SKAGIT WILDLIFE AREA MANAGEMENT PLAN

Washington Department of Fish and Wildlife

Prepared by Wildlife Area Manager, John Garrett, Assistant Manager, Belinda Schuster &
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2006

STATE OF WASHINGTON

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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. 2006. Skagit Wildlife Area Management Plan. Wildlife Management Program, Washington Department of Fish and Wildlife, Olympia. 140 pp.

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Washington State Wildlife Area Plan

SKAGIT WILDLIFE AREA

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

Washington State Wildlife Area Plan

Skagit Wildlife Area

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

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November 2006

Director, Washington Department of Fish and Wildlife

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EXECUTIVE SUMMARY

The Skagit Wildlife Area consists of 16,708 acres, most of it intertidal mud flats and marsh. The majority of land ownership is scattered throughout the west half of Skagit County. This includes the Skagit Bay Estuary, Headquarters Unit, Island Unit, Samish Unit, Telegraph Slough Unit, Fir Island Farms/Hayton Reserve, Johnson/DeBay Swan Reserve, Bald Eagle Natural Area, Cottonwood Island Unit, Goat Island Unit, Guemes Island Unit, and Sinclair Island Unit. Satellite units occur in Island County (Camano Island Natural Area), Snohomish County (Leque Island Unit), and San Juan County (Lopez Island Unit). Most of the intensively managed units have agricultural fields, which are planted with cereal grains to provide food for wintering waterfowl.

The Skagit Bay estuary and its freshwater wetland habitats provide one of the most important waterfowl wintering areas in the Pacific Flyway. The Skagit Wildlife Area was originally established to preserve the Skagit Bay estuary, which is valuable habitat for many fish and wildlife species. Prior to human intervention, the Skagit Bay estuary (where saltwater mixes with fresh) was certainly the largest in Puget Sound, and was of a scale comparable to all other Puget Sound estuaries combined. The diverse freshwater and estuarine wetlands within the channels and sloughs of the delta extended from its shoreline into the upland forest. But by the 1860s, much of the land conversion had begun as the Skagit River delta was heavily logged and the lowlands drained for agriculture (Beechie et al., 1994). Habitat conversion increased as settlers built dikes and improved drainage to develop farms on the rich floodplain soils. These activities resulted in a significant loss of estuarine and freshwater wetland habitats before the turn of the century. The recent federal Endangered Species Act listing of Chinook salmon as a threatened species in the Skagit Watershed is shifting management priorities on the Skagit Wildlife Area. Currently, the number one priority is to enhance and restore degraded estuary habitats to help threatened Chinook salmon populations recover. These restoration projects will also benefit other fish and wildlife species that use estuary habitats.

The primary management concerns and public issues identified in the Skagit Wildlife Area Plan are:

- Complete proposed estuary restoration projects.
- Continue agricultural enhancements on major waterfowl management units.
- Complete moist soil/wetland management projects.
- Continue ongoing weed control/management programs.
- Develop the Headquarters Unit Interpretive Center and provide interpretive/educational signing throughout the unit.
- Maintain the extensive signing program, to include boundaries, game reserves, safety zones, and general informational signing.
- Develop public use management plans for the individual units.
- Research public use activities that may have adverse impacts on fish and wildlife resources.
- Maintain, enhance and increase waterfowl and shorebird populations and habitat.
- Continue to develop the Watchable Wildlife projects on the Snow Goose and Swan Reserves as well as other potential sites on the Skagit WA.

In 2006, the Skagit Wildlife Area staff continued to implement programs that provided habitat enhancements for waterfowl, shorebirds and other avian species. Major time and effort was

allocated to the ongoing process of implementing the Wylie Slough and Leque Island Estuary Restoration Projects.

The planning effort continued on the development of a “moist soil” management plan to be implemented in partnership with Ducks Unlimited on the Samish, Island, and Leque Island Units.

THE SKAGIT WILDLIFE AREA PLAN HAS PROVIDED A PROCESS FOR ALLOWING A MUCH GREATER LEVEL OF PUBLIC INVOLVEMENT IN THE WILDLIFE AREA PLANNING PROCESS, AS WELL AS PROVIDING A FOUNDATION FOR MANY OF THE DIVERSE AND CHALLENGING ISSUES AND MANAGEMENT OPTIONS ON THE SKAGIT WILDLIFE AREA.

CHAPTER I. INTRODUCTION

The Washington Department of Fish and Wildlife (WDFW) is entrusted with managing WDFW and other state-owned lands and preserving their natural resources. As a steward of the land, WDFW is dedicated to protecting, restoring and perpetuating healthy ecosystems throughout the state, while fostering an attitude of partnership with local communities.

This plan provides management direction for the Skagit Wildlife Area. It will be updated annually to maintain its value as a flexible working document, and to remain sensitive to change over time. This planning process incorporates local needs and concerns as indicated by citizen participation, and guides management activities on this wildlife area based on the Department's statewide goals and objectives.

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 fish and wildlife-related recreational and commercial opportunities.

1.2 Agency Goals and Objectives

The underlined goals and objectives directly apply to the management of this wildlife area. These goals and objectives are found in the Agency's Strategic Plan.

<u>Goal 1: Healthy and diverse fish and wildlife populations and habitats</u>

- 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 5: Minimize adverse interactions between humans and wildlife.

<u>Goal 2: Sustainable fish and wildlife-related opportunities</u>

- Objective 6: Provide sustainable fish and wildlife-related recreational and commercial opportunities compatible with maintaining healthy fish and wildlife populations and habitats.
- Objective 8: Work with Tribal governments to ensure fish and wildlife management objectives are achieved.

<u>Goal 3: Operational Excellence and Professional Service</u>

- Objective 14: Reconnect with those interested in Washington's fish and wildlife.
- Objective 15: Provide sound operational management of WDFW lands, facilities and access sites.

1.3 Agency Policies

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

- Commission Policy 6003: Domestic Livestock Grazing on Department Lands
- <u>Policy 6010:</u> Acquiring and disposing of real property
- <u>Policy 5211:</u> 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
- <u>Policy 5001:</u> Fish Protection at Water Diversions/Flow Control Structures and Fish Passage Structures

Draft Policies not currently approved

- Policy: Recreation management on WDFW Lands
- Policy: Commercial Use of WDFW Lands
- Policy: Forest Management on WDFW Lands
- Policy: Weed Management on WDFW Lands
- Policy: Fire Management on WDFW Lands
- Other policies/contractual obligations/responsibilities

1.4 Skagit Wildlife Area Goals

The Skagit Wildlife Area encompasses many habitat types from thousands of acres of saltwater tideland, estuary and adjoining marsh, prior converted wetlands and upland site in 16 separate units in northwestern Washington, totaling approximately 16,708 acres. The management goals for this Area are to preserve habitat and species diversity for 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. Specific management goals and objectives for the Skagit Wildlife Area can be found in Chapter 3.

1.5 Planning Process

This plan is part of a statewide planning process to ensure consistency in wildlife area management and policy implementation. It is one part of the Statewide Wildlife Area Plan, currently under development. The Statewide Plan brings together federal, state and local laws, agency goals and objectives, Commission and agency policies, and other statewide policy guidance in one document that will be reviewed by the public.

For the Skagit Wildlife Area, a multifaceted approach has been undertaken to assess all proposed strategies. This process included identifying agency goals and objectives that apply to this Area; reviewing the purpose for purchasing the Area; reviewing existing habitat conditions and species; review by an internal District Team (Table 1) and forming a long-term Wildlife Area Citizens Advisory Group (Table 2) to solicit input and ideas.

Table 1.1 WDFW District Team Members

Enforcement	Fisheries	Habitat	Wildlife
Worth Allen	Brett Barkdull	Chris Dietrick	Curran Cosgrove
Bill Heinck		Bob Warinner	Mike Davison
		Brian Williams	John Garrett
		Steve Seymour	Kye Iris
			Belinda Schuster

The District Team helps identify existing species plans, habitat recommendations, watershed plans, eco-regional assessments, etc. that are used to identify local issues and needs to ensure that the Skagit Wildlife Area Plan is consistent with the Department's statewide and regional priorities, in addition to addressing issues identified in previous planning efforts. This team consists of local representatives from each Department program, incorporating across Program sections input and review at the regional and headquarters level by fish, habitat, and wildlife biologists and local enforcement agents.

Table 1.2 Citizen Advisory Group Members

Name	Representing
Kurt Beardslee	Washington Wild Fish Conservancy (director)
Rone Brewer	Washington Waterfowl Association (local chapter president)
Tina Cochran	Dog training interests (Cochran Kennels owner)
Edward Connor	Skagit Watershed Council
Virginia Clark	Pilchuck Audubon Society
Marilyn Dahlheim	Dog training interests (dog trainer)
Oscar Graham	WDFW Waterfowl Advisory Committee
Steve Hinton	Skagit River System Cooperative
Martha Jordan	Trumpeter Swan Society
Art Kendall	Wiley Slough Technical Committee, WA Waterfowl Association (retired fish biologist)
Michael Rasch	Snoqualmie WA Hunter/Supporter (lawyer)
Bob Rose	Skagitonians to Preserve Farmland
Tom Rutten	WDFW Land Management Advisory Committee
Allison Studley	Skagit Fisheries Enhancement Group (executive director)
Albert Vincent, Jr.	Fish and Wildlife Committee for Persons with Disabilities
Sharon Swan	Fish/wildlife advocate (Snohomish Co. Parks & Recreation Dept. planner)
Keith Wiggers	Skagit Audubon Society
Dallas Wylie	Neighbor, Farmer

Public participation, in the form of a Citizens Advisory Group, has been used to identify cultural, economic and social issues as well as wildlife and related recreational issues important to the residents of northwestern Washington, and is influential in managing this wildlife area. The Citizens Advisory Group is comprised of concerned citizens, local landowners and representatives of local interest groups or other land management agencies. Members are considered spokespersons for their interest groups, and bring a wide variety of concerns and issues to the wildlife area manager's attention. This group also provides input to help resolve current and future management issues and conflicts related to this area. Their participation in the planning process adds credibility and support for land management practices, helps build constituencies and fosters stewardship. **Appendix 1** contains all meeting summaries as well as all comments and issues raised by the District Team and the Citizen Advisory Group.

Other stakeholders not represented on the Citizens Advisory Group that also provide support and input include the Skagit Land Trust, Tulalip Tribe, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Bureau of Land Management, Washington Department of Natural Resources, Skagit County government, some dike and drainage districts, Nature Conservancy and Ducks Unlimited. These entities cooperate on projects and have provided input during past and current planning processes.

The Skagit Wildlife Area Management Plan will be reviewed annually with additional input from the Citizen Advisory Group and District Team to monitor performance and desired results. Strategies and activities will be adapted where necessary to accomplish management objectives.

CHAPTER II. AREA DESCRIPTION & MAP

2.1 Property Location and Size

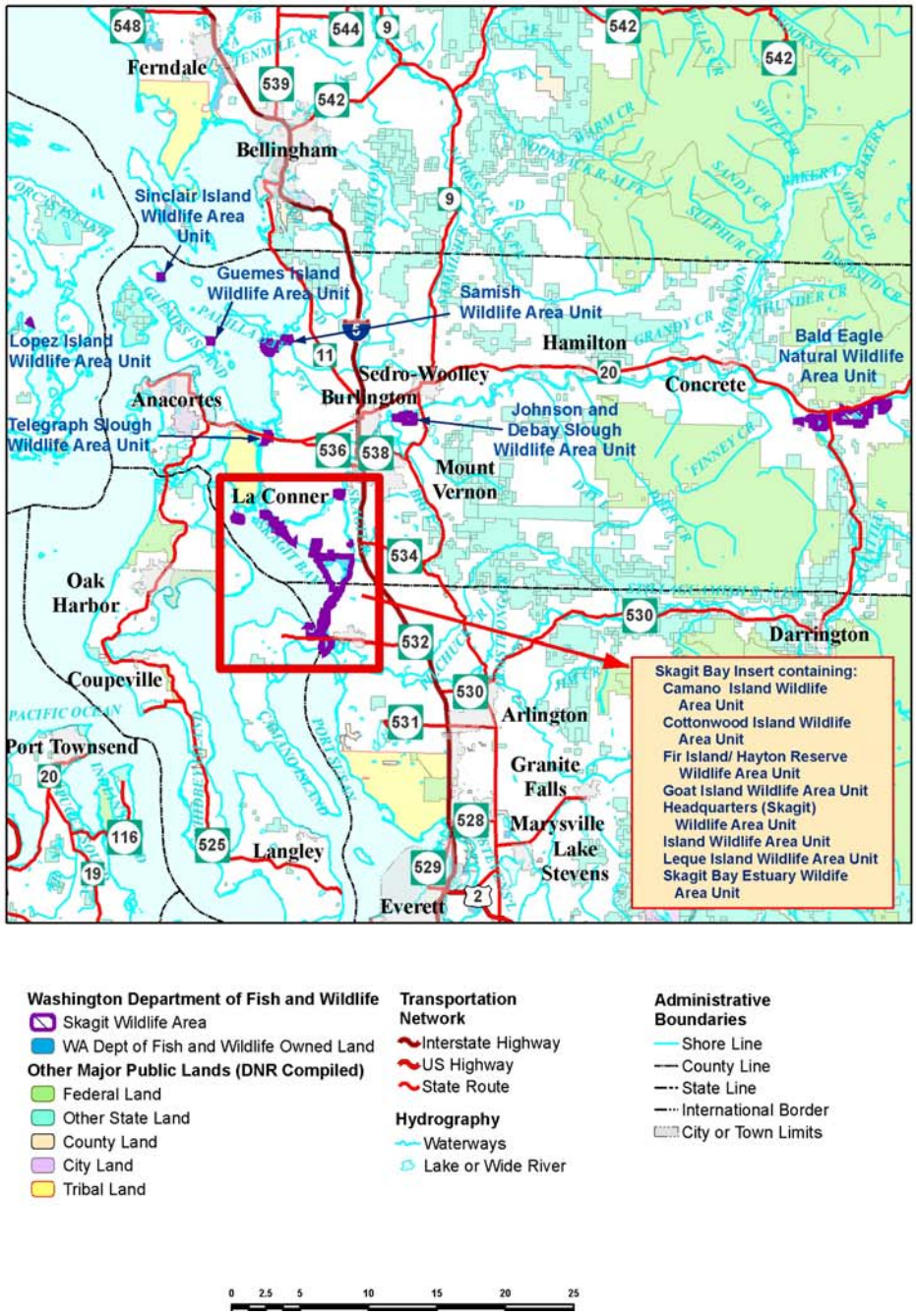
The Skagit Wildlife Area consists of 16,708 acres, most of it intertidal mud flats and marsh. The majority of land ownership is scattered throughout the west half of Skagit County. This includes the Skagit Bay Estuary, Headquarters Unit, Island Unit, Samish Unit, Telegraph Slough Unit, Fir Island Farms/Hayton Reserve, Johnson/DeBay Swan Reserve, Bald Eagle Natural Area, Cottonwood Island Unit, Goat Island Unit, Guemes Island Unit, and Sinclair Island Unit. Satellite units occur in Island County (Camano Island Natural Area), Snohomish County (Leque Island Unit), and San Juan County (Lopez Island Unit). Most of the intensively managed units have agricultural fields, which are planted with cereal grains to provide food for wintering waterfowl.

Most of this wildlife area is on or adjacent to Skagit Bay, between the mouths of the north and south forks of the Skagit River. It includes a large part of Skagit Bay's east shoreline, and is restricted mainly to its second-class tidelands and intertidal marsh areas. Also included are many tributaries of the South Fork of the Skagit River and the islands between these tributaries, as well as some intertidal acreage in Port Susan Bay and an intertidal area on Camano Island shoreline of Skagit Bay. Unit acreage and legal descriptions are shown below in Table 2.1. The overview map of the Skagit Wildlife Area's holdings is shown in Figure 1; details showing specific units are shown in Figures 2-15.

Table 2.1 Unit Acreage and Legal Description

Unit Name	Acres	Township	Range	Section
Bald Eagle Natural Area	2450.40	35N, 36N	9E-11E	Many
Camano Sensitive Area	31.58	32N	3E	22
Cottonwood Island	169.40	34N	3E	36
Fir Island Farms	224.70	33N	3E	22
Goat Island	158.30	33N	2E	10, 11
Guemes Island	38.70	35N	2E	5
Headquarters	175.00	33N	3E	23-24
Island	220.00	33N	3E, 4E	25,26,30
Johnson/DeBay Swan Reserve	331.14	34N, 35N	4E	2, 3, 34, 35
Leque Island	325	32N	3E	23, 25, 26
Lopez Island	5.10	35N	2W	1
Pheasant Plots	30	Many	Many	Many
Samish	514.16	35N	2E, 3E	1, 6
Sinclair Island	35.00	36N	1E	15
Skagit Bay Estuary	12,000	Many	Many	Many
Telegraph Slough	(control 30.00)	32N	2E, 3E	7, 12
Other Properties				
Fildalgo Is. (March Point)	14.00 (+control 40)	35N	2E	22
Padilla Bay	63.00	35N	3E	30
Port Susan Bay	85.60	32N	3E	36
Whidbey Island	45.00	31N, 32N	1E	1, 4, 15

Figure 1. Map of Skagit Wildlife Area and Units



Skagit Bay Insert Map

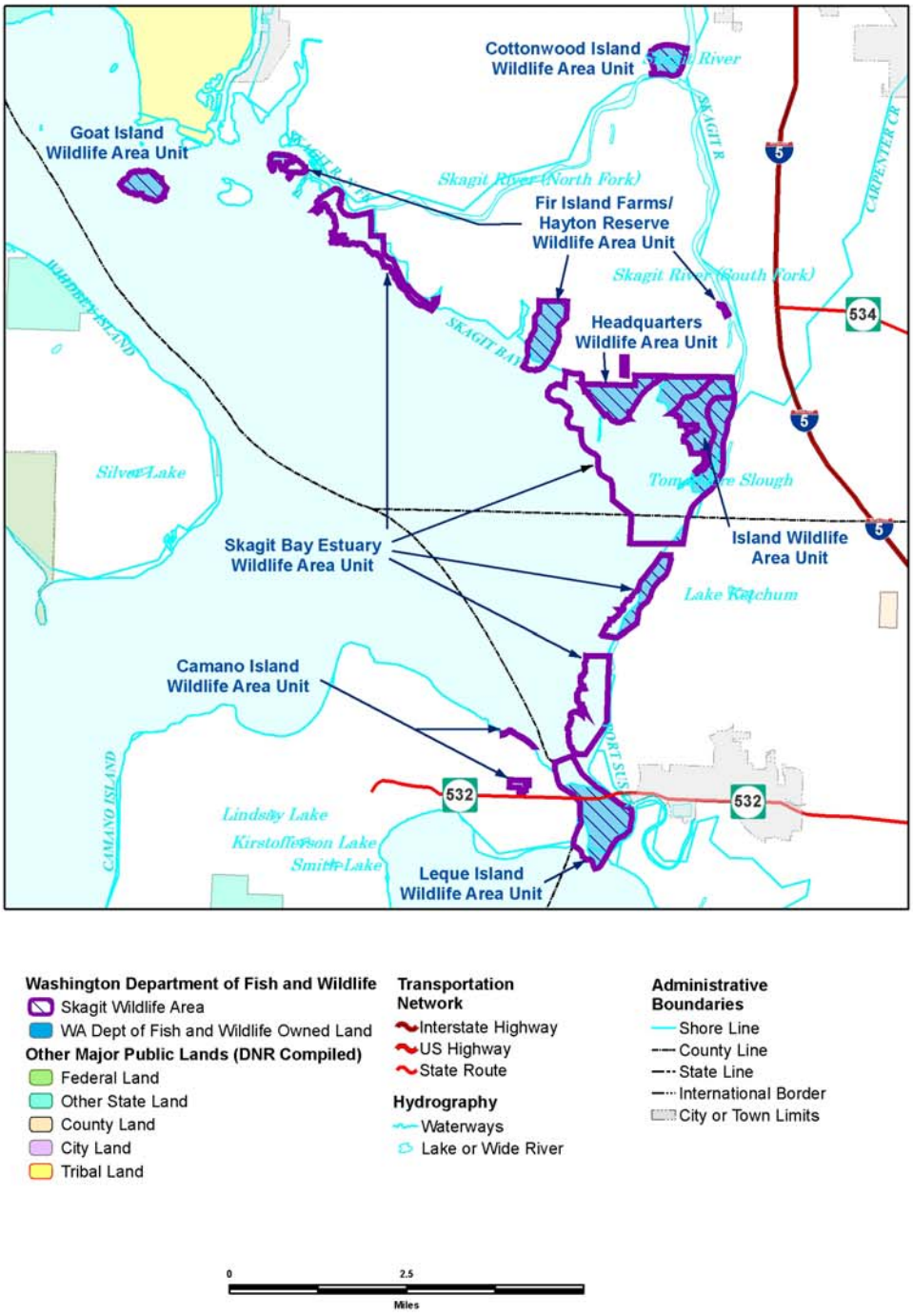


Figure 2. Bald Eagle Natural Area

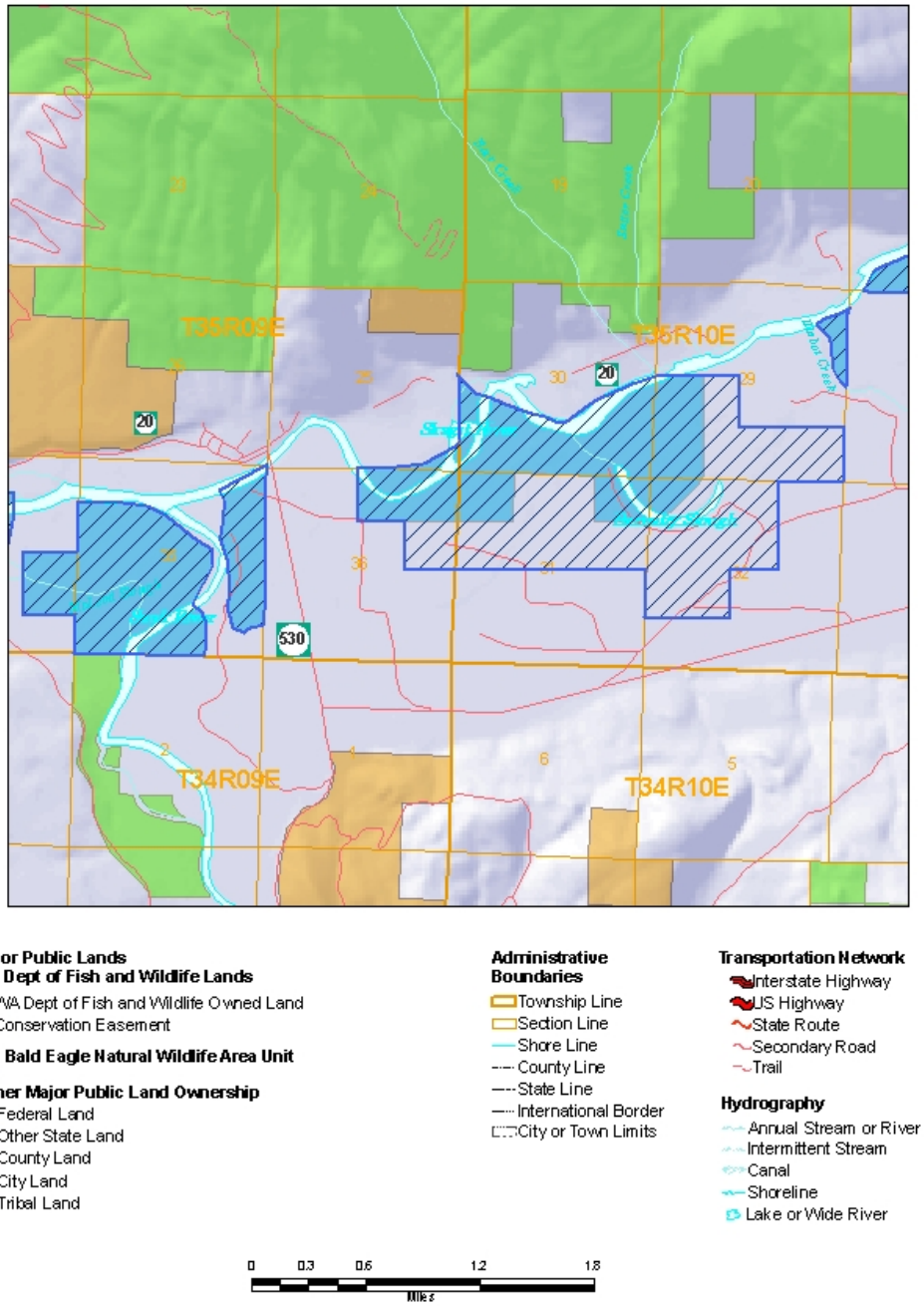


Figure 3. Camano Island Unit

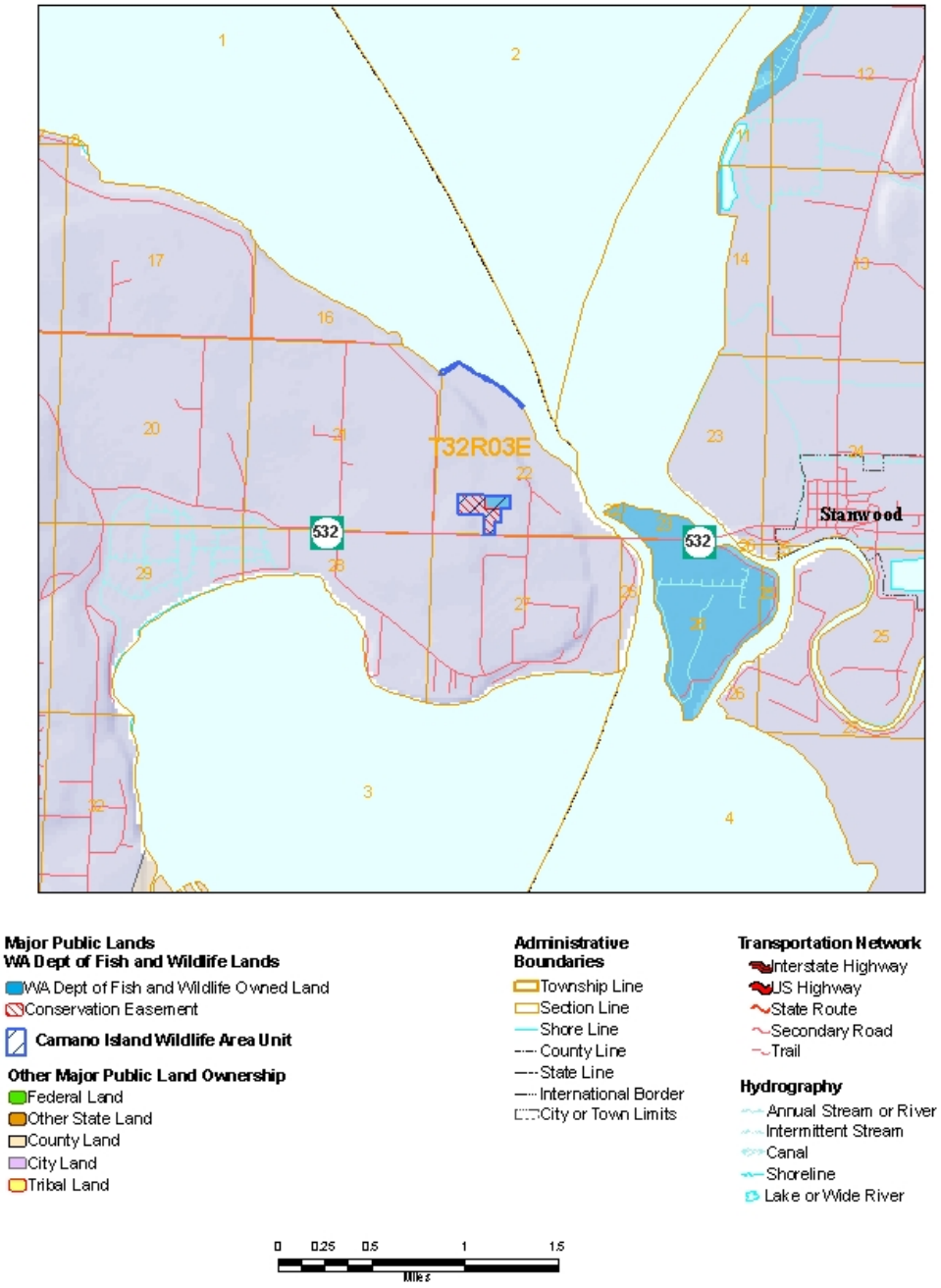
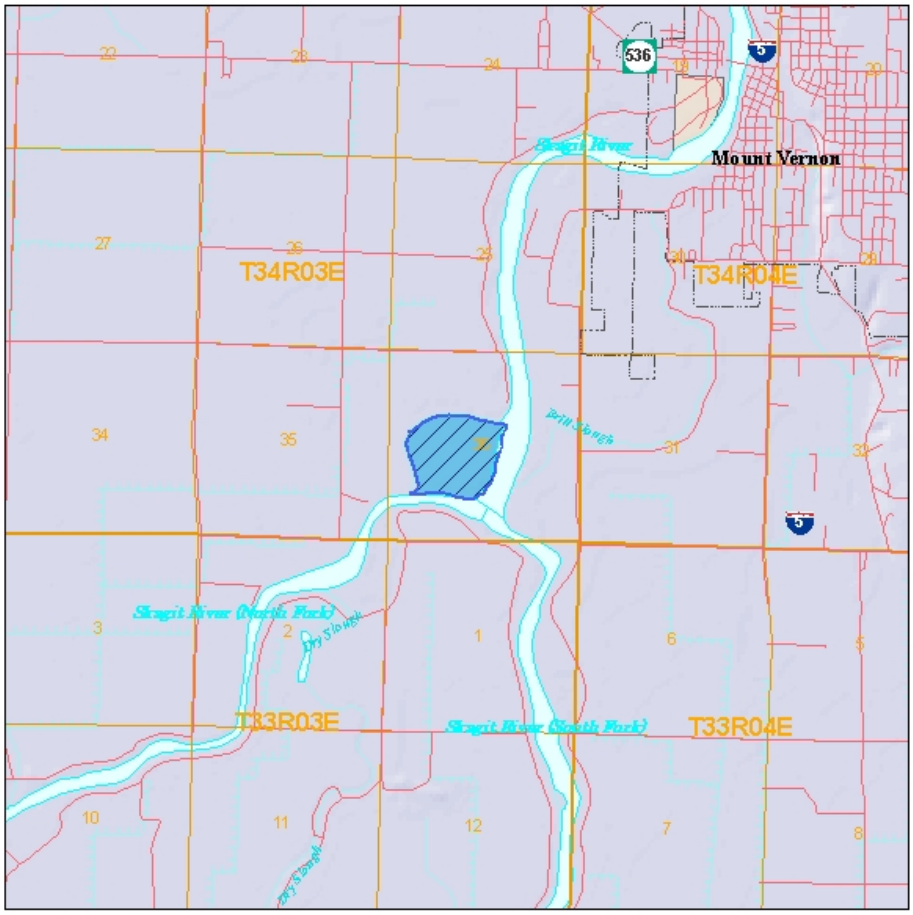


Figure 4. Cottonwood Island Unit



Major Public Lands
WA Dept of Fish and Wildlife Lands
- WA Dept of Fish and Wildlife Owned Land
- Conservation Easement
- **Cottonwood Island Wildlife Area Unit**

Other Major Public Land Ownership
- Federal Land
- Other State Land
- County Land
- City Land
- Tribal Land

Administrative Boundaries
- Township Line
- Section Line
- Shore Line
- County Line
- State Line
- International Border
- City or Town Limits

Transportation Network
- Interstate Highway
- US Highway
- State Route
- Secondary Road
- Trail

Hydrography
- Annual Stream or River
- Intermittent Stream
- Canal
- Shoreline
- Lake or Wide River

