

COWLITZ WILDLIFE AREA MANAGEMENT PLAN

Washington Department of Fish and Wildlife



Prepared by Wildlife Area Manager, Mark Grabski



2006

STATE OF WASHINGTON
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Washington State Wildlife Area Plan

COWLITZ WILDLIFE AREA

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

Washington State Wildlife Area Plan

Cowlitz 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 Cowlitz Wildlife Area (CWA) consists of lands owned by Tacoma Power (Tacoma) and is managed by the Washington Department of Fish and Wildlife (WDFW) as wildlife mitigation for Mayfield and Mossyrock dams. Almost all mitigation lands (14,095 acres) are adjacent to Mayfield and Riffe Lakes. The only exceptions are small parcels located at Davis Lake east of Morton (Davis Lake Unit - 273 acres), 280 acres near the Cowlitz Trout Hatchery (Cowlitz Trout Hatchery Unit), 418 acres south of Randle (Spears Unit), and 415 acres off Savio Road west of Randle (Kiona Creek Unit). The majority of the land base can be classified into one of four habitats – emergent wetland, riparian / forested wetland, coniferous forest, and mixed deciduous forest. In addition to the above habitats, the Cowlitz Wildlife Area maintains several forage pastures throughout the wildlife area.

Management goals for the Cowlitz Wildlife Area are to preserve habitat and species diversity for both fish and wildlife resources, maintain healthy populations of game and non-game species, protect and restore native plant communities, and provide diverse opportunities for the public to encounter, utilize, and appreciate wildlife and wild areas. Specific management goals and objectives for the Cowlitz Wildlife Area can be found in Chapter 3. Currently management is focusing on protecting, restoring or creating habitat for diving, dabbling, and cavity nesting ducks. This is being accomplished through wetland acquisitions, habitat projects, and a nesting box program. These activities have been identified by the Wildlife Area Management Coordinating Committee (WMCC) as a priority in meeting the mitigation needs for Tacoma Power's Cowlitz Hydroelectric Project.

Peterman Ridge Unit, the largest unit on the wildlife area (6,855 acres), is managed generally as species-specific habitat for pileated woodpecker (sensitive species), black-tail deer, and Douglas squirrels. In addition to providing habitat for beaver, forested wetland areas on Peterman Ridge provide habitat for amphibians and other wetland dependent species. Wildlife use on the area is diverse. Species that are present include elk, deer, black bear, cougar, grouse, turkey, etc.

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

- Mitigate for habitat loss due to inundation from the development of Mayfield and Mossyrock dams.
- Enhance and maintain natural preferred foraging opportunities that will encourage species diversity.
- Reduce localized negative landowner / elk interactions occurring on private property.
- Reduce road densities on Peterman Ridge to a ratio of 1.5 miles of open road per square mile.
- Conduct weed management to ensure quality habitats and healthy fish and wildlife populations.
- Ensure the protection of existing and potential cultural resources.
- Manage areas where resource damage is occurring so that further degradation is avoided.
- Protect and enhance existing ESA listed fish habitat.

In 2006, 1,100 Douglas fir (*Pseudotsuga menziesii*) trees were planted on the Cowlitz Trout Hatchery Unit to augment the existing visual barriers and provide new ones where none exist. As these trees grow, a natural barrier will develop along the roadside. This will help to eliminate off-road travel, enhance habitat value, and control illegal harvesting of wildlife. Additionally, three fields totaling 9 acres were planted with 3,700 trees and shrubs representative of a mixed deciduous forest. This area is along a riparian corridor that provides seasonal inundation to the surrounding flood plain that, when finished, will create a palustrine wetland environment. Additionally, a 5-year plan to repair channel breaches and restore existing drainage on the Davis Lake Unit was developed. A Joint Aquatic Resources Permit Application (JARPA) was applied for and all necessary permits were secured. Work began when fields were dry and water levels in the creeks were at low to no flows. Work to remove blackberries from the banks of the channels and silt from within the channel down to historic depths was conducted on approximately 1,600 linear feet of channel. The future objective is to manage the fields as moist soil units and utilize common agricultural practices to “work” the fields to encourage diverse emergent growth for winter migratory waterfowl.

Acquisitions continue and two parcels totaling 35 acres were purchased at the end of 2006. These parcels expand the boundaries of the Davis Lake Unit providing habitat that, when managed, will be critical for elk and wintering waterfowl.

The CWA plan will be reviewed annually with additional input from the CAG and the district team to monitor performance and desired results. Strategies and activities will be adapted where necessary to accomplish management objectives.

CHAPTER I. INTRODUCTION

This plan provides management direction for the Cowlitz Wildlife Area (CWA). This plan will be updated annually to maintain its value as a flexible working document. It identifies needs and guides activities on the area based on the Washington Department of Fish and Wildlife (WDFW) Agency Mission of “Sound Stewardship of Fish and Wildlife” and its underlying statewide goals and objectives as they apply to local conditions.

1.1 Agency Mission Statement

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

1.2 Agency Goals and Objectives

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

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

- 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.

Goal II: Sustainable fish and wildlife-related opportunities

- Objective 6: Provide sustainable fish and wildlife-related recreational and commercial opportunities compatible with maintaining healthy fish and wildlife populations and habitats.
- Objective 7: Improve the economic well being of Washington by providing diverse, high quality recreational and commercial opportunities.

Goal III: Operational Excellence and Professional Service

- Objective 11: 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
- Policy 6010: Acquiring and disposing of real property
- Policy 5211: Protecting and Restoring Wetlands: WDFW Will Accomplish Long-Term Gain of Properly Functioning Wetlands Where Both Ecologically and Financially Feasible on WDFW-Owned or WDFW-Controlled Properties
- Policy 5001: Fish Protection At Water Diversions/Flow Control Structures And Fish Passage Structures
- 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 Cowlitz Wildlife Area Goals

Management goals for the Cowlitz Wildlife Area are to preserve habitat and species diversity for both fish and wildlife resources, maintain healthy populations of game and non-game species, protect and restore native plant communities, and provide diverse opportunities for the public to encounter, utilize, and appreciate wildlife and wild areas. Specific management goals and objectives for the Cowlitz Wildlife Area can be found in Chapter 3.

1.5 Planning Process

A multifaceted approach has been undertaken to identify strategies proposed for management of the Cowlitz Wildlife Area. This process included identifying agency goals and objectives that apply to the area; a review of the purpose for purchasing the area; a review of existing habitat conditions and species present; the formation of a Citizen’s Advisory Group (CAG); and input and review by an internal District Team consisting of local WDFW representatives from each WDFW program. The district team also helped to identify other species or habitat plans and documents pertinent to the management of the area.

Public participation, through the formation of the CAG, will be used as an ongoing means to identify social, cultural, and economic issues important to the people of Washington and the management of the wildlife area. The group will also provide input to help resolve current and future management issues and conflicts. CAG participation in planning will add credibility and support for land management practices and help build constituencies for wildlife areas. The CAG is made up of one representative from each major stakeholder group. CAG members are spokespersons for their interest groups.

Cowlitz Wildlife Area Citizens Advisory Group Representatives

Barry Armstrong	Local Citizen -- Morton
Arne Lund	Tacoma Power – Parks
Stan Jacobson	Morton Horseman’s Association – DNR
Larry Carver	Local Sportsman -- Morton
Randall Sharp	Lewis Co. Wind Surfing Association
Ken Wieman	Cowlitz Valley Ranger District
Larry & Tina Jorgensen	Cloud Base Hang Glider Association
Jerry Bailey	Port Blakely Tree Farm LP
Neal Draker	Local Citizen -- Mossyrock
Dan Powell	Ag Lessee – Hay
Cindy Swanberg	Tacoma Power -- Natural Resources
Gary & Linda Jolly	Neighbor – Cattleman Association
Bert Seles	Local Citizen – Glenoma
Bill Wamsley	Lewis County Weed Board – Manager
Vic Khvoroff	Lewis County Weed Board Member – 5th District

Individuals representing these entities will provide input during the planning process. Plans will incorporate cross-program input and review at the regional and headquarters level by the habitat program, wildlife program, enforcement program, and fish program. Pertinent information from existing species plans, habitat recommendations, watershed plans, ecoregional assessments, etc will be used to identify local issues and needs and ensure that the specific Wildlife Area Plan is consistent with WDFW statewide and regional priorities.

The CWA plan will be reviewed annually with additional input from the CAG and the district team to monitor performance and desired results. Strategies and activities will be adapted where necessary to accomplish management objectives.

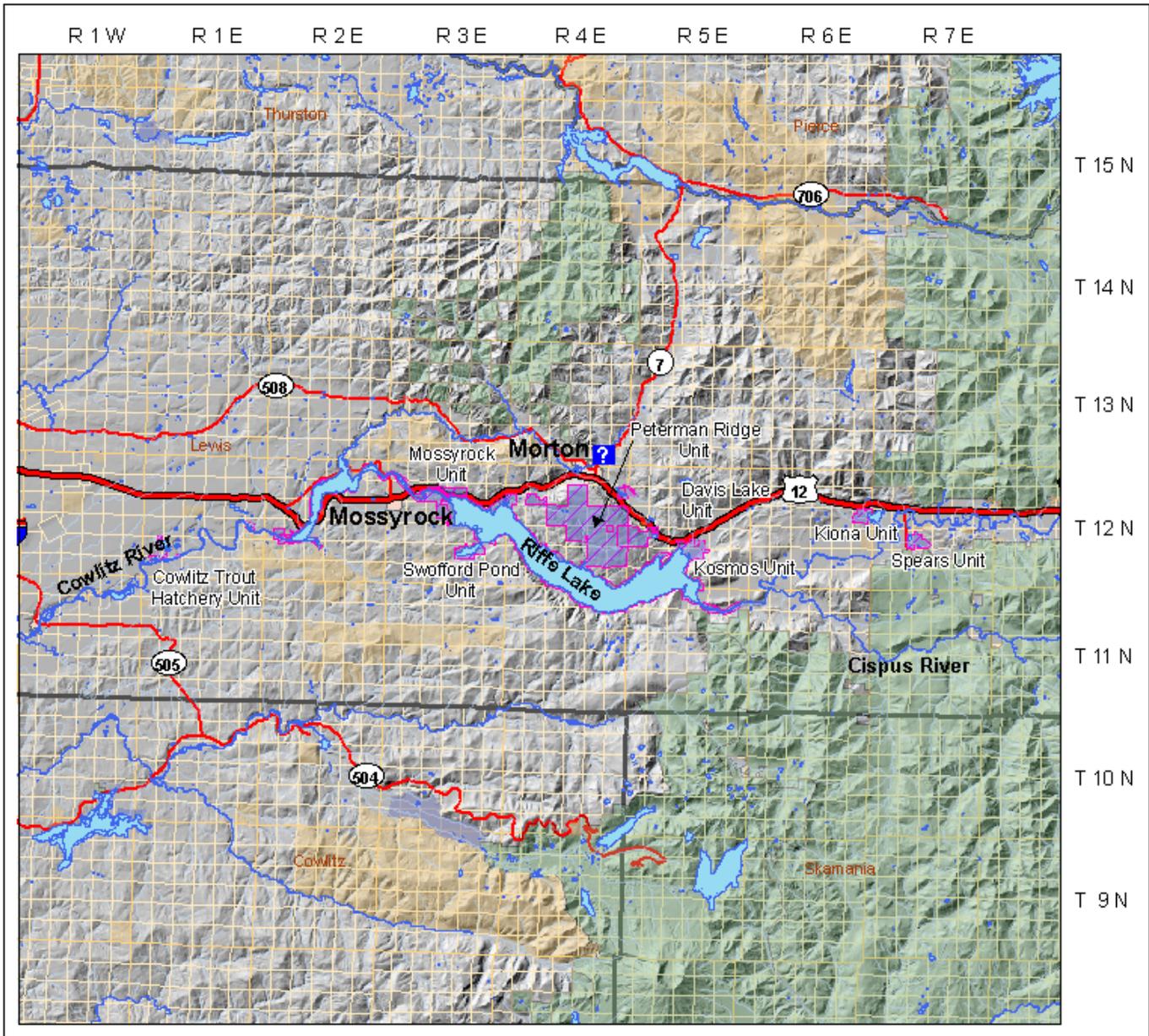
CHAPTER II. AREA DESCRIPTION AND MAPS

2.1 Property Location and Size

The Cowlitz Wildlife Area (CWA), located in Lewis County, consists of lands owned by Tacoma Power (Tacoma) and managed by the Washington Department of Fish and Wildlife (WDFW) as wildlife mitigation for Mayfield and Mossyrock dams. Almost all mitigation lands (14,065 acres) are adjacent to Mayfield and Riffe Lakes. The only exceptions are small parcels located at Davis Lake east of Morton (Davis Lake Unit-243 acres), 280 acres near the Cowlitz Trout Hatchery (Cowlitz Trout Hatchery Unit), 418 acres south of Randle (Spears Unit), and 415 acres off the Savio Road west of Randle (Kiona Creek Unit). Legal description: T11N, R4E, Sec 1-4 & 11-12; T11N, R5E, Sec 1-7 & 11-12; T12N, R1E, Sec 24 & 29-32; T12N, R2E, Sec 1-2, 9-11, 16, 19-21 & 28-30; T12N, R3E, Sec 6-16, 22-24 & 26-27; T12N, R4E, Sec 7-8, 10, 12-16, 18-20, 22-30 & 32-36; T12N, R5E, Sec 7, 19-22 & 27-34; T12N, R6E, Sec 13; T12N, R7E, Sec 18, 20-21.

Figures 1-5. MAPS

Figure 1 Cowlitz Wildlife Area Complex



Washington State Department of Fish and Wildlife

- Cowlitz Wildlife Area
- WDFW Owned or Managed Lands

Major Public Lands

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

Administrative Boundaries

- Township Line
- Section Line
- County Line
- City or Town Limits

Transportation Network

- Interstate Highway
- US Highway
- State Route

Hydrography

- Lakes or Wide Rivers
- Stream

Cowlitz Wildlife Area Office
350 State Route 7
Morton, WA 98356
360.496.6223

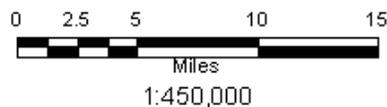
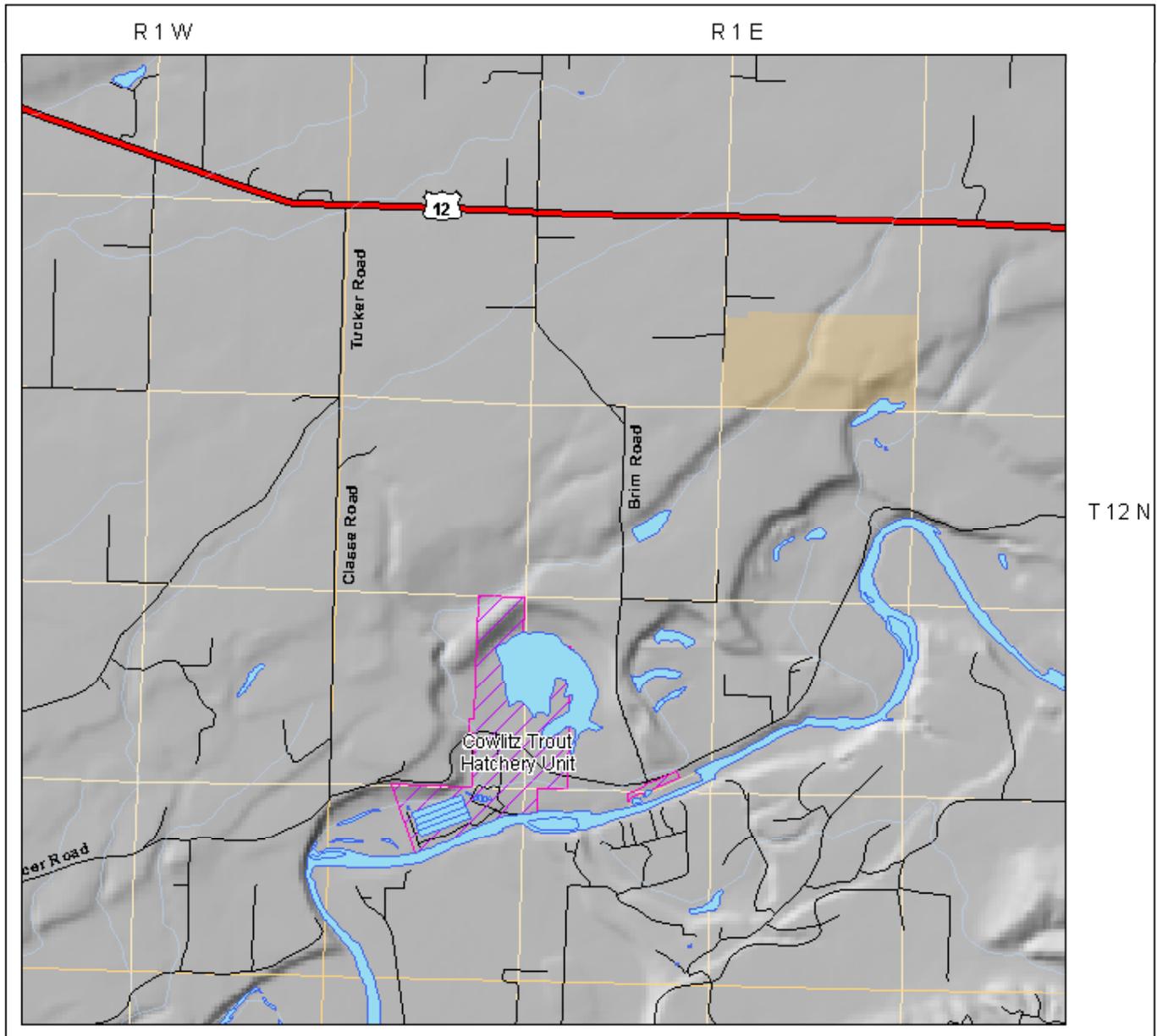


