

# **BLUE MOUNTAINS WILDLIFE AREA COMPLEX MANAGEMENT PLAN**

Washington Department of Fish and Wildlife

Asotin Creek, Chief Joseph, Grouse Flat, and W.T. Wooten Wildlife Areas



Prepared by Wildlife Area Manager's Bob Dice & Gary Stendal,  
& Assistant Manager Shana Winegeart



**2006**

STATE OF WASHINGTON

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

&

The Asotin Wildlife Area is primarily fund by the Bonneville Power Administration to mitigate  
for the Federal Columbia River Hydropower System.  
(Project Number 200600300)

This report should be cited as:

Washington Department of Fish and Wildlife. 2006. Blue Mountain Wildlife Area Management Plan.  
Wildlife Management Program, Washington Department of Fish and Wildlife, Olympia. 176 pp.

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# **Washington State Wildlife Area Plan**

## **BLUE MOUNTAINS WILDLIFE AREA**

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

# Washington State Wildlife Area Plan

## Blue Mountains Wildlife Area

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Prepared by:  
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November 2006



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Director, Washington Department of Fish and Wildlife

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## EXECUTIVE SUMMARY

The Blue Mountains Wildlife Area Complex (63,585 acres) is comprised of three main wildlife areas. The Asotin Creek Wildlife Area was established in 1962 with the intent of providing habitat for big game winter range. It has grown to its present size of 33,257 acres and is divided into three units. The largest unit is Asotin Creek, which includes Lick Creek and the Smoothing Iron Ridge area of the Schlee acquisitions. The Weatherly segment includes Tam Tam Ridge and Charley Creek. The lower elevation George Creek unit includes Meyer's Ridge, Pintler Creek, and Ayer's Gulch. Primary management emphasis for much of the Asotin Creek Wildlife Area is big winter range, fish habitat, and fish and wildlife orientated recreation. The Chief Joseph Wildlife Area is 14,055 acres in size and was established in 1972. It includes the 640-acre Grouse Flats Wildlife Area and Shumaker unit on the Grande Ronde River. The main parcel of the Chief Joseph wildlife area is located along Joseph Creek and the lower Grande Ronde River. The wildlife area also borders the Snake River to the East. Primary management emphasis is year-round habitat for big game and fish and wildlife orientated recreation. The WT Wooten Wildlife Area is 16,273 acres in size and original acquisitions began in the early 1940s. The Wooten is comprised of two units. The main unit includes Able's Ridge, Cummings Creek, and the upper Tucannon Valley. The lower segment is centered on the Hartsock Grade and lower Tucannon Valley. Primary management emphasis is big game winter range, fish habitat, recreational fishing and camping near several man-made lakes, and wildlife orientated recreation.

The primary management concerns and public issues identified in the Blue Mountains Wildlife Area plan are:

- Recovery of the Wooten Wildlife Area in the aftermath of the catastrophic 2005 School Fire
- Completion of reconstruction of boundary elk fence burned in the School Fire on the Wooten Wildlife Area
- Implementation of the Pilot Grazing Project on the Asotin Creek Wildlife Area
- Controlling noxious weeds on the Wildlife Areas
- Eradication of Mediterranean Sage (Class A Weed) from the Asotin Creek Wildlife Area.
- Maintenance of over 150 miles of boundary stock fence to prevent trespass livestock grazing
- Renovation of campgrounds on the Wooten Wildlife Area.
- Continued work towards planting and maintaining forage food plots for wildlife across the Blue Mountains Wildlife Area lands.

In 2006, WDFW completed a success salvage logging operation on the WT Wooten Wildlife Area. Logging Revenue will be used to fund restoration of the Wildlife Area as well as many other wildlife area management activities.

## **CHAPTER I. INTRODUCTION**

The Washington Department of Fish and Wildlife (WDFW) is entrusted with the management of State owned lands and the preservation of the natural resources associated with those properties. As a steward of the land, the Department is dedicated to protecting, restoring, and perpetuating healthy ecosystems throughout the State while fostering an attitude of partnership with the community.

This plan provides management direction for four wildlife areas near the Blue Mountains of southeastern Washington. It will be updated annually to maintain its value as a flexible working document, and to remain sensitive to change over time. The planning process incorporates local needs and concerns as indicated by citizen participation, and guides management activities on wildlife areas based on the Agency's statewide goals and objectives.

### **1.1 Agency Mission Statement**

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

### **1.2 Agency Goals and Objectives**

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

#### Goal 1: 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 2: 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 8. Work with Tribal governments to ensure fish and wildlife management objectives are achieved.

#### Goal 3: Operational Excellence and Professional Service

- Objective 11. Provide sound operational management of WDFW lands, facilities and access sites.
- Objective 15: Reconnect with those interested in Washington's fish and wildlife.

### **1.3 Agency Policies**

The following agency policies provide additional guidance for management of WDFW lands. An expanded description of these policies can be found in [APPENDIX 8](#).

- 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

#### **1.4 Blue Mountains Wildlife Area Goals**

The Blue Mountains encompass the farthest southeastern corner of Washington State, and WDFW currently operates four wildlife areas in this vicinity: Asotin Creek, Chief Joseph, Grouse Flat, and W.T. Wooten. Together the four wildlife areas cover approximately 60,640 acres. WDFW's management goals in this area are: preserve habitat and species diversity for both fish and wildlife resources, maintain ecologically 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 Blue Mountains Wildlife Area can be found in Chapter 3.

#### **1.5 Planning Process**

A multifaceted approach has been undertaken to assess strategies proposed for management of wildlife areas in the Blue Mountains. This process includes identifying agency goals and objectives; reviewing the purpose for purchasing the area; reviewing existing habitat conditions and species; formation of a Wildlife Area Citizens Advisory Group (CAG); and soliciting input and review from an internal District Team. This plan is part of a statewide planning process to ensure consistency in management and policy implementation.

The District Team helps identify existing species plans, habitat recommendations, watershed plans, ecoregional assessments, etc that will be used to identify local issues and needs to ensure that the Blue Mountains Plan is consistent with WDFW statewide and regional priorities, in addition to addressing issues identified in previous planning efforts. The team will consist of local representatives from each WDFW program, incorporating cross-program input and review at the regional and headquarters level by the habitat program, wildlife program, enforcement program, and fish program.