0 0.2 0.4 0.8 1.2
Miles

Figure 5. Fir Island/Hayton Reserve

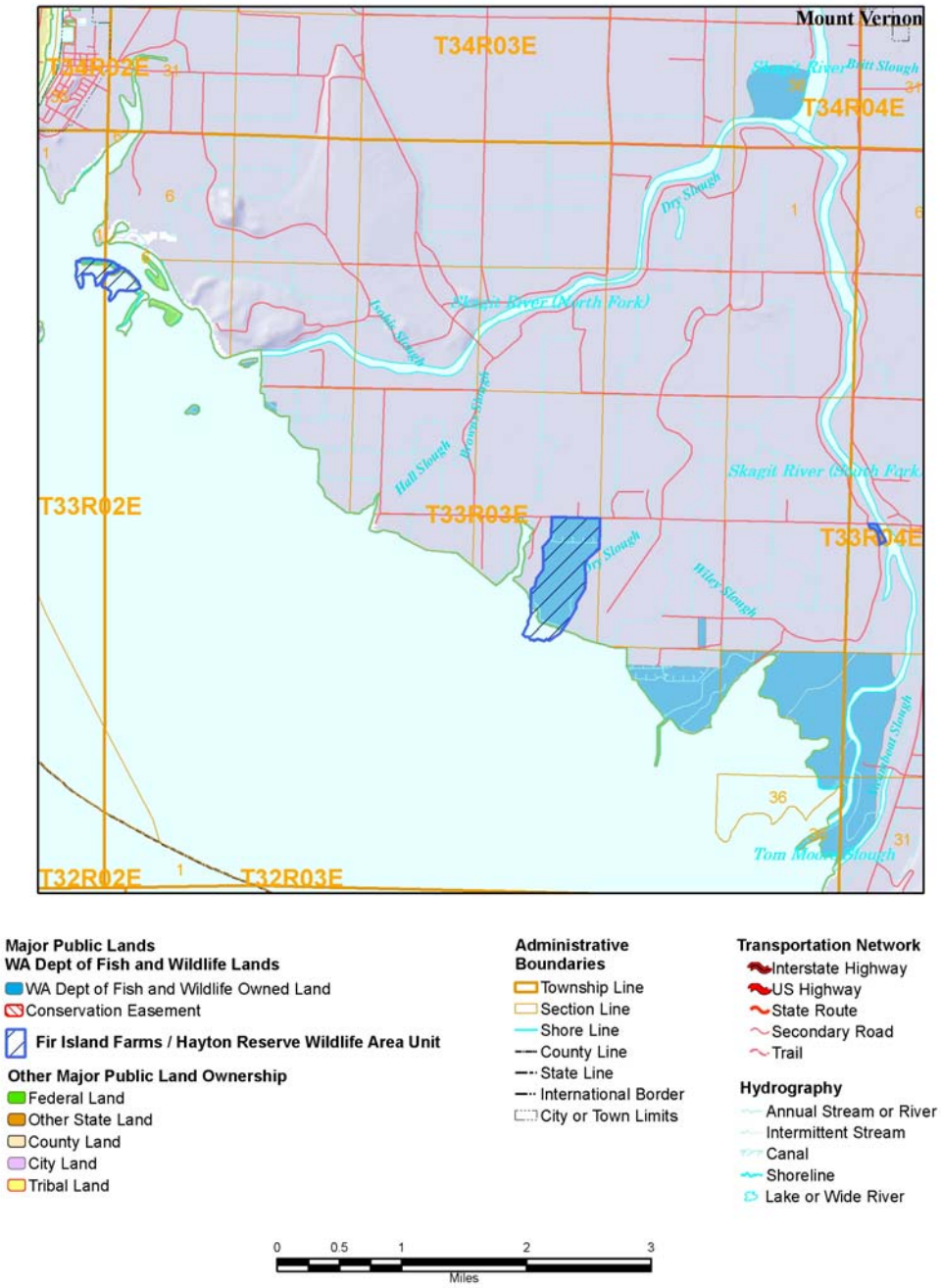


Figure 6. Goat Island Unit

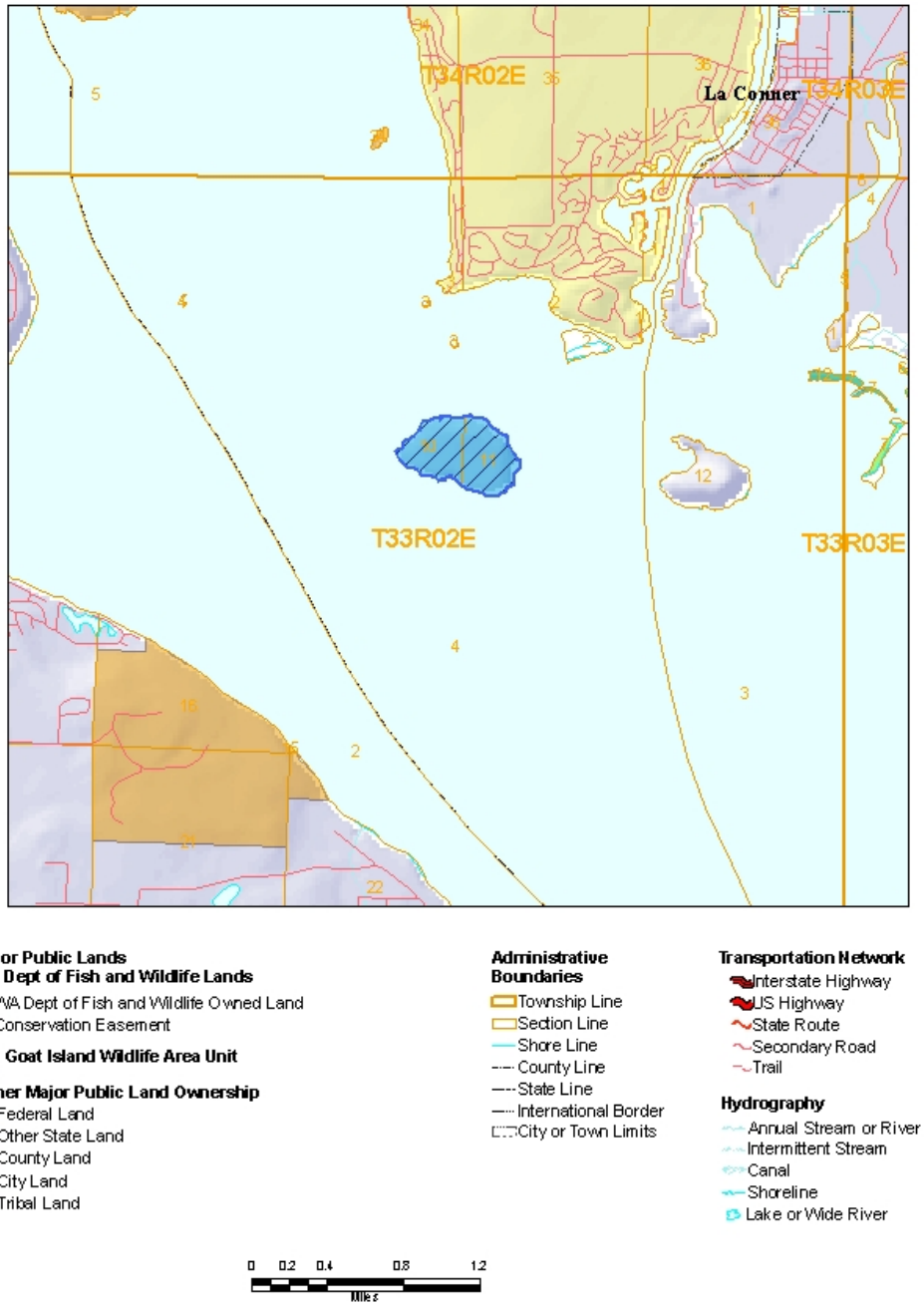


Figure 7. Guemes Island Unit

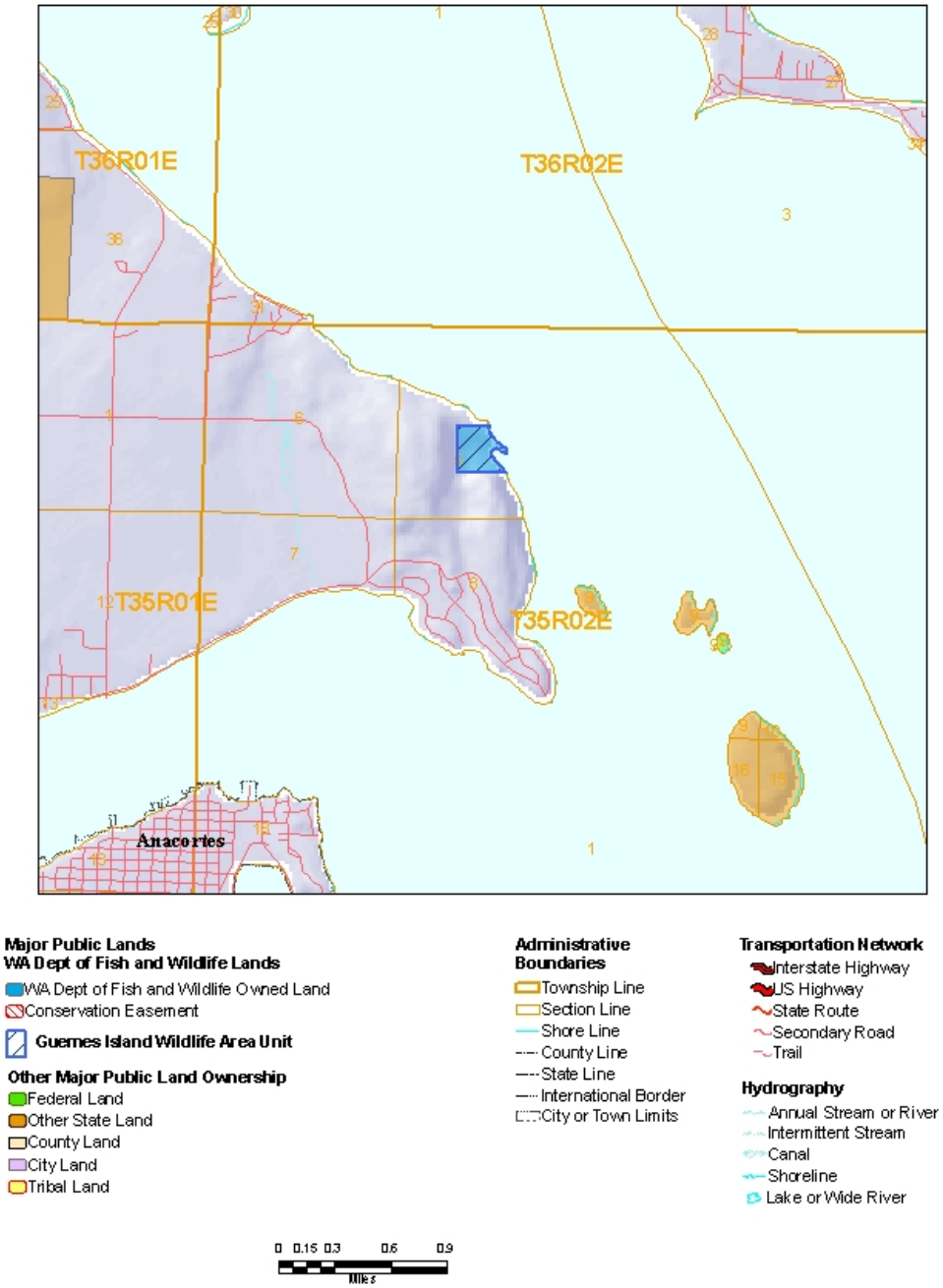


Figure 8. Headquarters (Skagit) Unit

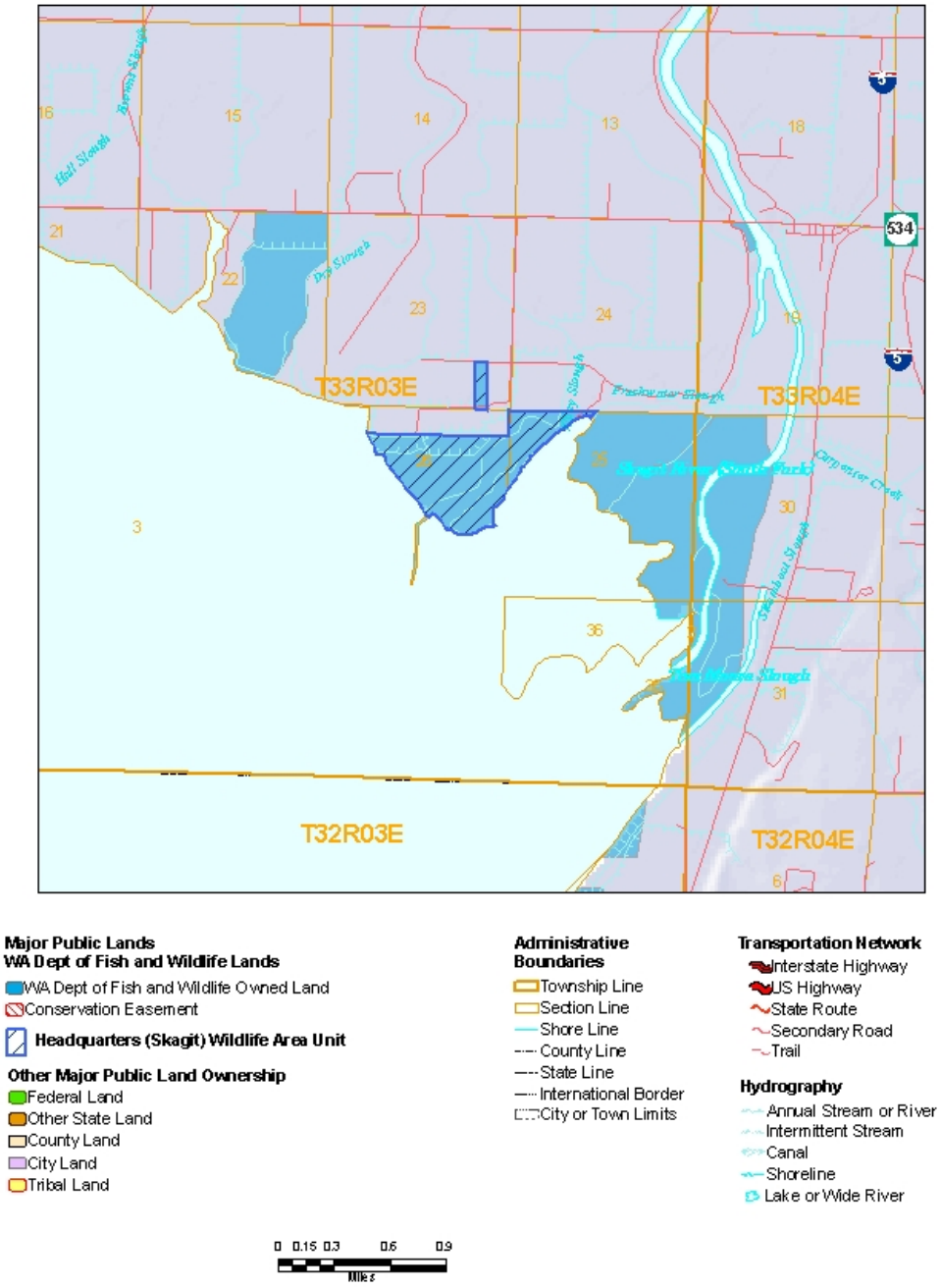
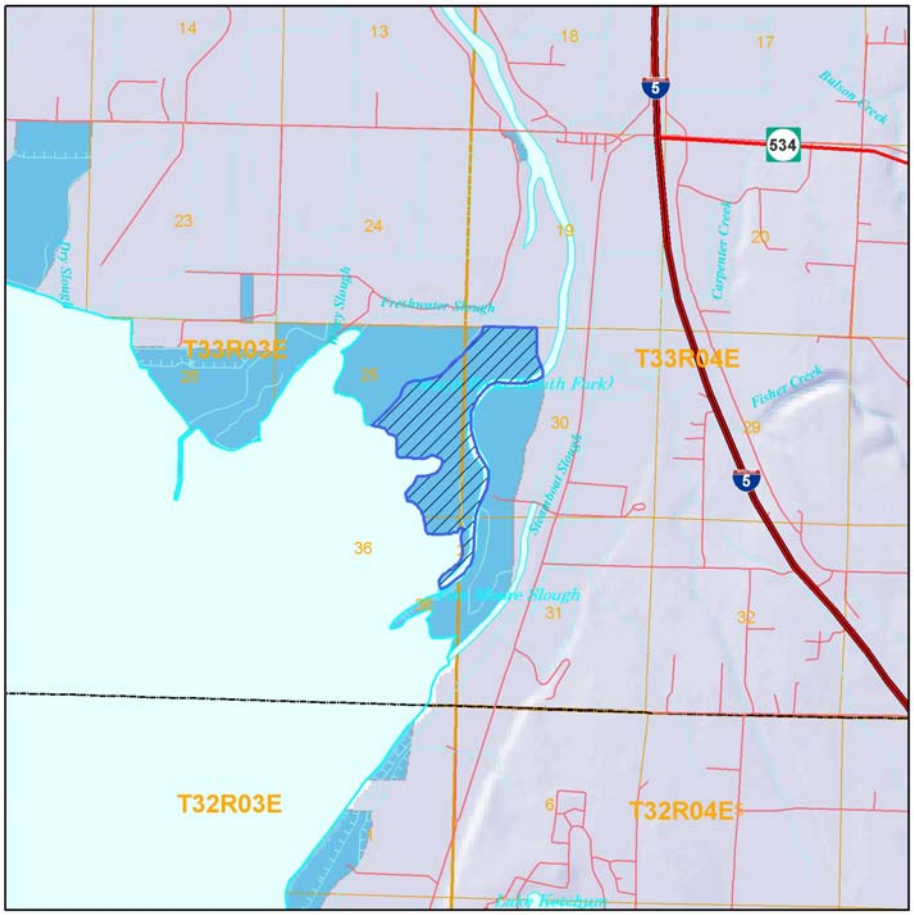


Figure 9. Island Unit



Washington Department of Fish and Wildlife

- Island Wildlife Area Unit
- Conservation Easement
- WA Dept of Fish and Wildlife Owned Land

Major Public Land Ownership

- Federal Land
- Other State Land
- County Land
- City Land
- Tribal Land

Administrative Boundaries

- Township Line
- Section Line
- Shore Line
- County Line
- State Line
- International Border
- City or Town Limits

Transportation Network

- Interstate Highway
- US Highway
- State Route
- Secondary Road
- Trail

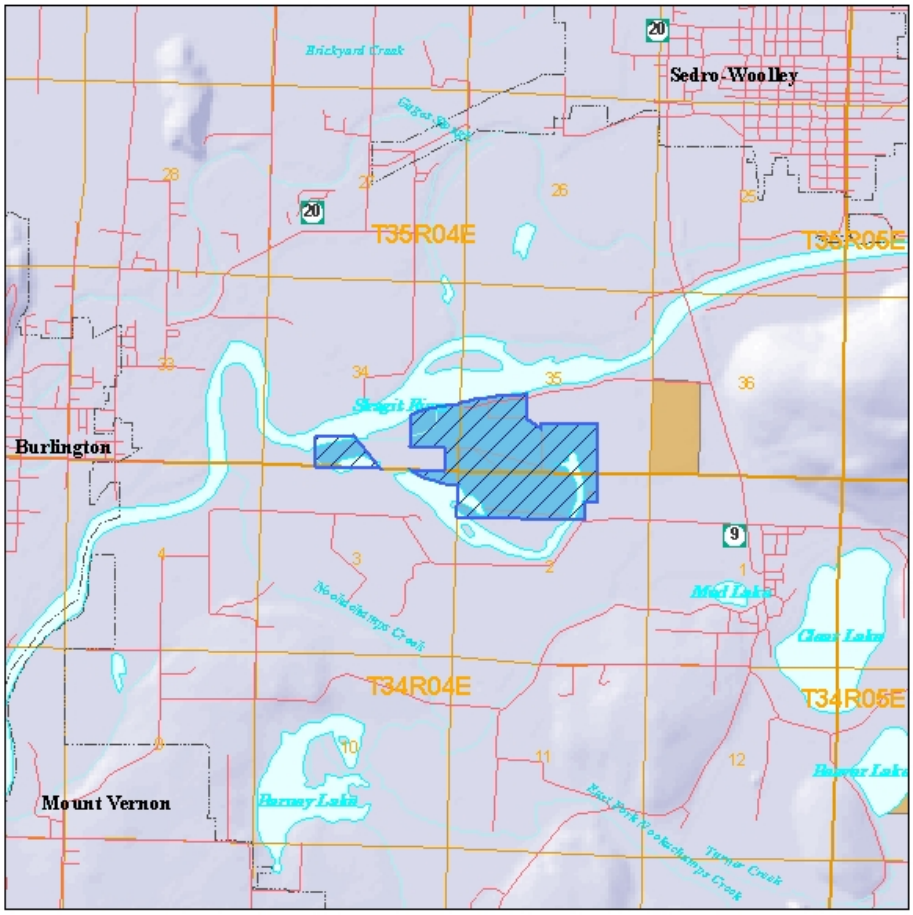
Hydrography

- Annual Stream or River
- Intermittent Stream
- Canal
- Shoreline
- Lake or Wide River

1:50,000

1 inch equals 0.79 miles

Figure 10. Johnson and Debay Swan Reserve



Major Public Lands
WA Dept of Fish and Wildlife Lands
- WA Dept of Fish and Wildlife Owned Land
- Conservation Easement
- **Johnson and Debay Slough Wildlife Area Unit**

Other Major Public Land Ownership
- Federal Land
- Other State Land
- County Land
- City Land
- Tribal Land

Administrative Boundaries
- Township Line
- Section Line
- Shore Line
- County Line
- State Line
- International Border
- City or Town Limits

Transportation Network
- Interstate Highway
- US Highway
- State Route
- Secondary Road
- Trail

Hydrography
- Annual Stream or River
- Intermittent Stream
- Canal
- Shoreline
- Lake or Wide River

0 0.15 0.3 0.6 0.9
Miles

Figure 11. Leque Island Unit

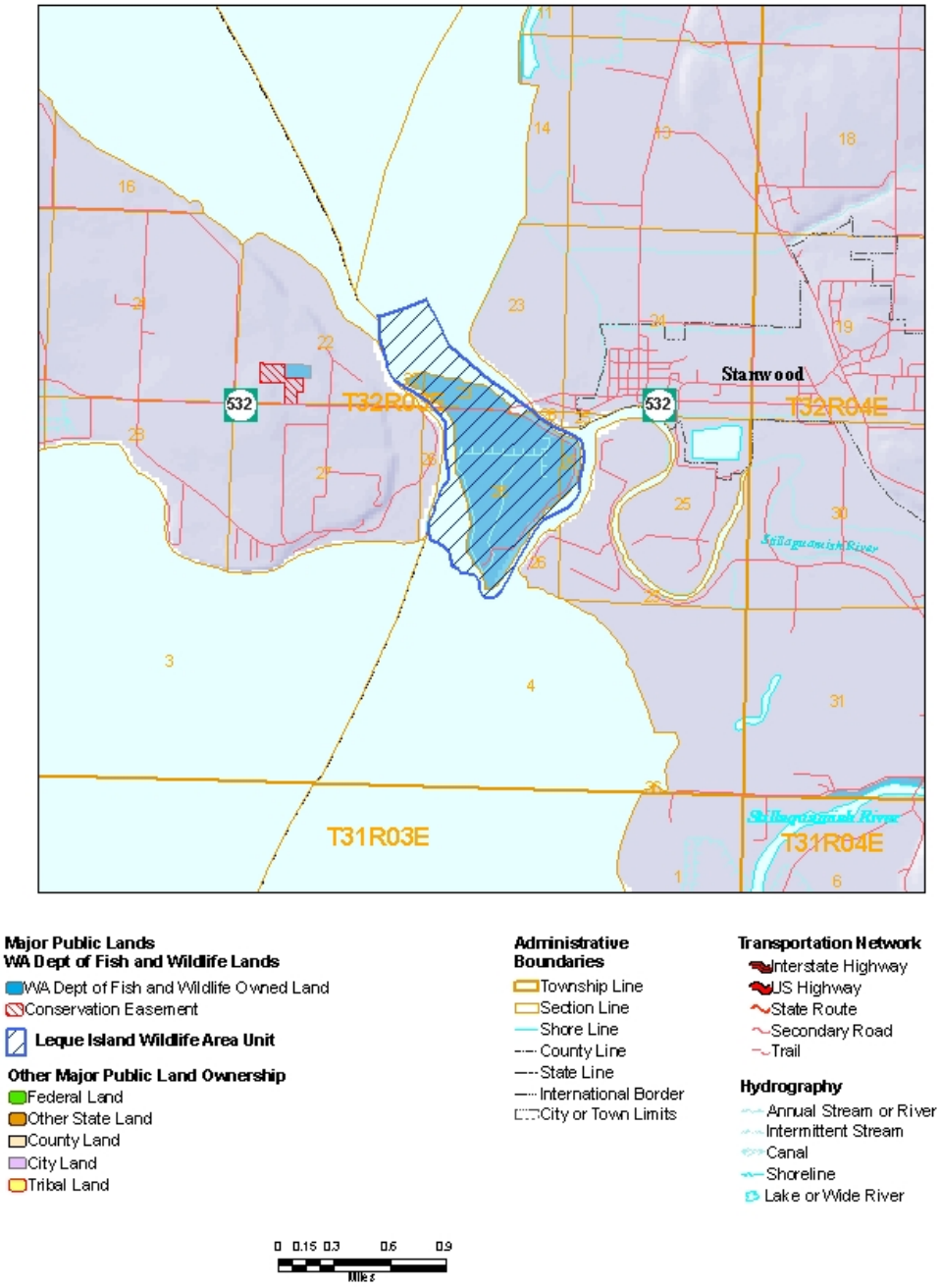


Figure 12. Lopez Island Unit

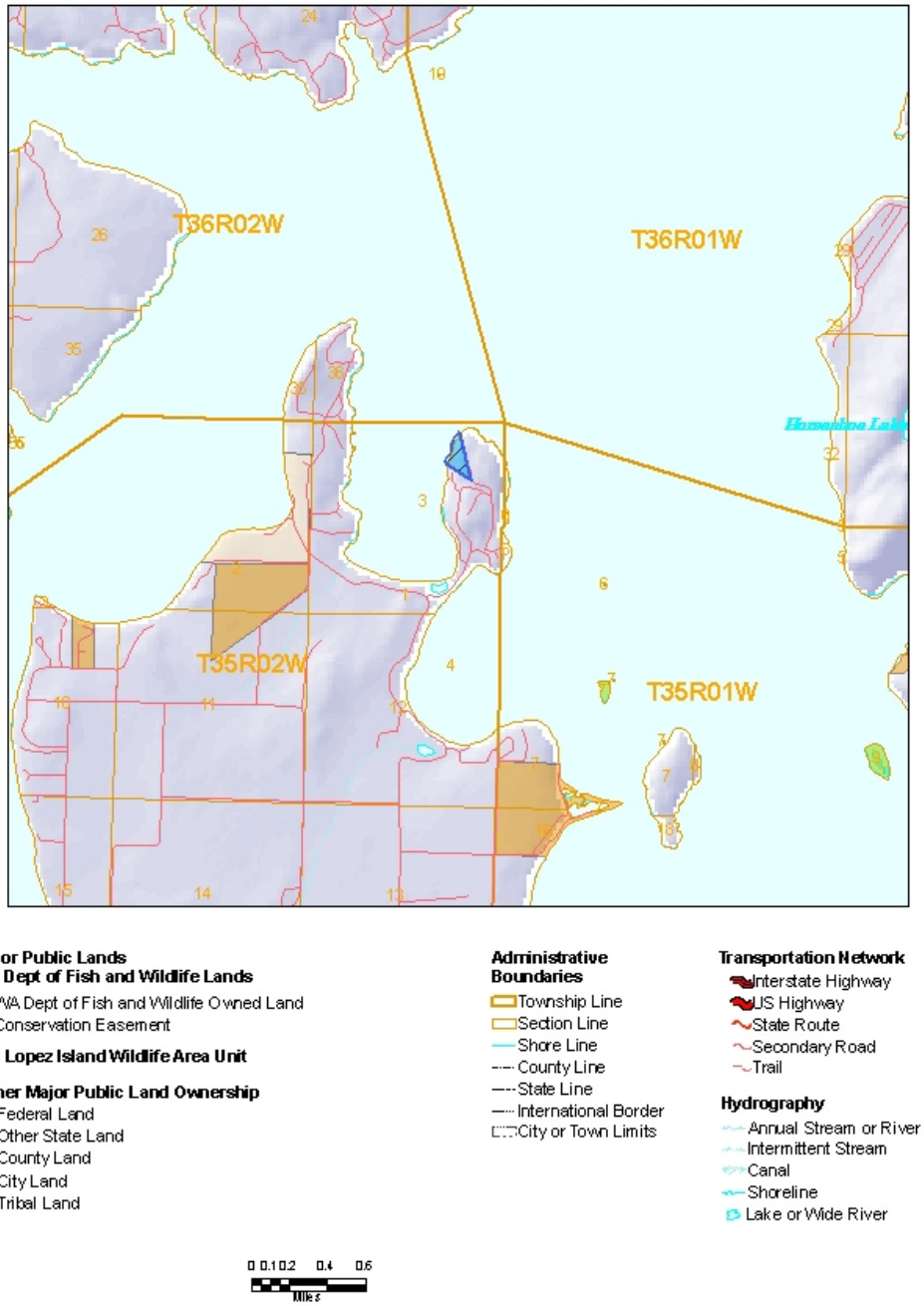


Figure 13. Samish Unit

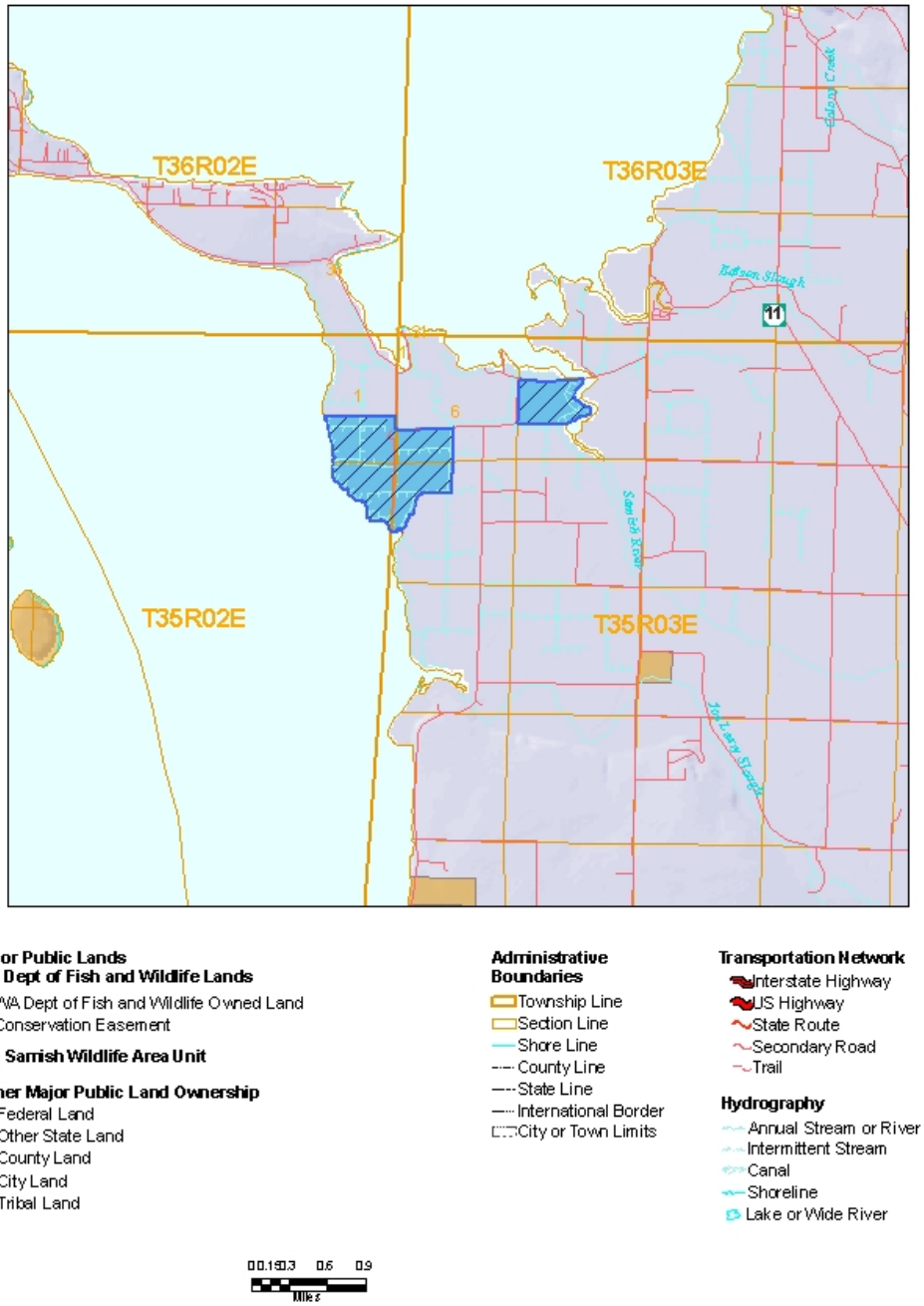


Figure 14. Sinclair Island Unit

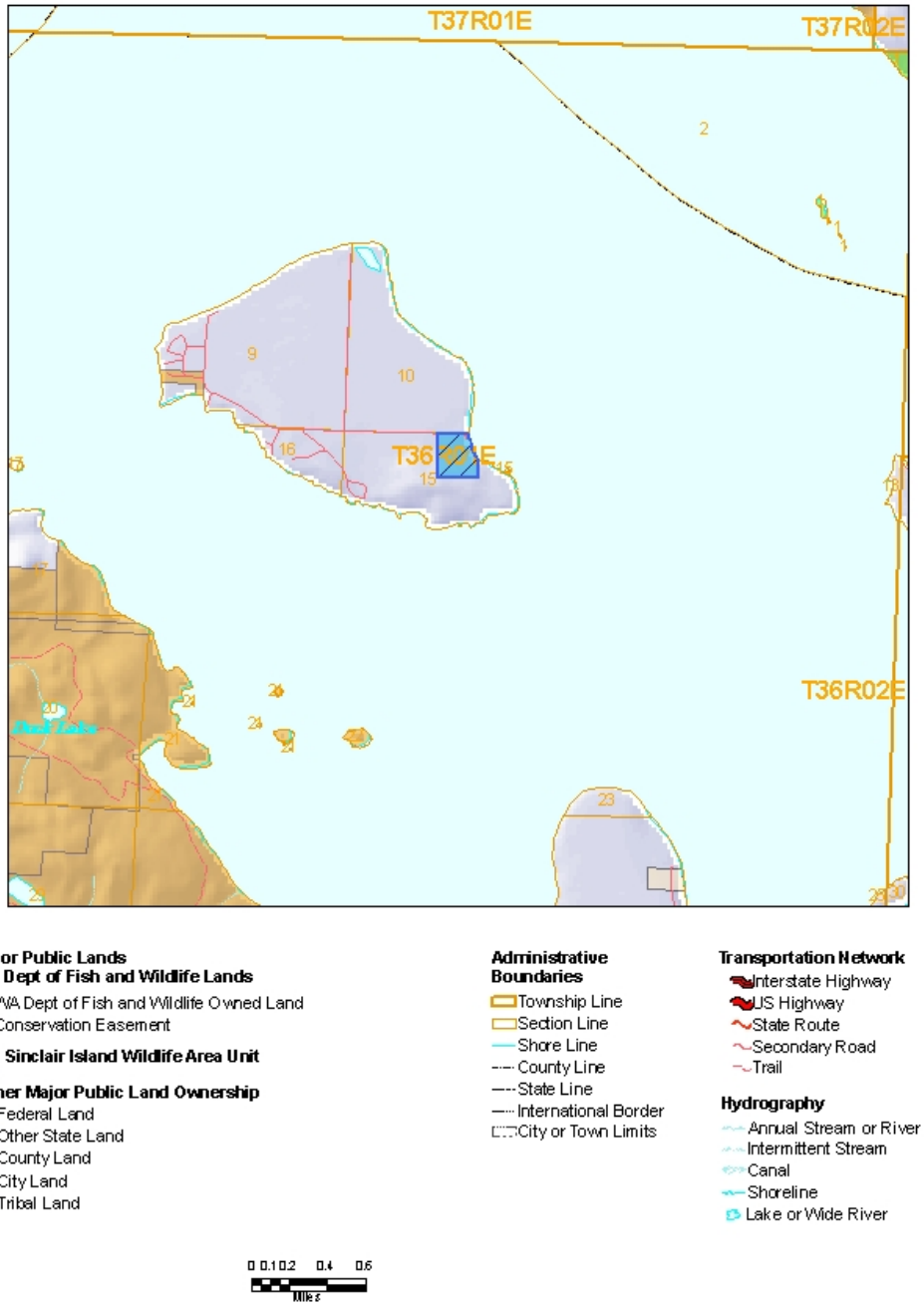
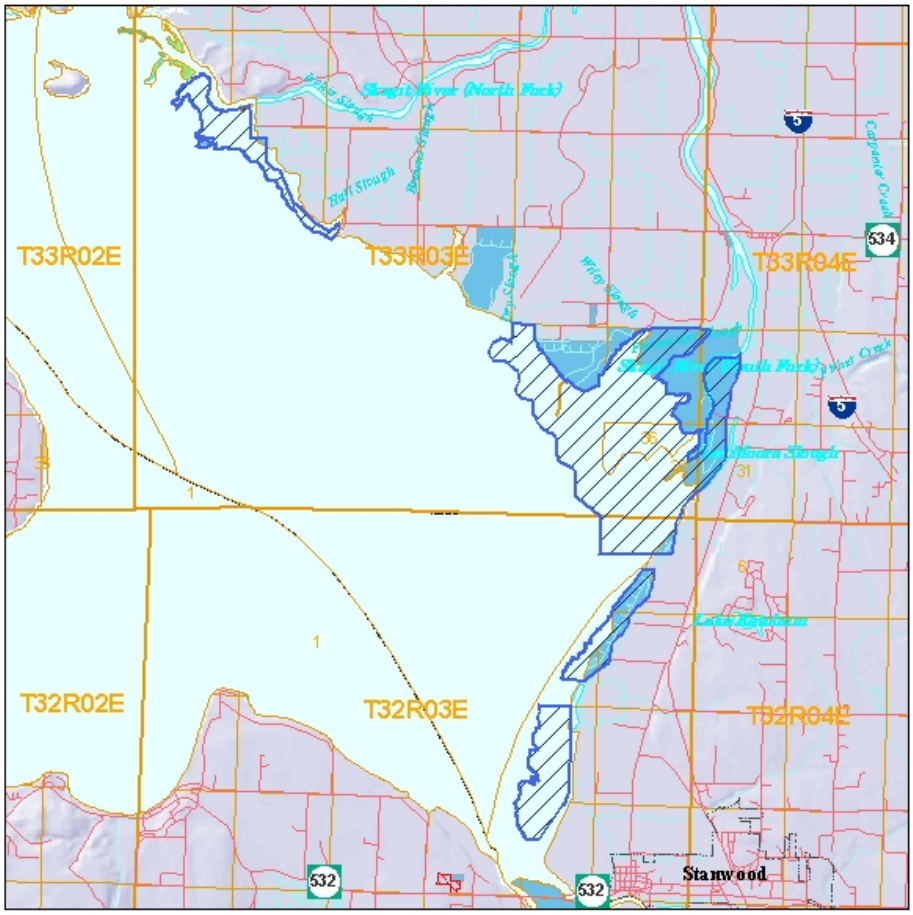


Figure 15. Skagit Bay Estuary



Major Public Lands
WA Dept of Fish and Wildlife Lands
- WA Dept of Fish and Wildlife Owned Land
- Conservation Easement
- **Skagit Bay Estuary Wildlife Area Unit**

Other Major Public Land Ownership
- Federal Land
- Other State Land
- County Land
- City Land
- Tribal Land

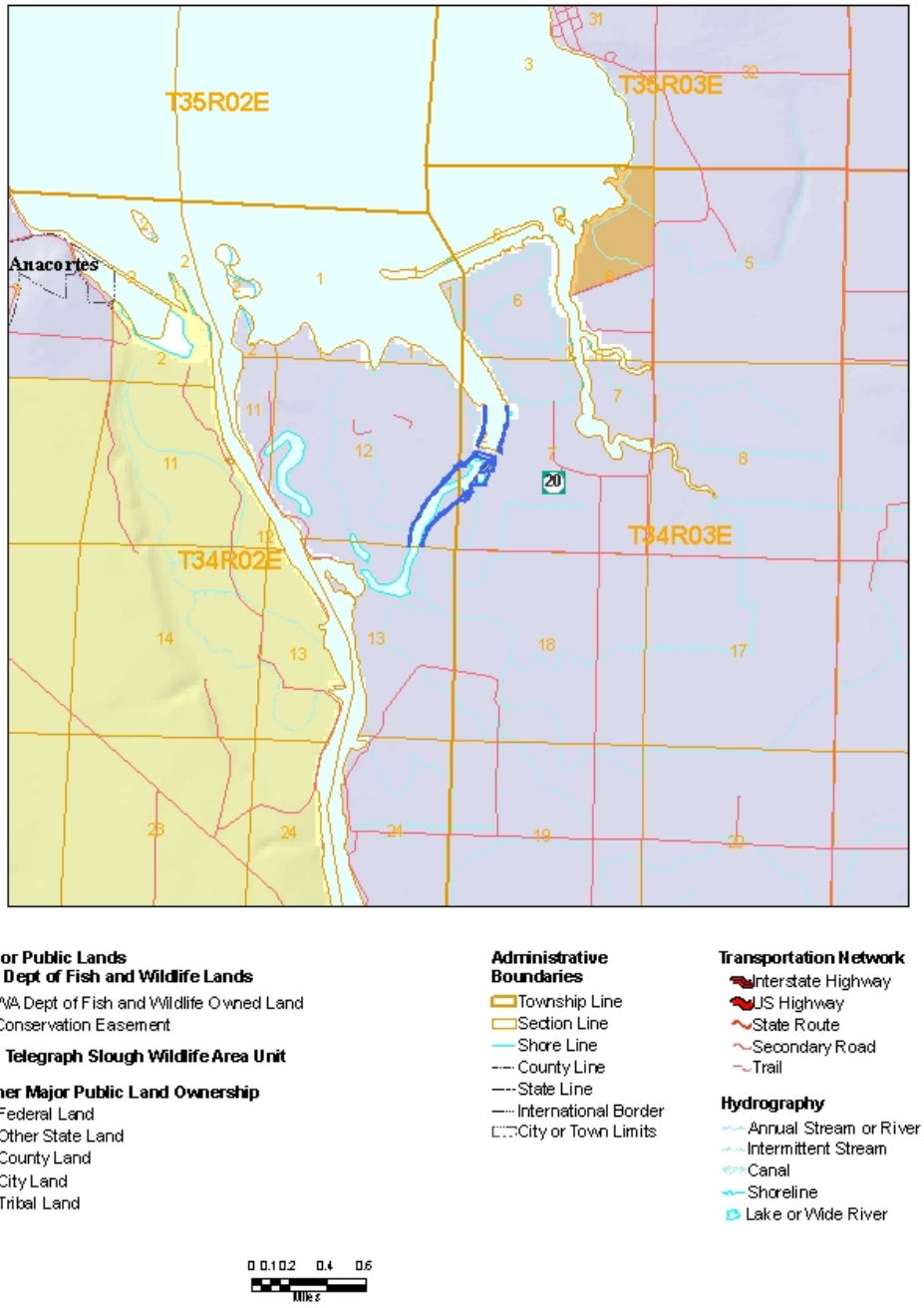
Administrative Boundaries
- Township Line
- Section Line
- Shore Line
- County Line
- State Line
- International Border
- City or Town Limits

Transportation Network
- Interstate Highway
- US Highway
- State Route
- Secondary Road
- Trail

Hydrography
- Annual Stream or River
- Intermittent Stream
- Canal
- Shoreline
- Lake or Wide River

0 0.2 0.4 0.8 1.2
Miles

Figure 16. Telegraph Slough Unit



2.2 Purchase History and Purpose

The Skagit Bay estuary and its freshwater wetland habitats provide one of the most important waterfowl wintering areas in the Pacific Flyway. The Skagit Bay estuary was the largest in Puget Sound, and was of a scale comparable to all other Puget Sound estuaries combined. The Skagit Wildlife Area was originally established to preserve the Skagit Bay estuary, which is valuable habitat for many fish and wildlife species. The diverse freshwater and estuarine wetlands within the channels and sloughs of the delta extended from its shoreline into the upland forest. By the 1860s, land conversion had begun as the Skagit River delta was heavily logged and the lowlands drained for agriculture (Beechie et al., 1994). Habitat conversion increased as settlers built dikes and improved drainage to develop farms on the rich floodplain soils. These activities resulted in a significant loss of estuarine and freshwater wetland habitats before the turn of the century.

The recent federal Endangered Species Act listing of Chinook salmon as a threatened species in the Skagit Watershed is shifting management priorities on the Skagit Wildlife Area. Currently, the number one priority is to enhance and restore degraded estuary habitats to help threatened Chinook salmon populations recover. These restoration projects will also benefit other fish and wildlife species that use or are dependant on estuarine habitats.

The initial Wildlife Area acquisitions occurred in the late 1940s, with a relatively small land purchase in the lower South Fork of the Skagit River that became the Island unit. This area was managed by the Department of Game to provide agricultural enhancements (cereal grains) for wintering waterfowl and improve recreational hunting opportunities. In 1959, the U.S. Fish and Wildlife Service traded 7,400 acres of Skagit Bay's intertidal marsh and second-class tidelands for Department lands in eastern Washington. More intertidal, island and upland acquisitions were completed in the 1960s, 1970s and 1990s, and most recently in the past few years (see Table 4).

Land was acquired with a variety of funding sources: fee purchase contracts using state wildlife funds, (75 percent reimbursable by Federal Aid in Wildlife Restoration [Pittman-Robertson Act] monies); land exchange agreements; North American Wetland Conservation Act (federal), Bureau of Reclamation (federal), Washington Interagency Committee for Outdoor Recreation (state), general state funds, Ducks Unlimited (private) and other private donations.

Bald Eagle Natural Area

This mature, undisturbed forested habitat along the upper Skagit River, between the towns of Marblemount and Rockport, was acquired over the past 30 years. The Nature Conservancy bought 603 acres in 1975-76, WDFW acquired 204 acres in 1987 from private timber companies, and in 2005 the Washington Department of Natural Resources transferred 1,643 acres of forest habitat on the hill above the Skagit River to WDFW. In addition to providing habitat for many forest-dwelling species, this 2,450-acre Natural Area boasts one of the five largest wintering aggregations of bald eagles in the lower 48 states.

From November through March, up to 300 bald eagles spend the winter here. Spawning and dying chum salmon provide most of the eagles' winter meals. To lessen disturbance, the shoreline of the reserve is closed to foot traffic. However, several roadside parking areas offer good viewing opportunities, as do private river float trips. The U.S. Forest Service hosts a Bald Eagle Festival every February.

Table 2.2 Purchase History and Purpose

Unit Name	Year Acquired	Original Purpose	Funding Source
Bald Eagle Natural Area	1975-76, 1987, 2005	Protect habitat, wildlife viewing	Interagency Committee for Outdoor Recreation, land exchange, state general fund
Camano Island Natural Area	2003	Protect sensitive species and habitat	Island County Conservation Futures, private donations to Whidbey Camano Land Trust
Cottonwood Island	2001	Protect buteo, eagle, hawk habitat	Land transfer
Fir Island Farms/ Hayton Reserve	1995	Snow goose reserve, wildlife viewing	Washington Wildlife and Recreation Program
Goat Island	1949/2004	Protect island habitat	Surplus property of the U.S. Government
Guemes Island	1991	Protect sensitive species and habitat	Washington Wildlife and Recreation Program
Headquarters	1948, 1950s	Plant grains for waterfowl and pheasant hunting	Federal Aid in Wildlife Restoration Interagency Committee for Outdoor Recreation *(Interpretative Center)*
Island	1950-52, 1965, 2002	Plant grains for waterfowl	Federal Aid in Wildlife Restoration
Johnson/DeBay Swan Reserve	1995, 1997	Swan reserve, wildlife viewing and duck hunting	North American Wetland Conservation Act, Washington Wildlife and Recreation Program
Leque Island	1974/1994, 1996	Plant grains for waterfowl and pheasant hunting	Interagency Committee for Outdoor Recreation, Washington Wildlife and Recreation Program
Lopez Island	1994	Protect sensitive species and habitat	Washington Wildlife and Recreation Program
Pheasant Plots	1940s	Pheasant habitat for hunting	Federal Aid in Wildlife Restoration
Samish	1996, 2000, 2004	Plant grains for waterfowl; enhance wetlands/hunting	North American Wetland Conservation Act, State Duck Stamp, U.S. Fish and Wildlife Service, Ducks Unlimited
Sinclair Island	1974	Protect sensitive species and habitat	Donated by Mary Leech
Skagit Bay Estuary	1948-70s	Protect waterfowl habitat/waterfowl hunting	Federal Aid in Wildlife Restoration, Interagency Committee for Outdoor Recreation
Telegraph Slough	1971	Waterfowl hunting	Manage, owned by Dept of Natural Resources

Camano Island Natural Area
WDFW purchased the Camano Island property in 2003 to protect wildlife habitat that was under the immediate threat of development. This 31.58-acre area contains a large great blue heron nesting colony that has been active since about 1991. Since these birds are sensitive to disturbance during the breeding season, human access is rarely allowed, especially from February through August. This site is actively managed by a partnership with the Whidbey Camano Land Trust, WDFW, Friends of Camano Island Parks, and Island County government.

Cottonwood Island Unit
This is a forested island south of Mt. Vernon, at the head of the Skagit River delta where it splits into north and south forks on its way to Skagit Bay. The Washington Department of Natural Resources transferred ownership of this 169.40-acre parcel to WDFW in 2001. It is representative of a historic habitat type of the Skagit Valley (prior to logging and development) and provides valuable habitat for a variety of forest birds and raptors, primarily buteos and eagles.

Fir Island Farms/Hayton Reserve
This managed agricultural land (224.70 acres on the south side of Fir Island Road) was purchased in 1995 to create a snow goose reserve. The (non-hunted) reserve provides a winter-feeding and resting area for snow geese adjacent to the Skagit Bay estuary. A local farmer, contracted to farm this property, plants a cover crop of winter wheat for snow geese after harvesting his cash crops. The contract farmer has also agreed to plant winter wheat on his adjoining property and place his farm in a formal game reserve, providing an additional 295.30 acres of winter food and resting area for the snow geese, thereby more than doubling the acres held in reserve. Prior to dike development and conversion to agricultural, this area was tidally influenced, and the North Fork of the Skagit River flowed through Dry Slough during high flows.

This unit is also a popular Watchable Wildlife site, and has a gravel road and parking area with access for the disabled. Even with this available access there are many traffic safety issues along Fir Island Road due to unauthorized shoulder parking and sudden stopping to view the birds, which often feed close to the road. “No Parking” signs have been posted along Fir Island Road in an effort to improve traffic safety.

Goat Island Unit
Located in the Skagit estuary at the mouth of the North Fork of Skagit River, this 158-acre forested island was previously owned by the federal government as a coastal defense post. Most of the island was gifted to the Department of Game in 1949; the remainder was placed in federal surplus and provided to WDFW in 2003 with the stipulation that it be preserved as wildlife habitat. Although the defense post was dismantled, four concrete gun emplacement structures remain intact. The island’s tide flats (also included) were left in their natural state and the second growth forest (typical island habitat) provides excellent roosting and hunting areas for eagles, hawks and falcons. While most of the island is elevated with steep rocky sides, surf smelt do use some of the shoreline for spawning.

Guemes Island Unit
WDFW purchased this 39-acre parcel in 1991 to protect critical habitat for a sensitive species (Peregrine falcon). It remains restricted to human access.

Headquarters Unit
This 190-acre tidal marsh (estuary) on Fir Island, west of and adjacent to Freshwater Slough, the historic vegetation was emergent marsh and scrub shrubs habitat (Collins and Montgomery 2001) used extensively by waterfowl. WDFW started to acquire the properties that formed the Headquarters Unit in 1944. The final acquisitions were completed in 1959as part of a much larger land exchange (see Skagit Bay estuary below) with the U.S. Fish and Wildlife Service. In 1962, 175 acres of estuary were diked and then drained with ditches, culverts and tide gates, a dam was built on Wiley Slough and logs were removed to create farmable land for waterfowl and foot access for hunters. To enhance the site for both hunting and viewing opportunities, 100 acres are planted annually with cereal grains (corn, pasture grass and/or barley) by local farmers under sharecrop leases or by wildlife area personnel, depending on available budgets and/or weather conditions.

