
Bandon Biota - Winter Lake	PFOB	Palustrine, Forested, Saturated		46	yes
Bandon Biota - Winter Lake	R2UBHx	Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded, Excavated	7.01	7.01	no
Bandon Biota - Winter Lake	Upland	Upland	0.05	0.05	n/a
Bandon Biota - Lowe Creek	E1UBL	Estuarine, Subtidal, Unconsolidated Bottom, Subtidal	0.62	0.62	unknown
Bandon Biota - Lowe Creek	E2EMP	Estuarine, Intertidal, Emergent, Irregularly Flooded	2.14	2.14	unknown
Bandon Biota - Lowe Creek	PEMA	Palustrine, Emergent, Temporarily Flooded	90.04	90.04	yes
Bandon Biota - Lowe Creek	PEMC	Palustrine, Emergent, Seasonally Flooded	5.65	5.65	yes
Bandon Biota - Lowe Creek	PEMCd	Palustrine, Emergent, Seasonally Flooded, Partially Drained/Ditched	5.02	5.02	yes
Bandon Biota - Lowe Creek	PEMF	Palustrine, Emergent, Semipermanently Flooded	1.08	1.08	yes
Bandon Biota - Lowe Creek	PFOA	Palustrine, Forested, Temporarily Flooded	2.28	2.28	yes
Bandon Biota - Lowe Creek	PSSCx	Palustrine, Scrub-Shrub, Seasonally Flooded, Excavated	0.29	0.29	yes
Bandon Biota - Lowe Creek	Upland	Upland	5.66	5.66	n/a
Roseburg Resources	PEM/SS C	Palustrine, Emergent, Scrub-Shrub, Seasonally Flooded	5.10	5.1	yes
Roseburg Resources	PEMA	Palustrine, Emergent, Temporarily Flooded	0.37	0.37	yes
Roseburg Resources	PEMC	Palustrine, Emergent, Seasonally Flooded	42.88	42.88	yes
Roseburg Resources	PEMF	Palustrine, Emergent, Semipermanently Flooded	0.01	0.01	yes
Roseburg Resources	PFO/SS C	Palustrine, Forested / Scrub-Shrub, Seasonally Flooded	4.74	4.74	yes
Roseburg Resources	PSSA	Palustrine, Scrub-Shrub, Temporary Flooded	0.44	0.44	yes
Roseburg Resources	PSSC	Palustrine, Scrub-Shrub, Seasonally Flooded	124.48	124.48	yes
Roseburg Resources	R2UBHx	Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded, Excavated	4.21	4.21	no
Roseburg Resources	Upland	Upland	40.63	40.63	n/a
		total	621.76	621.76	

Of the project's total acres, 90 percent of the property includes nationally declining wetlands, both before and after Phase 1 restoration activities are complete (561 acres).

2. Maritime forests on coastal barriers

Not applicable. Maritime forests, as defined by 50 CFR 84.11, occur only on barrier islands and along the mainland coast from Delaware to Texas.

3. Long-term conservation

The Oregon Department of Fish and Wildlife will hold fee title and conserve the properties acquired through this grant in perpetuity for wetland conservation benefits, with a conservation easement held by the Oregon Watershed Enhancement Board. As required by ODFW's mission, ODFW is committed to restoration and long-term management of the property to guarantee that benefits will be maintained in perpetuity, including maintaining the area as natural wetlands, allowing for natural flooding and other natural processes, and ensuring permanent removal of invasive species.

Conservation values restored by this grant will persist in perpetuity since all three properties will be in public ownership. Although the project areas currently exist as wetlands with altered vegetation and hydrology, wetland vegetation will be restored and wetland hydrology will be improved as adjacent properties are acquired and water management is altered to provide more water for a longer duration. Invasive species control will occur annually and eradication efforts should decline over time as invasive species are controlled, removed, and prevented from going to seed.

Similar restoration work is occurring by the U.S. Fish and Wildlife Service at Bandon Marsh National Wildlife Refuge downstream to restore approximately 400 acres of saltwater marsh wetlands. The USFWS restoration plan incorporated many of the processes we are describing for this project including reconnecting historic channels, filling existing drain ditches, removing dikes, and replanting shrub vegetation.

4. Coastal watershed management

This project supports the natural resource goals of 10 coastal ecosystem or watershed management plans.

Table 5: Relevant conservation plans supporting this project

The following conservation plan specifically mention the Coquille Valley:	
Oregon State Wildlife Action Plan (ODFW 2006)	<p>The <i>Oregon Conservation Strategy</i> identified the Coquille River Valley as a priority area for conservation action to benefit four strategy habitats and 23 strategy species (Table 2). The strategy recommends restoring wetlands, natural stream channels, and riparian habitats within the river floodplain in the Coquille Valley Conservation Opportunity Area.</p> <p>The project also supports the following statewide goals of the state's wildlife action plan:</p> <ul style="list-style-type: none">○ Manage lands to conserve fish and wildlife habitats by acquiring and restoring lands in the conservation opportunity areas (COAs)○ Prevent new introductions of invasive species and eliminate existing ones in COAs○ Restore natural disturbance regimes like flooding; reestablish natural tidal influence; restore floodplain function by restoring and reconnecting rivers and floodplains; restore off-channel habitat○ Remove barriers to animal movement, such as removing fish passage barriers

	<ul style="list-style-type: none"> and identifying and maintaining important migratory stopovers for birds Restore water quality and quantity by restoring wetlands and riparian areas, monitoring water quality, maintaining and restoring native vegetation
Pacific Coast Joint Venture Strategic Plan (1994)	This plan identifies the Coquille Valley as an important habitat area for numerous species of waterfowl and anadromous fish, and recommends the following actions that directly relate to our project: develop strategies involving cooperative agreements, easements or acquisitions; and secure designation of a portion of the area as a waterfowl sanctuary.
Regional Wetlands Concept Plan (USFWS 1990)	This plan, prepared under the Emergency Wetlands Resource Act, identified an acquisition target of 5,000 acres in the Coquille Valley.
Oregon DSL (2010)	The Oregon Department of State Lands has designated the Coquille River Valley as an area having essential salmonid habitat.
Oregon Coast Coho Conservation Plan (ODFW 2007)	ODFW has designated many of the lowland areas in the Coquille Valley as having "high intrinsic potential," meaning they are low-gradient streams significant for coho production.
Concept Plan for Wintering Waterfowl Habitat Protection, WA and OR (USFWS 1979; 1990)	The <i>Concept Plan for Wintering Waterfowl Habitat Protection: Washington and Oregon Coasts</i> (1979) and an update published a decade later (USFWS 1990a) both highlighted the Coquille Valley, with the 1990 plan ranking the Coquille Valley as the number one priority among areas in Oregon needing protection.
OR Plan for Salmon & Watersheds (OCSRI 1997)	The Oregon Plan for Salmon and Watersheds names the Coquille River Valley a core salmon area (Oregon Coastal Salmon Restoration Initiative 1997).
TNC's Pacific Northwest Coast Ecoregional Assessment (2006)	The Nature Conservancy recognizes the Coquille River Valley, naming it a portfolio site in its Pacific Northwest Coast Ecoregional Assessment (Vander Schaaf 2006) due to the significant biodiversity and high-priority ecosystems and species found there, including bald eagle, purple martin, northwestern pond turtle, western lily, coho salmon, fall Chinook salmon, and winter steelhead.
Coquille Watershed Association Action Plan (2003)	The action plan emphasizes the need to concentrate restoration efforts on non-federal lands in the watershed. Specifically, in the lower valley, the association notes the value of historic wetlands there and recommends restoring and enhancing historic floodplains through conservation easements and wetland programs; creating and maintaining off-channel refuge and rearing areas for fish; planting, protecting and fencing riparian areas; and managing fecal coliform sources.
Coquille Subbasin Plan (Coquille Tribe 2007, for NOAA Fisheries)	This plan identifies overwinter habitat as the limiting factor that negatively affects coho salmon and other salmonid species. The properties to be acquired are all identified as overwinter habitat. The subbasin plan also recommends that wetlands be reconnected to the Coquille River and that freshwater wetlands be restored to provide important year-round rearing habitat.
The following plans do not specifically mention the Coquille Valley, but this project advances their overall goals:	
Oregon Coho Conservation Plan (ODFW 2007)	Overwintering habitat is the biggest coho habitat deficiency, according to the Oregon Coho Conservation Plan (ODFW 2007). The coho plan estimates that 75 percent of overwintering coho juveniles are lost due to lack of overwinter habitat to escape high water flows. This project will add 500 acres of high-quality overwintering habitat.