Public participation, in the form of a Citizens Advisory Group (CAG), has been utilized as a means to identify cultural, economic and social issues important to residents of southeastern Washington and influential in the management of WDFW's lands in this region. The group will also provide input in helping resolve current and future management issues and conflicts related to the wildlife areas. CAG participation in planning will add credibility and support for land management practices and help build constituencies for the wildlife areas. The CAG is comprised of concerned citizens, local landowners, and representatives of local interest groups or other land-managing agencies. CAG members are considered spokespersons for their interest groups and bring a wide variety of concerns and issues to the attention of wildlife area managers.

The Blue Mountains Plan will be reviewed annually with additional input from the CAG and District Team to monitor performance and desired results. Strategies will be adapted where necessary to accomplish management objectives, and implemented as funds allow.

## WDFW District Team Members

<b>Fisheries</b>	<b>Habitat</b>	<b>Enforcement</b>	<b>Wildlife</b>
Mark Schuck	Tom Schirm	Ken Jundt	Pat Fowler
Glen Mendel	Mark Wachtel		Bob Dice
Steve Rogers	Dave Karl		Gary Stendal
	Mark Grandstaff		

## Citizen Advisory Group – Asotin Creek, Chief Joseph, and Grouse Flat Wildlife Areas

<i>Name</i>	<i>Interest group/representation</i>
Isaac Andrews	Asotin County Parks and Recreation
Mark & Pat Bogar	Rocky Mountain Elk Foundation, horse recreation
William R. Brigham	Citizen, retired BLM land manager
Keith Carlson	Canyon Birders, former IDFG Commissioner
Casey Hagenah	Citizen, neighboring landowner, rancher
Jerry Hendrickson	Citizen, neighboring landowner, rancher
Ron Landrus	Sportsman, hunter education instructor
Sam Ledgerwood	WA State Cattleman's Association
Dan Luther	Citizen, former owner of WDFW land
Nelle Murray	Asotin County Weed Board
Ron Scheibe	Asotin County Conservation District
Randy Schlee	Citizen, former owner of WDFW land
Dan Schlee	Citizen, former owner of WDFW land
Chris Schulte	USFS Pomeroy Ranger District
Courtney Smith	NRCS Range Specialist
Angela C. Sondena, Ph.D.	Nez Perce Tribe, land manager
Stan Wilson	Asotin County Sportsmen's Association

## Citizen Advisory Group – W.T. Wooten Wildlife Area

<i>Name</i>	<i>Interest group/representation</i>
Elton Brown	Sportsman, wildlife enthusiast
Dr. John Corey	Citizen, neighboring landowner
Bill Dowdy	Biologist, USFS Pomeroy Ranger District
Wilbur Eaton	Citizen, local farmer/rancher
Debbie Fortner	Columbia County Conservation District
Tim Fuller	Park Ranger, Camp Wooten State Park
Del Groat	Biologist, USFS Pomeroy Ranger District
Roger Holland	Retired WDFW land manager/Range biologist
J. A. Kirkpatrick	Citizen, neighboring landowner
Doug Maxey	Sportsman, neighboring landowner
Jim McArthur	Citizen, WDFW license dealer, business owner
Dr. Chuck Reeves	Columbia County Commissioner, local veterinarian

Other stakeholders not represented on the CAG but still providing input during the planning process include: the Bonneville Power Administration (BPA), Washington Department of Natural Resources (DNR), and the Bureau of Land Management (BLM). BPA is a federal agency that manages hydroelectric power produced by dams along the Columbia River. A portion of the generated funds is dedicated to protection and enhancement of fish, wildlife, and their associated

habitats, to mitigate for losses incurred by construction and operation of the dams. Contractual agreements with BPA apply to the two parcels of the Schlee ranch (Smoothing Iron and George Creek units), acquired as fish and wildlife mitigation, and various habitat enhancement projects throughout the four wildlife areas. The mitigation parcels are located on the Asotin Creek Wildlife Area, and were acquired by WDFW with cooperative funding from BPA and the Rocky Mountain Elk Foundation. Specific monitoring and management tasks required by BPA are incorporated into the general wildlife area management plan. See [APPENDIX 9](#) for further discussion of BPA project obligations and report.

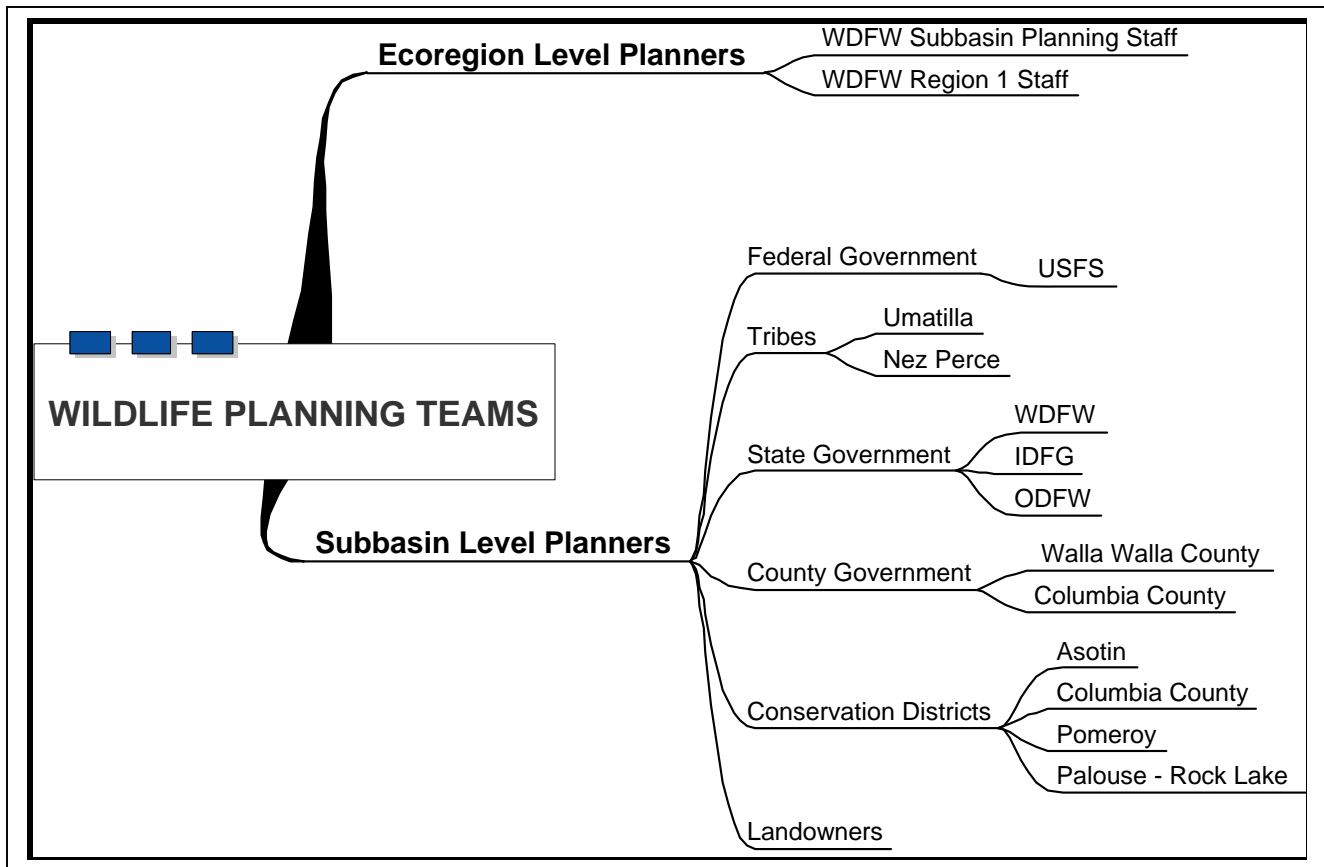
The DNR, USFS and BLM all have various small inholdings located within or near WDFW lands. Those parcels owned by other federal or state agencies but situated within or adjacent to WDFW lands are managed by WDFW as part of the wildlife areas, just as DNR manages those WDFW parcels located adjacent to or near DNR lands. A land trade with DNR may be enacted in 2005 to swap inholdings and consolidate each agency's contiguous lands by reducing outlying, disconnected parcels. The scope of this land trade is still being assessed.

