North Olympic Wildlife Area

Wildlife Area Management Plan

October 2010

Washington Department of Fish and Wildlife
Olympic/Willapa Hills and South Puget Sound Wildlife Area Complex
Region 6

Prepared by:
Kyle Guzlas, Wildlife Area Biologist

State of Washington

CHRIS GREGOIRE, GOVERNOR

Department of Fish and Wildlife

PHIL ANDERSON, DIRECTOR

Wildlife Program

DAVE PULLIAM, ASSISTANT DIRECTOR

Lands Division

JENNIFER QUAN, MANAGER

This Program Receives Federal Aid in Wildlife Restoration funds.
Project W-94-D, Segment 24

This report should be cited as:
Washington Department of Fish and Wildlife. 2010. North Olympic Wildlife Area Management Plan. Wildlife Management Program, Washington Department of Fish and Wildlife, Olympia.

Washington State Wildlife Area Management Plan

NORTH OLYMPIC WILDLIFE AREA

Washington Department of Fish and Wildlife
Wildlife Management Program
600 Capitol Way North
Olympia, WA 98501-1091

Prepared by:
Kyle Guzlas, Wildlife Area Biologist

October 2010

Director, Washington Department of Fish and Wildlife

List of Maps

List of Appendices

List of Tables

EXECUTIVE SUMMARY

The North Olympic Wildlife Area (NOWA) consists of a habitat mix of estuarine, riverine, wetland, oak-prairie, and mixed forest on 11 separate units in northwestern Washington, totaling over 1,800 acres. Management goals for NOWA are to preserve habitat and species diversity for both fish and wildlife resources, maintain healthy populations of game and non-game species, protect and restore native plant communities, and provide diverse opportunities for the public to encounter, utilize, and appreciate wildlife and wild areas. Management of NOWA Units is dependent on partnerships with regional fisheries enhancement groups, tribes, and other crucial partnering organizations. Outside grant funding is the primary funding mechanism for all management activities that currently take place throughout the WDFW ownerships. Focus units include Snow/Salmon Creek, Morse Creek, Bell Creek, Lower Dungeness, and Chimacum. The primary habitat and recreational management emphasis for each of these units is listed in the table below.

Wildlife Area Unit	Management Emphasis
Snow/Salmon Creek	Estuary and Riparian Restoration
Morse Creek	Channel Restoration and Public Education
Bell Creek	Oregon White Oak Woodland/Savanna Restoration
Lower Dungeness	Estuary/Salt Marsh Restoration, Riparian and Floodplain Restoration, Freshwater Wetland Enhancement, and Waterfowl Hunting
Chimacum	Estuary/Riparian Restoration and Public Beach Access

The primary management concerns and public issues identified in the wildlife area plan are:

- Improve and maintain fish populations
- Manage for species diversity
- Protect and restore estuary and freshwater wetland habitats
- Protect and restore riparian buffer habitat
- Protect and restore Oregon white oak woodland and prairie habitats
- Manage for waterfowl
- Provide recreational access that is compatible with fish, wildlife, and habitat protection
- Control noxious weeds
- Provide habitat management consistent with T&E listed species
- Manage for upland birds (pheasant release program)

Habitat restoration/enhancement is a fundamental priority for stewardship throughout NOWA and several significant projects were implemented over the past four years. These projects were all funded from outside grant sources including Farm Bill programs, the North American Wetlands Conservation Act (NAWCA), the Salmon Recovery Funding Board (SRFB) and Washington Wildlife and Recreation Program (WWRP), the Coastal Protection Fund, USFWS, NOAA, and many others.

Forested riparian buffer restoration took place on approximately 36 acres at Snow and Salmon Creeks. This was conducted after channel re-meandering of Salmon Creek and placement of numerous engineered log jams (ELJ's) on the WDFW Snow/Salmon Creek Unit. Estuary restoration has been completed on approximately 11 acres of the Discovery Bay / Salmon Creek interface. Restoration of this area is a critical component of the ***Summer Chum Salmon Conservation Initiative.***

Freshwater wetland restoration/enhancement occurred on approximately 56 acres on the Bell Creek and Lower Dungeness Units. This project will have significant benefits for migratory waterfowl and wetland associated species.

Oregon White Oak (Garry oak) woodland/savanna restoration is the primary management mechanism for the Bell Creek Unit. To date, approximately 2,200 seedlings and acorns have been planted in the Bell Creek Unit. The success of this project has hinged on a determined volunteer group since its inception. Phase II of the Garry oak woodland/savanna restoration was implemented, which involved thinning approximately 10 acres of a mixed oak and conifer stand. This project was funded through the Wildlife Habitat Incentives Program (WHIP) administered by National Resources Conservation Service (NRCS).

The North Olympic Salmon Coalition (NOSC) and Washington Department of Fish and Wildlife (WDFW) have signed a use agreement in preparation for opening the Olympic Discovery Nature Interpretive Center at the Morse Creek Unit. NOSC, Jamestown S'Klallam and Elwha Tribes, and others are currently working in conjunction with WDFW to restore the historical channel alignment for Morse Creek on the WDFW unit. This project will be occurring throughout the summer of 2010.

A large partnership between Clallam County, the Jamestown S'Klallam Tribe, Clallam Conservation District, the Army Corp of Engineers, WSDOT, the North Olympic Land Trust, and others have been working on several critical projects along the Lower Dungeness River. Currently the partnership is continuing acquisition of numerous parcels to facilitate dike removal on several portions of properties including those contained in the Lower Dungeness Unit. The partnership is also working on several components of estuary restoration at the mouth of the Dungeness.

Positive stewardship of WDFW's North Olympic Wildlife Area hinges greatly on maintaining close partnerships with numerous organizations and government entities. This includes facilitating fish and wildlife habitat protection, restoration, and enhancement, while providing sustainable recreational opportunities.

1.0 INTRODUCTION

This plan provides management direction for the North Olympic Wildlife Area, which is comprised of multiple land parcels across the North Olympic Peninsula. This plan will be updated annually to maintain its value as a flexible working document. It identifies needs and guides activities on the areas based on the agency mission and statewide goals and objectives as they apply to local conditions.

1.1 Agency Mission statement

The Washington Department of Fish and Wildlife serves Washington's citizens by protecting, restoring and enhancing fish and wildlife and their habitats, while providing sustainable and wildlife-related recreation and commercial opportunities.

1.2 Agency Goals and Objectives

The underlined goals and objectives directly apply to the management of WDFW wildlife areas. These goals and objectives can be found in the Agency's Strategic Plan.

Goal I: Healthy and diverse fish and wildlife populations and habitats

- Objective 1: Develop, integrate and disseminate sound fish, wildlife and habitat science.
- Objective 2: Protect, restore and enhance fish and wildlife populations and their habitats.
- Objective 3: Ensure WDFW activities, programs, facilities and lands are consistent with local, state and federal regulations that protect and recover fish, wildlife and their habitats.
- Objective 4: Influence the decisions of others that affect fish, wildlife and their habitats.
- Objective 5: Minimize adverse interactions between humans and wildlife.

Goal II: Sustainable fish and wildlife-related opportunities

- Objective 6: Provide sustainable fish and wildlife-related recreational and commercial opportunities compatible with maintaining healthy fish and wildlife populations and habitats.
- Objective 7: Improve the economic well being of Washington by providing diverse, high quality recreational and commercial opportunities.
- Objective 8: Work with Tribal governments to ensure fish and wildlife management objectives are achieved.

Goal III: Operational Excellence and Professional Service

- Objective 9: Provide excellent professional service.
- Objective 10: Improve the effectiveness and efficiency of WDFW's operational and support activities.
- Objective 11: Provide sound operational management of WDFW lands, facilities and access sites.
- Objective 12: Develop Information Systems infrastructure and coordinate data systems to provide access to services and information.
- Objective 13: Recruit, develop and retain a diverse workforce with high professional standards.
- Objective 14: Maintain a safe work environment.
- Objective 15: Reconnect with those interested in Washington's fish and wildlife.

1.3 Agency Policies, Procedures and Regulations

The following agency policies provide additional guidance for management of agency lands.

- Commission Policy 6003: Domestic Livestock Grazing on Department Lands
- Policy 5001: Fish Protection At Water Diversions/Flow Control Structures And Fish Passage Structures
- Policy 5211: Protecting and Restoring Wetlands: WDFW Will Accomplish Long-Term Gain of Properly Functioning Wetlands Where Both Ecologically and Financially Feasible on WDFW-Owned or WDFW-Controlled Properties
- Policy 6010: Acquiring and disposing of real property
- Policy 6020: Purchasing Land for Fish and Wildlife
- Policies/Procedures/Regulations to Specify in Plan updates:
    - Recreation management on WDFW Lands
    - Commercial Use of WDFW Lands
    - Forest Management on WDFW Lands
    - Weed Management on WDFW Lands
    - Fire Management on WDFW Lands
    - Other policies/contractual obligations/responsibilities

1.4 North Olympic Wildlife Area Goals

The North Olympic Wildlife Area consists of a mix of estuarine, riverine, wetland, oak-prairie, and mixed forest habitats on 11 separate units in northwestern Washington, totaling just over 1,800 acres. Management goals for the North Olympic Wildlife Areas are to preserve habitat and species diversity for both fish and wildlife resources, maintain healthy populations of game and non-game species, protect and restore native plant communities, and provide diverse opportunities for the public to encounter, utilize, and appreciate wildlife and wild areas. Public participation, in the form of a Citizens Advisory Group (CAG), will be encouraged as a means to identify social, cultural, and economic issues important to the people of North Olympic Peninsula. The CAG will benefit WDFW as they influence the management of this Wildlife Area.

1.5 Planning Process

Statewide goals and objectives listed above shape management priorities on wildlife areas. Individual wildlife area information including why the area was purchased, habitat conditions, species present, and public issues and concerns are evaluated to identify specific wildlife area activities or tasks.

The CAG was established to bring public input, ideas and concerns to wildlife area management. CAG participation in planning will add credibility and support for land management practices and help build constituencies for wildlife areas. The CAG is made up of a representative for each interest group/entity. CAG members are to participate as spokespersons for their interest groups, and shall actively work with their constituents as a conduit for information both to and from WDFW. This will allow WDFW to involve as much of the public as possible with the limited WDFW staff time available to devote to direct public interaction. This is imperative for the North Olympic Wildlife Area Management Plan due to the great interest demonstrated by the citizens of Washington for this wildlife area.

The CAG process is designed to seek continuity of plan review with a small group of stakeholders, representing their interest groups. The North Olympic Wildlife Area encompasses two counties (Clallam and Jefferson) and three Native American tribes. Most of the wildlife area lands in this planning area involve multiple partnerships. These partnerships have ranged in collaboration from pursuing grant funds for acquisition of land to the present management and restoration of the lands. These key partners will continue to be involved in this CAG process, due to their strong commitments to the land under WDFW ownership.

North Olympic Wildlife Area Citizens Advisory Group Representatives:
Clallam County Commissioners
North Olympic Land Trust (NOLT)
Jefferson Land Trust (JLT)
Trout Unlimited
Ducks Unlimited
Beach Watchers/WSU
Olympic Peninsula Audubon
Admiralty Audubon
Puget Sound Angler
Eyes in the Woods Organization
Jefferson County Natural Resources
Wapiti Bowman
U.S. Fish and Wildlife Service (USFWS)
Rocky Mountain Elk Foundation
WSU Extension Service
North Olympic Salmon Coalition (NOSC)
Clallam Conservation District
Point No Point Treaty Council
Western Washington University/Peninsula College
Clallam County Noxious Weeds
NW Watershed Institute (NWWI)
Jefferson County Trails Coalition
Local landowners

The CAG group met three times in 2006, and once in 2009.

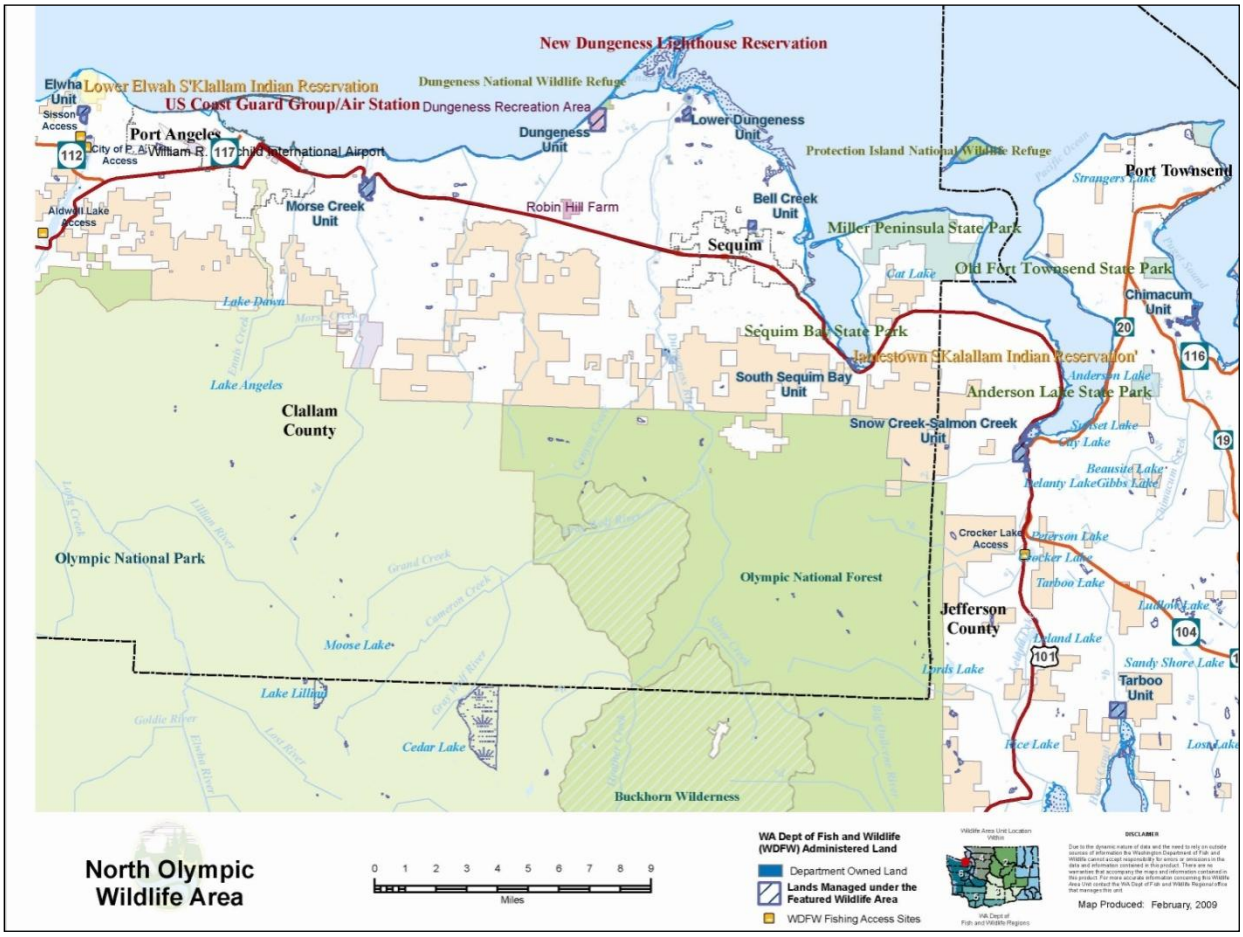
This management plan incorporates WDFW cross-program input and review at the regional and headquarters level by the Habitat Program, Wildlife Program, Enforcement Program, and Fish Program. Pertinent information from existing species plans, habitat recommendations, watershed plans, ecoregional assessments, etc., will be used to identify local issues, needs and will ensure that the specific wildlife area plan is consistent with WDFW statewide and regional priorities. This input and review has been and will continue to function primarily through the WDFW District Team comprised of agency employees.

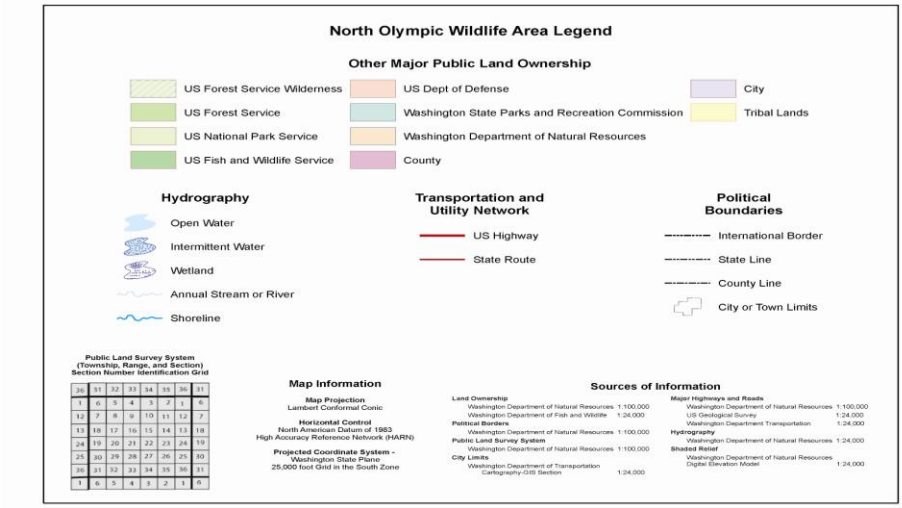
The North Olympic Wildlife Area Management Plan will be reviewed annually with additional input from the CAG and district teams to monitor performance and desired results, and this information will be developed into an annual update. Strategies and activities will be adapted where necessary to accomplish management objectives.

2.0 AREA DESCRIPTION AND MAP

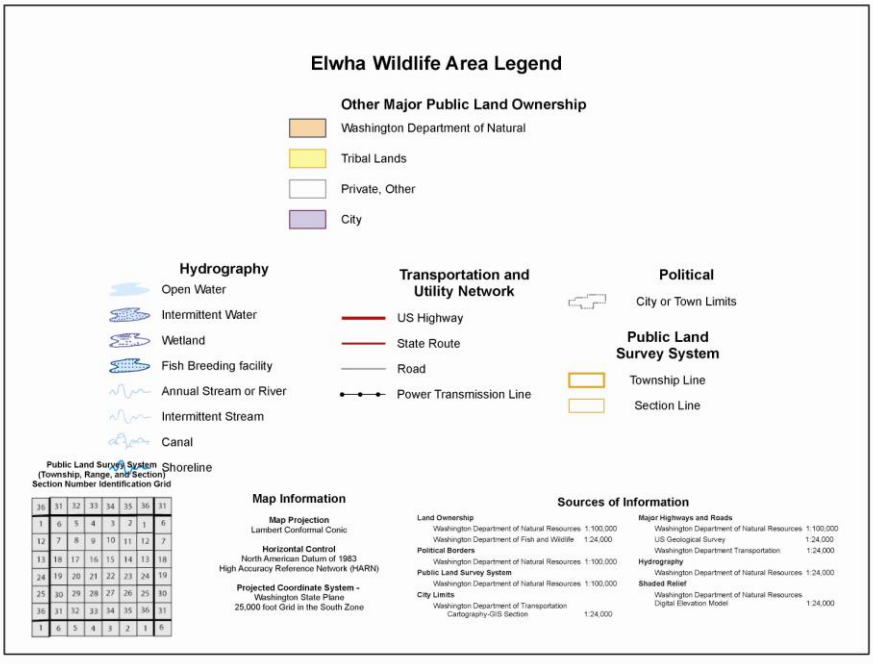
From the North Olympic Peninsula and along the Strait of Juan de Fuca, the North Olympic Wildlife Area is made up of multiple parcels of land owned and/or managed by WDFW. To date, these parcels comprise over 1,800 acres. The parcels include the following units:

- Elwha
- Morse Creek
- Lower Dungeness
- Dungeness
- Bell Creek
- South Sequim Bay
- Zella Schultz (Protection Island - PI)
- Snow/Salmon Creek
- Chimacum
- Tarboo