Oregon Wetland Conservation Strategy (Leibowitz 1995)	This strategy prioritizes protecting wetlands that serve multiple functions and are connected to other wetlands. The wetlands in the Coquille Valley are important habitat for anadromous fish as well as waterfowl and migratory birds, they filter agricultural waste, and they will become an important tidal wetland if and when sea levels rise enough to submerge estuarine wetlands further downriver.
Oregon Wetlands Priority Plan (ODSL and OPRD 1989)	This plan emphasizes that regulation alone is not enough to protect wetlands, and sometimes acquisition is necessary. The plan prioritizes estuarine wetlands for protection, and the Coquille Valley is below the head of the tide.
North American Waterfowl Management Plan (NAWMP 2004)	This plan has as a goal to protect and secure 249,000 acres of waterfowl habitat along the Pacific Coast of the conterminous U.S. and restore 108,000 acres (NAWMP 2004). Furthermore, 11 of the plan's priority species will benefit from this project (Table 2). Please see Criterion 7 for information on how the Coquille Valley acquisition and restoration project aligns with additional conservation plans specific to birds.

5. Conservation of threatened and endangered species

The Coquille Valley acquisition and restoration project will benefit 28 species considered threatened, endangered, or a species of concern by the U.S. Fish and Wildlife Service, or considered critical or vulnerable by the Oregon Department of Fish and Wildlife, or considered *strategy species* under ODFW's State Wildlife Action Plan (SWAP; a.k.a., the *Oregon Conservation Strategy*).

Table 6: Species of special conservation status that will benefit from this project:

Species	Status	Life cycle and benefits
Coho salmon	Federal threatened; state sensitive/critical	<p>The Coquille River's coho salmon population has been reduced to only a fraction of historic levels, going from a high of 450,000 returning fish annually, to 10,000 to 20,000 fish currently (Denney, pers. comm.). This project will provide coho salmon with access to more than 500 acres of high-quality wetland habitat for overwintering, foraging, and rearing.</p> <p>Coho have two life histories in the Coquille River. After the adults spawn in the upper tributaries, a portion of those offspring will stay in the streams for a year before migrating downstream to the ocean. But there is only so much carrying capacity in the upper streams, so a portion of the offspring will migrate downstream early, as fry (salmon younger than one year), and seek food and refuge before migrating to the ocean as one-year-old juvenile coho. These second kind are called nomad coho, and this life history has nearly disappeared from the Coquille. This project will greatly benefit nomad coho by increasing their habitat year-round. The restored wetlands will also benefit regular life-history juvenile coho as they make their way to the ocean at age one by improving water quality, increasing foraging areas, and providing off-channel refuge during high-water events such as floods.</p> <p>These areas have been dramatically altered, turned into ditches, and diked and disconnected from the floodplain. But they have potential to become high-quality habitat through the restoration to be accomplished with this project. (ODFW StreamNet 2003; Gray 2009)</p>

Chum salmon	State critical; SWAP <i>strategy</i> species	Chum salmon are not proficient jumpers and tend to spawn in lowland/low-gradient areas in the valley, and thus will benefit from reconnecting channels to the river and increasing spawning areas, the latter achieved by providing suitable gravel for adult salmon to spawn. Juvenile salmon spend a relatively short period in the river before going to sea. (ODFW StreamNet 2003; Gray 2009)
Chinook salmon	State sensitive	There are very few spring Chinook in the basin, but rearing occurs in the estuaries before the fish head to sea. The Coquille estuary is 42 miles long containing mostly fresh water, with tidal influence. Restoring the Coquille River Valley's wetlands will provide significant benefits for Chinook, greatly increasing available rearing and overwintering habitat and improving water quality. (ODFW StreamNet 2003; Gray 2009)
Winter steelhead	Federal species of concern	They became candidates for listing in 1999. Steelhead still spawn in the upper reaches of the Coquille River and need areas to overwinter during high-water events. This restoration project will provide off-channel refuge for steelhead during floods. (ODFW StreamNet 2003; Gray 2009)
Coastal cutthroat trout	Federal species of concern; state vulnerable; SWAP <i>strategy</i> species	All three life histories of this species are present on the properties. Restoring the Coquille River Valley's wetlands will provide significant benefits for cutthroat, greatly increasing available rearing and overwintering habitat, and improving water quality. (ODFW StreamNet 2003; Denney 2010)
Pacific lamprey	State sensitive	Lamprey will benefit significantly from this project in areas that have freshwater flow. Restoring and reconnecting channels, creeks and sloughs to the mainstem river will provide more flow and benefit lamprey. (ODFW StreamNet 2003; Gray 2009)
Western brook lamprey	SWAP <i>strategy</i> species	Lamprey will benefit dramatically from this project in areas that have freshwater flow. Restoring and reconnecting channels, creeks and sloughs to the mainstem river will provide more flow and benefit lamprey. (ODFW StreamNet 2003; Gray 2009)
Peregrine falcon	Federal species of concern	The peregrine falcon is a species of concern for the Fish and Wildlife Service, as well as the Forest Service and Bureau of Land Management, and the state of Oregon considers it threatened. The restored wetlands of the Coquille River Valley will provide these majestic raptors with ample hunting opportunities. (Denney 2010)
Bald eagle	State listed threatened; SWAP <i>strategy</i> species	Wetland restoration will improve habitat for foraging, nesting and overwintering. Bald eagles may establish nest sites near restoration project due to increased food availability. (Denney 2010)
Snowy egret	State vulnerable; SWAP <i>strategy</i> species	Although this bird is rare in the valley, wetland restoration will improve habitat for foraging and overwintering (Denney 2010; Contreras 2010)
Long-billed curlew	Federal species of concern; state vulnerable	Wetland restoration will improve habitat for foraging, and overwintering (Contreras 2010)
Willow flycatcher	Federal species of concern; state vulnerable	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010; Contreras 2010)