Figure 2 Cowlitz Trout Hatchery Unit



Washington State Department of Fish and Wildlife

-  Cowlitz Wildlife Area
-  WDFW Owned Lands

Major Public Lands

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

Administrative Boundaries

-  Township Line
-  Section Line
-  County Line
-  City or Town Limits

Transportation Network

-  Interstate Highway
-  US Highway
-  State Route

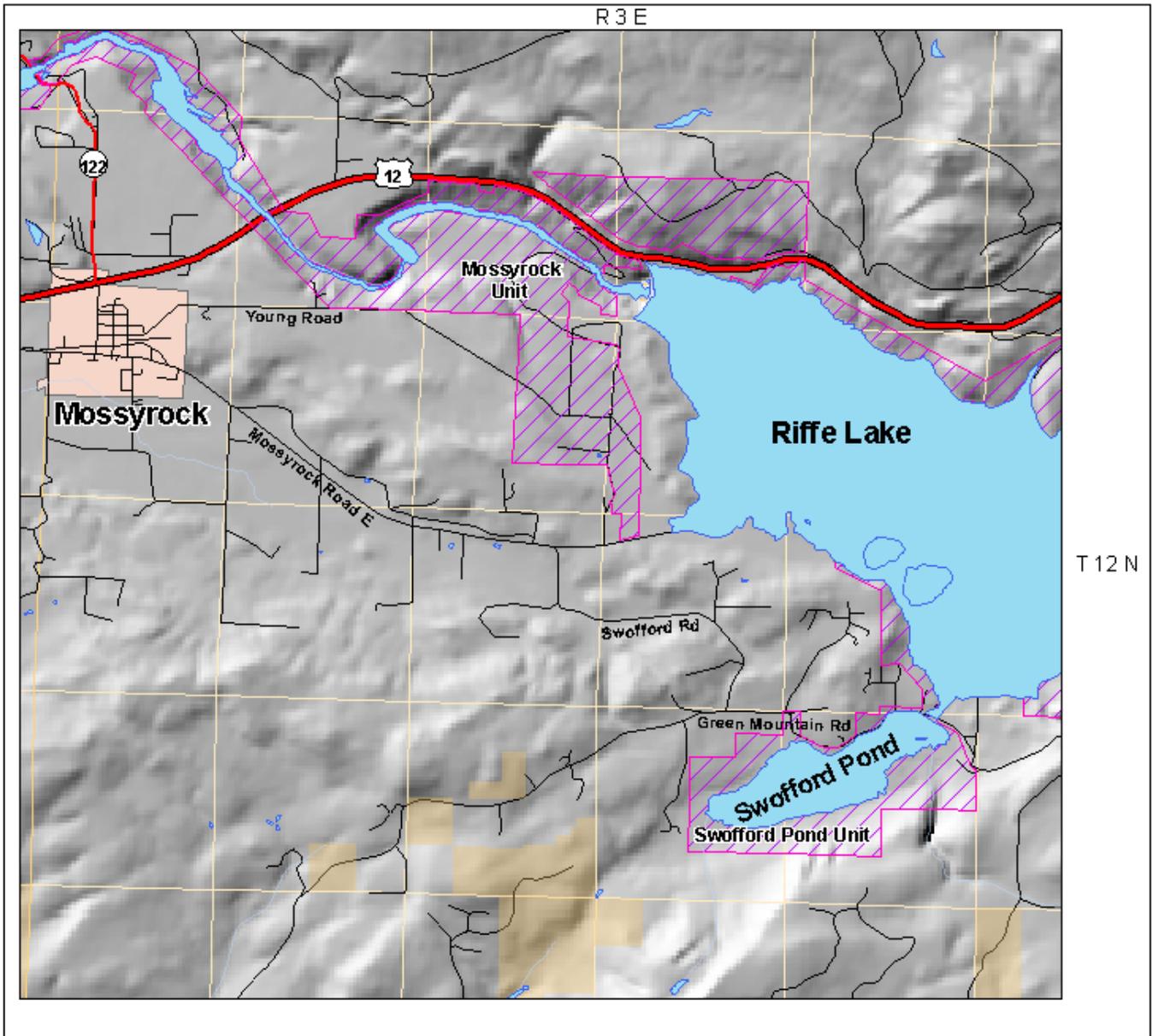
Hydrography

-  Lakes or Wide Rivers
-  Stream

 Cowlitz Wildlife Area Office
 350 State Route 7
 Morton, WA 98356
 360.496.6223

1:50,000
 1 inch equals 0.79 miles

Figure 3 Mossyrock and Swofford Units



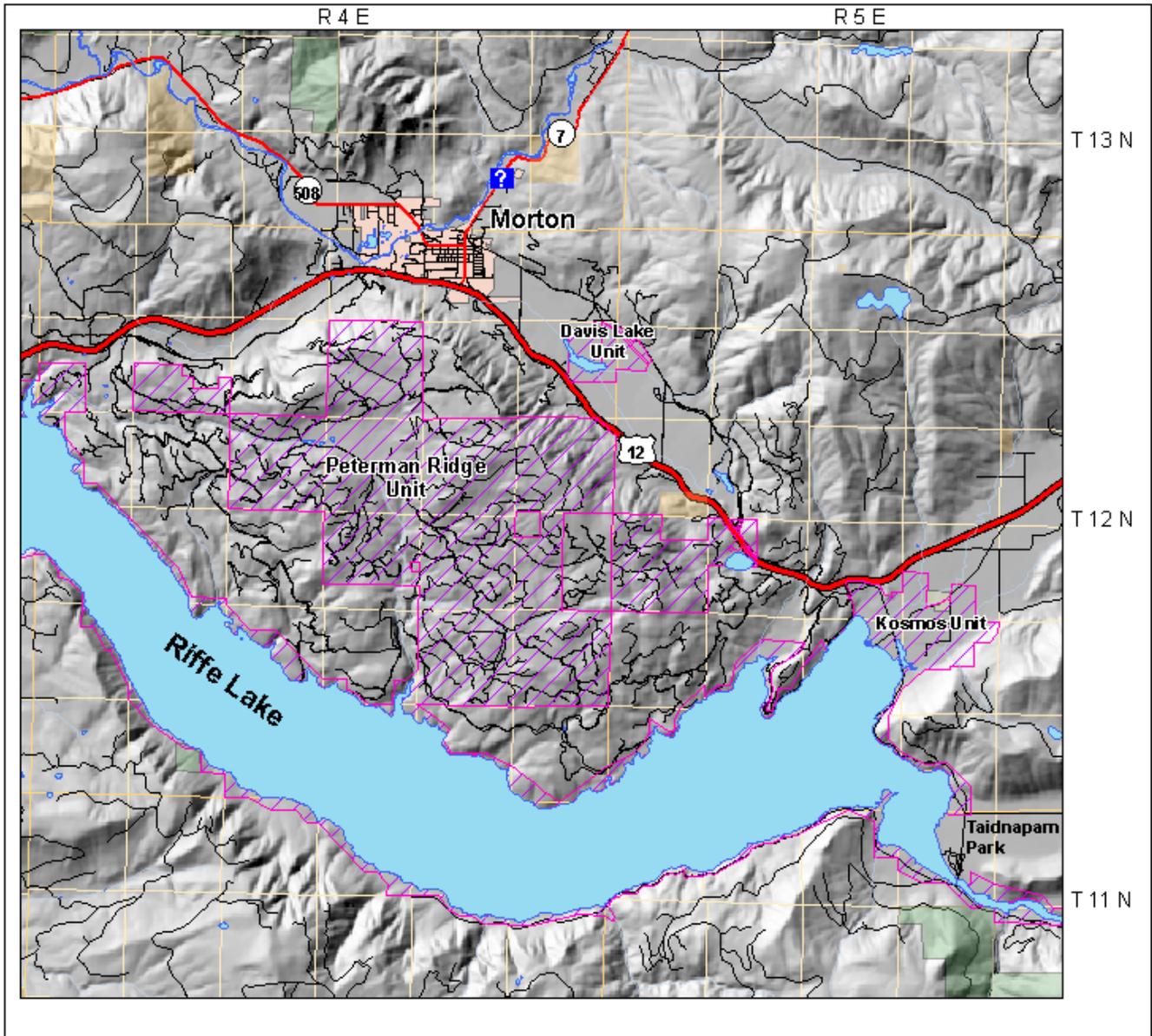
Washington State Department of Fish and Wildlife	Administrative Boundaries	Transportation Network	Hydrography
Cowlitz Wildlife Area	Township Line	Interstate Highway	Lakes or Wide Rivers
WDFW Owned Lands	Section Line	US Highway	Stream
Major Public Lands	County Line	State Route	
US Federal Government	City or Town Limits	Other Roads	
Other State Land			
County Land			
City Land			
Tribal Land			

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Morton, WA 98356
360.496.6223

1:50,000

1 inch equals 0.79 miles

Figure 4 Peterman Ridge, Davis Lake and Kosmos Units



Washington State Department of Fish and Wildlife

- Cowlitz Wildlife Area
- WDFW Owned Lands

Major Public Lands

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

Administrative Boundaries

- Township Line
- Section Line
- County Line
- City or Town Limits

Transportation Network

- Interstate Highway
- US Highway
- State Route
- Other Roads

Hydrography

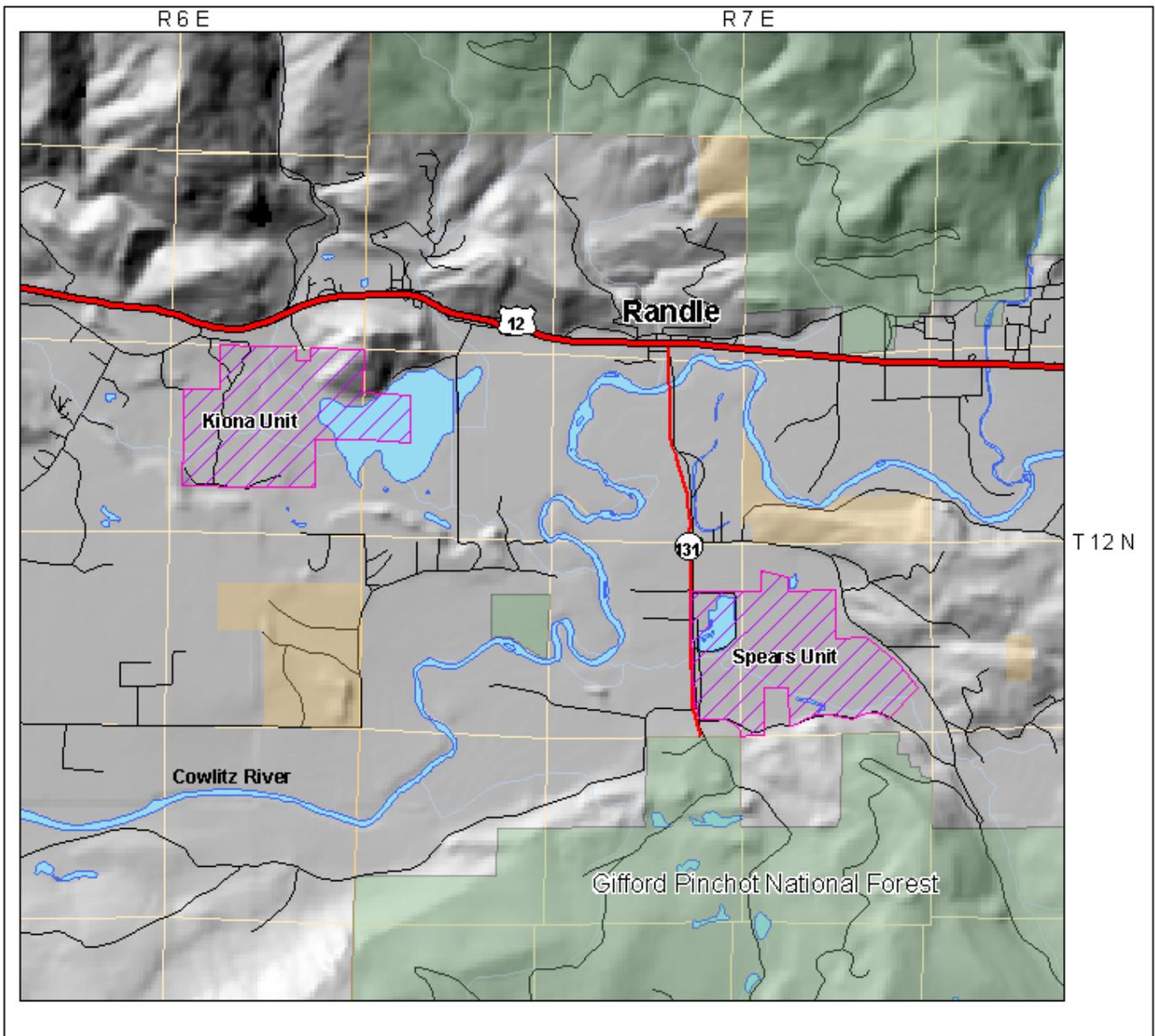
- Lakes or Wide Rivers
- Stream

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1:100,000

1 inch equals 1.58 miles

Figure 5 Kiona and Spears Units



Washington State Department of Fish and Wildlife

-  Cowlitz Wildlife Area
-  WDFW Owned Lands

Major Public Lands

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

Administrative Boundaries

-  Township Line
-  Section Line
-  County Line
-  City or Town Limits

Transportation Network

-  Interstate Highway
-  US Highway
-  State Route
-  Other Roads

Hydrography

-  Lakes or Wide Rivers
-  Stream

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1:50,000
1 inch equals 0.79 miles

2.2 Purchase History and Purpose

The Federal Energy Regulatory Commission (FERC) effectively licensed the Cowlitz River Project January 1, 1952. The project includes Mossyrock and Mayfield Dams on the Cowlitz River, at river miles 65 and 52, respectively. The two reservoirs formed as a result of this project inundate approximately 14,080 acres.

On November 17, 1964, FERC issued an Order Further Amending License (Major) for the Cowlitz Project, at which time Article 37 was incorporated into the project license. Article 37 of the license authorized the Commission to require Tacoma to make changes to project facilities and operation for the conservation and development of fish and wildlife resources. Since that time, Article 37 has been regarded by the state and federal wildlife resource agencies as a mandate for Tacoma Power to mitigate project related wildlife impacts.

Beginning as early as 1966, the WDFW and the U. S. Fish and Wildlife Service (USFWS), in conjunction with Tacoma Power, studied the project's impacts to wildlife habitat. Over the years a number of wildlife enhancement measures were mutually implemented on project lands under the direction of the resource agencies.

In the early 1980s, Tacoma Power began funding full-time WDFW employees to help plan additional and more intensive habitat enhancement programs. A series of intensively managed on-project sites were developed on approximately 1,475 acres. These sites, in conjunction with other less intensively managed project lands that were set aside for wildlife, totaled approximately 4,555 acres. Tacoma Power funded the personnel, equipment, and supplies necessary to operate and maintain this program.

In 1985, at the request of the WDFW and USFWS, Tacoma Power conducted a Habitat Evaluation Procedure (HEP) study on the project lands to further assess the impact of the Cowlitz River Project on wildlife. When Phase I of the HEP study was completed in 1986, a ledger of losses and gains in habitat units attributable to the Cowlitz Project was developed.

In the following years, alternative wildlife mitigation packages were discussed. On January 5, 1993 a mutual agreement was reached on a package of activities Tacoma Power would undertake to mitigate for wildlife impacts. The resulting Settlement Agreement Relating to Wildlife for the Cowlitz Hydroelectric Project (Settlement Agreement) identifies and credits existing wildlife mitigation undertaken by Tacoma Power and identifies new and additional projects Tacoma Power will undertake to meet requirements of the settlement. The Settlement Agreement was approved and made part of the operating license by the Federal Energy Regulatory Commission (FERC) on July 17, 1998. A Wildlife Management Plan was prepared by WDFW and approved by FERC on January 26, 1999. A new license for the Cowlitz River Project was made effective July 18, 2003 and Article 24 (1993 Wildlife Settlement Agreement) continues the wildlife settlement agreement obligations for the term of the new license.

2.3 Ownership and Use of Adjacent Lands

Commercial timberlands, private farms, residential areas, and developed recreational parks surround the Cowlitz Wildlife Area. The economies of the nearby communities are heavily dependent on the timber industry. The majority of the forested lands on the Cowlitz Wildlife Area were logged prior to dam construction. Most of these lands were reforested or allowed to re-vegetate naturally, and now support hardwood and coniferous forests.

2.4 Funding

The Cowlitz Wildlife Area is 100% funded by Tacoma Power under The Settlement Agreement Relating to Wildlife for the Cowlitz Hydroelectric Project (Settlement Agreement). This settlement agreement directs Tacoma Power to provide an annual sum of monies to the WDFW for the management and restoration of acquired lowlands/wetlands and uplands/timberlands for the benefit of wildlife and their habitats. The initial annual payment of \$250,000 has been adjusted each year for inflation using the current published Consumer Price Index for All Urban Consumers for the Seattle/Tacoma Metropolitan Area. The payment for operations and maintenance in 2005 was \$351,816.

It is the obligation of the WDFW under this Agreement to use the annual funds to plan and implement wildlife management and enhancement measures and to operate and maintain the Wildlife Area.

2.5 Climate

The area has a maritime climate characterized by cool dry summers and mild wet winters. The area receives approximately 60 inches of annual precipitation, the majority of which comes as rain from November through May. Summers are usually cool and dry, with less than 5% of the annual precipitation falling between the months of June and August. Annual snowfall on the Wildlife Area generally does not exceed 4 to 8 inches, while at higher elevations in the Cascades snowfall often exceeds 10 feet. During the summer months average daytime temperatures are in the 70s, with nights cooling to the 40s. Winter temperatures range from 20s to low 50s.

2.6 Soils and Geology

There is approximately 40 linear miles between the most westerly unit of the CWA (Cowlitz Trout Hatchery) and the most easterly unit of the CWA (Spears). Consequently, these different geographic locations exhibit different soil profiles and have undergone different geologic disturbances.

In general the Cowlitz Wildlife Area lies along the western flank of the Cascade Range located within the Cowlitz River valley. Glaciation and hydrology are the two primary forces that have formed the geology and sculptured the topology that exist now. The majority of the land base (excluding Peterman Ridge Unit) is found on bottomlands and terraces of the Cowlitz River. Peterman Ridge Unit (the largest at 6,855 acres) is comprised of uplands reaching nearly 3000 feet in elevation.

The soils of the western half (west of Peterman Ridge) of the wildlife area are generally deep well-drained soils composed of mixed alluvium of variable origins. These soils tend to be located on stream terraces with planar to undulating characteristics and have erosive tendencies ranging from slight to moderate depending on slope.

The soils of the eastern half (east of Morton) of the wildlife area are typical of bottomland soils that are generally deep, poorly drained, and have a high water table with expected flooding from winter to spring. Soil composition ranges from muck derived from decomposing organic matter to recent alluvium overlaying sand-sized particles and highly decomposed organic matter. Elevation profiles of these soils are generally planar and erosion tendencies are slight.

The soils of the Peterman Ridge Unit are well-drained soils on slopes that average 15% to 65%. The erosive tendencies of these soils are variable and are dependent on slope. The soils are composed of andesite and volcanic ash and are characterized by a top layer of organic litter.

2.7 Hydrology and Watersheds

The Cowlitz River headwaters are located on Mt. Rainier. The river flows generally westward 151 miles to the Columbia River near Kelso Washington draining 2,480 square miles of land along the way. Main tributaries draining into the Cowlitz River on or near the Cowlitz Wildlife Area are the Cispus and Tilton Rivers. The Cispus River (one of the more significant tributaries) drains 433 square miles of land and flows into the Cowlitz River at Lake Scanewa.

Generally, Cowlitz River runoff results from rainfall with late spring snowmelt near the headwaters raising flow levels considerably. However, the majority of peak flows occur during the late fall and winter months. Normal low flows occur between August and October with a mean flow of 3200 cfs and normal high flows occur between November and February with mean flows of 8500 cfs. Large-scale flooding does occur in the Randle Valley when rain on snow events couple with a high water table. This high water table in the Randle Valley contributes greatly to the hydrology of the wetlands located on the wildlife area in this area.

Three hydroelectric projects exist on the Cowlitz River. The first is Mayfield Dam at river mile (RM 52.0), the second is Mossyrock Dam (RM 65.5) and the third is Cowlitz Falls Dam (RM 88.5). Mayfield and Mossyrock Dams comprise Tacoma Power's Cowlitz Hydroelectric Project (FERC No. 2016). The area impounded by Mayfield Dam and Mossyrock Dam is 1,250 acres and 11, 830 acres respectively. It is mitigation for the loss of wildlife habitat due to this Project that the Cowlitz Wildlife Area exists. Mossyrock Dam provides 1,686,000 acres/ft of storage to control flooding in the lower watershed and to hold water for future power generation. This reservoir is known as Riffe Lake. Riffe Lake is typically drawn down in the fall months to provide for the collection and storage of winter flood flows. Mayfield Dam provides approximately 133,700 acres/ft of storage (Mayfield Lake) but is generally not drawn down to provide flood storage. If flows from the Tilton River or Winston Creek become high the powerhouse on Mayfield can be shut down to minimize flows to the lower Cowlitz River. It should also be noted that an agreement exists between Tacoma Power and the Washington Department of Fish & Wildlife that flows below Mayfield Dam will be held at a level that will provide for the protection of salmon and steelhead resources in the lower Cowlitz River.

2.8 Fire History

There is evidence to suggest that historically fire disturbances occurred on or in the vicinity of what is now known as the Cowlitz Wildlife Area. However, in recent times fire events have been confined to the occasional small scale brush fire (< 10-acres) with the most recent occurring in 2005 at the Dogpatch Site (\approx 7-acres) on the east end of Riffe Lake. Fire protection is provided by local fire districts and through a fire protection contract with Department of Natural Resources.

2.9 Vegetation Characterization

Weather systems moving inland from the Pacific Ocean create moisture and temperature regimes ideally suited to the establishment and growth of diverse plant communities. The vegetation in the Cowlitz Wildlife Area is as varied as its habitats. The majority of the land base can be classified into one of four habitats – emergent wetland, riparian / forested wetland, coniferous forest and mixed deciduous forest. In addition to the above habitats the Cowlitz Wildlife Area maintains several forage pastures throughout the wildlife area.

Reed canarygrass dominates much of the emergent wetland within the Cowlitz Wildlife Area. However, in places where reed canarygrass is absent a diverse vegetation community exists. Dominate species include skunk cabbage, cattail, small-fruited bulrush, slough sedge, water parsley and lady fern.

Riparian / forested wetlands within the Cowlitz Wildlife Area vary greatly due to geography. This category includes the buffer areas along the shorelines of Riffe and Mayfield lakes, the stream buffers and wetlands on forested uplands and the depressions in forested bottomlands. These habitats are generally dominated in the canopy by a combination of the following: red alder, black cottonwood, Douglas fir, western hemlock and western red cedar. The shrub layer is typically (depending on geography) comprised of such plants as black twinberry, red elderberry, salmonberry, Pacific ninebark, red-osier dogwood, snowberry, stinging nettle, and vine maple.