The manager's residence and equipment shop/storage area were built in 1964, as were a boat ramp/parking area. This unit also includes an interpretive/information shelter with seating for about 50 people (built in 1982) plus a parking lot, two toilet facilities, 17 footbridges and pheasant holding pens. The area remains heavily used for walk-in waterfowl and pheasant hunting as well as fishing, bird dog training and bird watching. It's one of the few public pheasant-hunting sites in Skagit County. A two-mile loop dike-top walking trail attracts extensive use by wildlife watchers, dog trainers, dog walkers and joggers. The interpretive shelter was never fully funded or equipped to benefit the wide variety of uses on this wildlife area.

In 2005, a design was completed to restore 175 acres of this unit to intertidal estuary for the recovery of salmon and other aquatic species (Wiley Slough project). Building setback levees, relocating the Wiley Slough tide gate farther inland, and removing part of the perimeter levee will allow tidal and river flows to recreate channels and provide additional natural estuary habitat. Estuary and blind channel habitats have been identified as a primary limiting factor in the Skagit Watershed for the survival and recruitment of Chinook salmon, from the fry to smolt life stages. The distributary and blind channels at the river's mouth offer a brackish water habitat, where salmon smolts can adapt to life in a saltwater environment.

While the Wildlife Area office and buildings will remain, pheasant hunting will no longer be available on this site, waterfowl hunting will be limited to boats (or hunting on foot only during low tides), and the loop dike-top trail will be replaced with two out and back trails. Approx 2.5 miles of trail exist now this will be reduced to 1.9 miles of point destination trails. s. The parking area will be expanded and the boat launch area will be improved. WDFW is continuing an effort to purchase areas for replacement hunting and develop bird watching trails nearby. Detailed information about the Wiley Slough Restoration project and its design can be found on the internet at www.wileyslough.org.

Island Unit
This 273-acre island, on the Skagit River's South Fork, is located between Steamboat and Freshwater sloughs; Deepwater Slough meanders through the island's center. Prior to WDFW purchase in the 1950s, dike construction, ditching, plowing, filling and conversion to agricultural production altered most of the island's historic tidal channels. The island had then supported dairy cattle and grain farming between its five miles of dikes and 16 acres of drainage ditches, and with its wetlands, a private duck-hunting club.

Prior to WDFW ownership, the upper half of Deepwater Slough—the principal outgoing channel of the Skagit River's South Fork—was cut off from the river when local settlers built two dams, one at each end of the isolated reach. This created one island instead of two. In 2001, an estuary restoration project (Deepwater Slough) removed the two dams on that slough and reconfigured 14,000 feet of dikes to reconnect flows from Freshwater Slough to six tributary channels of the Skagit River. This returned intertidal connectivity to 230 acres of estuary habitat on the island. The project, which is currently being monitored, is estimated to provide rearing habitat for up to 2,000 additional Chinook salmon, as well as provide migratory waterfowl and shorebird habitat.

WDFW continues to plant 165 acres in cereal grains annually for wintering waterfowl and increased hunting opportunities. Waterfowl hunting, fishing, wildlife observation and hiking are allowed; access is by boat to three landing sites. Additional proposals to improve wetland and water management capabilities on the remainder of this unit will be reviewed by the Citizen Advisory Group and District Team.

Johnson/DeBay Swan Reserve
This 331-acre reserve is located on the north side of Francis Road, southwest of Sedro Woolley and northeast of Mount Vernon. The property was bought in 1995-97 to provide a non-hunted upland reserve for trumpeter and tundra swans where they can feed and rest during the winter. It contains forest, a backwater slough of the Skagit River and managed agricultural fields. Corn is planted for swans; cereal grains for ducks. This is another popular Watchable Wildlife site. Public access is restricted to two parking/viewing areas with access for the disabled. Waterfowl hunting is allowed on the eastern portion of the property adjacent to this reserve.

Leque Island Unit
Leque Island, located west of Stanwood between Port Susan and Skagit bays, was once entirely salt marsh (Collins 1998). Today it consists of wetlands and diked agricultural fields. Over the past 25 years, WDFW has purchased a majority of the island (325 acres). Contract farmers annually plant cereal grain as food for wintering waterfowl (mainly ducks and snow geese). This site offers bird watching, bird dog training, pheasant and waterfowl hunting.

In 1982, a storm combined with a high tide breeched the lower southern dike in two places, flooding both state and private property (homes) on the island. Efforts to rebuild the dikes have been proposed projects since 1973, when the first parcel was acquired.

Currently, the Salmon Recovery Funding Board has funded a cooperative project between Ducks Unlimited and WDFW to restore approximately 100 acres of Leque Island to intertidal estuary. Setback levees will be built on the south and north ends of the island, and dikes removed to

reconnect sloughs with the Stillaguamish River. This will restore tidal flooding, provide habitat where juvenile salmon can make the transition from a fresh to saltwater environment, and benefit other fish and wildlife species.

Lopez Island Unit
WDFW bought this 5-acre parcel in 1994 to protect critical habitat for a sensitive species (Peregrine falcon). It remains restricted to human access and is not actively managed.

Pheasant Plots
Numerous small study plots (30 acres in all) were purchased during the 1940s and 50s to study the factors that impact pheasant survival in western Washington. These plots were managed to provide wild food and cover for these birds in the intensively cultivated agricultural landscape. Currently, they are not actively managed. The value of these properties will be reviewed within current fish and wildlife planning efforts and land acquisition framework to determine if they should be listed as surplus.

Samish Unit
WDFW purchased 409.16 acres of agricultural land along the Samish Island Road (west of Highway 237) between 1996 and 2000. Projects to enhance wetland processes have been implemented on this unit; additional enhancement projects are proposed. The objective is to improve water management capabilities to better control wetlands in highly altered systems (diked and drained agriculture situations). One method that can be used is called "moist soil management".
Moist soil management uses disturbance (disking, fire, crop rotations, water, etc.), water level control (flooding and drainage), and knowledge of wetland plant and invertebrate communities to recreate a diverse wetland habitat within a managed unit (Fredrickson and Taylor1982). Managed wetland units attempt to mimic—on a condensed scale—the habitat types that would have occurred naturally across a larger landscape, such as the Samish and Skagit River floodplains. Water management allows WDFW to manipulate water levels to recreate wetland plant communities, it also makes these habitat resources to be made available to a wider variety of bird groups that might use these areas during migration or winter.

Twenty-three ponds on this unit currently provide the foundation for future wetland management options. Agricultural/cereal grain enhancements are also implemented on approximately one half of the acreage currently available, in an effort to provide habitat diversity for wintering waterfowl, shorebirds, and numerous other non-hunted wildlife species.

Recreational activities on this unit include waterfowl hunting, a weekend youth-only pheasant hunt, and wildlife observation. This is also a popular Watchable Wildlife site for waterfowl, shorebirds, and birds of prey. Project partners, such as Ducks Unlimited and the Washington Waterfowl Association, are working with WDFW to improve ADA access for wildlife viewing and hunting opportunities. A crushed rock parking area for approximately 30 vehicles provides access. A short ADA crushed rock trail leads to the first pond.

Samish River Unit
Approximately 105 acres of agricultural land was purchased in 2004. It has been placed in a perpetual easement under the Natural Resource Conservation Service's Wetland Reserve program. They will direct the implementation of a wetland restoration project here.

Sinclair Island Unit
In 1974, Mary Leech donated 35 acres at the southeast end of Sinclair Island to the Department to be preserved as a wildlife natural area. No one has lived on the property since the 1930s. This acreage contains second growth woods, a remnant orchard, fallow pastures, a marsh and stream, providing habitat for a wide variety of island mammals, songbirds and raptors. Access is by boat or kayak only.

Skagit Bay Estuary
Prior to the 1940s, the U.S. Fish and Wildlife Service owned 7,425 acres of intertidal marsh and second-class tidelands on Skagit Bay. In 1959, through a land exchange agreement, the federal government conveyed all of its bay ownership to the Department of Game for land that is now the Columbia White-tailed Deer Refuge in NE Washington. With additional purchases and acquisitions over the years, WDFW now owns approximately 13,000 acres of estuary in Skagit, Snohomish and Island counties. Six access sites (Headquarters, Milltown, Big Ditch, Jensen, North Fork, and Davis Slough) and one boat ramp (Headquarters Unit), provide entrance to the wildlife area for waterfowl hunting, fishing, wildlife observation, hiking, boating and kayaking.

The Skagit estuary contains critical habitats for waterfowl, shorebirds, fish and other aquatic species. Prior to conversion, the Skagit estuary covered approximately 25,766 acres (Bortleson et al. 1980). It is estimated that 75 percent of the historic estuary habitat has been lost due to dike building, water diversion, and drainage activities (since before the turn of the century) and changes in the frequency and magnitude of flood events on the Skagit and Stillaguamish rivers. Upper Skagit River hydroelectric dams have also contributed to the loss of estuary habitat.

WDFW is working with the Skagit River System Cooperative to improve and restore natural hydrologic processes in the estuary. These projects will restore it to a more natural condition that can benefit various species of salmon, waterfowl, shorebirds, and other aquatic species. Currently, projects are underway for the Headquarters Unit (Wiley Slough) and Milltown Island.

Telegraph Slough Unit
During the early 1970's, the construction of State Highway 20 (crosses the Swinomish Channel to Fidalgo Island) was built through a portion of Telegraph Slough. This created a shorter intertidal slough on the north side of the highway, and a freshwater wetland on the south side. The Department of Natural Resources owns the 30-acre isolated wetland and a land use agreement with them allows WDFW to manage that area for appropriate recreational opportunities, such as waterfowl hunting and wildlife observation. A parking area on the south side of Highway 20 provides access.

2.3 Ownership and Use of Adjacent Lands
Most of the Skagit Wildlife Area units are in the floodplain and deltas of the Skagit and Stillaguamish rivers. Adjacent to them are private lands that were diked and drained beginning at the turn of the century for agricultural production, mainly cereal grains (corn for cattle, winter

wheat and barley), vegetables (potatoes, broccoli, cauliflower, carrots, peas, cucumbers) or dairy farming. The various units are surrounded by private residences, farms, and/or undeveloped woodlots.

Most of the public tidelands along the mainland that are not owned by WDFW belong to the Washington Department of Natural Resources or the U.S. Bureau of Land Management. These agencies manage land for natural resource protection, and each has different objectives for habitat, wildlife management and salmon recovery. A majority of the public tidelands owned by the Department of Natural Resources have been withdrawn from lease or sale to be managed as "public shooting grounds" by statute, and provide additional hunting opportunities for waterfowl hunters on Skagit Bay. The U.S. Forest Service owns land adjoining the Bald Eagle Natural Area.

The Headquarters Unitlocated on Fir Island 2.5 miles southwest of the town of Conway. The nearest city is Mount Vernon (population 28,000), eight miles north. The Skagit Wildlife Area lies between two of the Pacific Northwest's largest metropolitan areas, Seattle and Vancouver, B.C. Within this 70-mile radius live more than two million people. This proximity to large urban centers has fueled growth locally as well. The area's population has doubled in the past 30 years, bringing buildings and pavement with it. Despite strong pressure for development in the basin, Skagit County remains the most sparsely populated county in the Puget Sound. A significant share of the local economy is based on natural resources such as timber and agriculture. Secondary industries include lumber and wood products, and processing food products.

Interstate 5 runs north and south through the nearby population centers just 2.5 miles east of the Headquarters area, making access by automobile ideal. The Skagit Valley is the gateway to a variety of outdoor recreational opportunities. Fishing is a major activity throughout the county, and the Skagit Wildlife Area and nearby river valleys and bays are some of the most heavily hunted waterfowl areas in western Washington. For several years other user groups have outnumbered hunters and anglers—hikers, dog trainers, bird watchers, photographers, and boaters.

Local tribes (Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish and Tulalip) have vested hunting and fishing rights in the Skagit and/or Stillaguamish rivers and/or Skagit and Port Susan bays. Although much of the land is owned by private or public agencies, these tribes still retain an active interest in managing the natural resources of these areas.

2.4 Funding

Operational funds to manage the Skagit Wildlife Area come from three sources: Federal Aid in Wildlife Restoration (Pittman-Robertson) funds, state general funds and Washington State Duck Stamp funds (Figure 17). State general funds provide a 25 percent match for Federal Aid dollars. The current one-year budget (July 1, 2005 to June 31, 2006) includes $74,250 in Federal Aid funds, $35,000 in state duck stamp funds, and $24,750 in state general funds. This $134,000 supports all operations and maintenance including salaries on the Wildlife Area. Program income from agricultural leases help supplement the baseline wildlife area budget.

Portions of four staff positions are supported as a part of the Skagit/Snoqualmie Wildlife Area complex including:
1.0 FTE Wildlife Area Manager (fish and wildlife biologist 3)
1.0 FTE Assistant Wildlife Area Manager (fish and wildlife biologist 2)

1.0 FTE Natural Resource Tech 2
0.5 FTE Laborer

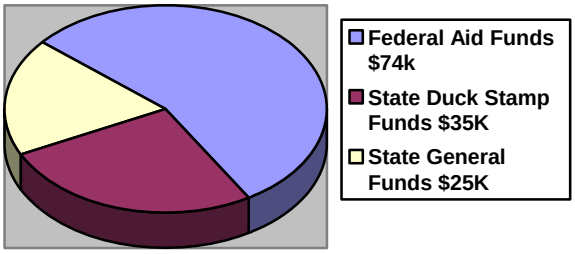


Figure 17. Skagit – Wildlife Area Funding Sources

Expenditures of time and money to repair or replace habitat features and capital investments damaged by flooding probably equal all other expenses combined for the Wildlife Area over the last twenty years. WDFW and Wildlife Area staff will, as part of the implementation of this plan, submit grant proposals and applications and identify other strategies to address unfunded management needs on the wildlife area.

2.5 Climate

The climate of the Skagit Wildlife Area is moderated by the winds of the Pacific Ocean. Wind is an important climatic factor here, keeping temperatures warmer in winter and cooler in summer. Temperatures in the area are moderate with warm summers and cool winters; hot and freezing days are rare. The average temperatures vary from 38 to 44 degrees F in winter to 50 to 62 degrees F in summer (Klungland 1989).

While temperatures among units are very similar, average precipitation can be variable (32-70 inches) due to their differences in elevation and distance from the Pacific Ocean and Puget Sound. Rain is frequent during the fall and winter (October-March) but light during the summer with several weeks of no precipitation (summer drought). The lower Skagit Valley is very low in elevation, so air masses are warmed in their descent, retaining moisture. Precipitation on the average is lower here than in other areas west of the Cascades. Average yearly precipitation in the lowland is 34 inches, falling as rain mainly between October and March. Snowfall averages eight inches annually, with very little accumulation. The near shore winds not only moderate temperatures but also can magnify tidal action, when high velocity winds and high tides are combined it can result in extensive dike damage and local flooding.

2.6 Soils and Geology

Up until 5,500 years ago, the Skagit River Delta did not exist; that area was part of Puget Sound and nearly 300 feet under water. Then voluminous volcanic mud flows from an active volcano (Glacier Peak) created an extensive low-gradient delta on the Skagit River. As the glaciers receded over time, their melt water transported the volcanic mud and other sediment from higher elevations to lower elevations. When the sediment-laden river reached the lowest elevations (the Skagit flats), the current slowed and deposited sediments on the floodplain. Here the river divided into progressively smaller channels (distributary channels) as sediments were distributed across the flat, level landscape, forming the delta front. Blind tidal channels were formed in the mudflats and

emergent marsh plains by daily tide activity. These channels develop a morphology (depth, width, sinuosity) that is directly related to the volume of tidal flow that they drain.

These channels conveyed fine sediments and nutrients to the intertidal zone where they formed mudflats. Sediment was also transported and deposited across the floodplain during flood events, which contributed to the growth of the delta front and tidal marsh. As these areas are altered by wind, waves, tides and floods, and combined with large woody debris, diverse landforms are created such as ridges, swales, blinds channels, natural levees, etc. This complex landscape and variable fresh and saltwater environments provide diverse growth conditions for many plants ranging from grasses and sedges to scrub-shrub and forested wetland.

Even today, the Skagit River system is sediment-rich and contributes about 39 percent of the total sediment load received by Puget Sound (Downing 1983). The dike building that occurred after initial settlement disconnected the river from a large portion of its delta, floodplain, and intertidal zone. Now the confined Skagit River drops more sediment at its mouth because it has less area to deposit sediment in. At the river's mouth, sediment deposits and mud flats are exposed during low tides, making the estuary-building process visible. Because of the confined river channel and other land use changes, the natural sediment erosion and distribution processes have been affected, and the river channel has been silting in at a much faster rate than it did prior to dike construction.

The general elevation in the lowlands is five feet or less and only two places exceed ten feet in elevation (Goat and Craft islands). Most of the Skagit Wildlife Area acreage is what remains of the intertidal mud flats and marsh following dike and drainage activity.

The Skagit River deposited Holocene alluvial sands after the last glacial period. This alluvial deposit is quite thick and can vary significantly from coarse sands to silt and clay. The marsh deposits consist of silt, sand, or clay with variable amounts of decaying organic matter. Even with the variety of formative process at work within the Skagit River system (such as glaciers, volcanoes, etc.) only ten soil types exist on the Skagit Wildlife Area, and of these only four are prevalent. Outside of the dikes, the soils are classified as tidal marsh with up to one percent slope of mixed alluvium and marine deposits. Of the land protected by the dikes, the soils are classified as Lummi silt loam, Lummi silty clay loam, and Puget silty clay loam. All have up to one percent slope, a fine texture, poor natural drainage, medium to high acidity, and a high natural fertility.

2.7 Hydrology and Watersheds

Water is a valuable resource, the presences and movement of it through the landscape creates a diversity of habitat types on the Skagit Wildlife Area. The Skagit and Stillaguamish rivers provide an abundance of fresh water. The Skagit is the second largest river in Washington State. The North Fork of the Skagit River forms the Wildlife Area's northern border, and many channels of the South Fork run through the Area's core. The South Fork of the Stillaguamish River approximates the southern limit of department ownership.

The Skagit River is the largest river system flowing into Puget Sound, draining about 3,130 square miles. It includes the Sauk, Suiattle, Cascade, and Baker rivers and incorporates approximately 2,900 smaller tributaries. Within this river system there are numerous habitat types, from fast water with cascading watercourses to slow lowland streams. More than two miles of the Skagit River flow through this wildlife area. Peak flows occur in early summer (snowmelt events) and late fall

(rain events). The Skagit River system has four dams on its upper reaches, and an annual flow average of 16,820 cubic feet per second.

The Stillaguamish River, smaller than the Skagit, has a mean flow of 3,200 cubic feet per second. Unlike the Skagit River, it is not impounded, so flows vary widely. Peak flows are usually in late spring; low flows usually in late summer. It also carries a heavy silt load and is building its delta in Port Susan Bay at a rapid rate. Recent logging and the faster pace of development in this watershed have increased water turbidity and summer temperatures in many reaches.

Skagit Bay, the western boundary for a portion of the Wildlife Area, is the source of saltwater. Tidal action and the mixing of fresh and saltwater create a rich estuarine environment. The hydrologic functions of this estuary are important in holding nutrients and producing a high volume of organic material. Its intertidal zone fluctuates from minus three feet to more than 14 feet (mean tidal range is 7.8 feet).

Estuarine habitat in Puget Sound has declined dramatically since Euro-American settlement (Bortleson et al. 1980, Collins and Montgomery 2001). They report that in the Skagit River delta, tidal channels were numerous and wetland complexes covered more than half the delta. This meant a large amount of land was in contact with saltwater. Since settlement however, many open (river) channels and blind (ocean) channels were converted to ditches to drain low-lying farmland and were no longer accessible to fish. Phinney et al (1975) reported that more than 100 miles of drainage ditches exist in the Skagit delta alone. In addition, much of the land isolated by dikes has been ditched, dredged or filled, resulting in a considerable loss and conversion of estuary wetland habitat.

In the Skagit delta approximately 60 percent of tidal emergent habitat has been lost and 94 percent of tidal scrub shrub habitat has been lost (Hood, unpublished data). These areas provide critical habitat for a wide variety of fish and wildlife, including shorebirds, ducks, geese, swans, raptors, river otters, beaver, harbor seals, and many fish, most notably juvenile salmonids. Of the salmonids, chinook are the most dependent on estuarine rearing habitat and Puget Sound chinook are listed as threatened by the Endangered Species Act (64 Federal Register 14308, March 24 1999).

Major flooding has occurred on a regular basis in the Skagit River Basin. Because of its geographic location, it is subject to winter rains and an increase in discharge during spring due to snowmelt runoff. Rain-type floods occur usually in November or December, but may occur from October to February. Precipitation serves to build up ground water reserves. Two or more crests may be experienced within a period for a week or two as a series of storms move across the basin. Winter floods have a considerably higher magnitude than the average annual spring high water. See Appendix C for more detailed information on flooding events and the wildlife area's flood awareness and evacuation plan.

The 1990 Fir Island flood caused major dike breeches and damage to the Skagit Wildlife Area's capital features (Area office, manager's residence, outbuildings), as well as neighboring land and residences. This flood event also damaged heavy machinery, roads, and the Skagit Wildlife Area moorage facility. The other previous flood that caused major damage on Fir Island occurred in 1951. Major upgrades to the Fir Island dikes and WDFW dikes have been completed since 1990,

and the risk of flooding during future high water events has been greatly reduced. See Appendix E for the wildlife area's water rights inventory.

2.8 Fire History

The only fires on this Wildlife Area have been the manager's residence burning down as a result of indoor electrical wiring problems in 1980, and a small grass fire on the Island Unit in 1981. See Appendix 4 for the Skagit Wildlife Area's Fire Control Plan.

2.9 Vegetation

The characteristic habitats of the Skagit Wildlife Area—significantly influenced by the ubiquitous presence of water—include open water, island shoreline, tidal mudflats and marshes, forested uplands, and agricultural (diked) land.

Open water/estuary/marsh

This Wildlife Area is approximately 80 percent open water/estuary/marsh due to the thousands of acres in intertidal estuary ownership in Skagit Bay, mudflats, emergent and scrub-shrub marshes and wetlands, plus the forks of the Skagit River and its distributary sloughs. In the estuary's intertidal zone (area between the low and high tides), there are mudflats with limited vegetation that transition to the marsh area. The most common plants are marsh and wetland-grasses, sedges and rushes including American three-square bulrush, Lyngby's sedge, common rush, cattail, seaside arrow grass and salt grass, plus kelps, and green, red and brown algae. Related shrubs include sweet gale, Pacific ninebark, black twinberry and hardhack spirea. On the island units, only a relatively narrow band of intertidal habitat exists as a result of the steep fjord-like character of Puget Sound's nearshore areas.

Skagit Bay

Forested land

Forests comprise approximately ten percent of the Wildlife Area's total acreage, mainly on island units, the Bald Eagle Natural Area, and along riparian corridors. Deciduous, coniferous and mixed lowland forests include evergreen trees such as Douglas fir, western hemlock, Sitka spruce and western redcedar and deciduous trees including bigleaf maple, red alder and madrone. Typical forest-habitat shrubs are Indian plum, salmonberry, salal, oceanspray, Oregon grape, red huckleberry, wild rose, vine maple, snowberry, red-osier dogwood, and of course ferns, especially

sword fern. Riparian corridors (mostly diked) along the sloughs and the lower forks of the Skagit River contain red alder, black cottonwood, big leaf maple and willow tree species, while the under story vegetation is composed mainly of salmonberry, elderberry and ferns. Dikes offer important vertical structure in the vast extent of open, flat tidelands and fields. These dense stands of trees and/or shrubs provide hiding, escape and thermal cover, shade, foraging and nesting sites and perches for fish and wildlife.

Non-forested land

About ten percent of the Skagit Wildlife Area consists of diked agricultural lands and fallow fields. The farmed areas are planted annually with cereal grains and corn to provide winter food for waterfowl.

Invasive plant species

Plants introduced from other parts of the country or the world, whether intentionally or accidentally, can sometimes present a threat to native flora and fauna. Invasive species are those that aggressively crowd out, out-compete, or consume native species. They spread rapidly and can dominate more desirable species. The current threat to Puget Sound nearshore habitats is *Spartina*, an invasive aquatic cordgrass that can outcompete the native three-square bulrush (*Scirpus americanus)* in the mid to upper intertidal marsh and can cover tidal mud flats, which typically had little or no emergent vegetation. A detailed weed management plan for the Skagit Wildlife Area can be found in Appendix 2.

2.10 Important Habitats

The Washington Department of Fish and Wildlife identifies estuaries, wetlands, riparian zones and cliffs as priority habitats due to important or unique features that significantly affect fish or wildlife populations. Recent research on Fir Island (contains Headquarters Unit and Fir Island Farms/Hayton Reserve) estimates that it has lost about 72 percent of its historic tidal marsh habitat, including 68 percent of its estuarine emergent habitat, 66 percent of its transitional estuarine forested habitat, 94 percent of its tidal scrub-shrub habitat and 84 percent of its riverine tidal habitat (Williams et. al., 2004 working document).

Estuary

Estuaries consist of deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5 percent during the period of average annual low flow. Estuaries have high fish and wildlife densities and species diversity, and are important breeding habitat as well as important fish and wildlife seasonal ranges and movement corridors. They are not common and are highly vulnerable to alteration.

The Skagit Wildlife Area contains the largest estuary complex in the Pacific Flyway north of Mexico. This unique habitat was the primary motivator to purchase the area, as it provides essential feeding and loafing grounds for migrating ducks, geese, swans, shorebirds, and marine fish, in addition to excellent hunting grounds for bald eagles, peregrine falcons, other birds of prey and marine mammals.

The Skagit Estuary serves many important functions for downstream migrant fish such as salmon . Certain life history types of Chinook fry migrants will spend weeks to months in the Skagit delta before migrating to the open ocean (Beamer et al 2005). The estuary's distributary and blind channels offer them food, safe refuge from predators and swift moving currents, and the environment needed to make the transition from fresh to saltwater. Juvenile salmon, especially Chinook, need time to go through the physiologic changes necessary for to live in saltwater. The estuary's distributary channels are also migration corridors for juvenile salmon leaving the river system and adult salmon returning to spawn.

Restoration of altered estuarine habitat will be important in the Department's efforts to restore habitats for salmon and related fish species. Reconnecting side channels provides summer and winter refuges that are rich in food for young salmon and are out of the fast, often silt-laden flow of the main channel. This will increase the health and numbers of young salmon reaching the ocean—a particularly important step for our threatened populations of Chinook salmon.

Marine/estuarine shorelines

Shorelines in marine and estuary environments, such as the Skagit, are comparatively high in fish and wildlife densities and species diversity, and offer important fish and wildlife seasonal ranges. Yet these shorelines are increasingly limited as they are highly vulnerability to habitat alteration (diking, human development, erosion). Shoreline habitats can consist of intertidal and shallow subtidal shores colonized by eelgrasses, patches of sedentary floating aquatic vegetation (kelp beds), and non-emergent green, red, and/or brown algae plants (turf algae) growing on solid substrates (rocks, shell, hardpan).

Riparian corridors

Riparian corridors are streamside buffers that contain elements of both water and land and continually influence each other. Riparian corridors provide food, shelter, and shade for both fish and wildlife. These plant corridors also reduce the amount of sediment and contamination that enter water bodies when it rains. Riparian habitat begins at the ordinary high water mark and extends to that portion of the landscape that is influenced by, or that directly influences, the aquatic system (up to 300 feet away). Riparian habitat includes the entire floodplain and riparian areas of wetlands that are directly connected to streams.

Riparian corridors have a high fish and wildlife density and species diversity, contain important fish and wildlife breeding habitat, seasonal ranges, and movement corridors. However, they are highly vulnerability to habitat alteration (dike building, human development, erosion), and yet are home to unique and dependent species of fish and wildlife. This habitat greatly influences the quality and health of fish habitat and water quality in the Skagit River itself. Riparian vegetation provides thermal cover, creates stream channel features such as pools, and maintains stream bank stability—all of which continue to be problems along the Skagit River.

Cliffs

Cliffs more than 25 feet tall and occurring below 5,000 feet in elevation offer significant wildlife breeding habitat for dependent and sensitive species. On various units, rock cliffs and outcrops are scattered among steep forested slopes and provide excellent, protected nesting sites.

2.11 Fish and Wildlife Resources

Fish and wildlife diversity is a primary goal guiding the WDFW management efforts. The various units comprising the Skagit Wildlife Area contain a wide range of estuary- and riparian-dependent aquatic and terrestrial species, as well as federally threatened bald eagles, marbled murrelets, and anadromous Chinook salmon populations. Salmon and wildlife are important co-dependent components of regional biodiversity, and deserve far greater joint consideration in land-management planning, fishery management strategies, and ecological studies than they have received in the past.

Birds

Birds abound on the Skagit Wildlife Area year round; indeed the bird diversity found here (190 species) is equaled in very few other temperate areas of North America. Waterfowl arrive in the highest numbers in winter—up to 200,000 dabbling ducks, 60,000 diving ducks, 40,000 to 70,000 lesser snow geese (depending on the year) and 3000-4000 trumpeter and tundra swans. Wintering birds include the bufflehead, ring-neck, greater and lesser scaup, pintail, mallard, gadwall, widgeon, green and blue wing teal and greater Canada goose, as well as tundra and trumpeter swans.

Snow Geese

Snow geese, Brant, canvasbacks, grebes, loons and other migrating waterfowl pass through annually. Snow geese migrate from Wrangel Island, Russia to spend winters in Island, Skagit and Snohomish counties. Black and grey-bellied Brant migrate south from parts of Alaska, Canada and Wrangel Island, Russia. The WDFW, U.S. Fish and Wildlife Service and Canadian Wildlife

Service jointly conduct aerial counts every January. Table 5 shows the results of these surveys from 1997 through 2003 (Canniff, 2003).

Table 2.3 Mid-Winter Aerial Waterfowl Counts

Species	2003	2002	2001	2000	1999	1998	1997
Mallard*	62,785	92,096	74,659	98,618	126,554	90,259	52,005
Pintail*	35,028	36,540	26,075	46,932	49,606	26,413	7,655
American widgeon*	48,212	58,679	54,574	59,978	87,969	70,984	14,987
Green-winged teal*	2,775	4,225	1,542	4,347	6,161	1,209	1,068
Total Dabblers	*148,900*	*191,540*	*156,850*	*209,875*	*270,290*	*188,865*	*60,010*
Snow geese	70,488	57,500	56,418	49,722	47,132	46,364	45,200
Black and grey-bellied Brant*	4,880	8,955	4,881	7,915	9,345	6,340	6,220
Total Geese	*75,368*	*66,455*	*61,299*	*57,637*	*56,477*	*52,704*	*51,420*
Trumpeter swans	2,160	2,221	2,397	2,270	1,953	1,521	1,590
Tundra swans	1,905	1,305	1,551	1,819	1,281	1,782	1,541
Total Swans	*4,065*	*3,526*	*3,948*	*4,089*	*3,234*	*3,303*	*3,131*

**Includes birds in Island, Skagit, Snohomish and Whatcom counties*

Hundreds of thousands of shorebirds also stop here every year. In turn, this density of waterfowl and shorebirds attracts raptors such as bald eagles, peregrine falcons, northern harriers, red-tailed hawks, rough-legged hawks, short-eared owls, barn owls and an occasional golden eagle, gyrfalcon, snowy owl and merlin. About 30 nest boxes for wood ducks have been put up throughout the wildlife area with assistance from local scout troops and other volunteers.

Pheasants (3,600 to 3,800) are released annually on the Headquarters, Leque Island, and Samish (youth hunt only) units each fall. Very few birds survive the winter months. Table 6 shows the average upland bird and waterfowl harvest in this and two neighboring counties for the past three hunting seasons. While all pheasant hunting is done exclusively on the WDFW wildlife areas, waterfowl hunting also includes private and federal areas.

Table 2.4. Average Bird Harvest, 2001-2004 Season

County	Pheasants	Ducks	Geese
Skagit	1,848	37,598	1,676
Snohomish	1,981	19,366	1,029
Whatcom	3,401	23,596	1,138

Fish

Native fish species found in the Skagit Wildlife Area's salt and fresh water environments include such game fish as sturgeon, surf smelt, sand lance, Pacific herring, sea-run cutthroat trout, three-spine stickleback, lamprey; spring, summer and fall chinook salmon (hatchery and wild); pink salmon (wild), chum salmon (wild), coho salmon (hatchery and wild), summer-run steelhead (hatchery), winter-run steelhead (hatchery and wild) and bull trout.

Two of Puget Sound's three primary forage fish—surf smelt and sand lance—need specific sizes of substrate at or near the top of the intertidal zone in which to lay their eggs (from sand to very small gravel below 4 mm in diameter) while the third—Pacific herring—attach their eggs to eelgrass and kelp (Bargmann 1998).

Chinook, steelhead and bull trout are all considered important culturally, ecologically and economically to the Skagit Watershed. These species are present (or were historically present) year round throughout the Skagit River system (prior to dams) in one life stage or another. The Skagit was once home to one of the largest runs of wild Chinook salmon in Puget Sound, with thousands of fish returning each year. But by 1999, the number of returning wild spawning spring chinook had dropped so low (471 fish) that the National Marine Fisheries Service listed Puget Sound chinook as “threatened” under the Endangered Species Act (Pacific Fishery Management Council 2000). Many factors have contributed to the decline in Chinook populations, including over-harvest, competition from hatchery fish, water quality degradation, and habitat loss. Research conducted by fisheries scientists in the Skagit delta and elsewhere (Aitkin 1998) shows that estuarine habitat is extremely important in the life cycle of wild Chinook salmon, and that the lack of this habitat may limit the ability of those stocks to recover to harvestable levels.

Specific anadromous fish (fish that migrate from fresh water to salt water and back again), such as salmon, steelhead and bull trout, use certain parts of the Skagit Bay estuary for various periods of time (Healey 1982; Simenstad et al. 1982). Several species stop in the estuary as juveniles to feed and gather strength for their ocean journey. Their main food is insects or small aquatic invertebrates that eat marsh plants (Healey 1982). Most anadromous fish use heavily vegetated side channels and blind (dead-end) sloughs of a healthy estuary to escape predators and get used to salt water (Simenstad et al. 1982). When estuaries are levied and diked, juvenile fish are forced into main channels where water is deep, currents are strong, food is scarce, and predators can easily find them. Of the five species of Pacific salmon that return to the Skagit River to lay their eggs, chinook, chum and pink salmon use the Skagit estuary most extensively. Chinook salmon are, by far, the most dependent on the estuary.

Chinook salmon have a complex life history, and display wide variations in the timing of their migration and residence in different parts of the Skagit River system. There are, however, two general migration patterns in Chinook salmon — stream-type and ocean-type. Chinook salmon that spend their first year of life in the river are called stream-type. Chinook salmon that migrate into marine waters (Puget Sound) during their first year of life are called ocean-type. Ocean-type Chinook swim down to the estuary as juveniles (up to six months old) where they stop to feed for a period of time ranging from a week to half a year (Simenstad et al. 1982).

Of all Puget Sound salmon stocks, ocean-type Chinooks rely most heavily on the estuary to complete their life cycle (Aitkin 1998). The relatively short river basins and rich estuaries of Puget Sound have favored the ocean-type life history strategy (Pacific Fishery Management Council 1999). In the Skagit River system, juvenile Chinook salmon grow fastest in emergent tidal marsh habitat compared to transitional and forested wetland habitats found further upstream.
The strong connection between estuaries and ocean-type Chinook salmon makes them more susceptible to changes in the estuary’s productivity than stream-type Chinook salmon. Estuaries may be "overgrazed" when large numbers of ocean-type juveniles enter the estuary together (Reimers 1973, Healey 1991). The potential also exists for large-scale hatchery releases of fry and fingerling ocean-type Chinook salmon to overwhelm the production capacity of estuaries (Lichatowich and McIntyre 1987).

Mammals
Although an extensive survey has not been conducted, research and personal communication with various specialists indicate that approximately 40 species of mammals live on the Skagit Wildlife Area. Mammals observed here include black-tailed deer, coyote, raccoon, opossum, skunk, cottontail rabbit, bats, beaver, muskrat, river otter, harbor seal, red fox, weasels, mice, shrews, moles and voles.

Reptiles, Amphibians, Invertebrates
Four species of reptiles and six species of amphibians are likely to live here including garter snakes, alligator lizard, western pond turtle, salamanders, rough-skinned newt, northwestern toad and Pacific tree frog. Common invertebrates include ghost shrimp, brown shrimp, eastern soft shell clam, bent-nose clam and insects, worms and other benthic community species found in the estuary.

Species of Concern
These are species listed at the state level as Endangered, Threatened, Sensitive, or Candidate by the Washington Department of Fish and Wildlife, or listed (or proposed for listing) at the federal level by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. On these Wildlife Areas, 12 bird species, one mammal, two fish species and one reptile species are either threatened, sensitive, species of concern or candidate species for listing at the state or federal level (Table 2.5). Species included in these categories are known to be experiencing, or have experienced, failing or declining populations due to factors such as limited numbers, disease, predation, exploitation, or a loss of suitable habitat.

Table 2.5 Endangered and Threatened Species Listed on Skagit Wildlife Area

Species	Federal Status	State Status*	Units
Bald eagle	Threatened	Threatened	Bald Eagle Natural Area
Common loon	---	Sensitive	Skagit Bay estuary
Golden eagle	---	Candidate	Coastal and island units
Marbled murrelet	Threatened	Threatened	Skagit Bay estuary
Merlin	---	Candidate	Coastal and island units
Northern goshawk	Species of Concern	Candidate	Coastal and island units
Peregrine falcon	Species of Concern	Sensitive	Skagit Bay estuary
Pileated woodpecker	---	Candidate	Forested areas
Purple martin	---	Candidate	Coastal units
Vaux's swift	---	Candidate	Coastal units
Western grebe	---	Candidate	Skagit Bay estuary
Townsend's big-eared bat	Species of Concern	Candidate	Coastal units
Chinook salmon	Threatened	Candidate	Skagit River & estuary
Bull trout/Dolly varden	Threatened	Candidate	Skagit River & estuary
Coho salmon	Candidate	n/a	Skagit River & estuary
Pacific lamprey	Species of Concern	n/a	Skagit River
Western toad	Species of Concern	Candidate	unknown

**Definitions: Endangered = any species native to the state of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state.*
Threatened = any species native to the state of Washington that is likely to become an endangered species within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats.
Sensitive = any species native to the state of Washington that is vulnerable or declining and is likely to become endangered or threatened throughout a significant portion of its range within the state without cooperative management or removal of threats.

Candidate = species that WDFW will review for possible listing if sufficient evidence suggests that its status may meet the listing criteria defined for State Endangered, Threatened, or Sensitive.

2.12 Recreational Uses

The Skagit Wildlife Area provides tens of thousands visitor days of recreation each year, including hunting, bird watching, wildlife photography, hiking, fishing, bird dog training, dog walking, boating and kayaking. In addition to waterfowl hunting by foot and boat, pheasant hunting is also provided on some units. Fishing on the Skagit River forks and sloughs is popular, from several strategically located water access sites. Visitors can participate in abundant bird watching opportunities on all units and specifically on two sites developed for watchable wildlife (Johnson/DeBay Swan Reserve for swans and the Fir Island Farm/Hayton Reserve for snow geese). Table 8 shows various user groups and their frequency of use on this Wildlife Area over time.

Bird Watching

Over the past fifty-five years, changes have occurred in public uses of the Skagit Wildlife Area. From the 1950s to 1970s, hunting and fishing were the main activities. Non-hunting uses (primarily bird watching) have increased dramatically over the last two decades. As the human population of nearby towns and cities has increased, passive recreational uses followed suit. Since 1980, new non-hunting uses have increased on many units. Regulations to deal with conflicting uses and/or overcrowding, especially on weekends and in the fall during hunting season has not been developed. Bird watching, dog training and exercise activities have significantly increased over the last several years, and specific seasons and use regulations may have to be developed in order to properly manage these recreational uses. Recreational and educational facilities on the Skagit Wildlife Area includes one interpretive shelter, 11 parking areas, 16 reader boards, five water access sites for car-topped boats, canoes and kayaks, four toilet facilities, four hunting/observation blinds and one boat launch for larger boats.

Table 2.6 Wildlife Area Users and Frequency

Type of Use	Year Started	User Days* In 1976	User Days** In 1996	User Days** In 2005	Trend in Use
Consumptive uses					
Waterfowl hunting	1940s	22,925	20,100	21,200	Steady
Pheasant hunting	1957	1,135	2,590	3,200	Increasing
Fishing	1940s	4,930	12,025	8,300	Decreasing
Small game hunting	1940s	50	12	12	Steady
Big game hunting	1940s	0	3	3	Steady
Trapping	1940s	240	100	not allowed	Decreasing
Subtotal		29,230	34,830	32,715	Decreasing
Non-consumptive uses					
Nature observation	1950s	20,500	40,630	60,500	Increasing
Rest stop/picnicking	1970s	8,000	11,500	15,250	Increasing
Dog walking/training	1950s	unknown	300W/20T	700W/20T	Increasing
Walking/jogging	1970s	100	300	1,000	Increasing
Boating	1950s	10	250	400	Increasing
Subtotal		28,610	42,500	77,350	
TOTAL		**57,840**	**90,400**	**110,065**	

**This is the number of users multiplied by the number of days on site*
***Manager's observations and other survey methods used to measure user frequency were cut from budget in 1990*

The Skagit Wildlife Area has been the subject of numerous studies by WDFW, tribes, private consultants, and local universities. Local secondary schools make trips to the area each year, while Boy Scouts, Girl Scouts, Audubon Society groups, and many other organizations make regular, periodic visits. Significant time and effort is taken to provide for the opportunities for waterfowl and other hunters, as well as non-hunting users and local landowners, in order to avoid conflicts and reduce safety problems on this popular Wildlife Area.

2.13 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.

CHAPTER III. MANAGEMENT OBJECTIVES, ISSUES & STRATEGIES

Statewide goals and objectives listed in Chapter One shape management priorities on wildlife areas. Specific wildlife area information including why various units were purchased, habitat conditions, species present, and public issues and concerns are evaluated to identify wildlife area activities or strategies. The strategies and priorities for management will change on the Skagit Wildlife Area as the status of species and habitats change and as new information and science emerge. Those changes may affect public use and other activities in the future. Therefore, achieving some of the objectives listed below may alter, reduce or eliminate some current activities on some units.

Strategies are arranged annually in priority order and will change over time. Underlined strategies indicate no current funding. *Comments in italics are from the Citizen Advisory Group.* Public issues, questions and comments from past planning efforts, as well as meeting summaries with the District Team and Citizens Advisory Group are captured in Appendix A.