Purple martin	Federal species of concern; state critical	Increased and improved forage and rearing habitat (Langenstein 2010)
Yellow-breasted chat	Federal species of concern; state critical	Wetland restoration will improve habitat for foraging and nesting (Denney 2010; Contreras 2010)
Western meadowlark	state critical	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)
Band-tailed pigeon	Federal species of concern; SWAP <i>strategy</i> species	Buffer plantings will provide nesting, foraging and rearing habitat. Planting of soft mast-producing shrubs will improve foraging habitat (Langenstein 2010)
Short-eared owl	SWAP <i>strategy</i> species	The short-eared owl is very difficult to find in the valley; however, restoration would most likely have significant positive effects on foraging and overwintering habitat (Contreras 2010)
Western pond turtle	SWAP <i>strategy</i> species	Present historically, and could recolonize with habitat improvements. Project will provide basking logs, increased channel habitat, open water habitat, and hiding cover. May be able to transplant population once habitat improvements and restoration are complete (Langenstein 2010)
Clouded salamander	State vulnerable; SWAP <i>strategy</i> species	Uses forest habitat and large downed wood. May be present in buffer/upland areas of project, and will benefit where large downed wood is added (Langenstein 2010)
Red-legged frog	Federal species of concern; state vulnerable; SWAP <i>strategy</i> species	Will benefit greatly from project. All life stages will benefit, including reproduction, rearing and foraging (Langenstein 2010)
Silver-haired bat	Federal species of concern; state vulnerable; SWAP <i>strategy</i> species	Will benefit by increasing forage base, and providing reproduction and roosting habitat, especially the buffers with Douglas-fir and spruce (Langenstein 2010)
Hoary bat	State vulnerable	Will benefit with increased forage base, and reproductive and roosting sites, especially in improved buffers with Douglas-fir and spruce (Langenstein 2010)
California myotis	State vulnerable; SWAP <i>strategy</i> species	All life history cycles will benefit from increased forage production, and increased roosting and reproductive sites (Langenstein 2010)
Yuma myotis	Federal species of concern	Will benefit with increased forage base, and reproductive and roosting sites, especially in areas with myrtle, Douglas-fir and spruce (Langenstein 2010)

6. Benefits to fish

This project will provide, restore and enhance important habitat for at least 18 species of fish and bivalve (Coquille Watershed Association 2003; Mike Gray, pers. comm.; ODFW StreamNet 2003). By reversing

wetland loss, allowing annual winter flooding, reconnecting the river to the floodplain, and removing fish barriers, fish will have access to thousands of acres of additional wetland and riparian habitat. The specific benefits – some of which are also described earlier under Criterion 5 – are the following:

Table 7: Fish species that will benefit from this project

Coho salmon	<p>The Coquille River's coho salmon population has been reduced to only a fraction of historic levels, going from a high of 450,000 returning fish annually, to 10,000 to 20,000 fish currently (Denney, pers. comm.). This project will provide coho salmon with access to more than 500 acres of high-quality wetland habitat for overwintering, foraging, and rearing.</p> <p>Coho have two life histories in the Coquille River. After the adults spawn in the upper tributaries, a portion of those offspring will stay in the streams for a year before migrating downstream to the ocean. But there is only so much carrying capacity in the upper streams, so a portion of the offspring will migrate downstream early, as fry (salmon younger than one year), and seek food and refuge before migrating to the ocean as one-year-old juvenile coho. These second kind are called nomad coho, and this life history has nearly disappeared from the Coquille. This project will greatly benefit nomad coho by increasing their habitat year-round. The restored wetlands will also benefit regular life-history juvenile coho as they make their way to the ocean at age one by improving water quality, increasing foraging areas, and providing off-channel refuge during high-water events such as floods.</p> <p>These areas have been dramatically altered, turned into ditches, and diked and disconnected from the floodplain. But they have potential to become high-quality habitat through the restoration to be accomplished with this project. (ODFW StreamNet 2003; Gray 2009)</p>
Chinook salmon	<p>The state considers spring Chinook salmon a sensitive species in the Coquille River. There are very few spring Chinook in the basin, but rearing occurs in the estuaries before the fish head to sea. The Coquille estuary is 42 miles long containing mostly fresh water, with tidal influence. Restoring the Coquille River Valley's wetlands will provide significant benefits for Chinook, greatly increasing available rearing and overwintering habitat and improving water quality. (ODFW StreamNet 2003; Gray 2009)</p>
Steelhead	<p>Winter steelhead, while not listed under the ESA, are considered a species of concern. They became candidates for listing in 1999. Steelhead still spawn in the upper reaches of the Coquille River and need areas to overwinter during high-water events. This restoration project will provide off-channel refuge for steelhead during floods. (ODFW StreamNet 2003; Gray 2009)</p>
Chum salmon	<p>Chum salmon are not proficient jumpers and tend to spawn in lowland/low-gradient areas in the valley, and thus will benefit from reconnecting channels to the river and increasing spawning areas, the latter achieved by providing suitable gravel for adult salmon to spawn. Juvenile salmon spend a relatively short period in the river before going to sea. (ODFW StreamNet 2003; Gray 2009)</p>
Coastal cutthroat trout	<p>All three life histories of this species are present on the properties. Restoring the Coquille River Valley's wetlands will provide significant benefits for cutthroat, greatly increasing available rearing and overwintering habitat, and improving water quality. (ODFW StreamNet 2003; Denney 2010)</p>
Pacific lamprey	<p>Pacific lamprey are on the state sensitive species list and have been petitioned for federal ESA listing. Lamprey will benefit significantly from this project in areas that have freshwater flow. Restoring and reconnecting channels, creeks and sloughs to the mainstem river will provide more flow and benefit lamprey. (ODFW StreamNet 2003; Gray 2009)</p>

Western brook lamprey	Lamprey will benefit dramatically from this project in areas that have freshwater flow. Restoring and reconnecting channels, creeks and sloughs to the mainstem river will provide more flow and benefit lamprey. (ODFW StreamNet 2003; Gray 2009)
Three-spine stickleback	The stickleback is a local, native species that rears in estuaries. They are relatively small and spawn easily, but this project will provide much more habitat for them. They are prey for birds, and to some degree fish as well, although their spines are an effective deterrent to fish predators. (ODFW StreamNet 2003; Gray 2009)
<i>Additional fish</i>	Native sculpins use the Coquille River Valley and would use the wetlands once restored. Marine fish like flat fish may use wetlands in the lower part of the project area. Additionally, the wetlands will filter out sediment and contaminants, preventing them from reaching the lower estuary, to the benefit of shellfish, marine mammals, and prey/forage fish such as anchovy, herring, sardines and sand lance that use the estuary downstream. Wetlands restoration and improved habitat in the sloughs will benefit several freshwater prey/forage fish as well, including reddsideshiner (a native minnow species), long-nosed or speckled dace, and three-spine stickleback. (Gray 2009)

7. Benefits to coastal-dependent or migratory birds

For wintering waterfowl, the Coquille Valley has long been recognized as one of the most important coastal sites in the Pacific Flyway. Mid-winter waterfowl surveys typically record anywhere from 10,000 to 60,000 ducks in the Coquille Valley, numbers that often represent nearly half of the total wintering population on the Oregon coast. The valley also hosts significant numbers of wintering geese and swans, as shown in recent mid-winter surveys conducted by the U.S. Fish and Wildlife Service (Table 2).

At least 11 species that are listed as priorities under the North American Waterfowl Management Plan (NAWMP 2004) will benefit from this project (Table 2). Furthermore, 26 species considered priorities for Partners in Flight will benefit from our project, and five species listed as priorities under the Northern Pacific Coast Regional Shorebird Management will benefit from our project (Drut et al 2000) (Table 2).