The coniferous forest and mixed deciduous forests are typical of those found along the west Cascade slope. Douglas fir and western hemlock dominate conifer stands with an understory dominated by western sword fern, Pacific trillium, redwood sorrel, red huckleberry and Oregon grape. Western red cedar can also be found in select locations. Red alder and big leaf maple dominate mixed deciduous stands. The understory of these stands can be similar to conifer stands and one may also find salmonberry, trailing blackberry, devil's club, miner's lettuce, Pacific bleeding heart,



Mixed Forest Habitat, Kiona Unit, Cowlitz WLA

and vine maple dominating the understory. Other common shrub species are Pacific ninebark, red-osier dogwood, snowberry, nootka rose, serviceberry, red elderberry and several currants.

The pastures are typically historic pastures that are maintained to provide grazing habitat for area wildlife such as deer, elk, small mammals and songbirds. The vegetation in these pastures is composed of native and non-native grasses and forbs. Grass species are dominated by orchardgrass, brome, timothy, red fescue and where established reed canarygrass. Forb species are dominated by clover, common vetch, small burnet, and birds-foot trefoil.

2.10 Important Habitats

The Cowlitz Wildlife Area Management Plan of 1997 identified four priority habitats. These priority habitats were listed separately from the species that inhabit them due to limited distribution statewide and the great value they provide to wildlife. These four habitats were given second priority just under T & E species. The definition of these priority habitats and the desired future conditions is listed below in the priority they were given in the 1997 management plan.

Cliff – composed of igneous or sedimentary rock with a height over 40 feet within a ¼ mile of water. Desired future conditions are to maintain existing vegetation and hydrologic regimes where possible as well as to maintain a disturbance free buffer of ¼ mile. Timber rights on Peterman Ridge have made this difficult but as rights revert future management will follow management's guidelines.

Wetland (Emergent and Forested) – the importance of wetlands in fulfilling the life requirements to a broad spectrum of wildlife is well documented. The loss of wetland habitat to the impoundments of the Cowlitz Hydroelectric Project has made protection, restoration and creation one of the most important activities on the wildlife area. For this reason, current acquisition efforts are focused on acquiring additional wetland acreage. Management objectives are to protect or enhance existing site conditions and to create additional wetland sites to provide for healthy diverse fish and wildlife populations. Moist soil management practices will be used to ensure hydrologic conditions are present to optimally support hydrophytic vegetation communities.



Riparian Habitat (Fall), Rainey Creek

Riparian – riparian habitats, as with wetland habitats, provide life requirements to a diverse population of wildlife species. The diversity extends to the plant community as well. Wildlife that does not utilize riparian or wetland habitats on a daily basis will use these habitats at some time throughout their life cycles. Due to this biodiversity and dependency any loss or alteration would have a significant impact on wildlife populations. Therefore management objectives are to maintain or enhance riparian habitat to provide diversity of wildlife niches. These objectives are: 1.) Rehabilitate damaged ecosystems and create riparian habitat to meet identified species objectives.

2.) Repair or remove all man-made fish barriers and otherwise ensure fish passage. 3.) Allow the river to meander across the floodplain and continue to protect sensitive riparian characteristics. 4.) Maintain or provide stream buffers (where possible) equal to the width of the stream plus its meander and all vegetation surrounding the stream (including adjacent wetlands).

2.11 Fish and Wildlife

Fish and wildlife diversity is of primary importance to the goals and strategies guiding WDFW's management efforts. The Cowlitz River historically supported rich runs of anadromous salmonids such as spring and fall chinook, coho, steelhead and cutthroat trout. Most of the natural production of these fish occurred in the upper Cowlitz River watershed above Mayfield Dam. Since the majority of the Cowlitz Wildlife Area exists between the barrier dam at the Cowlitz Salmon Hatchery and the base of the Cowlitz Falls Dam, the wildlife area provides no major benefits to anadromous fish. The exception to this being the Kiona and Spears Units near Randle which both have potential to provide access to additional spawning / rearing habitat.

The Cowlitz Wildlife Area Management Plan of 1997 divides the wildlife area into



North American Elk, Swofford Pond Unit

management zones. Two types of management zones were addressed, habitat management zones and species management zones. Under species management, sensitive species were given top priority. Much of the buffer regions around the lake have been identified as bald eagle / osprey foraging habitat and many viewing opportunities exist for these species.

Currently management is focusing on protecting, restoring or creating habitat for diving, dabbling and cavity nesting ducks. This is being accomplished through wetland acquisitions, habitat projects and a nesting box program. These activities have been identified by the Wildlife Area Management Coordinating Committee (WMCC) as a priority in meeting the mitigation needs for Tacoma Power's Cowlitz Hydroelectric Project.

Peterman Ridge Unit, the largest unit on the wildlife area, is managed generally as species-specific habitat for pileated woodpecker (sensitive species), black-tail deer, and Douglas squirrels. In addition to providing habitat for beaver, forested wetland areas on Peterman Ridge provide habitat for amphibians and other wetland dependent species. Wildlife use on the area is diverse. Species that are present include elk, deer, black bear cougar, grouse, turkey, etc.

2.12 Species of Concern (SOC) Wildlife Species

Listed species that occur, have occurred, or have the potential to use the wildlife area include:

Northern Spotted Owl (SE, FT)
Bald Eagle (ST, FT)
Marbled Murrelet (ST, FT)
Peregrine Falcon (SS, FCo)
Common Loon (SS)
Northern Goshawk (SC, FCo)
Vaux's Swift (SC)
Western Grebe (SC)
Pileated Woodpecker (SC)
Western Grebe (SC)
Townsend's Big-eared Bat (SC, FCo)
Western Pond Turtle (SE, FCo)
Rocky Mountain Tailed Frog (SC)
VanDyke's Salamander (SC, FCo)
Western Toad (SC, FCo)
Larch Mountain Salamander (SS, FCo)

Abbreviation Key:

SE = State Endangered
ST = State Threatened
SC = State Candidate
SS = State Sensitive
FT = Federally Threatened
FCo = Federal Species of Concern

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 the area was acquired, habitat conditions, species present, and public issues and concerns were evaluated to identify wildlife area activities or strategies. *Public issues from past planning efforts and the District Team are noted in italics.*

WDFW's management goals for the Cowlitz Wildlife Area (CWA) are described below and listed under the corresponding agency objective as outlined by the WDFW 2005 – 2007 Strategic Plan. Tasks and strategies are listed which further define the location, anticipated time frame, and scope of activities which need to take place in order to achieve each goal.

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

1. Manage for species diversity

The CWA consists of lands owned by Tacoma Power (Tacoma) and managed by the Washington Department of Fish & Wildlife (WDFW) as wildlife mitigation for habitat loss due to inundation from the development of Mayfield and Mossyrock dams. In 1993 a mutual agreement (Settlement Agreement, Appendix 6) between Tacoma and WDFW was reached and outlined activities that would be conducted to mitigate for wildlife related impacts resulting from the Cowlitz Hydroelectric Project. Under this agreement a commitment was made to preserve, restore, enhance and manage the lands for the benefit of local wildlife species, including sensitive, threatened and endangered species and their habitats. Though the CWA's management focus targets wildlife species, management activities do not exclude fish needs. Tacoma Power handles anadromous fish management and population reintroduction through their hatchery and 'trap & haul' program. The CWA's activities address fish needs (i.e. fish passage) through compliance with the hydraulic code, through the DNR mandated RMAP, and by ensuring healthy riparian corridors.

A. Strategy: Perform annual surveys to determine species-specific use (i.e. waterfowl, amphibians etc.), determine what life stage and / or habitat requirements each species uses the WLA for and maximize the availability of essential habitat components.

B. Strategy: Increase habitat quality with ongoing tree / shrub plantings and forage seeding that will increase forage value and provide visual screening for foraging wildlife. *Native plants or seed will be used as the preferred species whenever feasible to achieve management goals and objectives.* Timeframe: 2006-2007

C. Strategy: In consultation with a forester, identify units on Peterman Ridge Unit for stand improvement thinning projects that meet management objectives for creating forest conditions that maximize species diversity. Timeframe: 2006

D. Strategy: The CWA annually maintains nearly 200 acres of forage fields on 7 units of the WLA. Maintain natural preferred foraging opportunities that will maximize species use while encouraging species diversity.

2. Manage for waterfowl

A. Strategy: *Restore historic or enhance existing wetland ecosystems. Three major projects (Rainey Creek Dike, Kiona Unit and Spears Unit) are in initial development stages. Activities to secure engineering and subsequent permitting will begin Fall*

2006. *Engineering and permitting will be completed by the end of 2007 for Rainey Creek Dike and by the end of 2008 for Kiona and Spears Units.* These projects will restore (to historic conditions) or enhance existing habitat and in doing so will create conditions that support migratory waterfowl. This project is consistent with WDFW obligations as outlined in the Wildlife Settlement Agreement (see appendix 6) between WDFW and Tacoma Power.

B. Strategy: Create a moist soil management program to manage four ponds on the Mossyrock Unit of the CWA by Spring 2007. Rehabilitation and initial enhancement activities to existing vegetation communities will begin Summer 2006 with an anticipated completion by the end of 2008. This project is consistent with WDFW obligations as outlined in the Wildlife Settlement Agreement (see appendix 6) between WDFW and Tacoma Power.

C. Strategy: As an ongoing project, increase availability of suitable cavity nesting sites on the CWA. Maintain and replace, as needed, existing nest boxes. Identify and expand nesting locations into suitable habitat to support cavity nesting wildlife species. Annually survey and summarize nest box use by species and location.

3. Manage for black-tail deer & elk

A. Strategy: *Reduce road densities on the Peterman Ridge Unit of the CWA.* There is approximately 74 miles of road within the 11 square miles that comprise the Peterman Ridge Unit. Management goals are to reduce road densities to a ratio of 1.5 miles of open road per square mile. This will be done in conjunction with the DNR mandated RMAP plan with a completion date in 2007.

B. Strategy: Peterman Ridge Unit is the largest unit on the CWA (6855 acres of timberlands) and is bordered by mostly private timber company lands. Subsequently, the Peterman Ridge Unit has the largest concentration of big game species. Management primarily focuses on blacktail deer, elk, Douglas squirrels and pileated woodpeckers. Green Diamond Resources owns the timber harvest rights to some of the timber stands on Peterman Ridge. These rights revert to Tacoma Power after each stand is harvested and released to Tacoma Power for reforestation. These rights are in effect until 2026. Management activities are necessarily adaptive due to the commercial logging activities. Management will monitor harvest and reforestation activities, suggest prescriptions that retain priority habitats and their functions and develop reforestation prescriptions that will provide natural openings in key locations to meet wildlife needs. Timeframe: Depends on the availability of the Agency's Forest Specialist.

C. Strategy: Partner with the Rocky Mountain Elk Foundation grants program (as funding allows) to increase forage availability on the WLA through select plantings of shrubs, forbs and grasses. Native species will be used as preferred species when available. Timeframe: Ongoing

D. Strategy: Develop a plan and secure all necessary permits by June 2006 to restore existing drainage on the Davis Lake Unit so that existing fields can be recovered, providing a more suitable foraging habitat for resident elk. *Adjacent landowners have voiced concerns of elk predation on their pastures.*

4. Manage for healthy riparian corridors

The agency recognizes that riparian habitats support a large diversity of fish and wildlife species by providing necessary habitat for breeding and foraging. In addition riparian corridors provide movement corridors for many species. Due to the functional value of these corridors the agency has identified them as priority habitats and as such are targeted by the CWA for protection and restoration where needed.

A. Strategy: Ongoing management of riparian corridors on Peterman Ridge is guided by complying with the Forest Practices Act.

B. Strategy: The hydrology on the Kiona and Spears Units has been highly altered to promote agricultural use. The CWA intends to restore the hydrology in this area to promote fish passage, restore the natural hydrologic regime and reconnect the existing streams to the adjacent floodplains. A restoration plan has been written; activities to acquire engineering and subsequent permitting will begin Fall 2006 and be completed by the end of 2008.

C. Strategy: The stream banks in the Kiona and Spears Units will be revegetated to promote a diverse and healthy riparian corridor. This project is dependent on the previous Strategy **B** above.

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 weeds in compliance with local, state and federal regulations to protect and recover fish and wildlife and their habitats.

Weed control is required by state law to protect public economic and natural resources. Invasive weeds are one of the greatest threats to fish and wildlife habitat quality. Cooperative weed efforts are encouraged to improve effectiveness and to minimize impacts on adjacent landowners as part of the agencies good-neighbor policy.

A. Strategy: Implement weed management plan on an ongoing basis (Appendix 2). *Conduct weed management on WLA lands in order to meet legal obligations, maintain and improve the habitat for fish and wildlife by providing good land stewardship, and protect adjacent lands.*

B. Strategy: Coordinate weed efforts with other agencies when possible to improve effectiveness and minimize costs. Timeframe: Annually

C. Strategy: In 2006, map extents of the scotch broom populations on the Cowlitz Trout Hatchery and Spears Units using GPS and GIS technologies. Other occurrences will be mapped as identified.

D. Strategy: Increase weed control efforts and continue to use Integrated Pest Management (IPM) strategies that use all suitable techniques. Timeframe: Ongoing

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

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

- A. Strategy: Comply with Department of Natural Resources (DNR) road management requirements. The DNR mandated Road Management Abandonment Plan (RMAP) inventory of Peterman Ridge has been completed by Green Diamond Resources and submitted by Tacoma Power. Work to correct the identified problems began in 2005 with the placement of two bridges. The remaining work is expected to be completed by 2007. Additional units subject to RMAP requirements will be identified by Tacoma and inventoried by 2007. Any problems identified will be corrected to achieve compliance with DNR requirements.
- B. Strategy: Protect buffers adjacent to wetlands and riparian habitats. This is an ongoing activity.
- C. Strategy: Maintain an ongoing cooperation with the Priority Habitat and Species (PHS) Program to maintain accuracy of the PHS maps and information.
- D. Strategy: Use gathered PHS and ESA species information to plan/implement management activities. Timeframe: Ongoing

3. Provide fire management on CWA lands

Fire suppression agreements must exist for all agency lands to protect the people of Washington and to protect natural and economic resources of the agency and adjacent landowners.

- A. Strategy: Ensure that a Department of Natural Resources (DNR) Fire Suppression contract is in place for Cowlitz WLA lands. A written fire plan and emergency contacts list (Appendix 3) is in place for the Cowlitz WLA lands to guide fire prevention and suppression activities. Additionally, the CWA *will cooperate with adjacent landowners to ensure the safety of economic resources and private property*. Timeframe: Year-round
- B. Strategy: Provide annual fire training (and any necessary continuing education) for wildlife area manager and assistant manager. Maintain internal list for fire responsible individuals on adjacent timberlands.

4. Protect cultural resources consistent with state and federal law

Federal and state laws that require cultural assessments to be conducted prior to conducting activities that could impact those or potential cultural resources.

- A. Strategy: *Assess cultural resource value (historic and archeological) of all structures before renovation or removal*. Timeframe: Ongoing
- B. Strategy: *Perform cultural resource surveys and assessments before digging in areas where known (Tacoma Power maintains a database of known sites as per the FERC license) or potential cultural resources exist*. Timeframe: Prior to ground disturbance

Agency Objective: Minimize Adverse Interactions Between Humans and Wildlife.

1. Support education and outreach to reduce negative human interactions with wildlife and subsequently reduce public exposure to health risks associated with such negative interactions.

The CWA is a valuable source of information for area residents and users of the WLA. As such it is our responsibility to supply timely and accurate information on wildlife related illnesses such as *Chronic Wasting Disease, Hair Loss Syndrome and West Nile*

Virus. Also, in an effort to avoid negative interactions, the CWA staff responds to reports of “sick” animals on/or adjacent to WLA lands.

A. Strategy: Maintain an informational center within the field office where information on wildlife-related diseases is available. Timeframe: At least once a year

B. Strategy: Respond to reports of “sick” animals, collect samples when possible and forward to area biologist if deemed necessary or requested by agency personnel. Timeframe: As soon as possible

C. Strategy: Provide and conduct annual educational outreach activities such as the White Pass school presentation, Hunter Education Classes, educational on-site presentations (Lewis County Weed Board school outreach presentation) and Tacoma Power’s Annual Open House event. Timeframe: 2006

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

1. Manage appropriate public use and recreation in a manner, which minimizes impacts to wildlife habitat and other sensitive resources.

The Cowlitz WLA has a high level of non-wildlife oriented recreational use, particularly in the summer and fall along the east side of Riffe Lake. These uses include hang gliding and wind surfing. Also, this site receives the largest percentage of dispersed camping throughout the year. Peterman Ridge is a popular destination for deer hunters from outside the county, as well as late season archers and muzzleloaders. Swofford Pond, which provides year-round fishing opportunity for trout and warm water species, receives a great deal of attention from the public as well. Tacoma Power is planning a 26-mile trail on Peterman Ridge that is expected to draw horsemen and mountain bikers and there are three other multi-use trails that can be found on the wildlife area. Recreation is a large historic component of the Cowlitz WLA and as such must be considered in any management. Recreation / habitat management conflicts are typical to those found on other state owned or managed wildlife areas.

A. Strategy: *Provide pheasant hunting opportunity* on the Cowlitz WLA by continuing to maintain a pheasant release site near Glenoma on the east end of Riffe Lake. Releases occur from September to November with hunting opportunity until the end of December.

B. Strategy: *Provide non-consumptive opportunities on the Cowlitz WLA by maintaining recreational access and camping* in the existing areas (Kosmos Flat, Dogpatch and Goat Creek Flat) on the east end of Riffe Lake; no new access is planned at this time on the Cowlitz WLA. Timeframe: Ongoing, seasonal

C. Strategy: Continue to provide ongoing consumptive recreational access such as hunting and fishing on popular access areas (Peterman Ridge, Kosmos, Dogpatch and Swofford Pond) as well as non-consumptive recreational access such as camping, bird watching, windsurfing and hang gliding. Additionally, continue to provide dispersed camping on the Peterman Ridge Unit. Open fires are restricted during burn bans and unauthorized vehicular access may also be restricted at this time. Additionally, all unauthorized access may be prohibited during periods of high fire risk and with director approval. Timeframe: Ongoing

D. Strategy: The recreational sites (Kosmos, Dogpatch and Swofford Pond) on the wildlife area are used extensively during summer holidays and other high use weekends. *Associated with this high use is an increase in litter, dumping and improper disposal of human waste.* Provide portable toilets and possibly dumpsters during holidays (Memorial Day, 4th of July and Labor Day) and other high use weekends to remedy sanitation issues.

E. Strategy: *Improve access at Swofford Pond. The Citizen Advisory Group (CAG) meeting identified a need for additional parking to improve access at Swofford Pond. Existing infrastructure precludes improvements however; future land trades with Tacoma Power could make this feasible.* Timeframe: Depends on land trade

2. Manage Cowlitz WLA lands to minimize adverse impacts to the recreating public and to adjacent landowners.

The Cowlitz WLA, though located in a rural area, lies adjacent to private lands of which much is residential. It is necessary to define accurately the boundaries of the WLA to both aid in management practices but also to protect adjacent landowners from unlawful trespass. *The public has become increasingly concerned by what they see as a lack of emphasis by WDFW to control inappropriate and unlawful activities on WLA lands. In addition, they feel that the WDFW needs to better inform the public on what is appropriate and lawful.* It is also necessary to protect these adjacent landowners from property damage arising from issues such as flooding that occurs due to drainage problems on WLA lands.

A. Strategy: Maintain roads, culverts and ditches as needed to prevent resource damage on WLA lands as well as damage to adjacent landowners. Timeframe: 2006-2007

B. Strategy: *Annually identify and manage dispersed camping areas where resource damage is occurring so that further degradation is avoided. Identify those sites that will be managed so as to restore them to a suitable state.*

C. Strategy: As needed, survey property lines, *place and maintain boundary signs in locations where trespass onto adjacent private lands is likely.* In 2006, identify areas where trespass onto private lands from the Mossyrock and Swofford Pond Units of the WLA occurs. Place signs to indicate the boundary between the wildlife area and the private property.