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

1. Manage species and habitats in compliance with the Federal Endangered Species Act

Federal law requires the protection and management of threatened and endangered species until their populations have fully recovered, this is one of the Department's top management priorities. The Skagit Wildlife Area is home to four federally threatened species: Chinook salmon, bald eagle, marbled murrelet and bull trout.

Estuaries (where freshwater and saltwater mix) provide critical habitat for a wide variety of fish and wildlife, including shorebirds, ducks, geese, swans, raptors, river otters, beaver, harbor seals, and many fish species, most notably juvenile salmon and ocean-going trout. The biological change these salmon and trout must undergo to survive in fresh and saltwater is immense. Estuaries and river deltas are the transition zone that enables this change to occur. They are also a rich source of food, provide places to hide from predators, give young salmon a safe harbor to grow strong for their ocean migrations, and are a key part of the migratory corridor salmon use to travel in and out of the rivers. While estuaries are important nursery habitats for juvenile salmon, they are essential for the survival of Chinook salmon.

However, the Skagit Bay Estuary today is less than one-third of its original size. Many of the Skagit Wildlife Area's units are estuary that have been diked, ditched and drained for other uses. The Skagit River system's lack of estuary habitat has been identified as <u>the major factor</u> limiting Chinook salmon population growth. It is hard to know precisely, but scientists believe more than 15 Chinook runs have been lost, mostly spring spawning runs. Currently, Puget Sound Chinook salmon are at only ten percent of their historic numbers (in some river basins it's only one percent). As a result, Puget Sound Chinook salmon were listed as threatened in 1999 by the Endangered Species Act (64 Federal Register 14308, March 24 1999).

The long-term recovery goal is to achieve self-sustaining levels of Puget Sound Chinook salmon numbers, distribution and diversity. To do that, the Shared Strategy for Puget

Sound was formed. This is a voluntary, collaborative process involving federal, state, tribal and local governments, business representatives, the agricultural and forestry industries, conservation and environmental groups along with the local watershed planning areas to develop technically sound solutions that communities can embrace.

Under the Endangered Species Act, a recovery plan must contain quantitative recovery criteria and goals; identified threats to survival; site-specific management strategies and actions necessary to address the threats; estimated costs of the actions, and a schedule for implementation. A monitoring and adaptive management program should also be included.

The Puget Sound Salmon Recovery Plan calls for a combination of protection and restoration actions (from the citizen to the federal level), as well as integrated harvest, hatchery and habitat management approaches. It includes 14 separate watershed level plans, such as the Skagit (River) Chinook Recovery Plan. In the face of increased human population growth (projected at 1.4 million people in this state by 2020) and the impact of ongoing land use activities, the ability to recover Chinook salmon can only occur through a combination of habitat restoration and protection.

Examples of estuarine restoration include reconnecting large blind tidal channels and sloughs isolated behind dikes, and improving connectivity between channels, sloughs, and marshes that provide rearing habitat for juvenile salmon, filter water, and absorb flood level flows. Examples of floodplain restorations include levee setbacks, dike breaching and other restoration actions that will reconnect these nourishing habitats and by replicating the natural hydrological functions of a floodplain, will also help control flooding.

More than 137 species of birds, mammals, amphibians and reptiles depend on salmon for one or more stages of their life, so they too will benefit from protection and restoration actions to recover salmon. Specific potential restoration projects described in the Skagit Chinook Recovery Plan include: Wiley Slough, Milltown Island, Dry Slough, Rawlins Road/North Fork, Deepwater Slough-phase 2 and English Boom Lagoon. For more detail, see the Skagit Chinook Recovery Plan at: http://www.sharedsalmonstrategy.org/plan/vol2.htm. *Also, adequate resources for replanting, monitoring, and maintenance of these restored areas are needed; as concerns exist that native vegetation will not come back as intended.*

A. Strategy: Continue to work with other agencies, conservation organizations and private landowners to develop and implement projects and find partners and funding to restore native salmon populations and their habitats, as outlined in the Skagit Chinook Recovery Plan, State House Bill 1418 Report (see 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. Sub-objective 2) and the WDFW Skagit Wildlife Area Fish Passage Barrier Report (see 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. Sub-objective 3). *Funding:* W.A. operations budget. *Timeframe:* Ongoing.

B. Strategy: Coordinate with the Shared Strategy effort to restore 2,682 acres of wetlands in the Skagit River delta (**Skagit Bay Estuary**). One-third of this acreage is on Fir Island (**Headquarters Unit**); the rest is along the Swinomish Channel and the lower Skagit River. *Funding:* Habitat and Fish Program. *Timeframe:* Ongoing.
C. Strategy: Secure wetland habitat in the English Boom and South Padilla Bay areas for restoration and enhancement purposes as identified by the Pacific Coast Joint Venture Plan **(Skagit Bay Estuary**). *Funding:* WDFW staff and W.A. operating budget. *Timeframe:* Ongoing.
D. Strategy: Continue to protect and monitor winter-feeding and night roosting habitat on the **Bald Eagle Natural Area**. This includes permanently restricting vehicle access with fences, gates and road closures. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.
E. Strategy: Develop a feasibility study to evaluate potential estuary restoration/water connectivity actions on **Telegraph Slough Unit**. Subsequent design recommendations will be submitted to the SRFB and other potential funding sources for consideration. *Funding:* Approved Salmon Recovery Funding Board grant. *Timeframe:* 2006-2008.
F. Strategy: Develop a feasibility study to evaluate potential salmon recovery alternatives involving fish passage on the **Johnson/DeBay Swan Reserve**. Stable water habitat is important for swans. *Any plans for this unit needs to involve the stewardship group. Any idea of salmon restoration for DeBay Slough must be taken out of this plan. If wording for it exists here then it can be considered down the road. The slough is the largest night roost for swans in the area. It is an integral part of their ecological needs. To change this, potentially making it less attractive for swans is not acceptable. We must also keep in mind the balance of species concerning changing this habitat. However other CAG members communicated that a*lternatives should not be dismissed without first exploring the feasibility of a design to accomplish management objectives for multiple species-including Swans. Therefore reference to concept or exploratory work should be included. *Funding:* Habitat and Fish Program staff, Skagit River Systems Cooperative. *Timeframe:* 2006-08, possibly longer.

2. Manage species and habitats in compliance with the (state) House Bill 1418 Report on Tide gates and Salmon Habitat

The Engrossed Second Substitute House Bill 1418 states that if an analysis conducted for a specific geographical area shows insufficient intertidal salmon habitat, then a plan may be developed to address that lack. Analysis of the Skagit Basin identified areas within its estuary as limiting for Skagit River Chinook salmon. Directed by House Bill 1418, a task force was formed to identify Skagit estuary/intertidal habitats and prioritize their restoration/enhancement for Chinook salmon, while at the same time protecting nearby agricultural lands. The result of that effort is the 1418 Report: Tide gate and Intertidal Salmon Habitat in the Skagit Basin.

A primary consideration of the 1418 Report is the protection of agricultural lands. There are currently about 93,000 acres of actively farmed land in Skagit County, with increasing pressure to develop it for residential and urban uses. However, once land is urbanized, habitat value for fish and wildlife decrease, as well as salmon habitat

restoration opportunities. Therefore, the intertidal salmon enhancement projects outlined in the 1418 Report are prioritized based on benefit to salmon, site suitability, land ownership, and funding opportunities.

The proposed projects on the Skagit Wildlife Area are, in prioritized order,: 1. Wiley Slough (Headquarters Unit), 2. Leque Island Unit, 3. Milltown Island (Skagit Bay Estuary), 4. Deep-water Slough (Island Unit), 5. Dry/Brown Slough (Fir Island Farms/Hayton Reserve), and 6. Rawlins Road/North Fork (Skagit Bay Estuary). See **Appendix 8** for more detailed information about each project. The full 1418 Report can be found at: http://filecab.scc.wa.gov/?Special_Programs/Tidegates.

Restoration project design, development, funding, and implementation processes are complicated multi-year projects. Timelines for project completions are rough estimates which may take five to ten years from initial development to completion, depending on many factors such as funding availability, timing of construction windows, public review and permitting processes.

A. Strategy: Implement restoration of 175 acres of Wiley Slough to intertidal estuary (Headquarters Unit). WileyCoordinate with project manager Skagit River Systems Cooperative to remove about half the perimeter dike to reconnect Wiley Slough to Freshwater Slough and Skagit Bay, and build a new dike further inland to protect the Skagit W.A. office complex and adjacent private properties. This effort will result in approximately 38,000+ additional Chinook salmon smolts. *Funding:* Approved Salmon Recovery Funding Board, Seattle City Light, Natural Resource Conservation Service and USFWS Coastal Wetland grants ($2.5 million). *Timeframe:* Start in 2006 or 2007.

B. Strategy: WileyComplete pre- and post-restoration flora and fauna inventories of Wiley Slough site **(Headquarters Unit)**. This baseline (existing conditions) information will be used to track key changes after the construction phase and monitor progression toward salmon recovery objectives. *Funding:* W.A. operating budget, interns, volunteers. *Timeframe:* ASAP when funding or assistance becomes available.

C. Strategy: Finalize **Leque Island** restoration objectives and design with public input. Public and small group meetings, coordinated with partners Ducks Unlimited and the Stillaguamish Implementation Review Board, are being held to inform and get feedback from neighbors and stakeholders about project issues, objectives and design. *Funding:* Regional and W.A. operating budget. *Timeframe:* 2005-07.

D. Strategy: Implement restoring 115 acres of **Leque Island** to intertidal estuary. Coor-dinate with project manager Ducks Unlimited to restore estuary habitat on the north and south ends of Leque Island. Approximately 25,000 feet of perimeter dike will be removed, 12,000 feet of new dike will be built further inland and the existing tidegates will also be relocated. This will provide important estuarine rearing habitat for both Stillaguamish and Skagit river salmonids. Currently the project is in the permitting and detailed project planning phase. *Funding:* Approved Salmon Recovery Funding Board grant. *Timeframe:* 2006-09.

E. Strategy: Finalize Milltown restoration design and implement project (**Skagit Bay Estuary**). Coordinate with project manager Skagit River Systems Cooperative to breach about 6,000 feet of levees in selected locations on Milltown Island to allow the natural network of tidal channels to reform and native tidal marsh

vegetation to replace reed canary grass (invasive weed). Currently in permit review process. This effort will result in approximately 57,000+ additional chinook smolts. *Funding:* Approved Salmon Recovery Funding Board grant, Seattle City Light ($450,000). *Timeframe:* Begin in August 2006.

F. Strategy: Continue dialogue between WDFW staff, stakeholders and the local community to discuss priorities for future estuary restoration opportunities as identified in the 1418 Report as well as other estuary restoration or salmon recovery reports. Potential projects identified so far include Fir Island Farms/Hayton Reserve, Cottonwood Island Unit, Island Unit and Rawlins Road (Skagit Bay Estuary). See Appendix 9 for details. *Funding:* Habitat and Fish Program staff. *Timeframe:* Ongoing.

G. Strategy: Support the Skagit Fisheries Enhancement Group in replanting riparian vegetation along Deepwater Slough (**Island Unit**). [An estuary restoration project in 2010 opened up 200 acres of estuary habitat to intertidal flow.] This project will replace invasive and noxious weeds in that area with native marsh vegetation. *Funding:* Approved Salmon Recovery Funding Board grant. *Timeframe:* 2006.

H. Strategy: Complete the biological evaluation of fish ways, barrier issues and maintenance responsibilities associated with Deepwater Slough (**Island Unit**). Juvenile salmon access to the site is currently obstructed by tidegates. *Funding:* Habitat and Fish Program staff. *Timeframe:* 2006-07

3. Manage species and habitats in compliance with the Fish Passage WAC and Diversion Screening Prioritization Inventory

Dams, culverts, tidegates and other man-made features in waterways can become barriers to the seasonal movements of salmon and other fish that move between freshwater and the ocean. The WDFW Hydraulic Code (Title 220 WAC) requires agencies to eliminate barriers to fish passage. Wildlife Areas that include rivers, streams and estuaries must lead the way with salmon and other fish species recovery efforts, including an on-the-ground inventory of fish passage barriers.

In response to the Endangered Species Act listing of Puget Sound Chinook salmon in 1999, the Department conducted an inventory of all man-made structures on the Skagit Wildlife Area from 2001 to 2003. Each structure was evaluated for fish passage (culverts, dams, fishways) or fish safety (surface water diversions). The 73 features identified include 61 culverts; five fishways, six other features and one pump diversion. This list, found in Appendix 8, includes the units and the number of features on each unit.

A. Strategy: Evaluate maintenance responsibilities of the five fishways and five culverts at old Barnaby Slough hatchery with new owners, Seattle City Light (**Bald Eagle Natural Area).** While reviewing, discuss feasibility of future restoration options if needed. *Formal feasibility study is dependent on available funding*. *Funding:* Fish Management. *Timeframe:* 2006-07.

B. Strategy: Coordinate with the Habitat Program to evaluate and remove known fish passage barriers in **Skagit Bay** Estuary in conjunction with restoration activities. *Funding:* Habitat Program, grant proposals. *Timeframe:* As funding allows.

C. Strategy: Coordinate with the Habitat Program to remove known fish passage barriers on the **Island Unit** in conjunction with restoration activities. *Funding:* Habitat Program, grant proposals. *Timeframe:* As funding allows

4. Manage weeds consistent with state and county rules

Weed control to protect public, economic and natural resources is required by state law (RCW Chapter 17.10). Invasive weeds are one of the greatest threats to fish and wildlife habitat quality. Cooperative weed control efforts are encouraged to improve efficiency and minimize impacts on adjacent landowners as part of the agency's good-neighbor policy. Efforts will be focused to produce a comprehensive weed management plan (see Appendix 2).

A. Strategy: Work with WDFW Weed Crew to monitor and control approximately 150 acres of known problem weeds on the **Headquarters , Island, Leque Island** and **Samish** units. This includes knotweed, purple loosestrife, spartina, thistle species, poison hemlock, and scotch broom. *Funding:* Limited amount in W.A. operating budget. *Timeframe:* Ongoing; as funding allows.

B. Strategy: Identify noxious and invasive weeds and inventory species and distribution on the Skagit Wildlife Area units. *Funding:* W.A. operating budget, WDFW Weed Crew. *Timeframe:* Ongoing.

C. Strategy: Determine the risk or threat level of each weed species to develop control priorities. Control efforts are prioritized by state and county listed weed species, critical fish or wildlife habitats or plant communities, riparian cover types, trails/access sites/roads, and neighboring boundaries. *Funding:* W.A. operating budget, WDFW Weed Crew. *Timeframe:* Ongoing.

D. Strategy: Coordinate weed control efforts with federal, state and county agencies to maximize efforts. Apply for grants to control weeds, plant native vegetation, and utilize the WDFW Weed Crew. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

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

1. Protect, restore and enhance the structure and function of estuary, fresh-water wetland, and riparian habitats

Wetlands and estuaries have remarkably high fish and wildlife densities and species diversity, and are important breeding habitat as well as important fish and wildlife seasonal ranges and movement corridors. These habitats are not common.

Wetland habitats in Puget Sound have declined dramatically since European settlement. In the Skagit River delta approximately 60 percent of tidal emergent wetland habitat has been lost and 94 percent of tidal scrub-shrub wetland habitat has been lost. Riparian (streamside) and fresh-water wetlands have also declined within the Skagit delta at a tremendous pace. These wetlands in general provide valuable habitat functions (food, shelter, hiding cover) for fish and wildlife. Freshwater wetlands also have other valuable ecological functions such as improving water quality by retaining sediment, contaminates, and floodwaters. Freshwater wetlands have a similarly high biodiversity in plant and animal life and are important to both resident and migrant wildlife populations.

These habitats are all highly vulnerable to human alterations such as diking, draining, development, and erosion. Loss of wetland function in the Skagit River system has been widespread, so projects to restore and/or enhance wetland processes are a high priority within the Skagit Wildlife Area.

A. Strategy: Work with public and private conservation organizations to develop wetland projects and grant funding to restore native habitats and natural processes where appropriate without harming neighboring properties or local hydrology. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.
B. Strategy: Work within the guidelines of the **WDFW** Lands 20/20 planning process to identify acquisition priorities and grant funds for wetland habitat protection, enhancement and restoration. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.
C. Strategy: Implement habitat protections in Port Susan and Livingston Bays **(Skagit Bay Estuary)**. *Funding:* Approved N.A. Wetland Conservation Act and USFWS Coastal Wetland grants. *Timeframe:* Ongoing.
D. Strategy: Develop a means to prohibit mechanical dredging (i.e. commercial clam harvesting) in the **Skagit Bay Estuary**. This will protect fragile estuary soils, natural processes, food chains and water quality. *Funding:* W.A. operating budget. *Timeframe:* 2006.
E. Strategy: Follow local and state governmental guidelines regarding water quality and hydrology in rivers, wetlands and watersheds that apply to Wildlife Area management procedures (State Hydraulics Act, etc). *Funding:* W.A. operating budget. *Timeframe:* Ongoing.
F. Strategy: Work with District Team and Citizen Advisory Group to evaluate proposed riparian habitat designs on **Fir Island Farms/Hayton Reserve**. This would include planting native trees and shrubs to provide various habitat features. *Funding:* W.A. operating budget, Habitat Program. *Timeframe:* 2007-08.

2. Manage for species diversity

Washington is home to a remarkable variety of fish and wildlife species. However, changes to the landscape and native habitat as a result of human activity have put many of these diverse species at risk. In consultation with other governmental and nongovernmental organizations, the Department developed a Comprehensive Wildlife Conservation Strategy (CWCS) in 2005 with the intention of creating a new management framework to protect those species and habitats in greatest need of conservation. Its guiding principles include: 1) conserving species and habitats with the greatest need while recognizing the importance of keeping common species common, and 2) building and strengthening partnerships with other conservation agencies, tribes, local governments, and non government organizations.

State planning efforts through Washington's Comprehensive Wildlife Conservation Strategy are moving towards a more holistic approach of biological diversity. While Washington's CWCS only focuses on fish and wildlife species and their associated habitats, it is important to try to frame the discussion in the larger context of the state's full biological diversity. Most of the state's native animal species fall within the legal definition of "wildlife" and are under the purview of WDFW.

Biodiversity is the full range of life in all its forms and stages: the habitats in which various life stages occur, the complex interactions of species, habitats, and the physical environment, and the processes necessary for those interactions. The CWCS partially characterizes biodiversity as species richness of an area—the number of plants and

animals that spend all or part of their lifecycle in a particular area. Washington is the permanent or temporary home to thousands of plant and animal species, including 140 mammals, 470 freshwater and saltwater fish species, and 341 bird species that use these habitats during some portion of their annual cycle ranging from breeding to migrations, as well as 150 other vertebrate species, more than 20,000 invertebrates, and 3,100 vascular plants.

The Skagit Wildlife Area has diverse habitat types that are identified as priority levels one and two in the reference manual, *Wildlife-Habitat Relationships in Oregon and Washington*, used to classify habitats for the CWCS plan. These habitats include: bays and estuaries, herbaceous wetlands, Westside lowland conifer-hardwood (mature) forest, Westside riparian-wetlands (priority one), montane mixed conifer forest (priority two), and agriculture, pasture, and mixed environs (other). The Skagit Wildlife Area can be part of a proactive effort to protect and preserve fish and wildlife by focusing on Washington's biodiversity. However, to be effective it is necessary to identify what species are present in order to develop appropriate management/restoration strategies.

A. Strategy: Develop a prioritized list of Skagit Wildlife Area units in which to conduct an inventory of species, use and needs. *Funding:* W.A. operating budget. *Timeframe: 2*006-07.

B. Strategy: Create inventory surveys and facilitate on-the-ground surveying of plant, plant community, small mammals, birds, reptiles, amphibians, and invertebrates as per prioritized list of units. *Funding:* Federal/state grant proposals, interns, volunteers, Advanced Hunter. Education members, conservation organizations (Audubon-birds, Native Plant Society-plants, etc.). *Timeframe:* After Comprehensive Wildlife Conservation Strategy is approved.

C. Strategy: Assess the effects of all proposed management programs and projects on species composition and diversity. *Funding:* WDFW. *Timeframe:* As funding becomes available.

3. Maintain, enhance and increase waterfowl populations and habitat

The Skagit Wildlife Area was originally established to preserve the estuarine habitats and provide agricultural crop enhancements for waterfowl population management and recreational hunting opportunities. Management priorities for the Skagit Wildlife Area have traditionally been focused on waterfowl and other avian species. Hundreds of thousands of waterfowl use the Skagit Wildlife Area annually, including dabbling and diving ducks, geese and swans.

The Skagit River Estuary complex has been identified in the Pacific Coast Joint Venture Strategic Plan as a First Step priority in the United States since it is the major wintering area for Wrangell Island Snow Geese, and important for wintering Trumpeter and Tundra swan populations. This complex includes the Fir Island Farms, Headquarters, Island, and Skagit Bay Estuary units, which are managed by the Department to help meet the North American Waterfowl Management Plan objectives for Washington and the Pacific Coast. These 13,000 plus acres (majority of the Skagit Wildlife Area) provide critical migration, staging, and wintering habitats (feeding, resting, loafing) for waterfowl. Planted cereal grain fields are also flooded to provide winter forage foods, and portions of the Wildlife Area are posted as 'Game Reserves' for the birds' benefit.

Efforts are currently underway to improve the function of wetlands on various units with water control techniques that will contribute to the growth of native plant and invertebrate communities. Some of the wetlands are man-made and meant to mimic the historic natural processes that occurred in the Skagit delta before the land was diked, ditched and drained. This technique, called 'moist soil management', integrates agricultural enhancements and native vegetation to increase freshwater habitat diversity and natural food sources for many species of waterbirds.

A. Strategy: Continue habitat enhancement program (planting cereal grains such as corn, barley, winter wheat and managing water levels in fields) on all units where applicable. The future of this program is contingent on available funding and evaluation of restoration/wetland management projects as they are implemented.
Fir Island Farms/Hayton Reserve = up to 610 acres
Headquarters Unit = up to 100 acres
Island Unit = up to 165 acres
Johnson/DeBay Swan Reserve = up to 145 acres (usually 90 acres)
Leque Island Unit = up to 215 acres
Samish Unit = up to 280 acres
Funding: State Duck Stamp funds, W.A. operations budget, conservation donations.
Timeframe: Annually until further notice.

B. Strategy: Continue to develop programs and funding options to buy and develop property or acquire public hunting easements on private property (Hunter Access Program, etc.). First priorities are to replace waterfowl enhancements changed by Wiley Slough and Leque Island estuary restoration projects. *Funding:* State Duck Stamp and grant applications, new programs, donations. *Timeframe*: As funding and willing sellers allow.

C. Strategy: Continue cooperative farm agreements and share crop leases with local farmers, as well as developing other funding options, to provide cereal grain enhancements on various units. *Funding:* W.A. operations budget, grant proposals, donations. *Timeframe:* Annually until further notice.

D. Strategy: Work with Ducks Unlimited and drainage districts on **Samish** and **Leque Island** units to determine feasibility of improving water level management capabilities on wetlands to enhance native plant and invertebrate life for waterfowl and other waterbirds. *Funding:* Approved State Duck Stamp funds; possible grants from IAC, USFWS Coastal Wetlands Restoration and Ducks Unlimited.***Timeframe:* 2006-07.**

E. Strategy: Work with Ducks Unlimited to install two flash-board risers and combination gates on **Samish Unit**. This will be done on the two new culverts and will allow for future management of water levels in wetland areas (moist soil management). *Funding:* State Duck Stamp funds. ***Timeframe:* 2006-07.**

F. Strategy: Work with Ducks Unlimited to develop a conceptual plan of the infrastructure needed on **Island Unit** to improve wetland management capabilities that will enhance native plant and invertebrate life for waterfowl. *Funding:* W.A. operating budget, Ducks Unlimited. *Timeframe:* 2006-07.

G. Strategy: Work with Ducks Unlimited, Natural Resource Conservation Service and other interested stakeholders to identify additional sites where controlling water levels can improve wetland management. This will allow native wetland vegetation and invertebrate communities to flourish (providing natural food sources), or flood

cereal grain enhancement areas to provide recreational hunting opportunities. Possible units include **Fir Island Farms/Hayton Reserve, Johnson/DeBay Swan Reserve, Leque Island, Samish River** and **Telegraph Slough**.
Funding: W.A. operating budget. *Timeframe:* Ongoing.

H. Strategy: Continue to maintain some areas as Game Reserves to provide resting places for migrating waterfowl (**Fir Island Farms/Hayton Reserve** for snow geese; **Johnson/ DeBay Swan Reserve** for swans; **Skagit Bay Estuary**/South Fork for waterfowl). *Funding:* Ducks Unlimited, W.A. operations budget. *Timeframe:* 2006.

I. Strategy: Continue to work with Enforcement staff to prohibit use of airboats, jet skis, and other activities in the **Skagit Bay Estuary** that disturb migrating and wintering waterfowl. Work with Enforcement and Lands Program staff to develop specific WACs necessary to back up and enforce this proposal. *Funding:* W.A. operating budget. *Timeframe:* 2006.

J. Strategy: Continue efforts to acquire in-holdings in **Johnson/DeBay Swan Reserve** and adjacent properties. *Funding:* IAC and State Duck Stamp proposals. *Timeframe:* As funding becomes available.

4. Maintain, enhance and increase wading bird populations and habitat

Skagit Bay Estuary and Skagit Wildlife Area units are identified in the Northern Pacific Coast Regional Shorebird Management Plan as a valuable protected habitat since many acres of the estuary and freshwater wetland habitats are within state management and ownership. In the shorebird conservation plan, three goals are identified. These goals focus on population, monitoring and research, and habitat. The plan outlines the need to understand more about shorebird ecology, population distribution and dynamics, developing guidelines for monitoring and research priorities, and defining habitat management objectives and acquisition needs.

The Skagit Wildlife Area has a valuable role to play in shorebird conservation. First, this wildlife area provides valuable freshwater and estuary wetland habitats, which are identified in the shorebird management plan as foraging, roosting and loafing sites for shorebirds. Secondly, many current and proposed activities on the Skagit Wildlife Area can provide valuable shorebird habitat. For example, with better water management capabilities on existing units, more habitat would be available for shorebirds. Enhancement opportunities incorporated with moist soil management techniques will also improve habitat availability for shorebirds. Lastly, the Skagit Wildlife Area provides important locations (identified in the plan) where knowledge can be gained about shorebird food habits, feeding behavior, habitat requirements and timing of migration.

A. Strategy: Work with Ducks Unlimited and other interested stakeholders to identify sites where wetland restorations or controlling water levels can improve how wetlands are managed. This would allow cereal grain enhancement areas to be flooded and help develop beneficial native plant and invertebrate communities (i.e. natural food sources) for shorebirds. Possible units include **Fir Island Farms/Hayton Reserve, Island, Johnson/DeBay Swan Reserve, Leque Island, Samish** and **Telegraph Slough**. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

B. Strategy: Identify locations under the current management practices where shorebird habitat exists and its availability could be easily improved (i.e. no new development). Possible units include **Fir Island Farms/Hayton Reserve, Island, Leque Island** and **Samish**. Funding: W.A. operating budget. Timeframe: 2006.

Agency Objective: Minimize Adverse Interactions Between Humans and Wildlife
Wildlife Areas were purchased to preserve, protect, and enhance fish and wildlife populations and their habitats, and provide fish- and wildlife-oriented recreational opportunities for the public. Recreational activities that are compatible with 'preserving, protecting, and enhancing fish and wildlife populations and their habitats' are allowed and promoted on wildlife areas. Wildlife area biologists and managers realize that research indicates it is important to not disturb fish and wildlife during certain life cycle events. These may include breeding, nesting, migrating, winter-feeding, and roosting etc.

1. Restrict public use by establishing reserves or closed areas for fish and wildlife
Wildlife reserves and closed areas were developed to provide habitat locations for fish and wildlife that minimizes human disturbance. These sites may provide valuable habitat for species during critical periods of their life history, which may also coincide with winter weather and storm conditions. Highly visible and sought after species such as waterfowl and shorebirds can be adversely impacted by prolonged human disturbance such as hunting and viewing that would interfere with normal feeding and roosting behavior.

A. Strategy: Continue to manage some units or portions of units as Game Reserves (**Fir Island Farms/Hayton Reserve** for snow geese; **Johnson/DeBay Swan Reserve** for swans; **Skagit Bay Estuary-**South Fork Skagit River area for waterfowl). *Funding:* Ducks Unlimited, W.A. operations budget. *Timeframe:* Ongoing.

B. Strategy: Evaluate the potential on the **Fir Island Farms/Hayton Reserve** to use vegetation as a visual barrier along Fir Island Road to decrease risk of vehicle accidents. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

C. Strategy: Evaluate options to reduce the 'shooting line' around **Fir Island Farms/ Hayton Reserve.** *Funding:* W.A. operating budget, Wildlife and Enforcement Programs. *Timeframe:* 2006-07.

D. Strategy: Work with District Team and Citizen Advisory Group to evaluate the merits of **Cottonwood Island Unit** becoming a Game Reserve, managed primarily for birds of prey. Funding: W.A. operating budget. Timeframe: 2006-07.

E. Strategy: Continue to protect heron nesting colony on **Camano Island Natural Area** from human disturbance. Funding: W.A. operating budget. Timeframe: Ongoing.

2. Monitor and manage public access to minimize negative effects to fish and wildlife
As the population within Northwest Washington continues to grow, the potential for increased recreational use on the existing wildlife area land base will also grow. With this increased use comes potential conflicts between user groups but more important are the potential impact to wildlife habitat and their habitat. The long-term desire is to develop recreational use plans for heavily used areas and to better define the use restriction on sensitive or natural area units. These plans would be developed with input from WA staff, district team, and citizen advisory and stewardship group members.

A. Strategy: Work with District Team and Citizen Advisory Group to develop recreational use plans for the **Cottonwood Island, Goat Island** and **Samish** units that are compatible with fish, wildlife and habitat objectives. This includes evaluating public uses, determining if use restrictions are needed (such as length, destination and seasonal use of trails; whether human access, camping and fires should be allowed; or designating them as Game Reserves), and if establishing stewardship groups would be help meet these objectives. *Funding:* W.A. operating budget. *Timeframe:* 2007-08.

B. Strategy: Continue to restrict human access to **Bald Eagle Natural Area.** Methods include permanently restricting vehicles, keeping roads gated year round, maintaining discreet pedestrian viewing areas that do not disturb roosting/feeding eagles, and if necessary, adding other fences and gates. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

C. Strategy: Continue to manage **Guemes Island** as a Natural Area with limited public access. This includes restricting the public from Feb 1-July 10 (nesting season), posting "No Fire" signs, eliminating signs that invite park-like public use and increasing enforcement presence during the critical season. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

D. Strategy: Continue to manage **Camano Island Natural Area** as a Natural Area with limited public access. This includes rarely allowing human access, especially from February through August. The site is fenced and gated. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

E. Strategy: Work with District Team and Citizen Advisory Group to evaluate the idea of limiting access to sensitive locations (such as Watchable Wildlife sites) to the non-critical times for better protection of priority species (**Bald Eagle Natural Area, Fir Island Farms/Hayton Reserve** and **Johnson/DeBay Swan Reserve**). *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

F. Strategy: Maintain access area "Use Regulations" concerning firearms. This includes prohibiting the use of all firearms, except those acceptable during legal hunting seasons as stated in the hunting pamphlet, posting larger signs that address NO Target Shooting, and using non toxic shot only. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

G. Strategy: Investigate transfer of **Sinclair Island** to State Parks Department for kayak access. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

H. Strategy: Release rehabilitated wildlife only with permission of the Wildlife Area manager or district biologist. This caution better protects the existing fish and wildlife as well as the introduced animal or bird. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

Agency Objective: Provide Sustainable Fish and Wildlife-Related Recreational and Commercial Opportunities Compatible with Maintaining Healthy Fish and Wildlife Populations and Habitats

The WDFW has an obligation to provide sustainable fish and wildlife populations while offering compatible fish- and wildlife-oriented recreational opportunities. Current habitat enhancement programs for hunting include planting cereal grains, flooding fields seasonally, planting native vegetation, and manipulating water levels to boost the growth of native marsh/wetland plant communities, and native insect and amphibian populations (all

natural food sources for water-fowl). Cereal grain enhancements—a long-standing tradition dating back to the 1950s—are especially popular with bird hunters. The Department's strategies and priorities for management will change as the status of species and habitats change, and as new information and science emerge. These changes may affect public use and other activities in the future.

Physical change is already set to happen this year and next on several of the Skagit Wildlife Area's units (Headquarters, Leque), and is a possibility in the near future for other units as well, depending on funding. Portions of diked units that were purchased for waterfowl and pheasant hunting are being restored to their historic estuary status to help recover threatened Chinook salmon runs. This will drastically reduce, if not eliminate, some traditional uses (cereal grain enhancements, walk-in waterfowl and pheasant hunting).

The Department is therefore looking at the possibility of overlapping additional uses on its remaining hunting areas as a short-term solution, as well as securing replacement lands as a long-term solution. The Department is also looking for ways to increase public access on private lands and to work with other landowners for replacement hunting and viewing opportunities. Unfortunately, attempts to purchase available land nearby have not been successful due to lack of flexibility, timeliness, and competition or seller reluctance. *The Citizen Advisory Group feels that as more estuary restoration projects occur and reduce the Wildlife Area's land-based recreational hunting options, alternative lands need to be acquired and developed, especially for waterfowl and pheasant hunting.*

1. Provide and manage resource-compatible hunting and fishing opportunities

Many of the current wildlife area programs that provide habitat enhancements for fish and wildlife also improve recreational opportunities such as hunting and wildlife viewing. Efforts to provide such compatible opportunities are an important role of WDFW. However the location of these activities may shift to a different land base as the strategies and priorities for WDFW are modified. These modifications in land management are the result of changes in the status of a species or habitats, and applications of new information and science to management activities. These changes may affect public use and other activities on current sites in the future.

A. Strategy: Continue habitat enhancements (planting corn, barley, winter wheat and managing water levels in fields) for waterfowl and pheasant hunting. The future of this program is contingent on available funding and evaluation of estuary restoration/wetland management projects as they are implemented.
Headquarters Unit = up to 100 acres
Island Unit = up to 165 acres
Leque Island Unit = up to 215 acres
Samish Unit = up to 280 acres
Funding: State Duck Stamp funds, W.A. operations budget, conservation donations
Timeframe: Annually until further notice.

B. Strategy: Continue Western Washington Pheasant release program on **Headquarters** and **Leque Island** units until restoration projects are implemented.
Funding: W.A. operations budget. *Timeframe*: Every fall under further notice.

C. Strategy: Continue releasing pheasants on **Samish Unit** for youth-only pheasant hunting season until further review from District Team and Citizen Advisory Group.
Funding: W.A. operations budget. *Timeframe*: Every fall until further notice.

D. Strategy: Evaluate the option of holding a limited hunt on **Fir Island Farms/Hayton Reserve** to reduce excessive use by snow geese. *Funding:* Wildlife and Enforcement Program. *Timeframe:* 2006 (first public meeting held May 30).

E. Strategy: Work with Citizen Advisory Group, District Team and others to develop and evaluate a pheasant release program at other upland sites and/or on private property, if owners are willing. *Funding:* W.A. operations budget. *Timeframe*: 2006-08.

F. Strategy: Develop a hunting guide for the Skagit Wildlife Area. This would include up-to-date maps and information on parking, access and opportunities for all of the major hunting units. *Funding:* W.A. operations budget, grant proposals. *Timeframe*: As funding becomes available.

G. Strategy: Work with others to produce and provide educational materials about alternate waterfowl hunting opportunities on the Skagit Wildlife Area. This includes information about estuary hunting from boats, tides, hunting on other units, private land access, etc. *Funding:* W.A. operations budget, other organizations, grant proposals. *Timeframe*: 2006-2008 as funding is available.

H. Strategy: Maintain/improve hunting portion of **Johnson/DeBay Swan Reserve** by removing cattails from ponds. *Funding:* IAC and State Duck Stamp proposals. *Timeframe:* As funding becomes available.

I. Strategy: Maintain Wiley Slough point trail (**Headquarters Unit**) to the mouth of Freshwater Slough to access tidal waterfowl hunting area. This may require building a footbridge. *Funding:* Federal grant proposals. *Timeframe:* As funding allows.

2. Pursue options to increase recreational opportunities

Competition for a land is growing in Northwestern Washington; agriculture and farming organizations are very concerned about the available land base that is currently in agricultural production while other organization are concerned about the public land ownership and how that impacts county and local tax bases. Still other groups would like to increase residential and business development due to rising real estate prices. Because of these and other local concerns it is necessary to pursue and develop other mechanisms to provide wildlife oriented recreational access opportunities.

A. Strategy: Develop unique programs and innovative, competitive funding methods with WDFW staff, Citizen Advisory Group and others to successfully buy or lease land for much needed additional space for recreational opportunities. This may include fee simple ownership, long-term lease, acquiring public hunting easements on private property, etc. *Funding:* WDFW staff, interested stakeholders. *Timeframe:* Ongoing.

B. Strategy: Increase walk-in waterfowl and pheasant hunting and bird dog training opportunities with new acquisitions/easements. Desire to replace more than 300 acres of hunting land changed by Wiley Slough (**Headquarters Unit**) and **Leque Island Unit** estuary restoration projects. Even more areas are necessary to reduce the existing crowded conditions on Department lands. *Funding:* WDFW capital budget request, State Legislature, grant proposals. *Timeframe:* As funding becomes available.

C. Strategy: Work with enforcement officers to educate hunters and enforce the 15-shell limit on the **Samish** and **Island units** to increase hunting opportunities. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

D. Strategy: Coordinate public use of Fir Island dike trails (**Skagit Bay Estuary**) with Dike District #22 for waterfowl hunting access. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

3. Develop and maintain recreational access sites for public use

The WDFW provides fish and wildlife oriented recreational use opportunities for all citizens, including juvenile, disabled and senior citizens. The public needs access, which can include roads, parking lots, trails, toilets, reader boards, etc. Some access sites are vandalized, used as illegal dumping grounds or for parties, etc. This often causes seasonal closures of these areas. *One of the public's and our Citizen Advisory Group's most common complaints is that our access areas are not properly maintained, including grading roads and picking up litter.* The budget and staff to do this work are not adequate. *The Citizen Advisory Group also strongly recommends that WDFW develop good, detailed maps, and highway and interpretive signage to properly inform and educate the public about available access sites.*

A. Strategy: Encourage and implement preserve, protect, and enhance fish and wildlife populations and their habitats programs that reduce illegal dumping and vandalism at access sites. This may include Adopt-An-Access-Area, volunteer stewards, increased enforcement, dusk to dawn (gated) closures, etc. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

B. Strategy: Develop a prioritized access plan to improve access (disabled and non-ADA) on the Skagit Wildlife Area's many units, with the Citizen Advisory Group and District Team. This plan will include parking, sanitation facilities, trails, hunting/observation blinds, and potential funding sources. See Appendix K for a current list of access needs by unit. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

C. Strategy: Improve the **Headquarters Unit** boat ramp and parking facilities in conjunction with the Wiley Slough estuary restoration project. *Funding:* WDFW capital budget request. *Timeframe:* 2006-08.

D. Strategy: Work with other Department personnel to expedite the development of a detailed color map/informational brochure for the Skagit Wildlife Area showing up-to-date boundaries, roads, parking areas, trails, boat launches, blinds, viewing areas, toilets, etc. *WDFW should have a document available for people to explain site by site the access and degree of ADA accessibility.* *Funding:* W.A. operating budget, grant proposals. *Timeframe:* 2006-08.

E. Strategy: Provide vehicle-use permit sales on-site or at nearby businesses. This would potentially increase revenues to the Department, which in turn would provide more funds for maintenance and development of access facilities. *Funding:* WDFW. *Timeframe:* 2006-07.

Wiley

4. Manage conflicting and/or overcrowded recreational uses

Increasing human population and development pressures have created high levels of recreational use on Western Washington's comparatively smaller Wildlife Areas. This level of recreational use combined with greater demands and expectations from diverse

user groups have created conflicts and overcrowding on some of the Skagit's most popular units. Concentrated human use can also be detrimental to wildlife populations and/or habitat. Overcrowding is especially apparent during the well attended pheasant and waterfowl hunting seasons. This will only intensify as hundreds of acres of existing hunting land are restored to estuary, thereby pushing walk-in pheasant and waterfowl hunters to other units, creating more overcrowding.

People use the Skagit Wildlife Area for a wide variety of reasons—some never imagined when these lands were purchased—not only to hunt, fish, watch wildlife, train hunting dogs, enjoy nature and photograph wildlife, but also to walk dogs, hike, jog, ride bikes, paddle kayaks and canoes, fly kites, orienteer, shoot, camp, etc.

A. Strategy: Work with Citizen Advisory Group and District Team to evaluate current problems and possible methods to reduce crowded hunting and viewing conditions on various units. Options include odd/even days; first come –first serve parking spaces and blinds; a reservation system for blinds; limited numbers of hunters/viewers per unit; allowing only licensed hunters during hunting seasons on certain units; implementing a season of use for bird watching, dog training, etc. on units with conflicts; purchasing or leasing new walk-in bird hunting areas; and planting limited cereal grains on parts of Reserves for limited duck hunts. *Funding:* W.A. operating budget. Timeframe: 2006-08.

B. Strategy: Provide up-to-date educational materials on site about safe hunting, viewing and current hunting season information on the reader boards. This information could also be provided to local user groups to post in their newsletters and on web pages. *Funding:* WDFW, grant proposals, local businesses partners (sell ad space). *Timeframe:* As funding allows.

C. Strategy: Evaluate liability issue for WDFW related to historic infrastructure (concrete military structures) and unauthorized public use on the **Goat Island Unit**. Need Attorney General Opinion. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

5. Assess impact of dogs on wildlife areas

Hunting with dogs and training bird dogs are traditional recreational uses on WDFW Wildlife Areas. According to the Migratory Waterfowl and Upland Game Seasons pamphlet, the bird dog training season is typically August 1 to March 31 each year. However, bird dog training may also be conducted year round on a posted portion of wildlife areas, including the Skagit. A valid small game license is required to train dogs on wild birds at any time. A small game license AND a Western Washington Pheasant Permit are required to train dogs on wild pheasants in western Washington. In addition, youth and seniors may also train bird dogs during their respective pheasant hunting seasons on designated western Washington pheasant release sites.