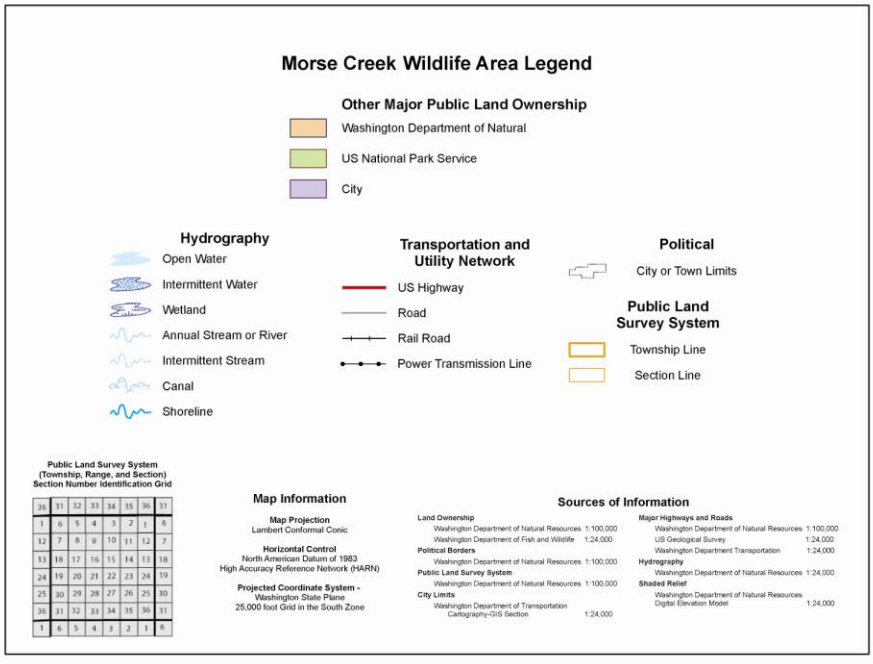




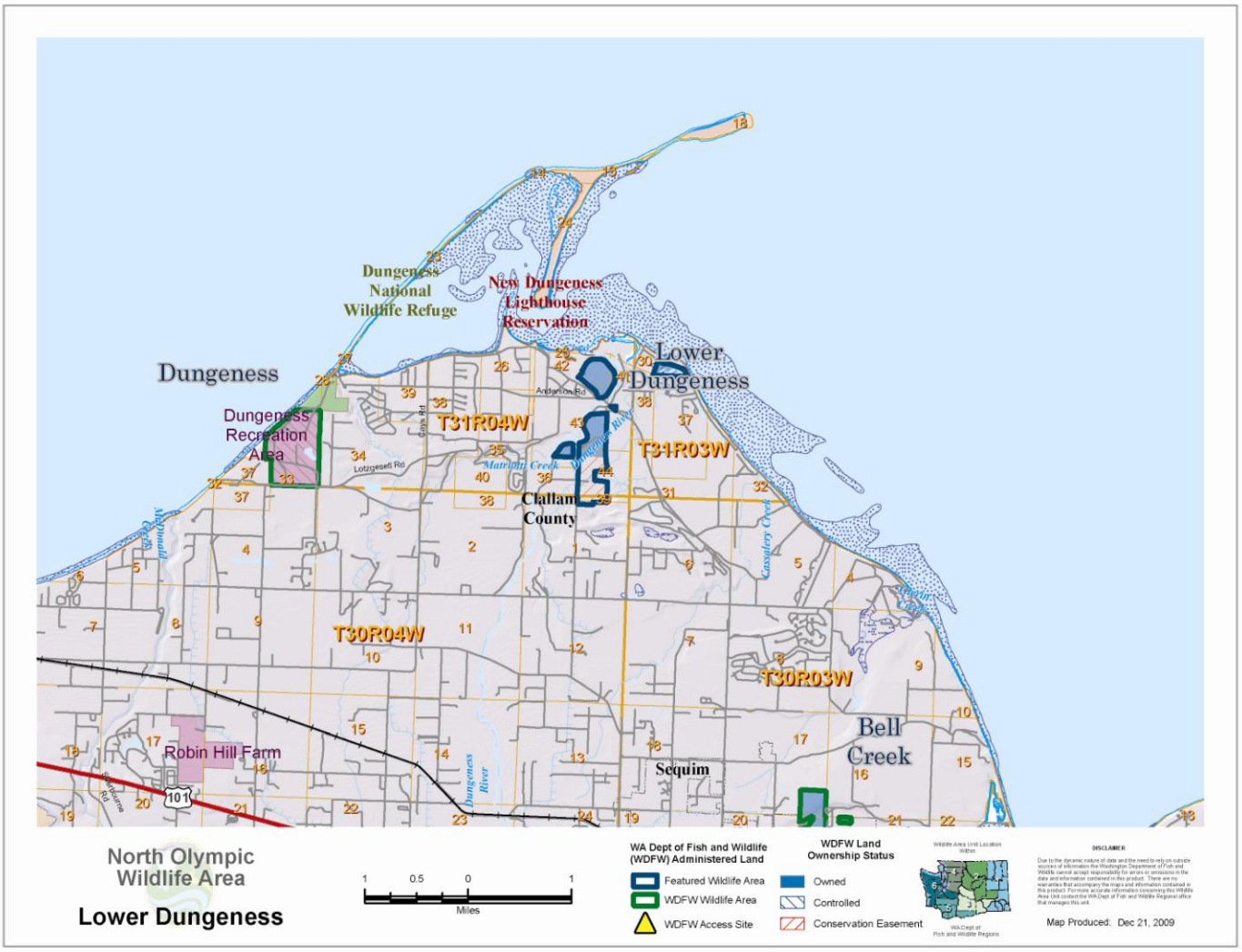
Map 1: North Olympic Wildlife Area

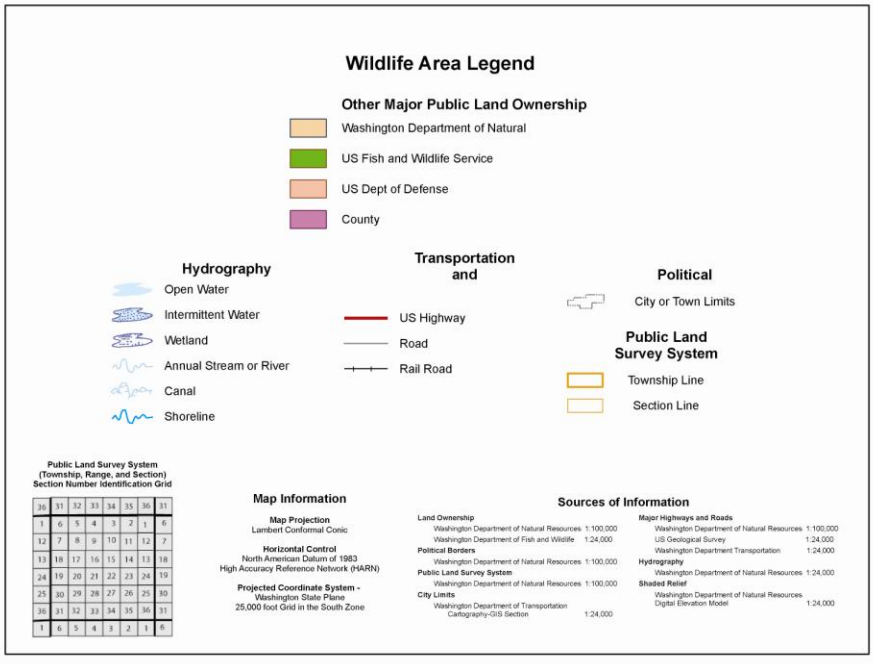


Map 2: Elwha River Unit

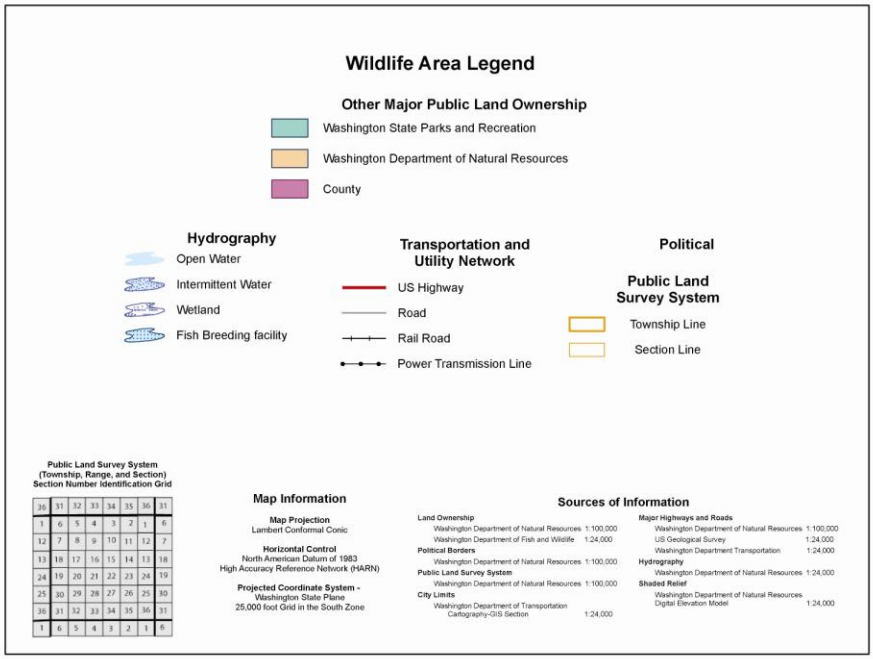


Map 3: Morse Creek Unit

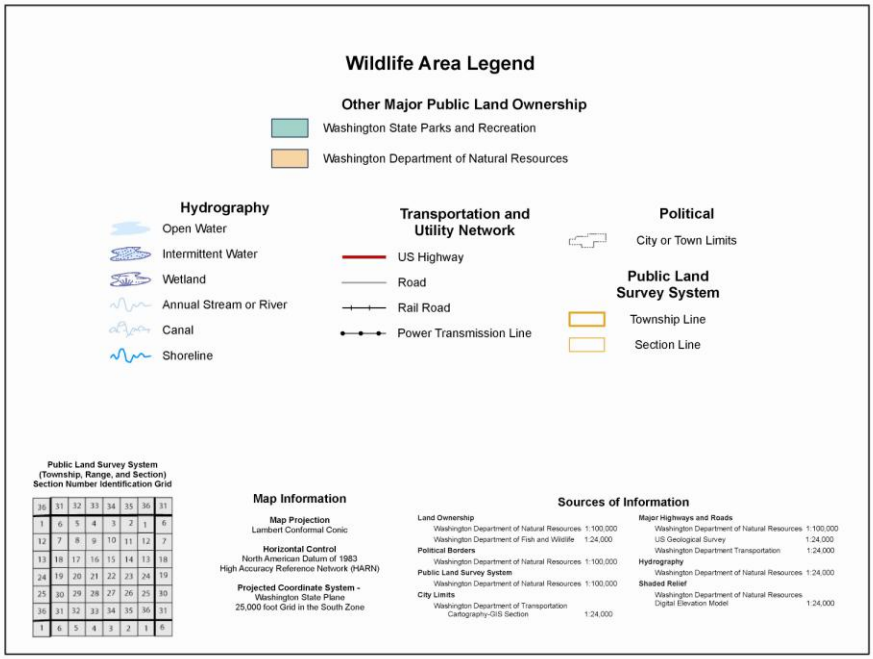




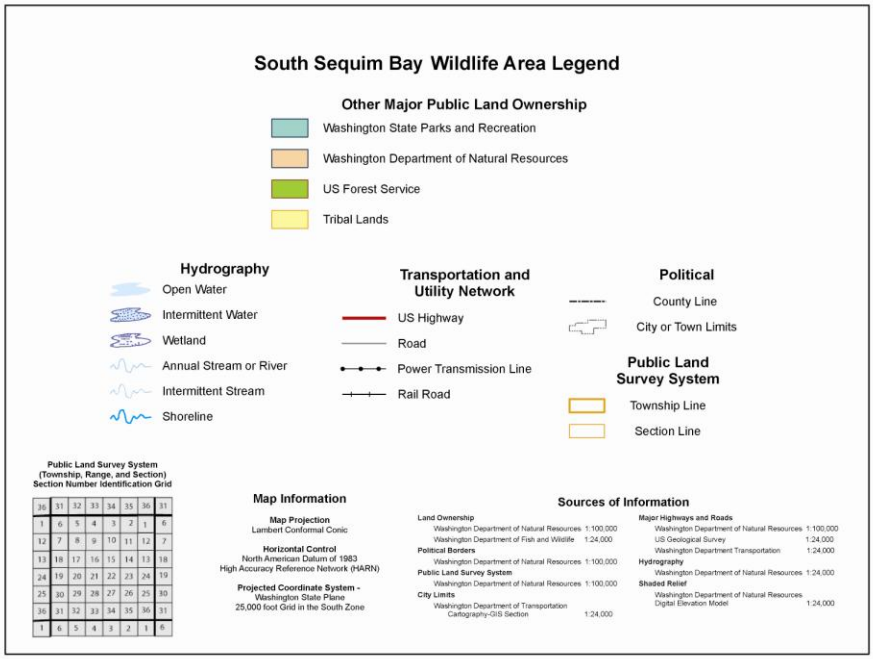
Map 4: Lower Dungeness Unit



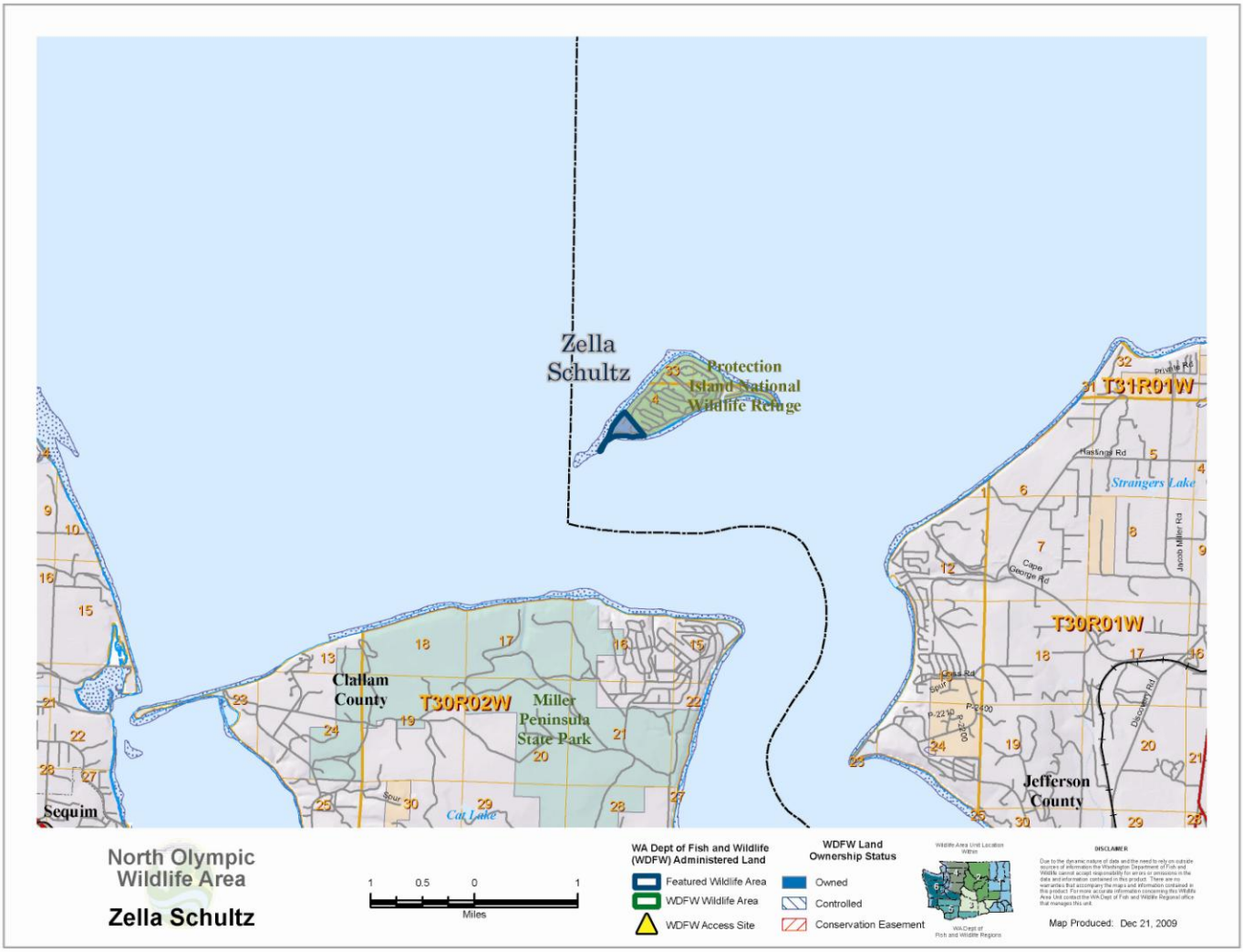
Map 5: Dungeness Unit

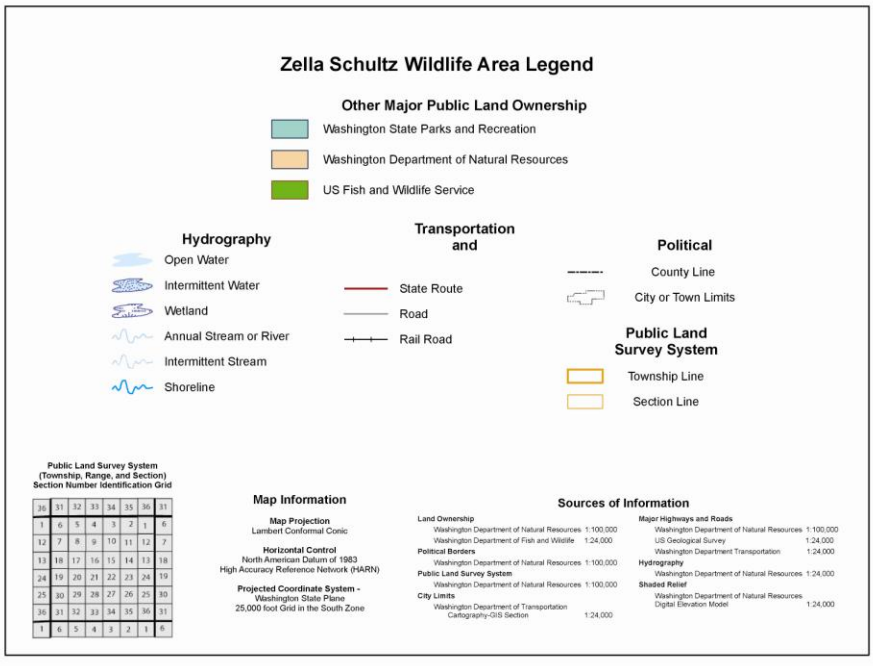


Map 6: Bell Creek Unit

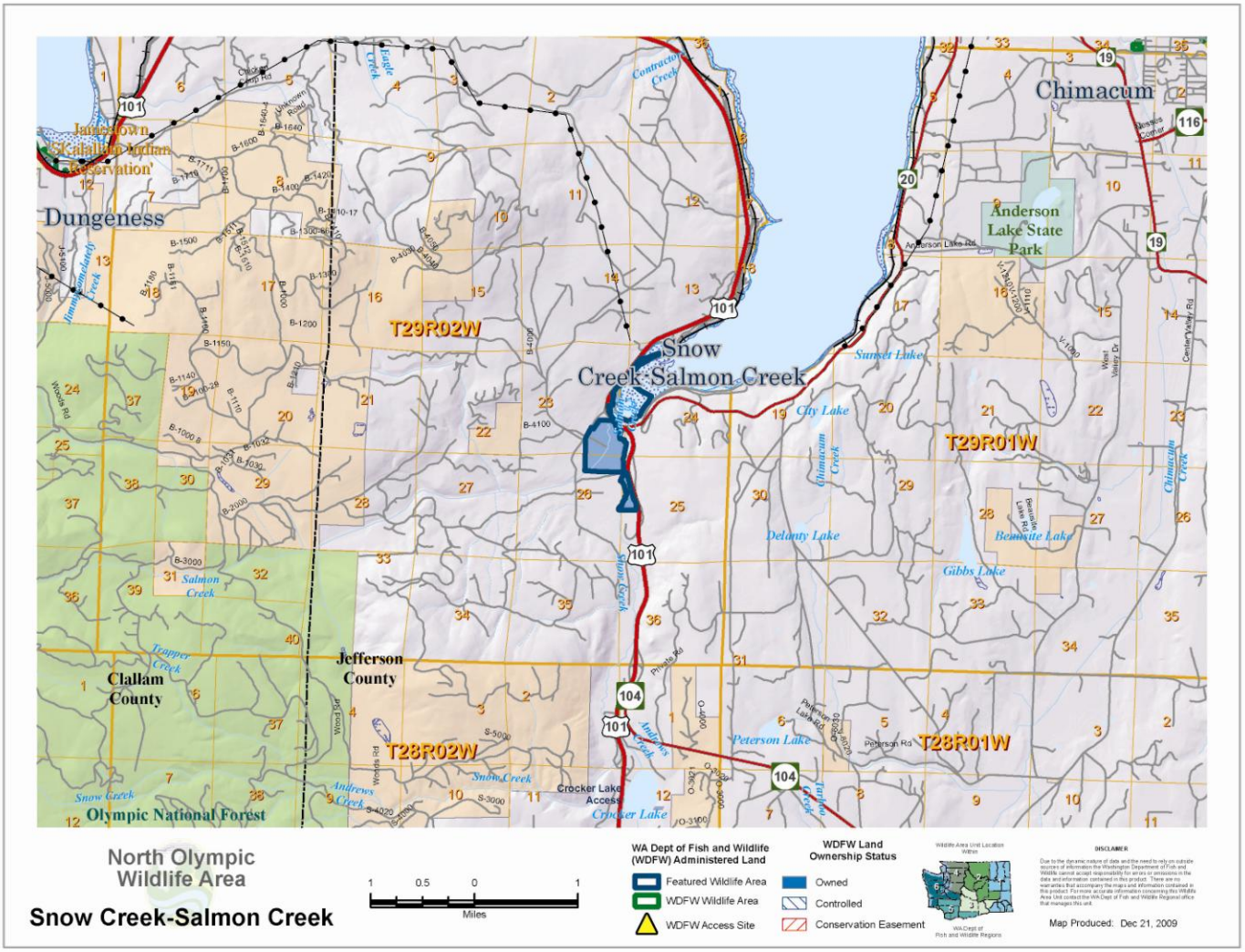


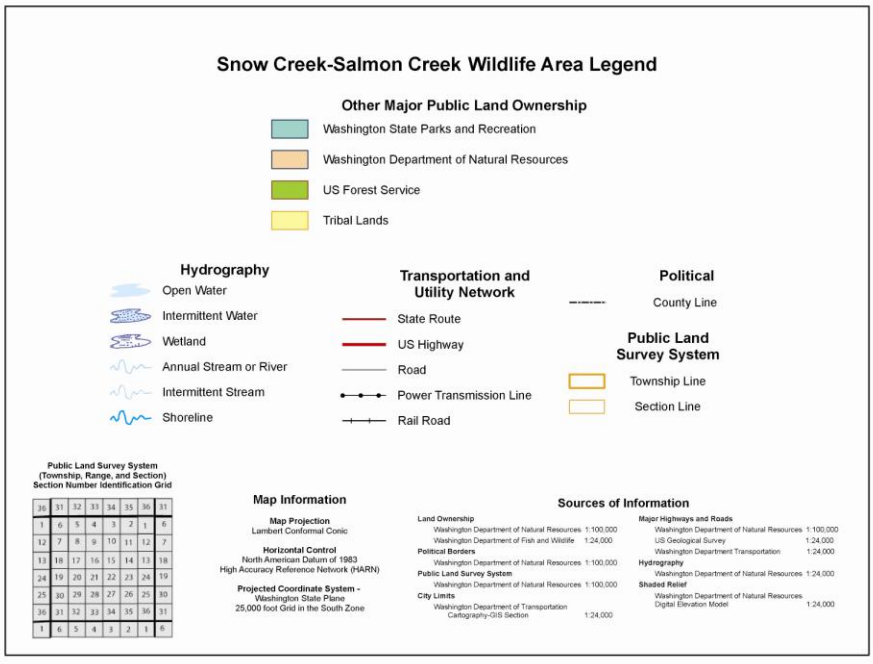
Map 7: South Sequim Bay Unit



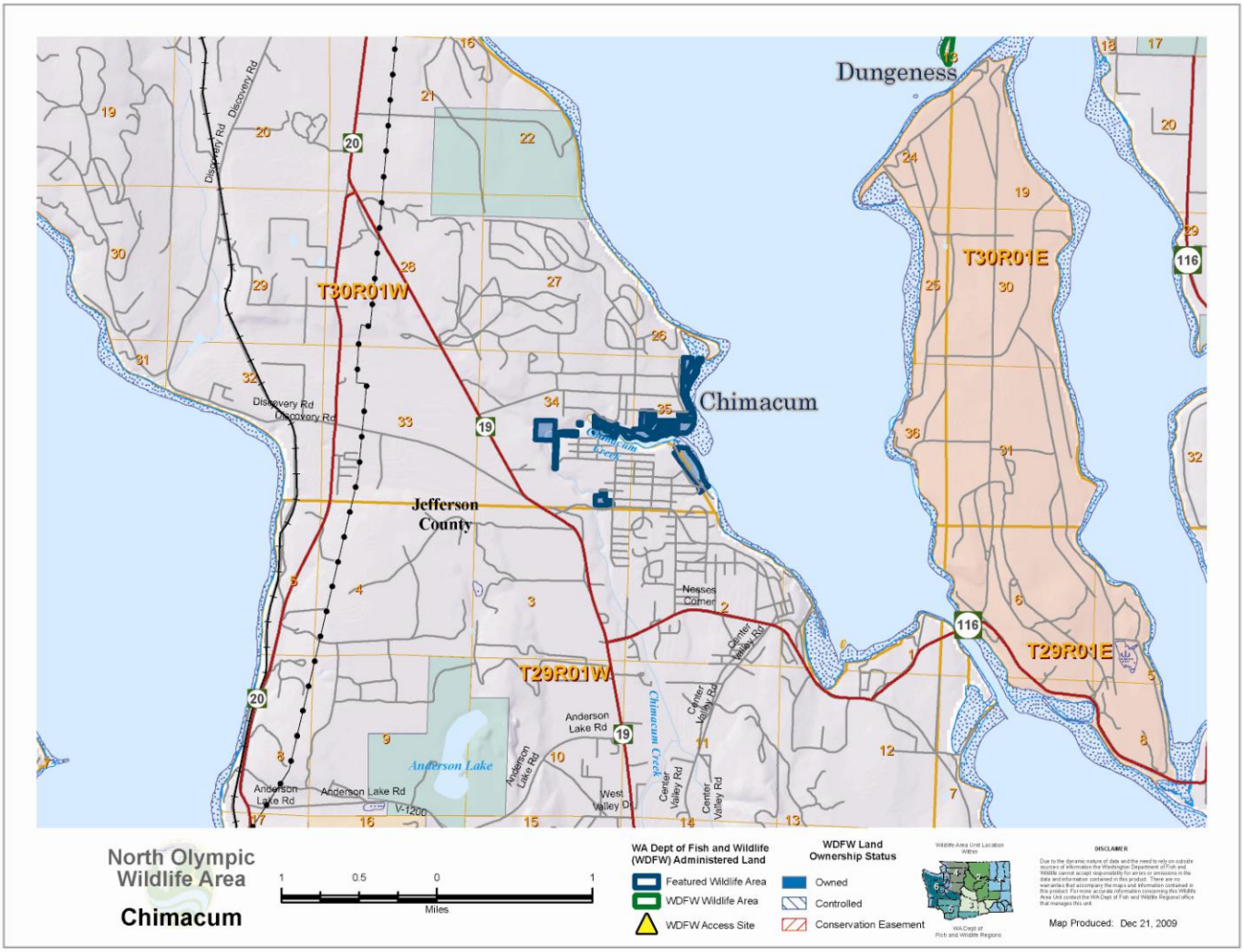


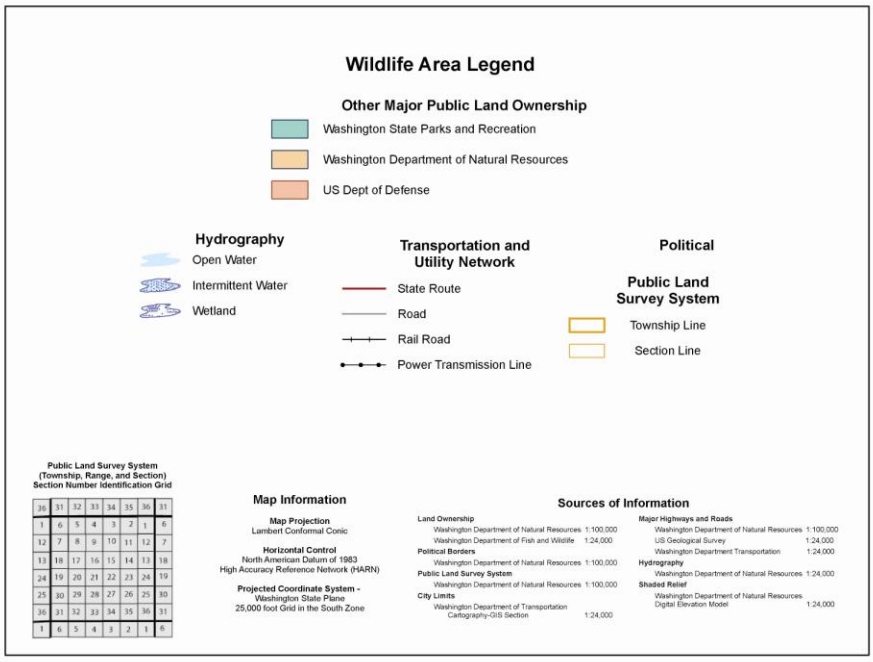
Map 8: Zella Schultz (Protection Island) Unit



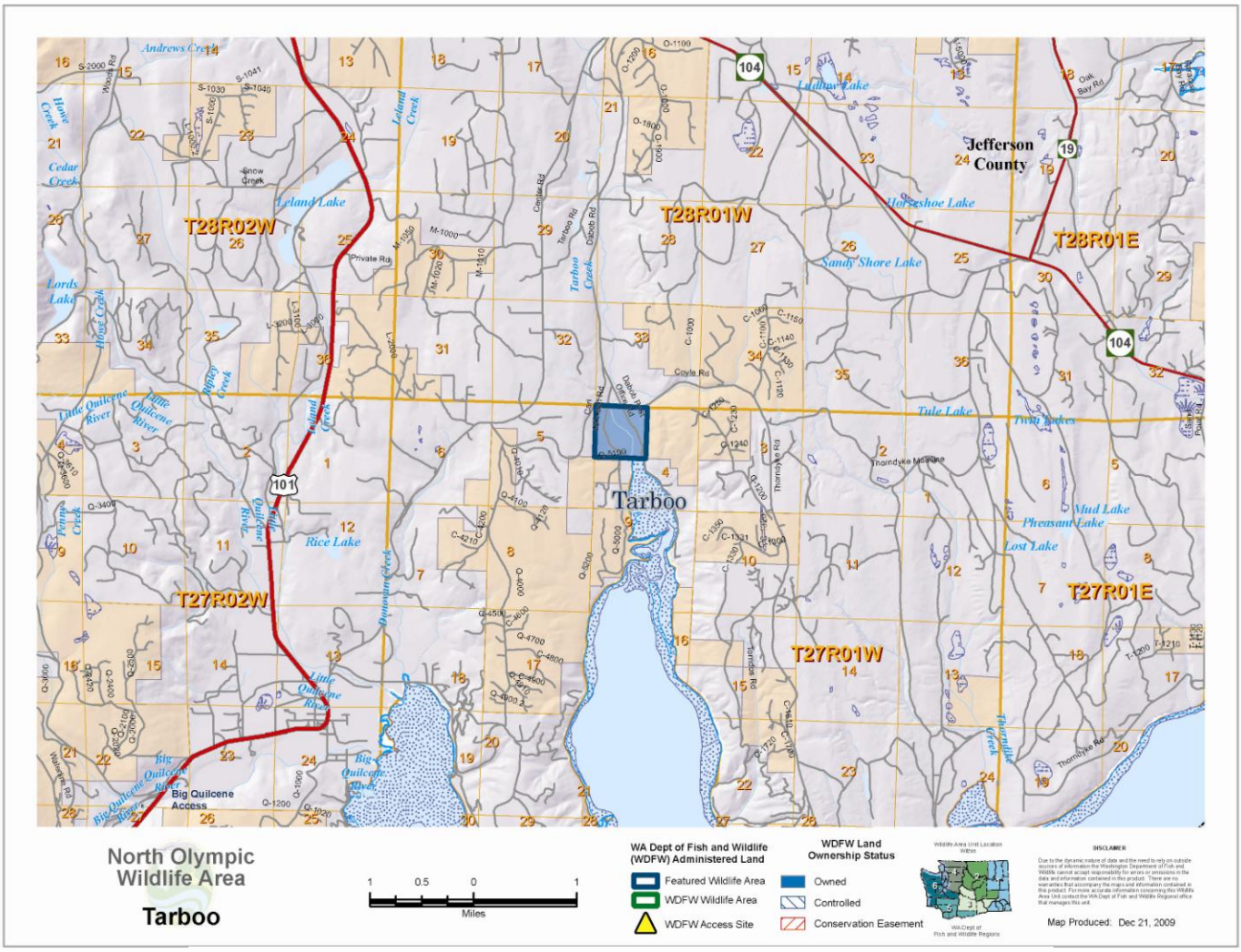


Map 9: Snow/Salmon Creek Unit





Map 10: Chimacum Unit



Map 11: Tarboo Unit

The property location and size (2.1), purchase history/funding and purpose of purchase (2.2), ownership/use of adjacent lands (2.3) for all units are outlined in Table 1.