D. Strategy: *Develop guidelines for identifying areas within the wildlife area that should be maintained and signed as safety zones.* Cowlitz WLA staff will install signs along boundary lines of identified sites as needed. Sign separation will be flexible to ensure public awareness and compliance. Timeframe: 2006-2007

E. Strategy: *Maintain existing vehicle barriers to protect habitat and capital features from damage due to off road vehicle driving. Cowlitz WLA staff will monitor the WLA for off road traffic and place additional barriers as needed.*

Currently, the Kosmos Flat area of the WLA receives the most damage from ORV use. Most activity occurs at night and on weekends. Timeframe: 2006

F. Strategy: Communicate problem areas, specific violations, and areas of concern to WDFW enforcement personnel as they are detected. Coordinate with other enforcement agencies and identify appropriate measures that can be implemented collectively in the area.

G. Strategy: *Coordinate with local media sources to ensure dissemination of pertinent information regarding the use of Cowlitz WLA lands and resources.*

Timeframe: As needed

H. Strategy: *Improve and maintain signage concerning area rules and maintain access sites (i.e. Dogpatch and Swofford Pond) in an attractive condition. This*

would include activities such as replacing signs when necessary, vegetation management, and general repair tasks. Timeframe: Year-round

Agency Objective: Provide Sound Sustainable Operational Management of Washington Department of Fish & Wildlife Lands, Facilities and Access sites.

1. Maintain facilities to achieve safe, efficient and effective management of the WLA

A. Strategy: Maintain facilities to provide a safe and effective workplace. Provide the necessary infrastructure for business (i.e. leases, utilities, computers, phone and etc.). Timeframe: Ongoing

B. Strategy: Determine fencing needs and remove fencing on existing properties and new acquisitions as needed to provide barrier-free access to wildlife and individuals. Leave fence posts in place where they are useful for boundary determination. Timeframe: 2006

C. Strategy: Maintain roads and parking areas (as funding allows) to provide safe access. The access roads at Dogpatch and Swofford Pond need resurfaced using rock and gravel. The roads on the Peterman Ridge Unit (55 miles) need to be brushed and sprayed to maintain vehicular passage. Nineteen miles of road is open year round and will be given priority. The remaining 36 miles will be prioritized on a case-by-case basis with the major factor in determining priority being how passable the road is by vehicle. Timeframe: 2006-2007

2. Maintain vehicles and equipment

A. Strategy: Service all WLA equipment (i.e. trucks tractors, trailers, implements and etc.). Identify equipment that is non-functional, unsafe and/or beyond repair and request replacement. Timeframe: Ongoing

B. Strategy: Rent equipment for habitat and maintenance projects when cost efficient to do so. Timeframe: When necessary

3. Pursue opportunities to expand funding or increase management efficiency

A. Strategy: Apply for grants and seek other funding opportunities that are consistent with planned projects to supplement funding (i.e. partner with Ducks Unlimited on the Kiona, Spears And Rainey Creek Project). Timeframe: Ongoing

B. Strategy: Develop and maintain hay agreements annually to address forage field maintenance / cultivation issues.

4. Perform administrative responsibilities

A. Strategy: Develop and monitor budgets, maintain files and records and write annual performance reports as per the Wildlife Settlement Agreement (Appendix 6). Maintain and update all management plans (i.e. WLA management, weed control and fire control plans). Timeframe: Year-round

B. Strategy: Supervise employees and volunteers. Promote self-motivation, good work ethics through agency-approved training and good working knowledge of agency policies. Timeframe: Year-round

C. Strategy: Implement habitat surveys (i.e. photo plot, composition, survival and canopy density) to guide future habitat management activities. Priority sites are Swofford Pond, Cowlitz Trout Hatchery and Mossyrock Units. Timeframe: 2006-2007

D. Strategy: Manage WLA equipment inventory. Timeframe: Ongoing

E. Strategy: Plan and manage everyday purchases necessary for WLA projects and activities. Timeframe: Ongoing

F. Strategy: Attend meetings and meet with private individuals, stakeholders and agency representatives as needed. CWA staff will meet with the Citizen Advisory Group (CAG) and the Wildlife Management Coordinating Committee (WMCC) at least once a year.

5. Protect and apply water rights for best use

Water rights can improve / enhance wildlife area operations. Water rights can also reduce in stream volumes, flow levels and water temperature thus impacting fish and other animals.

A. Strategy: Identify and record all water rights and uses of water held by Tacoma Power on WLA lands (Appendix 4). Timeframe: Ongoing

B. Strategy: Use water rights in a manner consistent with compatible fish and wildlife management. Timeframe: Ongoing

CHAPTER IV. PERFORMANCE MEASURES, EVALUATION AND UPDATES TO THE CWA PLAN

Performance measures for the Cowlitz 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 Cowlitz Wildlife Area on 2006 include:

- 1) Increase habitat quality on the Cowlitz Trout Hatchery Unit of the CWA by restoring approximately nine acres of open field back to a mixed deciduous forest type. Plantings in this area will use native tree and shrub species to encourage a variable canopy and to provide for the needs of a diverse wildlife population. In addition, this area is along a riparian corridor that provides seasonal inundation to the surrounding flood plain that when finished will create a palustrine wetland environment.
- 2) In 2006 a cyclical maintenance plan will be developed to guide maintenance activities on approximately 200 acres of forage fields located on 6 units (Cowlitz Trout Hatchery, Mossyrock, Swofford, Davis Lake, Kosmos and Kiona Units) of the CWA. The plan will guide a maintenance matrix consisting of such activities as disking, harrowing, fertilizing and seed augmentation. The first fields to have enhancement work done to them (2006) will be located on the Cowlitz Trout Hatchery and the Mossyrock Units.
- 3) Complete the engineering and permitting for three major wetland projects (Rainey Creek Dike, Kiona Unit and Spears Unit) by the end of 2008.
- 4) By 2008, a moist soil management program will be created and implemented on the four ponds on the Mossyrock Unit of the CWA. This project will begin with a planning element that will identify the objectives of the project. Work will begin in the dry summer months of 2006 to restore existing hydrology to ensure a consistent water supply. The ponds are man-made and are impounded by risers. These risers need work as well as the berms to block existing breaches. Future vegetation enhancements are being considered but inventory of the existing seed bank will drive planning on this portion of the project.
- 5) In 2004 – 2005, volunteers constructed seventy-five cavity-nesting boxes (funded in part by Duck Stamp Funding). In 2006, existing boxes will be inspected and use data will be collected and analyzed. Nest boxes needing replaced or repaired will be maintained at this time though priority will be given to sites that receive consistent use. In addition, new sites will be identified using data from both the annual migratory bird census and by CWA staff knowledge of suitable locations. 2007 objectives are to expand existing cavity nest availability from ~100 boxes to 125.
- 6) Management objects on the Peterman Ridge Unit call for reducing road densities of the CWA to a ratio of 1.5 miles of open road per square mile of ground. There is currently about 75 miles of road on almost 11 square miles of ground. Gates already control vehicular access over much of this road though they may be opened seasonally. In 2005, CWA staff “tank-trapped” 10 spur roads (~ 5 miles) to permanently block vehicular access in these locations. In 2006 CWA staff will block / abandon an additional 5 miles.
- 7) Comply with DNR Road Maintenance and Abandonment Planning (RMAP) requirements. Green Diamond Resources is expected to begin culvert replacement

in 2006 and all the roads identified as either “shared” roads or Green Diamond Resource Company operational roads will be brought to RMAP standards by the end of 2007. The remaining roads will be abandoned or brought to RMAP standards by 2015.

- 8) Develop a plan to restore existing drainage on the Davis Lake Unit and submit a JARPA by the end of 2006.
- 9) Conduct weed management on WLA lands in order to meet legal obligations. Conduct weed control activities on three units of the WLA (Cowlitz Trout Hatchery, Mossyrock and Kosmos) to control Canada thistle in approximately 40 acres of forage fields. Conduct weed control activities on approximately 5000 feet of forage field edge on the Mossyrock and Kosmos units to control blackberry. Conduct weed control activities on approximately 15 acres (varying densities) of scotch broom on the Spears Unit as well as ~3 acres on the Cowlitz Trout Hatchery Unit.
- 10) Maintain a WDFW informational center within the CWA field office and update field kiosks (Cowlitz Trout Hatchery, Swofford Pond Mossyrock, Peterman, and Kosmos Units) at least once a year.
- 11) Provide and conduct educational outreach activities and presentations as requested by local communities and agencies. Such activities include but are not limited to White Pass Jr. High School presentations, Tacoma Power’s open house and Lewis County Weed Board’s educational outreach program with local schools.
- 12) Continue to provide western Washington pheasant hunting opportunity on the CWA’s Kosmos Release Site. Annually replace and/or maintain signage at the release site.
- 13) Continue to provide recreational access compatible with fish & wildlife on the approximately 14,000 acres that comprise the Cowlitz Wildlife Area. Current activities recreational visitors enjoy are hunting, fishing, camping, wildlife viewing, hiking, hang gliding and windsurfing.
- 14) Reduce litter and unsanitary conditions that occur during periods of high use on select areas of the Cowlitz Wildlife Area (Kosmos and Swofford Units) by installing portable toilets and possibly dumpsters during those peak periods.
- 15) Identify historical and probable points around Swofford Pond where trespass from the Cowlitz Wildlife Area onto private property has or is likely to occur. Sign the identified areas with signs clearly marking the wildlife / private property boundary.
- 16) Identify and remove cross fencing on the Davis Lake and Spears Units that need removal. Leave fence posts that are determined necessary to maintain property boundary location.
- 17) Resurface roads and parking areas on the Swofford and Kosmos Units with large (3” minus) crushed rock to ensure safe vehicular access.
- 18) Write the annual performance report for Tacoma Power as per the Wildlife Settlement Agreement.

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: PUBLIC ISSUES

The purpose of meeting with the Citizens Advisory Group (CAG) and the District Team (DT) was to obtain input to help guide management actions on the wildlife area. A draft of the introduction and history of the wildlife area and copies of the Agency's goals and objectives were distributed for review and discussion. A list of issues and concerns identified by previous planning efforts as well as meetings with the CAG and DT in 2005 can be found below. This input will assist in developing strategies to implement management goals and objectives. Underlined statements below indicate that the input was received from the DT. Underlined statements below indicate that the input was received from the CAG and the DT. Issues that are not underlined originated from the CAG. Other issues unrelated to the management of the Cowlitz Wildlife Area were passed on to the appropriate program or person.

Issue A. Access/Recreation

- Recreational trespass from wildlife area onto private property by elk hunters.
- Elk are moving onto private property due to heavy use of hunting on the wildlife area.
- Comments were made to both close more gates and open more gates on Peterman Hill.
- More signage on property regarding laws.
- Decrease garbage in those areas where people are camping.
- Place additional portable toilets in high use areas.
- More enforcement of off-road vehicle use.
- Continue to maintain pheasant release site at Kosmos.
- Continue to provide recreational access and camping at the East end of Riffe Lake.
- Use ordinary high water mark around Riffe Lake as the boundary for hunting the Swofford Unit.
- Do not close access to camping.
- Maintain access to the edge of Riffe Lake for the wind surfers.
- Place garbage dumpsters in high use areas during holiday weekends.
- Enhance parking and access at Swofford Pond.
- If Swofford access is developed, ensure that improvements are wildlife friendly (i.e. screening over water / oil separator pits).
- Look at gating spurs on Peterman Hill Unit.
- No camping on Peterman Hill during fire season.
- Limit camping on Peterman Hill to just during hunting season.

Issue B. Wildlife Management

- Change from modern firearm hunting around Swofford Pond to primitive weapons due to high house density.
- When making wildlife management decisions on the wildlife area take into account the effects it will have on your neighbors.
- Maintain pheasant release site at the Kosmos Unit.
- Elk are not utilizing forage fields on wildlife area during hunting season due to high hunting pressure redirecting the elk onto private property.

Issue C. Habitat

- Control the milfoil problem at Swofford Pond.
- Dispersed camping increases noxious weeds on wildlife area.

- Information in management plan how WDFW will prevent spread of noxious weeds.
- Continue to try and purchase more wetland properties.
- Increase waterfowl habitat.
- Address off road vehicle traffic especially in the Kosmos unit.
- Use native plants preferentially when planting forage plots or restoring habitats.
- Install nest boxes for other cavity nesting species (i.e. owls and bats).
- Plan for future snag recruitment by clumping leave trees and when possible around existing snags.
- Identify channelized streams and enhance to improve habitat for fish.

Issue D. Enforcement

- Need to increase enforcement on wildlife area.
 - Off road vehicles
 - Garbage and litter
 - Vandalism
 - Trespass issues
 - Under age drinking

Issue E. Other

- Check into possibility of West Nile virus at Swofford Pond.
- Field calls on sick animals and follow-up so as to better monitor wildlife diseases.

APPENDIX 2: WEED CONTROL PLAN

Cowlitz Wildlife Area History and Description

The Cowlitz Wildlife Area (CWA) consists of lands owned by Tacoma Power (Tacoma) and managed by the Washington Department of Fish and Wildlife (WDFW) as wildlife mitigation for Mayfield and Mossyrock dams. Almost all mitigation lands (14,065 acres) are adjacent to Mayfield and Riffe Lakes. The only exceptions are small parcels located at Davis Lake east of Morton (Davis Lake Unit-243 acres), 280 acres near the Cowlitz Trout Hatchery (Cowlitz Trout Hatchery Unit), 418 acres south of Randle (Spears Unit), and 415 acres off Savio Road west of Randle (Kiona Creek Unit).

The area has a maritime climate characterized by cool dry summers and mild wet winters. The area receives approximately 60 inches of annual precipitation, the majority of which comes as rain from November through May. Summers are usually cool and dry, with less than 5% of the annual precipitation falling between the months of June and August. Annual snowfall on the Wildlife Area generally does not exceed 4 to 8 inches, while at higher elevations in the Cascades snowfall often exceeds 10 feet. During the summer months average daytime temperatures are in the 70s, with nights cooling to the 40s. Winter temperatures range from 20s to low 50s.

Commercial timberlands, private farms, residential areas, and developed recreational parks surround the CWA. The economies of the nearby communities are heavily dependent on the timber industry. The majority of the forested lands on the CWA were logged prior to dam construction. Most of these lands were reforested or allowed to re-vegetate naturally, and now support hardwood and coniferous forests.

Summary of Specific Actions Planned

Specific methods of control for high priority weeds are outlined below but in general an integrated vegetation management approach with emphasis on natural competition will be employed. The Cowlitz Wildlife Area (CWA) will actively control those species that have been selected by legal authority for control and will be maintained within our boundaries with an emphasis on eradication. Weed species, present in large populations in fields designated for hay and forage, will be controlled by mechanical means when effective or chemically to ensure field viability and palatability. Other problem weeds will be maintained within our boundaries but emphasis will be given to maintaining populations at a level where they are part of a diverse community of vegetation. When a non-native invasive plant increases to becoming a climax species it will be controlled in a matter suitable to encourage complete control.

Weed populations will be mapped utilizing GPS / GIS technology. The extents will be charted and outlying populations identified. Monitoring will be on an annual basis with information being recorded using GPS units and the resulting data imported into the GIS system. Trends can then be projected and treatment results compared to previous years. Treatment procedures will then be adjusted as necessary to ensure that weed management projects meet CWA weed management goals.

The first year's (2005) emphasis will be directed towards gathering population data and control will target those populations that the CWA has a legal requirement to control. Following years will target weed species with lower priorities, continual monitoring for effectiveness and identification of new populations.

Weed occurrences and management goals by unit

Cowlitz Trout Hatchery Unit (CTH)

The CTH unit is managed for black-tail deer and riparian forest habitats. This unit has several large fields that are mowed and maintained as forage fields. The edges of these fields are inundated with blackberry in several places but the blackberry is controlled mechanically by mowing and cutting. Black-tail deer and other wildlife species utilize blackberry as a food source and so its presence is tolerated as part of a diverse vegetation population however, blackberry quickly establishes and can be very invasive if not controlled. Scotch broom and Canada thistle are the primary invaders in this unit.

Scotch broom is a non-designated Class B noxious weed and is mandated by Lewis County for control. Scotch broom is an established invader on this unit and threatens this unit's fields. The main population is located just off Spencer Road and mechanical control methods have largely contained its spread. Outlying populations have been observed on this unit and tend to "spring up" along the field edges. These outliers are mechanically controlled or hand pulled when discovered. If left to develop uncontrolled this plant would quickly dominate the area forming dense thickets with little forage value. Management goals for scotch broom are to 1) contain the population within the borders of the CTH, 2) prevent outlying plants from establishing and 3) reduce the density of the main population.

Canada thistle is considered a Class C noxious weed and is not mandated for control in Lewis County. However, Canada thistle threatens the diversity and forage value of the CTH fields by directly competing with and displacing existing vegetation. Therefore, Canada thistle is considered a threat and is selected for control on the wildlife area.

Swofford Unit

The Swofford unit is managed for elk, waterfowl and black-tail deer. It is also managed for riparian forest habitats. This unit has several large fields, a pond and several riparian forest corridors. The fields are hayed by contractors and maintained as forage fields. The southern boundary of this unit borders industrial timberlands located on a steep slope. The steep slope allows for abundant ground water delivery to the unit. Reed canarygrass is the biggest concern on this unit of the wildlife area but there are other concerns as noted below.

Reed canarygrass is the biggest problem on the Swofford Unit as it has formed dense, persistent, monotypic stands in the wetlands, moist meadows and riparian areas of this unit. These stands have excluded and displaced desirable native plants. In some locations of this unit reed canarygrass is constricting the natural flow of water, promoting silt deposition and causing saturation of the ground. Unfortunately the subsequent wetland vegetation community is composed of a reed canarygrass monoculture. Near the mouth of Sulphur Creek reed canarygrass and the resulting wetland has attracted nutria; this partnership is promoting erosion and undermining.

Purple loosestrife is a Class B Designate and is mandated for control where it is not yet widespread. There is a site on the south shore of Swofford pond where purple loosestrife was discovered and removed in 2002 by hand pulling. Currently there has been no reoccurrences of purple loosestrife observed and monitoring at the initial location continues.

Canada thistle is considered a Class C noxious weed and is not mandated for control in Lewis County. However, Canada thistle threatens the diversity and forage value of the Swofford Pond fields by directly competing with and displacing existing vegetation. Therefore, Canada thistle is considered a threat and is selected for control on the wildlife area.

Blackberry grows aggressively in this unit but is maintained by mowing and cutting. Black-tail deer and other wildlife species utilize blackberry as a food source and so its presence is tolerated as part of a diverse vegetation population.

There is some property located to the east that has occurrences of scotch broom. The Swofford Unit is currently devoid of scotch broom but is monitored for new plants due to the proximity of scotch broom in the area.

Mossyrock Unit

The Mossyrock unit is managed for black-tail deer, waterfowl and riparian forest habitats. The unit has several large fields, several ponds and several riparian forest corridors. The fields are hayed by contractors and maintained as forage fields. This unit has several weed species that are a concern.

There is a small stand of Japanese knotweed located on a seasonal stream that flows into the Cowlitz River upstream of Mayfield Lake. The stand is fairly small and is probably suppressed by its location which is under a deciduous forest canopy. However, this stand is located adjacent to a multi-use trail that receives a generous amount of horse traffic. Therefore, dispersal is a major concern as the Cowlitz River lies downstream and horses can break the rhizomes into fragments that can easily wash downstream. Japanese knotweed is a Class B Non-designate in Lewis County but is mandated by Lewis County for control in selected areas. However, Japanese knotweed is (by agency directive) identified for eradication on all wildlife areas. Therefore, this stand is a priority for complete eradication.

Canada thistle is considered a Class C noxious weed and is not mandated for control in Lewis County. However, Canada thistle threatens the diversity and forage value of the Mossyrock fields by directly competing with and displacing existing vegetation. Therefore, Canada thistle is considered a threat and is selected for control on the wildlife area.

Scotch broom is a non-designated Class B noxious weed and is mandated by Lewis County for control. There are only a few remote occurrences of this weed on the Mossyrock Unit but Scotch broom is an established invader on property adjacent to this unit. Management goals for scotch broom on this unit are to prevent establishment of this weed within the boundaries of the Mossyrock Unit.

Blackberry grows aggressively in this unit but is maintained by mowing and cutting. Black-tail deer and other wildlife species utilize blackberry as a food source and so its presence is tolerated as part of a diverse vegetation population.