Table 8: Bird species that will benefit from this project

Species	Life cycle stages	Benefits	Conservation plans
Mallard	Migratory; overwintering and nesting	Approximately 50 percent of the Oregon Coast's wintering waterfowl overwinter in the Coquille River Valley, but there is very little nesting habitat. Wetland and riparian restoration will create nesting and rearing habitat, and improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	North American Waterfowl Management Plan (NAWMP 2004)
Northern pintail	Migratory; overwintering and nesting	Wetland restoration will create nesting habitat and improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	North American Waterfowl Management Plan (NAWMP 2004)
Scaup	Migratory; overwintering and	Wetland restoration will improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	North American Waterfowl Management Plan (NAWMP 2004)
Hooded merganser	Migratory; overwintering and nesting	Wetland restoration will create nesting habitat and improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	
Wood duck	Migratory; overwintering and nesting	Wetland and riparian restoration will create nesting and rearing habitat, and improve wintering habitat. (Denney 2010;	

		Lowe/USFWS 2010)	
Shoveler	Migratory; overwintering and nesting	Wetland restoration will create nesting habitat and improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	North American Waterfowl Management Plan (NAWMP 2004)
Ring-necked duck	Migratory; overwintering and nesting	Wetland restoration will create improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	
Canada goose	Migratory; overwintering and nesting	Wetland and riparian restoration will create nesting and rearing habitat. and improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	North American Waterfowl Management Plan (NAWMP 2004)
Tundra swan	Migratory; overwintering and nesting	Wetland restoration will create improve wintering habitat. (Denney 2010; Lowe/USFWS 2010)	North American Waterfowl Management Plan (NAWMP 2004)
Green-wing teal	Migratory; nesting and rearing	Wetland and riparian restoration will create nesting and rearing habitat. (Denney 2010; Lowe/USFWS 2010)	North American Waterfowl Management Plan (NAWMP 2004)
Osprey	Migratory; foraging, nesting, and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010; Lowe/USFWS 2010)	
Bald eagle	Migratory; foraging, nesting, and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering. Bald eagles may establish nest sites near restoration project due to increased food availability. (Denney 2010)	state listed threatened; Oregon state wildlife action plan "strategy" species (ODFW 2006).
Red-tailed hawk	Migratory; foraging, nesting, and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Kestrel	Migratory; foraging, nesting, and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Sharp-shinned hawk	Migratory; foraging, nesting, and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Cooper's hawk	Migratory; foraging, nesting, and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	Partners in Flight (Altman 2009)
Peregrine falcon	Migratory; overwintering, foraging	Wetland restoration will improve habitat for foraging, and overwintering (Denney 2010)	State listed endangered
Merlin	Migratory; overwintering, foraging	Wetland restoration will improve habitat for foraging, and overwintering (Denney 2010)	Rare according to Oregon Natural Heritage Information Center
Northern harrier	Migratory; overwintering, foraging nesting	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	Partners in Flight (Altman 2009)
Western screech owl	Resident; year-round nesting, rearing and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Great horned owl	Resident; year-round nesting, rearing and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Short-eared owl	Resident; year-round	The short-eared owl is very difficult to find	Oregon state wildlife

	nesting, rearing and foraging	in the valley; however, restoration would most likely have significant positive effects on foraging and overwintering habitat (Contreras 2010)	action plan "strategy" species (ODFW 2006)
Red-shouldered hawk	Resident; year-round nesting, rearing and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
White-tailed kite	Resident; year-round nesting, rearing and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering. Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Pied-billed grebe	Nesting, rearing, foraging, overwintering	Wetland restoration will improve habitat for foraging and overwintering, and nesting for this uncommon local breeder in freshwater marshes and open water/ponds (Contreras 2010)	
Virginia rail	Nesting, rearing, foraging, overwintering	Wetland restoration will improve habitat for foraging and overwintering, and nesting for this uncommon local breeder (Contreras 2010)	
Sora rail	Nesting, rearing, foraging, overwintering	Wetland restoration will improve habitat for foraging and overwintering for this species occasionally seen in the valley (Contreras 2010)	
American bittern	Migratory; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Great egret	Migratory; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging and overwintering (Contreras 2010)	
Snowy egret	Migratory; foraging and overwintering	Although this bird is rare in the valley, wetland restoration will improve habitat for foraging, and overwintering (Denney 2010; Contreras 2010)	State vulnerable; State wildlife action plan "strategy" species (ODFW 2006)
Green heron	Migratory; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging and nesting (Denney 2010; Contreras 2010)	
Black-crowned night heron	Migratory; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging and overwintering, and perhaps nesting (Contreras 2010)	
Great blue heron	Resident; nesting and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	TNC Ecoregional target (Vander Schaaf 2006)
Black-bellied plover	Migratory; foraging and overwintering	Wetland restoration will improve habitat for foraging, and overwintering (Denney 2010)	Shorebird regional priority (Drut 2000)
Greater yellowlegs	Migratory; foraging and overwintering	Wetland restoration will improve habitat for foraging, and overwintering (Denney 2010)	Shorebird regional priority (Drut 2000)
Spotted sandpiper	Migratory; foraging nesting and overwintering	Wetland restoration will improve habitat for foraging, and overwintering (Denney 2010)	
Western sandpiper	Migratory; foraging, and overwintering	Wetland restoration will improve habitat for foraging, and overwintering (Contreras	Shorebird regional priority (Drut 2000); TNC

		2010)	Ecoregional target (Vander Schaaf 2006)
Willet	Migratory; - foraging and overwintering	Wetland restoration will improve habitat for foraging, and overwintering (Contreras 2010)	
Long-billed curlew	Migratory; foraging and overwintering	Wetland restoration will improve habitat for foraging, and overwintering (Contreras 2010)	Federal species of concern; state vulnerable; Shorebird regional priority (Drut 2000); TNC Ecoregional target (Vander Schaaf 2006)
Killdeer	Resident and nesting migratory; foraging and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	Shorebird regional priority (Drut 2000); Partners in Flight (Altman 2009); TNC Ecoregional target (Vander Schaaf 2006)
Western wood peewee	Migratory; foraging, nesting and rearing in warmer months	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Willow flycatcher	Migratory; foraging, nesting and rearing in warmer months	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010; Contreras 2010)	Federal species of concern; state vulnerable; Partners in Flight (Altman 2009); TNC Ecoregional target (Vander Schaaf 2006)
Black phoebe	Migratory; foraging, nesting and rearing in warmer months	Wetland restoration will improve habitat for foraging, nesting and overwintering (Contreras 2010)	
Western kingbird	Migratory; foraging, nesting and rearing in warmer months	Upland protection and invasives control will improve and maintain habitat for foraging and nesting and (Denney 2010)	
Purple martin	Migratory; nesting, rearing and foraging	Increased and improved forage and rearing habitat (Langenstein 2010)	Federal species of concern; state critical; Partners in Flight (Altman 2009); TNC Ecoregional target (Vander Schaaf 2006)
Tree swallow	Migratory; nesting, rearing and foraging	More nesting and rearing habitat, and increased insects for foraging (Denney 2010)	Partners in Flight (Altman 2009)
Rough-winged swallow	Migratory; nesting, rearing and foraging	More nesting and rearing habitat, and increased insects for foraging (Contreras 2010)	
Barn swallow	Migratory; nesting, rearing and foraging	More nesting and rearing habitat, and increased insects for foraging (Denney 2010)	
Black-capped chickadee	Migratory bird: nesting, foraging and overwintering	Upland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	Partners in Flight (Altman 2009)
Red-breasted nuthatch	Migratory bird: nesting, foraging and overwintering	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Denney 2010; Contreras 2010)	