### **1.6 Prioritization of Objectives**

In the past, land managing agencies implemented conservation projects independent of each other, often resulting in fragmented data sets that focused on single species or local habitats. More contemporary views of ecological functions reveal a need to integrate management, emphasizing multi-faceted protection with attention to size, health, and connectivity of core refuge areas.

Because plant and wildlife populations and their requisite resources extend beyond individual subbasins or socio-political jurisdictions, a system of cooperative management must include participation on an ecoregional level. Subbasin plans represent the efforts and knowledge of multiple cooperative parties, and include members from Federal, Tribal, State, and County governments, Conservation Districts, and Landowner groups. As such, the prioritization of resource protection identified in subbasin plans represents an integrated view of regional needs. To prioritize habitat and species objectives, planning agencies identified needs at two levels. The ecoregional level emphasizes management for large-scale focal habitats, while the subbasin level breaks the landscape down into smaller sub-units and highlights species guilds, individual focal species, important micro-habitats, habitat linkages, and subbasin-specific management goals (Ashley and Stovall 2004). In southeast Washington, WDFW is the lead planning entity for wildlife assessment at the ecoregion level and also participates on the subbasin level. Lead entities at the subbasin level are shown in Figure 1.1 (shown below) and provide information to planners on both the subbasin and ecoregion scale.

**Figure 1.1 Wildlife Planning Organization for Southeast Washington Subbasin Ecoregion**  
(Ashley and Stovall 2004)



On an ecoregional level *focal habitats* and associated *focal species* guide subbasin planning efforts to identify management goals for various resources.

On the state level, WDFW has identified *priority habitats and species* throughout Washington that are most in need of protection. Often these habitats have limited distribution throughout the landscape or provide a limited life requisite for a priority wildlife species.

*Target wildlife species* are used to evaluate quality of habitat acquired with BPA mitigation funding. A species modeling technique called Habitat Evaluation Procedure, or HEP, is applied to all BPA mitigation lands, and is used as a standard to compare life requisite values for the target wildlife species.

Species of plants and wildlife recognized on the State or Federal lists as Rare, Threatened, Endangered, or Species of Concern are all significant to the management and conservation practices of the Blue Mountain wildlife areas. A table of these species can be found in section [APPENDIX 9](#).



## CHAPTER II. AREA DESCRIPTIONS AND MAPS

### 2.1 Property Locations and Size

See Figure 2.1 for location and distribution of the four Southeast Washington wildlife areas.

#### Asotin Creek Wildlife Area

The Asotin Creek Wildlife Area consists of approximately 30,000 acres located in Asotin and Garfield Counties, 16 miles west of the town of Asotin. This area is comprised of multiple management units located around the North and South Forks of Asotin Creek, Charley Creek, Lick Creek, and George Creek drainages. The management units fall roughly into two blocks: the forks and tributaries of Asotin Creek, and George Creek, the largest tributary of the Asotin mainstem. Legal description of the Schlee facility (Asotin Creek block): T9N, R44E, sec 30. Legal description for Halsey facility (George Creek block): T9N, R46E, sec 19.

The Asotin Creek Wildlife Area falls within the following sections:

T 10N      R 45E

Sec 34, 35

<u>T 9N</u>	<u>R 46E</u>	<u>45E</u>	<u>44E</u>	<u>43E</u>
	Sec. 6, 7, 17-20, 30	1-19, 21-25	4, 5,7-10 15-18, 19-22 26-35	2-8, 11, 13, 14, 16, 23, 24, 26, 36

<u>T 8N</u>	<u>R 43E</u>	<u>44E</u>
	Sec. 1, 2	2-5, 8

#### Chief Joseph Wildlife Area

The Chief Joseph Wildlife Area consists of 13,415 acres located in Asotin County, 30 miles south of the town of Asotin (Figure 2.6). The eastern border of this wildlife area lies less than a mile from the Snake River. Most of the Chief Joseph units lie adjacent to either the Grande Ronde River or Joseph Creek. Legal description of Chief Joseph facilities: T6N, R46E, sec 2.