2.1 Property Location and Size
2.2 Purchase History & Purpose
2.3 Ownership and Use of Adjacent Lands

Table 1. North Olympic Wildlife Area Units Specifics

Name: Elwha Unit – WRIA 18 **Location:** 5 miles west of Port Angeles; 2.5 mi. north of Hwy 101 – east site off Fish Hatchery Road, west site off Sisson Rd (Clallam Co. T30N R7W S3, T31N R7W S34) **Acquisition:** Total: 62.07 acres; key site is composed of three adjoining parcels totaling 60.43 acres with all acres within 100 year floodplain, and two separate small parcels south ½ mile (1.16 acre parcel and 0.48 acre parcel) source: Clallam County Assessor records. WDFW records state the following: 23.6 acres purchased in 1961; 6.5 acres purchased in 1977; and 59.6 acres purchased in 1977 **Funding - How Purchased:** 23.6 acres: $70,000, 6.5 acres: $6,500 Recreation Conservation Office (RCO), 59.6 acres: $90,720 RCO **Partnerships:** No active partnerships for this site; difficult due to no public access **Purpose:** Provide public with perpetual uninterrupted access to Elwha River - for pedestrian travel and sport fishing (presently: no known existing public access to the property through any adjacent properties); conserve undeveloped floodplain habitat. **Adjacent Properties:** Lower Elwha Clallam Reservation & Tribal Lands along north and east; Washington General Administration along northwest, private land in open space/agriculture/undeveloped land along southwest; situated ½ mile north of WDFW Hatchery facility on City of Port Angeles land
Name: Morse Creek Unit – WRIA 18 **Location:** 3 mi. E of Port Angeles off Hwy 101 (Clallam Co. T30N R5W S8, S17) **Acquisition:** Total: 133.22 acres, acquired 2001-2002 **Funding - How Purchased:** Multiple parcels: 15.2 ac $316,500 (actual costs $335,351.54) RCO- WWRP-Urban Wildlife Habitat; 118.02 ac -$862,200 (actual costs $895,184.91) RCO-SRFB **Partnerships:** North Olympic Salmon Coalition, Peninsula College, Clallam Conservation District, Others **Purpose Purchased:** Protection of important wildlife habitat adjacent to urban setting – prevent development; Retain diversity of wildlife habitats on the landscape; Restore riverine system including salmon habitat; Wildlife Habitat Interpretive Center **Adjacent Properties:** Private residential (Four Seasons Ranch, Four Seasons Park, Deer Park Road neighborhood); DOT (Hwy 101), Rayonier Landfill, Private Commercial

Name: Lower Dungeness Unit – WRIA 18
Location: 3.5 miles north of Sequim, off Towne Rd (Clallam Co. T31N R4W S1, S36)
Acquisition: Total: 147.89 acres (41.92 acres with North Olympic Land Trust (NOLT) Conservation Easement) plus 73.15 acres conservation easement on PCC Farmland Fund Trust ownership; 73.15 acres easement (farmed land – PCCF Trust): 2002; warranty deeds 34.5 acres (5 parcels): 2002; warranty deed (with NOLT CE – Clallam Co records show 37.92 acres, but revised by NOLT to 41.92 with baseline documentation (due to migration of center of Dungeness River to the west, increasing acreage) 41.92 acres: 2004; warranty deeds 71.47 acres (3 parcels): 2005-2006, additional acquisitions on-going.
Funding - How Purchased: USFWS Coastal Wetland Grants C-26-L, C-38-L and C-43-L
Partnerships: Clallam Co, Jamestown S'Klallam Tribe, North Olympic Land Trust, Olympic Peninsula Audubon Society, PCC Farmland Fund
Purpose Purchased: Retain diversity of fish and wildlife habitats on landscape – estuary, wetlands, riverine, associated shorelines and beach habitats, forest, meadows; protect and restore natural lower floodplain riverine system, and forested wetland; protect habitat from further development; provide future opportunity for floodplain restoration via dike adjustments
Adjacent Properties: Clallam County, Jamestown S'Klallam Tribe, North Olympic Land Trust restoration efforts on nearby/adjoining properties by these three landowners, C.E. Pioneer Beach Community Park; private residential development; agricultural land, dairy farm; Dungeness Farms- private duck hunting club
**Dungeness Recreation Area Lease – WRIA 18
Location: 7 miles NW of Sequim (Clallam Co. T31N R4W S33)
Acquisition: 216.41 acres purchased in 1975
Funding - How Purchased: Owned by Clallam County
Partnerships: Management agreement with WDFW (lease ends 2010).
Purpose Purchased: Wetland management, waterfowl habitat; mowing and farming for cover and forage targeting wintering use by waterfowl and released pheasants, pheasant release, hunting opportunities
Adjacent Properties: Clallam County managed park for day use and seasonal camping**,** Strait of Juan de Fuca north, USFWS Dungeness Wildlife Refuge; private residential development west, south, & east; Five-Acre School; agricultural land south

Name: Dungeness Unit – WRIA 18
Location: Upriver from Lower Dungeness Unit (Clallam Co. T30N R4W S23)
Acquisition: 8.9 acres purchased in 2004; 5.07 acres purchased in 2005
Funding - How Purchased: 8.9 acres: $65,000 USFWS /RCO-WWRP; 5.07 acres
Partnerships: Jamestown S'Klallam Tribe
Purpose Purchased: Restore/protect critical salmon habitat; prevent development; (goal was to purchase 300 acres)
Adjacent Properties: Rapid private residential development in previous agricultural land and open spaces; agricultural land; (acquisitions are being pursued where ownership would be adjacent to Dungeness River Bridge Park, Olympic Discovery Trail – possible restoration efforts on nearby/adjoining properties)

Name: Bell Creek Unit -- WRIA 18
Location: East side of Sequim, 0.5 miles north of Hwy 101 at Bell Creek (Clallam Co. T30N R3W S17, S20, S21)
Acquisition: Multiple parcels/89.4 acres: 1998-2001
Funding - How Purchased: 89.4 acres: $1,002,700 RCO-WWRP
Partnerships: National Resources Conservation Service (NRCS), Sequim Community Foundation, local volunteers
Purpose Purchased: Stream & riparian restoration; conservation, restoration and enhancement of Garry oak forest and associate prairie habitat; conservation of Sequim valley habitat with emphasis on Bell Creek tributaries – natural spring sources with yearlong flow
Adjacent Properties: City of Sequim- Carrie Blake Park and Reuse Water Demonstration Park, Department of Transportation (DOT) – wetland mitigation; private residential development; agricultural land

Name: South Sequim Bay Unit/ Jimmycomelately – WRIA 17
Location: 7.5 mi SE of Sequim at Jimmycomelately (JCL) Creek – off Hwy 101 (Clallam Co. T29N R3W S2, S12)
Acquisition: 8.31 acres purchased in 1996, 13.2 acres purchased in 2001-2003
Funding - How Purchased: 13.2 acres: $227,500 USFWS, 8.31 acres: $302,500 RCO-WWRP
Partnerships: Clallam County, Clallam Conservation District, Environmental Protection Agency (EPA), USFWS
Purpose Purchased: Restore natural lower estuary, floodplain, eliminate sedimentation; restore/protect critical salmon habitat; prevent development
Adjacent Properties: Jamestown S'Klallam Tribe – restoration efforts on nearby/adjoining properties; private tidelands; DOT (Hwy 101); rural private residential

Name: Zella Shultz Unit/ Protection Island
Location: SW corner of Protection Island, 2 miles north of Diamond Point, 7 miles west of Port Townsend (Jefferson Co. T30N R2W S4)
Acquisition: 47.5 acres: 1974
Funding - How Purchased: The Nature Conservancy donation
Partnerships: USFWS
Purpose Purchased: Protect seabird nesting colonies on the island
Adjacent Properties: USFWS National Wildlife Refuge

Name: Snow/Salmon Creek Unit – WRIA 17
Location: North of Hwy 101 and SR 20, confluence of Snow and Salmon Creeks with Discovery Bay (Jefferson Co T29N R2W S23, S24, S26)
Acquisition: 156.38 acres purchased in 2003
Funding - How Purchased: 156.38: $884,500 USFWS – Salmon Recovery Funding Board (SRFB)
Partners: North Olympic Salmon Coalition, Jefferson Conservation District, Jefferson Land Trust
Purpose Purchased: Stream, riparian, and estuarine restoration and protection
Adjacent Properties: Jefferson Land Trust – restoration efforts on nearby/adjoining properties; Department of Natural Resources (DNR) tidelands; private residential; agricultural and forest lands

Name: Chimacum Unit – WRIA 17
Location: 2.5 miles north of Chimacum, and 6 miles south of Port Townsend, east of SR 19 (Jefferson Co T30N R1W S34, S35)
Acquisition: Multiple parcels/108.78 acres: 2000-2003
Funding - How Purchased: 108.78 acres: $500,000 USFWS-Coastal Wetland Grant / $1,819,650 RCO-WWRP/ $150,000 Jefferson Co Conservation Future Funds/ $301,000 SRFB
Partners: Jefferson Land Trust, North Olympic Salmon Coalition, Trout Unlimited-Rainshadow Chapter, Jefferson County, Wild Olympic Salmon
Purpose Purchased: Stream, riparian, and estuarine restoration/protection; Irondale/Chimacum Creeks nearshore restoration
Adjacent Properties: Trout Unlimited, Jefferson Land Trust, private/Jefferson Land Trust conservation easement, Jefferson Co – restoration efforts on nearby/adjoining properties; private residential

Name: Tarboo Unit – WRIA 17
Location: 4.5 miles NE of Quilcene, 19 miles south of Port Townsend, mouth of Tarboo Bay/Dabob Bay/Hood Canal (Jefferson Co T27N R1W S4)
Acquisition: 150.55 acres purchased in 1998
Funding - How Purchased: 150.55 acres: $887,000 RCO-WWRP
Purpose Purchased: Protect high quality stream and riparian habitat as a core area for salmon and wildlife. Protect Tarboo-Dabob Bay's water quality and important shellfish, fish and wildlife.
Adjacent Properties: Private/Jefferson Land Trust conservation easement, Northwest Watershed Institute/Jefferson Land Trust conservation easement, Jefferson County Park, DNR – Dabob Bay Natural Area Preserve – restoration efforts on nearby/adjoining properties; timber land, and rural private residential

2.4 Funding

WDFW Region 6 is currently composed of one wildlife area complex (which now includes the North Olympic Wildlife Area), the Olympic-Willapa Hills-South Puget Sound Complex, which includes six wildlife areas (Chehalis, Johns River, North Olympic, Olympic, Scatter Creek and South Puget Sound) and 45 individual units totaling more than 20,250 acres. Operations & maintenance and FTE allocation for the North Olympic Wildlife Area (NOWA) is presently unfunded for a FTE (wildlife area manager). FTE staffing in the region is currently composed of four FTE's: 1- Biologist 3 (USFWS Pittman Robertson (PR) and state funded), 2- Biologists 2's (25% USFWS -PR and state funded, and 75% grant/project funded), and 1- Maintenance Mechanic 1 (75% Tacoma Power (Wynoochee Mitigation) and 25% PR and state funded). There are also temporary laborers or habitat technicians hired on a seasonal basis based on available project and grant funds. There are no dedicated funds available for seasonal employees throughout the region including the multiple management activities that are needed on NOWA units. Current management objectives are met through project/grant funds. The North Olympic Wildlife Area has become into existence by recent habitat conservation efforts of local WDFW Wildlife, Fish, and Habitat Programs and many partners (state and federal agencies, nonprofit organizations, tribes, and local citizens). The following table represents current and past funding sources for individual units located throughout NOWA.

Wildlife Area Unit	Project Title	Funding Mechanisms	Partnerships	Timeline
Snow/Salmon Creek	Riparian and Estuary Restoration (Multiple Projects)	SRFB, ESRP, CREP, WWRP, Coastal Protection Fund, Duck Stamp	NOSC, JCCD, RCO, Jefferson Land Trust, Chumsortium, Jamestown S'Klallam Tribe, NRCS, NOAA, WA Dept. of Ecology	2003-2010
Bell Creek	Oregon White Oak Woodland/Savanna Restoration and Freshwater Wetland Restoration	WHIP, NAWCA, CREP, Sequim Community Foundation, Coastal Wetland Grant, Private Landowner Donations	NRCS, USFWS, RCO, Clallam Conservation District, Ducks Unlimited, Inc.	2003-2010
Morse Creek	Channel Restoration and the Discovery Interpretive Center	WWRP, SRFB	NOSC, RCO, Lower Elwha Klallam Tribe, Jamestown S'Klallam Tribe, Peninsula College, Olympic Park Institute, WSU Water Beach Watchers, WSDOT	2003-2010
Lower Dungeness	Estuary, Salt Marsh, Floodplain, Riparian, and Freshwater Wetland Restoration	WWRP, Coastal Wetland Grants, NAWCA, SRFB	Jamestown S'Klallam Tribe, Clallam County, RCO, North Olympic Land Trust, Ducks Unlimited Inc., WSDOT	2004-2010
Chimacum	Restoration of nearshore and estuarine habitat	SRFB, WWRP, ALEA, Jefferson County Conservation Futures Program,	NOSC, JCCD, RCO, Port Gamble S'Klallam Tribe, Jefferson Land Trust, Wild Olympic Salmon, Jefferson County	2000-2010
South Sequim Bay	Estuary and Riparian Restoration	WRP, Coastal Wetland Grant, SRFB, CREP, Washington Centennial Clean Water Fund, Pacific Coast Salmon Recovery Program	Jamestown S'Klallam Tribe, RCO, USDA-NRCS, USFWS, Clallam County, WSDOT, NOAA, EPA, WA Dept. of Ecology	2002-2010

Funding Acronyms	Title
SRFB	Salmon Recovery Funding Board
WWRP	Washington Wildlife and Recreation Program
NAWCA	North American Wetlands Conservation Act
CREP	Conservation Reserve Enhancement Program
WHIP	Wildlife Habitat Incentives Program
ESRP	Estuary and Salmon Restoration Program
ALEA	Aquatic Lands Enhancement Account

Partnership Acronyms	Title
RCO	Recreation and Conservation Office
USFWS	United States Fish and Wildlife Service
JCCD	Jefferson County Conservation District
NRCS	The Natural Resources Conservation Service
NOAA	National Oceanic and Atmospheric Administration
EPA	Environmental Protection Agency
USDA	United States Department of Agriculture
WSDOT	Washington State Department of Transportation

The Department will, as part of the implementation of this plan, continue to submit grant proposals and applications and identify other strategies to address unfunded management and stewardship needs on the wildlife area.

2.5 Climate

The Olympic Peninsula's climate is largely influenced by the Pacific Ocean, westerly winds and the Olympic Mountains. The region generally experiences a maritime climate with both summers and winters being temperate. The driest season is summer, with the heaviest precipitation between October and March. Rainfall is quite varied as a result of the coastal mountains, which create rain shadows in the Puget Trough region. On the northeast side of the Olympic Peninsula in the city of Sequim, precipitation averages about 17 inches a year compared to about 150 inches per year in the rain forest valleys of the west end. In the lower elevations and near the water, precipitation is primarily rain with some infrequent snowfall. Snowfall and depth increase dramatically along the slopes of the mountains. In the lower elevation, average winter temperatures range from a night low of upper 20's to a daytime high of in the 40's. Springtime temperatures typically range from 34^{o}F to 60^{o}F, and summer from 47^{o}F to 72^{o}F, occasionally reaching into the 80's.

2.6 Soils and Geology

The Olympic Peninsula region is comprised of a central core of rugged Olympic Mountains surrounded by almost level lowlands that extend south to the Willapa Hills. Glacial river valleys are broad and U-shaped and end as marine terraces or glacial outwash fans to the west and south and as glacial drift, sandstone or siltstone to the north. The mountainous portions are made up of volcanic belts encircling a large interior of sedimentary rocks. Forested soils consist of a dark grayish-brown silt loam surface and dark yellowish-brown sandy clay substrate. Deeper, well-developed soils from basalt consist of a reddish-brown silt loam or silty clay loam surface with a silty clay loam or silty clay subsoil. In estuary and wetland communities soils are poorly drained

and contain considerable amounts of organic matter. The sandstone region along the north consists of moderately deep soils with thick, dark-colored silt loam or silty clay loam and silty clay loam or silty clay subsoil. Upland soils derived from glacial till are characterized by a loam surface and gravelly sandy loam substratum. Soils of till or glacial outwash on terraces range from gravelly silt loam to clay loam or silty clay loam and often have a gravelly, cemented layer at 1 meter. (Franklin and Dyrness 1973)

2.7 Hydrology and watersheds

The wildlife areas outlined in this management plan occur throughout Jefferson and Clallam counties in areas affected by major rivers and tributaries that flow primarily into the Straits of Juan de Fuca. These wildlife areas are maintained within the following Water Resource Inventory Areas (WRIA): Quilcene Basin (WRIA 17) and Elwha-Dungeness Basin (WRIA 18).

2.8 Fire/Flood history

Around 1701, the entire eastern Olympic peninsula in Washington State burned (Agee 2002). Recently, fire has been limited and has not significantly impacted the management strategies of our units in the North Olympic Wildlife Area.

Flooding in western Washington is more extensive than recent fires. Areas that inundate seasonally include sections of rivers and streams as well as shorelines of Puget Sound, Hood Canal and the Straits of Juan de Fuca. Several wildlife areas in the region have had projects defined by flood features. A few parcels acquired by WDFW had dike systems or other land alterations in place, inhibiting natural flooding processes. As part of restoration efforts, the intent is to return these areas to their natural systems, which benefit numerous species of fish and wildlife.

2.9 Vegetation characterization

The region encompasses multiple habitat types with distinctive vegetation characteristics. Characteristics of specific habitat types are listed here. Management strategies concerning these habitats will be highlighted as appropriate per individual unit.

Forested – Primary conifer species consist of Douglas fir, western red cedar, sitka spruce, and western hemlock. Primary deciduous species include red alder, black cottonwood, big leaf maple, and vine maple:

- Tarboo
- Elwha
- Bell Creek
- Morse Creek

Riparian forest - Dense stands of trees and/or shrubs provide hiding, escape and thermal cover, shade, foraging and nesting sites, perches, and water sources. Some of these highly productive communities contain both plant and wildlife species that are endangered or threatened. Common overstory trees in riparian zones include the primary conifers and the primary deciduous species. The understory vegetation is composed of many shrub species such salmonberry, devil's club, red osier dogwood and red huckleberry.

The following wildlife area units contain riparian forest:

- Elwha – mix of conifer and deciduous

- Morse Creek – deciduous dominant
- Lower Dungeness – deciduous dominant
- Dungeness – deciduous dominant
- Bell Creek – deciduous dominant
- South Sequim Bay (JCL) – deciduous dominant
- Snow/Salmon Creek – CREP will aim to establish a mixed conifer/deciduous riparian forest of 180 feet average width.
- Chimacum – mix of conifer and deciduous
- Tarboo – conifer dominant

Riparian scrub-shrub wetland – Shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions due to seasonal or permanent flooding vegetation may consist of cascara, crabapple, willow, red alder, and Douglas spirea.

- Lower Dungeness
- Snow/Salmon Creek

Marsh wetland – Adjacent to riparian wetlands, typically characterized by permanent water depths between one to three feet. Vegetation may consist of cattails, sedges, rushes, reed canary grass, Douglas spirea, and willow.

- Morse Creek
- Lower Dungeness
- Bell Creek
- Snow/Salmon Creek

Forested wetland – Multiple layers of plant growth where the overstory consists of deciduous and/or conifers. The understory consists of young trees or shrubs, and a lower herbaceous plant layer. The upper canopy may consist of red alder, black cottonwood, Oregon ash, sitka spruce, western red cedar, Douglas fir and big leaf maple. The shrub layer below canopy may consist of vine maple, devil's club, cascara, salmonberry, snowberry, red elderberry and crabapple. The herbaceous plants may include lady fern, skunk cabbage, and water parsley.

- Morse Creek
- Bell Creek
- Snow/Salmon Creek - CREP will aim to establish a mixed conifer/deciduous riparian forest of 180 feet average width.

Wet upland meadows – Flood seasonally with water run-off and have varying depths of standing water during the fall, winter and spring. Vegetation typically includes grasses, sedges and rushes.

- Lower Dungeness
- Bell Creek
- Snow/Salmon Creek

Upland – Dry throughout the year and used as farmland. Planted crops previously consisted of grasses, clover, barley, peas, millet, winter wheat, and cereal grain:

- Lower Dungeness
- Snow/Salmon Creek

Open water – Average water depth of over three feet. For freshwater environments, vegetation may consist of pond lily, cattails, and duckweeds. For saltwater environments, eelgrass, sedges, or rushes maybe present.

- Morse Creek
- Bell Creek
- Lower Dungeness

Mixed Shrub – Occur in uplands and where mounds of gravel or rocks are present. Vegetation may include thick clumps of willow, wood rose, evergreen blackberry, and Scotch broom.

- Morse Creek

Oak-Woodland Prairie – Oregon white oak, associated with prairie habitat, typically have an open understory with grass species dominating including Idaho fescue/ Balsam root short grass and some wildflowers:

- Bell Creek

Estuary – Occur along the coast as well as in Puget Sound and Hood Canal and include deep water tidal habitats and adjacent tidal wetlands semi-enclosed by land but with access to the open ocean and where ocean water is diluted by freshwater runoff from the land. Typically contains mudflats or salt-tolerant vegetation such as eelgrass, rushes or sedges. Vegetation of these types can be found at the following:

- Lower Dungeness
- South Sequim Bay (JCL)
- Snow/Salmon Creek
- Chimacum

2.10 Important habitats

Riparian – The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems, which mutually influence each other. The terrestrial element provides shade, fine or large woody material, nutrients, organic and inorganic debris, terrestrial insects, or habitat for riparian-associated wildlife. The aquatic element includes vegetation adapted to wet conditions and provides thermal cover, creates stream channel features such as pools, and maintains stream bank stability, primary factors influencing the quality and health of fish habitat. Units of the North Olympic Peninsula Wildlife Area with riparian habitat include the following:

- Elwha
- Morse Creek
- Lower Dungeness
- Dungeness
- Bell Creek
- South Sequim Bay (JCL)
- Snow/Salmon Creek
- Chimacum
- Tarboo

Estuary – Deep water tidal habitats and adjacent tidal wetlands, semi-enclosed by land but with access to the open ocean, and where ocean water is diluted by freshwater runoff. Estuarine

habitat extends upstream and landward to where ocean-derived salts measure less than 0.5% during the period of average annual low flow. These areas provide high fish and wildlife density and species diversity, important breeding habitat and important fish and wildlife seasonal ranges and movement corridors. Estuaries are limited in availability and are highly vulnerable to habitat alteration. Units with estuary habitat include the following:

- Lower Dungeness
- South Sequim Bay (JCL)
- Snow/Salmon Creek
- Chimacum

Wetland – Lands transitional between terrestrial and aquatic systems where water table is usually at or near the surface or the land is covered by shallow water. The land supports predominantly hydrophytic plants, substrate is predominantly undrained hydric soils, and/or substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year. These areas support relatively high fish and wildlife density, and species diversity, important fish and wildlife breeding habitat and seasonal ranges. Units with wetland habitat include the following:

- Morse Creek
- Lower Dungeness
- Bell Creek
- South Sequim Bay (JCL)
- Snow/Salmon Creek
- Chimacum
- Tarboo

Oak-Woodland Prairie – Oregon white (Garry) oak, associated with prairie habitat is uncommon and at the extent of its range on the west side of the Cascade Mountains and north of the Columbia River and has been subject to loss from land development and invasion by Douglas fir.

- Bell Creek

Island – Island habitats are uncommon and unique. Separated from the mainland and surrounded by water, they are often mammalian predator free and support wildlife species not present elsewhere. Soil conditions are suitable for borrow nesting birds. Protection Island is free of mammalian predators and has limited human disturbance.

- Zella Shultz (PI)

WDFW Priority Habitats in the North Olympic Wildlife Area

Habitat Type or Feature	Priority Area Description
Oregon White Oak Woodlands	Stands of oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%; or where total canopy coverage of the stand is <25%, but oak accounts for at least 50% of the canopy coverage. The latter is often referred to as oak savanna. In non-urbanized areas west of the Cascades, priority oak habitat consists of stands > 0.4 ha (1.0 ac) in size. East of the Cascades, priority oak habitat consists of stands > 2 ha (5 ac) in size. In urban or urbanizing areas, single oaks or stands < 0.4 ha (1 ac) may also be considered a priority when found to be particularly valuable to fish and wildlife. Oak woodlands in western Washington may contain understory plants indicative of Prairie (PHS).
Riparian	The area adjacent to flowing or standing freshwater aquatic systems. Riparian habitat encompasses the area beginning at the ordinary high water mark and extends to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. In riparian systems, the vegetation, water tables, soils, microclimate, and wildlife inhabitants of terrestrial ecosystems are often influenced by perennial or intermittent water. Simultaneously, adjacent vegetation, nutrient and sediment loading, terrestrial wildlife, as well as organic and inorganic debris influence the biological and physical properties of the aquatic ecosystem. Riparian habitat includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to stream courses or other freshwater.
Westside Prairie	Herbaceous, non-forested (< 60% forest canopy cover) plant communities that can either take the form of a dry prairie where soils are well-drained or a wet prairie. **Dry Prairie:** Located in areas containing prairie vegetation. Although dry prairie can occur on other soils, typically it occurs on any one of the soils known to be associated with prairies. Locations occurring on mapped prairie soils where the surface is impervious is not considered dry prairie. Certain vegetation characteristics typify dry prairie. These include the occurrence of diagnostic grasses, sedges, and forbs. Mosses, lichens, and bare ground may also be found in the spaces between grass and forb cover. In parts of Puget Trough, prairie can sometimes be recognized by mounded topography. The presence of certain diagnostic plants is required to establish an occurrence of dry prairie. In particular, three of the diagnostic grasses, sedges, or forbs are required. Shrubs such as Black Hawthorn (*Crataegus douglassii*), Kinnikinnick (*Arctostaphylos uvaursi*), and Oval-leaf Viburnum (*Viburnum ellipticum*) can be found at low densities within prairie. Some Oregon White Oak (*Quercus garryana*) can also be present in native prairie (see Oregon White Oak Woodlands for areas with denser oak stands). Native and nonnative invasive plants typically dominate most remaining prairie. Common invasives are Scot's Broom (*Cytisus scoparius*), Colonial Bentgrass (*Agrostis tenuis*), Common Velvetgrass (*Holcus lanatus*), Tall Oat-grass (*Arrhenatherum elatius*), and Kentucky Bluegrass (*Poa pratensis*). Other invasive grasses, forbs, and shrubs also can be present. **Wet Prairie:** Located in areas containing prairie plants. Although wet prairie can occur on other soils, typically it occurs on any one of the soils known to be associated with prairies. Locations occurring on mapped prairie soils where the surface is impervious is not considered wet prairie. In the Lower Columbia - Willamette region of southwest Washington, wet prairie occurs on clay-rich soils that are saturated to the surface during the early part of the growing season, gradually drying out during the summer. Wet prairies in Puget Trough generally are found on glacial outwash soils that typically are limited to swales or low-gradient riparian areas. Three diagnostic grasses, sedges, or forbs from a combination of the wet prairie diagnostic species list and the dry prairie diagnostic species list are required to establish the presence of wet prairie.

Habitat Type or Feature	Priority Area Description
Freshwater Wetlands	Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands must have one or more of the following attributes: the land supports, at least periodically, predominantly hydrophytic plants; substrate is predominantly undrained hydric soils; and/or the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.
Instream	The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
Coastal Nearshore	Encompasses relatively undisturbed nearshore estuaries of Washington's outer coast, including Gray's Harbor, Willapa Bay and the mouth of the Columbia River. In the Columbia River, this zone includes waters west of the Astoria-Megler Bridge. Estuary bays are semi-enclosed bodies of water that have free connection with the open ocean. Priority habitat zones are: Shore – Also called the marine riparian zone, shore habitat extends inland from the Ordinary High Water Mark (OHWM) to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. The shore includes feeder bluffs (i.e., eroding bluffs), as they are an important source of sediments that form and sustain beaches. Shores consisting of native vegetation (e.g., trees, shrubs, dune grasses), fine-grained sand, imbedded large woody debris, or actively eroding bluffs are of particular importance. Headlands with concentrated seabird use are also significant. Intertidal – Extends from the OHWM to the extreme lower low water (ELLW). Intertidal areas consisting of rocky substrate, native vegetation (e.g., eelgrass, macroalgae, emergent vegetation) or habitat-forming species (e.g., native oyster reefs) are of particular importance. Intertidal areas within a river/stream delta or an area used for spawning by forage fish are also significant. Subtidal – Extends waterward from ELLW to the maximum depth within the bay. Subtidal areas consisting of rocky substrate, native vegetation (e.g., eelgrass, macroalgae), or habitat forming species (e.g., native oyster reefs) are of particular importance. Subtidal areas within an estuarine embayment or an area used for spawning by forage fish are also significant.
Open Coast Nearshore	Encompasses relatively undisturbed non-estuarine nearshore of Washington's outer coast, from the Canadian border south to the Oregon border. Priority habitat zones are: Shore – Also called the marine riparian zone, shore habitat extends inland from the Ordinary High Water Mark (OHWM) to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. The shore takes in feeder bluffs (i.e., eroding bluffs), as they are an important source of sediments that form and sustain beaches. Shores consisting of native vegetation (e.g., trees, shrubs, dune grasses), fine-grained sand, imbedded large woody debris, or actively eroding bluffs are of particular importance. Headlands with concentrated seabird use are also significant. Intertidal – Extends from the OHWM to the extreme lower low water (ELLW). Intertidal areas consisting of rocky substrate, native vegetation (e.g., eelgrass, macroalgae, emergent vegetation) or habitat-forming species (e.g., goose-necked barnacles, mussel beds) are of particular importance. Intertidal areas within a river/stream delta or an area used for spawning by forage fish are also significant. Subtidal – Extends from ELLW to -100 meters. Subtidal areas within an estuarine embayment or areas consisting of rocky substrate, native vegetation (e.g., eelgrass, macroalgae), or habitat-forming species (e.g., corals, sponges) are of particular importance.

Habitat Type or Feature	Priority Area Description
Puget Sound Nearshore	Encompasses relatively undisturbed nearshore Puget Sound, including the Strait of Juan de Fuca, Admiralty Inlet, the San Juan Islands and Hood Canal. Priority habitat zones are: Shore – Also called the marine riparian zone, shore habitat extends inland from the Ordinary High Water Mark (OHWM) to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. The shore takes in feeder bluffs (i.e., eroding bluffs), as they are an important source of sediments that form and sustain beaches. Shores consisting of native vegetation (e.g., trees, shrubs, dune grasses), fine-grained sand, imbedded large woody debris, and actively eroding bluffs are of particular importance. Headlands with concentrated seabird use are also significant. Intertidal – Extends from the OHWM to the extreme lower low water (ELLW). Intertidal areas consisting of rocky substrate, native vegetation (e.g., eelgrass, macroalgae, emergent vegetation) or habitat-forming species (e.g., native oyster reefs) are of particular importance. Intertidal areas within a river/stream delta, estuarine embayment, or a pocket beach, or an area used for spawning by forage fish are also significant. Subtidal – Extends from ELLW to -30 meters. Subtidal areas consisting of rocky substrate, native vegetation (e.g., eelgrass, macroalgae), or habitat-forming species (e.g., sea pens, native oyster reefs) are of particular importance. Subtidal areas within an estuarine embayment or an area used for spawning by forage fish are also significant.
Snags and Logs	Snags and logs occur within a variety of habitat types that support trees. Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and > 30 cm (12 in) in eastern Washington, and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. Abundant snags and logs can be found in oldgrowth and mature forests or unmanaged forests of any age; in damaged, burned, or diseased forests; and in riparian areas. Priority snag and log habitat includes individual snags and/or logs, or groups of snags and/or logs of exceptional value to wildlife due to their scarcity or location in a particular landscape. Areas with abundant, well-distributed snags and logs are also considered priority snag and log habitat. Examples include large, sturdy snags adjacent to open water, remnant snags in developed or urbanized settings, and areas with a relatively high density of snags.

2.11 Fish and Wildlife

Fish and wildlife diversity is of primary importance to the goals and strategies guiding WDFW's management efforts. The North Olympic Wildlife Area units contain prairie, estuary and wetland dependent species, big game and small game species of wildlife as well as native fish populations. Each unit provides habitat for many common species found throughout western Washington such as deer, elk, bobcat, coyote, raccoon, river otter, beaver, muskrat, small rodents, hawks, owls, ducks, geese, swallows, red-winged blackbird, killdeer, woodpeckers and a variety of song birds. In addition to the common species, units are managed either for recreation associated with fish and wildlife or for the protection of specific species and their habitats. Unique species, species of interest, or primary management species occurring on individual units are outlined below.