Kosmos Unit

The Kosmos unit is managed for black-tail deer, bald eagles, and waterfowl. Additionally the Kosmos unit is managed for riparian forest habitats, riparian shrub habitats, and emergent wetland habitats. In addition to several large fields that are hayed by contractors to maintain forage values, there are ponds and forested / shrub corridors. There are three perennial creeks that flow into this unit that are managed for cavity nesting species and salmonids. Also, there is a proposed project to create a 40-acre (approx.) impoundment that will provide additional emergent wetland habitat to benefit a variety of wildlife such as dabbling ducks and amphibians. This unit has several weed species that are of concern.

There is a moderately sized stand of Japanese knotweed located near Rainey Creek. The creek can experience intermittent annual flooding and the threat of rhizome fragments being relocated downstream is highly probable. In addition to the above stand there are two other smaller populations that have been identified. These two stands are both located along the right of way adjacent to the wildlife area. Japanese knotweed is a Class B Non-designate in Lewis County but is mandated by Lewis County for control in selected areas. However, Japanese knotweed is (by agency directive) identified for eradication on all wildlife areas. Therefore, this stand is a priority for complete eradication.

Reed canarygrass (RCG) is a potential problem on the Kosmos Unit. RCG has formed dense, persistent, monotypic stands in wetlands, moist meadows and riparian areas. These stands have excluded and displaced desirable native plants and have reduced foraging values. The proposed impoundment project is located in an area inundated with RCG and project implementation will likely help control the RCG by perennially flooding the area. However, annual ponds, depressions and seasonally wet areas will likely have their value reduced as RCG becomes the primary climatic species in these areas. Therefore, RCG is a priority species for control in select areas of the Kosmos Unit.

Tansy ragwort is a non-designated Class B noxious weed and is mandated by Lewis County for control in selected areas. Biological controls (i.e. Cinebar moth) were implemented county wide to control tansy ragwort and have been largely successful. However, due to the toxicity of tansy ragwort on livestock the CWA has adopted the management guideline of managing tansy ragwort when necessary to maintain within our boundaries or when mandated by county authority.

There are some occurrences of *Clematis vitalba* on the Kosmos Unit of the wildlife area. *Clematis vitalba* is designated as a Class C noxious weed in Lewis County and is not mandated for control. However, the occurrences of *Clematis vitalba* on the Kosmos Unit are located adjacent to private industrial timberlands and complaints have been received from these adjacent landowners. Therefore, the Cowlitz Wildlife Area has adopted the policy that *Clematis vitalba* will be managed in these areas where and when feasible to do so.

Blackberry grows aggressively in this unit but is maintained by mowing and cutting. Black-tail deer and other wildlife species utilize blackberry as a food source and so its presence is tolerated as part of a diverse vegetation population.

Davis Lake Unit

The Davis Lake Unit is managed for black-tail deer, waterfowl and salmonids. In addition the Davis Lake Unit is managed for riparian forest habitats. In addition to several large fields that are mowed to maintain forage values, there is a large pond, wetlands and forested / shrub corridors. Weed management on the Davis Lake Unit is a low priority at this time. There are proposals to open a portion of this area to a hay contract and at that time there may be a need for a higher emphasis on weed management. Current priorities are to keep blackberry and Canada thistle from inundating the forage fields.

Peterman Hill Unit

The Peterman Hill Unit is managed for black-tail deer, pileated woodpeckers and riparian forest habitat. The weed management priorities on Peterman Hill Unit are generally low with emphasis being placed on roadsides, areas disturbed by logging equipment (i.e. feller bunchers and skidders) and sensitive habitats (i.e. forested wetlands). There are two priority weed species in this unit; they are scotch broom and tansy ragwort. These noxious weeds are managed when necessary to maintain within our boundaries or when county authority mandates management.

Scotch broom is located sporadically on the Peterman Unit and does not do well once an overstory is developed. The highest concentrations of this weed can be found along roadsides or within disturbed areas such as landings. Isolated plants are generally given highest priority to prevent the establishment of new populations.

Tansy ragwort is a non-designated Class B noxious weed and is mandated by Lewis County for control in selected areas. Biological controls (i.e. Cinebar moth) were implemented county wide to control tansy ragwort and have been largely successful. However, due to the toxicity of tansy ragwort on livestock the CWA has adopted the management guideline of managing tansy ragwort when necessary to maintain within our boundaries or when mandated by county authority.

Kiona Unit

The Kiona Unit is managed for black-tail deer and dabbling duck. In addition the Kiona Unit is managed for riparian forest and forested wetland habitats. There are three perennial creeks (Squaw, Kiona and Oliver creeks) that have been largely altered to drain the water from the agricultural fields that comprise the western portion of this unit. Additionally, Squaw and Oliver creeks supply water to the large wetland area that comprises the eastern portion of this unit. In 2004 a wetland restoration plan was completed. The plan conceptualized measures that would optimize the habitat value of the unit and restore hydrology to more natural conditions. Weed management on this unit is limited in scope. Reed canarygrass is the biggest problem on the Kiona Unit and future projects will be aimed at replacing the reed canarygrass monocrop with a more diverse and natural community.

Scotch broom is a non-designated Class B noxious weed and is mandated by Lewis County for control. There are only a few remote occurrences of this weed on the Kiona Unit but Scotch broom can quickly become an established invader that will outcompete and exclude native vegetation. Management goals for scotch broom on this unit are to prevent establishment of this weed within the boundaries of the Kiona Unit.

Spears Unit

The Spears Unit is managed for black-tail deer and dabbling duck. In addition the Spears Unit is managed for emergent wetland, forested wetland, riparian forest and riparian shrub habitats. The hydrology of this unit is comprised of a large millpond that was created by the installation of a dike to retain water for mill operations. Also, two creeks flow through the unit and converge near the western boundary of the unit before draining into the Cowlitz River. Siler Creek, which flows along the southeastern boundary of the unit, is diked to keep water out of the adjacent agricultural fields. In 2004 a wetland restoration plan was completed and it was discovered that the reed canarygrass has formed a thick mat that is perched on several feet of water. It is believed that the southern dike containing the unnamed creek draining Gibbs Lake is also acting to impound water across the unit towards the southeast. This makes any activity to restore native plant communities difficult unless the area is drained.

Lewis County Weed Control Board has mandated the management of the large population of scotch broom that occurs on this unit of the wildlife area. The densest population occurs near the old mill site where human disturbance has been quite dramatic.

SPECIFIC CONTROL PLANS FOR HIGH PRIORITY WEED SPECIES

Scientific name: *Polygonum cuspidatum*

Common name: Japanese knotweed

Updated: 2005

PRIORITY: High

DESCRIPTION: *Polygonum cuspidatum* is an herbaceous perennial which forms large clumps 1-3 meters high. It is fully dioecious and can reproduce by seed and by large rhizomes which may reach a length of 5-6 meters. The stout stems are hollow and bamboo-like, extend from an erect base and are simple or little branched and glabrous with thinly membranous sheaths. Leaves are broadly ovate, truncate to cuneate at base, abruptly cuspidate, 5-15 cm long, 5-12 cm broad, with petioles 1-3 cm long. Greenish white flowers 2.5-3 mm long, densely arranged in axillary panicles; 3 styles; 8-10 stamens with longitudinally dehiscent anthers. Fruiting calyx wing-angled, 6-10 mm long. Achenes shiny black-brown, 3-4 mm long, acutely trigonous. Male flowers have branched panicles on upright racemes with the distal end of the raceme in the highest position; individual panicles generally point up. Female flowers are drooping or decumbent with the distal end in the lowest position; individual panicles are not oriented in a particular direction. Both male and female flowers possess vestigial organs of the other sex (Seiger, 1991).

CURRENT DISTRIBUTION ON THE SITE

See Unit Maps

DAMAGE & THREATS

Once Japanese knotweed has established it forms large, almost pure stands which are extremely persistent and difficult to eradicate (Seiger, 1991). This stand is located adjacent to a multi-use trail that receives a generous amount of horse traffic annually. Dispersal can occur naturally when rhizome fragments are washed downstream by the current and deposited on banks (Conolly, 1977; Locandro, 1978). Rhizomes can regenerate from small fragments, and have even been observed to regenerate from internode tissue (Locandro, 1973). Its early emergence and great height combine to shade out other vegetation and prohibit regeneration of other species (Sukopp and Sukopp, 1988). Thus it reduces species diversity and damages wildlife habitat (Palmer, 1990; Scott and Mars, 1984).

GOALS

Complete Eradication

OBJECTIVES

Map existing populations

Treat and eradicate existing plants within 4 years

Continual yearly monitoring

MANAGEMENT OPTIONS

Cut plants to diminish rhizomal reserves

Dig out plants and rhizomes

Shade out existing plants

Herbicide

ACTIONS PLANNED

A combination of mechanical and chemical means will be employed to combat this highly invasive species. Initial control efforts will consist of cutting the stalks close to ground level. New shoots generally begin to emerge around the first part of April. Therefore, when possible the first cutting should occur near the end of April first part of May. Two additional cuttings will be conducted to deplete rhizomal reserves and help weaken the plant. These two cuttings should be conducted in late May and June. A final cutting will be conducted in early August just prior to the application of herbicide. The purpose of this cutting is to open the space in the stem between the nodes and should be conducted above the first node and first set of leaves. This will facilitate the application of herbicide by establishing a “pocket” where herbicide can be concentrated. Finally, glyphosphate should be applied in August while plants are translocating at a rate of 2.67 fluid ounces to one gallon of water. Yearly treatments should be expected. Monitoring will be done annually in April / May.

RESOURCE NEEDS

Monitoring and controlling *P. cuspidatum* will require approximately 16 hours of staff time at a cost of \$272 dollars. An additional \$250 dollars (approx.) will be needed for herbicide.

SPECIFIC CONTROL PLANS FOR HIGH PRIORITY WEED SPECIES

Scientific name: *Lythrum salicaria*

Common name: Purple Loosestrife

Updated:2005

PRIORITY: High

DESCRIPTION: *Lythrum salicaria* is a stout, erect perennial herb with a strongly developed taproot. The plant ranges in height from 0.5 to 2.0 m. The four-angled stem can be glabrous to pubescent. The sessile leaves are opposite or in whorls, lanceolate to narrowly oblong, with cordate bases. The inflorescence is spike-like, 1-4 dm long. Petals 5-7, usually magenta, but white or light pink flowers are also common. The flowers are trimorphic in regard to the relative lengths of the stamens and style. The fruit is a capsule, with small seeds, each weighing 0.06 mg (Balogh 1985, Rawinski 1982, Gleason 1952, Fernald 1950).

At a distance, *L. salicaria* may be confused with *Epilobium angustifolium*, *Verbena hastata*, *Teucrium canadense*, or *Liatris spp.* Upon closer examination however, purple loosestrife is easily distinguished from these other magenta-flowered plants.

CURRENT DISTRIBUTION ON THE SITE

See Unit Maps

DAMAGE & THREATS

Once purple loosestrife becomes established in a wetland it displaces endemic vegetation through rapid growth and heavy seed production (Rawinski 1982). *L. salicaria* has a detrimental impact on native wetland vegetation and associated wildlife. Important wildlife food plants such as cattails and pondweed are displaced or shaded out as *L. salicaria* expands across a wetland. If purple loosestrife is left unchecked, the wetland eventually becomes a monoculture of loosestrife (Rawinski 1982). The invasion of *L. salicaria* leads to a loss of plant diversity, which also leads to a loss of wildlife diversity.

GOALS

Maintain

OBJECTIVES

Check for no new populations
Map any existing populations
Treat any existing populations
Continue annual monitoring

MANAGEMENT OPTIONS

Pulling plants
Plant competing vegetation
Biological controls
Herbicide

ACTIONS PLANNED

The CWA has a legal requirement to control *L. salicaria* and therefore seeks complete eradication of this species. Currently, there is no reoccurrence of this species where it was discovered on the south shore of Swofford Pond. The plants were removed in 2002 by hand pulling and have not yet been observed reestablishing in the area. The proximity of these plants to the pond makes the use of chemicals undesirable. Additional occurrences will be handled by the same mechanical means as the previous plants. Monitoring will continue to be done annually in late July / August.

RESOURCE NEEDS

Monitoring and controlling *L. salicaria* will require approximately 2 hours of staff time at a cost of \$34 dollars.

SPECIFIC CONTROL PLANS FOR HIGH PRIORITY WEED SPECIES

Scientific name: *Cytisus scoparius*

Common name: Scotch Broom

Updated: 2005

PRIORITY: High

DESCRIPTION: Scotch broom is a perennial shrub of the Fabaceae (Leguminosae) family. The shrubs are 1-2 meters high and deciduous. The green branches are strongly angled and appear naked or almost so (Hitchcock and Cronquist 1973). The leaves are trifoliolate with petioles 2-10 mm long. The leaflets are obovate to oblanceolate, entire, strigose and 6-12 mm long (Munz and Keck 1973).

The yellow flowers of Scotch broom are usually borne solitary in axils, blooming between April and June. The glabrous banner is ovate to rounded; wings are oblong to ovate; and the keel is straight or curved. Petals are about 2 cm long. The flaring calyx is glabrous, about 7 mm long and is two-lipped with short teeth. The brownish black pods, 3.5 to 5 cm long, are villous on the margins only. These pods are compressed, several seeded, with a callous appendage or strophiole near the base (Munz and Keck 1973).

CURRENT DISTRIBUTION ON THE SITE

See Unit Maps

DAMAGE & THREATS

Scotch broom is a non-designated Class B noxious weed and is mandated by Lewis County for control. Scotch broom invades pastures and cultivated fields, dry scrubland and "wasteland", native grasslands and along roadsides, dry riverbeds and other waterways (Gilkey 1957, Johnson 1982, Williams 1981). It does not do well in forested areas but invades rapidly following logging, land clearing and burning (Mobley 1954, Williams 1981). It is very aggressive and spreads rapidly. It grows 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, power and telephone lines. Wildlife suffers as the growth becomes too dense for quail to thrive and there is no forage left for deer. They must move to new range or starve. Being slightly toxic and unpalatable it is browsed very little by livestock (Mobley 1954).

GOALS

Eradicate existing stands

Prevent new occurrences

OBJECTIVES

Map existing populations

Treat and eradicate existing plants within 4 years

Continual yearly monitoring

MANAGEMENT OPTIONS

Manual removal
Hand pulling
Hand hoeing
Cutting
Hand digging
Mechanical removal
Cutting with equipment mounted rotary mower
Cutting with equipment mounted flail chopper
Burning
Planting / encouraging desirable plant competition
Herbicide

ACTIONS PLANNED

A combination of mechanical, chemical and cultural means will be employed to combat this highly invasive species. Initial control efforts will consist of cutting the plants close to ground level using either manual or mechanical means. This initial cutting should occur in late March early April. The debris can be burned, mulched or piled to allow for desiccation. Care should be taken to avoid the vegetative reproduction through cuttings. Resprouting from the roots is to be expected and the new growth will be treated chemically in late summer after the plants are fully leafed and in seed head stage. Competing vegetation can be planted once initial treatments are employed and control has been achieved. Monitoring will be done annually in May / June when flowers should be in full bloom.

RESOURCE NEEDS

Monitoring and controlling of *C. scoparius* for 2005 will require approximately 40 hours of staff time, a 10 man inmate crew for 3 days, 4 hours of equipment time and approximately \$750 dollars of additional resources. The total resource allocation for 2004 is approximately \$2300 dollars. Subsequent years should require only 70 percent of the total resources for 2005.

SPECIFIC CONTROL PLANS FOR HIGH PRIORITY WEED SPECIES

Scientific name: *Senecio jacobaea*

Common name: Tansy Ragwort

Updated: 2005

PRIORITY: High

DESCRIPTION: *Senecio jacobaea* is a member of the Groundsel Tribe (Senecioneae) of the Sunflower Family (Asteraceae=Compositae). It is a biennial or short-lived perennial, 3-10 dm tall, with one to a few coarse, erect purplish red stems, simple except above. The herbage is thinly floccose-tomentose, later becoming more or less glabrate. The leaves are well distributed, mostly 2-3 pinnatifid, about 5-20 cm long, with only the lower petioled.

The inflorescence is short, broad, and of several to many heads. The involucre is about 4 mm high. The are about 13 phyllaries, most with dark tips. The bracteoles are narrow, though sometimes quite evident. There are about 13 yellow rays, 5-10 mm long. The akenes of the disk flowers are pubescent, while those of the ray flowers are glabrous.

Senecio jacobaea can be distinguished from other Senecios by its perennial nature, being largely herbaceous but with a woody base; stems 3-10 dm; and leaves 5-20 cm long, not narrow linear or divided into linear segments, but being 2-3 times pinnatifid (Macdonald and Russo, 1989).

CURRENT DISTRIBUTION ON THE SITE

See Unit Maps

DAMAGE & THREATS

Tansy ragwort is a non-designated Class B noxious weed and is mandated by Lewis County for control in selected areas. Due to the toxicity of tansy ragwort on livestock the CWA has adopted the management guideline of managing tansy ragwort within our boundaries when feasible to do so or mandated by county authority. Additionally, there have been some recent concerns that the densities of *S. jacobaea* may be increasing.

GOALS

- Monitor existing populations
- Control expanding populations
- Prevent new occurrences

OBJECTIVES

- Map existing populations
- Treat new and expanding populations
- Continual yearly monitoring

MANAGEMENT OPTIONS

- Monitor
- Manual removal
- Mechanical mowing
- Chemical application

ACTIONS PLANNED

S. jacobaea is mandated for control on the CWA by county authority. The extents and locations of populations of *S. jacobaea* have never been mapped and there is some concern that populations might be expanding. However, efforts to validate this have not been conducted. Control efforts on this species will focus on expanding populations and new occurrences in areas with no previous occurrences.

Introduction of the cinnabar moth in Lewis County proved to be an effective biocontrol to combat *S. jacobaea* and plant populations on the CWA are now generally small and isolated. Little control appears to be needed but there is a need to quantify the population densities of *S. jacobaea* and monitor those communities to establish whether they are indeed expanding and in need of some control measures. The communities will be mapped using GPS technology and placed into the GIS system so that changes over time can be more accurately depicted.

Actual control method will be determined on a site-by-site basis. Small populations with expansion will likely be controlled by manual means; whereas mechanical mowing will likely control occurrences within fields. Large populations will receive chemical treatments to gain initial control.

Monitoring will continue on an annual basis.

RESOURCE NEEDS

Monitoring and controlling of *S. jacobaea* for 2005 will require approximately 24 hours of staff time annually at an approximate cost of \$450 dollars.

TABLES

Weed Management Plan Updated: Jan-05
Table 1. Prioritized List of Weed Species

Note: Yellow fields must be completed--they are used elsewhere in this workbook.