The Chief Joseph Wildlife Area falls within the following sections:

<u>T 7N</u>	<u>R 44E</u>	<u>45E</u>	<u>46E</u>	<u>47E</u>
	Sec 25	25, 30 31, 35	11, 13-15, 18, 19, 22-26, 29-32, 35	29-32

<u>T 6N</u>	<u>R 45E</u>	<u>46E</u>	<u>47E</u>
	Sec. 2	1-7, 9-12	5-8

#### W.T. Wooten Wildlife Area

The William T. Wooten Wildlife Area includes roughly 16,000 acres throughout Columbia and Garfield Counties, located 25 miles east of Dayton and 14 miles south of Pomeroy (Figure 2.9). Approximately 17 miles of the Tucannon River are located within the boundaries of the wildlife area. Legal description of the Camp Wooten headquarters: T10N, R41E, sec 16 and 21.





**Figure 2.1 Blue Mountains Wildlife Areas – Asotin Creek, Chief Joseph, Grouse Flat, and W.T. Wooten**

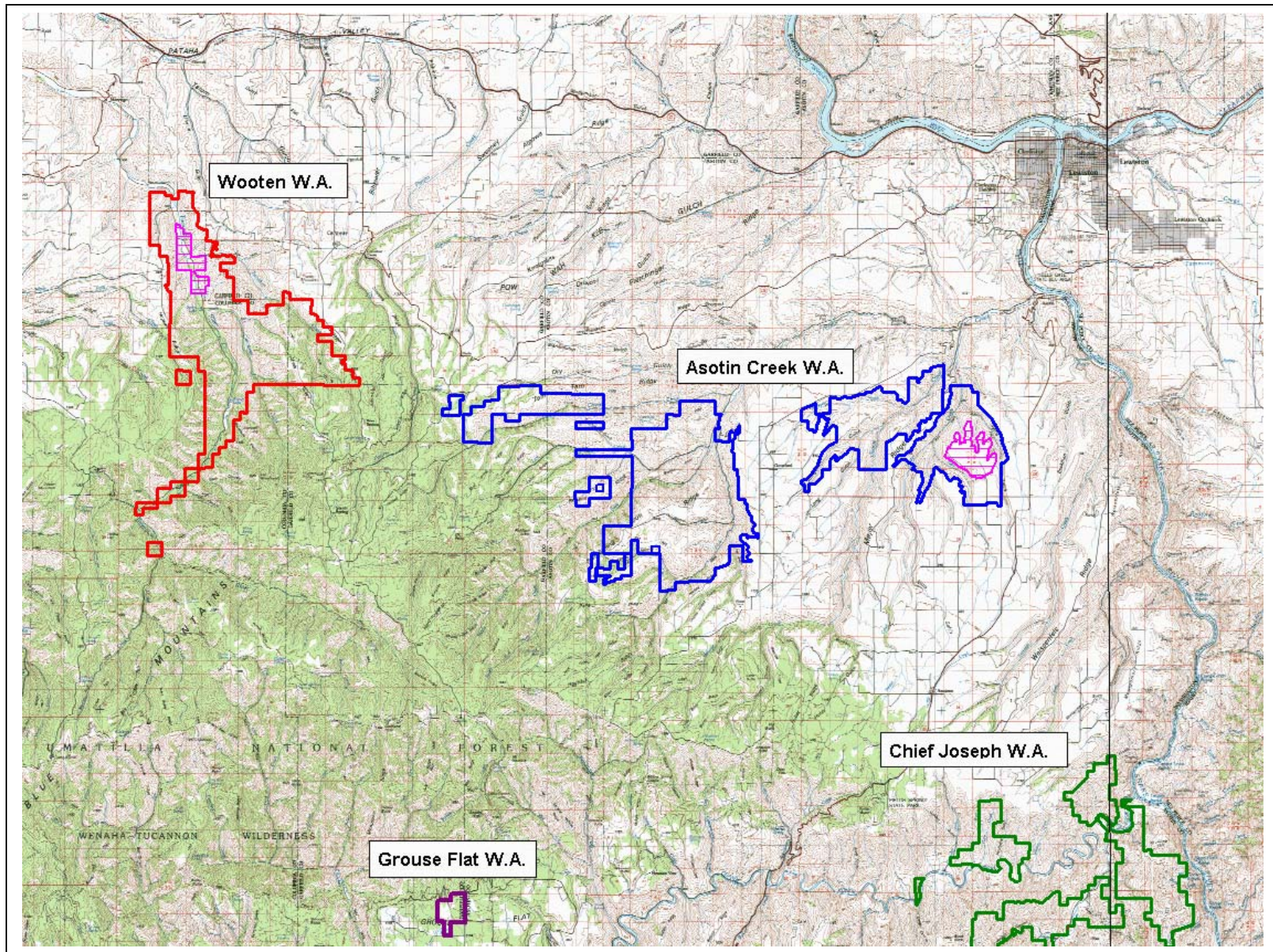
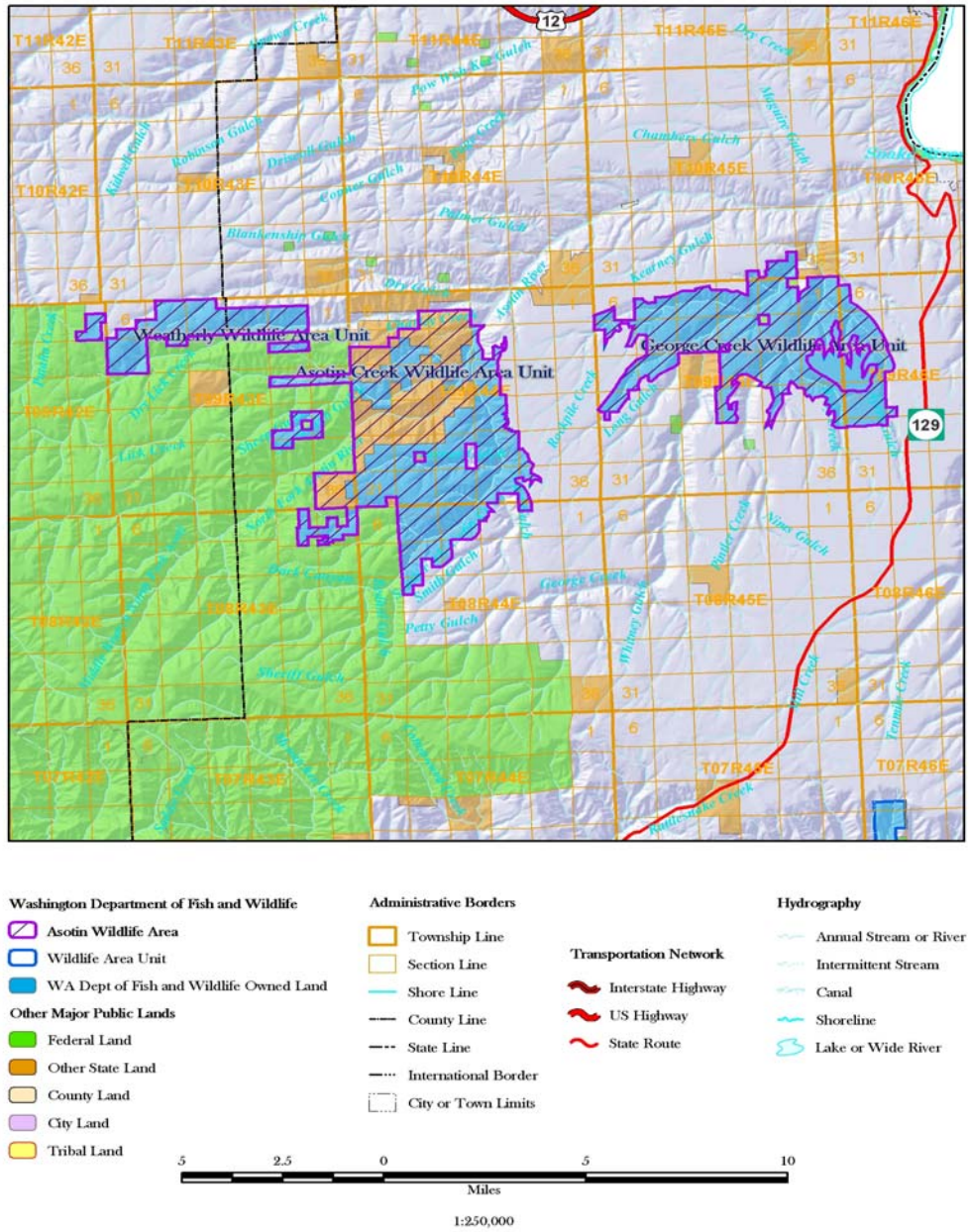
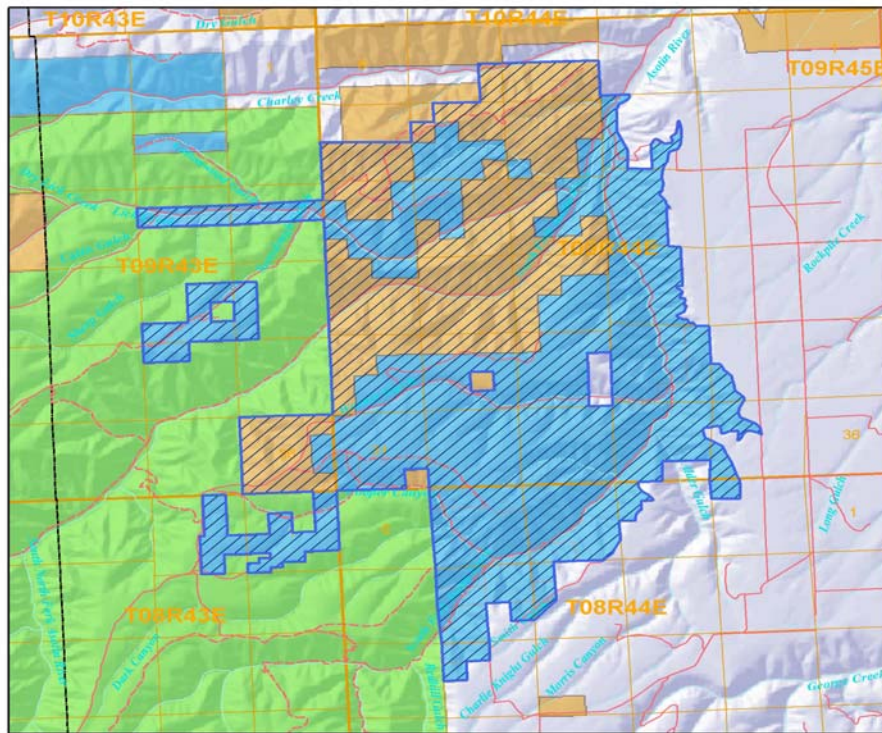