Units that provide habitat or recreational opportunities for waterfowl and/or migratory birds include Lower Dungeness, Bell Creek, Zella Shultz (PI) and South Sequim Bay (JCL). Most of

the North Olympic Wildlife Units provide protection of critical habitat for many salmon species by prevention of further development. The units include: Elwha, Morse Creek, Bell Creek, Lower Dungeness, Dungeness, South Sequim Bay, Snow/Salmon Creek, Chimacum, and Tarboo. Some of these units also provide recreational fishing opportunities such as the Elwha unit, which provides the public with perpetual uninterrupted access to the Elwha River. Management for upland birds including pheasant occurs on the Dungeness Recreation Area (VOA), part of the Lower Dungeness Unit. The Tarboo Creek unit supports protected species such as the bald eagle, northern spotted owl and marbled murrelet. The Snow/Salmon Creek and Lower Dungeness Units support various levels of agricultural activity that provide important winter foraging habitat for migratory waterfowl, shorebirds, and deer and elk. The Bell Creek, Lower Dungeness, South Sequim Bay (JCL), Salmon/Snow Creek and Chimacum units have provided critical habitat for several listed species including the threatened Puget Sound Chinook, Hood Canal/Strait of Juan de Fuca summer chum, and bull trout. The Zella Shultz unit (PI) provides nesting sites for seabirds. These units will also support many species of concern such as harlequin duck, northern goshawk, olive-sided flycatcher, willow flycatcher and red-legged frog. The restoration of forested wetland on these units also provides habitat for wood duck, band-tailed pigeon, great blue heron, osprey, owls and amphibians among many other common species. The prairie habitat on the Bell Creek Unit will offer opportunities for many butterfly species as well.

State and Federal Conservation Status and WDFW Priority Habitats and Species (PHS) Criteria and Priority Areas

Common Name	Scientific Name	Type	Federal Status	State Status	PHS Criteria	PHS Priority Area
Western Toad	*Bufo boreas*	Amphibian	Federal Species of Concern	State Candidate	1	Any occurrence
Bald Eagle	*Haliaeetus leucocephalus*	Bird	Federal Species of Concern	State Sensitive	1	Breeding areas, communal roosts, and regular concentrations
Brandt's Cormorant	*Phalacrocorax penicillatus*	Bird	None	State Candidate	1,2	Breeding areas and regular concentrations
Common Loon	*Gavia immer*	Bird	None	State Sensitive	1,2	Breeding sites, migratory stopovers, and regular concentrations
Merlin	*Falco columbarius*	Bird	None	State Candidate	1	Breeding sites
Oregon vesper sparrow	*Pooecetes gramineus affinis*	Bird	Federal Species of Concern	State Candidate	1	Any occurrence
Peregrine falcon	*Falco peregrines*	Bird	Federal Species of Concern	State Sensitive	1	Breeding areas and regular occurrences
Pileated woodpecker	*Dryocopus pileatus*	Bird	None	State Candidate	1	Breeding areas
Purple martin	*Progne subis*	Bird	None	State Candidate	1	Breeding areas including used artificial nest features and feeding areas
Tufted puffin	*Fratercula cirrhata*	Bird	Federal Species of Concern	State Candidate	1,2,3	Breeding areas and regular concentrations
Taylor's checkerspot	*Euphydryas editha taylori*	Butterfly	Federal Candidate	State Endangered	1	Any occurrence
Bull trout	*Salvelinus confluentus*	Fish	Federal Threatened	State Candidate	1,2,3	Any occurrence
Chinook salmon (Puget Sound)	*Oncorhynchus tshawytscha*	Fish	Federal Threatened	State Candidate	1,2,3	Any occurrence
Chum salmon	*Oncorhynchus keta*	Fish	Federal Threatened	State Candidate	1,2,3	Any occurrence
Coho salmon	*Oncorhynchus kisutch*	Fish	Federal Candidate	None	1,2,3	Any occurrence

Common Name	*Scientific Name*	Type	Federal Status	State Status	PHS Criteria	PHS Priority Area
Steelhead (Puget Sound)	*Oncorhynchus mykiss*	Fish	Federal Threatened	None	1,3	Any occurrence
Coastal cutthroat	*Oncorhynchus clarki clarki*	Fish	Federal Species of Concern	None	3	Any occurrence
Fisher	*Martes pennant*	Mammal	Federal Candidate	State Endangered	1	Any occurrence
Steller sea lion	*Eumetopias jubatus*	Mammal	Federal Threatened	State Threatened	1,2	Haulout areas
Olympia oyster	*Ostrea conchaphila*	Mollusk	None	State Candidate	1,2,3	Any occurrence
Marbled Murrelet	*Brachyramphus marmoratus*	Bird	Federal Threatened	State Threatened	1,2	Any occurrence

PHS Criteria Key – Criteria

Criterion 1. State-Listed and Candidate Species:
State-listed species are native fish and wildlife species legally designated as Endangered (WAC 232-12- 014), Threatened (WAC 232-12-011), or Sensitive (WAC 232-12-011). State Candidate species are fish and wildlife species that will be reviewed by the department (POL-M-6001) for possible listing as Endangered, Threatened, or Sensitive according to the process and criteria defined in WAC-232-12-297.

Criterion 2. Vulnerable Aggregations:
Vulnerable aggregations include species or groups of animals susceptible to significant population declines, within a specific area or statewide, by virtue of their inclination to aggregate. Examples include heron rookeries, seabird concentrations, marine mammal haulouts, shellfish beds, and fish spawning and rearing areas.

Criterion 3. Species of Recreational, Commercial, and/or Tribal Importance:
Native and non-native fish and wildlife species of recreational or commercial importance, and recognized species used for tribal ceremonial and subsistence purposes, whose biological or ecological characteristics make them vulnerable to decline in Washington or that are dependent on habitats that are highly vulnerable or are in limited availability.

PHS Criteria Key – Priority Area

• ***Artificial Nesting Feature:*** *Man-made features used for nesting (e.g., nest box, platform)*
. ***Any Occurrence:*** *Applies to a priority species with limiting habitat that is not known or to a species that is so rare that any occurrence is important in a land use decision.*
• ***Breeding Area****: The area necessary to support reproduction and the rearing of young; includes breeding sites and adjacent foraging habitat, and may include a disturbance buffer.*
• ***Breeding Site****: The immediate area and features associated with producing and rearing young (e.g., nest tree, den). Typically, a breeding site is a point location.*
• ***Communal Roosts****: Habitat features (e.g., trees, caves, cliffs) that are regularly or traditionally used by a group of animals for resting, hibernation, breeding, or rearing young.*
• ***Foraging Area****: Feeding areas that are regularly used by an individual or a group of animals.*
• ***Haulouts****: Areas where marine mammals regularly remove themselves from the water for resting.*
• ***Lek****: An assembly area where sage grouse and sharp-tailed grouse engage in courtship behavior.*
• ***Migration Corridors****: Areas regularly or traditionally used by animals as travel routes between seasonal ranges.*
• ***Occurrence****: Fish and wildlife observation from a source deemed reliable by WDFW biologists. An occurrence may represent an observation of an individual animal or a group of animals.*
• ***Regular Concentration****: Areas that are commonly or traditionally used by a group of animals on a seasonal or year-round basis.*
• ***Regular Occurrence****: Areas or features (e.g., trees, cliffs) that are commonly or traditionally used on a seasonal or year-round basis by species that do not typically occur in groups.*
• ***Regularly Used Perches****: Habitat features (e.g., trees, cliffs) that are regularly or traditionally used by the priority bird species for perching.*

2.12 Cultural Resources

Cultural, geological, and other non-renewable resources are protected, and may not be removed unless such removal is beneficial to wildlife, habitat, or the wildlife area, or for scientific or educational purposes. WDFW will coordinate with the appropriate agency of jurisdiction for the protection of such resources. Past issues have included the removal of various rock formations, Native American artifacts, plants, seeds, and other items by members of the public.

3.0 MANAGEMENT OBJECTIVES, ISSUES & STRATEGIES

Statewide goals and objectives listed in chapter one shape management priorities on wildlife areas. Specific wildlife area information including why the area was purchased, habitat conditions, species present, and public issues and concerns are evaluated to identify wildlife area activities or tasks. *Public issues from past planning efforts and the Citizens Advisory Group are noted in italics and are captured in* **Appendix 1.** Control of noxious or listed weed species is generally listed throughout this Chapter as strategies and a specific list of weed species, locations, and control methods are included in the **Appendix 2, Weed Management Plan.**

Objectives and associated strategies or tasks specific to the North Olympic Wildlife Area are listed where appropriate under applicable agency objectives. Unfunded needs are underlined.

3.1 Agency Objective: Protect, Restore & Enhance Fish and Wildlife and Their Habitats

3.1.1 Improve and maintain fish populations

Estuary and riparian environments provide important resting, rearing and transitional habitats for native and critical fish stocks. Protection and restoration of these habitats is needed to recovery ESA listed salmonids. For critical salmon stock protection, provisions on each estuarine & riverine habitat are needed.

- 3.1.1.1 Strategy: Work to transfer management responsibilities or ownership of Tarboo unit to DNR's Natural Areas Preserve (NAP) for continued protection.
- 3.1.1.2 Strategy: Continue acquisition of parcels for conservation with existing grant funds.
- 3.1.1.3 Strategy: Continue seeking grants for acquisition/conservation/restoration.
- 3.1.1.4 Strategy: Continue with stream restoration, riparian planting, estuary restoration, activities in the Snow/Salmon Creek unit.
- 3.1.1.5 Strategy: Assist in design of restoration of riverine system for the Morse Creek unit, working with NOSC, Jamestown S'Klallam, and Elwha Tribal Biologists.
- 3.1.1.6 Strategy: Continue with cooperative efforts in restoration of estuary on South Sequim Bay (JCL) unit relying on Jamestown S'Klallam staff to lead this project.
- 3.1.1.7 Strategy: Continue with restoration objectives of Lower Dungeness unit.
- 3.1.1.8 Strategy: Continue to collaborate with District Team members and external partnerships to pursue additional habitat protection

for critical salmon stocks on estuarine & riverine habitats throughout NOWA.

3.1.1.9 Strategy: Assist NOSC for review of monitoring data for adaptive management plan at the Chimacum Unit.

3.1.2 Manage for waterfowl/wetlands

3.1.2.1 Strategy: Explore share-cropping agreements on Lower Dungeness and Salmon/Snow Units that create productive benefits for migratory waterfowl.

3.1.2.2 Strategy: Manage water delivery system at the Lower Dungeness Unit (Dungeness Recreation Area) for optimum wetland benefits.

3.1.2.3 Strategy: Work with Ducks Unlimited, Inc. and adjacent landowners on wetland enhancement activities at the Helen Marshall and Rivers End parcels of the Lower Dungeness Unit.

3.1.2.4 Strategy: Evaluate potential acquisitions and seek grant funds for a viable waterfowl hunting location in the Dungeness Valley.

3.1.2.5 Strategy: Explore opportunities for enhancement of freshwater wetlands at the Snow/Salmon Creek Unit.

3.1.3 Manage for upland birds – pheasants

Pheasants provide hunting recreational opportunities where they are released at several sites in western Washington.

3.1.3.1 Strategy: Maintain agreement with Clallam County to provide pheasant release activities at the Lower Dungeness Unit (Dungeness Recreation Area).

3.1.3.2 Strategy: Encourage continuation of hunting opportunities within NOWA, (at the Dungeness Recreation Area after 2010, when WDFW lease agreement ends.)

3.1.4 Manage for species diversity

North Olympic Wildlife Area supports fish and wildlife diversity in riparian, estuary, wetland and prairie environments. Conservation, protection and select enhancement of these habitats are vital for the breeding, movement, feeding and cover of fish and wildlife, including listed species.

3.1.4.1 Strategy: Protect and maintain diverse habitats.

3.1.4.2 Strategy: Continue seeking habitat conservation measures in the Dungeness Valley area to preserve as much open space as possible and allow the diversity of wildlife species to remain high and rich in this area, specifically Taylor Checkerspot Butterfly.

3.1.4.3 Strategy: Continue oak habitat enhancement projects to retain the assemblage of species associated with this habitat type that is extremely limited in Clallam County and Jefferson County.

3.1.4.4 Strategy: Minimize human disturbance at Zella Schultz unit (Protection Island) by continuing coordination with WDFW law enforcement program. Work with the USFWS and caretakers to educate the public about the closure and management of the

island. Support and coordinate with USFWS on efforts to reduce adverse impacts to biodiversity or seabird nesting from non-native species (e.g. rats or rabbits) and native herbivores.

3.1.5 Protect and restore riparian/wetland habitat

Riparian and wetland habitats have been identified as priorities for management and protection due to their importance to many species, both fish and wildlife. Many of the wildlife areas are managed to provide or to protect wetland habitat for waterfowl**.** Wetland habitats are also important rearing areas for various salmonid species. The aquatic element in riparian corridors includes vegetation adapted to wet conditions and provides thermal cover, creates stream channel features such as pools, and maintains stream bank stability, primary factors influencing the quality and health of fish habitat.

3.1.5.1 Strategy: Work with reed canary grass control and water delivery system at the Lower Dungeness Unit (Dungeness Recreation Area) to encourage native wetland vegetation as long as the lease allows at this site.

3.1.5.2 Strategy: Develop a contractual agreement with the County Parks for water delivery at Lower Dungeness Unit (Dungeness Recreation Area).

3.1.5.3 Strategy: Prepare Lower Dungeness unit for tree planting to restore forest habitat and floodplain processes. Control the spread of noxious weeds throughout this unit.

3.1.5.4 Strategy: Where applicable manage portions of NOWA units specifically for foraging areas for wintering waterfowl to control the invasive populations of noxious weeds listed in Appendix 2.

3.1.6 Protect and restore estuary habitat

Estuaries are important for many species. They are a priority for migratory shorebirds along the Pacific flyway, and provide forage and resting areas for waterfowl. Estuaries are productive environments and provide salmon with transitional habitat and forage opportunities.

3.1.6.1 Strategy: Restore estuarine habitat at NOWA units where applicable.

3.1.7 Protect and restore Oregon white (Garry) oak & prairie habitat

Oregon white oak, associated with prairie habitat is unique and at the extent of its range on the west side of the Cascade Mountains and north of the Columbia River and has been subject to loss from land development and invasion by Douglas fir.

3.1.7.1 Strategy: Plant Oregon white oak trees at Bell Creek unit to restore native oak-prairie habitat.

3.1.7.2 Strategy: Maintain Oregon white oak trees at Bell Creek unit.

3.1.7.3 Strategy: Conduct oak restoration activities on South Sequim Bay (JCL) unit relying on the Jamestown S'Klallam Tribe to be the lead.

3.1.7.4 Stategy: Support of USFWS prairie restoration on the Zella Shultz/Protection Island Unit

3.1.8 Protect and manage other species

3.1.8.1 Work to transfer management responsibilities/ownership of Tarboo Unit to DNR's Natural Areas Preserve for habitat protection for bald eagle, northern spotted owl and marbled murrelet.

3.2 Agency Objective: Provide sustainable fish and wildlife-related recreational and commercial opportunities compatible with maintaining healthy fish and wildlife populations and habitats. Improve the economic well being of Washington by providing diverse, high quality recreational and commercial opportunities.

3.2.1 Provide public access compatible with fish, wildlife and habitat protection.

Access for hunting, fishing, wildlife viewing and other activities is an agency priority. However, access and recreation must be controlled to protect fish and wildlife resources and to comply with federal and state regulations. Public input clearly emphasizes the importance of providing recreational access with protections for the resource.

3.2.1.1 Strategy: Develop the Olympic Discovery Nature Center and Interpretive Site at the Morse Creek unit. The plan has been written, relying on NOSC and other partnerships to secure funding

3.2.1.2 Strategy: Maintain hunting safety zone signs at Lower Dungeness Unit (Dungeness Recreation Area).

3.2.1.3 Strategy: Work with Jefferson and Clallam Counties, the Pennisula Trails Coalition and others, to determine the best location for the Olympic Discovery Trail at Discovery Bay.

3.2.1.4 Post all WDFW Wildlife Area Units with WDFW signs, indicating property boundaries, and interpretive displays where applicable.

3.2.1.5 Explore potential agreements for accessing the Elwha Unit from the west side of the river.

3.3 Agency Objective: Ensure WDFW Activities, Programs, Facilities and Lands are Consistent With Local, State and Federal Regulations that Protect and Recover Fish, Wildlife and Their Habitats

3.3.1 Manage weeds consistent with state and county rules and to protect and recover fish and wildlife and their habitats

Weed control is required by state law to protect public economic and natural resources. Invasive weeds are one of the greatest threats to fish

and wildlife habitat quality. Cooperative weed efforts are encouraged to improve efficacy and to minimize impacts on adjacent landowners as part of the agencies good-neighbor priority.

3.3.1.1 Strategy: Further produce and implement weed management plan to include additional weed identification, and inventory, control priorities, and monitoring (**Appendix 2.**)

3.3.1.2 Strategy: Utilize an agricultural lease at the Lower Dungeness Unit to control the dominant noxious weed population in preparation for tree and shrub plantings and salt marsh restoration.

3.3.1.3 Strategy: Work with partners to control listed noxious weeds on all units.

3.3.2 Manage species and habitats in compliance with the Endangered Species Act and Washington State fish passage, road management and forest practice rules

Federal law requires the protection and management of federally listed threatened and endangered species. State law requires fish passage and screening, and forest road sedimentation to be addressed on state public lands. Forest thinning operations on agency lands must follow the state Forest Practices Act.

3.3.2.1 Strategy: Inventory all roads and fish passage structures to identify sedimentation and passage issues.

3.3.2.2 Strategy: Work with WDFW TAPPS Division to correct known fish passage barriers.

3.3.3 Protect cultural resources consistent with state and federal law

Federal and state law requires an assessment of cultural resources on agency lands prior to activities that may impact those resources.

3.3.3.1 Strategy: Assess cultural resource value (historic and archaeological) of all structures before renovation or removal.

3.3.3.2 Strategy: Perform cultural resource survey and assessment before performing any land disturbance activity (digging- parking lots, toilets, buildings, new agricultural fields, dike removal etc).

3.3.4 Pay county PILT (Payment in Lieu of Taxes) and assessment obligations

State law requires the agency to pay PILT and county assessments.

3.3.4.1 Strategy: Pay PILT and assessments to counties.

3.4 Agency Objective: Provide sound operational management of WDFW lands, facilities and access sites.

3.4.1 Maintain facilities to achieve safe, efficient and effective management of the wildlife area.

3.4.1.1 Strategy: Remove buildings on the Schneider parcel on Lower Dungeness unit prior to dike removal.

3.4.1.2 Strategy: Remove mobile home on Chaplin Parcel at the Bell Creek unit.

3.4.2 Maintain other structures and physical improvements

3.4.2.1 Strategy: Maintain all signs, gates, fences, culverts or water structures to perform operation and maintenance of areas.

3.4.2.2 Strategy: Replace/install new boundary and unit signs where appropriate.

3.4.2.3 Set-up temporary housing rental agreement at Morse Creek house, until further plans are developed for this infrastructure.

3.4.3 Maintain equipment

3.4.3.1 Strategy: Service all equipment including trucks, tractor and implements, weed sprayers, trailers, etc. Request replacement equipment when needed.

3.4.3.2 Strategy: Rent equipment when it is more efficient to do so, or when needed. Contract with local farmers to complete wetland restoration and enhancement objectives when hauling equipment from headquarters is no longer efficient.

3.4.3.3 Strategy: Schedule equipment use on all wildlife area projects

3.4.4 Pursue funding opportunities

3.4.4.1 Strategy: Apply for grants and other funding opportunities consistent with planned priorities to supplement funding.

3.4.5 Assess forest conditions with regard to catastrophic fire, insect and disease risks

The history of fire suppression in many cases has resulted in forest tree densities far greater than historic levels. Dense forest stands may create fire safety issues and increase the risks associated with the spreading of detrimental forest insects and disease.

3.4.5.1 Strategy: Assess forest management options at Bell Creek, Blake/Cummins site to reduce risks and to improve oak habitat.

3.4.6 Perform administrative responsibilities

3.4.6.1 Strategy: Hire a Bio 2 to administer land management activities related to NOWA

3.4.6.2 Strategy: Develop and monitor budgets

3.4.6.3 Strategy: Supervise employees

3.4.7 Protect and apply water rights for best use

Water rights can impact wildlife area operations including food plots, restoration projects, etc. Water use can also reduce in-stream volumes for fish and other animals.

3.4.7.1 Strategy: Identify and record all water rights and uses of water **(Appendix 4)**.

3.4.7.2 Strategy: Move all unneeded water rights permanently or temporarily into the State Trust Water Rights Program.

4.0 PERFORMANCE MEASURES, MONITORING, EVALUATION AND UPDATES TO NORTH OLYMPIC WILDLIFE AREA MANAGEMENT PLAN

The wildlife area management plan performance measures are listed below. Accomplishments and desired outcomes will be monitored and evaluated to produce an annual performance report (management plan updates). The management plan is a working document that will evolve as habitat and species conditions change, as new regulations are enacted, and as public issues and concerns change. Plan updates will address these changes and be appended to and included as part of the Plan.

4.1 The North Olympic Wildlife Area performance measures include:

- Increase acres of WDFW ownership/conservation of habitats in Lower Dungeness and Snow/Salmon Units.
- Support USFWS planned prairie restoration activities on Zella Shultz/Protection Island' and support USFWS efforts to eliminate impacts of deer on biodiversity and seabird nesting habitat.
- Work to transfer management responsibilities or ownership of Tarboo unit to DNR's Natural Areas Program for continued protection.
- Assist NOSC, Jamestown S'Klallam and Elwha Klallam Tribe in Morse Creek re-meander project.
- Maintain riparian buffers along Snow and Salmon Creeks.
- Perform an alternative/feasibility analysis for removal of railroad grade at the Snow/Salmon Unit to restore the Discovery Bay estuary.
- Work with the Peninsula Trails Coalition, Clallam and Jefferson Counties, and others to determine the best location for the Olympic Discovery Trail at Discovery Bay.
- Plan restoration and enhancement on 50 acres at Lower Dungeness Unit (River's End) to maximize benefits for fish and wildlife species.
- Coordinate release of 720 pheasants on VOA Dungeness Recreation Area.
- Maintain 20 acres of recently planted Oregon white oak (Garry) trees to expand and enhance native oak forest habitat.
- Assist the Jamestown S'Klallam tribe with the prairie/oak woodland habitat enhancement at South Sequim Bay.
- Assist NOSC and other local partners in securing funding to complete renovations for the log cabin at Morse creek.
- Remove buildings at the Chaplain (Bell Creek) parcel.
- Re-negotiate MOU with Jamestown S'Klallam Tribe and Clallam County for Lower Dungeness Management.
- Transfer several parcels along the Dungeness River from Clallam County to WDFW.
- Monitor the Conservation Easement on the PCCFF parcel of the Lower Dungeness Unit. Evaluate the potential to transfer this easement to the North Olympic Land Trust.

- Temporarily rent the Morse Creek house as an additional income tool for future stewardship efforts.
- Install WDFW boundary signs and interpretive displays where applicable.
- Evaluate performance measures and produce an annual Wildlife Area Management Plan Updates, including past accomplishments and actions.
- Utilize restoration project funds to supplement funding for a Bio 2 position.

4.2 Annual Evaluation of Performance.

Evaluate performance measures and produce an annual report. At the beginning of each calendar year, the manager will convene the CAG and district team to assess wildlife area specific performance measures and accomplishments that will be used to develop the annual plan update.

4.3 Annual Plan Update.

As projects are completed and new issues arise, this plan will be updated, without needing to be rewritten. With CAG and District Team input, the plan will continually reflect the strategies, goals and objectives of the current year.

REFERENCES AND LITERATURE CITED

Agee, J.K. 2002. *The Fallacy of Passive Management, Managing for Fire Safe Forest Reserves.* Conservation in Practice: vol 3, no 1.

Franklin, J.F. & C.T. Dyrness. 1973**.** *Natural vegetation of Oregon and Washington. Revised edition*. Oregon State University Press, Corvallis. Hamet-Ahti, L. 1965.

Washington State Noxious Weed Control Board (http://www.nwcb.wa.gov/weed_info/contents_common.html)

WDFW policies and procedures (http://wdfw.wa.gov/depinfo/strat_goals_obj.htm)

WDFW Strategic Plan (http://wdfw.wa.gov/depinfo/strat_goals_obj.htm)

Western Regional Climate Center (http://www.wrcc.dri.edu/climsum.html)

Wildlife Area Statewide Plan **(**http://wdfw.wa.gov/lands/lands2020/**)**

Appendix 1: Public Issues

Citizens Advisory Group and District Team Issues and Concerns
North Olympic Wildlife Area

The purpose of meeting with the CAG and District Team (DT) was to obtain input to help guide management actions on the wildlife area. A draft of the introduction and history of the wildlife area and copies of the Agency's goals and objectives were distributed for review and discussion. Below is a list of issues and concerns identified by the CAG and DT. This input will assist in developing strategies to implement management goals and objectives. Underlined statements below indicate that the input was received from the DT or other WDFW staff. Issues that are not underlined originated from the CAG or other public sources.

Issue A – Access/Recreation

- Issue: Permitted access to various units is not understood by the public. Recommendation: establish informational kiosks at appropriate units for explanation of the permitted uses of the site.
- Issue: Currently public access is limited to many of the units. Recommendation: create better access locations for walk-in/boat-in uses at units where this is appropriate.
- Issue: Pheasant hunting is currently limited to VOA and this lease will expire potentially after this current hunting season. Recommendation: Establish another pheasant release site.
- Issue: There is currently not a large wetland complex in any of the units suitable for waterfowl hunting. Recommendation: explore opportunities for new acquisitions with this as a primary focus.
- Issue: Elwha unit is not accessible from the west side of the river. Recommendation: Pursue an easement/acquisition to access this portion of the unit.

Issue B – Wildlife & Fish

- Issue: "Chumsortium" (an assemblage of agencies, groups and partners who are dedicated to taking actions that will recover wild salmon in East Jefferson County.) - Develop sub-plans for each unit. Incorporate the Snow/Salmon and Chimacum Management Plans as appendices to this plan. DT Recommendation: This statewide planning process does not include individual unit sub plans. Strategies for individual units related to the various objectives should be including in Chapter 3. This is a working plan that is updated annually and includes annual performance measures. It is not intended to be a watershed or ecosystem plan. It highlights on-the-ground management, restoration, and stewardship of WDFW owned land managed by the Wildlife Program.

Issue C – Habitat

- Issue: Clallam County, The Jamestown S'Klallam Tribe, and Dungeness Farms are opposed to the potential agricultural lease on the Rivers End section of the Lower Dungeness Unit. The potential lease was developed as a means to actively

manage the expansive noxious weed problem that is currently present. The concerned parties feel that the vision for the site has been changed since the Lands Division has taken a more active role in managing this particular WDFW owned parcel. Recommendation by Tribe and Dungeness Farms: Remove agricultural lease language in 3.1.2.1, 3.1.5.5, and 3.3.1.2. Allow the tribe to plant the site with trees and shrubs with current funding that expires in September 2010. DT Recommendation: Create a restoration plan for the site that continues working toward the vision of the partnership and meets the needs of the stewardship objectives for the agency. Re-negotiate the Rivers End MOU between Clallam County, The Jamestown S'Klallam Tribe, and WDFW.

- Issue: Who is actively monitoring the WDFW Conservation Easement on the PCC Farmland Fund parcel near Towne Road? Recommendation: Add easement monitoring of this parcel to the performance measures for 2010 in the plan. Ensure that agricultural and livestock activities are consistent with the conservation easement.
- Recommendation from CAG and DT: Pursue additional acquisitions at the Lower Dungeness and Snow/Salmon Units.

Issue D – Enforcement

- Issue: Minimize human disturbance at the Zella Schultz subunit (PI) by continuing periodic WDFW law enforcement patrols and working with USFWS and caretakers.
- Conduct routine patrols of hunting activity at the Lower Dungeness Unit VOA site.

Issue E – Public Education and Involvement

- Issue: Create long-term plan for funding and staffing of the Interpretive Center at Morse Creek. Recommendation: Work with NOSC to establish a new MOU for management of this center.
- Post interpretive information at all units where applicable

Issue F – Wildlife Area Infrastructure and Equipment

- Issue: Region 6 Wildlife Areas have a substantial amount of equipment; however the majority of this inventory is located at the Olympic Wildlife Area Headquarters in Grays Harbor County. Furthermore this equipment already has numerous schedule conflicts based on the distance between units (South from South Pacific County Units > Lower Columbia River, East to Pierce and Kitsap County Units, and North to the NOWA Units). Units throughout the region are in excess of 200 miles apart, which presents a considerable management obstacle based solely on travel and time. Recommendations: rely on partnerships and other program personnel to help in the stewardship of NOWA lands.
- What equipment is available for use at NOWA? Response: NOWA does not currently have any equipment inventory. All equipment that is utilized for projects throughout this wildlife area is based at Olympic Wildlife Area. At this time there is not a secure location for storing equipment.