As Puget Sound's urban population grows, there continues to be an increasing demand for "off leash" dog walking areas in the Northwest. People have been using the Skagit Wildlife Area to walk their dogs for many years. There is a growing concern that these wildlife areas might also be used by dog owners to train their dogs for agility, earth dog training, lure coursing and other activities which might be incompatible with fish and wildlife habitat needs. Activities such as lure coursing involves chasing a mechanically

operated lure by sight hunting breeds while earth dog training is for smaller breeds that are to pursue their quarry to earth or follow into dens and tunnels. The potential impact of these activities on fish and wildlife is uncertain. With these unknowns, a unit-by-unit assessment needs to be made to determine what the various dog uses are, and if and how any of them are adversely impacting fish, wildlife or habitat resources and/or other fish- and wildlife-oriented recreational users. *The Citizen Advisory Groups feels we can't let everybody do whatever they want on these sites*.

A. Strategy: Restrict bird dog training to selected units during the bird dog training season as described in the Migratory Waterfowl and Upland Game Season pamphlet, August 1st through March 31st. Currently all units are open. Review selected units annually with the Citizen Advisory Group and District Team in light of new information from subcommittee and other sources. *Funding:* W.A. operating budget. *Timeframe:* Annual, beginning in 2007.

B Strategy: Form a well-rounded subcommittee (including Citizen Advisory Group members, dog trainers, hunters, fish and wildlife advocates, etc.) to examine this issue and offer recommendations to full Advisory Group, District Team and W.A. staff regarding what dog uses should be allowed where. Tasks would include understanding dog training/hunting uses and regulations on WDFW lands; understanding dog uses allowed/justifications on city, county, federal and tribal lands; developing a glossary of definitions; reviewing current literature regarding dog impacts on fish, wildlife and habitats; developing research project proposals and finding funding; and drafting short- and long-term strategy recommendations for each unit regarding dog uses on the Skagit Wildlife Area. *Funding:* W.A. operating budget, volunteers, grant proposals. *Timeframe:* Begin in 2006.

C. Strategy: Allow year round bird dog training and field trials only on posted dog training areas/units. These will be established with input from the District Team and Citizen Advisory Group and reviewed annually. *Funding:* W.A. operating budget. *Timeframe:* Ongoing with annual review.

6. Provide and increase watchable fish and wildlife recreational opportunities

The increased sales trend of vehicle-use permit indicates an increased interest in statewide wildlife viewing opportunities. The Skagit Wildlife Area has three Watchable Wildlife sites that provide excellent year round wildlife viewing opportunities. They are specifically managed for snow geese (Fir Island Farm/Hayton Reserve), trumpeter and tundra swans (Johnson/DeBay Swan Reserve) and bald eagles (Bald Eagle Natural Area). Most Washington State residents are not aware that WDFW owns or controls thousands of acres that have been purchased, developed, and are managed as Wildlife Areas. The Department has not actively promoted or marketed these areas to the public since the early 1980's. However local and regional efforts to promote these sites will continue. A very comprehensive marketing program needs to be developed and implemented for wildlife areas. They are one of the tangible assets that the WDFW can guarantee and provide to the public as "A place to go to enjoy fish and wildlife-oriented recreation." *Our Citizen Advisory Group was adamant that good, detailed maps, highway signs and interpretive signage are all needed to educate and inform the public about our Wildlife Areas. On-site or nearby vehicle-use permit sales should be provided for the public and would potentially increase revenues.*

A. Strategy: Work with Citizen Advisory Group, District Team and others to add to, evaluate and prioritize the draft list of Watchable Wildlife needs (see Appendix L), and identify funding sources and partners as well. *Funding:* W.A. operating budget *Timeframe: Begin at the Citizen Advisory Group's earliest convenience*

B. Strategy: Provide web based information specifically tailored to the Skagit Wildlife Area. *Funding:* W.A. operating budget, college intern, volunteer, grant proposals. *Timeframe:* As funding or volunteers allow.

Agency Objective: Work With Tribal and Local Governments and Private Landowners to Ensure Fish, Wildlife and Habitat Management Objectives are Achieved

Five Indian tribes have portions of their usual and customary hunting and fishing areas on or adjacent to the Skagit Wildlife Area. As a sovereign government, tribes have an interest in creating and managing sustainable fish and wildlife populations and habitats. Local government agencies and many private landowners also have a regulatory or personal interest in seeing that our fish and wildlife populations are well managed. The WDFW will provide the Skagit Wildlife Area Management Plan to tribes, local governments and the public for review and comment in the later half of 2006.

1. Develop and coordinate fish, wildlife and habitat conservation projects with interested stakeholders

Skagit wildlife area properties are distributed throughout Skagit, Island, and San Juan counties. Because of the wide diversity of land ownerships, neighbors, interested stakeholders and various habitat types represented on the wildlife area, every management action has the potential to impact some fish and wildlife interest group. Developing communication with interest groups and stakeholders regarding management efforts will improve public understanding of the costs and benefits of fish and wildlife habitat management projects from an economic, species and habitat standpoint.

A. Strategy: Partner with tribal agencies to monitor the Deepwater Slough Restoration project on the **Island Unit**. *Funding:* Fish and Habitat Program. *Timeframe:* Ongoing.

B. Strategy: With tribes, the agricultural community, private landowners and county governments, continue to research and discuss additional projects and restoration efforts that will recover salmon populations. *Funding:* Fish and Habitat Programs, W.A. operating budget. *Timeframe:* Ongoing.

C. Strategy: Work with the local agricultural community concerning what is planted; retaining or planting hedgerows for hunting and watchable wildlife; and how farming practices might benefit both farmers and fish and wildlife. *Funding:* Fish and Habitat Programs, W.A. operating budget. *Timeframe:* Ongoing.

Agency Objective: Reconnect with Those Interested in Washington's Fish and Wildlife

Washington State's population has continued to increase and people of all ages are reconnecting with nature, pursuing fish and wildlife oriented outdoor recreational activities. In the past three years alone, there have been steady increases in the number of seniors buying WDFW licenses, which they can buy at a discount. It appears that as "baby-boomers" move into retirement, many are choosing to pursue various outdoor activities. This is a segment of our population with a tremendous amount of knowledge, passion, time

and energy. Wildlife Area managers realize that volunteer groups and individuals, when properly trained and supervised can provide invaluable assistance on special projects and on-going activities. *To improve efficiency and safety, the Department should hire a regional volunteer coordinator to supervise recruiting, training and staying connected with this volunteer force for maximum effectiveness.*

1. Continue to recruit and work with volunteers on committees, stewardship groups, work parties and individual projects

To reconnect with those interested in Washington State's fish and wildlife and to improve local support and community ownership of WDFW projects, opportunities to connect with the public in the form of committee membership or volunteers for a variety of work projects will be pursued. These efforts will provide the opportunity to improve communication with individuals and local interest groups, understand the recreation needs from the users point of view, and to improve fish and wildlife related recreation opportunities as well as fish and wildlife habitat.

A. Strategy: Continue holding regular meetings for and supporting the work of the Skagit Citizen Advisory Committee. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

B. Strategy: Continue hosting public workshops to inform and educate citizens and recruit volunteers for various levels of assistance. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

C. Strategy: Identify and establish a stewardship group for **Fir Island Farms/Hayton Reserve, Goat Island, Leque Island** and **Telegraph Slough** units. Tap existing groups such as Skagit or Pilchuck Audubon, Trumpeter Swan Society, Wash Waterfowl Assn., Ducks Unlimited, Pilchuck Wildlife Rehabilitators, local scout troops, etc. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

D. Strategy: Continue to train and work with stewardship groups established for Johnson/ DeBay Swan Reserve, Samish Unit, Camano Island Natural Area, Guemes Island and Island Unit. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

E. Strategy: Recruit Wildlife Area host to provide information to public about Wildlife Area (Wash Waterfowl Assn., Skagit Audubon, etc.), stationed at **Headquarters Unit**. *Funding:* Volunteer, intern, grant proposal. *Timeframe:* As funding or volunteers allow.

Agency Objective: Provide Sound Operational Management of WDFW Lands, Facilities and Access Sites

The Office of Financial Management has facility condition standards that require the ongoing maintenance of all wildlife area infrastructures. Often times these maintenance proposals are required by safety standards. The Skagit Wildlife Area's shop/storage building is in poor condition--it's 40 years old and has been in a flood. The attached open storage area of this building was removed to excavate an underground fuel tank, and has never been replaced. This storage facility was the only open equipment storage area on the entire wildlife area. Skagit Wildlife Area managers have been requesting a new shop/storage structure since the 1970's. Now with creation of the Skagit/Snoqualmie Wildlife Area Complex, having a new equipment storage building is even more essential. Additional covered and secured storage facilities are further justified with the additional equipment that needs to be stored on site.

Several sections of dikes and tide gates need to be repaired or replaced to function without flooding the Wildlife Area and neighboring properties, roads or a state highway. The existing moorage facility (for ferrying to the Island Unit) is on private land—there is no long-term lease or signed agreement to secure its future use. The current trailer "office" is marginal space for three employees to adequately and productively work in, hold meetings in and contain all needed office equipment and supplies, and interact with the public. A newer, larger office trailer or building on the Headquarters Unit that would also have improved public and ADA access is much needed. The current Headquarters has always been the "hub" of the Skagit Wildlife Area and should continue to serve that purpose in the future.

1. Maintain buildings, structures and public use facilities in compliance with all federal, state and local laws

The ranges of activities that occur on WDFW lands encompass environmental, employee, and public health and safety issues that are controlled by a variety of regulatory agencies from the federal to the local level. The requirement or ability to perform maintenance activities on the wildlife area is controlled by many regulations. These regulations may require certain maintenance activities to levee as a part of a FEMA agreement or may require special permits to maintain boat ramp facilities to current operating standards. The wildlife area staff makes a concerted effort to be good public land stewards and to comply with agency health and safety regulation. Regulatory compliance can be a costly and time-consuming aspect of many WDFW management activities but are a necessary part of responsible public land stewardship.

A. Strategy: Replace two failed tide gates on **Leque Island** and enhance water management with flash-board risers. *Funding:* WDFW Capital budget process. *Timeframe:* When approved.

B. Strategy: Continue inspecting, maintaining and repairing dike, dike-top trails and water control structures on **Headquarters, Island** and **Leque Island** units. *Funding:* WDFW Capital budget process, W.A. operating budget. *Timeframe:* Annually as funding allows.

C. Strategy: Maintain and dredge boat ramp (**Headquarters Unit**) as needed to provide access to the Skagit River, **Skagit Bay** and **Island Unit**. *How can the public be assured the necessary permits can be maintained so this work can be done? Funding:* W.A. operating budget. *Timeframe:* When funding allows.

D. Strategy: Secure long-term lease or easement to use moorage facility (**Headquarters)** located on private land or move moorage to public land. This moorage is critical for agricultural enhancement program on the Island Unit. *Funding:* W.A. operating budget. *Timeframe:* 2006-2007.

E. Strategy: Replace deteriorating barge to ferry people, equipment, etc. safely and efficiently to **Island Unit**. *Funding:* WDFW Capital budget process. *Timeframe:* When approved.

F. Strategy: Construct new shop and large equipment storage on **Headquarters Unit**. *Funding:* WDFW Capital budget process. *Timeframe:* When approved.

G. Strategy: Provide larger office facility (**Headquarters Unit**) for productive work environment for three employees and adequate meeting and storage space. *Funding:* WDFW Capital budget process. *Timeframe:* When approved.

H. Strategy: Maintain footbridges on **Headquarters, Samish, and Island** units**.** *Funding:* W.A. operating budget, volunteers. *Timeframe:* Annual.

I. Strategy: Provide necessary signage on **Goat Island** and **Guemes Island** units. *Funding:* W.A. operating budget, volunteers. *Timeframe:* Annual.

J. Strategy: Restore operation to the audio/visual system at the **Headquarters Unit** outdoor interpretative center. *Funding:* Federal grant application, WDFW. *Timeframe:* As funding allows.

K. Strategy: Request an Attorney General opinion to evaluate the liability issues of failing dikes on the remaining WDFW infrastructure on the **Leque Island Unit** and private property. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

2. Evaluate fish and wildlife habitat value of property that could potentially be surplused

There are numerous smaller disconnected parcels of land owned by WDFW that have been assigned to the Skagit Wildlife Area for administrative purposes. These properties were not conservation acquisitions and have never been actively managed as a part of the Wildlife Area. These properties need to be evaluated to determine their original purpose and current value as fish and wildlife habitat and as a part of the Wildlife Area. If it is determined that the property has a low habitat value, the property should be designated as "surplus" and sold. Funds from the sale of these surplus properties could be used to purchase properties or property interests (easements, etc.) with higher fish and wildlife values or for habitat enhancement and restoration projects on existing Wildlife Area lands.

A. Strategy: Work with Citizen Advisory Group and District Team to evaluate current fish and wildlife resource value of pheasant plot parcels and, if appropriate, determine the process for disposal. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

B. Strategy: Research management options and deed restrictions of the **Sinclair Island Unit** property. *Funding:* W.A. operating budget. *Timeframe:* As time allows, low priority.

3. Develop clear property boundaries

In addition, several locations are in need of accurate ownership surveys. Accurate land-ownership information is the foundation of any land management program.

A. Strategy: Clarify the **Telegraph Slough Unit**'s boundary dispute by surveying, and posting the property boundary. This property is owned by WA Department of Natural Resources but managed by WDFW. Neighboring landowners dispute the boundary and therefore its use. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

B. Strategy: Inventory newly acquired **Bald Eagle Natural Area** properties transferred from the Department of Natural Resources. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

C. Strategy: Complete "quiet title" action/surveys for accurate **Skagit Bay Estuary** ownership information. *Funding:* WDFW Olympia staff. *Timeframe:* As funding allows.

4. Provide fire management on agency lands

See Appendix 4 Fire Control Plan for details.

A. Strategy: Provide fire training for Wildlife Area staff and maintain certification. *Funding:* W.A. operating budget. *Timeframe:* Annual.

B. Strategy: Contract with local, state or federal entities to provide fire suppression support on the Skagit Wildlife Area. *Funding:* W.A. operating budget. *Timeframe:* Annual.

5. Develop, implement and refine a management plan for the wildlife area

The Skagit Wildlife Area management plan will allow the WDFW, with internal and external review and input, to develop comprehensive criteria for acquiring and managing lands with annual reviews and updates.

A. Strategy: Determine changes in land management practices necessary to comply with the conservation needs of listed species. *Funding:* W.A. operating budget. *Timeframe:* 2006-07.

B. Strategy: Provide the framework for all fish and wildlife recreational uses and provide funding for operations and maintenance of the Skagit Wildlife Area units. *Funding:* W.A. operating budget. *Timeframe:* Annual.

C. Strategy: Work closely with the Citizen Advisory Group, District Team and other stakeholders on unresolved issues. Existing unresolved issues include access/sanitation/ information needs and priorities; additional recreational land/opportunities; overcrowding /conflicting recreational uses; dog-related impacts; and Watchable Wildlife site needs. *Funding:* W.A. operating budget. *Timeframe:* Ongoing at Citizen Advisory Group's earliest convenience.

D. Strategy: Provide annual reviews and updates for Citizen Advisory Group, District Team and other stakeholders. *Funding:* W.A. operating budget. *Timeframe:* Annual.

E. Strategy: Create and include supportive documents for this plan. This includes a Weed Management Plan, Fire Control Plan, Flood Awareness and Evacuation Plan, Water Rights information, Access Needs list and Watchable Wildlife Needs list. *Funding:* W.A. operating budget. *Timeframe:* Done.

6. Protect cultural resources consistent with state and federal law

Federal and state law (National Historic Preservation Act - Sec.106) requires an assessment of cultural and historic resources on agency lands prior to implementing activities that may impact those resources. Before the 1850s, it is estimated that five Indian tribes or bands (100-300 people) lived along the Skagit Delta and river. Along the mouth of the Skagit's North Fork, archeologists uncovered a circular Indian dwelling that dated back 2,500 years. Since European settlement other valuable historic resources may exist on WDFW Wildlife Areas.

A. Strategy: Perform a cultural/historic resource assessment with assistance from the State Historic Preservation Department before implementing projects that may impact these resources. These projects may include estuary restoration, parking lots, toilets, buildings, new agricultural fields, posts for new fence line, etc. *Funding:* WDFW Contract process. *Timeframe:* As need arises and funding allows.

B. Strategy: Perform an initial assessment prior to acquisition. If proposed acquisition contains cultural/historic resources in need of preservation, request additional funding as a part of acquisition process. Where possible and feasible, adaptive use of historically and culturally important sites and structures will be considered. *Funding:* WDFW Olympia/Regional staff. *Timeframe:* As time and funding allow.

7. Pursue additional funding opportunities

Wildlife Area budgets have failed to keep up with the increasing cost of doing business and the growing list of priorities and management objectives and obligations. For this reason funding to achieve long term management objectives such as enhancement and restoration projects must come from alternate funding sources outside of the general operations budget. Many of these projects are very expensive and may take multiple budget cycles to complete.

A. Strategy: Apply for grants and other funding opportunities consistent with planned priorities to supplement existing funding (e.g. Salmon Recovery Funding Board, North American Wetland Conservation Act, Interagency Committee for Outdoor Recreation, Duck Stamp, etc.). *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

B. Strategy: Establish sharecropping agreements with neighbors to address artificial cultivation needs and generate additional revenue to support enhanced operations and management. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

C. Strategy: Continue the volunteer program and develop an internship program for students and other volunteers. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

D. Strategy: Develop partnerships with other conservation government entities (federal, tribal, state, county and local agencies). *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

E. Strategy: Seek out and develop partnerships with non-government fish and wildlife, conservation and agricultural organizations as well as national, regional and local sport and service groups. *Funding:* W.A. operating budget. *Timeframe: O*ngoing.

8. Perform administrative responsibilities

Administrative responsibilities and duties are important business functions necessary for efficient use of resources in order to accomplish identified goals and objectives according to plans. Record keeping and monitoring are necessary to ascertain activity status and what remains to be done, as well as providing a basis for adaptive management, e.g., making changes to a plan based upon undesired/unplanned outcomes from a management practice.

A. Strategy: Identify goals/objectives/tasks and write/update the management plan, strategies and annual performance measures based on them. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

B. Strategy: Develop and monitor budgets based on plans, supervise employees, maintain files and records, and monitor outcomes of tasks and projects in relation to agency objectives and agreed upon strategies. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

C. Strategy: Renew agricultural contracts and leases. *Funding:* W.A. operating budget. *Timeframe:* Annual.
D. Strategy: Attend and participate in Skagit Watershed Council, Stillaguamish Implementation Review Committee and other meetings to stay current on salmon recovery and habitat restoration efforts. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.
E. Strategy: Pay counties Payment in Lieu of Taxes (PILT) fees and assessment obligations. The WDFW is the only state land agency that must pay county taxes or court assessments on its land ownerships. *Funding:* W.A. operating budget. *Timeframe:* Annual.

9. Maintain equipment

A. Strategy: Service all equipment including trucks, tractor and implements, weed sprayers, trailers, etc. Request replacement equipment when needed. *Funding:* W.A. operating budget. *Timeframe:* Ongoing as needed.
B. Strategy: Rent equipment when it is more efficient than acquisition. *Funding:* W.A. operating budget. *Timeframe:* Ongoing.

CHAPTER IV. PERFORMANCE MEASURES, EVALUATION AND UPDATES TO THE SKAGIT WILDLIFE AREA PLAN

Performance measures for the Skagit Wildlife Area Plan are listed below. Accomplishments and progress toward desired outcomes will be evaluated to produce an annual performance report each calendar year. The plan will be considered a working document that will evolve as habitat and species conditions change, as new regulations are enacted, and as public issues and concerns change. Updates will be considered annually and added to the plan as needed.

1. Performance measures for the Skagit Wildlife Area in 2006 include:

- Finalize, with Skagit River Systems Cooperative, the restoration design for Milltown Island and implement project (**Skagit Bay Estuary**)
- Support Skagit Fisheries Enhancement Group in replanting riparian vegetation on up to 200 acres along Deepwater Slough (**Island Unit**)
- Develop a means to prohibit mechanical dredging (i.e. commercial clam harvesting) in the **Skagit Bay Estuary**
- Plant up to 610 acres of Fir Island Farms/Hayton Reserve in cereal grains
- Plant up to 100 acres of Headquarters Unit in cereal grains
- Plant up to 165 acres of Island Unit in cereal grains
- Plant up to 145 acres of Johnson/DeBay Swan Reserve in cereal grains
- Plant up to 215 acres of Leque Island Unit in cereal grains
- Plant up to 280 acres of Samish Unit in cereal grains
- Renew agricultural contracts and leases on seven units
- Establish four sharecrop agreements and three crop-planting agreements with neighbors to address artificial cultivation needs and generate additional revenue to support enhanced operations and management
- Flood up to 60 acres of Headquarters Unit
- Flood up to 70 acres of Island Unit
- Maintain **Fir Island Farms/Hayton Reserve**, **Johnson/DeBay Swan Reserve**, and **Skagit Bay Estuary** as Game Reserves
- Establish specific WACs necessary to back up/enforce prohibition of airboats, jet skis and other harassing activities in **Skagit Bay Estuary**
- Identify at least four areas where shorebird habitat exists and could be easily be enhanced (**Fir Island Farms/Hayton Reserve, Island, Leque Island** and **Samish** units)
- Release 3,800 pheasants on **Headquarters** and **Leque Island** units until restoration projects are implemented
- Release 100 pheasants each on **Samish, Headquarters**, and **Leque Island** units for youth-only pheasant hunting season
- Allow year round bird dog training and field trials on **Headquarters Unit** (until Wiley Slough restoration project is complete) and **Leque Island Unit** (until Leque Island restoration project is complete)
- Maintain 50 footbridges on **Headquarters, Samish, Leque Island** and **Island Units**
- Post regulatory signs on **Goat Island** and **Guemes Island** units
- Provide fire training for three Wildlife Area staff
- Contract with other agencies to provide fire suppression support

- Work closely with the Citizen Advisory Group, District Team and other stakeholders to prioritize and resolve seven major issues over the next few years (access, sanitation and general information needs and priorities; additional recreational land/opportunities; overcrowding/conflicting recreational uses; dog-related impacts; and Watchable Wildlife site needs
- Apply for grants and other funding when opportunities occur
- Establish and maintain stewardship groups for **Fir Island Farms/Hayton Reserve, Goat Island, Leque Island** and other major units where justified
- Train and update existing stewardship groups for Johnson/DeBay Swan Reserve, Samish Unit, Camano Island Natural Area, Guemes Island and Island Unit.
- Attend and participate in monthly to quarterly Skait Watershed Council, Stillaguamish Implementation Review Committee and other natural resource related meetings
- Service 8 trucks, 4 tractors and 8 implements, 2 trailers, 5 boats and other miscellaneous equipment.
- Complete proposal for a flora and fauna inventory (baseline) of the Headquarters Unit prior to the implementation of the Wiley Slough Restoration Project

Ongoing Performance Measures:

- Coordinate with the Shared Strategy effort to restore 2,682 acres of wetlands in the Skagit River delta (**Skagit Bay Estuary**)
- Secure wetland habitat in the English Boom and South Padilla Bay areas for restoration and enhancement purposes as identified by the Pacific Coast Joint Venture Plan **(Skagit Bay Estuary**)
- Work with WDFW Weed Crew to monitor and control approximately 150 acres of known problem weeds on the **Headquarters, Island, Leque Island** and **Samish** units
- Identify noxious and invasive weeds and inventory species and distribution on all units
- Determine the risk or threat level of 18 weed species to develop control priorities
- Apply for grants to control weeds, plant native vegetation, and use the WDFW Weed Crew
- Implement habitat protections in Port Susan and Livingston Bays **(Skagit Bay Estuary)**
- Develop unique programs and innovative, competitive funding methods (with WDFW staff, Citizen Advisory Group and others) to successfully buy/lease land for recreational purposes
- Monitor, with tribal agencies, the Deepwater Slough Restoration project on **Island Unit**
- Work with the local agricultural community concerning what is planted, retaining or planting hedgerows for huntable and watchable wildlife; and how farming practices might benefit both farmers and fish and wildlife
- Continue holding regular meetings for and supporting the work of the Skagit Citizen Advisory Committee
- Continue hosting public workshops to inform and educate citizens and recruit volunteers for various levels of assistance

Performance Measures into 2007:

- Implement, with Skagit River Systems Cooperative, restoration of 175 acres on Wiley Slough to intertidal estuary (Headquarters Unit) Wiley
- Develop a prioritized list of units in which to conduct an inventory of species, use and needs
- Determine, with Ducks Unlimited and drainage districts, the feasibility of improving water level management capabilities on **Samish** and **Leque Island** unit wetlands

- Develop a conceptual plan, with Ducks Unlimited, on the **Island Unit** to improve wetland management capabilities for waterfowl
- Evaluate using vegetation on **Fir Island Farms/Hayton Reserve** as a visual barrier to reduce vehicle accidents
- Evaluate options to reduce the 'shooting line' around **Fir Island Farms/ Hayton Reserve**
- Sign access areas with updated "Use Regulations" concerning legal firearms and times of use
- Investigate transfer of **Sinclair Island** to State Parks Department (this unit is boat access only)
- Educate hunters and enforce the 15-shell limit, with enforcement officers, on the **Samish** and **Island units** to provide quality and increased hunting opportunities
- Coordinate public use of Fir Island dike trails (**Skagit Bay Estuary**) with Dike District #22 for waterfowl hunting access
- Implement programs that reduce illegal dumping and vandalism on all access sites
- Evaluate liability of unauthorized public use of historic infrastructure (concrete military structures) on **Goat Island Unit**
- Secure long-term lease to use private moorage facility near **Headquarters Unit**, or move moorage to public land
- Request an Attorney General opinion of liability of failing dikes on **Leque Island Unit** and private property
- Evaluate, with Citizen Advisory Group and District Team, current fish and wildlife resource value of pheasant plot parcels and, if appropriate, determine the process for disposal
- Survey **Telegraph Slough Unit**'s boundary
- Post **Telegraph Slough Unit**'s property boundary
- Inventory newly acquired **Bald Eagle Natural Area** properties transferred from the Department of Natural Resources

Performance Measures into 2008 or later:

- Evaluate with others, via a feasibility study, the potential estuary restoration/water connectivity actions on **Telegraph Slough Unit**
- Evaluate with others, via a feasibility study, the potential salmon recovery alternatives involving fish passage on **Johnson/DeBay Swan Reserve**
- Implement, with Ducks Unlimited, the restoration of 115 acres on **Leque Island** to intertidal estuary (Currently in permitting and detailed project planning phase)
- Develop recreational use plans, with District Team and Citizen Advisory Group, for **Goat Island, Samish, Headquarters Unit** and all other major units that are compatible with fish, wildlife and habitat objectives
- Develop and evaluate (with Citizen Advisory Group, District Team and others) a pheasant release program at other upland unit sites and/or on private property, if owners are willing
- Evaluate, with District Team and Citizen Advisory Group, proposed riparian habitat designs on **Fir Island Farms/Hayton Reserve**

When Funding/Assistance is Available:

- Coordinate with the Habitat Program to evaluate and remove known fish passage barriers in **Skagit Bay Estuary** in conjunction with restoration activities.

- Coordinate with the Habitat Program to remove known fish passage barriers on the **Island Unit** in conjunction with restoration activities
- Create inventory surveys and facilitate on-the-ground surveying of plant, plant community, small mammals, birds, reptiles, amphibians, and invertebrates as per prioritized list of units
- Assess the effects of all proposed management programs and projects on species composition and diversity
- Continue to develop programs and funding options to buy and develop property or acquire public hunting easements on private property
- Continue efforts to acquire in-holdings in **Johnson/DeBay Swan Reserve** and adjacent properties
- Develop a hunting guide for the Skagit Wildlife Area.
- Work with others to produce and provide educational materials about alternate waterfowl hunting opportunities on the Skagit Wildlife Area
- Maintain/improve hunting portion of **Johnson/DeBay Swan Reserve** by removing cattails from ponds
- Maintain Wiley Slough point trail (**Headquarters Unit**) to the mouth of Freshwater Slough to access tidal areas for waterfowl hunting and bird watching
- Increase walk-in waterfowl and pheasant hunting and bird dog training opportunities with new acquisitions/easements
- Improve the **Headquarters Unit** boat ramp and parking facilities in conjunction with the Wiley Slough estuary restoration project
- Work with other WDFW personnel to expedite the development of a detailed color map/informational brochure for the Skagit Wildlife Area showing up-to-date boundaries, roads, parking areas, trails, boat launches, blinds, viewing areas, toilets, etc.
- Provide up-to-date educational materials on site about safe hunting, viewing and current hunting season information on the reader boards
- Provide web-based information specifically tailored to the Skagit Wildlife Area
- Recruit Wildlife Area hosts to provide information to public about Wildlife Area (Wash Waterfowl Assn., Skagit Audubon, etc.), stationed at **Headquarters Unit**
- Replace two failed tide gates on **Leque Island** and enhance water management with flash-board risers
- Continue inspecting, maintaining and repairing dike, dike-top trails and water control structures on **Headquarters, Island** and **Leque Island** units
- Maintain and dredge boat ramp (**Headquarters Unit**)
- Replace deteriorating barge to ferry people, equipment, etc. safely and efficiently to **Island Unit**
- Construct new shop and large equipment storage on **Headquarters Unit**
- Secure larger office facility (**Headquarters Unit**)
- Restore operation to the audio/visual system at the **Headquarters Unit**'s outdoor interpretative center
- Complete "quiet title" action/surveys for accurate **Skagit Bay Estuary** ownership information
- Research management options and deed restrictions of the **Sinclair Island Unit** property
- Perform a cultural/historic resource assessment, with assistance from the State Historic Preservation Department if needed, before acquiring land or implementing projects that may impact these resources

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. This update will be an attachment to the plan.

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

APPENDIX 1. SKAGIT WILDLIFE AREA DISTRICT TEAM, CITIZENS ADVISORY

Group and Public Issues and Concerns

The following comments are from meetings with the Skagit Wildlife Area's District Team and Citizen Advisory Group that took place over 2005 and 2006. These comments are not in any order. Underlined comments are from the Department's District Team; other comments are from the Citizen Advisory Group. Meeting summaries follow.

Issue A. Access/Recreation

- Put trails on current/proposed dikes (influences people to 'attach' to a place, become better stewards)
- Make units more accessible for walk-in hunters, birders, anglers, volunteers (trails, finger piers, footbridges, jetties, ponds)
- Survey/maintain/improve bridges across ditches
- Keep dikes mowed and maintained
- Must replace loss of public access if restoration projects proceed
- Don't begin restoration projects until AFTER replacement hunting land has been bought
- Consider building a birding (observation) tower
- Improve access for disabled persons
- Make it easier to buy parking permits near units/parking areas
- Limit human disturbance in Bald Eagle Natural Area with fences and gates
- Bald Eagle Natural Area needs to maintain public access to Skagit River for bank fishing
- Wetland restoration is great if it will benefit ducks and duck hunting
- Protect Camano Natural Area--do not allow public access
- Explore role pheasant plots might play in wildlife viewing opportunities
- Moist Soil cells/ponds need to provide safe spacing and distance between decoy hunters
- Need measures to limit # of hunters to retain quality and safe hunting (odd/even days, 15 shell limit, etc.)
- Carefully develop and manage Welts property for hunting
- Concerned about lost bird watching opportunities if restoration occurs
- Maintain/improve parking areas and boat ramps
- Need to strike a balance by accommodating hunters who don't have boats
- Consider providing parking for unit on north side of Highway 20
- Provide trash receptacles and keep litter picked up
- Provide and maintain clean toilets, and add restrooms that accommodate the disabled
- Loss of pedestrian access on restored sites
- Continue to manage as a quality waterfowl hunting area
- Dike top trails not appropriate
- User conflicts (premier birding area plus waterfowl hunting)
- Access off of Hwy 532 is dangerous
- Parking areas are small and undeveloped
- Need ADA accessible seasonal toilets
- Improve/renovate access at Lukas Slough as a watchable wildlife site
- Need to prohibit vehicle access but allow pedestrian access

- Signage on Guemes Island implies public use okay and invites park-like usage
- Cottonwood Unit has very limited public viewing options, is next to a WDFW boat ramp/access site

Issue B. Wildlife Area Management

- Break units into manageable chunks to better discuss/plan recovery efforts
- Considering WDFW's exposure to tidegate litigation, some land is attractive for restoration
- Coordinate restoration with local agricultural community, residents and local diking and drainage districts
- Contact County Health Dept. about possible soil contamination via restoring estuary
- Forget salmon restoration, land was purchased for waterfowl, keep it that way
- Needs to be a balance between resource and users for a win-win situation
- Make planted fields for waterfowl food and hunting areas a priority
- How much will wintering snow geese suffer if feeding habitat is lost to salmon restoration
- Other uses are as important to public as salmon restoration
- Need long term permit to keep boat ramp dredged
- Keep dikes intact and develop dike maintenance plans
- Buy out remaining private land
- Engage local colleges and high schools to assist with aspects of management
- Conflict regarding how agency manages (man-maintained moist soil cells/natural estuary processes)
- Moist soil management might impact fish passage, stranding, instream habitat and riparian management around impoundment
- Cells could be a mosquito problem if there is any standing water
- Might be some potential for restoration at Cottonwood along dike/slough to river
- Samish unit has estuary restoration potential - lower priority than Skagit Bay estuary
- Welts property is more valuable to fish, closer to Samish River, has restoration potential
- If Johnson/DeBay night roost were part of restoration and opened to flow, would not benefit swans
- Need to maintain moorage facility to manage units
- Boat ramp on Welts property would disturb productive Samish Bay
- Possible conflicts between land assignments in Department's and other agency's processes
- Possible conflict with Shared Strategy effort to restore 2,682 acres of estuary habitat
- Need consistent standards for public use/fish and wildlife management between agency and other lands
- Does our strategy dovetail with local county's strategy
- How to balance public access/uses with wildlife and fish management goals
- Public wants longer, loop walking trails but shorter point access viewing areas are less harmful for fish and wildlife
- How to reduce conflicts between user groups
- Dog training and running not compatible with breeding in spring-early summer
- Leque Island has watchable wildlife potential
- Might be saltwater intrusion impacts on Leque Island
- Restoration potential exists on both sides of Hwy 20, if acquire additional properties and link them

- Need to cooperate with DOT, pipeline co., private landowners to implement restoration projects
- Need to survey ownerships and identify inholdings for purchase
- Need to pursue funding opportunities to systematically replace lost hunting and species-specific areas
- Need to develop long-term strategy for acquisition recommendations
- Who will maintain agency fishways and inspect private fishways
- Goat Island is attraction nuisance/safety issue due to old gunnery pits

Issue C. Habitat

- Multi-species approach to restoration projects is important
- Many miles of fish corridors could be created throughout the whole estuary
- Entire site should be restored to estuarine marsh
- What will the impacts to local hydrology be?
- Explore wetland reconnections to Skagit River (currently isolated by man-made modifications)
- Explore restoring side channels for salmon without disrupting waterfowl/swan use
- Consider estuary restoration in conjunction with or as alternative to moist soil management
- Welts property might be good candidate for estuary restoration
- Explore dike setback options with local Drainage District to improve hydraulic connections
- Identify and control invasive plants – start with 'hot spots'
- Plant sweet gale in estuary for further restoration
- Re-establish native plant communities
- Need to enhance the hundreds of acres outside the dikes
- Bring all of the land into food production for waterfowl
- Make sure winter wheat is sufficient for the birds when they arrive in fall
- Lack of connectivity (travel corridors) for fish and wildlife between/within units
- Potential effect of sea level rise
- Tidegate is fish passage barrier
- Pump station is potential risk to fish
- Invasive plant species need to be controlled
- Estuary restoration would reduce amount of winter wheat for snow geese
- Explore option to remove riprap along bank and establish riparian buffer
- Cottonwood Unit floods bring high water up 15 feet

Issue D. Roads/Waterways

- Maintain or improve road surfaces
- Need visual barrier along Fir Island Road to improve public safety

Issue E. Enforcement

- Enforce the use of the stewardship decal
- Guemes Island unit could become a litter, fire and fireworks problem
- Might need restrictions/enforcement visits (Feb 1- July 10) on Guemes and Lopez Island units
- Goat Island unit has graffiti, camping problems from boaters/kayakers

- Off-site users disturb local landowners (those who don't buy stewardship decal and park on road)
- Users who park off-site (don't buy stewardship decal and park on road) disturb local landowners

Issue F. Public Information, Education, Involvement

- Need to provide early and continuous opportunities for public to participate in proposed estuary restoration (Wylie Slough proposal is example of how NOT to involve public)
- Need warning signs about rapidly changing tides for foot hunters (after restoration work)
- Use trails to bond people to the site for stewardship purposes
- Post 'Rules of Conduct' for all users
- Increase messages to explain/promote how crowd reduction strategies promote quality hunting
- Provide interpretive signage about area's purpose, species life history, user's role
- Limit number of regulatory and warning signs
- Install 'watchable wildlife area ahead' signs on roads
- Refresh signs in kiosks
- Need professional, updated maps of units showing roads, water, access sites, parking, trails, etc.
- Need interpretive materials

Issue G. Monitoring, surveying, inventory

- Need to monitor and document public use of wildlife area units
- Develop stewardship groups (volunteers) to supplement W.A. staff and get things done
- Will there be effectiveness monitoring of restoration projects
- Maintain and increase the use of local stewardship groups
- Guemes Island unit stewardship volunteers need training

Issue H. Other

- This process is on too fast a tract for public and agency staff to adequately and professionally respond to create a useful, realistic quality product
- Agency does not seem committed to maintaining access sites (enough funding to regularly clean toilets, pick up garbage)
- Need to increase W.A. staff to implement these strategies
- Need to increase staff to deal with increasing legal requirements, illegal dumping, meth labs and other inappropriate uses

Additional Public Issues And Concerns

Skagit Wildlife Area Issues and Concerns
Sorted by Objective and Strategy

General Comments

- Members of CAG would like to see a user-friendly format for the plan, using 'per unit' format or with an index to easily find strategies related to each unit
- Would like to think of the Wildlife Area in the larger landscape (ie farmland/ecosystem) to consider the value outside of WDFW lands and to acknowledge the benefits to shorebirds, waterfowl, others.
- Must consider the impact to neighbors and community of restoration and enhancement projects (i.e. effect of projects on drainage)
- Need to think of project impacts off of WDFW lands such as parking, sanitation, noise, etc.

Chapter 3. MANAGEMENT OBJECTIVES, ISSUES and STRATEGIES
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
Manage species and habitats in compliance with the Endangered Species Act, House Bill 1418 Report and Fish Passage WAC

- Does our strategy dovetail with local county's strategy
- Suggested mitigation/minimizing agricultural land loss should be integrated into
- strategies for habitat enhancement and restoration.
- Need adequate resources for all project aspects such as replanting, monitoring, maintenance of areas is needed.
- Concerned about the design consideration to plant trees and shrubs along the drainage ditches and the presumption of harmful runoff from fields.
- Shrubs along ditches have benefits for a variety of wildlife
- Would like more information about acquisition and restoration priorities for various planning/recovery efforts and legislative mandates (HB 1418)
- Would like more information about projects on WDFW lands originated by other groups
- Would like CAG informed and involved in development stages of restoration projects
- Would like more information about land acquisition process or to understand why aspects of information must be protected early in the process
- Would like to know about projects during the conceptual phase to provide input rather than buy in after the fact
- Explore option to remove riprap along bank and establish riparian buffer
- Potential effect of sea level rise
- Other uses are as important to public as salmon restoration
- Explore restoring side channels for salmon without disrupting waterfowl/swan use
- Lack of connectivity (travel corridors) for fish and wildlife between/within units
- Will there be effectiveness monitoring of restoration projects
- Would like to develop a sub-committee to examine opportunities to improve songbird habitat on other units following estuary restoration projects

- How much will wintering snow geese suffer if feeding habitat is lost to salmon restoration
- Other uses are as important to public as salmon restoration
- Moist soil management might impact fish passage, stranding, instream habitat and riparian management around impoundment
- Lack of connectivity (travel corridors) for fish and wildlife between/within units
- Tidegate is fish passage barrier
- Explore option to remove riprap along bank and establish riparian buffer
- Will there be effectiveness monitoring of restoration projects
- Would like a central location to learn about public meetings related to agency projects
- Estuary restoration would reduce amount of winter wheat for snow geese
- How much will wintering snow geese suffer if feeding habitat is lost to salmon restoration
- Need an improved method of updating the public regarding the status of proposed and ongoing projects on WDFW lands
- Would like more information about acquisition and restoration priorities for various planning/recovery efforts and legislative mandates (HB 1418)
- Would like more information about projects on WDFW lands originated by other groups
- Would like CAG informed and involved in development stages of restoration project
- Would like more information about land acquisition process or to understand why aspects of information must be protected early in the process
- Would like to know about projects during the conceptual phase to provide input rather than buy in after the fact

Camano Island Natural Area

- Protect it-do not allow public access

Cottonwood Unit

- Has very limited public viewing options, is next to a WDFW boat ramp/access site
- Might be some potential for restoration at Cottonwood along dike/slough to river

Headquarters Unit

- Will there be effectiveness monitoring of restoration projects
- Would like to see WDFW have good baseline data for wildlife areas and restoration projects
- Interns and volunteers could be use for inventory projects.
- Suggested using available data from past studies and conservation groups such as Audubon
- Concerned that native vegetation will not come back to Headquarters restoration because of all of the agricultural work (disturbance) and noxious species in the system.