Figure 2.2 Locations of Asotin Creek Wildlife Area Parcels



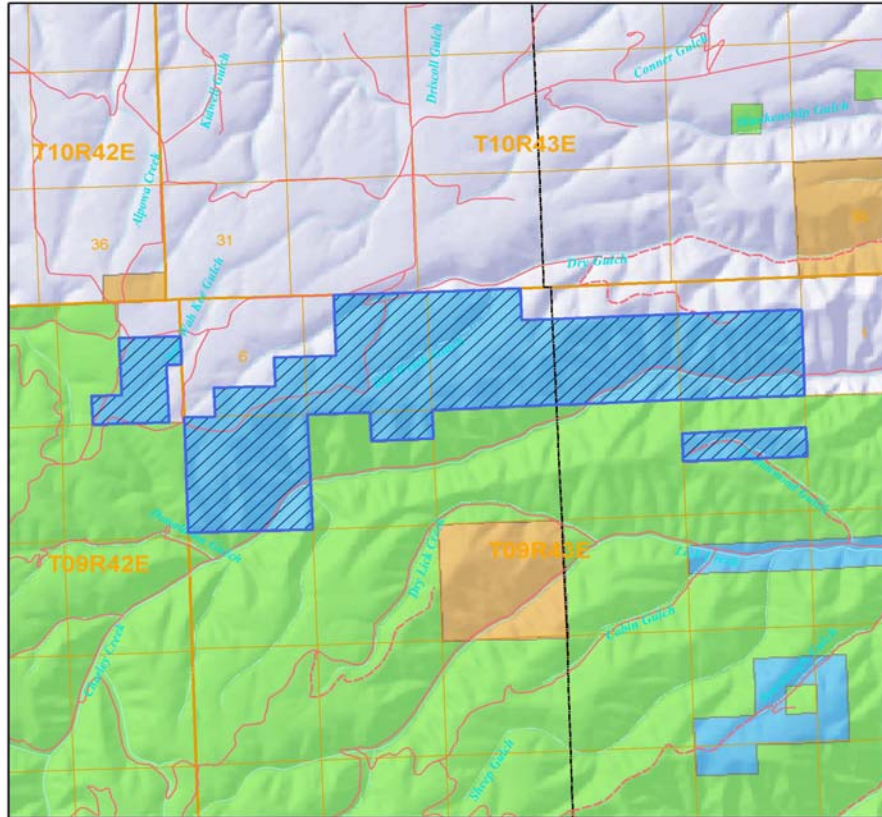
**Figure 2.3 Asotin Creek Wildlife Area**