Issue G – Funding and Staffing

- Presently there is no funding available for a Wildlife Area Manager for NOWA. Current staff time that is devoted to management and stewardship activities is project funded, and there is a small portion of state funding dedicated to NOWA that will be utilized by one of Bio 2 in the Wildlife Program, Lands Division. Recommendations: Foster partnerships to achieve the objectives listed throughout this plan.

  Are there dedicated pots of money for hiring seasonal laborers for NOWA. Response: There is currently no dedicated funding available for hiring staff for NOWA. Seasonal help will have to be funded through project funds.

Appendix 2: Weed Management Plan

North Olympic Wildlife Area Weed Management Plan

Weed Control Goals on WDFW Lands
The goal of weed control on WDFW lands is to maintain and improve the habitat for wildlife, meet legal obligations, provide good stewardship and protect adjacent private lands.

Weed control activities and restoration projects that protect and enhance fish and wildlife populations and their habitats on WDFW lands are a high priority. When managing for specific wildlife species on our lands the weed densities that trigger control are sometimes different than on lands managed for other purposes (e.g. agricultural, etc.). For example, if a weed is present at low densities and does not diminish the overall habitat value, nor pose an immediate threat to adjacent lands, control may not be warranted. WDFW focuses land management activities on the desired plant species and communities, rather than on simply eliminating weeds.

Control for certain, listed species is mandated by state law (RCW 17.10 and 17.26) and enforced by the County Noxious Weed Board. WDFW will strive to meet its legal obligation to control for noxious weeds listed according to state law (Class A, B-Designate, and county listed weeds).

Importantly, WDFW will continue to be a good neighbor and partner regarding weed control issues on adjacent lands. Weeds do not respect property boundaries. The agency believes the best way to gain long-term control is to work cooperatively on a regional scale. As funding and mutual management objectives allow, WDFW will find solutions to collective weed control problems.

Weed Management Approach
State law (RCW 17.15) requires that WDFW use integrated pest management (IPM), defined as a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency programmatic pest management objectives, to accomplish weed control. The elements of IPM include:

Prevention- Prevention programs are implemented to keep the management area free of species that are not yet established but which are known to be pests elsewhere in the area.

Monitoring- Monitoring is necessary to implement prevention and to document the weed species, the distribution and the relative density on the management area.

Prioritizing- Prioritizing weed control is based on many factors such as monitoring data, the invasiveness of the species, management objectives for the infested area, the value of invaded habitat, the feasibility of control, the legal status of the weed, past control efforts, and available budget.

Treatment- Treatment of a weeds using mechanical, cultural, biological, and chemical control serves to eradicate pioneering infestations, reduce established weed populations below densities

that impact management objectives for the site, and diminish their various impacts. The method used for control considers human health, ecological impact, feasibility, and cost-effectiveness.

Adaptive Management- Adaptive management evaluates the effects and efficacy of weed treatments and makes adjustments to improve the desired outcome for the management area.

The premise behind a weed management plan is that a structured, logical approach to weed management, based on the best available information, is cheaper and more effective than an ad-hoc approach where one only deals with weed problems as they arise.

North Olympic Wildlife Area has not had a thorough inventory of noxious weeds on WDFW lands.

WDFW's strategy will begin with seeking funding and partnerships for each unit to conduct/improve noxious weed inventory, and subsequent prioritization and noxious weed control. Pulling Together Initiative, a Public-Private Partnerships to Manage Invasive Weeds http://www.nfwf.org/AM/Template.cfm?Section=Charter_Programs_List&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=61&ContentID=13554 is a funding source (matching 1:1) that will be investigated for suitability for this task.

Weed Species of Concern on the North Olympic WLA

Weeds of concern on the North Olympic Peninsula include spotted knapweed *(Centaurea biebersteinii*), meadow knapweed (*Centaurea pratensis*), diffuse knapweed (*Centaurea diffusa*), poison hemlock (*Conium maculatum*), scotch broom (*Cytisus scoparius*), herb Robert (*Geranium robertianum*), reed canary grass (*Phalaris arundinacea*), bull thistle (*Cirsium vulgare),* Japanese knotweed *(Polygonum cuspidatum),* tansy ragwort *(Senecio jacobaea),* field bindweed/morning glory *(Convolvulus arvensis),* teasel *(Dipsacus fullonum),* English Ivy (Hedera spp.), Sweet Clover (Melilotus Albus), Butterfly Bush, and two non native blackberries – the Himalayan (*Rubus discolor*) and the evergreen *(Rubus laciniatus).* This list is based on species that have been documented on the wildlife area (Table 1).

Table 1: North Olympic Wildlife Area weeds including the state and county weed class listing and acres treated.

Weed Species	State Weed Class	Clallam & Jefferson County Weed Class	Wildlife Unit(s)	2004-2009 Treated Acres
Spotted Knapweed	B	B-Designate	Morse Creek	1
Meadow Knapweed	B	B-Designate	Morse Creek	1
Diffuse Knapweed	B-Designate	B-Designate	Morse Creek	1
Poison Hemlock	B	C-Select	Morse Cr, Lower Dungeness, Bell Cr	12
Scotch Broom	B	B-Select	Morse Cr, Bell Cr, Snow/Salmon Cr, Lower Dungeness, Elwah	76
Herb Robert	B	B	Morse Cr	1
Reed Canary Grass	C	C	Lower Dungeness, Bell Cr, Snow/Salmon Cr, Chimacum, Morse Creek	>100
Canadian Thistle	C	C	Lower Dungeness, Bell Cr, Snow/Salmon Cr, Chimacum	>100
Bull Thistle	B	B	Lower Dungeness, Bell Cr, Snow/Salmon Cr, Chimacum	>100
Japanese Knotweed	B	B	Snow/Salmon Cr, Lower Dungeness	2
Tansy Ragwort	B	B -Select	Lower Dungeness, Snow/Salmon Cr., Bell Creek	56
Field Bindweed	C	C	Chimacum	2
General Weeds Teasel			Bell Cr, Lower Dungeness	17
General Weeds Nonnative Blackberry		C	Lower Dungeness, Bell Cr, Snow/Salmon Cr, Chimacum, Morse Creek	>100
Sweet Clover (Melilotus Albus)		Weed of Concern	Chimacum	2
Butterfly Bush	B	B	Lower Dungeness	0
English Ivy	C	C	Lower Dungeness, Bell Creek	0

B-Designate - are state-listed and mandatory for control to prevent seed production /spread.
B - are state-listed with containment, gradual reduction, and prevention of further spread.
C - are state-listed, but control is local to the county weed board recommendations.
B-Select & C-Select - RCW 17.10.090 State Noxious Weed List allows counties to select weeds from the B or the C list for suppression and control within the county

Management for individual weed species can be found in the following "Weed Species Control Plan" (WSCP) sections.

SPOTTED KNAPWEED CONTROL PLAN

Latin Name: *Centaurea biebersteinii* **Common Name**: Spotted Knapweed

DESCRIPTION: Spotted knapweed is a short-lived, upright perennial (up to five feet tall when in flower) with a stout taproot. The plant is hairy and rough, with a somewhat woolly appearance. Leaves are sparse, with a blue to silvery gray cast, and often deeply lobed. Over wintering rosettes (about eight inches tall) bolt in early summer, producing one to 15 stems. The stem leaves, which have a few lobes or are linear, become smaller toward the top of the plant. Light purple to pink flowers (rarely white) occur in solitary oval heads at branch ends. Bracts of flower heads have obvious veins, with a black triangular spot at the tip (lacking on white flowers). Flowering is from June to October. Seeds are black to brown ovals with pale lengthwise lines and slender bristles. Each plant can produce 400 or more seeds per flower stalk, which can remain viable for up to eight years.
Habitat: Spotted knapweed is native to central Europe. In Washington, the species occurs along roads and railroads (including cut and fill slopes), in gravel pits and vacant lots, at airports, hayfields, pastures, forest clearings and on glacial till and outwash soils, where it has been found up to 6,500 feet. The species generally grows in areas of higher available moisture, such as deep soils or roadsides receiving rain runoff. It prefers full sun and well-drained (light, porous, fertile) soils, and grows especially well in loose gravel and newly disturbed areas.
Threat: Spotted knapweed is aggressive and can infest large areas quickly. The species has limited value as forage for cattle and seasonal value for sheep or big game. Knapweed infestations increase production costs for ranchers, impair the quality of wildlife habitat, decrease plant diversity, increase soil erosion rates on valuable watershed areas, decrease the visual quality and appeal of recreational lands, and pose wildfire hazards.

MANAGEMENT INFORMATION:
Biological: Presently, there are ten biological control agents that have been released on spotted knapweed in Washington. A root-boring moth (*Agapeta zoegana*), two seed head weevils (*Larinus obtusus and Bangasternus fausti*), two seed head flies (*Chaetorellia acrolophi and Terellia virens*) and one root-boring/gall weevil (*Cyphocleonus achates*) are not presently collectable, and their effectiveness is unknown. Another seed head weevil (*Larinus minutus*) is available in limited quantities for redistribution. A seed head moth (*Metzeria paucipunctella*) and two seed head gall flies (*Urophora affinis* and *Urophora quadrifasciata*) are available for mass collections.
Chemical: Glyphosate (Roundup) is considered the most effective herbicide and should be used cautiously around desirable species since it is nonselective. Apply during bud stage. Plants often regrow, so plan annual applications for several years. Picloram (Tordon) can be applied in late spring before or during flower stem elongation. Treatment during bud stage may not prevent seed production in that year, but seed germination will be markedly reduced. 2,4-D applied at the early stage of flower stem elongation (late April to early May) will control only plants emerged at time of spraying. Triclopyr + clopyralid (Redeem R&P) should be applied from rosette to early bolt stage when plants are actively growing. A nonionic surfactant is needed here. Control of regrowth

and of new seedlings is much better if a competitive crop or sod is established. A perennial grass is the logical choice because, except for glyphosate, the herbicides listed here will not kill established grasses.

Manual: Isolated small populations can be hand pulled, making sure to remove as much root as possible. Sites where plants have been pulled need to be watched closely for new growth as disturbed soil aids in germination of any seeds present.

Mechanical: Plants that are periodically mowed will generally continue to flower and produce seeds, so mowing alone is not recommended. Tilling and cultivation that buries seeds and plant matter below a depth of 1.5 inches can be effective, especially if the area is replanted with a healthy cover crop.

CURRENT DISTRIBUTION

Morse Creek Unit - Spotted knapweed was reported by Clallam County Noxious Weed Control Board (CCNWCB) staff on April 2004. This weed was located in immediate vicinity of Highway 101 on both sides of the highway, west of Morse Creek, much of it on DOT right of way, but extending onto WDFW ownership.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS

Control expanding populations
Prevent new occurrences

OBJECTIVES

Survey and map existing populations
Survey nearby units for pioneering infestations
Research availability of biological control insects for use on all sites

ACTIONS PLANNED

CONTROL SUMMARY AND TREND

2004 Morse Creek Unit – DOT reported on May 6, 2004 that they would be applying chemical applications to control this knapweed. WDFW approved DOT to proceed with spot chemical control on immediately adjacent WDFW land where the weed was observed.

MEADOW KNAPWEED WEED SPECIES CONTROL PLAN

Scientific name: *Centaurea pratensis* **Common name:** Meadow Knapweed

DESCRIPTION

Meadow knapweed occurs with brown knapweed at elevations up to 6,600 feet in the mountains of Central Europe. In Washington, it grows in the more mesic meadow and pasture areas, usually in openings in forested areas or along drainages. Due to the low levels of brown and black knapweed here, meadow knapweed was probably imported as a hybrid 'swarm' from Europe. Meadow knapweed is a perennial growing from a woody root crown, with 20 to 40 inch tall upright stems. Its basal leaves can be up to six inches long and 1.25 inches wide, tapering at both ends. The stem leaves are lance-shaped, stalkless, and sometimes shallowly lobed, while the uppermost leaves are smaller and not lobed. The rose-purple to occasionally white flowers occur in solitary, oval, or almost globe-shaped flower heads at the ends of branches. The light to dark brown involucral bracts are roundish, with a torn, thin, papery margin, or a comb-like, fringed margin. More apparent on outer bracts, the fringes are about equal in width to the

central body of the bract. Meadow knapweed flowers from July to September, producing ivory-white to light brown seeds that may or may not have a barely noticeable plume. However, because it is a hybrid, meadow knapweed traits are highly variable. As with other knapweed species, meadow knapweed is proving to be an aggressive and invasive species. It primarily invades pastures and meadows of the type or condition that support oxeye daisy.

MANAGEMENT INFORMATION
Herbicides: Certain herbicides cannot be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.
Manual, Mechanical, Cultural Methods: Meadow knapweed may be cultivated out. A fallow program prior to pasture reseeding should eliminate it.
Biocontrol: The seed head gall fly, *Urophora quadrifasciata,* has had fair success on meadow knapweed.

CURRENT DISTRIBUTION ON THE SITE
Morse Creek Unit - Meadow knapweed was reported by CCNWCB staff on April 2004. This weed was located in immediate vicinity of Highway 101 on both sides of the highway, west of Morse Creek, much of it on DOT right of way, but extending onto WDFW ownership.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations
Research availability of biological control insects for use on all sites

ACTIONS PLANNED

CONTROL SUMMARY AND TREND
2004 Morse Creek Unit – DOT reported on May 6, 2004 that they would be applying chemical applications to control this knapweed. WDFW approved DOT to proceed with spot chemical control on immediately adjacent WDFW land where the weed was observed.

DIFFUSE KNAPWEED WEED SPECIES CONTROL PLAN

Scientific name: Centaurea diffusa **Common name:** Diffuse Knapweed

DESCRIPTION
A native of southern Europe and the northcentral Ukraine, diffuse knapweed now occurs in eastern Washington, parts of western Washington, British Columbia, Oregon, Idaho, and Montana. Diffuse knapweed is an 8 to 40 inch tall, biennial or short-lived perennial species, with a long tap root. It establishes a rosette in its first season of growth and it commonly bolts the second year. The single, upright stem produces several spreading branches. The basal leaves are short-stalked and divided into lobes on both sides of the center vein. The stem leaves are stalkless, becoming smaller and less divided near the top of the stem. The flowers, which are generally white (sometimes pink or lavender), occur in

urn-shaped heads that grow in clusters at the ends of the branches. The bracts of the flower heads are leathery, with obvious veins. The lower and middle bracts are yellowish-green with a buff or brown margin; they are edged with a fringe of spines plus a longer, spreading spine at the tip. Diffuse knapweed is a very aggressive species that can infest large areas quickly. Knapweed infestations impair the quality of wildlife habitat, decrease plant diversity, increase soil erosion rates, decrease the visual quality and appeal of recreational lands, and pose wildfire hazards. Diffuse knapweed has been found in a wide range of habitats in Washington, as well, including sandy river shores, gravel banks, cracks in rocks on cliffs and outcrops, rangelands, pastures, and hayfields on sandy loams, loams, and silt loams. Diffuse knapweed appears to grow best on well-drained, light textured soils. It is not tolerant of flooding or shade. While it is not tolerant of cultivation with annual crops, diffuse knapweed thrives in gravel pits, roadsides, railroad tracks, vacant lots, airports, trails, and heavily grazed pasture.

MANAGEMENT INFORMATION
Herbicides: Certain herbicides cannot be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.
Manual, Mechanical, Cultural Methods: Cultivation will eliminate diffuse knapweed. Grazing or mowing delays flowering and may increase the number of stems, thereby increasing seed production.
Biocontrol: Five biocontrol agents have been established on diffuse knapweed in Washington. Two seed head weevils, *Bangasternus fausti* and *Larinus minutus*, do not occur in collectable numbers at present. *Urophora affinis (*seed head fly), *Urophora quadrifasciata* (seed head fly), and *Sphenoptera jugoslavica* (root boring/gall beetle) are available for mass collections.

CURRENT DISTRIBUTION ON THE SITE
Morse Creek Unit – Diffuse knapweed was reported by CCNWCB staff on April 2004. This weed was located in immediate vicinity of Highway 101 on both sides of the highway, west of Morse Creek, much of it on DOT right of way, but extending onto WDFW ownership.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations
Research availability of biological control insects for use on all sites

ACTIONS PLANNED

CONTROL SUMMARY AND TREND
2004 Morse Creek Unit – DOT reported on May 6, 2004 that they would be applying chemical applications to control this knapweed. WDFW approved DOT to proceed with spot chemical control on immediately adjacent WDFW land where the weed was observed.

POISON HEMLOCK CONTROL PLAN

Latin Name: *Conium maculatum* **Common Name**: Poison Hemlock

DESCRIPTION: Poison hemlock is an erect biennial that grows up to eight feet tall, commonly four to six feet tall. Stems are stout, hollow, ridged, and mottled with purple spots. Leaves are shiny green, fern-like, very similar to carrot leaves. Crushed foliage has a disagreeable, mousy odor. Flowers are small but numerous, white, arranged in umbrella-shaped clusters about three inches across in early summer. Seeds are ridged and flattened, with two seeds borne together. After producing seed, the plant usually dies. The plant has a long, thick, white fleshy taproot. Poison hemlock can easily be mistaken for wild parsnip, wild carrot or parsley.
***Habitat*:** Native to Europe, western Asia and North Africa, poison hemlock was brought to the United States as a garden plant. It is common and spreading in parts of the U.S. and Canada, particularly on the West Coast. This weed is adaptable to a wide range of climates and is common on shady or moist ground below 5,000 feet, often on poorly drained soils. Poison hemlock commonly occurs along roadsides, field margins, ditch banks, and in low-lying waste areas.
***Threat*:** As its name implies, it is poisonous—to both humans and livestock. The seeds are the most toxic part. Poison hemlock can be a tenacious weed particularly in moist habitats and along streams. It may also act as a pioneer species, quickly colonizing disturbed sites, displacing native plant species and degrading habitat quality.

MANAGEMENT INFORMATION:
Gloves must be worn when handling poison hemlock. It CANNOT be composted. Dead stalks can remain poisonous for two or three seasons.
***Biological*:** A biological control agent (a defoliating moth) provides good to excellent but inconsistent control. Viral infection and/or phytophagous insects to control this weed need more research and experimentation.
***Chemical*:** 2,4-D applied to the early stages of growth will kill poison hemlock. This herbicide is most effective when the ester form is mixed with a surfactant to allow penetration of the leaves and stems. It can be used to hand spot (the most effective technique), or to spray larger areas. Dicamba (Banvel) also works on broad-leaved plants, but not as effectively as 2,4-D.
Manual: Hand pulling works easiest with wet soils and small infestations. When grubbing, it is not necessary to remove the entire root system since the plant is not perennial. It is best to pull or grub out the plant prior to flowering. Follow-up cultivation is necessary to deal with any seedlings. Poison hemlock remains toxic for several years after being pulled, so it is wise not to leave the dead plants where they might be eaten by wildlife or children.
Mechanical: Multiple mowing close to the ground may eventually kill this species. Mowing or slashing of the plants just before flowering is often effective, but sometimes regrowth from the base will occur, which requires re-treatment.

CURRENT DISTRIBUTION ON THE SITE
Morse Creek Unit - Poison hemlock was reported by CCNWCB staff on April 2004. This weed was present on the parcel west of Morse Creek and north of Highway 101.
Lower Dungeness Unit – Poison hemlock has been reported to be present on the recently acquired parcel east of Dungeness River and west of Towne Road.
Bell Creek Unit – Poison hemlock has been reported in the CREP site.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Bell Creek Unit –The CREP agreement requires weed maintenance in those areas is for 5 years after final planting.

CONTROL SUMMARY AND TREND
2004 Morse Creek Unit - The County staff removed approximately 200 plants and reported the need for continued removal of sprouts that are expected to reoccur in the same location.
2002 - 2008 Bell Creek Unit – Control measures (spraying, hand pulling, brush cutting and mowing) have occurred where restoration (riparian and wetland) efforts have been conducted under CREP. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting .

SCOTCH BROOM WEED SPECIES CONTROL PLAN

Scientific name: *Cytisus scoparius* **Common name:** Scotch Broom

DESCRIPTION
Scotch broom is a native of the British Isles and central Europe. It was introduced as a garden ornamental in the 1860's. Scotch broom was planted along roadsides and cut banks to prevent soil erosion. It is now found throughout most of Washington. Scotch broom is an evergreen shrub with yellow flowers in the legume family, reaching from 6 to 10 feet tall. Branches are erect and angled with prominent ridges, and its flowers are born on the entire length of the stem. The small short-lived leaves can be simple but are generally three-parted. It has flat seedpods with hairs only on the margins and are one to two inches long. Brooms spread primarily by seed dispersion and the seeds are viable in soil from 5 to 60 years. When mature the seedpods suddenly split and eject seeds up to 20 feet away. Broom seeds can be further dispersed by ants collecting the seeds and by water. Over 10,000 seeds can be produced per plant. Scotch broom can invade and impact disturbed areas, pastures, agricultural lands, harvested timberlands, roadsides, trails, state parks and vacant lots. It thrives in areas with full sun and its seedlings can establish under the canopy of mature plants in full shade. It also is tolerant of low-nutrient soils as well as a wide range of soil moisture conditions.

MANAGEMENT INFORMATION
Herbicides: Certain herbicides can not be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.
Manual, Mechanical, Cultural Methods: For small sites with few plants, pull or dig up plants and remove as much root as possible so the plant will not re-sprout. This method can be highly labor-intensive and to be fully effective all mature plants in the site need to be pulled so that no new seeds are produced. Pulling of medium to large plants is much easier with a Weed Wrenchä, a solid steel tool for pulling woody plants. Expect the level of control work to be intensive for the first several years due to seed banks and the soil disturbance that occurs when pulling or digging. Mechanical control methods can be used on larger infestations with either manually operated brush cutting tools or tractor mounted mowers. Plants should be cut when flowering to prevent seed production but may not increase plant mortality. A late

summer cutting after the broom has gone to seed can exhaust root reserves and decrease resprouting. Mowing, cutting, or other mechanical control techniques alone are generally not as effective and will either need to be repeated throughout the season or combined with other control methods to prevent resprouting, especially in younger plants. Mature plants with a stem diameter of greater than 2" are the most susceptible to mechanical control and may not need to be combined with other methods
Biocontrol: There are biological control insects for Scotch broom currently being released in Washington, but results are still tentative.

CURRENT DISTRIBUTION ON THE SITE
Morse Creek Unit – This weed exists along WDFW ownership immediately adjacent to Highway 101.
Bell Creek Unit – This weed was found sprouting out of the mulched area of the oak restoration project. It is likely the seed source came with the mulch brought into the site.
Snow/Salmon Creek Unit – Scotch broom has been reported in the CREP site.
Lower Dungeness – Several small populations have been noted throughout the site.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations
Completely remove all plants before they produce seed

ACTIONS PLANNED
Bell Creek Unit – Scotch broom needs to be aggressively removed from the site because there is no known nearby documentation of this weed. The situation should allow for complete removal of this weed from the site and continued diligent removal to maintain control. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).
Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian site. Riparian maintenance agreements in those areas are till 2020.
Lower Dungeness – Spray, cut, pull

CONTROL SUMMARY AND TREND
2004-2005 Morse Creek Unit - WDFW has opportunistically removed as much of this weed as possible, primarily using WCC crews.
2002 - 2008 Bell Creek Unit – Control measures (spraying, hand pulling, brush cutting and mowing) have occurred where restoration (riparian and wetland) efforts have been conducted under CREP. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007). The WHIP native oak restoration site, scotch broom is being pulled throughout the 20-acre area.
2005 - 2009 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020. No funding for management activities outside of the CREP site. The DOT right-of-way along the highway (Snow Creek) has extensive populations of scotch broom that provides the primary seed source for the area.

ENGLISH IVY CONTROL PLAN

Latin Name: *Hedera helix* **Common Name**: English ivy

DESCRIPTION: English ivy is an evergreen climbing vine. Vines can grow 30 feet a year and can reach the tops of 300-ft tall conifers. Older vines can be a foot in diameter. Leaves are dark green, waxy, somewhat leathery. Most common is a 3-lobed leaf with a heart-shaped base. Leaves in full sun are often unlobed, oval with wedge-shaped bases. Umbrella-like clusters of small, greenish-white flowers appear in the fall with sufficient sunlight. Black fruits mature in spring with a fleshy covering enclosing 1-3 hard, stone-like seeds. The seeds may cause vomiting, diarrhea, nervous conditions and dermatitis in some people. Ivy has two distinct growth phases, the immature vegetative stage, where the plant grows rapidly and tends to sprawl across the ground, and the mature fruiting stage, which typically occurs on climbing plants, but may also occur on prostrate patches of sufficient age, especially in full sunlight. Because these patches may form thick mats, the ivy essentially climbs on itself to produce upright, fruiting stems.
Habitat: Colonial settlers brought this species of ivy to North America. This species is native to Europe, western Asia, and northern Africa. English ivy grows easily in many types of soil, from full sun to complete shade, and once established, is fairly drought tolerant. In the Pacific Northwest, it grows up to about 3,000 feet. English ivy infests woodlands, forest edges, fields, hedgerows, coastal areas, salt marsh edges, and other upland areas, especially where some soil moisture is present. It does not grow well in extremely wet conditions and is often associated with some form of land disturbance, either human-caused or natural.
***Threat*:** English ivy is an aggressive invader that threatens nearly all forested habitat types in the northwestern U.S. up to at least 3000' in elevation. Capable of ground as well as upper forest canopy growth, its density and abundant leaves form a thick canopy that prevents sunlight from reaching other plants and slowing kills or topples host trees within five years. English ivy also serves as a reservoir for a plant pathogen that harms native trees. Because of its great potential to fundamentally change Pacific Northwest forested habitats, English ivy can fairly be called the kudzu of the Pacific Northwest. Areas dominated by ivy have lower diversity of birds, mammals and amphibians, and appear to be good habitat only for rats.

MANAGEMENT INFORMATION

Biological: There are no biological controls currently available for English ivy.
Chemical: The literature reports mixed, but usually incomplete, control with growing season applications of various herbicides including triclopyr (Garlon 3a and in many "shrub-killers"), glyphosate (Round-up, Rodeo, Aquamaster, Gly Star) and 2-4 D. The waxy layer on leaves appears to limit many herbicides, especially glyphosate, from effectively permeating the leaves. However, under some circumstances herbicides can provide safe and effective control of ivy, even when applied during winter. Spray late enough in the late fall/early winter to ensure that most native species are dormant, but soon enough that they are not close to bud break (December to mid-January, with late January - early February as a fall back). This timing also allows time for ivy leaves to reappear after being temporarily buried by fall leaf drop.
***Manual*:** Groundcover vines can be pulled up by hand, and left on-site or bagged and disposed of as trash. Remove as much of the root system as possible, minimize trampling and churning of the soil, and clear an area thoroughly before moving on. Vines on trees should be cut at a comfortable height to kill upper portions and relieve the tree canopy. Use a large screwdriver or forked garden tool to pry and snap vines away from the tree trunks. Cut thicker vines with an axe or pruning saw. Rooted portions of vines will remain alive and should be pulled, and repeatedly cut. Because cutting will likely promote further growth from the base, vigilance is required to ensure long-term control.

CURRENT DISTRIBUTION
Lower Dungeness Unit – Several small infestations of English Ivy have been located throughout this unit.

Acres Affected: less than 1? **Weed Density:** High but covers small area

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Calculate the acres affected by this weed
Monitor existing populations annually
Treat when budget allows

ACTIONS PLANNED
Monitoring will continue on an annual basis.

CONTROL SUMMARY AND TREND
Efforts to control the existing patch of English ivy at the Lower Dungeness Unit have been initiated by Clallam County.

HERB ROBERT WEED SPECIES CONTROL PLAN

Scientific name: *Geranium robertianum* **Common name:** Herb Robert

DESCRIPTION
Herb Robert is found throughout Europe, Asia, and North Africa. It is a component of virtually all forest types there. In the Pacific Northwest it is primarily found west of the Cascade crest. In some western counties it is widespread, although still expanding fast into new territory. Herb Robert is both a spring and a fall annual. The light green leaves are deeply dissected. In late fall the foliage turns red. The stems fork and are brittle at the joints. They are pubescent and under high light conditions are red and up to 25 cm long. The roots are shallow. The pink flowers are perfect with five petals that are 7-10 mm. The receptacle is elongated into a structure called a "torus". The fruit is a capsule. The seeds are brown and about two mm long. Herb Robert seeds are capable of germinating soon after dispersal if there is adequate moisture. There are five seeds/flower and the seeds are borne at the base of the torus. They are ejected ballistically, in response to drying of the capsule. Reports indicate that they may be ejected as far as 15 to 20 feet from the mother plant. Connected to the seed is a sticky thread that attaches the seed to the underside of leaves or to passing animals or people. Seeds that germinate in the fall, overwinter as small rosettes and begin elongation growth early in the spring, fruiting in early to mid summer. Overwintering seeds germinate in the spring and flower in mid to late summer.A distinguishing characteristic of the species is the pungent odor of the crushed leaves and another common name for this plant is stinky Bob. Herb Robert poses a threat to forest understories and plant biodiversity by displacing native species, especially herbaceous species. Where it occurs there appear to be fewer native herbaceous species. It is spreading in forested natural areas in western Washington from sea level to about 4,000 feet at an alarming rate.