Johnson/DeBay Swan Reserve

- If Johnson/DeBay night roost were part of restoration and opened to flow, would not benefit swans
- Explore restoring side channels for salmon without disrupting waterfowl/swan use
- Planning efforts for units need to involve all the stakeholders including the stewardship groups.
- Projects to enhance the area for wildlife viewing could be rendered unworkable if the original purpose of the unit (swan refuge and public viewing) is violated or degraded in any way by habitat changes

- DeBay slough is the largest night roost for swans in the area. It is an integral part of their ecological needs. Any changes making this potentially less attractive for swans are not acceptable.
- Stable water habitat is important for swans
- Need to keep in mind balance of species impacted by changing habitat

Samish Unit

- Samish unit has estuary restoration potential, is lower priority than Skagit Bay estuary
- Welts property is more valuable to fish, closer to Samish River, has restoration potential
- Welts property might be good candidate for estuary restoration

Manage weeds consistent with state and county rules

- Identify and control invasive plants – start with 'hot spots'
- Invasive plant species need to be controlled

Agency Objective: Protect, Restore and Enhance Fish and Wildlife and Their Habitats
Protect, restore and enhance the structure and function of estuary, freshwater wetland and riparian habitats

- Considering WDFW's exposure to tidegate litigation, some land attractive for restoration
- Coordinate restoration with local agricultural community, residents and local diking district
- Contact County health dept. about possible soil contamination via restoring estuary
- Might be saltwater intrusion impacts on Leque Island
- Restoration potential on both sides of Hwy 20, if acquire additional properties and link them
- Many miles of fish corridors could be created throughout the whole estuary
- Entire site should be restored to estuarine marsh
- What will the impacts to local hydrology be?
- Explore wetland reconnections to Skagit River (currently isolated by man-made modifications)
- Consider estuary restoration in conjunction with or as alternative to moist soil mgmt
- Welts property might be good candidate for estuary restoration
- Plant sweet gale in estuary for further restoration
- Need to enhance the hundreds of acres outside the dikes

Manage for species diversity

- Multi-species approach to restoration projects is important
- Concerned that management changes to benefit salmon does not necessarily me more diversity

Maintain, enhance and increase waterfowl populations and habitat

- Make planted fields for waterfowl food and hunting areas a priority
- How much will wintering snow geese suffer if feeding habitat is lost to salmon restoration
- Conflict regarding how agency manages (man-maintained moist soil cells/natural estuary processes)
- Moist soil management might impact fish passage, stranding, in stream habitat and riparian management around impoundment
- Explore restoring side channels for salmon without disrupting waterfowl/swan use

- Consider estuary restoration in conjunction with or as alternative to moist soil mgmt
- Bring all of the land into food production for waterfowl
- Make sure winter wheat is sufficient for the birds when they arrive in fall
- Estuary restoration would reduce amount of winter wheat for snow geese
- Concerned about the terminology water bird instead of waterfowl to define management focus. Is this a move from traditional management programs?
- Should consider classifying units according to geologic/geographic criteria i.e. floodplain and upland
- Would like more information about policy, regulation, state, regional, and species plans, which impact or direct management on WDFW lands.

Fir Island Farms/Hayton Reserve

- Make sure winter wheat is sufficient for the birds when they arrive in fall
- Estuary restoration would reduce amount of winter wheat for snow geese
- How much will wintering snow geese suffer if feeding habitat is lost to salmon restoration

Headquarters, Island and Leque Island units

- Continue to manage as a quality waterfowl hunting area

Johnson/DeBay Swan Reserve

- If Johnson/DeBay night roost were part of restoration and opened to flow, would not benefit swans
- Support the continued planting of corn and barley and other appropriate crops to attract swans and waterfowl to the area.

Samish Unit

- Samish unit has estuary restoration potential, is lower priority than Skagit Bay estuary
- Welts property is more valuable to fish, closer to Samish River, has restoration potential
- Welts property might be good candidate for estuary restoration
- Continue to manage as a quality waterfowl hunting area

Skagit Bay Estuary

- How would the prohibited use of airboats, jet skis in reserve be enforced?

Replacement lands

- Replacement land should benefit multiple user groups not just for waterfowl hunting. Will lose bird dog training and pheasant hunting opportunities

Agency Objective: Minimize Adverse Interactions between Humans and Wildlife

- With the phase out/elimination of dog training and pheasant hunting at Headquarters and Leque, where will people go? Snoqualmie sites?
- Wants to see specific plan for where these activities will be moved in this area. If closed off/eliminated, it's never coming back.

Bald Eagle Natural Area

- Limit human disturbance in Bald Eagle Natural Area with fences and gates

Camano Island Natural Area

- Protect Camano Natural Area-do not allow public access

Fir Island Farms/ Hayton Reserve

- Need visual barrier along primary road (Fir Island Rd) to improve public safety
- Need to evaluate expansion of reserve boundaries to create a no-hunting buffer around the core snow goose use / viewing area.

Guemes Island Natural Area

- Signage on Guemes Island implies public use okay and invites park-like usage
- Guemes Island unit could be litter, fire and fireworks problem
- Might need restrictions/enforcement visits (Feb 1- July 10) on Guemes and Lopez Island units
- Guemes Island unit stewardship volunteers need training

Johnson/DeBay Swan Reserve

- Want to maintain waterfowl hunting area also
- Suggested expanding the title of Game reserve to a Wildlife Reserve

Cottonwood Island, Goat Island and Samish units

- Develop recreational use plans to ensure wildlife and their habitats are protected.
- CAG would like to develop a subcommittee to evaluate recreational use plans to include restrictions on trail use, etc.
- Need to improve communication efforts with all stakeholders on site-specific management effort like the Samish unit.
- Need to consider growth management concerns related to management of these site
- Cottonwood Unit has very limited public viewing options, is next to a WDFW boat ramp/access site
- Goat Island is attraction nuisance/safety issue due to old gunnery pits
- Goat Island unit has graffiti, camping problems from boaters/kayakers
- How much public use is the Goat Island unit getting?

Agency Objective: Provide Sustainable Fish and Wildlife-Related Recreational and Commercial Opportunities Compatible with Maintaining Healthy Fish and Wildlife Populations and Habitats.

Provide and manage for resource-compatible hunting and fishing

- Need to monitor and document public use of wildlife area units
- Develop stewardship groups (volunteers) to supplement W.A. staff and get things done
- Must replace loss of public access if restoration projects proceed
- Don't begin this project until AFTER replacement hunting land has been bought
- Wetland restoration is great if it will benefit ducks and duck hunting
- Moist Soil cells/ponds need to provide safe spacing and distance between decoy hunters
- Need measures to limit # of hunters to retain quality and safe hunting (odd/even days, 15 shell limit)
- Need to strike a balance by accommodating hunters who don't have boats
- Needs to be a balance between resource and users for a win-win situation

- Need consistent standards for public use/fish and wildlife management between agency and other lands
- How to balance public access/uses with wildlife and fish management goals
- Need to emphasize "recreation replacement" strategies for the Headquarters and Leque Island units as they continue to go down the road of estuary restoration. These are both pretty heavily used pheasant and waterfowl hunting areas and losing them will have a major impact.
- Provide walk-in waterfowl hunting opportunities on new acquisitions to replace similar recreational opportunities lost on restoration areas.
- Provide new pheasant release sites to replace recreational opportunities lost on restoration areas, on areas with no other recreational user conflicts.
- There is concern that recreation and hunting is such a low priority on the list of the agency list of goals
- Need to prohibit activities that not conducive to the purpose of WDFW and its Wildlife Area. They are not parks. This includes prohibiting paintball games.
- Larger signs are needed that address the No Target Shooting and Non-toxic shot only regulations.
- Need to develop WACs and RCWs that protect wildlife areas from activities not conducive to purposes

Headquarters Unit

- Research replacement options for the Headquarters Area pheasant release program.
- WDFW currently has no plans to replace lost pheasant hunting lands with purchased lands
- Would like to have replacement lands available before the restorations are completed
- Concerned about the impact to hunting quality on the Snoqualmie sites when Headquarters is lost

Leque Island

- Purchased as a waterfowl area and overlaying other uses will diminish its value for waterfowl hunting.
- Research replacement options for the Leque Island pheasant release program.

Samish Unit

- Purchased as a waterfowl area and overlaying other uses will diminish its value for waterfowl hunting.
- Explore long term lease agreements as an alternative to fee simple ownership
- Review of the Samish Unit for pheasant release is a good idea. As long as waterfowl use is not compromised by using the site.
- Carefully develop and manage Welts property for hunting

Develop and maintain recreational access sites for public use

- Put trails on current/proposed dikes (influences people to ‘attach’ to a place, become better stewards)
- Make units more accessible for walk-in hunters, birders, anglers, volunteers (trails, finger piers, footbridges, jetties, ponds)
- Survey/maintain/improve bridges across ditches
- Keep dikes mowed and maintained

- Must replace loss of public access if restoration projects proceed
- Don't begin this project until AFTER replacement hunting land has been bought
- Consider building a birding (observation) tower
- Improve access for disabled persons
- Make it easier to buy parking permits near units/parking areas
- Concerned about lost bird watching opportunities if restoration occurs
- Consider providing parking for unit on north side of Highway 20
- Loss of pedestrian access on restored sites
- Dike top trails not appropriate
- Access off of Hwy 532 is dangerous
- Need ADA accessible seasonal toilet
- Improve/renovate access at Lukas Slough as a watchable wildlife site
- Other uses are as important to public as salmon restoration
- Public wants walking trails while point access viewing areas are less harmful for fish and wildlife
- Enforce the use of the stewardship decal
- Use trails to bond people to the site for stewardship purposes
- Post 'Rules of Conduct' for all users
- Increase messages to explain/promote how crowd reduction strategies promote quality hunting
- Limit number of regulatory and warning signs
- Install 'watchable wildlife area ahead' signs on roads
- Agency does not seem committed to maintaining access sites (enough funding to regularly clean toilets, pick up garbage)
- Suggested developing a prioritized list for ADA access facilities
- Suggested the development of a brochure (and online) describing accessibility levels of sites and trails.

Johnson/DeBay Slough Swan Reserve

- Trail development should be considered under recreations use plan

Leque Island Unit

- Access off of Hwy 532 is dangerous
- Concerns about the impact on the community of the reduction of agricultural land base.
- Leque Island has watchable wildlife potential

Samish Unit

- Would like to see a public boating access near the Samish unit
- Maintain farming program but will move forward with aspects of wetland management projects
- Evaluate water management possibilities on the Samish unit.
- Need to be sure that water management projects are closely coordinated with the dike and drainage districts so that local farmers and community are not adversely impacted

Telegraph Slough Unit

- Consider providing parking for unit on north side of Highway 20

Manage conflicting and/or crowded recreational uses

- The concept of minimizing conflicting uses is good, but need to look at a variety of options to accomplish that end
- User conflicts (premier birding area, plus waterfowl hunting)
- Need to prohibit vehicle access but allow pedestrian access
- Public wants walking trails while point access viewing areas are less harmful for fish and wildlife
- How to reduce conflicts between user groups
- Goat Island is attraction nuisance/safety issue due to old gunnery pits
- Need visual barrier along primary road (Fir Island Rd) to improve public safety - Rd
- Guemes Island unit could be litter, fire and fireworks problem
- Might need restrictions/enforcement visits (Feb 1- July 10) on Guemes and Lopez Island units
- Goat Island unit has graffiti, camping problems from boaters/kayakers
- Off-site users disturb local landowners (those who don't buy stewardship decal/park on road)
- Need to provide early and continuous opportunities for public to participate in proposed estuary restoration (Wylie Slough proposal is example of how NOT to involve public)
- Post 'Rules of Conduct' for all users
- Increase messages to explain/promote how crowd reduction strategies promote quality hunting
- Guemes Island unit stewardship volunteers need training
- Existing public hunting areas are too crowded**.**
- Evaluate establishment of limited entry waterfowl hunting areas
- Provide walk-in waterfowl hunting opportunities on new acquisitions to replace similar recreational opportunities lost on restoration areas.
- Provide new pheasant release sites to replace recreational opportunities lost on restoration areas, on areas with no other recreational user conflicts
- Goat Island unit has graffiti, camping problems from boaters/kayakers
- Goat Island is attraction nuisance/safety issue due to old gunnery pits

Assess impact of dogs on wildlife area units

- Dog training and running not compatible with breeding birds in spring-early summer
- WAC for bird dog training on wildlife areas needs to be clarified in code and regulation booklet
- Suggested a subcommittee of the CAG to identify, evaluate, and review issues related to dog use and training on wildlife area
- Should be re-written to specify "bird dog training season" as that is the season that is established by the Commission. This does not include training dogs for agility, coursing hounds, blood hounds, or a vast array of other pet training.
- Require a small game license and duck stamps (both state and federal) or a Western Washington pheasant hunting permit in order to possess (for training, walking, etc.) dogs on WDFW lands the dog trainer/walker would need to be legal as a duck or pheasant hunter.
- Develop better public education tools for the dog owning public about what the wildlife areas and what types of dog activities are appropriate. They are not off leash dog parks.
- Contact COLA (Citizens for Off Leash Areas) may be able to help..

- Need to restrict dog use to: hunting dog-training activities, active hunting, and other official uses that relate to hunting and shooting activities where dogs are involved. Perhaps having a hunting license will work, but better is a restriction on the types of dog use.
- Unit by unit assessment is needed
- Need to look at the big picture with other agencies and their lands

Provide and increase watchable fish and wildlife recreational opportunities

- Install 'watchable wildlife area ahead' signs on roads
- Refresh signs in kiosks
- Improving maps should be high priority
- Provide web based information specifically tailored to the Skagit.

Agency Objective: Work with Tribal And Local Governments and Private Landowners to Ensure Fish, Wildlife and Habitat Objectives are Achieved

- Would like to expand the plan to work with agriculture community with what is planted, forage and practices
- Need to include working with local governments and private landowners

Agency Objective: Reconnect with those interested in Washington's Fish and Wildlife

Continue to recruit volunteers and develop trained stewardship groups for appropriate units

- Need to provide sufficient resources allocated to coordinate, supervise volunteers
- Volunteers can provide benefits because they take personal "ownership" and respect for land

Agency Objective: Provide Sound Operational Management of WDFW Lands, Facilities and Access Sites

- Maintain/improve parking areas and boat ramps
- Provide trash receptacles and keep litter picked up
- Provide and maintain clean toilets, and add restrooms that accommodate the disabled
- Parking areas are small and undeveloped
- Need long term permit to keep boat ramp dredged
- Keep dikes intact and develop dike maintenance plans
- Boat ramp on Welts property would disturb productive Samish Bay
- Maintain or improve road surfaces
- Develop stewardship groups (volunteers) to supplement W.A. staff and get things done

Maintain buildings, structures and all public use facilities

- What about fixing the failed dikes?
- Maintain/improve parking areas and boat ramps
- Need long term permit to keep boat ramp dredged
- Need to improve maintenance process to minimize loss of public services such as boat launches

Evaluate fish and wildlife habitat value of property

- Need to closely evaluate land values prior to surplus could be topic at quarterly meeting or potentially develop a CAG subcommittee

Develop clear property boundaries

Need to survey ownerships and identify in holdings for purchase

Develop a management plan for the wildlife area

- Need to develop long-term strategy for acquisition recommendations
- Need to provide early and continuous opportunities for public to participate in proposed estuary restoration (Wylie Slough proposal is example of how NOT to involve public)
- Need to monitor and document public use of wildlife area units
- Maintain and increase the use of local stewardship groups
- This process is on too fast a tract for public and agency staff to adequately and professionally respond to create a useful, realistic quality product
- Need to increase W.A. staff to implement these strategies
- Need to increase staff to deal with increasing legal requirements, illegal dumping, meth labs and other inappropriate uses

Protect cultural resources consistent with state and federal law

- Consider restoration and adaptive use of historically and culturally important sites, structures should be considered

Pursue additional funding opportunities

- Need to pursue funding opportunities to systematically replace lost hunting and species-specific areas
- Need to include work with conservations, NGO's, and agricultural organizations who may have interest in these issues i.e. Western Washington Agriculture Association, Skagitonian to Preserve Farmland, Skagit Conservation District, and Skagit Land Trust

Citizens Advisory Group Meeting Summary

Monday April 24, 2006

6:30-9:30pm, Skagit PUD Aqua Room, Mt. Vernon

Underlined comments are from WDFW staff; asterisked comments (*) are from observers

Present at Meeting

CAG: Virginia Clark - Pilchuck Audubon Society
Tina Cochran - German Shorthair/Pointer Club
Ed Connor - Skagit Watershed Council
Marilyn Dahlheim - Dog trainer
Oscar Graham - WDFW Waterfowl Advisory Committee; fish/wildlife advocate
Jeff (for Steve Hinton), Skagit River Systems Cooperative
Martha Jordan - Trumpeter Swan Society
Art Kendal - Wylie Slough Technical Committee; fish/wildlife advocate
Michael Rasch - Bird hunter; fish/wildlife advocate
Tom Rutten - WDFW Land Management Advisory Committee
Allison Studley - Skagit Fisheries Enhancement Group
Albert Vincent, Jr. - Fish and Wildlife Committee for Persons with Disabilities
Dallas Wylie - Neighboring farmer

Absent: *Kurt Beardslee - Washington Trout*
Rone Brewer - Environmental Consultant; fish/wildlife advocate
Dave Kush – Snoqualmie W.A. volunteer; pheasant hunter
Bob Rose – Skagitonians to Preserve Farmland
Sharon Walker – Sno. Co. Parks and Recreation Dept; fish/wildlife advocate
Keith Wiggers – Skagit Audubon Society

WDFW: John Garrett, Skagit Wildlife Area Manager
Belinda Schuster, Assistant Manager
Donna Gleisner, Technical Writer
Lora Leschner, Regional Wildlife Manager
Bob Everett, Region Four Manager
Dave Brittell, Assistant Director, Wildlife Program
Shirley Solomon, Fish and Wildlife Commissioner

Observers: Sean Edwards, Stillaguamish Watershed Senior Planner
Dog trainer

Role of the CAG

-Protect the interests of resources and usage of the area
-Previous experience with the CAG was not good experience as far as group and agency expectation
-Do not wish to be a “rubber stamp” for the agency
-Work with a variety of agency committees and this is an active process that requires more than just attending CAG meetings

-Schedule for the CAG was not realistic to feel that our input into the planning process was legitimate
-WDFW will provide the group with the Department's criteria outlining CAG involvement in this process

General Comments
-The format of the plan (strategies) is difficult to follow by Unit
-Hard to identify priorities in strategies section (identify in narrative)
-Would like to have minutes or other type of summary of CAG meetings to refresh committee members about what was discussed
-More regular (quarterly?) meetings would help the committee be more informed and involved
-It is good to understand where each project is in the process, what is being planned, what projects need funding, what recreational projects are in the planning process
-Has this group been introduced to the 1418 Report and the outcome of the committee and planning efforts?
-Identified the need for more information related to other planning efforts and internal documents used to produce the plan (Shared Strategy, Lands 20/20, 1418 Report) and where to find these online and other hard copies

Headquarters Restoration Project
-Why not have finger dikes off spur dike for better waterfowl hunting
-How much is Skagit estuary growing naturally
-Has there been any testing of soil for pollutants/toxins

Dog Use
-Concerns about issues related to dog use (off leash) in the plan
-This does not need to be studied
-Other committee members have had interactions with off-leash dogs while training their hunting dogs
-The issues related to dog use on Wildlife Area units are:
  -Dogs attacking people, other dogs
  -Dogs not under owner's control
  -Dogs interfering with other users training their dogs or hunting, fishing
  -Dog impacts on wildlife
-Some of the possibilities are to restrict dog use by unit, season, identify sites to have as year around site, use the science to inform the decision
-Some sites should be closed all year
-Seasonal closures work really well and have been instituted in California
-North portion of the Samish Unit would be a suitable site for dog training*
-Wildlife Areas are for hunting dog training, which should be focused on the hunting- related activity not the breed of dog
-Need the committee's input on how to focus this discussion and requirements for dogs
-Concerns about developing trails on certain sites near larger/growing human populations, and how these sites become heavily used by people with dogs (running, jogging, off leash dogs and general trail use)
-Suggestion to develop sub-committees related to the difficult issues (dog training, overcrowding, season of use, replacement lands, etc.)

Leque Island Restoration and Recreational Enhancement Projects
-Has there been any testing for lead on Leque restoration site
-How will pheasant release program be impacted by these projects
-Concerns about decreased acreage and change in habitat types
-Are there plans for replacement lands in this area? Answer: yes, but a challenge
-The CAG supported (by a show of hands) the recreational enhancement as presented
-Funding is being pursued from a variety of sources

*** * * NEXT MEETING * * ***
Tuesday, May 9 at **CONWAY FIRE HALL**, 6:30-9:30pm
Sandwiches and drinks will be provided
-We will record and discuss your comments/suggestions on Skagit Strategies
-John will update the CAG on Snoqualmie Wildlife Area Plan and projects

****IF you can not attend, please consider sending someone in your place**

To be mailed to CAG:
-April 24 Meeting Summary
-CAG role and responsibilities in this planning process
-Updated contact list of CAG members
-Snoqualmie Plan & Strategies (for those who missed the 4-24-06 meeting)

Citizens Advisory Group Meeting Summary

Tuesday May 23, 2006

6:30-9:30pm, Conway Fire Hall, Conway

Present at Meeting

CAG: Virginia Clark - Pilchuck Audubon Society
Tina Cochran - German Shorthair/Pointer Club
Oscar Graham - WDFW Waterfowl Advisory Committee; fish/wildlife advocate
Martha Jordan - Trumpeter Swan Society
Art Kendal - Wylie Slough Technical Committee; fish/wildlife advocate
Bob Rose – Skagitonians to Preserve Farmland
Tom Rutten - WDFW Land Management Advisory Committee
Sharon Walker – Sno. Co. Parks and Recreation Dept; fish/wildlife advocate
Keith Wiggers – Skagit Audubon Society
Dallas Wylie - Neighboring farmer

Absent: *Kurt Beardslee - Washington Trout*
Rone Brewer - Environmental Consultant; fish/wildlife advocate
Ed Connor - Skagit Watershed Council
Marilyn Dahlheim - Dog trainer
Steve Hinton - Skagit River Systems Cooperative
Dave Kush – Snoqualmie W.A. volunteer; pheasant hunter
Michael Rasch - Bird hunter; fish/wildlife advocate
Allison Studley - Skagit Fisheries Enhancement Group
Albert Vincent, Jr. - Fish and Wildlife Committee for Persons with Disabilities

WDFW: John Garrett, Skagit Wildlife Area Manager
Belinda Schuster, Assistant Manager
Curran Cosgrove, Habitat Technician
Donna Gleisner, Technical Writer
Lora Leschner, Regional Wildlife Manager

Observers: Larry Schwerdt, dog trainer

Review of Process

Donna Gleisner handed out a one-page sheet (enclosed) to discuss where we are at in the review process, and how the CAG might move forward to meet this year's deadline. Since the Skagit Plan contains so many strategies, we have decided to step back from this level of detail for now. Plus some strategies are actually measurable actions that belong in Chapter 4 Performance Measures (we can't create that chapter until we're done with Chapter 3 Strategies).

Our main goal for this year's effort is to gather general comments, broad level input, reach consensus where we can, and identify which strategies the CAG needs more time to work on. Those strategies will be tagged in the plan as needing more discussion. Then the CAG can prioritize those unresolved strategies and begin working on them one at a time over the next year.

We again discussed how cumbersome this document is, and how hard it is to find and follow what is occurring on individual units. The CAG suggested creating an index by unit, or an appendix listing each unit and its strategies. WDFW will experiment with these approaches, probably after the Strategies section is in final form this year, and present them to the CAG for review.

Regional Manager Bob Everitt has told us that WDFW and CAG comments should be given equal weight, except where the agency is required to comply with federal or state laws (Endangered Species Act, Fish Passage Barrier Act, House Bill 1418 - removal of tidegates for salmon).

Strategy Comments

Copies of WDFW and CAG comments (in different colors) were handed out (enclosed); Lora Leschner's comments are on a B&W copy of the strategies (enclosed). Belinda and Curran have typed all but Lora's comments into the Strategies document where they might go. No changes have been accepted yet.

The colors indicate:

Blue = WDFW comments, and written CAG comments
Red/pink = CAG comments from meetings (initials with comment)
Green = question, needs clarification

Belinda also handed out a "shorthand" version of the Strategies, just listing the strategy heading and then all the comments to date that pertain to each strategy (enclosed).

We spent the next two hours going through the rest of the Strategies and got through the entire document! Then we discussed how to proceed in revising the document – how to show changes yet have the final draft be readable. The CAG decided they would like to have two copies--one with all the markups, strikeouts and additions present (in different colors), and a clean copy with none of that showing. They will be given both electronic and hard copies by June 6. To see the marked-up version, you might need to activate track changes in Word - click on Tools and then click on Track Changes.

We also briefly discussed whether or not the CAG wants to have an attendance policy for its members.

*** * * NEXT MEETING * * ***

Tuesday, June 6 at **CONWAY FIRE HALL**, 6:30-9:30pm

-We will record and discuss your comments/suggestions on the **SNOQUALMIE Strategies**
-CAG will decide if they need to meet again to review the revised Skagit Strategies document

IF you can not attend, please send a replacement

Citizens Advisory Group Meeting Summary

Tuesday June 6, 2006

6:30-9:30pm, Conway Fire Hall, Conway

Present at Meeting

CAG: Tina Cochran - German Shorthair/Pointer Club
Ed Connor - Skagit Watershed Council
Steve Hinton - Skagit River Systems Cooperative
Martha Jordan - Trumpeter Swan Society
Dick Knight - Skagit Fisheries Enhancement Group (*for Alison Studley*)
Michael Rasch - Bird hunter; fish/wildlife advocate
Tom Rutten - WDFW Land Management Advisory Committee
Albert Vincent, Jr. - Fish and Wildlife Committee for Persons with Disabilities
Sharon Walker – Sno. Co. Parks and Recreation Dept; fish/wildlife advocate

Absent: *Kurt Beardslee - Washington Trout*
Rone Brewer - Environmental Consultant; fish/wildlife advocate
Virginia Clark - Pilchuck Audubon Society
Marilyn Dahlheim - Dog trainer
Oscar Graham - WDFW Waterfowl Advisory Committee; fish/wildlife advocate
Art Kendal - Wylie Slough Technical Committee; fish/wildlife advocate
Dave Kush – Snoqualmie W.A. volunteer; pheasant hunter
Bob Rose – Skagitonians to Preserve Farmland
Keith Wiggers – Skagit Audubon Society
Dallas Wylie - Neighboring farmer

WDFW: John Garrett, Skagit Wildlife Area Manager
Belinda Schuster, Assistant Manager
Curran Cosgrove, Habitat Technician
Donna Gleisner, Technical Writer

Skagit Wildlife Area – Revised Strategy Review

The first thing handed out was an Outline so members could see how the Skagit Strategies chapter had changed. One large change was switching Objectives 3.1 and 3.2. around. Donna Gleisner said the vast majority of other changes were moving strategies to other sections, or combining strategies into a broader umbrella statement that the issue needs work or discussion. Donna thought she eliminated less than 10 strategies total. She was able to include most CAG comments in the narrative, as part of a strategy, or as a new strategy.

Next came copies of the Skagit Strategies document showing changes made (using Microsoft Word's Track Changes). Because anything that was moved shows up in red with a line through it, Donna also color coded and tagged her actions. A green highlight at the beginning or end of a paragraph or strategy means that piece was kept but moved. Unfortunately, the text in the highlighting doesn't show up very well, but Donna did indicate where things got moved to. Anything highlighted with red (also says "omitted") was cut from the plan. Anything new (which includes moved text) shows up as blue text.

Next Donna handed out the clean copy of the Revised Draft Strategies. The CAG asked that this document also be e-mailed to them. Donna also created six new appendices to capture information that was in the Skagit Strategies, but didn't really fit there: 1) 1418 Report Project List, 2) Potential WDFW Restoration Projects, 3) Known Fish Passage Barriers, 4) Access Area Needs, 5) Watchable Wildlife Site Needs and 6) Potential Partner Organizations.

If anyone has any questions about where a strategy went or if their comment is included, please feel free to e-mail or call Donna (425-923-7110). Absent members will receive a copy of all documents handed out at the meeting.

Next Steps

The CAG did not think another meeting was needed to review the Skagit Strategies document. In lieu of that, they have opted to e-mail each other regarding any further changes and work to get agreement that way. John asked that all comments and final group decisions be made **BY TUESDAY, JUNE 13** as we need to get the Skagit Plan to Olympia by that friday.

Donna said she will prepare a list of issues that the CAG is being asked to address for both the Skagit and Snoqualmie Wildlife Areas. (Donna will e-mail this list to everyone later this month.) It will then be up to the CAG to decide which issue to work on first, or split into sub-committees to work on more than one at a time, etc. The CAG will also need to decide when it would like to meet next, where, etc.

Dick Knight will be stepping in for Alison Studley. He is on the Board of Directors for the Skagit Fisheries Enhancement Group. His contact information is: d.dickknight@verizon.net (home e-mail), 360-466-0480 (home phone), 360-336-0172 (work phone – Mt. Vernon). Welcome aboard, Dick!

***THANK YOU ALL** for caring enough about our natural resources and recreational opportunities to get involved, and lend your knowledge, energy and creativity. We are looking forward to working with you on some very interesting issues over the next year, and beyond!*

APPENDIX 2. SKAGIT WILDLIFE AREA NOXIOUS WEED CONTROL PLAN

Weed Control Goals on WDFW Lands

The goal of weed control on Department 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 Department 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 and B-Designate 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). Integrated pest management is 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 control weeds. These elements include:

Prevention: Prevention programs are implemented to keep the Wildlife 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, its distribution and relative density on the Wildlife 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 weeds using biological, cultural, mechanical and chemical control serves to eradicate pioneering infestations, reduce established weed populations below densities that impact management objectives for a unit, or otherwise diminish their impacts. Each control method 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 Wildlife 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.

Weed Species of Concern on the Skagit Wildlife Area

Weeds of concern on the Skagit include giant hogweed (*Heracleum mantegazzianum*), tansy ragwort (*Senecio jacobaea),* knapweed species (*Centaurea*), cordgrass species (*Spartina*), Japanese knotweed (*Polygonum cuspidatum*), purple loosestrife (*Lythrum salicaria)* and Scotch broom (*Cytisus scoparius*). This list is based on species that have been documented on the Wildlife Area (Table 1).

Management and control recommendations for individual weed species can be found in the following sections, as follows:

Table 4.1. Skagit Wildlife Area weeds, approximate acres and acres treated in 2005

Common Name	2005 State Weed Class	2005 County Weed Class	Wildlife Unit	Acres	Acres Treated
Butterfly bush	C	C	Camano Is. Natural Area	Unknown	0
			Headquarters		
Smooth cordgrass	B	B*	Padilla Bay	<1	0
Common cordgrass	B	B*	Skagit Bay Estuary	50	30
			Port Susan Bay	3	<1
English Ivy	C	C	Bald Eagle Natural Area	<1	0
Giant hogweed	A	A	Leque Island	Unknown	0
			Headquarters	1	0
			Samish	Unknown	0
			Telegraph Slough		
Knapweed species	A, B designated	A, B designated	Leque Island	Unknown	0
			Samish	100	0
Japanese knotweed	B	B*	Bald Eagle Natural Area	Potential	0
			Headquarters	<1	0
			Island	<1	0
Poison hemlock	C	C designated	Leque Island	4	3
			Headquarter	<1	<1
			Samish		
Purple loosestrife	B	B designated	Headquarters	<1	0
			Island	1	1
Reed canary grass	C	C	Headquarters	Unknown	0
			Island	Unknown	0
			Johnson/DeBay Reserve	Unknown	0
			Leque Island	Unknown	0
			Telegraph Slough	Unknown	0
Scotch broom	B	B*	Headquarters	Unknown	0
			Island	2	0
			Leque Island	Unknown	0
Tansy ragwort	B	B*	Telegraph Slough	Unknown	0
Canada Thistle	C	C*	Camano IslandNatural Area	Unknown	0
			Fir Island Farms	1	0
			Johnson/DeBay Swan Reserve	Unknown	0
			Leque Island	Unknown	0
			Samish	80	0
			Samish River	Unknown	0
			Telegraph Slough		
General weeds: Himalayan and Evergreen Blackberry	Not listed	Not listed	Camano Island Natural Area	Unknown	0
			Headquarters	Unknown	0
			Island	Unknown	0
			Leque Island	Unknown	0
			Samish	Unknown	0
			Telegraph Slough	Unknown	0

**Priority status for control by Skagit County Weed Board*
B-Designate are state-listed and mandatory for control to prevent seed production/spread.
New Invader is not an official state classification, but indicates the county reserves the right to implement control.
R&S (Reduction and Suppression) Weeds are of wide distribution. Control along transportation corridors is recommended.

BUTTERFLY BUSH CONTROL PLAN
Class C Weed Species

Latin Name: *Buddleia davidii* **Common Name**: Butterfly Bush
Updated: 2006

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
Butterfly bush currently exists on the Camano Island Natural Area and Headquarters Units.

ACRES AFFECTED BY WEED: less than 1 **WEED DENSITY:** Low

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
Camano Island Natural area is not actively managed. A volunteer stewardship team coordinated by the district and area wildlife biologist conducts work parties. Monitoring will continue on an annual basis.

CONTROL SUMMARY AND TREND
No exact location and distribution data are available at this time. Efforts to develop an inventory of existing distribution are underway.

CANADA THISTLE CONTROL PLAN
Class C Designated Weed Species

Latin Name: *Cirsium arvense* **Common Name**: Canada thistle
Updated: 2006

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: 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
Canada thistle is currently found on six units: Camano Island Natural Area, Fir Island Farms, Johnson/DeBay Swan Reserve, Leque Island, Samish and Telegraph Slough.

ACRES AFFECTED BY WEED: 80+ **WEED DENSITY:** Medium

GOALS
Control expanding populations
Prevent new occurrences

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

ACTIONS PLANNED
Notified by Skagit County of thistle problem on Samish and Samish River unit. Mowed stands in 2005 late in the season in effort to control spread. Contacted the WDFW weed crew to begin more defined control effort. Stands will be chemically treated with Transline and follow-up spot spraying treatments when necessary. Monitoring will continue on an annual basis.

CONTROL SUMMARY AND TREND
Initial spray treatments occurred first week of June 2006. The level of plant control is unknown at this time. Treatment site will be visited again in the fall to treat remaining plants.

ENGLISH IVY CONTROL PLAN
Class C Weed Species

Latin Name: *Hedera helix* **Common Name**: English ivy
Updated: 2006

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

English ivy currently exists on the Bald Eagle Natural Area.

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 on the Bald Eagle Natural Area have been initiated by the Access area program personnel. It was cut and sprayed in summer 2005. No data exists for the effectiveness of this treatment.

HIMALAYAN BLACKBERRY CONTROL PLAN
Unlisted Weed Species

Latin Name: *Rubus discolor* **Common Name**: Himalayan blackberry
Updated: 2006

DESCRIPTION: Himalayan blackberry (HBB) is a robust, sprawling perennial, more or less evergreen, shrub. Leaves are large, round to oblong and toothed, and usually in groups of five. Stout, thick, arching stems (canes) have large, stiff thorns. Shrubs first appear as individual canes, then groups of canes, gradually increasing to become great mounds or banks, with individual canes reaching up to nine feet. The main cane grows up to 15 feet tall; trailing canes spread up to 20-40 feet, frequently taking root at the tips. Small white to pink flowers appear in spring and then roundish, black edible fruits form in mid-summer to early August. Individual canes live only two to three years; yet reach a density of 525 canes per square yard. Roots penetrate down about 3 feet, and can be 30 feet long. HBB also grows vegetatively by root and stem fragments. Seeds remain viable for several years.

Habitat: Native to Western Europe, this weed was probably first introduced to North America in 1885 as a cultivated crop. By 1945 it had naturalized along the West Coast. Himalayan blackberry tolerates a wide range of soils and moisture conditions, but not true wetland soils. It prefers full sun and well-drained soils. It is found in vacant lands, pastures, open forests, tree farms, roadsides, creek gullies, riparian areas, fence lines and right-of-way corridors.

***Threat*:** Once it becomes well established, HBB out competes any low growing native vegetation and can prevent shade intolerant trees from growing, leading to permanent HBB thickets with little other vegetation present. These dense, impenetrable thickets limit the movement of large animals. When this species takes over entire stream channels and banks, it increases the possibility of flooding and erosion there.

MANAGEMENT INFORMATION:
Control is best done in two phases: 1) remove above ground vegetation, and 2) kill/remove root crowns and major side roots (not necessarily in that order).

Biological: The USDA has not supported the introduction of herbivorous insects to control HBB due to the risk these insects may pose to commercially important Rubus species. Research on this subject continues.

Chemical: 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*:** Removing root crowns and major side roots by hand digging (claw mattock, pulaski/mattock) is a slow but sure way to destroy blackberry (especially small patches).

You must be thorough and follow up because large root fragments left in soil may produce a new plant. Starting with lesser weed infestations and working towards the worst stands is effective at maximizing self-recovery of native vegetation. Or immediately seed with native grasses to reduce invasion by other weeds and allow follow-up treatment of surviving HBB with broadleaf killing herbicides (if desired). Remove canes and fragments to prevent resprouting. Although fire alone doesn't control this weed, burning large infested areas will remove standing mature plants after a pre-spray of herbicide(s) to kill and desiccate aboveground portions. Planting fast-growing shrubs or trees or shade tolerant species may reduce or prevent HBB re-establishment, since the species is usually intolerant of shade. Grazing sheep and goats where mature plants have been removed has also controlled regrowth, but both are non-selective eaters.

Mechanical: Mowing and weed whacking (blade better than string) can be very effective in controlling HBB. Several cuttings are required before the underground parts exhaust their reserve food supply. If only a single cutting can be made, do it when plants begin to flower. Debris may be fed through a mechanical chipper and used as mulch. Need to follow-up the next year, as HBB may resprout from root crowns in greater density (and overtop any planted vegetation).

CURRENT DISTRIBUTION
Himalayan blackberry is so widespread and rampant throughout Washington that it was not added to the state's noxious weed list because control would be almost impossible at that scale. This weed is currently found on all units in small to large patches, and is especially thick along access roads, dikes/levees and field edges.

ACRES AFFECTED: ~30 **WEED DENSITY:** High

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
Himalayan blackberry, although not on the state or county noxious weed list, can be undesirable in some locations making access difficult and a serious habitat problem on many of the Skagit Wildlife Area's units. However, in some open field situations such as the Samish Unit small controlled thickets can provide valuable cover for songbirds and small mammals. Mowing and monitoring will continue on an annual basis.

CONTROL SUMMARY AND TREND
HBB has been mowed annually along access roads and farmed field edges.

GIANT HOGWEED CONTROL PLAN
Class A Noxious Weed

Latin Name: *Heracleum mannegazzianum* **Common Name**: Giant hogweed
Updated: 2006

DESCRIPTION: As its name indicates, this plant is massive in size, growing anywhere from eight to 15 feet tall. The plant's stems are two to four inches in diameter, hollow and ridged with dark reddish-purple blotches. The deeply incised compound leaves can be three to five feet wide. Hairs on the underside of the leaf are stiff, dense and stubby. In mid-May to July, giant hogweed is topped with numerous flat-topped white flower clusters each of which is two and a half feet across. Seeds start forming in July and are in 3/8 inch wide, elliptic dry fruits with wings and swollen brown resin canals. Giant hogweed is a usually a perennial, not flowering until its second or third year (or later) and sometimes dying after flowering. Individual plants however, may produce additional crowns, which continue to flower and set seed. Its winged seeds spread by water, soil movement or animals; seeds can remain viable in the soil for more than ten years. It also reproduces through buds formed on the crown and tuberous root stalks.

Habitat: Native to the Caucasus Mountains and southwestern Asia, giant hogweed was introduced to the U.S. as a garden ornamental. Although it prefers rich, damp soil and can grow in varied light conditions (tolerates shade), it is most commonly found in urban areas, along roadsides, ditches, unmanaged yards and vacant lots. Sometimes confused with the native plant cow parsnip (*Heracleum lanatum*) which grows in the same areas, but parsnip rarely exceeds six feet, has smaller flower clusters, and underside leaf hairs are soft, wavy and shiny.

Threat: Giant hogweed is a major public heath hazard. The plant exudes a clear watery sap that can result in severe skin burns, blistering, painful dermatitis and permanent scarring if touched. With its abundant seed production, persistent rootstalk, and vegetative budding, giant hogweed can colonize an area rapidly and quickly expand. It crowds out desirable native, forage and crop plants with its aggressive growth. This nonnative plant is not useful as food or shelter for native wildlife. The plant can increase erosion by replacing native evergreen and woody plants that protect the soil and hold it in place.

MANAGEMENT INFORMATION:
Biological: Cattle and pigs are cited as possible biological control agents. Both eat giant hogweed without apparent harm. Trampling also damages the plant. Whether any formal investigation for phytophagous insects in giant hogweed's native range has been conducted is unknown.

Chemical: Glyphosate (Roundup, Rodeo) is considered the most effective herbicide and should be used cautiously around desirable species since it is nonselective. Apply during bud stage and while the plant is actively growing (especially late March to early April). In wet areas, Rodeo is the only herbicide permitted for use in Washington. Bare areas can be re-infested with hogweed or other weeds so replanting with natives is highly recommended. Triclopyr (Brush-B-Gone) is also effective and is a more selective herbicide that only acts on broadleaf plants, not harming grasses in the surrounding area. Apply herbicide to the entire leaf and stem surface of actively growing plants; do not cut the stem after applying the herbicide since this will stop the plant from absorbing the chemical. An area of heavy seedling infestation can be efficiently controlled by an herbicide

application in spring, followed by an application in summer for late sprouts. Dicamba will kill above ground parts but is reportedly not particularly effective on persistent rootstalks. Simazine (Princep) is also reported to control hogweed, although data are lacking in the Pacific Northwest.

Manual: Mature plants can be dug out by hand if at least the first four to six inches of the central root is removed. Younger plants are more resilient; in mature infestations, seedlings can number in the hundreds and may break off when being pulled from compacted soils, leaving the root to grow. Protective clothing must be worn. Bag entire plant and put in the trash.

Mechanical: Mowing will only be effective for short periods of time and has to be repeated every two weeks—otherwise it is only stimulating budding on the rootstalk. Eventually, the roots will be depleted, but this may take years.

CURRENT DISTRIBUTION
Giant hogweed is found in small widely distributed patches on four units: Headquarters, Leque Island, Samish and Telegraph Slough.

ACRES AFFECTED: ~1 **WEED DENSITY**: Low

GOAL
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
In 2006, the Headquarters unit will be surveyed and spot treated in spring/early summer using herbicide. Monitoring will continue on an annual basis on nearby units.

CONTROL SUMMARY AND TREND
No exact location and distribution data are available at this time. Efforts to develop an inventory of existing distribution are underway.

JAPANESE KNOTWEED CONTROL PLAN
Class B Noxious Weed

Latin Name: *Polygonum cuspidatum* **Common Name**: Japanese knotweed
Updated: 2006

DESCRIPTION: Japanese knotweed is an herbaceous perennial that forms large clumps three to 10 feet tall. Leaves are two to six inches long and heart shaped, but hybrids blur these distinctions. The hollow, upright, bamboo-like stems are often reddish or red-speckled; young shoots look similar to red asparagus. Small greenish-white flowers form in July and August, growing in dense clusters from leaf joints. Male flowers are upright; female flowers droop. Although the plant dies back to the ground after hard frosts, bare, reddish brown stalks may persist through the winter. While it can reproduce by seed, primary reproduction is through an extensive network of rhizomes that can spread 20 to 65 feet from the parent plant and penetrate seven feet into the soil. Shoots generally emerge in April and can grow more than three inches a day. Root and stem fragments as small as one-half inch can form new plant colonies. Dispersal can occur naturally when rhizome fragments are washed downstream by currents or floods and deposited on banks or more commonly, when soil is transported as fill dirt. Many patches in the Pacific Northwest appear to be hybrids of Japanese and giant knotweed (*Polygonum X bohemicum).*

Habitat: Native to eastern Asia, it was introduced to the United Kingdom as an ornamental in 1825, and from there to North America in the late nineteenth century. Japanese knotweed is found primarily in moist, unshaded habitats in regions of high precipitation. It will grow in silt, loam, sand and river cobble with pH ranging from 4.5 to 7.4. Its distribution appears to be limited by light as its growth and abundance are depressed in shady locations. It spreads primarily along river banks, but also grows in wetlands, irrigation canals, ditches, waste places, along roadways, and in other disturbed areas.