Scientific Name	Common Name	-- Rank/Priority --				Trails / Roads	Comments
		Riparian / Forested	Forested	Grassland			
<i>Polygonum cuspidatum</i>	Japanese knotweed	1					Localized, High priority for control, Legal requirement for control
<i>Lythrum salicaria</i>	purple loosestrife	1					Localized, High priority for control, Legal requirement for control
<i>Cytisus scoparius</i>	scotch broom		3	2	2		Present in several units; Legal requirement for control
<i>Senecio jacobaea</i>	tansy ragwort				2		Increasing along roads; Legal requirement for control
<i>Cirsium arvense</i>	Canada thistle			3			Present on the Trout Hatchery, Mossyrock, Swofford, Kosmos and Kiona Units
<i>Phalaris arundinacea</i>	reed canarygrass	1		2			6-acre experimental control plot located at the Kiona Creek Unit
<i>Clematis vitalba</i>	old man's beard		3		2		Limited but highly damaging infestation adjacent to industrial timber lands
<i>Rubus discolor</i>	Himalayan blackberry	2		3	2		Prevalent on all units; Extensive hedgerows needs management
<i>Rubus laciniatus</i>	evergreen blackberry	2		3	2		Present w/ <i>Rubus discolor</i> , not as pervasive
<i>Hedera helix</i>	English ivy		4		3		Limited but highly damaging infestation -- Mossyrock Unit

Weed Management Plan Updated: Jan-05
Table 2. Management Implementation Schedule

Note: purple fields are calculated for you automatically
 Codes: S=survey; T=treatment; P=plan control efforts

Target Species	Year 1				Year 2				Year 3				Year 4			
	Win	Spr	Sum	Fall												
<i>Polygonum cuspidatum</i>		S,T	T	T	T,P	S,T	T	T	T	S,T	T	T	T	S,T	T	T
<i>Lythrum salicaria</i>		S	T		P	S	T			S	T			S	T	
<i>Cytisus scoparius</i>			S	T	P		S	T			S				S	T
<i>Senecio jacobaea</i>				T	S,P			T				T				T
<i>Cirsium arvense</i>		S	T		P	S	T			S	T			S	T	
<i>Phalaris arundinacea</i>			S	T	P		S	T			S	T			S	T
<i>Clematis vitalba</i>		S	T	T	P	S	T	T		S	T	T		S	T	T
<i>Rubus discolor</i>		S	S	T	P	S	S	T		S	S	T		S	S	T
<i>Rubus laciniatus</i>		S	T	T	P	S	T	T		S	T	T		S	T	T
<i>Hedera helix</i>			S		P		S				S				S	

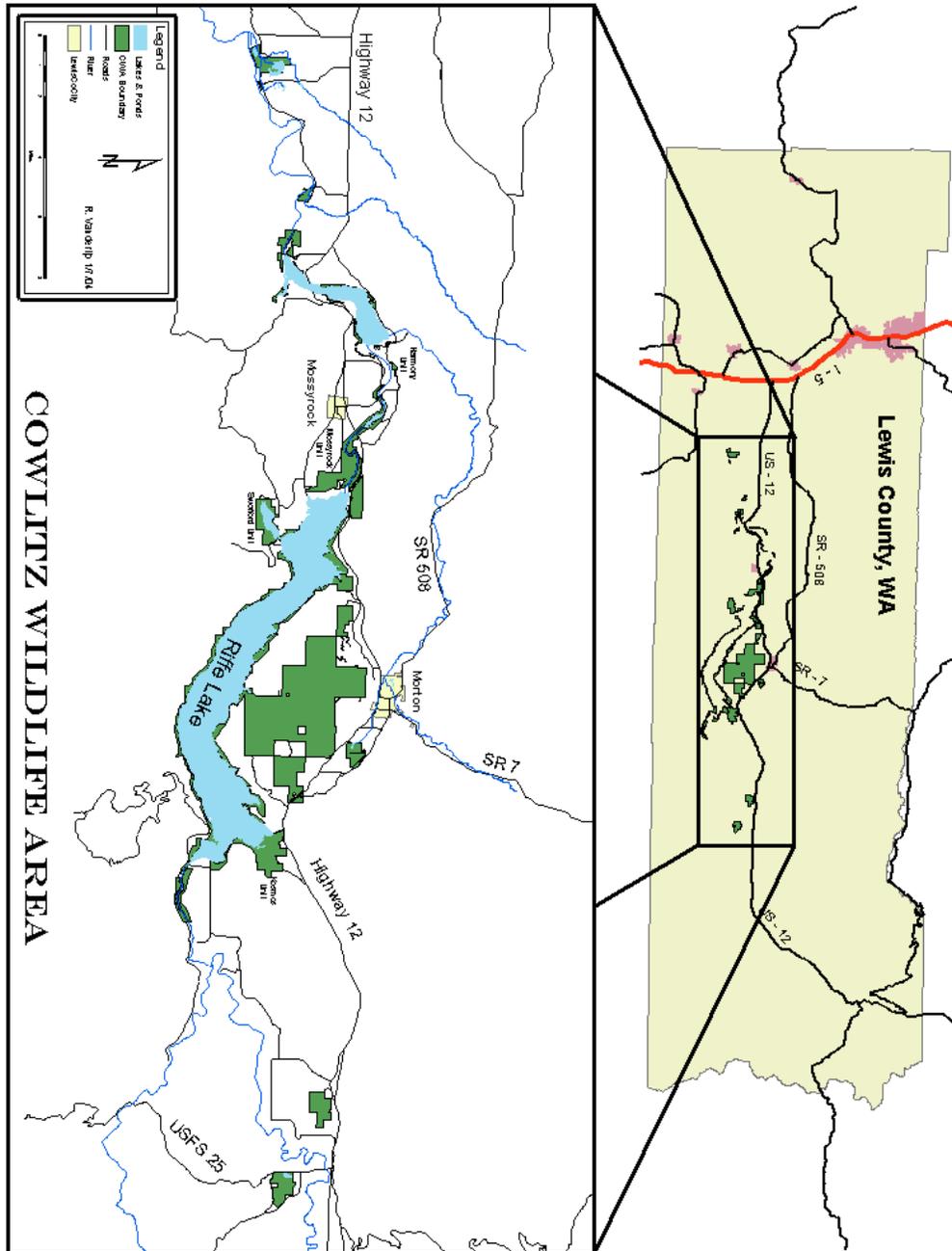
Weed Management Plan Updated: Jan-05
Table 5. Projected and Actual Resource Uses (per year)
 Year: 2005

Note: purple fields are calculated automatically

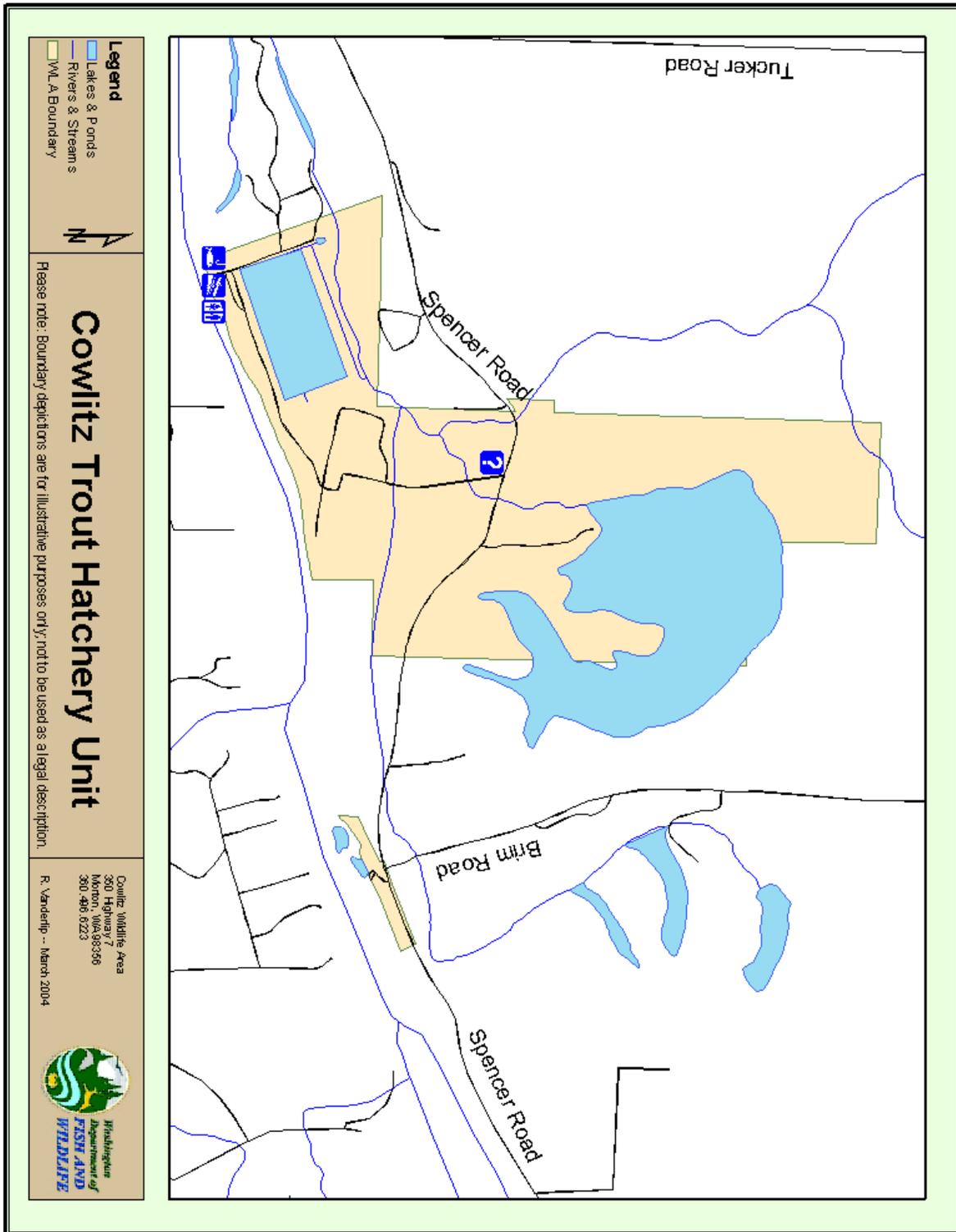
Species/Common name	Staff Hrs		Inmate Hrs		Equip. Hrs		Other Costs		Difference (Estimated - Actual)			
	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Staff Hrs	Vol. Hrs	Equip Hrs	Other Costs
<i>Polygonum cuspidatum</i>	\$272	\$0	\$0	\$0	\$0	\$0	\$250	\$0	\$272	\$0	\$0	\$250
<i>Lythrum salicaria</i>	\$34	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$34	\$0	\$0	\$0
<i>Cytisus scoparius</i>	\$680	\$756	\$100	\$0	\$100	\$0	\$744	\$0	\$680	\$756	\$100	\$744
<i>Senecio jacobaea</i>	\$408	\$0	\$0	\$0	\$0	\$0	\$50	\$0	\$408	\$0	\$0	\$50
<i>Cirsium arvense</i>	\$1,360	\$0	\$400	\$0	\$400	\$0	\$250	\$0	\$1,360	\$0	\$400	\$250
<i>Phalaris arundinacea</i>	\$680	\$0	\$1,000	\$0	\$400	\$0	\$400	\$0	\$680	\$0	\$1,000	\$400
<i>Clematis vitalba</i>	\$680	\$756	\$0	\$0	\$0	\$0	\$344	\$0	\$680	\$756	\$0	\$344
<i>Rubus discolor</i>	\$408	\$0	\$600	\$0	\$300	\$0	\$300	\$0	\$408	\$0	\$600	\$300
<i>Rubus laciniatus</i>	\$136	\$0	\$200	\$0	\$100	\$0	\$100	\$0	\$136	\$0	\$200	\$100
<i>Hedera helix</i>	\$408	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$408	\$0	\$0	\$0
Resource Budget Summaries	\$5,066	\$0	\$1,512	\$0	\$2,300	\$0	\$2,438	\$0	\$5,066	\$1,512	\$2,300	\$2,438