Bewick's wren	Resident bird; nesting and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	Partners in Flight (Altman 2009)
Marsh wren	Resident bird; nesting and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	Partners in Flight (Altman 2009)
Swainson's thrush	Resident bird; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging and nesting (Denney 2010; Contreras 2010)	Partners in Flight (Altman 2009)
Hermit thrush	Resident bird; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Varied thrush	Resident and migratory populations; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging and overwintering (Denney 2010; Contreras 2010)	Partners in Flight (Altman 2009)
Robin	Resident and migratory populations; nesting, foraging and overwintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Cedar waxwing	Migratory; nesting, foraging and overwintering	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Contreras 2010)	
Hutton's vireo	Migratory; nesting, rearing and foraging	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Contreras 2010)	Partners in Flight (Altman 2009)
Warbling vireo	Migratory; nesting, rearing and foraging	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Contreras 2010)	
Orange-crowned warbler	Migratory; nesting, rearing and foraging	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Contreras 2010)	Partners in Flight (Altman 2009)
Yellow warbler	Migratory; nesting, rearing and foraging	Upland protection and invasives control will improve habitat for foraging and nesting (Denney 2010; Contreras 2010)	Partners in Flight (Altman 2009)
Yellow-rumped warbler	Migratory; nesting, rearing and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Common yellowthroat	Migratory; nesting, rearing and foraging	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Wilson's warbler	Migratory; nesting, rearing and foraging	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Contreras 2010)	Partners in Flight (Altman 2009)
Lazuli bunting	Migratory; nesting, rearing and foraging	Upland protection and invasives control will improve habitat for foraging, nesting (Denney 2010; Contreras 2010)	Partners in Flight (Altman 2009)
Yellow-breasted chat	Migratory; nesting, rearing and foraging	Wetland restoration will improve habitat for foraging and nesting (Denney 2010; Contreras 2010)	Federal species of concern; state critical; Partners in Flight (Altman 2009)

Rufous-sided towhee	Resident; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Savannah sparrow	Resident; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Fox sparrow	Resident; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging and overwintering (Contreras 2010)	Partners in Flight (Altman 2009)
Song sparrow	Resident; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Golden-crowned sparrow	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging and overwintering (Contreras 2010)	Partners in Flight (Altman 2009)
White-crowned sparrow	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering	
Dark-eyed junco	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Lesser goldfinch	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	Partners in Flight (Altman 2009)
American goldfinch	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Red-winged blackbird	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Brewer's blackbird	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	
Western meadowlark	Migratory; nesting, rearing, foraging and wintering	Wetland restoration will improve habitat for foraging, nesting and overwintering (Denney 2010)	State critical; Partners in Flight (Altman 2009)
Northern oriole	Migratory; nesting, rearing, foraging and wintering	Upland protection and invasives control will improve habitat for foraging, nesting and overwintering (Contreras 2010)	
Band-tailed pigeon	Nesting, rearing and foraging	Buffer plantings will provide nesting, foraging and rearing habitat. Planting of soft mast-producing shrubs will improve foraging habitat (Langenstein 2010)	Federal species of concern; State wildlife action plan "strategy" species (ODFW 2006); Partners in Flight (Altman 2009); TNC Ecoregional target (Vander Schaaf 2006)

Restoring the Coquille River Valley to its historic wetlands aligns with priorities in the following bird conservation plans:

- The North American Waterfowl Management Plan has as a goal to protect and secure 249,000 acres of waterfowl habitat along the Pacific Coast of the conterminous United States and restore 108,000 acres (NAWMP 2004). See Table 2 for a list of species in NAWMP that will benefit from this project.
- The U.S. Shorebird Conservation Plan emphasizes the need to manage wetland habitats as dynamic, natural systems to provide habitat for the entire range of wetland-dependent species, including shorebirds, which this project does. In addition, within the Northern Pacific Region for shorebirds, one of the four most important listed shorebird habitats is freshwater systems, including natural and managed wetlands, flooded agricultural areas, and riverine systems. Loss of wetland habitat is the primary concern for shorebird conservation in the region, according to the plan. The plan emphasizes protection, restoration and enhancement activities to benefit shorebirds (Brown et al. 2001). See Table 2 for a list of species in the shorebird plan that will benefit from this project.
- The North American Waterbird Conservation Plan has as one of its habitat goals to protect, restore and manage sufficient high-quality habitat and key sites for waterbirds throughout the year to meet species and population goals (Kushlan et al. 2002). See Table 2 for a list of species in the waterbird plan that will benefit from this project.
- Partners in Flight uses number of hectares of habitat protected and restored by Bird Conservation Region and habitat types as a measurable criteria for evaluating the success of the North American Landbird Conservation Plan (Rich et al. 2004). Furthermore, a number of the plan's priority species will benefit from this project (Table 2).

Table 9: Coquille Valley mid-winter waterfowl counts

source: U.S. Fish and Wildlife Service/Oregon Coast National Wildlife Refuge Complex -- Midwinter Waterfowl Surveys (Lowe/USFWS 2010)

	2009		2008		2007		2006	
Mallard	2677		3998		1853		5680	
Gadwall	0		660		315		1765	
Wigeon	10401		10203		15230		14394	
Greenwing teal	3364		1576		2042		7020	
shoveler	1108		2270		381		645	
pintail	5003		17766		19898		21937	
wood duck	0						25	
subtotal dabblers		22553		36473		39719		51466
canvasback	0				182			
scaup	355		550		1177		4379	
ring-necked duck	3111		4852		1014		2441	
goldeneye	0		179					
bufflehead	358		961		481		450	
ruddy duck	41		175		620		3	
subtotal divers		3865		6717		3474		7273
scoters	0		0		59			
subtotal seaduck		0		0		59		0
mergansers	123		23		19			

total ducks		26541		43213		43212	58739
western Canada goose			311		594		186
"Canada" unidentified	112						
total geese		112		311		594	186
tundra swan			9		44		57
unidentified swan	51						
total swans		51		9		44	57
grand total waterfowl		26,704	43,533		43,850		58,982

8. Prevent or reduce contamination

The Coquille River Valley floods every winter, explaining the name used by some local residents of "Winter Lake." The area has been diked and ditched so that water runs quickly off the valley and back into the river, and landowners try to drain the land as fast as they can by opening tide gates. Our project includes removing 0.6 miles of existing dikes, remeandering stream channels, and allowing natural flood events to occur again. These actions will slow the flow of water across the valley, allowing wetlands to filter sediments and nutrients from current and historic grazing. This project will also spread the river out over a much larger area, which will vastly increase water filtration and reduce sediment loading in the river.

Furthermore, while some targeted grazing will be allowed solely for restoration purposes, overall the amount of grazing will be much reduced from current levels, and ultimately will end entirely, thus reducing contamination further. Grazing will be used as an inexpensive, temporary restoration action, in fenced areas, to control reed canarygrass, until native vegetation is established enough to shade out reed canarygrass. Upon establishment of native vegetation, cows will be removed swiftly and completely.

9. Catalyst for future conservation

Funding from the National Coastal Wetlands Conservation Act will initiate the first phase of the larger Coquille Valley Conservation Initiative we are proposing, which will restore the properties' historic wetland functions and values and create a destination birding and wildlife-viewing trail on both sides of the river with interpretive signs, safe vehicle pull-outs, and river access points. This grant will enable ODFW to launch the project by completing phase 1 to purchase two properties, totaling 622 acres, for long-term conservation, and to complete two-thirds of our restoration goals for these properties. Later, with additional funding, we will complete Phase 2 of restoration on the two properties to be acquired here. Phase 3 involves acquiring and restoring two additional properties nearby owned by Fred Messerle & Sons, and Waterman Trust. Phase 4 involves, several years down the line, acquiring and restoring additional properties in the valley, including a working dairy. The initiative is a landscape-level effort to protect and restore the entire wetland ecosystem in the Coquille Valley.

Furthermore, this project builds on other conservation and restoration efforts in the Coquille Basin, including purchase and restoration by the U.S. Fish and Wildlife Service of the 800-acre Bandon Marsh National Wildlife Refuge 10 miles downstream from our project, several OWEB habitat restoration projects,

and restoration work already done by The Freshwater Trust and Ducks Unlimited on Bandon Biota's Lowe Creek property.