- |  |  |  |  |
|--|--|--|--|
| <p><b>Washington Department of Fish and Wildlife</b></p> <ul style="list-style-type: none"> <li> Asotin Creek Wildlife Area Unit</li> <li> Conservation Easement</li> <li> WA Dept of Fish and Wildlife Owned Land</li> </ul> <p><b>Major Public Land Ownership</b></p> <ul style="list-style-type: none"> <li> Federal Land</li> <li> Other State Land</li> <li> County Land</li> <li> City Land</li> <li> Tribal Land</li> </ul> | <p><b>Administrative Boundaries</b></p> <ul style="list-style-type: none"> <li> Township Line</li> <li> Section Line</li> <li> Shore Line</li> <li> County Line</li> <li> State Line</li> <li> International Border</li> <li> City or Town Limits</li> </ul> | <p><b>Transportation Network</b></p> <ul style="list-style-type: none"> <li> Interstate Highway</li> <li> US Highway</li> <li> State Route</li> <li> Secondary Road</li> <li> Trail</li> </ul> | <p><b>Hydrography</b></p> <ul style="list-style-type: none"> <li> Annual Stream or River</li> <li> Intermittent Stream</li> <li> Canal</li> <li> Shoreline</li> <li> Lake or Wide River</li> </ul> |
|--|--|--|--|

1:100,000  
1 inch equals 1.6 miles

**Figure 2.4 Weatherly Segment of Asotin Creek Wildlife Area.**

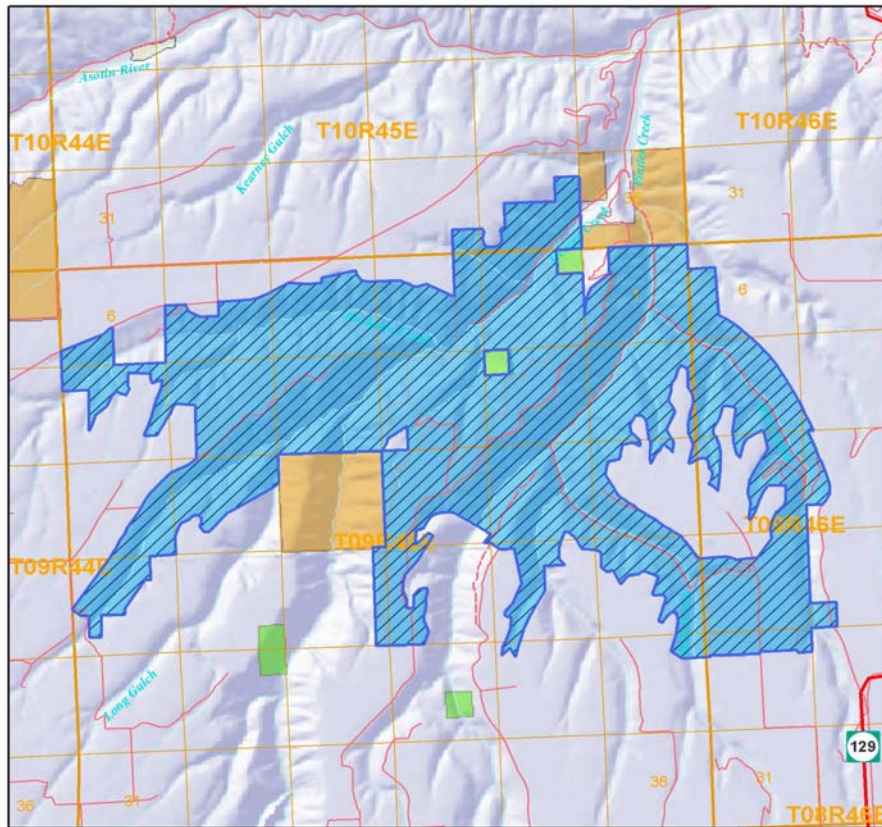


- |   |                                  |                               |                        |
|---|----------------------------------|-------------------------------|------------------------|
| <b>Washington Department of Fish and Wildlife</b> | <b>Administrative Boundaries</b> | <b>Transportation Network</b> | <b>Hydrography</b>     |
| Weatherly Wildlife Area Unit                      | Township Line                    | Interstate Highway            | Annual Stream or River |
| Conservation Easement                             | Section Line                     | US Highway                    | Intermittent Stream    |
| WA Dept of Fish and Wildlife Owned Land           | Shore Line                       | State Route                   | Canal                  |
| <b>Major Public Land Ownership</b>                | County Line                      | Secondary Road                | Shoreline              |
| Federal Land                                      | State Line                       | Trail                         | Lake or Wide River     |
| Other State Land                                  | International Border             |                               |                        |
| County Land                                       | City or Town Limits              |                               |                        |
| City Land   |                                  |                               |                        |
| Tribal Land                                       |                                  |                               |                        |