MANAGEMENT INFORMATION
Herbicides: Certain herbicides cannot be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.
Manual, Mechanical, Cultural Methods: Herb Robert has little root structure and pulls from the ground easily at all stages of growth. Because the brittle stems break easily, pull from the base of the plant to remove the whole plant and the root. It may also be controlled using a string trimmer in early to mid summer before fruiting.
Biocontrol: A number of aphids and butterflies include it in their diet. It is unlikely that biocontrol will be an option, however, because of the economic value of other ornamental geraniums.

CURRENT DISTRIBUTION ON THE SITE
Morse Creek Unit – This weed is known to exist within the forested habitat south of Highway 101, in some locations in great expanses.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED

CONTROL SUMMARY AND TREND
2004 Morse Creek Unit – There had been past efforts at removal of this weed with no success.

REED CANARYGRASS CONTROL PLAN

Latin Name: *Phalaris arundinacea* **Common Name**: Reed canary grass

DESCRIPTION: Reed canary grass is a perennial grass that can grow three to six feet tall. The sturdy, often hollow stems can be up to 1/2 inch in diameter, with some reddish coloration near the top. Leaf blades are flat and hairless, 1/4 to 3/4 of an inch wide. In June and July flowers are borne on the top three to six inches of a stalk that is held high above the leaves. Reed canary grass can spread by seeds or creeping rhizomes (roots that sprout shoots) and will also produce roots and shoots from the nodes of freshly cut stems. However, it is shallow-rooted—only two to eight inches deep.
Habitat: While possibly native to North America, it is very likely that the reed canary grass found in wet places today is a European cultivar specifically bred for its growth and vigor, and widely introduced starting in the 1900s. In some areas this grass has also been used for erosion control. As a wetland plant, this species typically occurs in soils that are saturated or nearly saturated for most of the growing season. Established stands can tolerate extended periods of inundation. It does not survive in deep shade or dry uplands, but can tolerate prolonged drought.
***Threat*:** Reed canary grass is extremely aggressive and often forms persistent monocultures in wetlands and along rivers and streams. Infestations threaten the diversity of these areas, since the

plant chokes out native plants and grows too dense to provide adequate cover for small mammals and waterfowl. The grass can also lead to increased siltation along drainage ditches and streams. Once established, reed canary grass is difficult to control because it spreads rapidly by rhizomes.

MANAGEMENT INFORMATION:
Biological: There are no known biological control agents for reed canary grass.
Chemical: Glyphosate (Rodeo, Aquamaster, Glypro), amitrol, dalapon, and paraquat have all been tried with some success. Mowing plants down to 3 feet or less and then spraying at flowering time (late summer to early fall) produced effective control. Only glyphosate (Rodeo) is licensed for use in aquatic systems in Washington. Applying Rodeo, followed in two to three weeks by prescribed burning has also been effective. Sethoxydim (Vantage) is a grass-specific herbicide used with some success in the Pacific Northwest, but not labeled for aquatic use.
Manual: The following covering/mulching techniques can eliminate reed canarygrass: using a thick woven geotextile shade cloth, applying several layers of cardboard covered by 4-6 inches of wood mulch, using a thick woven plastic fabric (Mirafi or Amoco brands) held in place by 7-inch gutter spikes, washers and duck-bill tree anchors, or even rubber, road felt and other thick materials that keep out light. Keep the covering firmly in place for over one year (over an entire growing season), even under water, to kill all plants. Re-vegetation or reseeding is generally necessary. Mowing plants close to the ground prior to applying any covering greatly helps. Flooding an area with more than 5 feet of water for at least three growing seasons has successfully eliminated this weed. While burning generally does not kill mature reed canary grass, prescribed fire can be a pretreatment to tillage, shade cloth, or herbicide application with good results, since fire will remove dead litter and standing vegetation. Planting native trees and shrubs in weed-infested circles or blocks (that have been killed by herbicide) can produce shade and weaken the vigor and growth of adjacent reed canary grass patches over time. Seeding an area with competitive grass species, such as tufted hairgrass (*Deschampsia cepitosa*), slough grass (*Beckmannia syzichachne*), bentgrass (*Agrostis spp*.) or turf-forming varieties of red fescue (*Festuca rubra*), may prevent significant establishment of canary grass seeds.
Mechanical: Multiple mowing per year (early to mid-June and early October) may be a valuable control method, since it removes seed heads before they mature and exposes the ground to light, which promotes the growth of native plant species. Cutting, disking or plowing as the plants are coming into flower can also control this weed.

CURRENT DISTRIBUTION
Lower Dungeness Unit – Reed canarygrass was reported to occupy this unit.
Bell Creek Unit – This weed is found on most WDFW land in this unit.
Snow/Salmon Creek Unit – The Jefferson County Conservation District (JCCD) reported that reed canarygrass is the primary species within the Conservation Reserve Enhancement Program (CREP) project site on Snow Creek. The project site encompasses 7 acres along the riparian area.
Chimacum Unit – This weed was observed within the beach restoration project area.
Morse Creek – Observed along the creek channel in several locations
South Sequim Bay – Several small scattered populations are present throughout this site.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Bell Creek Unit –The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).
Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020.

CONTROL SUMMARY AND TREND
2002 - 2008 Bell Creek Unit – Control measures (spraying, hand pulling, brush cutting and mowing) have occurred where restoration (riparian and wetland) efforts have been conducted under CREP. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).
A 2-acre sustained emergent wetland will be enhanced by scraping the present wetland to lower the elevation and for reed canary grass control (NAWCA – possibly, 2006).
2005 - 2009 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020. No funding for management activities outside of the CREP site.
2006-2007 Chimacum – Approximately 1-2 acres were mowed and brush cut near the beach restoration project area. Expansive populations of weeds threaten the beach restoration project. No funding for weed management.

CANADA THISTLE CONTROL PLAN

Latin Name: *Cirsium arvense* **Common Name**: Canada thistle

DESCRIPTION: Canada thistle is a perennial herb that grows one to four feet tall. Stems are slender, green, and freely branched. Leaves are alternate, deeply lobed with stiff yellowish spines on the margins. Purple flowers bloom in late spring into summer. Plants are male or female and grow in circular patches that often are one clone and sex. Female flowers produce a sweet odor. Fruits are about 1/8-inch long, somewhat flattened, and brownish and may produce 1,000 to 1,500 seeds per flowering shoot. This species develops and spreads mainly via vegetative buds (shoots) in its root system, and secondarily via seeds. Horizontal roots may extend 15 feet or more and vertical roots may grow 6 to 15 feet deep. Plants from seed develop roots four feet deep at the end of the first growing season, and flower the second year. Generally, vegetative reproduction contributes to local spread and seed to long distance dispersal. Seed can remain viable in the soil for up to 20 years.
Habitat: Early colonists probably introduced Canada thistle to North America in the 17th Century. This plant is native to SE Europe and the eastern Mediterranean. This species grows in a wide variety of soils and can tolerate up to two percent salt content. It prefers deep, well-aerated cool soils, and is less common in light, dry soils and on wet soils without much aeration. This weed is found in almost every plant community disturbed by humans: roadsides, railway embankments, lawns, gardens, abandoned fields, sand dunes, agricultural fields, forest margins and waterways. Canada thistle is shade intolerant.
***Threat*:** Canada thistle is an aggressive, creeping perennial weed that infests croplands, pastures, rangeland, prairies, streamside areas, roadsides and other disturbed ground. It is an effective competitor for light, moisture and nutrients thereby reducing crop yields, displacing native vegetation, decreasing species diversity, and changing the structure and composition of some

habitats. Most alarmingly, this weed has adapted to different environmental conditions, and these plant variations (ecotypes) all respond differently to treatment. Some infestations may be completely controlled by one technique, while others will only be partially controlled because two or more ecotypes are present. Additionally, Canada thistle responds differently under different weather conditions. Therefore it is often necessary to implement several control techniques, and to continuously monitor their impacts.

MANAGEMENT INFORMATION:

Biological: Many insects, a few nematodes, and the American Goldfinch have been reported to feed on various parts of Canada thistle. At least seven insect species have been intentionally or unintentionally released for its control in North America. Only a few of them cause conspicuous damage. A fly, (*Urophora cardui* L.) is the most promising biological control agent. Eggs are laid in the terminal buds and galls develop which divert nutrients and stress the plant. A combination of at least three biocontrol agents, or of biocontrol agents and herbicides, may provide better control than any single agent.

Chemical: Milestone, Picloram (Tordon 22K), clopyralid (Transline, Curtail), dicamba (Banvel/Vanquish/ Clarity) and chlorsulfuron (2,4-D and Telar) are most effective against Canada thistle when combined with manual or mechanical control. Different ecotypes respond differently to the same herbicide, so it is important to vary herbicides to prevent tolerant clones from becoming dominant. For all herbicides except 2,4-D, two or more applications give better control. Herbicide absorption is enhanced in late summer and fall (the rosette stage). Flower-bud stage is second best. Herbicide effect is enhanced when roots are weakened during the growing season by herbicide treatment, crop competition, frequent mowing or tilling; and 2) new shoots are stimulated to grow. Apply herbicide when new leaves are green (September/October).

Manual: Grasses and alfalfa can compete effectively with Canada thistle. Burning may be the least damaging treatment method, because in many habitats it stimulates native vegetation growth, which subsequently competes with the thistle. Combining biocontrol and prescribed fire or mowing may help control Canada thistle and promote restoration, but this is still in the experimental stage.

Mechanical: Mowing alone is not effective unless conducted at one-month intervals over several growing seasons. Tilling every three weeks for about four months can control minor infestations. Mowing can be more effective if combined with herbicide treatments.

CURRENT DISTRIBUTION

Morse Creek Unit – This weed is found in the interior field/meadow south of highway 101.

Lower Dungeness Unit – Canadian thistle was reported to occupy nearly every acre at Rivers End and the population along Towne Road continues to expand.

Bell Creek Unit – The Clallam Conservation District (CCD) reported this weed as one of three primary invasive species within the CREP project site.

Snow/Salmon Cr Unit – Canadian thistle is managed within the CREP site. This weed is within the Salmon Cr pasture area (~80 acres) and ideally it should be cut routinely to manage infestation to the CREP area.

Chimacum Unit – This weed was observed within the beach restoration project area.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS

Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Bell Creek Unit –The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).
Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020.
Lower Dungeness Unit – Control the expansive population starting in 2009.

CONTROL SUMMARY AND TREND
2005 Morse Creek Unit – Mowing of field was conducted.
2002 - 2008 Bell Creek Unit – Control measures (spraying, hand pulling, brush cutting and mowing) have occurred where restoration (riparian and wetland) efforts have been conducted under CREP. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007). The WHIP native oak restoration site, Canadian thistle is being cut prior to setting seed throughout the 20-acre area.
2005 - 2009 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. **2006** – Weed management of Canadian thistle did not include spray.
CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020. No funding for management activities outside of the CREP site.
2006-2007 Chimacum – Approximately 1-2 acres were mowed and brush cut near the beach restoration project area. Expansive populations of weeds threaten the beach restoration project. No funding for weed management.
2009 Lower Dungeness - Mowing of 20 acres to slow down the spread of this large population. Possible short term agricultural lease that will effectively control spread of this expansive population.

BULL THISTLE WEED SPECIES CONTROL PLAN

Scientific name: *Cirsium vulgare* **Common name:** Bull Thistle

DESCRIPTION
Bull thistle is native to Europe, western Asia, and northern Africa. It may have been introduced to the eastern United States during the colonial times. Bull thistle is common along roadside and vacant fields. It is capable of invading fields, pastures, wastelands and along roadsides, but will not survive in cultivated fields. Although bull thistle is a problem predominantly in disturbed areas, it also can be found in natural areas. Bull thistle invades a variety of wildland habitats, where it competes with and displaces native species, including forage species favored by native ungulates such as deer and elk. It also out-competes native plant species for water, nutrients, and space. Bull thistle is a biennial species that reproduces by seed. The root system consists of several primary roots each with several smaller lateral roots. It does not reproduce by vegetative means. Bull thistle is erect and bushy in appearance, up to 2 m high, and has many spreading branches. Stems are erect, stout, often branched, and hairy. Leaves are green on the upper side, with woolly gray hairs on the underside, and end in long, pointed, yellow spines. It is often confused with Canada thistle which has creeping roots, much smaller flowers and weak prickles, not spines on the leaves. Bull thistle has compact large purple flower heads (2.5 to 5.0 cm in diameter) are borne singly at the tip of a stem, each producing up to 250 light straw-colored seeds. Mature plants can produce up to 4,000 seeds per plant. Bull thistle grows best on nitrogen-rich, neutral soils with moderate moisture (Klinkhamer and de Jong, 1993). It is not typically found on sand or on soils with high humus content and is absent from pure clay soils. Establishment is promoted by soil disturbance, which increases nutrient,

water, and light availability to seedlings and reduces the vigor of competing vegetation (Randall, 1994). Bull thistle does not grow well in shade and drought.

MANAGEMENT INFORMATION

Herbicides: Certain herbicides cannot be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.

Manual, Mechanical, Cultural Methods: Bull thistle can be controlled by mowing or hand cutting shortly before plants flower. If cut too early in the season, plants will resprout and flower before the first frost. The uneven flowering times may make more than one treatment necessary. Individual bull thistle plants can be physically removed by cutting below the crown in early spring. Bull thistle should be removed prior to bolting and flowering to prevent seed development and distribution. Follow good turf management practices to create a dense competitive stand of turfgrass.

Biocontrol: *Urophora stylata* (a seed head gall fly) has shown good control in Oregon and fair control in Idaho. It is more widely distributed in Oregon than Idaho and demonstrates a higher degree of host infestation in Oregon than Idaho (there is no information regarding this control agent in Washington). *Urophora stylata* and *Rhinocyllus conicus* (a weevil), have been released for bull thistle control in California. Neither has been successful in controlling bull thistle populations in California to date but *U. stylata* shows some promise in coastal areas.

CURRENT DISTRIBUTION ON THE SITE

Lower Dungeness Unit – Bull thistle was reported to occupy this unit.

Bell Creek Unit – This weed is located on property east of Rhodefer Road along Bell Creek.

Snow/Salmon Cr Unit – Bull thistle is managed within the CREP site. This weed is within the Salmon Cr pasture area (~80 acres) and ideally it should be cut routinely to manage infestation to the CREP area.

Chimacum Unit – This weed was observed within the beach restoration project area.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS

Control expanding populations
Prevent new occurrences

OBJECTIVES

Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED

Bell Creek Unit –The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).

Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020.

CONTROL SUMMARY AND TREND

Dungeness (VOA) Unit – County owned but co-management. Mowing has occurred in portions.

2002 - 2008 Bell Creek Unit – Control measures (spraying, hand pulling, brush cutting and mowing) have occurred where restoration (riparian and wetland) efforts have been conducted under CREP. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007). The WHIP native oak restoration site, bull thistle is being cut prior to setting seed throughout the 20-acre area.

2005 - 2009 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. **2006** – Weed management of bull thistle did not include spray.
CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020. No funding for management activities outside of the CREP site.
2006-2007 Chimacum – Approximately 1-2 acres were mowed and brush cut near the beach restoration project area. Expansive populations of weeds threaten the beach restoration project. No funding for weed management.

JAPANESE KNOTWEED WEED SPECIES CONTROL PLAN

Scientific name: *Polygonum cuspidatum* **Common name:** Japanese Knotweed

DESCRIPTION

Japanese knotweed is an escaped ornamental that is becoming increasingly common along stream corridors and rights-of-way in Washington. The species forms dense stands that crowd out all other vegetation, degrading native plant and animal habitat. This perennial plant is difficult to control because it has extremely vigorous rhizomes that form a deep, dense mat. Seasonal high water events and floods sweep plants into rivers and creeks, then fragment and disperse knotweed plant parts throughout the floodplains and cobble bars. The fast growing knotweed then takes advantage of the freshly disturbed soil to become established. Because it grows faster than most other plant species (including native species and most other weeds) it quickly outgrows and suppresses or kills them. Japanese knotweed is a perennial species with spreading rhizomes and numerous reddish-brown, freely branched stems. The plant can reach four to eight feet in height and is often shrubby. The petioled leaves are four to six inches long and generally ovate with an abrupt point. The whitish flowers are borne in open, drooping panicles. The plant is dioecious, so male and female versions of the inconspicuous flowers are produced on separate plants.

MANAGEMENT INFORMATION

Herbicides: Glyphosate (Aquamaster, Rodeo, Roundup) is effective on first year plants and sprouts from nodes. Cut or mow plants in spring, then apply in June or July when plants are 3-6 feet tall. Repeated applications over several years may be necessary, especially for large patches. Tests with triclopyr (Garlon 3A) killed 100 percent within two years; Rodeo typically takes three years. Picloram (Tordon) applied in the spring is also recommended, but not near water. Dicamba has also been effective, but is persistent in the soil and nonselective. Other herbicides are those with 2,4-D, imazapyr (Arsenal) or picloram (Tordon). Although some glyphosate products control with one or two treatments in some cases, frequently several badly mutated stems from each clump survive and must be retreated. Herbicides appear to be more effective when combined with cutting. Digging, pulling or tilling (if conditions warrant) before August and at least one month prior to spraying may also help by increasing the shoot to root ratio and reducing plant vigor and root mass, thereby increasing plant susceptibility to the herbicide.
Manual, Mechanical, Cultural Methods: Manual and mechanical control entail persistent work and may only be possible on small initial patches or in environmentally sensitive areas. Japanese knotweed is extremely difficult to dig up due to their high rhizome densities. Cut the stems down to the ground surface as often as possible, but at least every 2-3 weeks from April (or as soon as the plant appears) through August. Sprouting slows after August, so you can reduce cutting frequency, but try and prevent the plants from ever exceeding six inches (15cm) in height. Pile the cut stems where they will quickly dry out. Be sure you are not scattering stem or root fragments onto moist soil or into the water. If the knotweed has established in soft soil, or better yet sand, try pulling the plant and major rhizomes up by the root crown to remove as much of the root system as you can. Although you will almost certainly not kill the plant in one treatment, you will reduce the root mass. Each time new sprouts (start looking a week after you pull

and search at least 20 feet away from the original plant), uproot them as well, trying to pull out as much of the root as you can each time. Care must be taken with any mechanical removal methods, since improper disposal of plant material can spread the species further. All plant parts (including mature fruit) should be bagged and disposed of to prevent reestablishment.
Biocontrol: No information is available.

CURRENT DISTRIBUTION ON THE SITE
Snow/Salmon Creek Unit – This weed is located on both properties.
Lower Dungeness – There is <.25 acres of Giant Knotweed located on the Helen Marshall parcel.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020
Lower Dungeness – There is <.25 acres of Giant Knotweed located on the Helen Marshall parcel that will be treated in 2010.

CONTROL SUMMARY AND TREND
2005 - 2009 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are until 2020. No funding for management activities outside of the CREP site.
2006 – Japanese knotweed was injected with herbicide at both properties.

TANSY RAGWORT CONTROL PLAN

Latin Name: *Senecio jacobaea* **Common Name:** Tansy ragwort

DESCRIPTION: Tansy ragwort is a biennial herb, germinating in the fall, flowering and producing seed in its second year, and then usually dying. First year plants have a basal rosette of dark green, deeply lobed, ruffled leaves that are whitish green underneath. The leafy flowering stalks shoots up 2-4 feet during the second year, beginning in late June. The yellow, daisy-like flowers grow in flat-topped clusters from July through October, and the seeds mature and disperse during the flowering season. On average, about 150,000 seeds are produced per plant. Most seeds travel less than ten feet from the parent plant. Some lie dormant in the soil for up to 15 years.
Habitat: This species is native to Europe and western Asia and has become a serious rangeland pest in New Zealand, Tasmania, Australia, South Africa, and North and South America. It is now widespread west of the Cascade Mountains. Tansy ragwort prefers full sun and open sites with moderately moist to dry soils. However, it can survive under most soil moisture conditions and over winters successfully where temperatures even reach below freezing. Ragwort needs some kind of

disturbance to become established, such as moles, gophers, ants, rabbits, livestock or humans. It then easily grows in any disturbed area, such as roadsides, pastures and recently cleared forested sites.
Threat: All parts of tansy ragwort are poisonous to animals and people, and lethal to cattle and horses. Chronic, cumulative poisoning and irreversible liver damage (including cirrhosis of the liver) are the results. These toxic properties remain in cut plants found in hay.

MANAGEMENT INFORMATION:
Biological: The ragwort flea beetle (*Longitarsus jacobaeae*), the ragwort seed fly (*Pegohylemyia seneciella*), and the cinnabar moth (*Tyria jacobaeae*) are all found in western Washington, and are used to control tansy ragwort. The cinnabar moth is most effective in heavily infested areas while the ragwort seed fly has been ineffective by itself. The flea beettle can reduce ragwort populations by 90 percent within five to six years. These three biological control agents compliment one another by targeting different plant parts. The cinnabar moth eats primarily summer foliage, the flea beetle eats the root crown in winter, and the seed fly eats the seeds in summer. The combined pressure of these three insect species should have greater control than any of them alone.
Chemical: Tansy ragwort can be controlled chemically with 2,4-D, dicamba, or a combination of the two. Single applications do not control this weed. 2,4-D is most effective when applied to seedlings and first year rosettes or second year plants prior to bolting. Following bolting, a combination of 2,4-D and dicamba is more effective; it does not eliminate seed production but does reduce viability if sprayed in the early bud stage and prevents viability if sprayed in the late bud/early flowering stage.
Manual: Hand pulling is an effective method of eliminating ragwort, especially if it is done when soils are moist and the hole left after pulling is mulched. Mulching creates an unsuitable habitat for ragwort germination by removing necessary light. Pulling is most often used only after the population has been brought under control and is most effective on small infestations. Grazing with sheep before tansy flower heads bolt can also keep this species under control. Continuous heavy grazing will prevent flowering and, in many cases, reduce density. However, sheep eat most herbaceous plant species, and their feeding and bedding down will leave openings in vegetation. If there is an abundant ragwort seed bank, these openings will allow them to reestablish. Digging up the whole plant, including the roots is also effective. Flowers will go to seed after pulling so be sure to bag and discard the flower stalks. There are no data available to judge the effectiveness of prescribed fire as a control for ragwort. Observations suggest that fire actually increases ragwort abundance.
Mechanical: Thorough plowing each year can kill most established plants, prevent seed production and exhaust the seed supply in the soil. Cutting or moving is only recommended where plants will soon be eradicated. Although mowing can prevent flowering (if done more than once) it appears to increase rosette density, rather than reduce it.

CURRENT DISTRIBUTION ON THE SITE
Lower Dungeness Unit – This weed has been observed in the area.
Snow/Salmon Creek Unit – This weed is located on both properties.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020.

CONTROL SUMMARY AND TREND
2005 - 2009 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are until 2020.
2009 Lower Dungeness – Several plants were pulled and removed from the site while conducting mowing of 20 acres.

FIELD BINDWEED WEED SPECIES CONTROL PLAN

Scientific name: *Convolvulus arvensis* **Common name:** Bindweed, Morning-glory

DESCRIPTION
Field bindweed is native to Eurasia but has spread to many parts of the world. It is successful in many types of climates. Field bindweed is a serious weed problem in all parts of the continental USA, except for the southeastern states. It is likely that field bindweed arrived in the Pacific Northwest by contaminated crop seed soon after the first settlers. Field bindweed is found in a wide range of habitats: orchards, vineyards, roadsides, ditchbanks, cropland, streambanks, and lakeshores. Trees and shading may help control the weed, and habitats that are most like agricultural lands are ideal for growth of field bindweed. This weed is troublesome in open, newly restored or old-field sites. Field bindweed emerges from its root system in the spring. Strong sunlight and moderate-to-low moisture appear to be optimal conditions for growth. Field bindweed stems are prostrate (grows low to the ground) and twining, and grow up to 6 feet long. Leaves are distinguishable by their arrowhead shape. The flowers are bell or trumpet-shaped, white to pink in color, and are about 1 inch long. Flowering occurs from June to September and until the first fall frost. The flowers last for only one day and nectar is produced at the base of the tube of fused petals, and attracts various pollinators including Halictid bees, honeybees, bumblebees, butterflies and moths. The number of seeds produced per plant ranges from 25 to 300 and seed production is variable depending on environmental conditions. Field bindweed seeds can remain viable in the soil for up to 40 years. Field bindweed is an extremely difficult noxious weed to control because, in part, of its taproot that may go 20 feet deep into the soil, and which repeatedly gives rise to numerous long rhizomes. Buds may arise anywhere on the lateral roots. When 96-190cm long, some lateral roots begin growing downward. At this point, new shoots on the root may produce above-ground growth or additional lateral roots.

MANAGEMENT INFORMATION
Herbicides: Certain herbicides cannot be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.
Manual, Mechanical, Cultural Methods: Cutting, mowing, or pulling has a negligible effect unless the plants are cut below the surface in the early seedling stage. Well-established populations have a large seed bank in the soil that can remain viable for over 40 years. Tilling may be useful for ridding infestations at sites previously used for agriculture, or which are otherwise very disturbed. For small areas this may be done using hand-held tools, but for large areas machinery is required. If you decide to pull field bindweed it should be done frequently. Mowing is unsuccessful because plants can be missed and it encourages ground-hugging growth. Repeated cultivation is required for field bindweed control because plants can regenerate from roots as deep as 1.5m. Establishment of selected, aggressive grasses can be an effective cultural control of field bindweed.

Biocontrol: The bindweed gall mite, *Aceria malherbae*, has proven to be effective in reducing field bindweed infestations in Colorado.

CURRENT DISTRIBUTION ON THE SITE
Chimacum Unit – This weed was observed within the beach restoration project area.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED

CONTROL SUMMARY AND TREND
2006-2007 Chimacum – Approximately 1-2 acres were mowed and brush cut near the beach restoration project area. Expansive populations of weeds threaten the beach restoration project. No funding for weed management.

TEASEL WEED SPECIES CONTROL PLAN

Scientific name: *Dipsacus sylvestris* **Common name:** Teasel

DESCRIPTION
Teasel is a native of Europe that was probably introduced in the seeds of a crop plant. It has spread and is now naturalized throughout much of the U.S. Plants grow in abandoned fields, pastures, waste areas, and in forests. The plants produce many seeds and the seeds seem to have a high percentage of germination. Teasel is a prickly biennial herb. Flowering plants have large, oblong, opposite, sessile leaves that form cups and are prickly, especially on the lower midrib. The leaves of cut-leaved teasel are broader and have feathering lobes. Stems are also prickly. Teasel's unique inflorescence makes the plant readily identifiable when flowers or seedheads are present. Flowers are small and packed in dense, oval-shaped heads. The flowers are subtended by stiff, spiny bracts that are located terminally on the flowering stems. Flowering stems may reach 6-7 feet in height. This species' massive seed production and excellent seed germination allow it to invade areas occupied by natives. It can out-compete most natives and soon displaces them. Because of its "sticky" characteristic, the plants seem not to be eaten by livestock and thus dominate in pastures.

MANAGEMENT INFORMATION
Herbicides: Certain herbicides cannot be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.
Manual, Mechanical, Cultural Methods: Cutting, digging, and burning are recommended as the best solutions for control in natural areas. In small areas, rosettes can be dug up using a dandelion digger. Like dandelions, as much of the root as possible must be removed to prevent resprouting. Cutting with a sharp spade or shovel below the surface of the soil can be helpful, but the area should be checked later for resprouts. As an alternative, the stalks of flowering plants can be cut just before flowering. The plant

should not reflower, but instead die at the end of the growing season. Cut flowering stalks should be removed from the natural area if the flowers have opened, because seeds can mature on the stem even after cutting. Cutting the flowering stalk before the full bud stage should be avoided because the plant will usually send up new flowering stalks. Cutting flowering stems may need to be repeated for several years to control teasel. Teasel in nearby areas should also be eliminated to prevent introduction of new seed.
Biocontrol: To date, no biological control organisms have been successfully introduced. Studies are underway on herbivores and pathogens found on teasels in their native Eurasia.

CURRENT DISTRIBUTION ON THE SITE
Bell Creek Unit – Teasel has been reported in the CREP site.
Lower Dungeness – Teasel has been observed in several small populations throughout many of these parcels.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Bell Creek Unit –The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).

CONTROL SUMMARY AND TREND
Bell Creek Unit – Control measures (spraying, hand pulling, brush cutting and mowing) have occurred where restoration (riparian and wetland) efforts have been conducted under CREP. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).