10. Partners in conservation

Table 10: Partners and their financial contributions toward this project

The Nature Conservancy	\$65,000
Oregon Department of Fish and Wildlife	\$115,000
Coquille Tribe	\$5,000
Coquille High School	\$48,000
Bandon High School	\$10,000
Ducks Unlimited	\$5,000
Total	\$248,000

The Oregon Watershed Enhancement Board (applicant) is contributing \$720,000 to the acquisition costs of this project and expects to be a major partner in restoration efforts. The Nature Conservancy is contributing \$65,000 toward acquisition costs. Oregon Department of Fish and Wildlife is contributing \$115,000 in staff time and expenses toward accomplishing the land acquisitions by reaching out to landowners, and securing local support for the project by leading tours of the project area and meeting with many local citizens, local and state leaders, and local and statewide organizations. The Coquille Tribe has contributed in-kind staff support to help create maps of the area that have been used to garner support locally and from state leaders. Ducks Unlimited has committed to help with the cost of designing, engineering, implementing and monitoring the restoration efforts. Two local high schools have committed to incorporating the project into science curriculum – and already have programs in place to do so – thus providing in-kind support for project design, implementation and monitoring. All of these activities are necessary and reasonable to accomplishing the project's objectives of acquiring and restoring wetlands in the Coquille Valley.

Please refer to our letters of support from these currently contributing partners: The Nature Conservancy, Oregon Department of Fish and Wildlife, Coquille Tribe, Ducks Unlimited, Coquille High School and Bandon High School.

11. Federal share reduced:

Source	Amount
FWS	\$1,000,000
OWEB	\$720,000
Non-federal partner match	\$786,000
Total	\$2,506,000
Minimum required match	\$626,500
Secured match	\$786,000
Funds secured above required match	\$159,500
Percent secured above required match	25%

12. Education/outreach program or wildlife-oriented recreation

Education and outreach will be a significant component of this project. ODFW is well-equipped to implement an education and outreach program in the Coquille River Valley through its Salmon Trout Enhancement Program (STEP).

The Coquille High School has been nationally recognized for its environmental education programs, such as building a small fish hatchery on campus and making improvements to the creek that runs through campus. Both Coquille and Bandon high schools have committed to incorporating the Coquille Valley restoration project into their environmental education curriculum (see attached letters of support). Students will contribute to project design, restoration and monitoring; monitoring will not be contributed as part of match. ODFW's Charleston, Oregon office on the south coast has an education liaison with strong ties to the local schools and will use this project to involve not only Coquille and Bandon high school students, but also students from other local schools and Southwest Oregon Community College.

Recreation use will include birding, hunting and fishing. There is currently a paved road around both sides of the Coquille Valley. The final restoration design will include this road, making it a handicapped-accessible walking and birding trail with interpretive signs. ODFW's Web site will also include information on the area and project to educate the public and invite them to visit. Hunting, primarily for waterfowl, and fishing will be allowed in parts of the restored wetlands at certain times of year.

Currently an estimated 185,000 people fish the Coquille River for salmon and steelhead each year, and ODFW estimates this figure will double. This increased fishing opportunity will not occur on the properties identified for acquisition under this grant, but throughout the entire Coquille Basin after roughly 3,000 acres of the valley has been fully restored via the Coquille Valley Conservation Initiative, because the initiative (including Phase 1) will address the limiting factors currently affecting salmon/steelhead/cutthroat smolt survival (overwinter and rearing habitat).

Waterfowl hunting brings 2,000 people a year, and wildlife viewing 195,000, to the overall Coquille River Basin. ODFW expects that this number will double, but again, visitors are not specifically coming to the project site, and results are expected after the protection and restoration of 3,000 total acres of the valley floor (ODFW and Travel Oregon 2009). ODFW will manage hunting opportunity to prevent any affects on other species. Techniques used on other areas for waterfowl hunting include limiting days of hunting opportunity, limited entry to control total numbers of hunters on any given day, assigned hunting blinds, etc. Wildlife viewing will also be limited by directing people to established trails and viewpoints.

To ensure that the natural resources ODFW is restoring will not be degraded by recreation, ODFW will limit recreation to certain areas at certain times of year. For example, recreational activities will be restricted during nesting season. Furthermore, ODFW will monitor population levels for key species. All allowances for public access will be done with an eye toward maintaining habitat and fish and wildlife populations, as is ODFW's standard throughout the state.

Some construction will be necessary to allow recreational access. Some of the access roads that already go to the river will likely be kept and graveled. ODFW may need to build a parking lot and toilet for visitors.

In addition, the Coquille River Valley is a usual and accustomed fishing, hunting and gathering site for the Coquille Indian Tribe. ODFW has talked to the tribe about contributing resources for managing the acquired lands and providing resources for future acquisitions.

13. Other factors

State Wildlife Action Plan and partnerships

The Coquille Wetlands Conservation Initiative is a flagship project for the Oregon Conservation Strategy, the state's federally approved wildlife action plan. It has garnered the attention of The Nature Conservancy's partnership with Doris Duke Charitable Foundation as a primary target for investments to promote implementation of state wildlife action plans in the Pacific Northwest. Furthermore, it offers an important opportunity to implement land conservation strategies in an area where local opposition has traditionally been strong against public land acquisition and wetland restoration. Changes in the agricultural economy, changing demographics, and ODFW's strong relationships with the local community have combined to create opportunities that would have been inconceivable even five years ago.

Invasive species

The Coquille River Valley has several invasive species present, including -, purple loosestrife, Scot's broom, blackberry, thistles, and reed canarygrass. ODFW's restoration plans include removal of these species and efforts to prevent them from re-entering the area, as well as public education about the dangerous effects of invasive species on native flora and fauna.

Cultural

The entire Coquille River Valley was historically very important to the Coquille Indian Tribe for hunting, fishing and gathering. The lower river is known to be a significant tribal archaeological site, and further up the estuary is likely to be as well. ODFW's south coast office has a good relationship with the Coquille tribe and will work with the tribe to ensure the protection of any artifacts found during the restoration project.

Other species

Restoring the Coquille River Valley wetlands will benefit aquatic furbearers such as beaver, otter, muskrat, mink and raccoon, as well as predators like cougar, bear, coyote, bobcat and gray fox. Non-migratory birds of conservation concern that will benefit include fox sparrow, marsh wren, Bewick's wren, killdeer, great blue heron and short-eared owl. Big game will benefit as well, including Roosevelt elk and black-tailed deer.

The benefits to beaver will also benefit other species. Restoring large tracts of forested wetlands that are home to healthy beaver populations will result in healthy beaver dams and ponds, helping maintain permanent water supplies and benefitting fish, birds, and herptiles.

14. Additional considerations/Tiebreakers

- (1) Would the project prevent the destruction or degradation of habitat from pending sale of the property, from adverse effects of current activities such as draining of wetlands, or from natural processes such as erosion at excessive rates?**

The properties proposed for acquisition are not under threat of development. However, sale to another party could change activities on the properties and degrade habitat.

For the Bandon Biota properties, sale to another party could lead to intensified agricultural use, additional cattle, and additional drainage systems on the land, which would reduce the wetland component and reduce the duration of water saturation.

On the Roseburg Resources property, the forested wetlands could be cleared, drained and converted to pasture and that would remove the habitat suitability for a lot of species, through pumps, ditches, etc. Furthermore, the threat of invasives is constant, and without active conservation management to curb invasive species, this property's current near-historic wetland habitat will be significantly degraded.

(2) Would the project protect unique and significant biological diversity?

The project does protect unique and significant biological diversity, hosting the largest coastal populations of wintering waterfowl between San Francisco Bay and the U.S.-Canada border. The array of fish and wildlife species described throughout the proposal covers a broad spectrum of Oregon's coastal biodiversity, and this project will provide long-term conservation benefits for most of the species.

(3) What is the cost per acre conserved of this project?