1:75,000  
1 inch equals 1.2 miles



**Figure 2.5 Asotin Creek Wildlife Area – George Creek Unit**

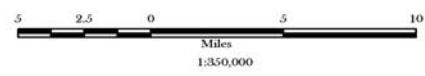
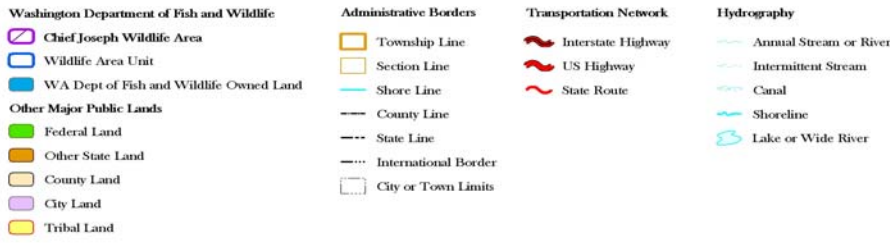
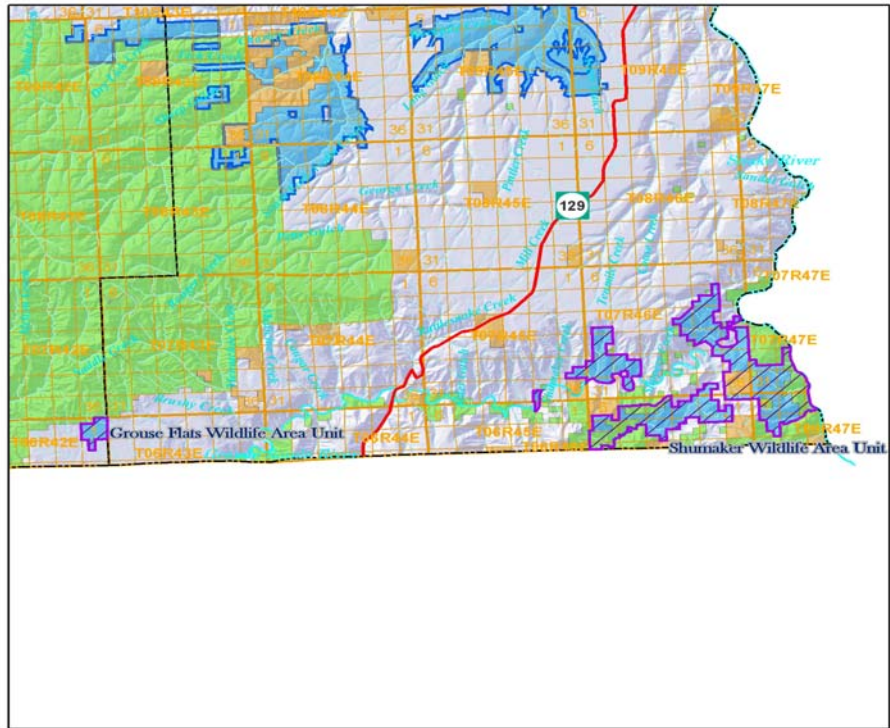


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|--|--|--|--|
| <p><b>Washington Department of Fish and Wildlife</b></p> <ul style="list-style-type: none"> <li> George Creek Wildlife Area Unit</li> <li> Conservation Easement</li> <li> WA Dept of Fish and Wildlife Owned Land</li> </ul> <p><b>Major Public Land Ownership</b></p> <ul style="list-style-type: none"> <li> Federal Land</li> <li> Other State Land</li> <li> County Land</li> <li> City Land</li> <li> Tribal Land</li> </ul> | <p><b>Administrative Boundaries</b></p> <ul style="list-style-type: none"> <li> Township Line</li> <li> Section Line</li> <li> Shore Line</li> <li> County Line</li> <li> State Line</li> <li> International Border</li> <li> City or Town Limits</li> </ul> | <p><b>Transportation Network</b></p> <ul style="list-style-type: none"> <li> Interstate Highway</li> <li> US Highway</li> <li> State Route</li> <li> Secondary Road</li> <li> Trail</li> </ul> | <p><b>Hydrography</b></p> <ul style="list-style-type: none"> <li> Annual Stream or River</li> <li> Intermittent Stream</li> <li> Canal</li> <li> Shoreline</li> <li> Lake or Wide River</li> </ul> |
|--|--|--|--|