NON NATIVE BLACKBERRY WEED SPECIES CONTROL PLAN

Scientific name: *Rubus laciniatus* **Common name:** Evergreen Blackberry
Rubus discolor Himalyan Blackberry

DESCRIPTION
Highly invasive and can be very difficult to control. These non native blackberries deteriorate valuable stream habitat by preventing the establishment of deep-rooted native shrubs, which are a critical for healthy streams, providing food, shade, and bank stability. They out compete native understory vegetation and prevents the establishment of desirable native shade intolerant trees such as Pacific Madrone, Douglas Fir and Western White Pine. They can limit movement of large animals when forming large impenetrable thickets. Himalayan blackberry is a robust, sprawling perennial with stems having large stiff thorns. Main canes up to 10 feet long with trailing canes reaching up to 40 feet. Trailing canes typically take root at the tips. The leaves are large, round to oblong and toothed typically come in sets of three (trailing canes) or five (main stems). Individual canes can reach a density of 520 canes per square meter. The flowers are white to pink about one inch in diameter and borne in clusters of about 5 to 20. It develops edible black fruit that clings to the center core when picked. Evergreen blackberry is a robust trailing evergreen shrub that grows into impenetrable thickets. It has ribbed reddish stems up to 10 feet in

length with large curved thorns. Young canes arch as they grow longer that eventually reach the ground rooting at the nodes. It has palmately compound leaves with 3 to 5 deeply lacerated leaflets. The flowers are white to pink about one inch in diameter borne in clusters. It develops edible black fruit that clings to the center core when picked.

MANAGEMENT INFORMATION

Herbicides: Herbicides such as triclopyr (Garlon 3a and 4), glyphosate (Roundup, Rodeo) or 2,4-D with triclopyr (Crossbow) deliver effective control when applied to mature, uncut canes in late summer/fall or to cut/resprouted stems in fall. Picloram and 2,4,5-T are not considerably more effective than cane removal. All standing, dry, hard canes need to be removed for effective restoration.

Manual, Mechanical, Cultural Methods: Hand pulling the stem close to the ground and uproot the root ball. This method is most effective with first year plants. Manual control works best after rain or in loose soils where the canes are suppressed because the blackberries are growing in a forest understory. Digging up root crowns and major side roots is slow but will control blackberry and is effective on small infestations. Using a claw mattock or pulaski/mattock is also effective. Recheck work area because large root fragments left can re-sprout. If removing dense patches, area should be replanted with native plants and mulched, or reseeded with a suitable grass. Mowing, including the use of riding mowers and tractor mounted mowers, can be very effective in controlling blackberries but also may harm desirable plants present. Mowing should not be used where soils are highly susceptible to compaction or erosion, or where soils are very wet. Several cuttings a year over several years are necessary to exhaust the roots of their reserve food supply. If only one cutting is done per year, cut when the plants begin to flower. If no follow-up is done, the blackberry may re-sprout from the root crown at a greater density, and could overgrow any vegetation planted. The bottom line when managing blackberry is to ensure long-term control by shading these species out with native plants.

Biocontrol: To date, no biological control organisms have been successfully introduced, largely because of risks posed to commercial and native *Rubus* species.

CURRENT DISTRIBUTION ON THE SITE

Morse Creek Unit – This weed is known to exist in along the northwestern edge of the interior field/meadow. There has been no significant attempt at controlling it.

Lower Dungeness Unit – This weed has been observed in the area.

Bell Creek Unit – This weed is located on the east side of Rhodefer Road along a tributary of Bell Creek. It is also reported in the WHIP native oak restoration site, the Chaplain staging area parcel, and within the CREP site.

Snow/Salmon Creek Unit – JCCD reported that Himalayan blackberry occupied significant acres and existing in various locations along the creeks' banks. The project site encompasses 7 acres along the riparian area along Snow Creek and 29 acres along Salmon Creek.

Chimacum Unit – This weed was observed within the beach restoration project area.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS

Control expanding populations
Prevent new occurrences

OBJECTIVES

Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Bell Creek Unit –The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007). The WHIP native oak restoration site will require future eradication of non native blackberries.
Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian sites. Maintenance agreements in those areas are till 2020.

CONTROL SUMMARY AND TREND
2002 - 2009 Bell Creek Unit – Control measures (spraying, hand pulling, brush cutting and mowing) have occurred where restoration (riparian and wetland) efforts have been conducted under CREP. The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007). This weed is located on the east side of Rhodefer Road along a tributary of Bell Creek. The WHIP native oak restoration site will require future eradication of non native blackberries.
2005 – 2009 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. - A significant amount of non native blackberries have been cut through the Snow/Salmon Creek Unit, without the use of sprays. No re-sprouting has occurred.
CREP requires maintenance within the funded riparian sites. Maintenance agreements in those areas are till 2020. No funding for management activities outside of the CREP site.
2006-2007 Chimacum – Approximately 1-2 acres were mowed and brush cut near the beach restoration project area. Expansive populations of weeds threaten the beach restoration project. No funding for weed management.

GENERAL WEEDS CONTROL PLAN

Scientific name: *Many* **Common name:** General Weeds

DESCRIPTION
General weeds describe mixed vegetation that interferes with native species, restoration activities maintenance, or agricultural activities, where keying plants to individual species is not appropriate at this time due to the lack of weed surveys. Examples of general weeds may include vegetation occurring along riparian areas, roadsides, parking areas, trails, and structures and include species like non native grasses. Non native grasses are an issue because of the competition with the native fescue at various sites. Some weeds of concern that are known problems within Clallam and Jefferson Counties: Knotweeds (*Polygonum sp*.) are becoming an increasing problem along riparian areas. Presently, control is not required but there is evidence of the detrimental effects to fish and wildlife habitat. Other listed weeds found to be rampant in the Clallam and Jefferson Counties, especially within riparian areas are butterfly bush (*Buddleia davidii*, and English ivy (*Hedera helix, H. hibernica*). One weed that is not listed for Jefferson County but has been reported as a concern in the Chimacum unit is the European Bittersweet/Climbing Nightshade (*Solanum dulcamara*). This weed poses a threat to fish passage at low flows.

MANAGEMENT INFORMATION
Herbicides: Certain herbicides cannot be used in aquatic areas or their buffers. Please refer to the annually updated Pacific Northwest Weed (PNW) Control Handbook for site specific control recommendations. Always follow label instructions.
Manual, Mechanical, Cultural Methods: Investigate control methods for each species documented within the units that make up the North Olympic Wildlife Area.
Biocontrol: Investigate biological control methods for each species documented within the units that make up the North Olympic Wildlife Area.

CURRENT DISTRIBUTION ON THE SITE
Morris Creek Unit – Non native invasive grasses – The interior field/meadow has a high invasive grass presence.
Lower Dungeness Unit – Invasive grasses exist on all WDFW parcels in this unit.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations
Research availability of biological control insects for use on all sites

ACTIONS PLANNED
Bell Creek Unit –The CREP agreement requires weed maintenance in those areas is for 5 years after final planting (till possibly, 2007).
Snow/Salmon Creek Unit - CREP requires maintenance within the funded riparian site. Maintenance agreements in those areas are till 2020.

CONTROL SUMMARY AND TREND
2005 Morris Creek Unit – Mowing was used to control the invasive grasses and manage for the native grass/forbs at the site. The field along the south side of Highway 101 was also mowed to benefit the native grass/forb component that is considerably denser than in the interior field.
2005 – 2006 Snow/Salmon Creek Unit - Control measures have occurred where CREP efforts have been conducted. CREP requires maintenance within the funded riparian sites. Maintenance agreements in those areas are till 2020. No funding for management activities outside of the CREP site.
2006 Chimacum – Approximately 1-2 acres were mowed and brush cut near the beach restoration project area. Expansive populations of weeds threaten the beach restoration project. No funding for weed management.

BUTTERFLY BUSH CONTROL PLAN

Latin Name: Buddleia davidii **Common Name**: Butterfly Bush

DESCRIPTION: Butterfly bush is a large deciduous shrub, growing up to ten feet tall. Leaves are lance-shaped and opposite, up to four inches long and a half-inch wide. While the leaf tops are dark, the undersides appear light due to whitish hairs. Small, fragrant, funnel-shaped flowers are usually purple, although there are also red, pink, blue, orange, yellow and white varieties. Flowers are borne in showy spikes at the ends of stems and bloom from mid-summer into fall. Butterfly bush produces large quantities of wind and water dispersed seeds (up to 3 million seeds per plant), which can remain dormant in the soil for many years. When cut down, the plant re-sprouts readily from the rootstock and can be propagated through cuttings. Butterfly bush has been noted to reach maturity in less than one year, allowing it to spread quickly.
Habitat: Butterfly bush, native to China, has become a very popular garden ornamental in North America. However, it has escaped cultivation. It colonizes disturbed areas such as roadsides and

riparian areas. Butterfly bush is very adaptable, growing in most soil types and climates. In the Pacific Northwest, it is a potential problem at higher elevations that have been recently logged.
Threat: This species invades roadsides, riparian areas, pastures, river gravel bars and other disturbed areas. It is noted to form dense thickets and may exclude native vegetation. Although it is touted as a beneficial plant for butterflies, it is not a butterfly host plant and may displace the native plants needed by butterflies for reproduction.

MANAGEMENT INFORMATION:
Biological: There are no biological controls for this species.
Chemical: Butterfly bush can be treated like other woody shrubs with either a cut stump, foliar, or basal bark application of herbicide, such as triclopyr or glyphosate.
Manual: Hand digging is possible for small numbers of plants or seedlings, although soil disturbance will encourage seeds in the soil to sprout. Controlled sites need to be monitored in subsequent years to ensure no new plants become established.
Mechanical: Cutting or mowing could be used to prevent seed production, but plants will continue to grow or will resprout.

CURRENT DISTRIBUTION
Lower Dungeness – Butterfly bush has been observed at the Lower Dungeness Unit.

ACRES AFFECTED BY WEED: Unknown **WEED DENSITY:** Unknown

GOALS
Eradicate where found

OBJECTIVES
Survey and map existing populations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Lower Dungeness – Utilize WCC and DOC work crews to control and eradicate during the spring/summer of 2010.

FUTURE MANAGEMENT
The Washington Noxious Weed Control Board's website (http://www.nwcb.wa.gov/weed_info/contents_common.html) shall be referenced and discussed with Unit partners when there is need for control.

Clallam County's weed website is www.clallam.net/weed/
Jefferson County's weed website is http://www.co.jefferson.wa.us/WeedBoard/

JEFFERSON COUNTY WEED LIST
The Jefferson County Noxious Weed List is updated annually and consists of **all Washington State listed Class A and Class B designate noxious weeds. State law requires control of these weeds.** Additionally, **tansy ragwort, Scotch broom, poison hemlock** and **butterfly bush** were selected locally for control. The noxious weeds found in Jefferson County are shown in **bold** print.

Class A Weeds

Class A weeds are non-native species with a limited distribution in Washington. Preventing new infestations and eradicating existing infestations is required by law -

Common Name	***Scientific Name***
buffalobur	*Solanum rostratum*
common crupina	*Crupina vulgaris*
cordgrass, common	***Spartina anglica***
cordgrass, dense flower	*Spartina densiflora*
cordgrass, salt meadow	***Spartina patens***
cordgrass, smooth	***Spartina alterniflora***
dyers woad	*Isatis tinctoria*
eggleaf spurge	*Euphorbia oblongata*
false brome	*Brachypodium sylvaticum*
floating primrose-willow	*Ludwigia peploides*
flowering rush	*Butomus umbellatus*
garlic mustard	*Alliaria petiolata*
giant hogweed	***Heracleum mantegazzianum***
goatsrue	*Galega officinalis*
hawkweed, European	*Hieracium sabaudum*
hawkweed, yellow devil	*Hieracium floribundum*
hydrilla	*Hydrilla verticillata*
johnsongrass	*Sorghum halepense*
knapweed, bighead	*Centaurea macrocephala*
knapweed, Vochin	*Centaurea nigrescens*
kudzu	*Pueraria montana* var. *lobata*
meadow clary	*Salvia pratensis*
purple starthistle	*Centaurea calcitrapa*
reed sweetgrass	*Glyceria maxima*
ricefield bulrush	*Schoenoplectus mucronatus*
sage, clary	*Salvia sclarea*
sage, Mediterranean	*Salvia aethiopis*
shiny geranium	*Geranium lucidum*
silverleaf nightshade	*Solanum elaeagnifolium*
Spanish broom	*Spartium junceum*
spurge flax	*Thymelaea passerina*
Syrian bean-caper	*Zygophyllum fabago*
Texas blueweed	*Helianthus ciliaris*
thistle, Italian	*Carduus pycnocephalus*
thistle, milk	*Silybum marianum*
thistle, slenderflower	*Carduus tenuiflorus*
variable-leaf milfoil	*Myriophyllum heterophyllum*
velvetleaf	*Abutilon theophrasti*
wild four o'clock	*Mirabilis nyctaginea*

Class B Weeds, Designated for Control in Jefferson County Class B weeds are non-native species that are presently limited to portions of the state. Class B species are designated for control in regions where they are not yet widespread. Controlling infestations in designated areas is required by law.

Common Name	***Scientific Name***
Austrian fieldcress	*Rorippa austriaca*
blackgrass	*Alopecurus myosuroides*
blueweed	*Echium vulgare*
bugloss, annual	*Anchusa arvensis*
bugloss, common	*Anchusa officinalis*
camelthorn	*Alhagi maurorum*
common fennel1	***Foeniculum vulgare***
common reed (nonnative)	***Phragmites australis***
Dalmatian toadflax	***Linaria dalmatica* ssp. *dalmatica***
Eurasian watermilfoil	*Myriophyllum spicatum*
fanwort	*Cabomba caroliniana*
gorse	***Ulex europaeus***
grass-leaved arrowhead	*Sagittaria graminea*
hawkweed oxtongue	*Picris hieracioides*
hawkweed, mouseear	*Hieracium pilosella*
hawkweed, orange	***Hieracium aurantiacum***
hawkweed, polar	*Hieracium atratum*
hawkweed, queen-devil	*Hieracium glomeratum*
hawkweed, smooth	*Hieracium laevigatum*
hawkweed, yellow	***Hieracium caespitosum***
hoary alyssum	*Berteroa incana*
houndstongue	*Cynoglossum officinale*
indigobush	*Amorpha fruticosa*
knapweed, black	*Centaurea nigra*
knapweed, brown	*Centaurea jacea*
knapweed, diffuse	*Centaurea diffusa*
knapweed, meadow	***Centaurea jacea x nigra***
knapweed, Russian	*Acroptilon repens*
knapweed, spotted	***Centaurea stoebe***
kochia	*Kochia scoparia*
lawnweed	*Soliva sessilis*
lepyrodiclis	*Lepyrodiclis holosteoides*
longspine sandbur	*Cenchrus longispinus*
loosestrife, garden	*Lysimachia vulgaris*
loosestrife, purple	***Lythrum salicaria***
loosestrife, wand	*Lythrum virgatum*
parrotfeather	*Myriophyllum aquaticum*
perennial pepperweed	*Lepidium latifolium*
perennial sowthistle	*Sonchus arvensis* ssp. *arvensis*
policeman's helmet	***Impatiens glandulifera***
puncturevine	*Tribulus terrestris*

rush skeletonweed	*Chondrilla juncea*
saltcedar2	*Tamarix ramosissima*
spurge, leafy	*Euphorbia esula*
sulfur cinquefoil	***Potentilla recta***
thistle, musk	*Carduus nutans*
thistle, Scotch	*Onopordum acanthium*
swainsonpea	*Sphaerophysa salsula*
thistle, plumeless	*Carduus acanthoides*
water primrose	*Ludwigia hexapetala*
white bryony	*Bryonia alba*
wild chervil	***Anthriscus sylvestris***
yellow floating heart	*Nymphoides peltata*
yellow nutsedge	*Cyperus esculentus*
yellow starthistle	*Centaurea solstitialis*

County-Selected Weeds RCW 17.10.090 State Noxious Weed List allows counties to select weeds from the B or the C list for mandatory control within the county.

Common Name	***Scientific Name***
broom, Scotch 1 (B)	***Cytisus scoparius***
butterfly bush2 (B)	***Buddleja davidii***
poison hemlock 2(B)	***Conium maculatum***
ragwort, tansy2 (B)	***Senecio jacobaea***

1Control in and within 50 feet of gravel pits
2Control county wide

Additional Noxious Weeds
The following Class B and C weeds are found in our county. Control is desirable. (Class B or C is indicated)

archangel, yellow (C)	***Lamiastrum galeobdolon***
bindweed, field (C)	***Convolvulus arvensis***
blackberry, Himalayan	***Rubus armeniacus***
blackberry, evergreen	***Rubus laciniatus***
canarygrass, reed (C)	***Phalaris arundinacea***
carrot, wild (B)	***Daucus carota***
catsear, common (B)	***Hypochaeris radicata***
daisy, oxeye (B)	***Leucanthemum vulgare***
elodea, Brazilian (B)	***Egeria densa***
groundsel, common (C)	***Senecio vulgaris***
herb Robert (B)	***Geranium robertianum***
ivy, English (C)	***Hedera helix "Baltica", "Pittsburgh" and "Star", and H. hibernica "Hibernica"***
knotweed, Bohemian (B)	***Polygonum bohemicum***
knotweed, giant (B)	***Polygonum sachalinense***
knotweed, Japanese (B)	***Polygonum cuspidatum***

laurel, spurge (B) ***Daphne laureola***
old man's beard (C) ***Clematis vitalba***
St Johnswort, common (C) ***Hypericum perforatum***
tansy, common (C) ***Tanacetum vulgare***
thistle, bull (C) ***Cirsium vulgare***
thistle, Canada (C) ***Cirsium arvense***
toadflax, yellow (C) ***Linaria vulgaris***
water lily, fragrant (C) ***Nymphaea odorata***

Weeds of Concern

This list is for educational purposes only. These weeds are not classified as Noxious Weeds in Washington State.

Common Name	***Scientific Name***
bittersweet nightshade	***Solanum dulcamara***
teasel	***Dipsacus fullonum***
white sweetclover	***Melilotus alba***

Class "A" Weeds – identified in Clallam County -2005/2006

broom, Spanish	*Spartium junceum*
buffalobur	*Solanum rostratum*
hogweed, giant	*Heracleum mantegazzianum*
knapweed, bighead	*Centaurea macrocephala*
sage, clary	*Salvia sclarea*
thistle, milk	*Silybum marianum*

Class "A" Weeds – identified in Jefferson County -2005/2006

cordgrass, Salt Meadow	*Spartina patens*
hogweed, giant	*Heracleum mantegazzianum*
knapweed, bighead	*Centaurea macrocephala*
thistle, milk	*Silybum marianum*

Class "B – Designate" Weeds – identified in Clallam County -2005/2006

blueweed	*Echium vulgare*
chervil, wild	*Anthriscus sylvestris*
cinquefoil, sulfur	*Potentilla recta*
cordgrass, smooth	*Spartina alterniflora*
elodea, Brazilian	*Egeria densa*
hawkweed, orange	*Hieracium aurantiacum*
hawkweed, yellow	*Hieracium caespitosum*
helmet, policeman's	*Impatiens glandulifera*
knapweed, brown	*Centaurea jacea*
knapweed, diffuse	*Centaurea diffusa*
knapweed, meadow	*Centaurea jacea x nigra*
knapweed, Russian	*Acroptilon repens*
knapweed, spotted	*Centaurea biebersteinii*
loosestrife, purple	*Lythrum salicaria*
loosestrife, wand	*Lythrum virgatum*
parrotfeather	*Myriophyllum aquaticum*
saltcedar	*Tamarix ramosissima*

toadflax, Dalmatian	*Linaria dalmatica ssp dalmatica*
watermilfoil, Eurasian	*Myriophyllum spicatum*

Class "B – Designate" Weeds – identified in Jefferson County -2005/2006

chervil, wild	*Anthriscus sylvestris*
cinquefoil, sulfur	*Potentilla recta*
cordgrass, common	*Spartina anglica*
cordgrass, smooth	*Spartina alterniflora*
gorse	*Ulex europaeus*
hawkweed, yellow	*Hieracium caespitosum*
helmet, policeman's	*Impatiens glandulifera*
knapweed, meadow	*Centaurea jacea x nigra*
knapweed, spotted	*Centaurea biebersteinii*
loosestrife, purple	*Lythrum salicaria*
toadflax, Dalmatian	*Linaria dalmatica ssp dalmatica*
watermilfoil, Eurasian	*Myriophyllum spicatum*

Clallam/Jefferson County "Selected" Weeds-2005/2006

broom, Scotch (B)	*Cytisus scoparius*	**Clallam Co:** Control within 100ft of gravel pits or soil mining areas. **Jefferson Co:** Controlwithin 50ft of gravel pits.
poison hemlock (C)	*Conium maculatum*	**Clallam Co:** Control in all of Clallam Co. **Jefferson Co:** Within Port Townsend city limits.
tansy ragwort (B)	*Senecio jacobaea*	**Clallam Co:** Control anywhere east of Elwha River; west of river, containment required with 100ft buffers. **Jefferson Co:** Center Rd, Flagler Rd, and Oak Bay Rd, elsewhere containment required with 100 ft buffers.

Region 1 Class B Weed Designates

Region 1 contains all lands lying within the boundaries of Clallam and Jefferson Counties.

Common name	**Scientific name**	**Designated for control in:**
Austrian fieldcress	*Rorippa austriaca*	All of Region 1
Annual bugloss	*Anchusa arvensis*	All of Region 1
Blueweed	*Echium vulgare*	All of Region 1
Brazilian elodea	*Egeria densa*	Clallam County only
Camelthorn	*Alhagi maurorum*	All of Region 1
Cordgrass, common	*Spartina anglica*	All of Region 1
Cordgrass, smooth	*Spartina alterniflora*	All of Region 1
Dalmatian toadflax	*Linaria dalmatica ssp. dalmatica*	All of Region 1
Eurasian watermilfoil	*Myriophyllum spicatum*	All of Region 1

Common name	Scientific name	Designated for control in:
Fanwort	*Cabomba caroliniana*	All of Region 1
Gorse	*Ulex europaeus*	All of Region 1
Hawkweed, mouseear	*Hieracium pilosella*	All of Region 1
Hawkweed, orange	*Hieracium aurantiacum*	All of Region 1
Hawkweed, polar	*Hieracium atratum*	All of Region 1
Hawkweed, smooth	*Hieracium laevigatum*	All of Region 1
Hawkweed, queendevil	*Hieracium glomeratum*	All of Region 1
Hawkweed, yellow	*Hieracium caespitosum*	All of Region 1
Hawkweed oxtongue	*Picris hieracioides*	All of Region 1
Hedgeparsley	*Torilis arvensis*	All of Region 1
Hoary alyssum	*Berteroa incana*	All of Region 1
Indigobush	*Amorpha fruticosa*	All of Region 1
Knapweed, black	*Centaurea nigra*	All of Region 1
Knapweed, brown	*Centaurea jacea*	All of Region 1
Knapweed, diffuse	*Centaurea diffusa*	All of Region 1
Knapweed, meadow	*Centaurea jacea x nigra*	All of Region 1
Knapweed, Russian	*Acroptilon repends*	All of Region 1
Knapweed, spotted	*Centaurea biebersteinii*	All of Region 1
Parrotfeather	*Myriophyllum aquaticum*	All of Region 1
Kochia	*Kochia scoparia*	Clallam County only
Leafy spurge	*Euphorbia esula*	All of Region 1
Lepyrodiclis	*Lepyrodiclis holosteoides*	All of Region 1
Longspine sandbur	*Cenchrus longispinus*	All of Region 1
Loosestrife, garden	*Lysimachia vulgaris*	All of Region 1
Loosestrife, purple	*Lythrum salicaria*	All of Region 1
Loosestrife, wand	*Lythrum virgatum*	All of Region 1
Perennial sowthistle	*Sonchus arvensis ssp. arvensis*	All of Region 1
Policeman's helmet	*Impatiens glandulifera*	All of Region 1
Puncturevine	*Tribulus terrestris*	Clallam County only
Rush skeletonweed	*Chondrilla juncea*	All of Region 1
Saltcedar	*Tamarix ramosissima*	All of Region 1

Common name	Scientific name	Designated for control in:
Sulfur cinquefoil	*Potentilla recta*	All of Region 1
Swainsonpea	*Sphaerophysa salsula*	All of Region 1
Thistle, musk	*Carduus natans*	All of Region 1
Thistle, plumeless	*Carduus acanthoides*	All of Region 1
Thistle, Scotch	*Onopordum acanthium*	All of Region 1
Water primrose	*Ludwigia hexapetala*	All of Region 1
White bryony	*Bryonia alba*	All of Region 1
Wild chervil	*Anthriscus sylvestris*	All of Region 1
Yellow floating heart	*Nymphoides peltata*	All of Region 1
Yellow nutsedge	*Cyperus esculentus*	All of Region 1
Yellow starthistle	*Centaurea solstitialis*	All of Region 1

Appendix 3: Fire Control Plan

North Olympic Wildlife Area Fire Control Plan

Responsible Fire-Suppression Entities: The North Olympic Wildlife Area is comprised of 11units within two counties. In Clallam County, two units are within Fire District #2, and five units are within Fire District #3- Sequim. In Jefferson County, There is a unit each in Fire District #1- Chimacum, Fire District #2- Quilcene, and Fire District #5- Discovery Bay. Fires that occur within the local fire districts' (LFD) are the responsibility of the LFDs. The LFDs are typically the first responders. Fires that occur within forested areas may also have fire suppression response by DNR. The Zella Shultz unit is located on Protection Island and the fire control plan is unique. The primary co-manager of the Island, the U.S. Fish and Wildlife Service (USFWS), has an agreement with the National Park Service, Olympic National Park to conduct initial response if resources are available. The Puget Sound Interagency Communications Center is contacted for replacement and/or additional fire suppression support if needed on the Island.

Department Fire Management Policy: WDFW staff are not trained as firefighters and should not fight fires. WDFW staff will only provide logistical support to the Incident Commander of the responding fire entity. This support will include providing information on critical habitat, site infrastructure, potential risks to humans and risks to the fish and wildlife resources.

Wildlife Habitat Concerns: A WDFW Advisor will provide information to the Incident Commander regarding habitat concerns.

Aerial Support: The WDFW recommends that fire-fighting entities suppress fires on the wildlife area as rapidly as possible. WDFW requests the Incident Commander to seek aerial support if needed to extinguish a fire on its land promptly. If, in the professional judgment of the Incident Commander, a fire on lands adjacent to the North Olympic Wildlife Area causes an immediate threat to the area, WDFW requests that he/she seeks aerial support as possible.

Reporting: Call 911 immediately to report any fire including the vicinity of North Olympic Wildlife Area. The Fire Districts for the units are listed below. In some cases, where there are multiple landowners or fire responders, fire suppression activities may involve two or more fire fighting entities.

Fire Districts – DIAL 911

NAME	**TELEPHONE**
Clallam Co. District #2, For: **Elwha** and **Morse Creek** units	360-452-7725
Clallam Co. District #3, Sequim, For: **Voice of America, Lower Dungeness, Middle Dungeness, Bell Cr,** and **South Sequim Bay** units	360-683-6834
Jefferson Co. District #1, Chimacum, For: **Chimacum** unit	360-732-4533
Jefferson Co. District #2, Quilcene, For: **Tarboo** unit	360-765-3333
Jefferson Co. District #5, Discovery Bay, For: **Salmon/Snow Cr** unit	360-797-7711 360-797-7258

Forest Fires –Elwha, Morse and Tarboo Units and others when involving forest lands

NAME	TELEPHONE
DNR – Report Forest Fire	1-800-527-3305, dial 5
DNR Olympic Region – Forks, dispatch	360-374-6131

Zella Shultz unit (Protection Island)

NAME	TELEPHONE
Washington Maritime National Wildlife Refuge	360-457-8451
Puget Sound Interagency Communications Center	425-744-3550

The following table provides telephone numbers in priority order of WDFW staff to be contacted in the event of a fire. These WDFW staff will assist the Incident Commander as WDFW Advisors to provide information as applicable. The WDFW staff will be called upon to provide information on critical habitat, site infrastructure, potential risks to humans and risks to the fish and wildlife resources.

Department of Fish and Wildlife - contact in order listed

WDFW Staff	Position/Location	Phone
Kyle Guzlas	WDFW Biologist/Lands Montesano – Region 6 Headquarters	(360) 249-4628 x.230
Jim Gerchak	Wildlife Area Manager Wishkah – Olympic Wildlife Area Headquarters	(360)533-5676
Enforcement	Wildlife Enforcement Officer	Local State Patrol
Greg Schirato	Region 6 Wildlife Program Manager Montesano – Region 6 Headquarters	(360) 249-4628 x.222
Anita McMillan	District Wildlife Biologist Port Angeles	(360) 457-4601

Appendix 5

Management Plan Comments & Responses

Washington State Department of Fish and Wildlife, April 2010

The following individuals commented during the management plans public comment period.