Acquisition costs are expected to be approximately \$4,028 per acre. This figure is based on estimated fair market value for the Roseburg Resources, and appraised value for Bandon Biota property.

For restoration, this figure is based on consultation with ODFW and the Coquille Watershed Association to get average costs for log placement, planting, fill and removal, and reconnecting old channels.

(4) Will the state or third party provide lands for the matching share as opposed to using lands already owned by the state as part of the matching share?

No, partners on this project will be providing lands as matching share.

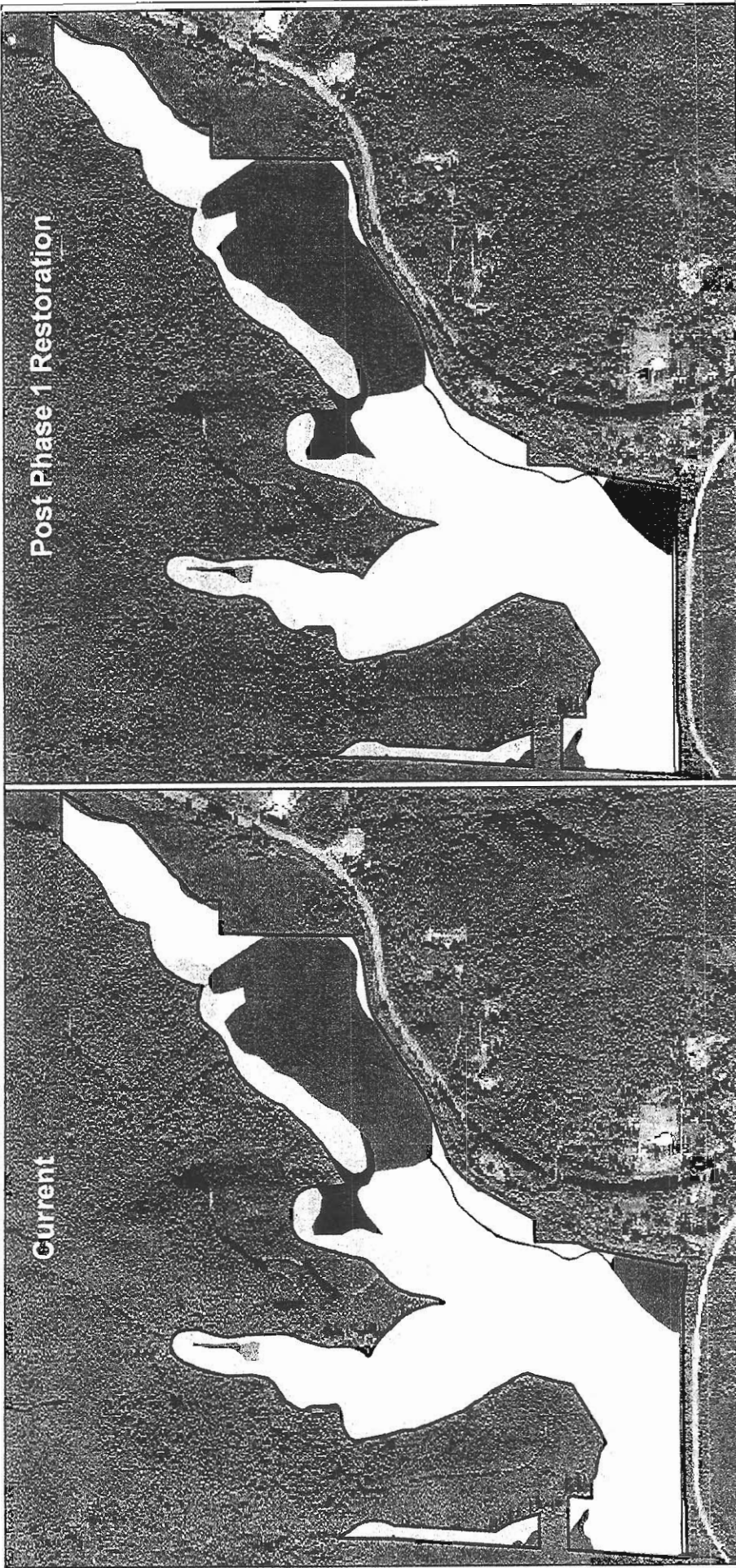
(5) Additional tie-breaking consideration: Climate change

A recent report prepared for the Climate Leadership Initiative states that sea-level rise in Oregon, driven by climate change, "will severely impact low-lying coastal areas. Coastal marshes, estuaries, and beaches are most at risk" (University of Oregon 2008).

No climate change modeling has been completed for the Coquille River; however models are currently being developed by EPA, Ducks Unlimited and U.S. Fish and Wildlife Service. The SLAMM model does not take into account wetlands located behind existing dikes so is not relevant for these properties.

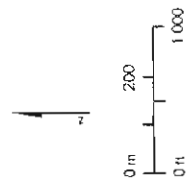
However, we do know that as our climate continues to warm and sea levels rise, the downstream estuarine wetlands of the Coquille River will become fully submerged, and the valley's currently brackish wetlands will become more fully tidal. Because the Coquille River has such an extensive array of historic wetlands near the upper end of tidal influence, restoration of more natural hydrology in the Coquille Valley offers a unique opportunity to maintain the full range of wetland types in the decades ahead. Acquisition of these diked floodplain wetlands now will prevent future development that could limit or preclude efforts to accommodate marsh migration associated with rising sea levels. Restoration of a healthy functioning system of estuarine and floodplain wetlands in the Coquille Valley will help buffer the effects of global warming on fish and wildlife on the Oregon Coast.

There are few acres of uplands as part of this project. However, on the Roseburg Resources property, this proposal includes acquisition of the wetlands and a 100-foot buffer around them, which is currently forested uplands and will provide some benefit when water levels begin to rise in the Coquille Valley due to global warming. On the Bandon Biota – Lowe Creek property, we will be planting additional Sitka spruce and myrtle along the Coquille River, which will enhance current habitat and also provide buffer along the river bank from high-water flood events or sea-level change.