***Threat*:** Because the Pacific Northwest has so many streams, rivers and associated riparian areas, seasonal flooding constantly spreads small knotweed fragments to new areas where they easily and quickly take hold. Then knotweed's early emergence and great height combine to shade out other vegetation and prohibit native plants and other weed species from growing. It reduces species diversity and destroys critical fish and wildlife habitat. These stem and root fragments (also spread in contaminated fill material) can regenerate when buried three feet deep and grow through two inches of asphalt.

MANAGEMENT INFORMATION:
Biological: Research has only recently begun on biological control. The genetic uniformity of this species makes it a good candidate for biological control, but it may be years before a successful control agent can be found.

Chemical: 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: No research has been done on burning plants, but it may also remove above ground plant material. Goats are reported to eat knotweed and in some circumstances controlled grazing may be an option similar to intensive mowing.

Mechanical: Thorough and persistent cutting TWICE A MONTH over several years can eliminate knotweed (especially small, isolated patches) as this reduces rhizomatous reserves. Prevent the plants from ever exceeding six inches tall. Remove, rake or carefully dry all knotweed vegetation, because stems or stem fragments can sprout.

CURRENT DISTRIBUTION
Japanese knotweed is currently found in small patches on the Headquarters and Island units, and has the potential to spread to the Bald Eagle Natural Area.

ACRES AFFECTED: 2+ **WEED DENSITY:** Low

GOAL
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
In 2006, the Milltown, Deepwater Slough and Cottonwood Island units will be surveyed in spring to identify acreage and distribution. Following inventory the Wildlife area staff will coordinate with the WDFW weed crew to determine best possible course of action for the 2006 season. Spot spraying will occur on the Headquarters area and Island to treat stands sprayed in 2005. Monitoring of treated locations will continue on an annual basis and on nearby units.

CONTROL SUMMARY AND TREND
No exact location and distribution data are available at this time although this weed is believed to be widespread. Efforts to develop an inventory of existing distribution are underway.

PURPLE LOOSESTRIFE CONTROL PLAN
Class B-designated Noxious Weed

Latin Name: *Lythrum salicaria* **Common Name**: Purple Loosestrife
Update: 2006

DESCRIPTION: Purple loosestrife is a perennial, emergent aquatic plant with a woody taproot, able to grow six to ten feet tall and five feet wide. The narrow oblong leaves are 1.5 to four inches long, smooth, and opposite or whorled . Magenta flowers appear from July to early October on long, showy spikes. Each mature plant can produce 2.7 million pepper-sized seeds that can remain in the soil for years. Most seeds germinate in high densities (about 1,000 to 2,000/sq. foot) around the parent plant and flower eight to ten weeks later. Purple loosestrife also spreads vegetatively, thanks to substantial root wads with buds that can become shoots or roots.

Habitat: Purple loosestrife probably came from Europe and Asia. During the mid 1900's the nursery industry developed and sold loosestrife plants thought to be sterile. Of the 12 species in the continental U.S., three are exotic (introduced). Purple loosestrife occurs in freshwater and brackish wetlands, cattail marshes, sedge meadows, open bogs, ditches and other wet disturbed soil areas, and along lakes, streams and rivers. It tolerates a broad pH range (4.0 and 9.1) and grows best in high organic soils, but tolerates clay, sand, muck and silt. Generally found in full sun, it can survive in half shade.

***Threat*:** With its ability to produce prolific amounts of seeds and spread vegetatively from root buds and stem pieces, this species is highly invasive, competitive and long-lived (up to 20 years). It is an extremely successful and sudden invader of disturbed wetlands due to its massive seed bank, out competing all native seedlings and severely altering wetland ecosystems. It displaces native plants; nesting and feeding habitat for waterfowl, fur-bearing animals and other bird populations; reduces recreational hunting and trapping grounds; and decreases land values. Purple loosestrife also invades and clogs irrigation systems (costing millions annually to fix) and overtakes wild meadows, hay meadows and wetland pastures used for grazing.

MANAGEMENT INFORMATION:
Biological: Leaf-feeding beetles (*Galerucella calmariensis* and *G. pusilla*) may provide long-term success. These beetles defoliate and attack the terminal bud area, drastically reducing seed production and leaving a high seedling mortality rate (nearly 50 percent). A root-mining weevil (*Hylobius transversovittatus*) that also eats leaves and severs xylem and phloem tissue (depleting carbohydrate reserves) greatly reduces plant size. Other possible agents include a seed-eating beetle (*Nanophyes marmoratus*) that reduces seed production by 60 percent, another (*N. brevis*) that attacks seed capsules, and a cecidomyiid fly whose galling can reduce the foliage by 75 percent and seed production by 80 percent.

Chemical: Glyphosate (AquaNeat, AquaMaster) are the herbicides labeled for aquatic use in Washington and provide good control if applied in July and August; however they non-specific. For larger infestations where selective application of glyphosate is not practical, broadleaf herbicides (Triclopyr and 2,4-D based) are also effective, if applied in late May to early June. A combination of 2,4-D and dicamba (1:1 tank mix) has been used on a limited basis in western

irrigation ditches. Spray loosestrife at 10-15 percent of its mature growth for good results and repeat once during the growing season.

Manual: Flooding plants for five weeks can produce 100 percent mortality, but all growth must be underwater. This is only recommended for large infestations because of problems maintaining constant water levels and harm to native plants. If possible, delay drawdowns until mid-July, after growing season has peaked. Mature flowering stems of small infestations can be cut at the base in late summer or early fall bagged and disposed of to prevent seed production. Black plastic covering is an interim option for dense seedling infestations, slowing growth and seed production. However, root crowns did die in plots where heavy litter from mowing remained covered until the next June. More study needed.

Mechanical: While mowing alone is not a viable control option, doing so late in the season reduces shoot production more than mid summer cutting. Where disturbance to soil and plants is acceptable, tilling the top six inches of soil with disc or harrow can effectively grub out the root crown where the plant's energy is stored.

Replacement: A very limited application, but replacement seeding may be useful to control or contain loosestrife populations on buffer property. Trials with Japanese millet (*Echinochloa frumentacea*) and knotweed (*Polygonum lapathifolium*) sown immediately after marsh drawdown successfully out competed loosestrife seedlings. However, the millet didn't regenerate well and has to be replanted every year. The following spring loosestrife grew first due to its over-wintering rootstock.

CURRENT DISTRIBUTION
Purple loosestrife is currently found in small patches on three units: Headquarters, North Fork, and Island. There is concern about the spread of this plant to portions of the Skagit Bay Estuary due to limited access for control. Efforts to contain the current infestations will continue. Efforts to acquire bio-control beetles will be initiated.

ACRES AFFECTED: 7+ **Weed Density:** Low -Medium

GOAL
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing and treated populations
Calculate the acres affected by this weed
Treat 100% of known infestation
Survey nearby units for pioneering infestations

ACTIONS PLANNED
In 2006, the Island and Headquarters units will be surveyed and spot treated in spring/early summer using herbicide. Skagit County Weed Board notified the WDFW staff in spring of 2006 of a ~5 acre patch on the North Fork Access that is believed to be on our property. Wildlife Area staff and

WDFW weed crew will further investigate this potential infestation. Monitoring will continue on an annual basis on nearby units.

CONTROL SUMMARY AND TREND

2005 – Approximately 1 acre was treated chemically with 80% control

POISON HEMLOCK CONTROL PLAN
Class C Noxious Weed

Latin Name: *Conium maculatum* **Common Name**: Poison Hemlock
Update: 2006

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
Poison hemlock is currently found on the Headquarters, Leque Island and Samish units.

ACRES AFFECTED: 5+ **WEED DENSITY:** Medium

GOAL
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Calculate the acres affected by this weed
Treat 100% of infestations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
Due to the plant being highly poisonous, mechanical control will be used on the infestations on the Headquarters unit. The plants will be bagged and deposited at the landfill. WDFW North Sound weed crew and Snohomish County public works will spray portions of Samish and Leque Island units

CONTROL SUMMARY AND TREND
2005 – Approximately 4 acres were treated with 75-80 % control

REED CANARYGRASS CONTROL PLAN
Class C Noxious Weed

Latin Name: *Phalaris arundinacea* **Common Name**: Reed canary grass
Update: 2006

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 densely 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
Reed canary grass is currently found in large areas on the Headquarters, Island, Johnson/DeBay Reserve, Leque Island and Telegraph Slough units.

ACRES AFFECTED: Unknown **WEED DENSITY:** Medium-High (some locations)

GOAL
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
No actions are currently planned specifically to control Reed canary grass. Other projects to improve habitat value are being considered. Monitoring will continue on an annual basis.

CONTROL SUMMARY AND TREND
No exact location, distribution, and extent data are available at this time. Efforts to develop an inventory of existing distribution are underway.

SCOTCH BROOM CONTROL PLAN
Class B Noxious Weed

Latin Name: *Cytisus scoparius* **Common Name**: Scotch Broom
Update: 2006

DESCRIPTION: Scotch broom is a woody evergreen shrub growing 3-10 feet tall. The stiff, dark green stems are strongly angled and grow erect and woody, with broom-like branches that spread only slightly from the main stem. Leaves are small, simple and generally three-parted. Small yellow, pea-like flowers bloom from March to June along the entire stem. Brown seed pods are smooth, flattened and contain beanlike seeds that remain viable for up to 80 years. Bushes can produce up to about 10,000 seeds per plant and eject seeds up to 20 feet away. This species grows rapidly thanks to an aggressive taproot that may exceed two feet in length, and a large shallow lateral root system. Within the first year broom can grow more than three feet tall; plants rarely live more than 10 to 15 years.

Habitat: Scotch broom is native to Europe and was likely introduced as an ornamental. By the turn of the century it had become naturalized on Vancouver Island (Bailey 1906) and was probably planted throughout the Pacific Northwest as an ornamental and as a soil binder along highway cuts and fills. Scotch broom grows best in dry sandy soils in full sunlight, but will survive a wide range of soil conditions, as a result of its ability to fix nitrogen from the atmosphere. Broom invades open sites such as logging roads, landings, roadsides, skidtrails and harvest areas.

Threat: Scotch broom is very aggressive, spreads rapidly; growing so dense that it is often impenetrable. It prevents reforestation, creates a high fire hazard, renders rangeland worthless and greatly increases the cost of maintenance of roads, ditches, canals, and power and telephone lines. Even wildlife suffers as the growth becomes too dense for traveling or nesting, and there is no natural forage left for deer. Its seeds are slightly toxic, so it is browsed very little.

MANAGEMENT INFORMATION:
Biological: Three biological control agents (a twig mining moth, a seed weevil, and a shoot tip moth) have been ineffective in controlling broom, but they can stress individual plants and limit seed production. Several other candidates have been identified — a seed-feeding beetle (*Bruchidius villosus*), a nodule-feeding insect (*Sitona regensteinensis*), a stem-mining weevil (*Apion immune*), and lastly a gall-forming mite (*Aceria genistae*), that is apparently the only creature capable of killing Scotch broom on its own.

Chemical: 2,4-D, alone or mixed with other herbicides, triclopyr (Garlon) and imazapyr (Arsenal). Mixtures with 2,4-D may include triclopyr (Crossbow), diquat, picloram (Tordon), dicamba, and sodium chlorate. Triclopyr is superior to glyphosate and fosamine ammonium. Paraquat and diquat result in only short term (3-6 weeks) control of stump sprouting and seedlings. Spray when plants are in the seed head stage (late summer to early autumn). Spray with a backpack sprayer, tractor mounted broadcast spraying, aerial applications or wipe each plant.

Manual: Hand pulling plants before they produce seeds (most easily done after a rain) that removes the entire rooting system can be effective, but time consuming. Prescribed fire can be a

viable first treatment if done in late summer, when the plant is most stressed. Because burns also stimulate seed germination, burn every two years to first remove older plants and stimulate seed bank germination, then two years later to kill those seedlings before they mature. Combined with limited spot uprooting/spraying/mowing, this may be sufficient to control broom and eliminate its seed bank. Goats may be used to destroy seedlings or plants up to four feet tall. If the broom is dense or providing significant erosion control, aggressively replant with a mixture of native grasses, sedges, rushes and sprouting shrubs such as willow and Cedar or hemlock trees.

Mechanical: Scotch broom may be cut or chopped back by tractor-mounted mowers or scythes. Plants usually require several cuttings before the underground parts exhaust their reserve food supply. The greatest success occurs in late summer (August and September). If only a single cutting can be made, do it when plants begin to flower. After cutting, broom may resprout from root crowns in greater density if not treated with herbicides.

CURRENT DISTRIBUTION
Scotch Broom is currently found in small patches on the Headquarters, Island (Deepwater Slough) and Leque Island units.

ACRES AFFECTED: 2+ **WEED DENSITY:** Low

GOAL
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
No exact location and distribution data are available for other units at this time. Efforts to develop an inventory of existing distribution are underway. Efforts to control Scotch Broom are currently underway by the Skagit Fisheries Enhancement Group effectiveness of control efforts are unknown at this time.

SMOOTH CORDGRASS CONTROL PLAN
Class B Noxious Weed

Latin Name: *Spartina alterniflora* **Common Name**: Smooth cordgrass
Update: 2006

DESCRIPTION: Smooth cordgrass is a deciduous perennial grass, two to four feet tall, with hollow, hairless stems. Leaf blades are one-fourth to three-fifths inches wide. The inconspicuous flowers are congested spikes, two to three inches long. It can reach sexual maturity in three to four months. Mature plants produce seed in the fall. The seeds are short-lived (roughly eight months), so the species does not have a persistent seed bank. While this plant can spread by seed, underground shoots (rhizomes), or vegetative fragmentation, it does not produce seed in Padilla Bay. Since Washington coastal waters are cooler than in its native range, temperature may be regulating flowering and seed set here. While seeds are important for colonizing new areas, established stands expand via underground shoots off of its roots.

Habitat: Smooth cordgrass is native to the Atlantic and Gulf coasts of North America, occurring from Quebec and Newfoundland to Florida and Texas. It occurs in the intertidal zone, where it colonizes mud- or sand flats in saline or brackish water. This species can survive on sand, silt, loose cobble, clay and gravel; tolerate inundation up to 12 hours a day and pH levels from 4.5 to 8.5. On the West Coast, smooth cordgrass is able to extend to lower intertidal elevations than native salt marsh species, so it frequently grows without competition.

Threat: Its ability to rapidly colonize bare areas via vegetative growth (1.5 to 5.5 feet per year) is a serious concern. In doing so, it traps great amounts of sediment, changing bare, gently sloping mud flats with shallow tidal channels into cordgrass marshes with steeply sloping seaward edges and deep, steep-sided tidal channels. This may also reduce tidal flow and increase flooding. Smooth cordgrass may displace native plants that provide important refuge and food sources for fish, crabs, waterfowl and other marine life (loss of bivalve habitat is of particular concern to the $16 million oyster industry in Willapa Bay). Cordgrass infestations may also reduce beach habitat, navigation routes and water access, impacting activities like fishing, hunting, boating, bird watching, botanizing, and shellfish harvesting.

MANAGEMENT INFORMATION:
Biological: Smooth cordgrass was introduced to Washington without any of its native insect predators. Pacific Northwest insects cause little damage, resulting in plants of greater vigor and stature than normal. A leafhopper (*Prokelisia marginata*) that feeds on phloem may affect the rate of vegetative spread or limit seed production (less promising). Phloem feeders have been known to decrease vegetative spread rates in some grasses. The ergot fungus *(Claviceps purpurea*) fungus (observed on cordgrass in Willapa Bay) infects flower parts and replaces grain with a hardened mass, which could potentially reduce seed production. Since it also infects many other grasses (rye, wheat, barley, and oats), any bio-control strain needs to be host-specific.

Chemical: Rodeo™ (glyphosate) is the only herbicide presently labeled for use on smooth cordgrass in Washington. But its leaves contain high levels of salt and sediment, which may prevent absorption. Additional research is needed. Simulated aerial spraying has not been highly effective, perhaps due to no effective surfactant. Hand-held wiping treatments have had better

results. Wiping treatments in May are ineffective, but Rodeo™ (33 percent, v/v) applied with five percent LI 700 in June, July or August has provided more than 90 percent control.

Manual: Diking can be used to contain this plant (since dikes confine the lateral spread of rhizomes), to remove tidal action (inhibiting nutrient flow and oxygen exchange), and to flood areas (this will eventually kill cordgrass). However, flooding will also kill other species. Diking, while not appropriate for large areas, would work best in small lagoons that only need to be diked on one side.

Mechanical: Seedlings can be pulled if both shoots and roots are removed. After seedlings begin sending up root shoots (late in the first growing season), hand pulling may only break off pieces, allowing the plant to resprout. Repeated pulling will eventually kill small plants, but pulling or digging established clones is difficult and mostly ineffective. Covering small infestations with woven geotextile fabric has been successful in some areas. Clones are mown to ground level, covered three to four feet beyond their edges, anchored in place, and left for one to two growing seasons. Mowing some areas can contain growth; limit seed set, and eventually kill the plants. To be effective, clones must be mowed repeatedly from initial spring green-up until fall dieback. For clones less than ten feet in diameter, one to three mowings during the growing season may be effective. Larger clones need to be mowed nine to ten times over two seasons for eradication. In some cases, mowing will be required for a third or fourth year.

CURRENT DISTRBUTION
The Dike Island Gun Club planted smooth cordgrass in Padilla Bay in the 1940s to stabilize an island in the south bay. By 1991, the plant covered an estimated 12 acres.

ACRES AFFECTED: 15 **WEED DENSITY: Low**

GOAL
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing populations
Calculate the acres affected by this weed
Treat infestations

ACTIONS PLANNED
In 2006, the Padilla Bay unit will be surveyed and spot treated in spring/early summer using herbicide. Monitoring will continue on an annual basis on nearby units.

CONTROL SUMMARY AND TREND
No exact location and distribution data are available at this time. Efforts to develop an inventory of existing distribution are underway.

COMMON CORDGRASS CONTROL PLAN
Class B Noxious Weed

Latin Name: Spartina *anglica* **Common Name**: Common cordgrass
Update: 2006

DESCRIPTION: Common cordgrass is a perennial salt marsh grass. This stiff plant may be two inches to three and a half feet tall, with stout stems about one-quarter of an inch or more in diameter. The leaf blades, which may be flat or rolled inward, are a fourth to half inch wide. Flowers occur in numerous, erect, closely overlapping spikelets. In Washington, Common cordgrass can flower in April and continue throughout summer. In late fall, the flowers generally die; however, mild winters may extend that to the next year. Seed production is quite variable. In November, the grass produces over wintering buds in the leaf axils; then underground stems (rhizomes) develop. Rhizome growth peaks in early winter to make up 50 percent of its belowground mass.

Habitat: Common cordgrass originated on the British coast. In Washington, the U.S. Department of Agriculture and Washington State University introduced a sterile cordgrass hybrid to Port Susan Bay's Stillaguamish estuary in the early 1960s to provide cattle forage. Its offspring, however, were decidedly fertile. Since then it has spread rapidly—south to Vashon Island and north to Boundary Bay, British Columbia. Spartina species mostly occur in wetlands, especially estuaries. None are native to Washington's intertidal zone. Common cordgrass can tolerate a wide range of environmental conditions, and grows in clay, fine silt, organic mud, sand or shingle. Because it can survive being under water for nine hours or more, this species can occupy the seaward edge of salt marshes where there is little or no competing vegetation.

Threat: Common cordgrass is highly aggressive, spreading quickly by seeds, rhizomes, root shoots, and rhizome fragments. It traps large amounts of sediment in its extensive root system, causing tidelands to rise much faster and higher than normal (8 inches instead of 0.25 inches a year). This species replaces gently sloping mudflats, beaches and shallow channels with badly drained marshes that have steep seaward edges and deep, steep-sided channels. It out competes native plants, reducing habitat, nesting sites and food sources for waterfowl, fish (especially salmon and trout), fur-bearing animals, shellfish and shorebirds (in some cases reducing bird populations by 50 percent). It can block navigational channels and cause flooding. Activities such as fishing, hunting, boating, bird watching, botanizing, and shellfish harvesting may also be reduced by the plant's continued spread.

MANAGEMENT INFORMATION:
Biological: Because common cordgrass is a new species, there is a relative absence of herbivores or diseases that affect it. However, since it mainly spreads vegetatively, it is potentially vulnerable to parasites and pathogens. The ergot fungus (*Claviceps purpurea (Fr.) Tul.*) might be a potential biological control agent, but additional research is needed.

Chemical: Herbicides such as glyphosate (AquaNeat, AquaMaster) are recommended for common cordgrass. Since its leaves contain high levels of salt and sediment, preventing absorption, imazipyr (Habitat) can be tank mixed with glyphosate (as a binding agent) to provide much better results (about 85 percent kill rate). Aerial applications of this mix in Willapa Bay have been so

successful that it's become their main tool. Hand wiping treatments, while possibly still effective for small infestations, are not used in North Puget Sound due to time constraints and other problems.

Manual: Seedlings can be pulled if both shoots and roots are removed. As hand-pulling may only break off pieces, repeated pullings are needed to eventually kill small plants. This is difficult and mostly ineffective on established clones. Diking can be used to contain this plant (since dikes confine the lateral spread of rhizomes), to remove tidal action (inhibiting nutrient flow and oxygen exchange), and to flood areas (this will eventually kill cordgrass). However, flooding will also kill other species. Diking, while not appropriate for large areas, might work best in small lagoons that only need to be diked on one side.

Mechanical: Disking (the top method) uses aquatic tractors to tow small to medium disking implements. This disturbs and turns over spartina plants enough to weaken them and halt energy transfer to the roots. Hundreds of acres can be disked during the winter and spring months, then any re-growth can be spot treated. Mowing is done rarely and mainly used to prepare small areas for herbicide treatment. Covering small infestations with woven geotextile fabric, successful in some places, is time consuming and not used here.

CURRENT DISTRIBUTION
Common cordgrass is found extensively in the Skagit Bay estuary and in patches in Port Susan Bay. It was first seen around Leque Island near Stanwood in the early 1970s.

ACRES AFFECTED: 1,000 **WEED DENSITY:** High

GOAL
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing and treated populations
Calculate the acres affected by common cordgrass
Treat infestations
Survey nearby units for pioneering infestations

ACTIONS PLANNED
In 2006, all traditional control areas will be resurveyed and re-treated. Skagit Bay (from Big Ditch north to the Skagit County line) will be initially surveyed. Cooperative herbicide applications will be conducted throughout the year with different agency partners. Monitoring will continue on an annual basis on nearby units.

CONTROL SUMMARY AND TREND

2006 – Approximately 55 acres will be treated
2005 – Approximately 475 acres were treated
2004 – Approximately 500 acres were treated
2003 – Approximately 500 acres were treated
2002 – Approximately 550 acres were treated
2001 – Approximately 100 acres were treated
2000 – Approximately 250 acres were treated
1999 – Approximately 250 acres were treated
1998 – Approximately 250 acres were treated
1997 – Approximately 25 acres were treated

SPOTTED KNAPWEED CONTROL PLAN
Class B-designated Noxious Weed

Latin Name: *Centaurea biebersteinii* **Common Name**: Spotted Knapweed
Update: 2006

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
It was not observed in Washington until 1923, when it was collected in the San Juan Islands. By the 1930s, spotted knapweed was spreading in Okanogan and Whatcom counties. Spotted knapweed is currently found in small patches on Leque Island and Samish units.

ACRES AFFECTED: Unknown **WEED DENSITY:** Low

GOALS
Control expanding populations
Prevent new occurrences

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

ACTIONS PLANNED
Monitoring will continue on an annual basis.

CONTROL SUMMARY AND TREND
No exact location and distribution data are available at this time. Efforts to develop an inventory of existing distribution are underway.

TANSY RAGWORT CONTROL PLAN
Class B designate Noxious Weed

Latin Name: *Senecio jacobaea* **Common Name:** Tansy ragwort
Update: 2006

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
Tansy ragwort is currently found in small patches on the Telegraph Slough unit.

ACRES AFFECTED: 1+ **WEED DENSITY:** Low

GOALS
Control expanding populations
Prevent new occurrences

OBJECTIVES
Survey and map existing and treated populations
Calculate the acres affected by common cordgrass
Monitor existing populations annually
Treat when budget allows

ACTIONS PLANNED
Inventory and determine extent of infestation.

CONTROL SUMMARY AND TREND
No exact location and distribution data are available at this time. Efforts to develop an inventory of existing distribution are underway.

GENERAL WEEDS CONTROL PLAN

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

DESCRIPTION: General weeds are described as mixed vegetation both herbaceous and woody that interfere with agriculture, restoration, or recreational activities, where identifying plants to individual species for control is not appropriate. Primary locations for general weeds occur in unmanaged areas along roadsides, dikes, parking areas, trails, and structures and include species like blackberry, alders and thistles, etc. General weeds may also occur in agricultural fields, or comprise the dominant vegetation at a site identified for habitat restoration and includes species like spotted knapweed, reed canary grass, common tansy, bindweed, thistle, etc.

MANAGEMENT INFORMATION:
Herbicide can be an effective tool for control and applicators should refer to the Pacific Northwest Weed Management Handbook, or other reputable resources, for product recommendations and timing depending on the weed and desired management objectives.

Mechanical weed control may include mowing, burning, to the plowing and disking entire fields.

Current Distribution
All public accesses and roadsides on the Wildlife Area contain general weeds to varying degrees. Several agricultural fields at the Samish and Samish River Units are comprised of general weeds.

Acres Affected By General Weeds: Unknown **Weed Density**: L/M/H

Goals
Maintain public access
Restore native vegetation
Improve habitat diversity
Restore agricultural fields

Objectives
Treat high public use areas with mowing or herbicide to decrease or prevent seed production until restoration/enhancement projects can be implemented and to continue to provide recreational access.

Actions Planned
In the spring and summer of 2006, problematic portions of roadsides, dikes, levees, parking lots, access sites, fields, and trailheads will be mowed to decrease the production and spread of weed seeds and improve appearance and public access for the entire season.

Control Summary and Trend
Specific information about general weed trends on the Skagit wildlife area is unknown. Due to staff limitations previous weed control activities focused on maintenance of dikes, ditches, and public access areas. Much of this work was done with contract mowing and spraying. Efforts to develop integrated weed management programs to include other mechanical and chemical techniques will be investigated. Dike, trails, roadside and access management require a consistent, yearly maintenance effort.

APPENDIX 3. SKAGIT WILDLIFE AREA FLOOD AWARENESS/EVACUATION PLAN

Flood Awareness

Skagit County has within its boundary four major watersheds: the Skagit, Samish, Nooksack, and the Stillaguamish. The northern end of the Skagit Basin extends 28 miles into British Columbia, where it borders the Frasier River Basin. The extremely rugged topography in the vicinity of Mount Baker gives way in the western part of the Skagit Basin to rolling country with a wide flat valley. Exclusive of the small area in Canada, the Skagit Basin has an area of 2,750 square miles.

Skagit River

The Skagit, third largest river in the western portion of the United States, flows southwesterly from its source high in the Cascade Mountains in Canada for 163 miles to tidewater in Skagit Bay, an arm of Puget Sound. It falls 1,600 feet in this distance, 1,300 feet from its source to Marblemount. The remaining 300 feet of fall are distributed over 92 miles in the lower basin. The river flows through a delta in two main channels, the North Fork and the South Fork, about 10 miles above the mouth, below Mount Vernon. These forks are nearly equal in length and during the usual range of river discharge the flow is so divided that about 60 percent is carried by the North Fork and 40 percent by the South Fork. The river is tidally influenced up to the Great Northern Railway Bridge 15.4 miles above the mouth. The mean diurnal range of tide at the mouth is 11.1 feet and the extreme range is 19 feet.

Tributaries

The three major tributaries augment the Skagit's flow; the Cascade, which joins it near Marblemount; the Sauk near Rockport, and the Baker at Concrete. Several small watersheds are also tributary to the Skagit. These include the Illabot Creek, Finney Creek, Day Creek, and Nookachamps Creek watersheds. Many additional feeder streams also discharge directly into the Skagit River.

Dams

Ross Dam Reservoir on the Skagit River controls the drainage from 978 square miles of watershed. It provides storage and head for a hydroelectric plant at the dam and supplements low flows for run-of-the-river hydroelectric plants at Diablo and Gorge Dams. Hydroelectric developments on the Baker River, a tributary to the lower Skagit River, include Lake Shannon controlling 270 square miles of watershed and Baker Lake, controlling an additional 215 square miles of watershed. A diversion system for supplying water to the City of Anacortes is located at Avon near Mount Vernon.

The Skagit River Floodplain

The entire floor of the Skagit River Valley, the deltas of the Samish and Skagit Rivers, and reclaimed tidelands adjoining the Skagit and Samish River Basins comprise the floodplain. The floodplain covers 90,000 acres, including 68,000 acres of fertile land downstream and west of the city of Sedro-Woolley, and 22,000 acres of river bottom land east and upstream of this city. The valley upstream from Sedro-Woolley is narrow and relatively undeveloped, the agricultural area extending in general only to Concrete. Even in the reach from Sedro-Woolley to Concrete, about two-thirds of the bottomland is uncleared or is occupied by river channels and sloughs.

The width of the floodplain varies from less than one mile along the tributaries and upper reaches of the main stem to over 20 miles in the lower reaches. Flat benches along the river characterize the upper flood plain, which are heavily covered with vegetation and sharply defined by steep canyon walls. Much of this area is unsuitable for farming because of the sandy, rocky soil and the changeable nature of the river channel in the steeper sections.

Below Sedro-Woolley the valley drops almost to sea level and widens to a flat, fertile outwash plain adjoining the Samish Valley to the north. These fertile lands are ideal for farming. The outwash plain extends west through Mount Vernon to LaConner and south to the floodplain of the Stillaguamish River. Potential flood damage in the Skagit River Basin is greatest in the floodplain. The floodplain is primarily agricultural, but includes a large proportion of the county's urban and rural population, many manufacturing plants, and major transportation routes.

Climate and Hydrology

Runoff from the Skagit River basin depends on rainfall and snowmelt as provided by climatic conditions. Due to the proximity of the Pacific Ocean to the Skagit Basin, the influence of maritime air masses is pronounced in both the temperature and precipitation regimes, producing a mild but wet climate.

During winter, the Skagit Basin, lying directly in the storm path of cyclonic disturbances from the Pacific Ocean, is subject to numerous storms, which are frequently quite severe and may follow one another in quick succession. On the mountain slopes, storm precipitation is heavy and almost continuous as a result of combined frontal and orographic effects.

During summer months, the weather is warm and relatively dry as the Aleutian low-pressure system is displaced by a semi-permanent high-pressure system. The Skagit River Basin is subject to winter rain floods and annual high water due to snowmelt runoff. Low flows occur during August and September after the snow pack has melted and the ground water flow has been partially depleted. A summary of stream flow data for the key stream gauges is shown in Table A-3 1.

Table A-3 1. Streamflow Data for Skagit River Basin*

River Gauge Location	Drainage Area (sq. miles)	Years of record	Average Discharge	Maximum Discharge (cu ft/sec)	Minimum Discharge (cu ft/sec)
Skagit River					
At Newhalem	1,175	86	4,387	63,500	136
Near Concrete	2,737	70	14,980	154,000	2,160
Near Sedro-Woolley[1]	3,015	19	16,230	220,000	2,830
Near Mt. Vernon	3,093	54	16,520	152,000	2,740
Sauk River					
Near Sauk	714	66	4,320	98,600	572
Baker River					
At Concrete	297	55	2,640	36,600	30

**Based on records of the U.S. Geological Survey through September 1994.*
[1]*Incomplete information due to gauge damage.*

Flooding Problems

The first European settlers in Skagit County built dikes and levees to protect farmland from floods. The Skagit River was a transportation waterway, causing towns and cities to be built on its banks. In the past century, the population of Skagit County has grown from 14,272 to 102,979 with significant development in the flood plain. In the past 100 years, the Skagit River has exceeded flood stage more than 28 times (Table A-3 2). In November of 1990 and 1995, rains from warm Pacific storms, coupled with high mountain snow pack turned the region into a federally declared disaster area. Damages today from a 100-year-flood event would carry significantly larger economic and ecological risks because of the significant population growth that has taken place.

Table A-3 2. Recorded Skagit River High Levels, 1975 - 2005

DATE	Mt. Vernon	Rockport	Lower Sauk	Concrete	Upper Sauk	Marblemount
DEC. 75	**35.6**	-	**15.05**	**36.8**	-	-
DEC. 79	**34**	-	**14.27**	**38.57**	-	8.59
DEC. 80	**34.2**	-	**18.24**	**41.12**	-	11.19
DEC. 82	**28.6**	-	**13.84**	**33.74**	-	-
NOV. 89	**31.2**	**13.4**	**11.6**	**33.8**	**7.8**	9.97
DEC. 89	**32.1**	**12.4**	**14.6**	**36.4**	**10.2**	-
NOV. 10. 90	**36.6**	**14.45**	**15.43**	**40.2**	**11.84**	12.70
NOV. 24. 90	**37.37**	**13.71**	-	**39.89**	**12.56**	-
NOV. 8. 95	**31.6**		-	**39.34**	**12.4**	-
NOV. 29. 95	**37.32**		-	**41.57**	**12.32**	13.73
FEB. 96	**29.27**		-	**32.11**	**10.24**	-
MAR. 97	**29.5**		-	**30.1**	-	-
JUN. 97	**27.4**		-	**29.78**	-	-
JUL. 97	**29.2**		-	**32.46**	-	10.07
NOV. 12 '99	29.9		13.0	34.2	9.3	10.22
NOV 15 '01	28.0		-	30.8	8.1	-
JAN 8 '02	29.9		13.3	33.0	9.3	9.55
OCT 21 '03	36.19	36.19	18.96	42.19	-	-
DEC 11 '04	29.13	-	13.62	23.78	10.58	10.01
JAN 19 '05	27.95	11.64	12.49	31.0	9.82	10.0

The U.S. Army Corps of Engineers has been actively seeking a solution for flood control in the Skagit Valley since 1922. Due to funding requirements and lack of local consensus a solution for 100-year flood protection has not been implemented.

In 2001, Skagit County studied various alternatives for flood control and narrowed the choices down to: 1) A diversion channel running from near Avon to the Swinomish Channel, 2) Setting back the levies from above Burlington down both forks of the river to Skagit Bay, and 3) Overtopping into sparsely populated areas during flood events. After a significant amount of research and acquiring new information in regard to possible changes in dam operations in the Baker and Skagit River systems, the most viable solution now being studied is to:

- Negotiate additional storage and reservoir operations in the Baker and Skagit River systems.

- Increase conveyance and eliminate major flood impediments through the multi-bridge corridor between Mount Vernon and Burlington by lengthening and/or replacing bridges and setting back levees.
- Rehabilitate and redesign the levee system downstream from Mount Vernon, providing flood protection and enhancing habitat for fish and wildlife.
- Establish an emergency overflow route for very large flood events.

Skagit County is currently negotiating with Puget Sound Energy seeking an agreement to monitor operations for the Upper and Lower reservoirs to increase capacity during flood events. Funding for the project has come from Skagit County, the United States Army Corps of Engineers, and state and federal transportation budgets. Skagit County has made a formal request to Congress for $27.52 million of federal transportation funding to replace and extend bridges that trap logs and debris during flood events.

100-year Flood Event

A 100-year flood event on the Skagit River is predicted to threaten human life, close primary transportation routes, jeopardize the Anacortes water treatment plant, threaten waste water treatment plants in Burlington, Mount Vernon and Sedro-Woolley, and cause up to $1 billion in property damage.

Interstate 5, State Routes 20, 9, and 536 all lie in the Skagit River floodplain. 65,000 vehicles a day utilize interstate 5 alone. More than 23,000 commuter trips are made daily to and from Anacortes on Highway 20. In the 1995 flood, the railroad bridge between Burlington and Mount Vernon was undermined and was closed for two weeks at a cost of millions to Burlington Northern Santa Fe.

Municipal infrastructure would be in jeopardy during a 100-year flood. The municipal waste water treatment plants in Burlington and Mount Vernon, serving more than 15,000 homes and businesses, would be under water and could be down for weeks costing millions to get back on line, as well as creating a significant health risk. Most of Burlington's and 40 percent of Mount Vernon's sewage collection system would be damaged or destroyed during a major flood. It could take months to restore normal operations.

The Anacortes Water Treatment Plant located in the River bend area near Mount Vernon is in serious jeopardy by any flood exceeding the 40-year level. Flooding could put it out of operation for up to 45 days, shutting off the primary source of water for both refineries on March Point, the cities of Anacortes, La Conner, Oak Harbor, NAS Whidbey and significant portion of Skagit Public Utility District #1. Flood fight operations went into effect at the plant in both 1990 and 1995 with major sandbagging efforts.

Preparations Before a Flood

When a flood watch is issued, all Wildlife Area staff needs to take the following steps to ensure they (and any visitors in the flood watch area) will ready to evacuate should the condition escalate:

- Learn flood-warning signs and the local community alert signals.
- Since the Skagit W.A. office and manager’s residence are located behind dikes in a frequently flooded area (Headquarters Unit), emergency-building materials should be stockpiled nearby. These include plywood, plastic sheeting, lumber nails, hammer and saw, pry bar, shovels, and sandbags.

- Have check valves installed in building sewer traps and septic systems to prevent floodwaters from backing up. As a last resort, use large corks or stoppers to plug showers, tubs, or basins.
- Fill the gas tank in all vehicles needed to evacuate staff and map out a route to higher ground. Try to avoid routes that cross streams.
- Stock your vehicle with supplies, including non-perishable food, water, first aid kit, flashlights, blankets, dry clothing, large trash bags, battery operated radio and extra batteries. Remember special needs items such as medications, and special dietary foods.
- Fill bathtub(s) and sink(s) with water for drinking, as water and other utilities may fail.
- Use the Mill Creek Regional Office (working hours) /Regional Wildlife Program Manager (off hours) as your out-of-area phone contact (after a disaster it is often easier to call long distance). Make sure all staff know these phone numbers and call in.
- Teach staff how to turn off gas, electricity, and water at the office and residence. Listen or look for weather updates and information (Table A-3 3). Mobile sirens, police, fire, or other public address systems will sound when a flood is imminent.

Table A-3 3. Weather and Flood Information

Contact	Contact Number	City
Radio Stations		
KBRC	1430 AM	Mount Vernon
LKKI	1340 AM	Anacortes
KAPS	660 AM	Mount Vernon
Information Online		
Skagit County	www.skagitcounty.net	
Federal Emergency Management Agency	www.fema.gov	
Red Cross	www.redcross.org	

During and After a Flood

The most important consideration during a flood is the safety of WDFW staff, visitors and animals. Floodwaters can rise very rapidly. Be prepared to evacuate before waters reach you or leave you stranded. You can monitor river levels by calling the Skagit County Public Works Department Hotline at **360-419-3425.** Keep your radio tuned to your local Emergency Alert System (EAS) station to find out if you need to evacuate and how much time you have. ***A Flood Warning*** from the National Weather Service means flooding is occurring or will occur soon. Evacuate if you are told to do so.

Flood Waters – The Most Dangerous! Rushing water from floods and flash floods is extremely deceptive and dangerous. It is possible to be swept away in floodwaters only one-foot deep.

Remember:

- Police barricades are there for your protection. DO NOT DRIVE AROUND THEM.
- Walking or driving through floodwaters is the most dangerous thing you can do.

Emergency Shelters

Designated shelters operated by the Red Cross are available. Listen to the EAS or call the Skagit County Department of Emergency Management at 360-428-3250 for locations. If you have special transportation problems, call the Department of Emergency Management at 360-428-3250.

After A Flood

Do not use food or water that has come into contact with contaminated floodwaters. Until the public water system has been declared safe, water for drinking and food preparation should be boiled vigorously for ten minutes.

Re-entering Your Home or Office

1. Before entering, check for structural damage that could cause collapse. Turn off any outside gas lines at the meter or tank and let the structure air for several minutes.
2. Do not strike a match when entering. There may have been a gas leak.
3. Be careful about turning the power on again. Watch for electrical shorts or live wires. Do not use water-damaged appliances.
4. Document your flood losses and contact the Department for flood loss claims.
5. Follow procedures for safe clean up of household items, food, water supply, and property.
6. Dry your house/office/shop slowly. Carpets and drywall may have to be removed. Remember, water can get trapped between walls and will not dry.
7. If your home or business has received extensive structural damage, this may be the time to elevate or flood-proof the structure.

Responsible Flood Protection Agencies

Title 85 of the Revised Code of Washington allows for any portion of a county requiring dike to be organized into dike districts. Once a dike district is organized, the habitants elect a board of commissioners, and impose taxes for the purposes of maintaining flood protection.
These districts are given responsibility over the approximate 80 miles of dikes and levees in Skagit County.

They can assess those within the district that are receiving benefits as well as petition the county, state and federal government for funding and assistance. Funds raised are used to construct and maintain dikes, levees, tide gates, keyways and bank stabilization (see Table A-3 4). These districts are administered by a board of commissioners which are elected but do not receive a salary.

Table A-3 4. Dike District Information

Dike District	Acres	Parcels/ Homes	Total Taxes ('04)	Population	Ditch miles	Levee miles	Road miles	Facilities
5	3,023	161/39	$28,000	98	28.14	~6-8	8.35	2 pump stations
12	15,726	2,521/1,526	$1,280,000	3,815	54.27	0	121.54	0
22	8,459	540/192	$175,000	480	73.92	0	32.09	2 pump stations, 17 gated tubes

Floods that occur within the local diking and drainage districts are the responsibility of those local districts. Floods that occur outside those districts are the responsibility of the county.
The Skagit County Department of Emergency Management (DEM) provides emergency management services to many cities and the unincorporated areas of Skagit County. The Skagit Wildlife Area and its satellite units fall under the partial or total jurisdiction of several local diking and drainage districts, and/or are the responsibility of Skagit County (see Table A-3 5).