Weed Locate Maps

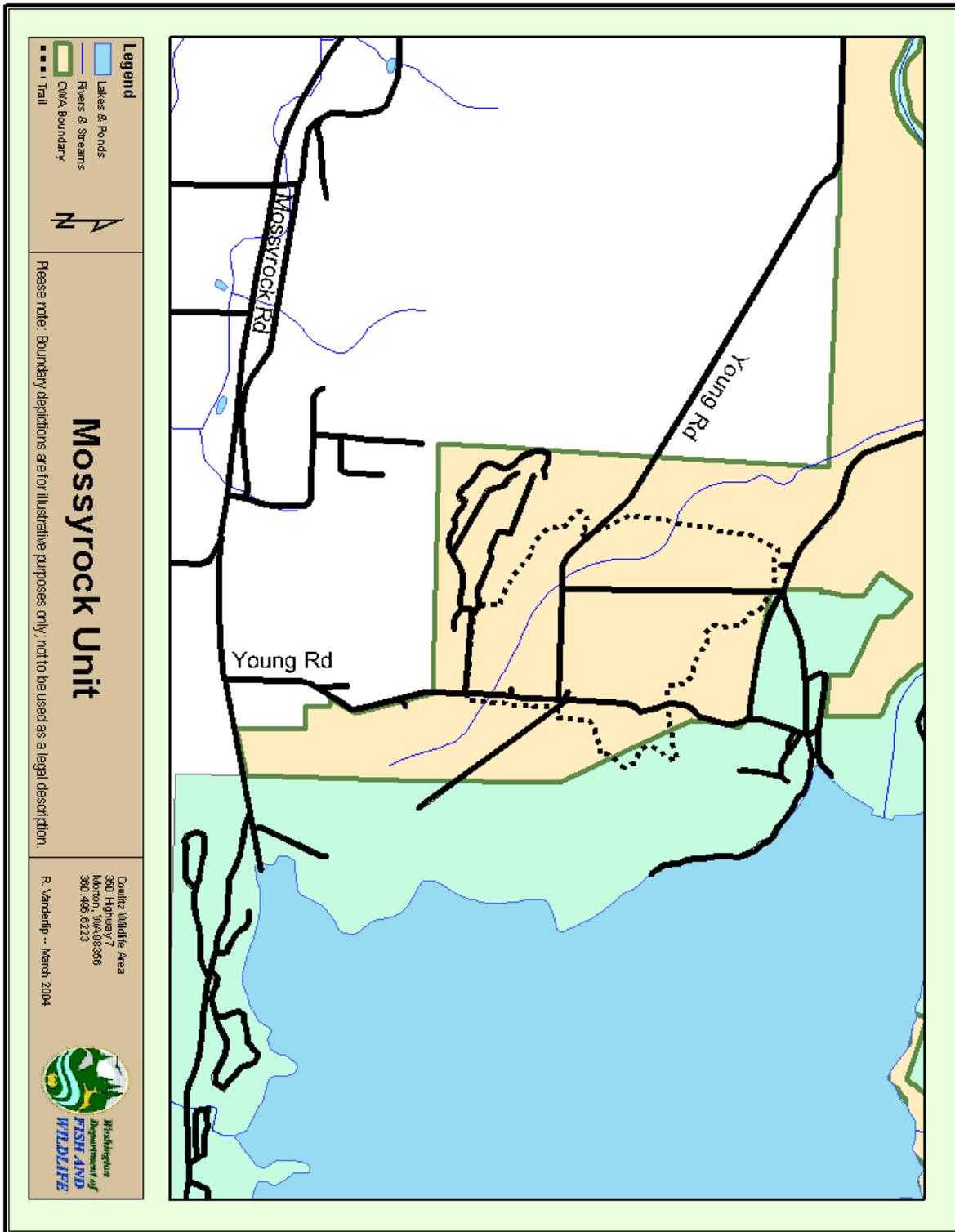
Map 1: Wildlife Area Extent



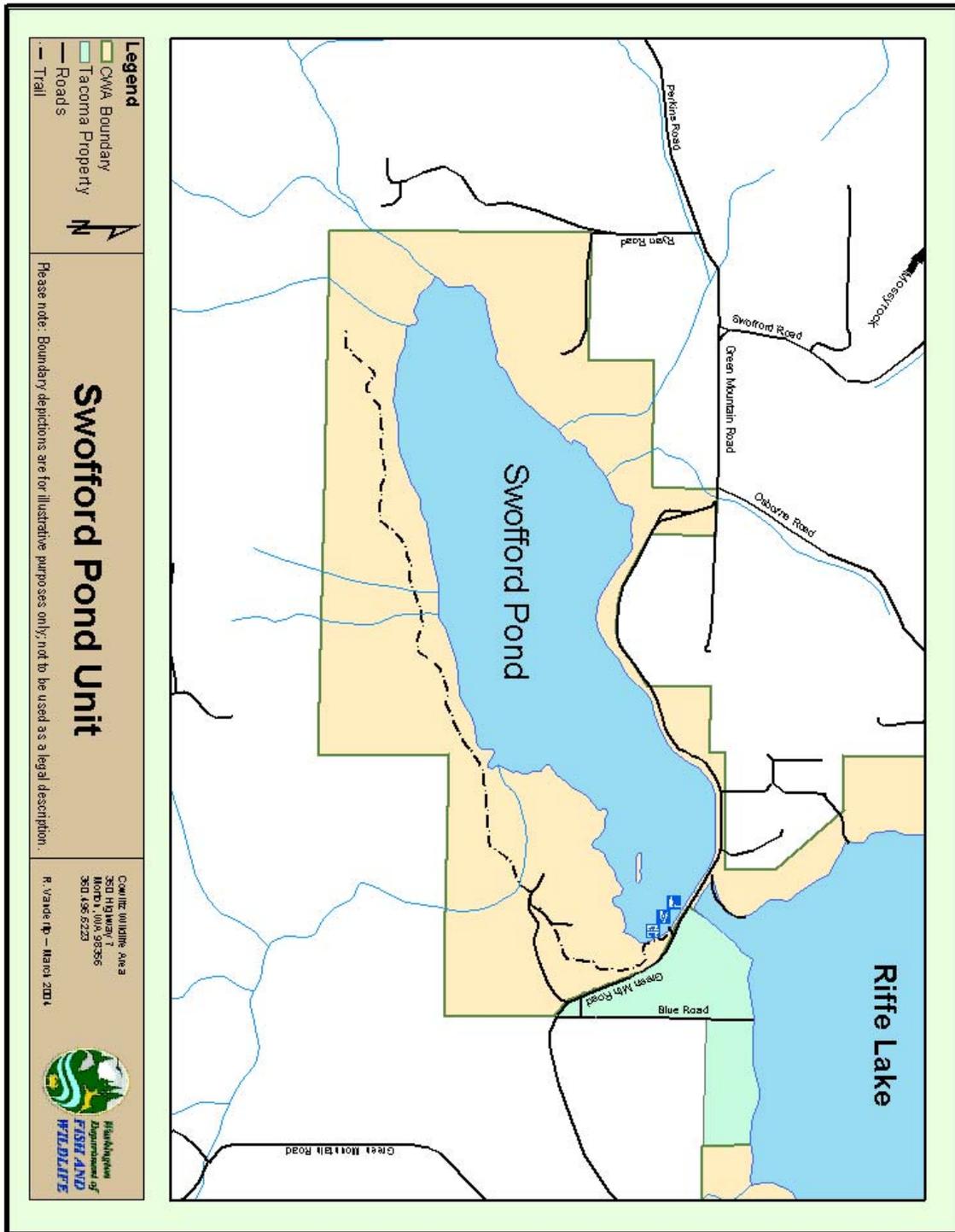
Map 2: Cowlitz Trout Hatchery



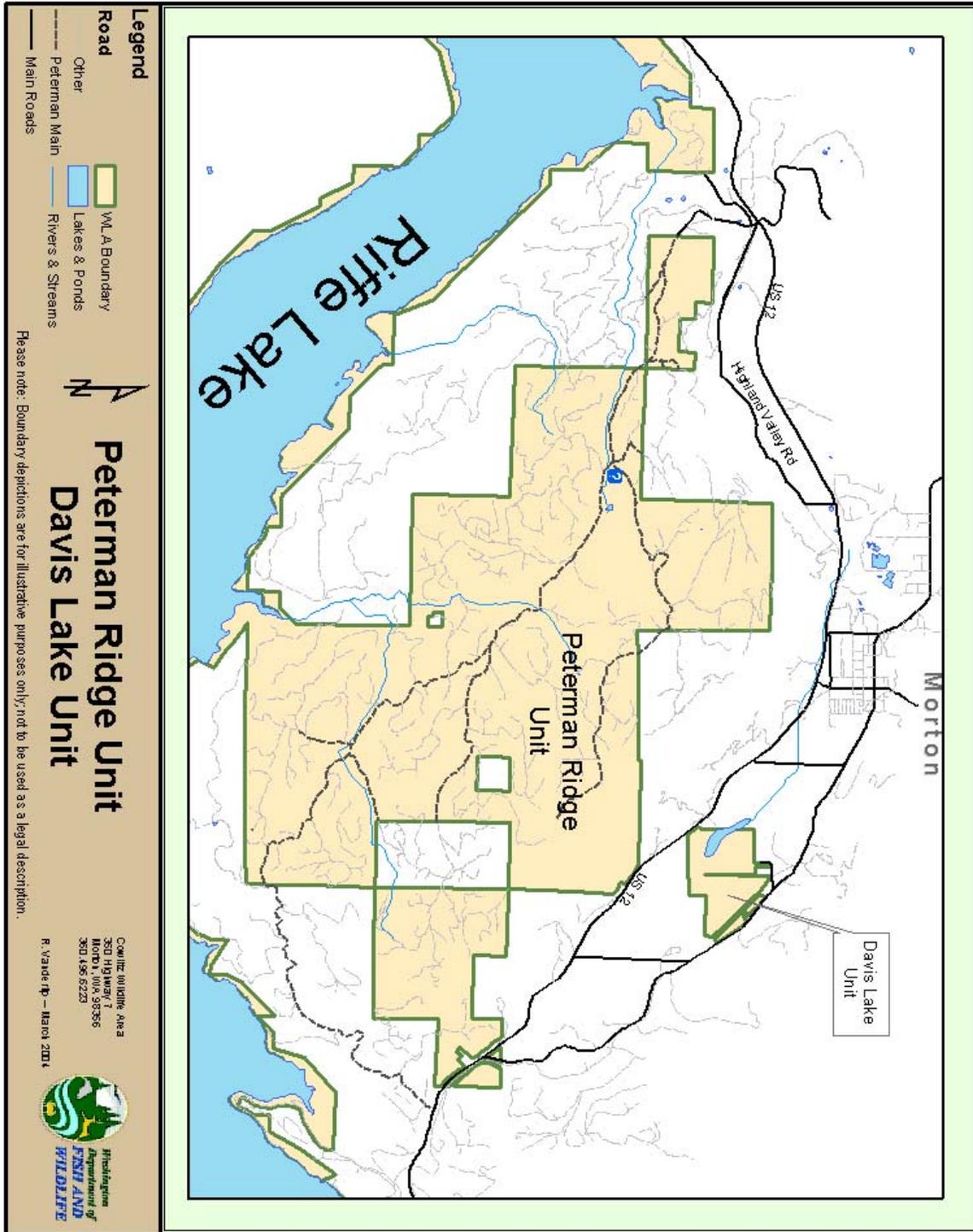
Map 3: Mossyrock Unit



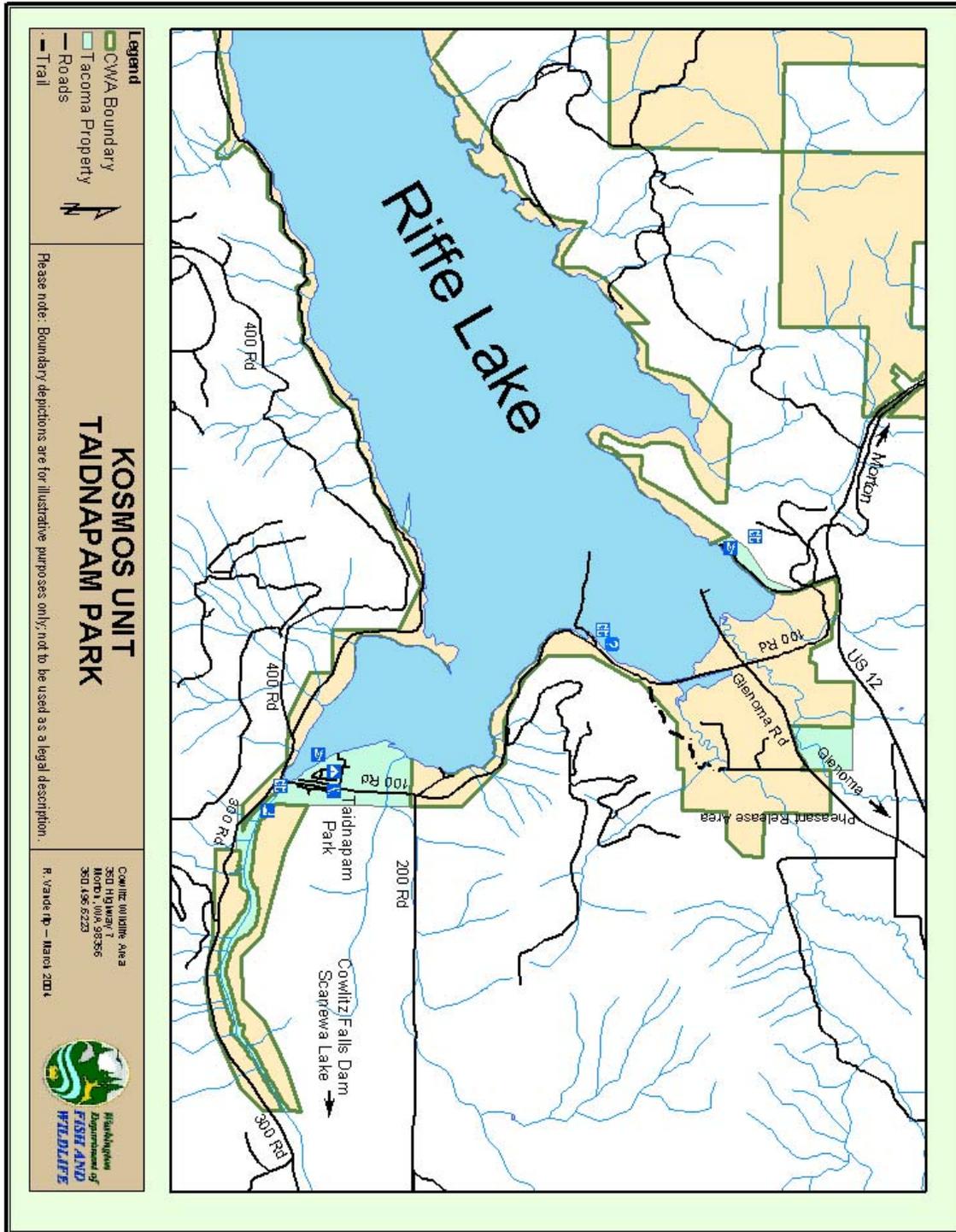
Map 4: Swofford Pond Unit



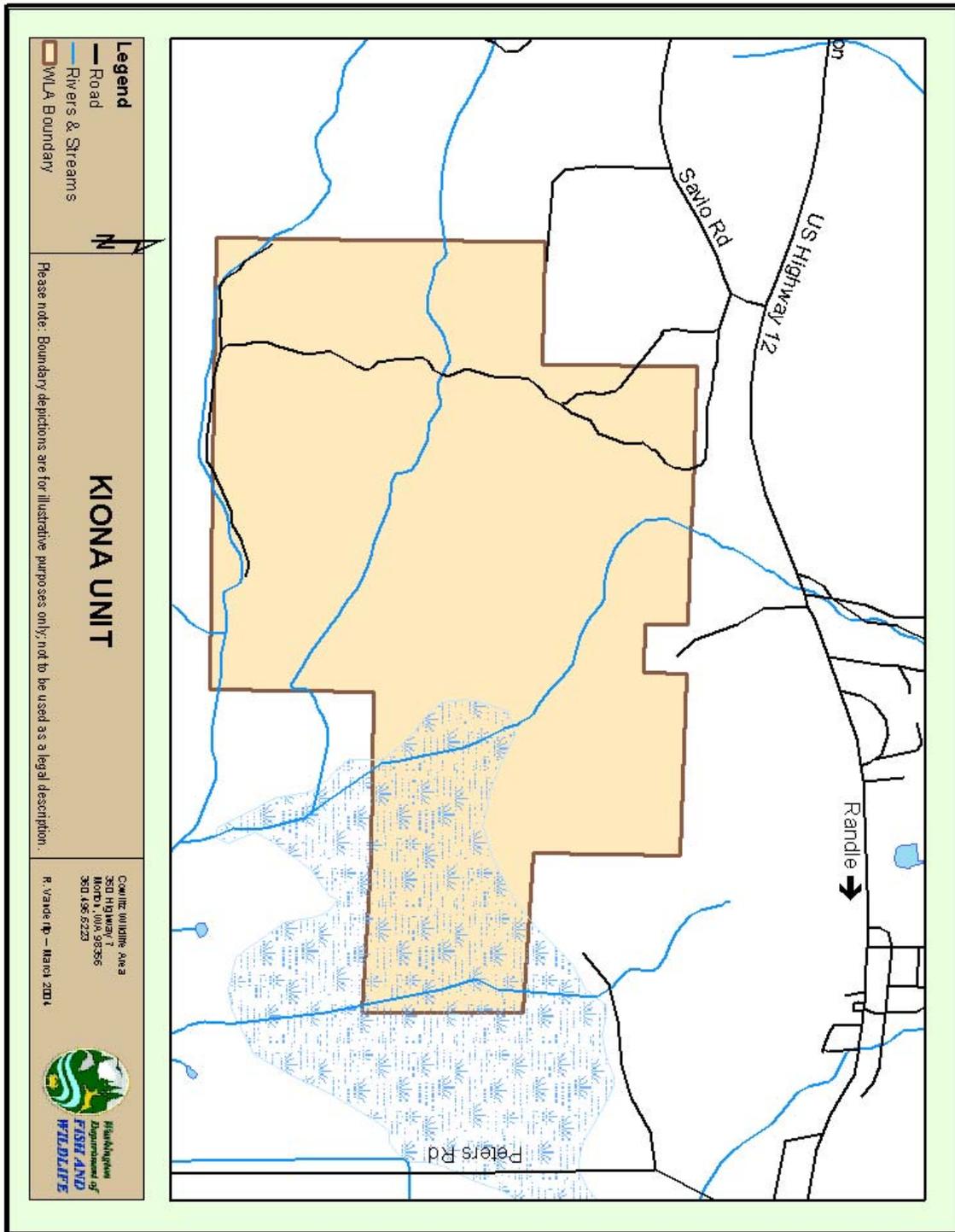
Map 5: Peterman and Davis Lake Units



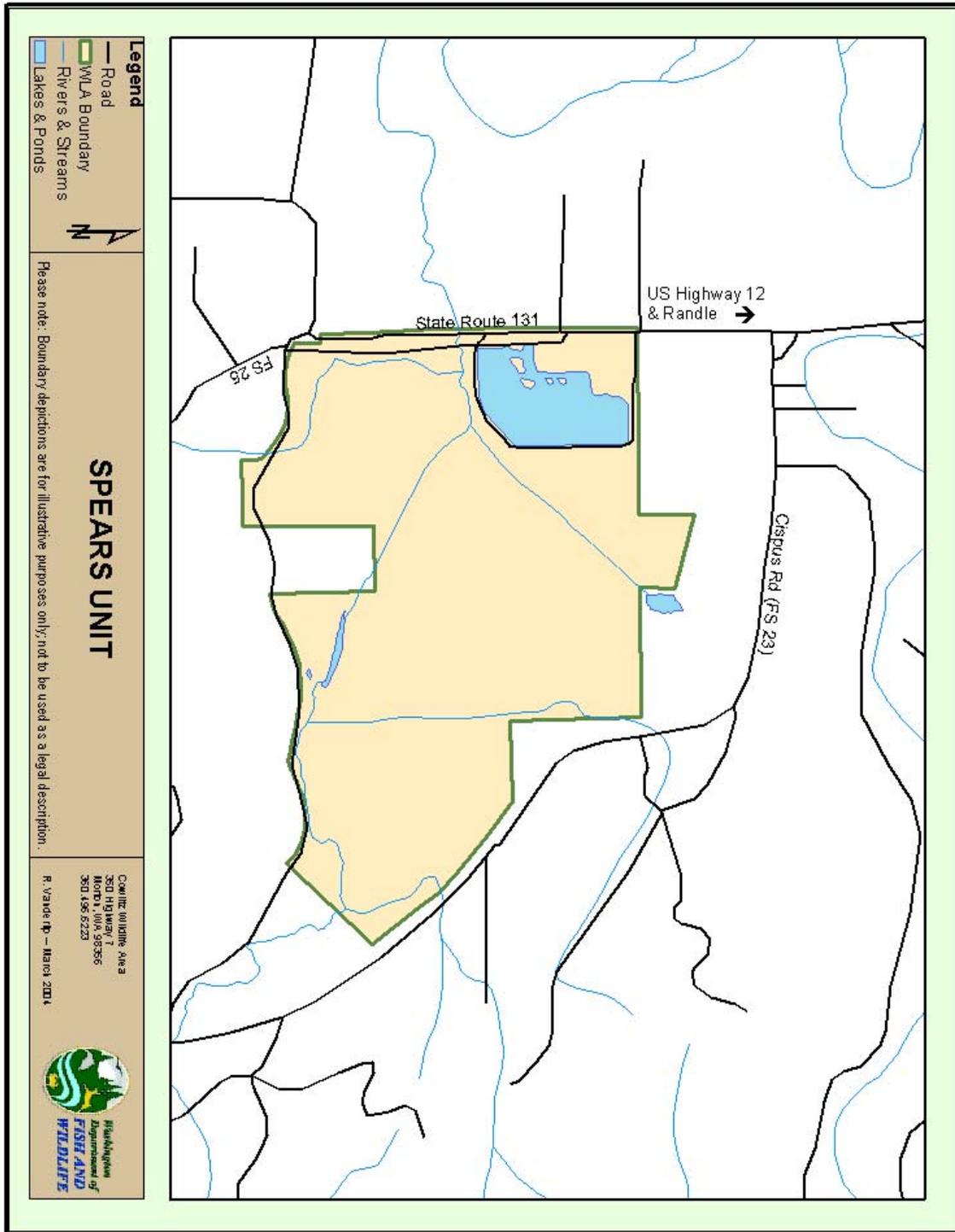
Map 6: Kosmos Unit



Map 7: Kiona Unit



Map 8: Spears Unit





Cowlitz Wildlife Area
PO BOX 758
Morton, WA 98356

Pesticide Application Record

Location of Application (if the application covers more than one township or range, please indicate the township & range for the top left section of the map only:

Township:

Range: E W

Section(s):

County:

Mapping information should be done utilizing GIS program. Maps should be embedded here or hard copied and catalogued with a cross-referencing index number.

Miscellaneous information:

APPENDIX 3: FIRE CONTROL PLAN

Responsible Fire-Suppression Entities: The Cowlitz Wildlife Area (CWA) is located within the jurisdiction of the Lewis County Local Fire Protection District's (LCFPD's) #3 (Mossyrock), #4 (Morton), #8 (Salkum), #14 (Randle), #18 (Glenoma), and forestlands within the State Fire Protection Boundary is performed by Department of Natural Resource's (DNR). Tacoma Power, which is the deeded landowner, pays an annual assessment to DNR for fire protection on all Cowlitz Wildlife Area designated lands. When a local fire district responds to a fire on the CWA, compensation to that district is paid by a contract agreement with DNR.

Department Fire Management Policy: Wildlife Area staff are trained in fire fighting and fire behavior, however, staff will only provide logistical support and information regarding critical habitat values, property lines, and access to the Incident Commander of the responding fire entity.

Wildfire Concerns: Commercial timberlands, private farms, residential areas, and developed recreational parks surround the Cowlitz Wildlife Area. The spread of fire especially from the narrow managed wildlife habitat buffers around Riffe and Mayfield Lakes is of concern. An uncontrolled fire could easily spread uphill onto privately forested timber ground and create thousands of dollars and acres worth of damage. WDFW requests that the Incident Commander or other fire fighting personnel on site notify WDFW personnel immediately in the order listed below. A WDFW Advisor will provide information to the Incident Commander regarding habitat and adjacent landowner concerns.

Aerial Support: The WDFW recommends that fire-fighting entities suppress fires on the wildlife area as rapidly as possible. WDFW requests the Incident Commander to seek aerial support only if needed to extinguish a fire on its land promptly.

Reporting: Report any fire on or adjacent to all units of the Cowlitz Wildlife Area by contacting the local fire district and the DNR dispatch numbers (See contacts below). It is absolutely critical that any fire on the area is attacked as aggressively as possible during the initial attack.

Fire Districts – DIAL 911

NAME	TELEPHONE	Emergency
Lewis County District #4 (Morton)	360-496-5183	911
Lewis County District #3 (Mossyrock)	360-983-3591	911
Lewis County District #14 (Randle)	360-497-7745	911
Lewis County District #18 (Glenoma)	360-498-5337	911
Lewis County District #8 (Salkum)	360-985-2828	911

DNR- contact in order listed and request Operations or Staff Coordinator

NAME	TELEPHONE
Department of Natural Resources (Fires Only)	800-562-6010
Pacific Cascade Region - Office	360-577-2025

The following table provides telephone numbers in priority order of Department staff to be contacted in the event of a fire.

Department of Fish and Wildlife - contact in order listed

NAME	TELEPHONE	PRIVATE TELEPHONE	CELL
Mark Grabski, Cowlitz Manager	360-496-6223		360-520-5115
Richard Vanderlip, Assistant Manager	360-496-6263		360-880-4568
Jon Jeschke, Wildlife Officer, Randle	360-520-4129		
WDFW Region 5 Office	360-696-6211		

APPENDIX 4: WATER RIGHTS

Tacoma Power owns the land and water rights associated with the Cowlitz Wildlife Area. WDFW manages the land for Tacoma Power based on the Settlement Agreement Relating to Wildlife for the Cowlitz Hydroelectric Project.

APPENDIX 5: MANAGEMENT PLAN COMMENTS & 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
Darcy Mitchem	Recreationist	Sedro Woolley
Michael Moody	Recreationist	Castle Rock
Ted Grichuhin	Recreationist	Bainbridge Island

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

Comments received on the Cowlitz 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	
Darcy Mitchem	Good Job!	Thanks!
Ted Grichuhin	This is for ALL plans. For past management plans, I would like to see what actually was accomplished during the period. Plans are nice. I planned to retire at 30. 30 years later I still have not. So what have you done with my tax money?	Although the management plan does not specifically list accomplishments prior to the date of the plan, it does include a brief history of management activities in Chapter 2. Also, the weed control appendix includes control summary and trend information indicating some past weed control activities. The current wildlife area management plan will be updated annually. Updates, which will be posted on the agency web site, will include a report of key activities accomplished the previous year.
	Public Access	
Darcy Mitchem	Strongly support recreation on public lands. Support trails that tie the wildlife area to other public trails. It sounds like you need specific camping areas for hunters, where they must register (to keep track of garbage dumping at least).	It is the Washington Department of Fish and Wildlife's mission to provide sustainable fish and wildlife-related opportunities compatible with maintaining healthy fish and wildlife populations and habitats. We support and encourage wise public use of the Cowlitz Wildlife Area. Though connector trails would be nice, the geography of the Cowlitz Wildlife Area (surrounded by private property) prevents our being able to influence a project of this type. Camping is allowed on the wildlife area where it is not a public nuisance. Registering camping sites would require an infrastructure that would take resources away from our chief

		priority, which is to manage the lands Tacoma Power has purchased for the mitigation of wildlife habitat loss due to inundation by the City's FERC project.
	Fish, Wildlife and Habitat	
Darcy Mitchem	The Cowlitz plan needs to incorporate wildlife needs from the adjacent areas and incorporate overlapping plans. The St. Helens and S. Rainier elk herd plans need to be incorporated. Look more closely at who the neighboring landowners are, and decide what they can or can't supply as habitat. Then focus in the Wildlife Area on missing habitat. Expand the Wildlife area to link public lands together, creating corridors (Monument, USFS, Tacoma Power co.)	The wildlife area exists as mitigation for the wildlife habitat loss due to inundation by Tacoma Power's FERC project. The primary habitat displaced by the creation of Riffe and Mayfield lakes is riparian, lowland, and wetland habitats. This loss affects primarily wintering waterfowl. Therefore, the primary mitigation activity conducted on the wildlife area is maintenance, creation, and restoration of emergent wetlands and riparian corridors. These activities, though not part of the South Rainier and Saint Helens Elk Herd Plans, benefit elk and other area wildlife by meeting their habitat requirements. CWA management activities are implemented around the existing habitat conditions and attributes. Projects are then designed that maintain or enhance these existing conditions. In doing this, we look very closely at existing conditions on neighboring lands and how management activities will effect the adjacent neighbors so that no negative impacts are incurred. Since nearly all land adjacent to the wildlife area is in private ownership, CWA activities are confined to the wildlife area. When suitable habitat is located, an attempt at acquisition is usually conducted.
	Hunting/Fishing	
Michael Moody	If there is an over populated area please look at maybe opening these areas for permits to the advanced hunters ed program. This may help to make it look more pleasing to hunters to pursue this program more!	The Cowlitz Wildlife Area does not have influence over hunting seasons and locations. However, all or portions of the Cowlitz Wildlife Area are open to hunting during all three general seasons and special permits are allotted for GMU's that include the Wildlife Area. Advanced Hunter Educations Tags are also issued within these GMU's as damage control hunts, but the Wildlife Area is excluded.
	Land Acquisition	
Darcey Mitchem	Expand the Wildlife area to link public lands together, creating corridors (Monument, USFS, Tacoma Power co.)	When possible to do so, acquisitions that can link other publicly owned protected habitats are pursued. However, it should be noted that acquisitions priorities are guided by interagency (WDFW, USFW, Tacoma Power) and public input by targeting key locations and

		then CWA staff identify suitable parcels within those target zones.
	Weeds	
	See comment under Partnerships	
	Partnerships	
Darcey Mitchem	Formally Invite the community in to "adopt" sites (Scouts, high school senior projects, backcountry horsemen, fishing/hunting clubs, local businesses) Maybe some of the forestry work needed by WDFW could come from volunteer foresters/companies for publicity, then use that free work for matching funds. Also could help with noxious weeds. Foresters aren't afraid to use spray. Tap into the area's skills and love of the outdoors.	The Cowlitz Wildlife Area works with user groups and interested parties whenever possible. Tacoma Power owns most of the timber rights on the Cowlitz Wildlife Area; therefore, forestry work needs to be organized through their natural resource division. Weed activities are conducted in accordance with state law and guided by the CWA Weed Management Plan. This plan is an integrated vegetation management regime and chemicals are used when prudent and reasonable.