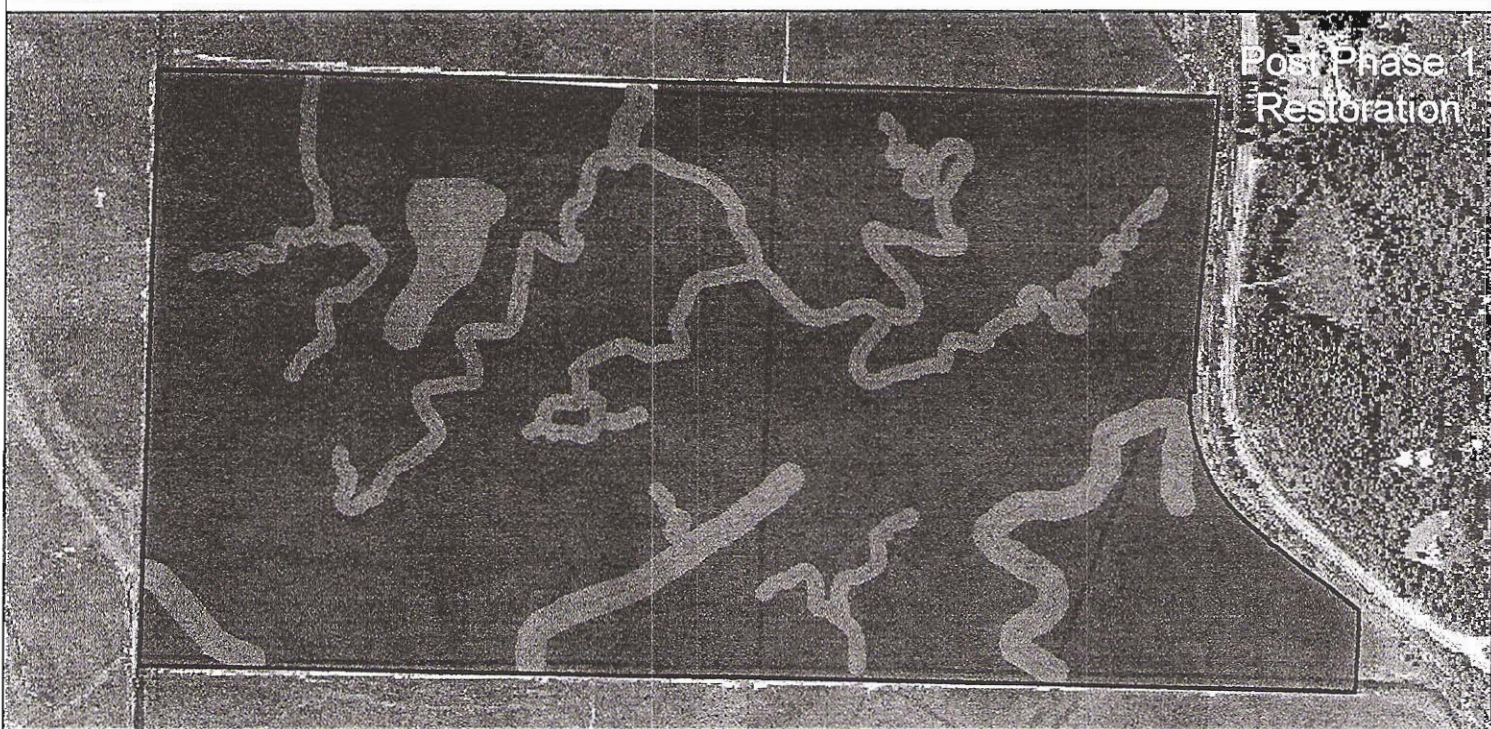
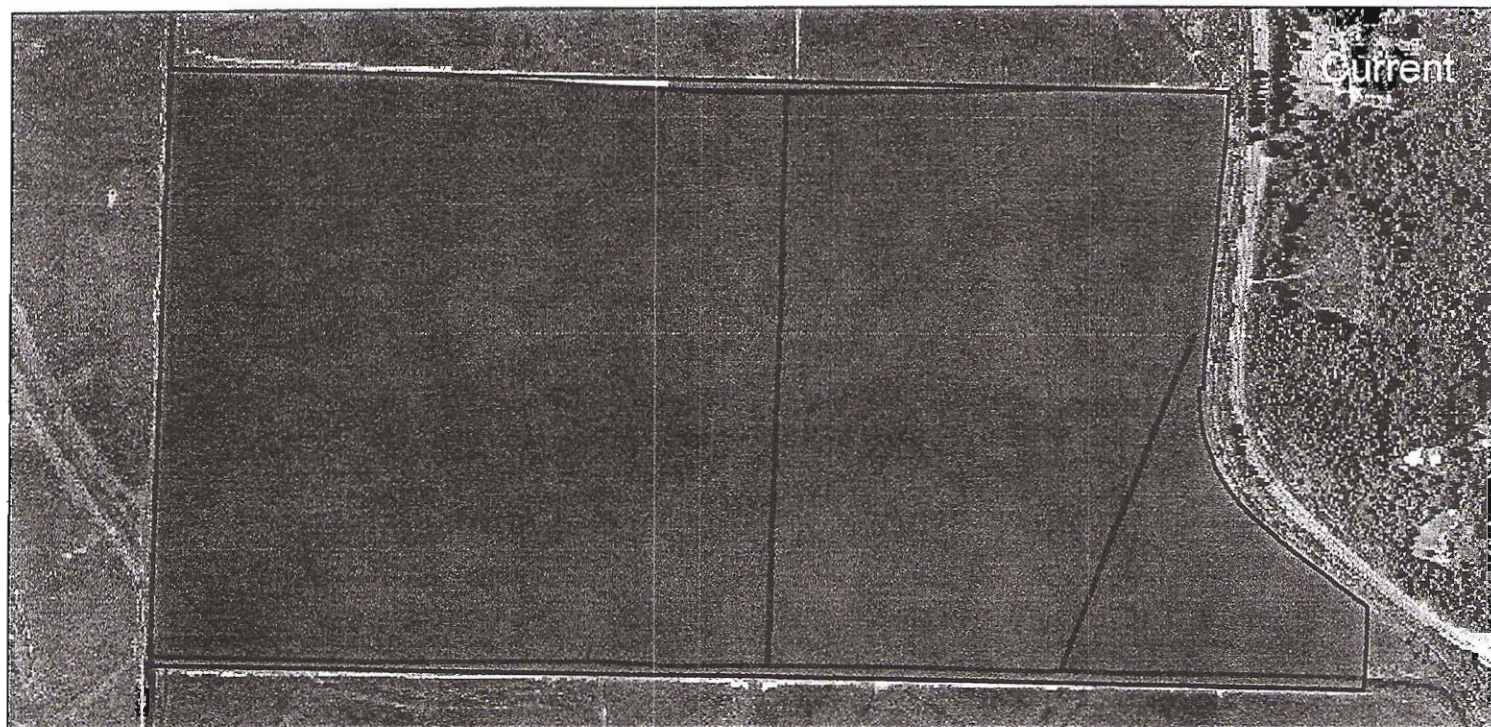


Wetland Types on Roseburg Resources Property, Currently and After Phase 1 Restoration


- Property boundary (222.85 acres)
- USFWS National Wetland Inventory Wetland Types**
- [R] Riverine, [2] Lower Perennial, [UB] Unconsolidated Bottom, [H] Permanently Flooded, [X] Excavated
- [P] Palustrine, [EM] Emergent, [A] Temporarily Flooded
- [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded
- [P] Palustrine, [EM] Emergent, [F] Semipermanently Flooded
- [P] Palustrine, [EM] Emergent, [SS] Scrub-Shrub, [C] Seasonally Flooded
- [P] Palustrine, [FO] Forested / [SS] Scrub-Shrub, [C] Seasonally Flooded
- [P] Palustrine, [SS] Scrub-Shrub, [A] Temporary Flooded
- [P] Palustrine, [SS] Scrub-Shrub, [C] Seasonally Flooded
- Upland



Background: 2009 NALP aerial photo
Map created by: Ozan Kaly
The Nature Conservancy of Oregon
June 18, 2010




Wetland Types on Bandon Biota - Winter Lake Property, Currently and After Phase 1 Restoration


 Property boundary (286 acres)


USFWS National Wetland Inventory Wetland Types

 [R] Riverine, [2] Lower Perennial, [UB] Unconsolidated Bottom, [H] Permanently Flooded, [x] Excavated

 [P] Palustrine, [EM] Emergent, [A] Temporarily Flooded, [d] Partially Drained/Ditched

 [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded, [d] Partially Drained/Ditched

 [P] Palustrine, [EM] Emergent, [C] Seasonally Flooded

 [P] Palustrine, [FO] Forested, [B] Saturated

Upland






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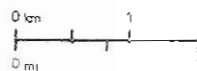
Background: 2009 NAPP aerial photo
Map created by: Dan Kelly
The Nature Conservancy of Oregon
June 18, 2010

● AREA
ENLARGED

Landowners in the Coquille Valley

Landowner

-  Bandon Biota - Winter Lake (286 acres)
-  Bandon Biota - Lowe Creek (113 acres)
-  Roseburg Resources (223 acres)



Background: 2009 NAIP aerial photo
Map created by Dan Kelly
The Nature Conservancy in Oregon
June 16, 2010