Table A-3 5. County Dike and Drainage Districts

Unit Name	Dike District	Drainage District
Bald Eagle Natural Area	Skagit County	
Camano Sensitive Area	Snohomish County	
Cottonwood Island	Skagit County	
Fir Island Farms/Hayton Reserve	Skagit County	
Goat Island	n/a	
Guemes Island	n/a	
Headquarters	Diking District #22	
	Skagit County	
Island	Diking District #22	
Johnson/DeBay Reserve	Skagit County	
Leque Island	Diking District #12	Drainage District #12, #19
Lopez Island	n/a	
Pheasant Plots	Skagit County	
Samish	Diking District #5	Drainage District #5
Sinclair Island	n/a	
Skagit Bay Estuary, Milltown Is.	Diking District #22	
	Skagit County	
Telegraph Slough	Diking District #12	Drainage District #12

Dike District #5 consists of three commissioners based in Bow, WA: Jerry Benson (secretary), 360-757-0578; Ronald Knutzen, 360-766-6526, and Jim Sullivan, 360-766-6780.

Dike District #12, also consisting of three commissioners, has an office in Burlington (Flood Fight Headquarters) at 1317 S. Anacortes Street, Burlington, WA 98233, phone 360-757-3484, e-mail dkdist@cnw.com, webpage www.dkdist12.org. Members are Chuck Bennett (secretary) 360- 848-1977; Marvin Cannon, 360-708-1594, and Dan Lefeber, 360-708-1595.

Dike District #22 consists of five commissioners based in Mount Vernon, WA: Stanley E. Nelson (secretary), 360-445-5463; David Hughes, 360-445-3851; Jack L. Larson, 360-445-5662; Curtis B. Wylie, 360-445-5694, and Nolan Lee 1530, 360-445-3083.

Wildlife Habitat Concerns

The Skagit Wildlife Area overall contains little sensitive terrestrial habitat in the Skagit River's floodplain. While the forested corridor along Highway 20 and the Skagit River provides critical winter roosting and resting habitat for the hundreds of bald eagles that flock there every winter, flooding there is not considered a problem.

Reporting

Report any flood on or adjacent to all units of the Skagit Wildlife Area by **dialing 911** and/or contact one of the emergency numbers listed below (Table A-3 6).

Table A-3 6. Flood Emergency Contact Information

Emergency Contacts	Contact Number	City
Flood Emergency	9-1-1	
Skagit County Department of Emergency Management	360-428-3250	Mount Vernon
Skagit County Public Works	360-336-9400	Mount Vernon
Skagit River level information	360-419-3425	Mount Vernon
American Red Cross Skagit Valley Chapter	360-424-5291	Mount Vernon
Mount Vernon Development Services Department	360-336-6214	Mount Vernon

The following table (Table A-3 7) provides WDFW telephone numbers IN PRIORITY ORDER of Department staff to be contacted in the event of a flood.

Table A-3 7. Department of Fish and Wildlife Contacts

Name/Position	Work Phone	Cell Phone
John Garrett Skagit W.A. Manager	360-445-4441	360-333-8125
Belinda Schuster Skagit W.A. Assistant Manager	360-445-4441	360-333-2131
Curran Cosgrove Habitat Technician Skagit W.A.	360-445-4441	425-330-7725
Worth Allen Wildlife Agent, La Conner Area	State Patrol Dispatch	360-391-1214
Bill Heinck Sergeant, La Conner Office	360-466-4345 (ext 221)	360-901-6587
Regional Office, Mill Creek	425-775-1311	N/A
Lora Leschner Regional Wildlife Program Manager	425-775-1311 (ext 121)	425-231-7618

APPENDIX 4. SKAGIT WILDLIFE AREA FIRE CONTROL PLAN

Responsible Fire-Suppression Agencies

The Skagit Wildlife Area and its satellite units fall under the jurisdiction of many local fire districts, mainly in Skagit County, but also in Island, San Juan and Snohomish Counties (see Table 1). Some units in Skagit County fall within the State Fire Protection Boundary, under the jurisdiction of the Department of Natural Resources. This Department is the state's largest on-call fire department with 1,200 temporary and permanent employees who fight fires on about 12.7 million acres of private and state-owned forest lands. It also offers local fire districts support with fire protection and safety equipment requirements.

Fires that occur within the local fire districts (non-timbered areas of the Wildlife Area) are the responsibility of the local fire districts, but in case of fire, dial 911 first. Fires that occur within the state fire protection boundary are the responsibility of the Department of Natural Resources and they need to be contacted first. Therefore, depending upon where the fire occurs, the appropriate agency must be contacted first, followed by an immediate call to other jurisdictions adjacent to the fire. In some cases, where there are multiple landowners or fire responders, fire suppression activities may involve two or more fire fighting agencies.

WDFW pays an annual fee to Skagit County Fire District #3-Conway to maintain an existing fire protection services contract. This fee is in addition to Payment In Lieu of Taxes (PILT) paid to the county and is based on the assessed value of the Wildlife Area within their district.

Suppression on WDFW forestlands within the state fire protection boundary is performed by Department of Natural Resources. WDFW pays an assessment fee for each acre within the fire protection boundary for these services. In Western Washington, a parcel up to 50 acres pays the minimum assessment of $14.40. For parcels over 50 acres, the minimum assessment is charged plus $0.29 per acre for each acre over 50 (2004 rates). The Forest Fire Protection Assessment is levied on all forest and unimproved land. If a wildfire starts, Department of Natural Resources is there to suppress that fire at no additional cost to the landowner if negligence is not involved.

Department Fire Management Policy

It is the Department's policy that Wildlife Area staff are not firefighters and should not fight fires. While Wildlife Area staff are trained in fire fighting and fire behavior, they will only provide logistical support and information regarding critical habitat values to the Incident Commander of the responding fire agency.

Wildlife Habitat Concerns

The Skagit Wildlife Area overall contains little sensitive terrestrial habitat, except for several isolated units that are wooded, forested or contain cliffs critical to the successful survival of certain bird species and forested mammals. The forested corridor along Highway 20 and the Skagit River provides critical winter roosting and resting habitat for the hundreds of bald eagles that flock there every winter. The deciduous woods in one Camano Island unit contain a well-established great blue heron rookery. And several rocky islands with cliffs and/or forests provide nesting, roosting and hunting sites for eagles, hawks and falcons.

Table A-4 1 County Fire Districts. In case of fire, Dial 911 FIRST

Unit Name	Fire District	Work Phone	City
Bald Eagle Natural Area	Skagit Co. #19	360-853-8889	Silvana
Camano Sensitive Area	Island Co. #1	360-629-3008	Camano Island
Cottonwood Island	Skagit Co. #2	360-424-7296	Mt. Vernon
Fir Island Farms/Hayton Reserve	Skagit Co. #3	360-445-4345	Conway
Goat Island	- - *No coverage* - -	- - - - -	- - - - -
Guemes Island	Skagit Co. #17	360-293-8681	Anacortes
Headquarters	Skagit Co. #3	360-445-4345	Conway
Island	Skagit Co. #3	360-445-4345	Conway
Johnson/DeBay Reserve	Skagit Co. #4	360-856-6283	Clear Lake
Leque Island	Snohomish Co. #14	360-629-0826	Stanwood
Lopez Island	San Juan Co. #4	360-468-2991	Lopez Island
Pheasant Plots	Island Co. #5	360-678-3602	Coupeville
Samish	Skagit Co. #5	360-766-6325	Bow
Sinclair Island	- - *No coverage* - -	- - - - -	- - - - -
Skagit Bay Estuary, Milltown Is.	Skagit Co. #3	360-445-4345	Conway
Telegraph Slough	Skagit Co. #13	360-446-4439	La Conner

Aerial Support

The Department recommends that fire-fighting entities suppress fires on the Skagit 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 Skagit Wildlife Area causes an immediate threat to the area, WDFW requests that he/she seeks aerial support as possible.

Reporting

Report any fire on or adjacent to all units of the Skagit Wildlife Area by contacting the local fire district and the Department of Natural Resources Dispatch Office in Sedro Woolley (see Table 2 below). Contact the numbers listed below IN THE ORDER listed and request the Operations or Staff Coordinator. It is absolutely critical that any fire on the Skagit Wildlife Area is fought as aggressively as possible during the initial attack. The importance of aerial support cannot be overstated.

Table A-4 2 Department of Natural Resources Contacts

Name	Phone
DNR Dispatch	360-428-3293
DNR NW Regional Field office Sedro Woolley	360-856-3500

The following table (Table 3) provides telephone numbers IN PRIORITY ORDER of Department staff to be contacted in the event of a fire.

Table A-4 3 Department of Fish and Wildlife Contacts

Name/Position	Work Phone	Cell Phone
John Garrett Skagit W.A. Manager	360-445-4441	360-333-8125
Belinda Schuster Skagit W.A. Assistant Manager	360-445-4441	360-333-2131
Curran Cosgrove Habitat Technician Skagit W.A.	360-445-4441	425-330-7725
Worth Allen Wildlife Agent, La Conner Area	State Patrol Dispatch	360-391-1214
Bill Heinck Sergeant, La Conner Office	360-466-4345 (ext 221)	360-901-6587
Regional Office, Mill Creek	425-775-1311	N/A
Lora Leschner Regional Wildlife Program Manager	425-775-1311 (ext 121)	425-231-7618

APPENDIX 5. MANAGEMENT PLAN PUBLIC COMMENTS AND RESPONSES

Washington State Department of Fish and Wildlife, February 2007

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

Comment Author	Organization	Location
Kurt Beardslee	Washington Wild Fish Conservancy	
Rone Brewer	Washington Waterfowl Association	
Steve Hinton	Skagit River System Cooperative	
Martha Jordon	Trumpeter Swan Society	
Art Kendall	Wylie Slough Technical Committee	
Avis Kreger		
Darcy Mitchem		
Tom Rutten	WDFW Land Management Advisory Committee	
Sharon Swan	Snohomish County Parks & Recreation	
Dallas Wylie	Neighbor, Farmer	

Abbreviations: USFWS-United States Fish and Wildlife Services, etc.

Comments received on the Skagit 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
	General Support	
Art Kendall	I want to commend you and your staff on putting together the draft plans for the Skagit and Snoqualmie wildlife areas. I know you all have worked hard and long to get all the input from the CAG and others into a coherent document under format guidelines	The format will continue to improve as the plan evolve and becomes a management tool that drive management funding and decisions.

	that may not have been ideal.	
Steve Hinton	I want to thank you for this chance to comment on the Management Plan. I want to first thank you for your hard work and effort. Given the short timeline and limited resources I think you did a commendable job. There is certainly more substance to the document than I initially thought possible. Good work.	All management plan team members appreciate the positive comments.
Dallas Wylie	Your team has done a great job on the plan. Congratulations.	
Darcy Mitchem	I have reviewed several (St. Helens, Cowlitz, Skagit) of these plans and one common element that isn't adequately addressed is the influence of neighboring lands or existing related plans. Each one I have reviewed seems to be operating in a vacuum. I realize some of this is a time/cost issue, but at least elk herd plans, turkey plans, waterfowl plans need to be taken into account.	Yes, you are correct the impact of surrounding private land were not addressed during this planning effort. As this planning effort evolves there should be more comprehensive evaluation from a larger landscape scale. The waterfowl, shorebird and salmon recovery planning documents were referred to in the Skagit Wildlife Area plan but they were not properly cited in the references.
Rone Brewer	I had hoped to provide detailed page-by-page comments, but time did not allow it. Thus,	The format will continue to improve as the plan evolve and becomes a management tool that drive management funding and decisions.

	general/overall comments are provided herein. The WDFW and CAG can work on small details during updates of the plan. It is great that WDFW completed a draft management plan (Plan) for the Skagit and Snoqualmie Wildlife Areas.	
	Public Access	
Dallas Wylie	I strongly feel there should be wording somewhere that says, "before any restoration work on headquarters commences there should be an equal amount of replacement land acquired and ready for use by the recreational public. Included in this should be adequate land for a pheasant release program. Any impairment of that program is very detrimental to two user groups, youth and the elderly."	There are similar comments that are in the CAG summaries but if you feel that this has not be adequately represented than we can incorporate your concerns during the planning update process.
Darcy Mitchem	Specific to the Skagit, I also fear that with the focus on endangered salmon, hunters and recreationists will be pushed out. Remember, if it weren't for hunters' willingness to tax themselves for decades these Wildlife Areas would not exist. I agree with the advisory group: Hunting areas must be replaced before any flooding begins. I also strongly support Watchable Wildlife areas and I believe Hunters and birdwatchers can co-	A major effort is underway to provide “replacement” lands for land utilized for salmon recovery projects.

	exist.	
Art Kendall	There is increasingly diverse use of limited (and in some cases decreasing) space by an increasing population. People management is a major challenge now and into the future. Changes in habitat, either because of planned activities (e.g. estuarine restoration), or natural events such as ecological succession and flooding put extra demands on use of these limited spaces. The impact of such habitat changes on uses of the spaces needs to be addressed	Replacement lands and wetland habitat restoration projects are a major priority in the Skagit Wildlife Area plan.
Tom Rutten	The Welts property needs a system to address the hunting issues that come up at the site. The area has become very popular and over-crowding is a big issue. A blind system should be developed to manage the hunters better but does not totally discourage walk in hunting. A separate group should be formed to address this issue. Probably work with WWA and DU on this.	Public access and over crowding issues have been recognized by the CAG as one of the seven major issues to prioritize and resolve during future plan implementation efforts.
	Edit and Formatting Comments	
Art Kendall	May I suggest adding an executive summary to each plan to highlight	Yes, an executive summary will be added to the final draft.

	the concerns and recommendations contained in the plans. Although the plans are very good and thorough, they are quite long and detailed, and will not be read by most people; even those who may need to read them. An executive summary of a page or two that captures the main themes of the documents might be an effective way to get the message out. There are a couple of mistakes that I found: Skagit plan: page 36: Aren't they snow geese in the photo and not swans?	Corrected.
Rone Brewer	The Plan is arranged by objectives. As such, the plan provides "overall" goals in an order, possibly by order of priority, but this seems unclear. While listing these objectives gives an understanding of the big picture, it does not allow for on the ground, day to day/year to year management for the units. It is imperative that the current plan be used to develop unit-by-unit plans that clearly describe: • How the overall objectives apply to each unit; • Actions to be implemented to meet the objectives; and • Measures of success that	The plan format will continue to improve with each plan update as issues and management needs are identified. As the plan evolves, it will becomes a tool that more clearly outlines management funding needs, resource decisions, and measures of success.

	can be monitored and easily reported. This will allow the manager(s) to implement action plans for the units in order of priority and to report success/failure in the process or reaching the unit-specific objectives.	
Steve Hinton	Page 25: Headquarters unit. First sentence should be reworded to reflect historic vegetation was thought to be emergent marsh and scrub shrub habitats (Collins, 2001) WDFW started acquiring the properties that form the Headquarters Unit in 1944. The final acquisitions were completed in XXXX (est 1959?) Also the wording regarding the loss of the loop trail might be changed to say that it will be replaced with two out and back trails. Approx 2.5 miles of trail exist now this will be reduced to 1.9 miles of point destination trails. Page 26: Deepwater Slough project was conducted in 2001 Page 27: Can you provide a reference related to the moist soil management language Page 28: Cite the 25,766-conversion number.	Comments and edits incorporated.

	Page 34: Invasive species-in reference to mud flat I suggest the word typically rather than historically. Page 35: Citations would be useful in supporting the case Page 37: before list you might add the words “such game fishes as…” Also add Sturgeon. Page 39: Reptile section looks light and is likely missing several species of concern. I’m sorry I do not have suggested language at this time, but I feel it does deserve attention. In any event you might want to provide a citation. Page 40: Last sentence is orphaned. Formatting needs work. Table 2.6 Cite source reports, etc… Page 42: ESA act will also apply to others such as Marbled Murrelets, Bull Trout. Strengthen Paragraph 3 with citations. Also you might consider a formatting change that would provide some marker for each of the Agency Objectives. It was easy to miss moving from the first to second objective, and so on…	

	Fish, Wildlife and Habitat	
Steve Hinton	Page 44: The language suggested from public input needs to be reworded to emphasize review by the CAG and other stewardship mechanisms. Debay's Slough does represent a potential restoration opportunity for fisheries yet no alternatives have developed to my knowledge. Reference is made to the location in the Skagit Chinook Recovery Plan. Alternatives should not be dismissed without first exploring the feasibility of a design to accomplish management objectives for multiple species-including Swans. Therefore reference to concept or exploratory work should be included.	Comments and edits incorporated.
	Hunting/Fishing	
Avis Kreger	Why is it so hard to find the public waterfowl hunting areas? The GMU areas are all listed and available. The saltwater shellfish areas are also available. What about waterfowl hunting, or pheasant hunting areas.	There is not one source that lists waterfowl hunting locations. There is some information is available on line for maps of the wildlife areas that have waterfowl hunting on the Go Hunt Program that can be found at http://wdfw.wa.gov/mapping/index.html. For pheasant release sites there are two brochures available online, one for western Washington http://wdfw.wa.gov/wlm/game/water/wwapheas2006.pdf and one for eastern Washington http://wdfw.wa.gov/wlm/game/water/ewapheas2006.pdf. If you do not have access to the internet you can request to have one mailed to you.
	Information and Communication	

Darcy Mitchem	Better maps are also needed.	Thanks you for your comment about the need for better maps of the area. We are currently working with our Information Services to develop more informative maps to be available on line through the Go Hunt program or that could be provided as a handout.
	In the Swan Reserve on Francis Rd. it is confusing whether you can drive in or not.	The Swan Reserve on Francis Road is a limited vehicle access watchable wildlife site. During the peak of the Swan viewing season we make every effort through neighbors and volunteers to open the gates for public viewing opportunities. Problems related to dumping and vandalism has encouraged us to restrict driving access. You are encouraged to park at the lot on Francis Road and walk in any time of the year that the gate is locked.
Darcy Mitchem	On a totally different note, Can't you replace the obnoxious red signs with a color like brown or green, or even black and white? The red color screams STOP, NOT WELCOME HERE	Many people do not read the signs, the red helps to draw their attention.
	Funding and Management Issues	
Kurt Beardslee	As you are well aware, the Wild Fish Conservancy (formerly Washington Trout) has had a deep and long-standing involvement with lands held by the Washington Department of Fish and Wildlife. Over the past 18 years, we have worked with the Dept. on several wildlife units, but our main focus has been the wildlife units confined to the Snoqualmie Valley. The nature of our involvement over the years has included, but has not been limited to: monitoring alternative livestock grazing practices, implementing and monitoring experimental riparian	The complexing (combining) of wildlife areas has been a Wildlife Program Administrative decision, applied to several wildlife areas throughout the state. The Fish and Wildlife Commission will review any future wildlife area complexing proposals.

	plantings and exotic plant exclusionary devices, species distribution and habitat utilization studies, both surface and ground water modeling studies, water quality studies, and our most recent projects monitoring the effects of a new hydrostatic drainage pump in Cherry Valley on native fishes and working with the Dept. and others to develop restoration opportunities for salmon recovery on these lands. The reason for this communication is to share our growing concern over the WDFW's staffing strategy for these lands. It appears that the WDFW is moving away from local individual wildlife managers to a more centralized approach. While there may be some economic and coordination benefits from having a centralized strategy, from our perspective the downside is quite significant. Without wildlife managers in close proximity to the lands they are managing, I feel that they will lose the intimate relationship with these lands and their needs, and the ability to respond in a thoughtful and timely manner. These comments may sound odd coming from an organization that has not always seen eye-to-eye with the Dept.'s management of these lands, but we do understand the value of	

	managing at a local level and we hope that the Dept. doesn't stray too far from this more on-the-ground and accountable staffing	
Martha Jordon	For many years I have witnessed the systematic dismantling of the WDFW Wildlife Areas by the process called complexing. I have listened to upper management's explanation for why they think this is a good decision and how it will save money. I am a long time member of the Skagit/Snoqualmie Citizen's Advisory Group. I have watched these areas grow from a few parcels to many. I am keenly aware of the increased use by diverse user groups and the conflicts they have brought. I have also experienced the problems that this type of growth can have when manager's duties expand on their WRA such as in the Skagit and Snoqualmie areas. This has only become compounded with the complexing of Skagit and Snoqualmie WRA under one manager. One person cannot and should not be expected to do the job of two people. Now it appears WDFW management wants to add Lake Terrell to the mix. Perhaps you need to sit back and look at what is really happening on the	The complexing (combining) of wildlife areas has been a Wildlife Program Administrative decision, applied to several wildlife areas throughout the state. The Fish and Wildlife Commission will review any future wildlife area complexing proposals.

	ground. Lack of funding for operation and maintenance for existing property is staggering. Yet, you still add more land, more units to these areas and then cut back on managers. You are setting the scene for current problems to become serious issues with equally bad results. Complexing is not working. It is failing the land, the wildlife and the public. The Snoqualmie WRA was a thriving place when there was a resident manager. It is now going down hill rapidly as person hour resources are more scarce due to budget and time constraints. How can it be rational for one manager to adequately get to know two WRAs that are quite different from each other, serve a different population base and are more than 50 miles from each other? The complexing concept is not working here. I urge you to hire a manager for the Snoqualmie WRA immediately. I further urge you to not add Lake Terrell or any other additions to the Skagit WRA. Thank you for the opportunity to address this issue. Please contact me if you have any questions or wish to discuss this issue.	

Steve Hinton	In advance of submitting my comments I wanted to submit an observation, and a request, relative to staffing the Wildlife Areas. As you are well aware our respective organizations are working closely to implement some very ambitious changes in Area management objectives. To this end, I want to commend John and his staff in their commitment and hard work as we work toward our mutual goals. I marvel at how they manage to juggle all the responsibilities and demands that come from managing two large units separated by such an ominous spatial separation. Your hard work aside, I am at a loss as to how your staff will be able to sufficiently address management demands into the future. The breadth and scope of commitments contained in the respective planning documents will demand considerable time and energy as we move toward implementation. I firmly believe the two Management Areas will require dedicated staffing on site. As you review and incorporate CAG member comments into the respective plans I hope the agency will strongly consider the level of staffing commitment these two	The complexing (combining) of wildlife areas has been a Wildlife Program Administrative decision, applied to several wildlife areas throughout the state. The Fish and Wildlife Commission will review any future wildlife area complexing proposals.

	public assets demand. As a close partner, friend, and advocate to the Agency and these Wildlife areas in particular, I hope you will pass my concern along to the appropriate agency personnel. This issue is extremely important to the future of these two areas. If the Department cannot commit the required staffing to these incredible public assets I fear we risk failure at most every level of Management Plan implementation.	
Art Kendall	Management of these areas is not adequate to meet current and future demands on them. Combining management of both areas under one manager cannot be effective.	The complexing (combining) of wildlife areas has been a Wildlife Program Administrative decision, applied to several wildlife areas throughout the state. The Fish and Wildlife Commission will review any future wildlife area complexing proposals.
Tom Rutten	Onsite manager for the Snoqualmie wildlife area. At the Land Management Advisory Committee (LMAC) meetings the subject of proper management of the wildlife areas is constantly brought up by several members of the committee (as it should). The concern is that WDFW doesn't manage the properties as well as it could and should not purchase any more lands until it takes care of the land that it owns. It only makes sense to have an onsite manager to address issues as they arise. Each wildlife area has a unique set of issues and usage that require attention. Pretty	The complexing (combining) of wildlife areas has been a Wildlife Program Administrative decision, applied to several wildlife areas throughout the state. The Fish and Wildlife Commission will review any future wildlife area complexing proposals.

	much every business on the planet has an onsite manager. Why does WDFW believe that it doesn't need one for the wildlife areas?	
Rone Brewer	The concept of "complexing" is not a suitable way of reducing operating costs for wildlife areas. Rather, we need to keep managers at each area to address public concerns on a day-to-day basis, and best manage the resources within each wildlife area. The Snoqualmie is over an hour away from the Skagit Headquarters on a normal traffic day. It is ridiculous to pay travel time and costs for personnel to move from one area to another on a daily basis. Adding Lake Terrell to the Skagit/Snoqualmie will only reduce the service and management capability that is currently already lacking. And finally, for now, A process of obtaining adequate funding should be explored by the WDFW and CAG, or all of the effort in developing the plan is for naught. I look forward to more management planning with the CAG.	

Sharon Swan	I wanted to write to reemphasize the discussion our CAG had regarding geographic areas covered by individual Wildlife Managers and staffing levels in general. WDFW manages a variety of ever increasing management areas and the trend to decrease and centralize land managers greatly reduces the ability of staff to oversee activities in their areas of responsibility. There is nothing that compares to time on the land to identify problems, provide consistent project management and project agency presence to property users. Reducing the number of land managers and keeping them distant from the sites they administer can only result in poorly managed sites. In my experience, sites that receive minimal, or baseline attention, become problem areas. Since it is known that there isn't an agency presence, they become dumping grounds, squatter's residences and/or sites for illegal activities. The fact that these are "natural" areas does not mean that they do not require regular, repeated attention, in part to dissuade these types of activities and also to provide the maintenance that open land requires.	The complexing (combining) of wildlife areas has been a Wildlife Program Administrative decision, applied to several wildlife areas throughout the state. The Fish and Wildlife Commission will review any future wildlife area complexing proposals.

	I think it is very common assumption to believe that natural areas take care of themselves. Unfortunately, beyond the human impacts that these sites receive (trash and vandalism in particular), there are also invasive weed issues and maintenance of vegetation (meadows and forest stands) that is needed. The majority of our so-called "natural" sites are not able to completely maintain themselves given their history of use (many were previously farmed or are early successional forestland) and their state of transition to a mature ecosystem. These types of sites are susceptible to weed pressure, vegetation competition due to high plant densities and lack of diversity. Further, many of these sites require specific management aimed at providing wildlife habitat such as nesting and feeding materials. In order to provide these functions, vegetation manipulation must occur. In short, "natural" areas do not mean that staff time is not needed. On the contrary, significant staff effort is necessary to keep them safe and monitor and balance the ecological processes as needed. As a final comment, I have had the pleasure of working with both you and Curt Young to manage Spencer	

	Island. When Curt retired, his area was added to your own and it has caused a change in the amount of attention the site has received from WDFW. When there was dedicated Snoqualmie Unit Manager, we regularly collaborated on issues related to hunting, maintenance and long range planning. Further, Curt had a knowledge of the site that I often called upon to understand and approach issues that came up. Since Curt has left however, management for this site has been added to the other responsibilities that you have and your time has mainly allowed for focus on the restoration project that has occurred. Given the changes that are occurring at the island, it is time to update the Management Plan for the site as well as address larger estuary recreation issues as have been raised during discussions related to Smith Island. Given workloads however, it is unclear when, or if, this work will be done. In summary, the trend to increase management areas and reduce staff available for site management is alarming. It is a mistake to think that natural areas do not require regular agency presence and management to keep them	

	functioning in a safe and clean condition and assist the sites in their natural functions as needed.	
Dallas Wylie	I also have some concerns about combining management of both the Skagit and Snoqualmie wildlife areas under one manager. The areas are too spread out geographically and because of their heavy use by various recreational groups there is a need for at least two managers to adequately serve the needs of the public.	The complexing (combining) of wildlife areas has been a Wildlife Program Administrative decision, applied to several wildlife areas throughout the state. The Fish and Wildlife Commission will review any future wildlife area complexing proposals.

APPENDIX 6. SKAGIT WILDLIFE AREA WATER RIGHTS RECORDS

File #	Cert #	Stat	Doc	Priority Date	Purpose*	Qi+	UOM	Qa+	Irrig Acres	WRIA	TRS	QQ/Q	Src's	1stSr	Comments
S1-*14713CCWRIS	08287B	A	Cert	03/21/1958	IR	.3300	CFS	40.00	30.00	6	32.0N 01.0E 04	W2/SE	1	Unnamed stream	Sold--no longer WDFW Whidbey Is. Game Farm
G1-047903CL		A	Claim S		DG		GPM			6	31.0N 01.0E 01		1	Well	Sold--no longer WDFW Whidbey Is. Game Farm
G1-098528CL		A	Claim L		DG		GPM			6	32.0N 01.0E 36		1	Well	Sold--no longer WDFW Whidbey Is. Game Farm
R1-*09652CWRIS	1371	A	Cert	7/11/1946	ST,DM	20.00	GPM	24.20		6	32.0N 01.0E 36	SW/SW	1	Well	Sold--no longer WDFW Whidbey Is. Game Farm

*DG=Domestic Ground; IR=Irrigation; ST=Stock
+Qa=Annual quantity; Qi=Instantaneous quantity

APPENDIX 7. SKAGIT WILDLIFE AREA 1418 REPORT'S POTENTIAL RESTORATION

Site Rankings

The Skagit Basin historically produced the greatest abundance and diversity of wild chinook salmon in Puget Sound. It is recognized by the Limiting Factors Analysis (Smith 2003) that estuarine habitat is one of the limitations to wild Skagit chinook production, especially in years with greater juvenile abundance. Because of this, any estuarine restoration project that benefits wild Skagit chinook salmon will be valuable to the recovery of Puget Sound chinook. Also, the ranking of the projects below are relative to each other. Each one of them can contribute to the recovery of Skagit chinook, and are considered a high priority in the larger picture.

This report is predicated on three basic assumptions: 1) Habitat restoration is voluntary and will require the concurrence and active participation of the landowner; 2) To develop an actual project at any one of the assessment locations in this document a site-specific feasibility and design analysis is necessary; and 3) The integrity of the agricultural drainage infrastructure must be maintained or improved.

Based upon the work of the 1418 Task Force, estuarine projects were ranked by benefit to chinook salmon in combination with land ownership and infrastructure. This results in the following ranked recommendations.

Tier 1 Projects

1. Wiley Slough

Based upon benefit to chinook salmon, both the Wiley private/public and the Wiley Slough public-only sites are the top ranked projects based upon acreage of channel habitat. A design study is underway for the public lands component of Wiley Slough. The 1418 Task Force endorses the Wiley Slough Restoration Design Study as well as its effort to address adjacent drainage issues.

2. Leque Island

The assessment sites chosen for Leque Island include a public lands only component and another site that adds private land to the public component. Both projects rated high for benefit to chinook (Table 5), and have low levels of infrastructure. The 1418 Task Force views these projects as having a high future restoration potential.

3. Milltown Island.

Milltown Island ranked in the middle range for benefit to chinook salmon with low levels of infrastructure and no private lands (Table 3), resulting in an overall high priority for restoration. Even though Milltown Island has a lower benefit to chinook, it is ranked higher than Deepwater Slough because Milltown Island has less infrastructure. The Salmon Recovery Funding Board has approved funding for this project. The 1418 Task Force supports these efforts.

4. Deepwater Slough

Deepwater Slough has a medium level benefit to chinook salmon coupled with a low level of infrastructure and no private lands component (Table 3). This results in an overall high prioritization. The 1418 Task Force recommends restoration of Deepwater Slough, but it is recognized that issues regarding competing public access issues and ACOE dike maintenance requirements must be addressed.

Tier 2 Projects

5. Dry/Brown Slough

This area is located in the central Fir-Island area. One assessment site includes only public lands, and the other encompasses nearby private lands. The public/private combination site has a medium benefit to chinook salmon, while the public-lands only site has a lower benefit to chinook value. Both have relatively low levels of infrastructure. A high quantity of blind channel habitat is expected at this site upon full restoration, and if a cross-island distributary channel is formed to allow improved access to these channels, the benefit to chinook salmon would increase to make this the top individual site for benefit to chinook. The private property issue requires that restoration for the private/public combination site must be on a voluntary basis only, and that impacts to neighboring agricultural lands must be fully addressed. At this time, this area has a middle level of priority.

6. La Conner area and Dodge Slough

These two areas rated higher than Deepwater Slough and Milltown Island for benefit to chinook salmon, but have higher levels of infrastructure and no public lands component, resulting in an overall medium priority level. Any restoration actions on private land would need to occur on a voluntary basis between a willing buyer and willing seller. Future actions would need to address any impacts on neighboring agricultural lands.

Tier 3 Projects

7. Rawlins Road

Two different assessment sites were evaluated near Rawlins Road. One includes only public lands, which were located outside the dikes. The other is a combination of private and public lands. The Rawlins Road public lands site has a relatively low benefit to chinook value, but the private/public combination site has a higher value. If access issues are addressed at the private/ public site, the benefit to chinook would increase to a level similar to Dodge Slough and La Conner. A feasibility study to assess potential restoration alternatives in the Rawlins Road
area and beyond has been funded.

8. South Fork Pole Yard

The South Fork pole yard site has low benefits to chinook salmon and while a low benefit is better than no benefit, the two assessment areas (public and public/private) near the pole yard should be further investigated after efforts to restore higher priority sites have been completed. In addition, high levels of infrastructure increase the difficulty for restoration at the South Fork pole
yard.

9. Halls Slough

This area has only private landownership and has a high level of infrastructure coupled with a low benefit to chinook salmon, resulting in a low overall priority for restoration. Construction of a cross-island distributary channel would improve the benefit to chinook salmon, but the high level of infrastructure will remain as a difficult issue to overcome.

Other Recommendations

Other recommendations include baseline monitoring of projects prior to implementation as well as ongoing monitoring after project completion to assess the impact and benefits to neighboring agricultural lands and salmon habitat. Such monitoring shall include assessment of factors that affect saltwater intrusion, drainage capacity, or irrigation (*See chapter titled: The Role of Tidegates in Drainage Systems in 1418 Report*). Continued efforts are encouraged for collaboration between salmon restoration proponents and private landowners. Another recommendation is that WDFW accelerate their search for new opportunities for public use.

Several additional potential projects were not ranked due to a lack of analysis, and time did not permit discussion of all potential projects. However, further work is recommended for the following projects.

• Swinomish Channel Rock jetty

If chinook juvenile access issues are addressed, a significant amount of habitat becomes available to chinook, and the prioritization of individual sites should be changed to include those north of the Swinomish Channel. The Skagit River System Cooperative in cooperation with the U.S.G.S. has received funding by the Salmon Recovery Funding Board (SRFB) to study alternatives to address access issues through the Swinomish Channel due to the rock jetty. This is a high priority issue that precludes access of estuarine habitat north of the Swinomish Channel to most Skagit chinook juveniles. The 1418 Task Force endorses this project to improve access conditions for juvenile chinook salmon, and has written a letter of support for this project.

• Cross Fir-Island connector

The 1418 Task Force recognizes that a cross-Fir Island connector would change the ranking of the above recommendations. A connector would improve juvenile chinook access to the central island sites and create additional habitat function. However, private property and agriculture protection issues exist, and because of these issues and the lack of a detailed analysis, no recommendation can be made at this time.

• Intertidal Salmon Habitat Enhancement Opportunities Lying Outside of Dikes

Some 1418 Task Force members believe there is considerable opportunity to improve intertidal habitat in areas that lie outside of Fir Island dikes, particularly on Department of Fish and Wildlife property. Many other members of the 1418 task force believe that very little, if any opportunity exists to create additional intertidal channels outside of the existing dikes on Fir Island. In part due to these divergent views, a feasibility study that includes

Rawlins Road and other sites was submitted for funding through the Skagit Watershed Council to assess potential projects, while providing additional benefit to chinook salmon. The 1418 Task Force supports theproposed feasibility study, which has been funded by the SRFB.

• Fisher Slough

Dikes isolate potential estuarine habitat near Fisher Slough, a tributary to the South Fork Skagit River. A feasibility study proposal to restore this site has been funded. This site was not included in the 1418 assessment sites, but would fulfill the criteria for a potential high priority area for benefit to chinook salmon because of its location adjacent to the South Fork Skagit River. The 1418 Task Force supports the proposed feasibility study. However, insufficient detail exists at this time regarding the specific actions of this project to determine the level of benefit and how that level would place this project relative to the sites that were assessed.

• Numerical Chinook Recovery Goals

The goals of this plan were limited due to a lack of numerical recovery goals for Skagit chinook salmon estuarine habitat. Numerical salmon recovery goals specific to the Skagit basin and linkage to habitat types (especially estuarine habitat) are greatly needed.

APPENDIX 8. SKAGIT WILDLIFE AREA POTENTIAL FUTURE ESTUARY

Restoration/Salmon Recovery Projects

Cottonwood Island

Discuss and evaluate restoration alternatives for this island's Slough. This project would set back a section of levee near the WDFW boat ramp access to increase hydraulic connectivity to the historic channel where the Skagit River forks. Conceptual design alternatives have been explored and discussed in feasibility study completed in 2005. The District Team is evaluating project design alternatives and relocation of boat access to consider benefits for fish and wildlife and develop funding options for the project if warranted.

Fir Island Farms/Hayton Reserve

Potential restoration designs are being discussed between WDFW staff and private landowner adjacent to Dry Slough, as the best options will require adjacent private land, given voluntarily. Proposed restoration would convert at least some of the upland snow goose reserve to tidal emergent marsh, producing a high quantity of blind tidal channels. Creation of a cross-island distributary channel would further increase benefits to Chinook salmon. Impacts to neighboring agricultural lands must be fully addressed.

Island Unit

Examine the possibility of removing the remaining dikes on this unit. This will only be considered if salmon recovery goals are still not being achieved in ten years. This project would require the WDFW to pay the U.S. Army Corps of Engineer $2-3 million for loss of dikes, plus bridge would be lost. Removal of at least 15,000 feet of dike would increase habitat capacity by 95,000+ Chinook salmon smolts.

Skagit Bay Estuary

Discuss and evaluate restoration alternatives for Rawlins Rd/North Fork. A feasibility study to assess potential public/private land restoration alternatives has been funded. Initial project alternatives are being discussed for the area along the North Fork of the Skagit River from the former inlet of Dry Slough to the western terminus of the levee system near Rawlins Road. The District Team is evaluating project design alternatives to consider benefits for fish and wildlife

APPENDIX 9. SKAGIT WILDLIFE AREA FISH PASSAGE AND WATER

Diversion Features

FEATURE TYPE	Feature Status	Wildlife Area Units				
		Bald Eagle Natural Area	Fir Island	Leque Island	Samish	Total
Culvert	Fish Bearing	5	27	14	15	61
	Fish Barrier		5			5
	Repair Required					
	Repair Status Undetermined		25	14	15	54
Fishway	Fish Bearing	5				5
	Fish Barrier					
	Repair Required					
	Repair Status Undetermined					
Other	Fish Bearing		4		2	6
	Fish Barrier		4			4
	Repair Required		1			1
	Repair Status Undetermined		3		2	5
Pump	Fish Bearing		1			1
	Screened/ Compliant					
	Unscreened/ Non-compliant		1			1
					Total Fish Bearing Features	73
					Total Barriers	9
					Total Unscreened Diversions	1

APPENDIX 10. SKAGIT WILDLIFE AREA LIST OF RECREATIONAL ACCESS

Needs by Unit

Bald Eagle Natural Area

-Provide ADA parking and an ADA portable toilet at Lucas Slough Oct. to March.
-Develop proposals to renovate the Lucas Slough access site.

Fir Island Farms/Hayton Reserve

-Provide an ADA portable toilet Oct to March.
-With the cooperation of Dike District #22, provide asphalt ADA trail.

Headquarters Unit

-Request Capitol Budget funds to improve the boat ramp and parking facilities in conjunction with the Wiley Slough restoration project.
-Develop ADA Wiley Slough point access viewing trails and areas after Wiley Slough restoration is implemented.
-Create a point access interpretive trail north of Wiley Slough and improve ADA accessibility on other point destination trail(s).

Island Unit

-Replace or repair footbridges
-Build hunting/viewing blinds

Johnson/DeBay Reserve

-Continue to provide an ADA portable toilet Oct to March and maintain and improve ADA parking.
-Develop an out and back access trail

Leque Island Unit

-Improve access on and off Highway 532 in cooperation with Washington Department of Transportation.
-Develop ADA parking areas and provide ADA potable toilet Oct to March.
-Develop recreational enhancements such as ponds, dike trails, interpretive kiosks and viewing/hunting blinds on the portion not restored to estuary.
-Develop a boat ramp

Samish Unit

-Develop an asphalt ADA out and back trail to pond #1
-Provide ADA parking and an ADA portable toilet year round.
-Build additional footbridges
-Build additional hunting blinds
-Samish River Unit

Develop a parking area and ADA restroom facility

-Develop point access to a limited area of dike on Padilla Bay (LL: must provide bay access for people, but birds also need an undisturbed place to rest)

Skagit Bay Estuary

-Request Capital Budget improvement to develop an easement or acquire property to build parking turn-around at North Fork access.

Telegraph Slough Unit

-Provide ADA parking and an ADA portable toilet Oct to January.

APPENDIX 11. SKAGIT WILDLIFE AREA WATCHABLE WILDLIFE SITE

Needs

Bald Eagle Natural Area

-Participate in annual February Bald Eagle Festival.
-Partner with USFS to provide map/brochure, nature tours, and kiosks

Fir Island Farms/Hayton Reserve

-Work with county and state to develop highway signs to the Reserve.
-Produce detailed map/informational brochures, which would include trails, roads, location of blinds and parking areas.
-Facilitate development of interpretive signage about snow goose life history and estuary restoration.

Headquarters Unit

-Build an observation deck at end of spur dike (will require major public use infrastructure redesign and management when the Wiley Slough/ Headquarters restoration project is implemented)
-Properly equip interpretive center for watchable wildlife and environmental education programs to explain the importance of wetland enhancement and restoration projects.
-Produce detailed map/informational brochures, which would include trails, roads, location of blinds and parking areas.

Johnson/DeBay Swan Reserve

-Design and build additional interpretive kiosks and update watchable wildlife information on reader board.
-Produce detailed map/informational brochures, which would include trails, roads, location of blinds and parking areas.

Leque Unit

-Produce detailed map/informational brochures, which would include trails, roads, location of blinds and parking areas.

Samish Unit

-Produce detailed map/informational brochures, which would include trails, roads, location of blinds and parking areas.
-Install additional raptor perch poles and mark footbridge crossings.
-Design and build additional interpretive kiosks and update watchable wildlife information on reader board.

Skagit Bay Estuary

-Acquire Capitol Budget and/or grant funding to improve public access areas by adding ADA access and developing interpretive kiosks.

APPENDIX 12. POTENTIAL PARTNER ORGANIZATIONS & FUNDING SOURCES FOR SKAGIT WILDLIFE AREA PROJECTS/NEEDS

(Draft List)

Northwest Washington Retriever Association

Pilchuck Audubon

Skagit Audubon
Skagit Conservation District
Skagit Fisheries Enhancement Group
Skagit Land Trust
Skagitonians to Preserve Farmland
Skagit River Systems Cooperative.
Skagit Watershed Council

The Nature Conservancy
Trumpeter Swan Society

Washington Trout
Western Washington Waterfowl Association

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