Comment Author	Organization	Unit
Wayne King		Zella Shultz / Protection Island
Allen Davis	*Pheasent Release Program Volunteer*	Dungeness Recreation Area
Eric Hodgson		NOWA
Glenn Wiggins		Dungeness Recreation Area
Michael Barry		NOWA
Thomas Cox		Dungeness Recreation Area
John Hagen		NOWA
Jerry Anguili		Bell Creek
John Clevenger		NOWA
Ron Gregory		NOWA
Monte Reinders	*Jefferson County*	NOWA - Snow-Salmon Creek
John Albiso		NOWA
Jim Gift		Dungeness / Bell Creek
Richard James	*Clallam County*	NOWA – Snow-Salmon Creek
Herbert A. Armstrong	*Dungeness Beach Association*	Lower Dungeness
Vicki Cline Mike Drumright	*Department of Ecology*	NOWA
Kevin Ryan	*Washington Maritime National Wildlife Refuge Complex*	Zella Shultz

Comments received on the North Olympic Wildlife Area Plan are presented below. A response for each comment is included. Where appropriate, changes were incorporated into the management plan to address public comments.

Commenter	Comment	Response
Wayne King	Leave Protection Island Alone.....My family came here in the ealy 1900. The local people have been taking care since the beginning. This has nothing to do with the Island it is about getting more grants to keep the NGO groups busy. Hopefully the Leg. will kill this mess for the Island. I have walked every inch of the Island. You have people that have NEVER SET FOOT on it making decisions. Which are self serving (MO GRANTS) Time to stop spending $$$ like the State has it!!!!! No problems EVER	The majority of the island is owned and managed by the US Fish and Wildlife Service (USFWS) through the National Wildlife Refuge Program. WDFW only manages a small portion and does not allow public access to this location. This management plan does not address any new positions or directions for the WDFW wildlife area unit known as Zella Schultz/Protection Island. We agree that it is best left alone as a protected seabird nesting facility without any human interference.

	on the Island outside of the Care takers wife dying. Be sure Phil Anderson sees this.	*Strategy: Minimize human disturbance at Zella Schultz unit (Protection Island) by continuing coordination with WDFW law enforcement program. Work with the USFWS to educate the public about the closure and management of the island.*
Allen Davis	The plan suggests that a lease is in place for hunting at the Dungeness recreation area. The lease expired last year and has not been renewed to my knowledge. If a new lease is in place I would like to know since I am the one planting the pheasants.	The lease is expired as noted, however WDFW is working in conjunction with the county to extend the lease an additional three years. This will be finalized prior to the next pheasant season. After this three year extension, the county has expressed great interest in not extending the lease for hunting and habitat management purposes.
Eric Hodgson	I would like to bring forward the idea of creating a late season archery hunt for deer in the Olympic unit. Deer population surrounding Sequim and Port Angeles seem to be on a steady rise. I have lived just off of the Morse Creek drainage for the past ten years and have wittnessed a most definite population increase. I live on 11 acres and have 6-12 deer on my property at all times. 10 years ago, maybe we would have 1-2 or none. Thats not just my property, thats all over the North Olympic unit. Driving down the road has become very challenging due to the number of deer crossing our roads. Almost daily, I have to slow down to let deer cross. Personally, I'll never call deer a nusance, but many people in this area do. Currently there is a late season archery hunt for the Coyle unit, which there should be. But it also should include the Olympic unit. Many of theese deer live in and around homes. Offering a late season alternative may encourage current rifle hunters to switch to archery. As this is a much safe hunting alternative for both hunters and local populations. On that note, the shotgun area only for north of hwy 101 should be considered for rural areas south of 101 as well. We have numerous numbers of hunters during the rifle season drive our road looking for deer. It is a very scary thought to think someone would consider shooting a rifle in the vicinty of our home and livestock. I hope that my comments will be taken into consideration and further evaluated. Thank you for your time. Eric Hodgson	Hunting seasons are set by a separate set of public meetings and are ultimately determined by the Governor appointed Fish and Wildlife Commission. This plan is for land management activities on WDFW owned parcels in the North Olympic. Determination of hunting seasons is not a part of this planning process.

Glenn Wiggins	I was pleased to read in this morning's paper about the potential for continuing pheasant hunting at the Dungeness site. I often take my son and grandsons there who come over from Seattle to learn about hunting safety and respect for the sport. They are very keen about it and were so unhappy to learn that it may not continue. Their ages are 8 to 17. We use Dungeness as a training ground for wider hunts we take each year to eastern Washington. I appreciate the opportunity to comment. Thank you. Glenn Wiggins	The WDFW Management and Hunting lease at the Dungeness Recreation Area has expired, however WDFW is working in conjunction with the county to extend the lease an additional three years. This will be finalized prior to the next pheasant season. After this three year extension, the county has expressed great interest in not extending the lease for hunting and habitat management purposes.
Michael Barry	I support the general concepts and goals of the North Olympic Plan. Emphasis must be for habitat protection/restoration, wildlife benefits and native species diversity. The area of North Olympic has experienced a lot of growth thus impacts on habitats and native flora and fauna. Plan is needed to provide needed protection in this area. Funding will always be an issue especially in today's economy; however it needs to be found to protect these lands and ecosystems. Support having an area wildlife manager. Support efforts to combat/reduce noxious weeds. Support funding for wildlife education and interpretation. Support funding to obtain additional parcels to combine these segmented lands, Favor public access as long as it does not harm/negatively impact these lands. Also favor trail development, interpretive short trails and wildlife viewing points. Support the Garry Oak restoration. Favor ending pheasant hunting at Dungeness Recreation area county park. Prefer such hunting opportunities for non-native bird planting be relocated on private commercial operations. Favor close working with adjacent property owners to benefit ecosystem values, reduce noxious weeds, allow public access etc.	WDFW appreciates your comments and your time spent reviewing the plan. The management plan model that WDFW utilized for all of its 850,000 acre ownership across the state was developed to address many of the issues that you support and/or favor in your comments. Again, thank you for your comments.
Thomas Cox	I live within 1/2 mile of the Clallam County Dungeness Recreation Area and am very much against extending the agreement to provide so-called “hunting” of pheasants for any period of time here, let alone three years. What you are	Hunting at the Dungeness Recreation Area has occurred for approximately four decades. The original agreement was developed prior to the development that now surrounds the County Park. The County allowed the development to

	sponsoring is NOT hunting. I grew up hunting birds in the Midwest and your program of releasing cage-raised pheasants a short period of time before they are chased by dogs and slaughtered by 12 gage shotguns doesn't fit any definition of fair sport hunting. Do you know how I tell that it's exactly 8:00 AM on "hunt" days…by the sounds of the shotguns? Now if this is supposed to be hunting, how is it that these birds can be found and killed exactly at 8:00 every single hunt day? The contract is over...it's well past time to put an end to this inhumane stupidity. For the sake of a maybe couple dozen people who use this area to get thrills shooting birds that basically stand there and look them in the eye while having their brains blown out, there are hundreds like me forfeiting the use of this public property three days a week, plus holidays for a quarter of the year. According to Joel Winborn, County Director of Parks, Fair and Facilities, as quoted in the April 2 Peninsula Daily News, the County doesn't even want it to continue through a three year period. There are a lot more county residents against this slaughter than for it, so let's please stop it right now. Thank you, Tom Cox	occur around the park that is and has been actively hunted since the 1960's. This development even included a private elementary school that could only be built and opened if it observed the hunting season through daily closures during the hunting season. Besides pheasant hunting, the Dungeness Recreation Area has proven to be one of the only public waterfowl hunting locations in the area. This has declined over the years as the habitat has declined, due to the County's interference with the water delivery structure that WDFW invested a considerable amount of time and money to improve. Further, the deer hunting seasons helped to manage the quickly escalating populations in the area. The WDFW Management and Hunting lease at the Dungeness Recreation Area has expired, however WDFW is working in conjunction with the county to extend the lease an additional three years. This will be finalized prior to the next pheasant season. After this three year extension, the county has expressed great interest in not extending the lease for hunting and habitat management purposes.
John Hagen	I support this fully, very nice to see this happening.	Wildlife Area staff appreciates your time spent reviewing the plan. Thanks for the positive feedback!
Jerry Anguili	Your comments indicate that you will try and reforest Bell Creek east of Rhodefer road. The Dept. has had four plantings on this parcel with about a 10% success ratio. I live in the area and was able to eliminate Reeds Canary Grass in areas I wanted to plant but it is a 2-3 year project. All of your previous plantings have been overwhelmed by this grass. Keep in mind that Bell Creek is dry 8 months of the year at Rhodefer Road. A viable flow for fish does not start until the DOT mitigation lands to the east.	Several unsuccessful attempts have been made to reforest one of the Bell Creek units, however due to the soil conditions throughout the majority of the year, establishing a thriving riparian vegetative community on this site will remain extremely difficult. The property was released from the CREP program due to the lack of soil moisture and expenses associated with a long term irrigation program. WDFW will still attempt to provide maintenance for the portions of the planting that are doing well. Noxious weed control will also occur on this unit specifically the small portions of poison hemlock.
John Clevenger	Purchase more land and add to North Olympic Wildlife Area	WDFW continues to target critical acquisition lands throughout the North Olympic Wildlife Area. New acquisitions will be guided by the WDFW Lands 20/20 process. For more information regarding this process please visit: http://wdfw.wa.gov/lands/lands2020/index.htm

Ron Gregory	This plan is not needed, it serves no purpose except to create more burden for the public.	This version of the wildlife area management plan has been regarded as one of the best planning tools that has occurred for WDFW. Other resource planning initiatives are following close to this model of management planning. It brings public and cross program comments into the equation, every year. Annual updates allow for the plan to evolve and provide performance measures that hold the agency accountable. This planning document is of significant importance for the North Olympic Wildlife Area, since prior to this plan, these lands remained stagnant without management direction from within the Region.
Monte Reinders	Thank you for the opportunity to comment on the draft North Olympic Wildlife Area Management Plan. Congratulations on developing an excellent plan to protect valuable wildlife habitat in our area. We appreciate this effort greatly. We are pleased with the reference in the performance measures section of the plan to utilizing the railroad grade at the head of Discovery Bay for a regional trail. This is the critical connection for the Olympic Discovery Trail (ODT) from Port Townsend to La Push. The ODT is also envisioned to be the western leg of a cross-state trail. The importance of the Discovery Bay connection is paramount. We hope that working together we can achieve the restoration goals for this area as well as maintain the railroad grade for the ODT. The County recently submitted a right-of-way request to WDFW for the Discovery Bay railroad grade and is planning to apply for grant funds to develop the multi-use trail, including interpretative components that enhance the trail experience and encourage appreciation and support for wildlife habitat preservation. For those performance measures that reference Discovery Bay, you may include Jefferson County as a partner along with the Peninsula Trails Coalition for a project that develops the railroad grade as a trail, while also enhancing the natural function of the estuary. Please also consider adding a strategy under the recreational opportunities objective (3.2) that supports the ODT Discovery Bay estuary connection. The aerial photograph on the cover of the	Currently, WDFW is awaiting a Biological Assessment to be completed that will provide critical information on the potential Discovery Bay estuary restoration alternatives. The alternatives include railroad grade removal, railroad grade breach, or no action. This information will be important in making the proper land management decision for the Snow-Salmon Unit. Obviously, this also could affect the location and future of the Olympic Discovery Trail in crossing this piece of property. Also, prior to granting an easement and/or management agreement for the trail to cross WDFW property, this issue will have to be presented to the Citizen Advisory Group and District Team for feedback. WDFW looks forward to working with both Jefferson County, Clallam County and the Peninsula Trails Coalition in finding the most appropriate action for a potential connection for the Olympic Discovery Trail. The following strategy was added as 3.2.1.3. <u>Strategy: Work with Jefferson and Clallam Counties and the Pennisula Trails Coalition and others, to determine the best location for the Olympic Discovery Trail at Discovery Bay.</u> The Performance Measure in Chapter 4 was changed to the following based on the additional strategy "Work with the Peninsula Trails Coalition, Clallam and Jefferson Counties, and others to determine the best location for the Olympic Discovery Trail at Discovery Bay."

	management plan is a striking image of the possibility for a healthy, functioning estuary for Snow and Salmon Creeks, as well as a multi-use trail along the railroad grade that provides an incomparable educational nature experience for the user. Thank you for your consideration. Monte Reinders, P.E. County Engineer	
John Albiso	The performance measures in section 4 do not have a metric for fish or bird populations. Since Goals 1 and 2 below refer to restoring fish and bird populations, then there should be a metric such as fish traps and bird counts. Goal I: Healthy and diverse fish and wildlife populations and habitats Objective 1: Develop, integrate and disseminate sound fish, wildlife and habitat science Goal II: Sustainable fish and wildlife-related opportunities • Objective 6: Provide sustainable fish and wildlife-related recreational and commercial opportunities compatible with maintaining healthy fish and wildlife populations and habitats.	Good point – these actions are done separately by population monitoring conducted by other fish and wildlife programs. This particular plan is being implemented by the Lands Division of the Wildlife Program. It is specifically for land management direction of WDFW owned parcels. As the plan evolves, it will inherently become more connected to other planning activities both internally and externally. Thank you for these comments.
Jim Gift	I am Chair of the Conservation Committee of the Olympic Peninsula Audubon Society (OPAS) and am submitting comments on the North Olympic Wildlife Area Management Plan (Plan) on behalf of OPAS. Overall we find that the Plan to be well developed and comprehensive. There are two issues that warrant comments. One is the issue of stocking pheasants in the Lower Dungeness Recreation Area. We understand that Fish and Wildlife is looking for a new area for put and take pheasant hunting and OPAS strongly supports this effort. Currently the Lower Dungeness Recreation Area is used for a variety of recreational pursuits and hunting is not only disruptive to the adjacent communities but is a safety issue. Moving this hunting activity to a less populated area which does not support as many other recreational activities is desirable. Secondly, OPAS is strongly supportive of the effort to restore and maintain stands of Garry Oaks. This slow growing tree was common in the fields around Sequim prior to the area being cleared for farming. It is very desirable to maintain areas with this native tree species.	Hunting at the Dungeness Recreation Area has occurred for approximately four decades. The original agreement was developed prior to the development that now surrounds the County Park. The County allowed the development to occur around the park that is and has been actively hunted since the 1960's. This development even included a private elementary school that could only be built and opened if it observed the hunting season through daily closures during the hunting season. Besides pheasant hunting, the Dungeness Recreation Area has proven to be one of the only public waterfowl hunting locations in the area. This has declined over the years as the habitat has declined, due to the County's interference with the water delivery structure that WDFW invested a considerable amount of time and money to improve. Further, the deer hunting seasons helped to manage the quickly escalating populations in the area. WDFW is interested in finding a more suitable location for the pheasant release program, however this may take a considerable amount of time based on the parameters that are necessary for developing a site of this nature.

	Thank you for the opportunity to comment on this WDFW Management Plan.	Furthermore, securing the grant funds for an acquisition can also prove to be difficult. WDFW will continue working with the dedicated volunteer staff that is maintaining the large Garry Oak planting at the Bell Creek Unit. For more information on how to volunteer to help the restore Garry Oak Woodlands and Savanna please contact Kyle Guzlas at; kyle.guzlas@dfw.wa.gov
Richard James	Thank you for the opportunity to comment on the draft North Olympic Wildlife Area Management Plan. Congratulations on developing an excellent plan to protect valuable wildlife habitat in our area. We appreciate this effort greatly. We are pleased with the reference in the performance measures section of the plan to utilizing the railroad grade at the head of Discovery Bay for a regional trail. This is the critical connection for the Olympic Discovery Trail (ODT) from Port Townsend to La Push. The ODT is also well on its to becoming the western leg of a cross-state trail with over 70 miles of trail in place. The importance of the Discovery Bay connection is paramount. We hope that working together we can achieve the restoration goals for this area as well as maintain the railroad grade for the ODT. Jefferson County recently submitted a right-of-way request to WDFW for the Discovery Bay railroad grade and is planning to apply for grant funds to develop the multi-use trail, including interpretative components that enhance the trail experience and encourage appreciation and support for wildlife habitat preservation. Clallam County supports Jefferson County's request and would like to see the development of interim use of the existing grade that could be accomplished with minor clearing of the grade and temporary decking of the existing trestles until such a time as additional funding is secured to replace the trestles and develop a more finished trail system. The Jimmycomelately restoration project at Sequim Bay is a good example of how estuary restoration and trail use can be combined and complement one another. For those performance measures that reference Discovery Bay, you may include Clallam County as supporting the efforts of Jefferson County to partner along with the Peninsula Trails Coalition for a project that develops the railroad grade as a trail, while also	Currently, WDFW is awaiting a Biological Assessment to be completed that will provide critical information on the potential Discovery Bay estuary restoration alternatives. The alternatives include railroad grade removal, railroad grade breach, or no action. This information will be important in making the proper land management decision for the Snow-Salmon Unit. Obviously, this also could affect the location and future of the Olympic Discovery Trail in crossing this piece of property. Also, prior to granting an easement and/or management agreement for the trail to cross WDFW property, this issue will have to be presented to the Citizen Advisory Group and District Team for feedback. WDFW looks forward to working with both Jefferson County, Clallam County and the Peninsula Trails Coalition in finding the most appropriate action for a potential connection for the Olympic Discovery Trail. The following strategy was added as 3.2.1.3. Strategy: Work with Jefferson and Clallam Counties and the Pennisula Trails Coalition and others, to determine the best location for the Olympic Discovery Trail at Discovery Bay. The Performance Measure in Chapter 4 was changed to the following based on the additional strategy "Work with the Peninsula Trails Coalition, Clallam and Jefferson Counties, and others to determine the best location for the Olympic Discovery Trail at Discovery Bay."

	enhancing the natural function of the estuary. Please also consider adding a strategy under the recreational opportunities objective (3.2) that supports the ODT Discovery Bay estuary connection. A second strategy in this section could provide for the temporary use of the existing grade (with minor clearing of weeds from the surface) and trestles (with the addition of a plywood deck) until such a time as additional grant funding is secured to replace the trestles and upgade the trail to full multi-user status. The aerial photograph on the cover of the management plan is a striking image of the possibility for a healthy, functioning estuary for Snow and Salmon Creeks, as well as a multi-use trail along the railroad grade that provides an incomparable educational nature experience for the user. Thank you for your consideration. Regards, Richard James Clallam County Transportation Program Manager	
Herbert A. Armstrong	My comments concerning the North Olympic Wildlife Management Plan are primary concern for the Private Ownership that is adjacent to the Wildlife Property at the Rivers End Road, Dungeness Beach and Pioneer Park. The private property must be acknowledged and respected by the WDFW. There needs to be signage and fences on the boundary's of the WDFW property so we DO NOT get trespass on the private property. The tidelands in front of Pioneer Park and the Northwest Corner Duck Club Properties are all Private Property and WE DO NOT WANT ANY TRESPASS ON THOSE TIDELANDS. Our goal for these adjacent Private Properties is to keep them in a natural state for the benefit of Fish and Wildlife but feel this can be done very nicely under Private Ownership. Herbert Armstrong, President Dungeness Beach Association And Manager of the Northwest Corner Duck Club	WDFW understands the concerns that have been expressed; however there are inconsistent statements made. WDFW is a member of the Dungeness Beach Association based on the numerous parcels that are owned by WDFW along Rivers End Road. WDFW is a member in "good standing" since it has paid dues for the current maintenance year. This provides legal access for WDFW employees and or WDFW designees to drive vehicles on the Rivers End Road and to access the Pioneer Memorial Park property. WDFW will post the site, however it will not post private property with *No Trespassing* signs since this is the obligation of the property owner. WDFW is not responsible for maintaining boundary fences on WDFW property, nor are they required to fence property boundaries. In many cases throughout the state it is preferred to remove fence lines to improve animal movement. Many of the fences that were utilized for grazing purposes on the WDFW parcels in the past will be removed this summer. The fence line along Rivers End Road at times is on WDFW property and at times is within the right of way of the roadway. This fence is in dire need of repair or removal since it presents a safety issue for operating equipment associated with restoring the WDFW site. As a member of the Dungeness Beach Association, WDFW looks forward to working

		to protect the natural state of the WDFW ownerships, the Pioneer Memorial Park, and the Dungeness Bay.
Vicki Cline and Mike Drumright	Thank you for the opportunity to comment on the determination of nonsignificance for the North Olympic Wildlife Area Management Plan proposal located in Clallam and Jefferson Counties as proposed by Kyle Guzlas, WA Department of Fish and Wildlife. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comments: WASTE 2 RESOURCES: Mike Drumright This is a planning document and therefore individual projects mentioned in the plan that may have an environmental impact will be dealt with in its own SEPA process as it relates to that specific project action. WATER RESOURCES: Vicki Cline The proponent is responsible for inspecting the site to determine the location of all existing wells. Any unused wells must be properly decommissioned and decommission reports submitted to Ecology as described in WAC 173-160-381. This includes resource protection wells and any dewatering wells installed during the construction phase of the project. Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.	As stated in the SEPA reviewed by ECY "This is a non project action, when appropriate, individual projects will go through their own SEPA process." Included in the plan as Appendix 4 are the water rights that are retained by WDFW through the land ownership across the North Olympic Peninsula. Wildlife Area staff has recently begun the process of placing several of the eligible water rights into a "temporary water trust". WDFW will continue to work with ECY on decommissioning unused wells throughout the North Olympic Wildlife Area.
Kevin Ryan	Washington Maritime NWRC Comments on WDFW's Washington State Wildlife Area Management Plan for the North Olympic Wildlife Area (January 2010 version) Page 25, Estuary & Page 26 Estuary – Zella Shultz (PI) is listed under estuary in these two sections, however we are unaware of any tidal wetlands on State Land. Page 31, PHS Criteria – Please include a key	Zella Shultz was removed from the estuary listing on page 25 and 26. A key to the PHS Criteria was included on page 31 and Marbled Murrelet was added to the list. Taylors Checkerspot was already included on the table. More information regarding PHS can be found at http://wdfw.wa.gov/hab/phspage.htm The following language was added to 3.1.4.4 on page 34 as suggested - *"Work with the USFWS and caretakers to educate*

	to the numbers; Suggest you include Marbled Murrelet (State and Fed listing), Taylor's Checkerspot (State and Fed listing), and if considering plant species Vancouver Groundcone for Protection Island. Page 33, 3.1.4 – In recognition of the importance of the Zella Shultz which supports roughly half of the 3rd largest Rhinoceros Auklet colony in North America, one of two islands in the inner marine waters of WA that support breeding Tufted Puffins and the largest colony of Pigeon Guillemots and Glaucous-winged Gulls in the Puget Sound, we suggest you consider adding support and coordination with USFWS efforts to reduce adverse impacts to biodiversity or seabird nesting from non-native species (e.g. rats or rabbits) and native herbivores. Page 34, 4.1.4 – We suggest you add a strategy that includes "support of USFWS prairie restoration" which will significantly increase biodiversity in prairie habitats within a short period of time. Page 34, 3.1.6, second sentence – Replace 'including' with 'and' to differentiate between shorebirds and waterfowl. Page 38, 4.1 – We suggest you add 'support USFWS planned prairie restoration activities on Protection Island' as well as 'support USFWS efforts to eliminate impacts of deer on biodiversity and seabird nesting habitat.' Page 34 Strategy 3.1.4.4 – We suggest also adding statement about working with USFWS LE and caretakers on PI for minimizing human disturbance. Page 38 4.1 – Performance measure maybe add about working with USFWS LE Appendix 1 Issue D – Again an opportunity for working with USFWS	*the public about the closure and management of the island. Support and coordinate with USFWS on efforts to reduce adverse impacts to biodiversity or seabird nesting from non-native species (e.g. rats or rabbits) and native herbivores."* The following language was added to 3.1.7.4 *"Stategy: Support of USFWS prairie restoration on the Zella Shultz/Protection Island Unit"* The following language was included as a performance measure to section 4.1 *"Support USFWS planned prairie restoration activities on Zella Shultz/Protection Island' and support USFWS efforts to eliminate impacts of deer on biodiversity and seabird nesting habitat."* The following language was added to Appendix 1 *"Issue: Minimize human disturbance at the Zella Schultz subunit (PI) by continuing periodic WDFW law enforcement patrols and working with USFWS and caretakers."* The Weed Management Plan (Appendix 2) is consistent with the other 25 management plans that WDFW has already finalized. This plan will evolve and progress annually with the update process and changes to the Weed Management Plan can be made at this time, including the conversion to a "Pest Management Plan". The weblink on page 46 was updated to correct address to the NFWF grants webpage.

	Appendix 2 page 53 Weed Management Plan – This should be a Pest Management Plan to include insect and other non-native pests. To be truly integrated it should not only include arious control and prevention options for weed management, but also integrating the various pests that can affect management of habitat and wildlife. Therefore, through this section, where appropriate, change weed or plant to invasive or pest species. An example for the importance of prevention, monitoring, and control for non-native species could be the occurrence of rats on Protection Island. The threat to the seabird colonies found there would be devastating. Also there were no plant species that were identified for the Zella unit. Page 54 the web link takes you to a page with an error. Note: Given our shared ownership, it is necessary for us to partner with WDFW on ways to reduce the disturbance of deer to seabird breeding habitat and adverse effects on biodiversity of the island from such a high density (minimum of 71 deer observed island-wide in 2/10).	

Appendix 5: Water Rights

File #	Cert #	Person	Stat	Doc	Priority Dt	Purpose	Qi	UOM	Qa	Ir Acres	WRIA	County	TRS	QQ/Q	Src's	1stSrc	Comments 1
S2-*05515ALCWRIS	02516A	Knight Fe	A	Cert	7/18/1941	IR	0.15	CFS		15.00	17	JEFF	29.0N 02.0W 23		3	Snow Cr	Snow/Salmon Cr Unit
S2-*05515ALCWRIS	02516A	Knight Fe	A	Cert	7/18/1941	IR		CFS			17	JEFF	29.0N 02.0W 24			Snow Cr	Snow/Salmon Cr Unit
S2-*05515ALCWRIS	02516A	Knight Fe	A	Cert	7/18/1941	IR		CFS			17	JEFF	29.0N 02.0W 25			Snow Cr	Snow/Salmon Cr Unit
S2-*05516CWRIS	2517	Knight Fe	A	Cert	7/18/1941	IR	0.25	CFS		25.00	17	JEFF	29.0N 0.20W 23		1	Salmon Cr	Snow/Salmon Cr Unit
S2-*06796ALPWRIS		Frank Froehling	I	Pmt	12/4/1945	DS,IR	0.15	CFS		15.00	17	JEFF	29.0N 02.0 W 25	SW/NW	2	Snow Cr	Snow/Salmon Cr Unit
S2-*06796ALPWRIS		Frank Froehling	I	Pmt	12/4/1945	DS,IR		CFS			17	JEFF	29.0N 02.0 W 26	SE/NE		Snow Cr	Snow/Salmon Cr Unit
S2-*14423PWRIS		Frank Froehling	I	Pmt	7/26/1957	DM,IR	0.20	CFS	36.00	18.00	17	JEFF	29.0N 02.0 W 25	SW/NW	1	Unnamed stream	Snow/Salmon Cr Unit
G2-091463CL		Discover Bay Mills	A	Claim S		DG,IR		GPM			17	JEFF	29.0N 02.0 W 25	SW/NW	1	Well	Snow/Salmon Cr Unit
G2-091464CL		Discover Bay Mills	A	Claim S		DG,IR		GPM			17	JEFF	29.0N 02.0 W 25	W1/2/NW	1	Well	Snow/Salmon Cr Unit
G2-038666CL		Edward C Blake	A	Claim L		DG		GPM			18	CLAL	30.0N 03.0W 20	NE/NE	1	Well	Bell Creek Unit
S2-*03168CWRIS	542	J B Mapes	A	Cert	9/29/1930	DS,IR	1.00	CFS		60.00	18	CLAL	31.0N 04.0W 36	NE/NE	1	Unnamed stream	Lower Dungeness Unit
G2-149280CL		Joseph DePalma	A	Claim S		DG,IR					18	CLAL	31.0N 04.0W 36		1		Lower Dungeness Unit
S2-161475CL		George C Rains	A	Claim L		DG,IR		CFS			18	CLAL	30.0N 05.0W 08		1	Morse Cr	Morse Creek Unit
R2-*17709BVCWRIS	09461A	Rains/Lewis	A	Cert	1/30/1963	FS		CFS	37.00		18	CLAL	30.0N 05.0W 08		1	Unnamed spring	Morse Creek Unit
S2-161477CL		George C Rains	A	Claim L		DG,IR		CFS			18	CLAL	30.0N 05.0W 17		1	Morse Cr	Morse Creek Unit
S2-161485CL		George C Rains	A	Claim L		DG		CFS			18	CLAL	30.0N 05.0W 17		1	Morse Cr	Morse Creek Unit
S2-*17708BVCWRIS	09461B	Rains/Lewis	A	Cert	1/30/1963	FS	1.50	CFS			18	CLAL	30.0N 05.0W 17		1	Morse Cr	Morse Creek Unit