APPENDIX 6: WILDLIFE SETTLEMENT AGREEMENT

FERC AGREEMENT (NO. 2016)

SETTLEMENT AGREEMENT RELATING TO WILDLIFE FOR THE COWLITZ HYDROELECTRIC PROJECT (FERC NO. 2016)

City of Tacoma
State of Washington Department of Wildlife
U.S. Fish and Wildlife Service

This Settlement Agreement Relating to Wildlife for the Cowlitz Hydroelectric Project (FERC No. 2016) (Agreement) is made by and between the City of Tacoma, Department of Public Utilities, Light Division (City) and the State of Washington, Department of Wildlife (WDW) and the United States Fish and Wildlife Service (USFWS), the parties to this Agreement (Parties).

RECITALS

1. The City is the licensee for Project No. 2016, issued by the Federal Energy Regulatory Commission (FERC), effective January 1, 1952, for the construction, operation and maintenance of the Cowlitz Hydroelectric Project (Project). The WDW and the USFWS are charged with providing the FERC with recommendations to protect, mitigate, and enhance fish and wildlife resources affected by the development, operation, and management of the project.
2. The FERC has amended said license by Order Further Amending License (Major) dated November 17, 1964, and, Article 37 of said Order provides:

The Licensee shall, for the conservation, and development of fish and wildlife resources, construct, maintain and operate, or arrange for the construction, maintenance and operation of such facilities and comply with such reasonable modifications of the project structures and operation as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing and upon findings based on substantial evidence that such facilities and modifications are necessary and desirable, reasonably consistent with the primary purpose of the project and consistent with the provisions of the Act.

NOW, THEREFORE, the Parties agree to the following terms and conditions:

PART I - SCOPE AND INTENT

- A. The scope of this Agreement is and includes only the wildlife mitigation for the Mayfield and Mossyrock hydroelectric projects of the Cowlitz Hydroelectric Project. The Agreement does not address or modify any of the Parties' responsibilities, duties, or issues related to the Barrier Dam Project; further, the Agreement does not address the fishery resources

associated with the Mayfield or Mossyrock projects nor address any or modify the Parties' responsibilities, duties, or issues regarding these matters.

- B. It is the intent of the Parties to this Agreement to provide for the acquisition, improvement, operation and maintenance of wildlife mitigation lands and habitat in connection with the Project as satisfaction of the City's wildlife mitigation obligations under Article 37 relative to its existing license. Furthermore, the Parties agree that the~ wildlife mitigation provided by this Agreement shall satisfy the City's wildlife mitigation obligations for a "first new license," if granted, so long as no changes, which would have required license amendment(s) in the existing license, are made in the first new license. The "first new license" shall mean the first long term operating license issued by the FERC to .the City after expiration of the existing license, as distinguished from any annual license during relicensing.

This intent shall be accomplished through the fee-title acquisition of lowlands/wetland and uplands/timberlands within the Cowlitz River Basin and a commitment to preserve, restore, enhance and manage these lands for the benefit of local wildlife species, including sensitive and threatened or endangered animal species and their habitats.

PART II - TERM OF THE AGREEMENT

The term of this Agreement shall commence on the effective date of the Agreement and end with the expiration of the first new license, unless no first new license is issued to the City by FERC, in which event, the Agreement shall terminate upon expiration of the existing license and any subsequent annual licenses.

PART III – RESTRICTIONS

- A. This Agreement is subject at all times to the terms and conditions of the applicable FERC license, irrespective of the effect of any other wording or expression of intent otherwise set forth herein. Further, the Parties agree to jointly file the executed Agreement with the FERC and to seek acceptance of the Agreement as satisfaction of the City's wildlife mitigation requirements under its existing license. Furthermore, the Parties agree to encourage and petition FERC to amend the existing license to include the terms and conditions of this Agreement as part of the license, and to include the wildlife mitigation lands described in this Agreement as Project lands.
- B. This Agreement shall not be assigned without prior written mutual approval of the Parties. All terms, restrictions and conditions of this Agreement shall be fully binding on the respective successors and assigns of the Parties.
- C. In the event that the City transfers the Project FERC license to another entity, or FERC grants the Project license to another entity, this Agreement shall be specifically enforceable against any such successor licensee to the full extent permitted by law. If the Project FERC license is voluntarily transferred by the City to another entity, the City shall require as a condition of the transfer that the transferee agree to be bound by all the terms of this Agreement.
- D. If a successor licensee is not required by FERC to own or maintain the lands acquired by the City under the terms of this Agreement for wildlife mitigation, WDW or USFWS shall have an option to purchase any or all of the acquired lands at a fair market value. The WDW or USFWS shall, within six months .of notice by the City of its intent *to* sell

the acquired lands, notify in writing the City of their agreement *to* purchase the lands, subject to availability of funds. The Parties shall make their best faith efforts to complete the purchase of the lands within three years of the City's notice, but in no event shall the purchase be completed in greater than five years. If written notice of WDW's or USFWS's election to purchase is not given within the six-month period, or if the closing is not completed within the five-year deadline, this option shall lapse. In the event the Parties cannot agree upon a fair market value, the Parties shall mutually agree upon a certified MAI appraiser to establish the fair market value of the acquired lands as of the date of purchase.

PART IV - IMPLEMENTATION OF AGREEMENT

This Agreement shall be implemented through the joint actions and responsibilities of the City and the WDW as follows:

- A. The Parties acknowledge the City has fee-title ownership to certain on- and off-project lands which are and shall continue to be dedicated to wildlife management and habitat protection/enhancement and that such lands are hereby included in this Agreement with the intent that said lands are to be credited toward the City's overall wildlife obligations under its operating license for the Project. The lands are generally shown on Exhibit A and include approximately:

5,294	Acres On-Project
<u>86</u>	<u>Acres Off-Project</u>
5,380	TOTAL ACRES

- B. Habitat Acquisition – Uplands/Timberlands.

1. The City shall use its best efforts to acquire fee-title to approximately 6,855 acres of property located on the northern shore of Riffe Lake commonly referred to as Peterman Ridge for the purpose of wildlife resources mitigation. The City shall acquire approximately 2,212 acres of timber rights (in areas shown in Exhibit B) in this acquired property for the purpose of preserving critical wildlife habitat of merchantable, premerchantable and young forest lands, riparian areas, and swamps/wetlands, as described in the Peterman Ridge Acquisition and Wildlife Management Plan herein included as Exhibit C.
2. The City shall maintain the acquired, timber-righted property as wildlife habitat and timber will be removed in the timber-righted area only to enhance the wildlife habitat pursuant to the Wildlife Management Plan except as necessary to provide Hancock limited access to the reserved timber consistent with the then current forest practices rules and regulations, and as provided in Exhibit C. (Hancock as used in this Agreement means John Hancock Timber Company, the Campbell Group, or their successors and assigns.) The City agrees that for those lands where the City does not initially obtain the timber rights, the timber rights shall revert to the City after one cutting and thereafter timber will be cut only for the purpose of enhancing wildlife habitat.

3. With respect to reserved mineral rights in any, of the properties acquired by the City from Hancock, the City shall restore any damaged wildlife habitat caused by the exercise of said reserved mineral rights.

C. Habitat Acquisition - Lowlands/Wetlands.

The City shall provide funds directly to the WDW in the amount of \$3.0 million on a schedule of \$1.0 million per year over a three-year period for the acquisition of approximately 1,900 acres of lowlands/wetlands.

The City shall make the initial payment of \$1.0 million to WDW on or before January 15, 1993, or 15 days after the execution date of this Agreement, whichever is later. The initial payment shall be deposited in a segregated interest-bearing escrow account designated for the purpose of this Agreement. In the event the City acquires the uplands/timberlands property from Hancock, as provided further in Section B of this Part, then the interest earned on said account shall accrue to the benefit of WDW's lowlands/wetlands acquisition, to be applied for the purposes and intent of this Agreement. Within 15 days after the City's acquisition of the uplands/timberlands is formally consummated, the initial payment plus accrued interest shall be released to WDW for the acquisition of lowlands/wetlands. Subsequent payments of \$1.0 million each shall be made on the following two anniversary dates of this Agreement. In the event that the Hancock acquisition occurs prior to January 15, 1993, then the City may elect to pay WDW the first payment directly.

In the event that by January 1994, unless extended by mutual written consent of the Parties, the City is unable to acquire the above-described uplands/timberlands property on terms acceptable to the City, then this Agreement shall terminate and the initial payment of \$1.0 million plus accrued interest shall be returned to the City without penalty. The costs of establishing the escrow shall be deducted from the initial payment.

The lowlands/wetlands to be acquired for the City by the WDW with the above-provided funds shall be at the discretion of the WDW with the concurrence of the USFWS based upon such concerns as cost, availability restoration potential and other factors.

The Parties agree that the amount of funds allocated for this purpose by the City may not be sufficient to acquire the targeted amount of acreage; however, WDW shall use its best efforts to acquire the maximum acreage practicable considering wildlife benefits, costs, availability, and restoration needs. The lowlands/wetlands acquired by WDW for the City shall be held in fee-title ownership by the City. The Parties understand and agree that whatever the total acreage of lowlands/wetlands the WDW is able to acquire for the City with the subject funds, that amount will be sufficient to satisfy and fulfill the lowlands/wetlands obligation of the City pursuant to this Agreement. The Parties agree that the City's obligations for the acquisition of lowlands/wetlands shall be limited to providing the funds as set forth above.

The Parties further agree that the obligations of the WDW under this Agreement shall be to utilize the funds provided by the City to undertake and execute all necessary actions to acquire the lowlands/wetlands identified above. These actions shall include but not be limited to:

- Identifying and contacting willing sellers
- Performing fair market value appraisals
- Accomplishing necessary boundary surveys
- Performing Phase I hazardous substance surveys
- Negotiating purchase price and coordinating closing escrows
- Insuring fee title for all acquired properties acceptable to the City
- Transferring fee title to the acquired properties

The Parties understand and agree that if a Phase I hazardous substance survey indicates, in the sole opinion of the City, that a subject property is contaminated and may expose the City to future

cleanup costs if acquired, said contaminated property shall not be acquired. Prior to purchase of any property, the City shall provide written acceptance of the respective Phase I hazardous substance survey. A Phase I survey includes:

- Walk-through physical inspection of the site.
- Review of the historical usage of the site by review of the environmental questionnaire of purchaser and public records.
- Interview the past and present owners and operators.
- Contact with local health and construction permitting agencies and state and federal environmental and health protection agencies to make a determination whether the site has had past compliance problems or has a substantial likelihood of being contaminated.
- Typically takes from one to three weeks and costs between \$2,000 and \$10,000.

D. Plans and Improvements.

Following acquisition, WDW, in consultation with USFWS, shall develop plans and implement capital improvements such as, but not limited to, water control structures, dikes, fencing hydrophytic revegetation, planting, etc., and other measures necessary for enhancement and, restoration of damaged lowlands/wetlands.

PART V – OPERATION, MAINTENANCE AND CAPITAL IMPROVEMENTS

The City agrees to provide an annual sum of monies to the WDW for the management and restoration of acquired lowlands/wetlands and uplands/timberlands for the benefit of wildlife and their habitats. On the date of the first \$1.0 million dollar payment under Section C of Part IV, and on or before the anniversary date in subsequent years, until termination of this Agreement, the City shall provide to the WDW an annual payment of \$ 250,000, adjusted for inflation using the current published Consumer Price Index for All Urban Consumers for the Seattle/Tacoma Metropolitan Area.

The Parties agree further that it shall be the obligation of the WDW under this Agreement to use these annual funds to plan and implement, in consultation with USFWS, wildlife management and enhancement measures and operate and maintain said lands consistent with the intent of this agreement and the following purposes:

- Salaries/fringe benefits for WOW project personnel
- Planning and oversight administrative salaries associated costs
- Habitat management, including the maintenance and operation of existing City owned wildlife lands, on-Project habitat prescriptions, facilities, and equipment
- Wildlife population management
- Public use and access gates, signage and related facilities
- Capital equipment and improvements including vehicles, shop equipment, fencing, boats, water control structures, dikes, etc.
- Travel, transportation, and training costs
- Uniforms and related equipment
- Understory enhancement plantings
- Weed control in any row crops, wildlife farming areas and in any areas associated understory enhancement plantings

The Parties agree that the annual operation and maintenance funds may be pooled with the lowland/wetland acquisition funds to be used interchangeably in the event that greater benefits will accrue to wildlife as a result.

The City agrees to fund all costs associated with timber harvest, commercial thinning, reforestation, or other forestry-related activities necessary for the management of Peterman Ridge for wildlife habitat. The City is entitled to all revenues generated from the Peterman Ridge and other City property resulting from timber harvest, commercial thinning, or other forestry-related activities (patch cuts for wildlife forage areas, etc.) used to enhance wildlife habitat and pursuant to the Wildlife Management Plan. These funds may be used as the City deems appropriate.

The City agrees to coordinate and fund, in addition to the annual \$250,000, operation and maintenance funds identified above, all replanting costs associated with the reforestation of timber areas harvested by Hancock, as per Exhibit C, Section III, Reforestation.

PART VI - COORDINATING COMMITTEE

The Parties agree to establish a Wildlife Management Coordinating Committee (WMCC) composed of representatives of the City, WDW, and USFWS. The WMCC shall meet at least twice annually for the first three years after execution of the Agreement, and meet at least annually during the remainder of the term of the Agreement. Representative topics for discussion may include, but are not limited to: 1) development and/or amendment of the wildlife habitat development and management plan; 2) coordination of lowland/wetland property acquisition; 3) discussion of progress since the last coordination meeting; and 4) resolution of issues and identification of conflicts between the Parties. Written minutes of these meetings shall be kept by the City and approved by the participants. All WMCC participants shall receive written notice of the scheduled meetings and copies of the minutes.

PART VII – REPORTS

The WDW shall prepare an annual report to the WMCC at the end of each calendar year the agreement is in effect. The annual report will describe lands acquired, mitigation/enhancement activities undertaken, and wildlife benefits derived, and will provide an accounting of revenues and expenditures in accordance with generally accepted accounting principles, along with a listing of funds currently held in accounts where City funds have been deposited. The annual report will also outline future activities, expected wildlife benefits and estimated costs.

PART VIII - WILDLIFE MITIGATION FOR EXISTING LICENSE AND FIRST NEW LICENSE

The City's existing FERC license for the Cowlitz Project expires in 2001. During the remainder of the existing license and during the period of any annual license(s) prior to a first new license, the Parties agree that the City adequately satisfies its obligation for wildlife mitigation for the Project, as currently constructed and operated, provided that the City complies with the terms and conditions of this Agreement, and additional wildlife terms and conditions, if any, imposed upon the City by the FERC before the new license.

At the time of the City's application for a first new license, to the extent that the City has met the terms and conditions of this Agreement and the existing FERC license, and no changes which would have required license amendment(s) in the existing license are made in the first new license, the WDW and USFWS agree to comment to FERC that the City was a competent license holder with respect to its obligations to wildlife resources.

When the City submits a first new license application containing, at a minimum for wildlife mitigation, the terms and conditions of this Agreement, and consistent with Part I of this Agreement, the WDW and the USFWS will support the wildlife mitigation provided in this Agreement as adequate wildlife mitigation for the term of the first new license.

The Parties stipulate that they shall waive the right to appeal the issuance of the City's first new license solely on the basis of the wildlife mitigation requirements, so long as the license is consistent with Part I of this Agreement and contains, at a minimum, the wildlife mitigation terms and conditions identified in this Agreement.

If the City's first new license contains either: 1) a wildlife mitigation requirement less than the terms and conditions of this Agreement; or 2) terms and conditions inconsistent with the terms and conditions of this Agreement, any party may use any remedy available in any forum to appeal or contest the issuance of that license. In the event the City's first new license contains wildlife mitigation provisions requiring mitigation less than that required in this Agreement, the City agrees to maintain the wildlife mitigation provided for in this Agreement. However, in the event that the City's first new license contains wildlife mitigation different from, but no less than, that required in this Agreement, the City shall have the right to terminate excluded programs and to sell lands purchased under this Agreement which are not required by the license, so long as the revenues associated with these programs and lands, both sales and O&M, shall be applied to the purchase and O&M of the lands and programs required by the FERC license.

In the event that the City is not granted a first new license for the Project, the City has the option of terminating the Agreement, subject to the terms and conditions provided in Part III .C and D of this Agreement.

Nothing in this Agreement shall relate to or bar any party from taking any position in any forum with regard to the City's obligation as to the Barrier dam project or to provide mitigation for anadromous and resident fish impacts at the Mayfield and Mossyrock projects of the Cowlitz Project.

PART IX – INDEMNIFICATION

During the term of this Agreement, the City and WDW may have employees, agents and/or contractors on the wildlife mitigation properties that are the subject of this Agreement. Once the wildlife mitigation lands are acquired and title is in the City's name, the employees, agents and/or contractors of WDW and USFWS are hereby granted permission by the City to enter upon said properties for the purposes outlined in this Agreement. Provided, however, USFWS and WDW understand and agree that the physical condition of the various subject properties may be rugged and there may be unsafe conditions for which it would not be practicable to post warning signs. Therefore, in consideration of the mutual benefits of this Agreement, consistent with the guidelines of RCW 4.24.115, the City and WDW agree to hold harmless, indemnify and defend each other, and their respective employees and officials, from any and all claims, legal actions and judgments by their respective employees, agents or contractors that in any way related to or arise from the performance or implementation of this Agreement. In this regard, it is acknowledged that the City and WDW may be waiving immunity under Title 51 RCW, Washington State Industrial Insurance law, and the City and WDW agree that this provision has been mutually negotiated. The City and WDW acknowledge that RCW 4.24.115 may not specifically apply; however, for purposes of this Agreement, WDW and the City agree to be bound by this statute.

It is the intention of the City and WDW hereto that this provision of this Agreement shall not be used to benefit third parties who are not parties to this Agreement. Therefore, this provision of this Agreement can only be enforced by the City and WDW (or successor entities).

PART X – AMENDMENTS

Minor amendments to or clarifications of this Agreement may be made by letter agreement executed by the City's Deputy Utility Director/Light Superintendent, and WDW's Assistant Director and USFWS's Field Supervisor, Olympia Field Office. The Parties may, as the need arises, make other amendments to this Agreement by mutual written agreement.

PART XI – MEDIATION

All disputes between the Parties relating to this Agreement shall first be submitted to the respective supervisory staff persons for each party for resolution. If a resolution is not achieved, the respective chief executive officer for the City and WDW and the Field Supervisor, Olympia Field Office for USFWS shall attempt to mutually resolve said dispute. If the dispute is still not resolved, said matter shall be submitted to non-binding mediation with a mutually agreed mediator for resolution.

Prior to mediation, the Parties may engage in discovery pursuant to the same rules of procedure applicable to U.S. Federal District Court (at Tacoma) or Washington State Superior Court Civil proceedings.

Each step of the dispute resolution process shall be accomplished as quickly as practicable.

Each party to a bona fide dispute shall pay its own expenses for the mediation and/or arbitration.

In the event the Parties are not able to mutually resolve any dispute, any party may seek interpretation or enforcement of this Agreement in a court of competent jurisdiction, or if appropriate, the FERC.

PART XII - FULL AND COMPLETE AGREEMENT

This Agreement is the full and complete agreement of "the Parties and is not severable. The Parties warrant that no contemporaneous or prior agreements exist with terms that modify or contradict the terms of this Agreement. This Agreement supersedes and replaces all prior existing interim agreements between the City and WDW relating to wildlife mitigation for the Project, except as described in Exhibit D.

PART XIII - OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner shall be admitted to any part of this Agreement, or to any benefit arising from it.

PART XIV - ANTI-DEFICIENCY ACT

The expenditure or payment of any money or the performance of any work by USFWS herein provided for, which may require appropriation of money or the allotment of funds by Congress, shall be contingent upon such appropriation or allotments being made.

PART XV – AUTHORITY

The City and WDW enter into this Agreement pursuant to the Interlocal Cooperation Act, chapter 39.34 RCW and the Agreement shall be filed with the Secretary of State and the City of Tacoma.

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