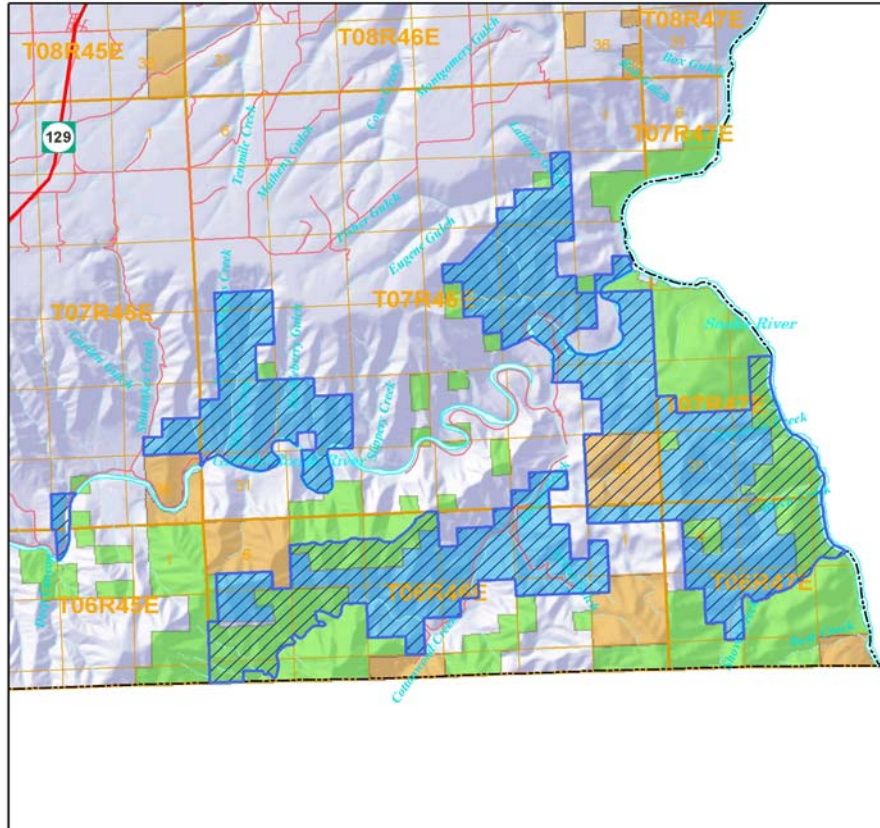
1:90,000  
1 inch equals 1.4 miles



**Figure 2.6 Chief Joseph Wildlife Area Parcels**



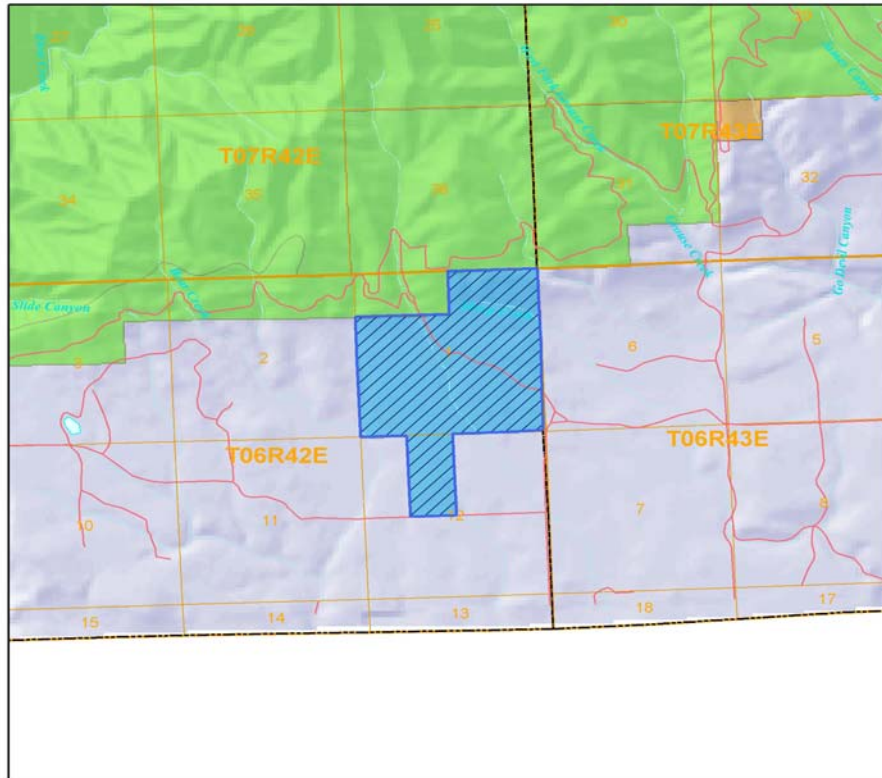
**Figure 2.7 Chief Joseph Wildlife Area**



- |  |  |  |  |
|--|--|--|--|
| <p><b>Washington Department of Fish and Wildlife</b></p> <ul style="list-style-type: none"> <li> Shumaker Wildlife Area Unit</li> <li> Conservation Easement</li> <li> WA Dept of Fish and Wildlife Owned Land</li> </ul> <p><b>Major Public Land Ownership</b></p> <ul style="list-style-type: none"> <li> Federal Land</li> <li> Other State Land</li> <li> County Land</li> <li> City Land</li> <li> Tribal Land</li> </ul> | <p><b>Administrative Boundaries</b></p> <ul style="list-style-type: none"> <li> Township Line</li> <li> Section Line</li> <li> Shore Line</li> <li> County Line</li> <li> State Line</li> <li> International Border</li> <li> City or Town Limits</li> </ul> | <p><b>Transportation Network</b></p> <ul style="list-style-type: none"> <li> Interstate Highway</li> <li> US Highway</li> <li> State Route</li> <li> Secondary Road</li> <li> Trail</li> </ul> | <p><b>Hydrography</b></p> <ul style="list-style-type: none"> <li> Annual Stream or River</li> <li> Intermittent Stream</li> <li> Canal</li> <li> Shoreline</li> <li> Lake or Wide River</li> </ul> |
|--|--|--|--|

1:125,000  
1 inch equals 2 miles

**Figure 2.8 Grouse Flats Wildlife Area**

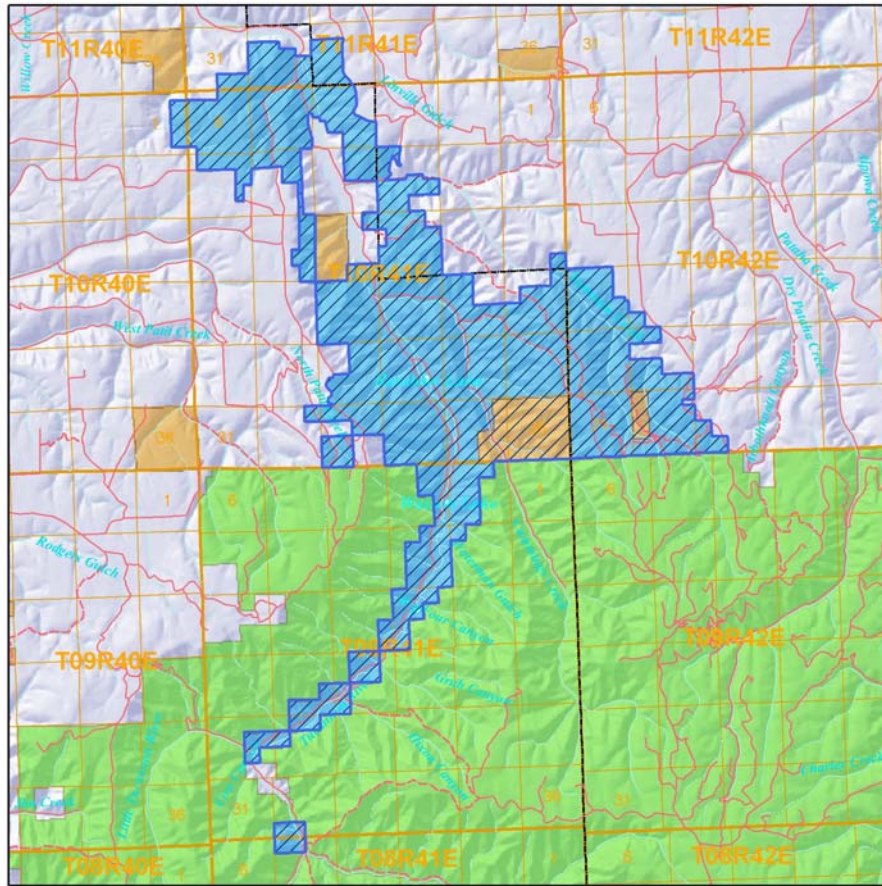


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|--|--|--|--|
| <p><b>Washington Department of Fish and Wildlife</b></p> <ul style="list-style-type: none"> <li> Grouse Flats Wildlife Area Unit</li> <li> Conservation Easement</li> <li> WA Dept of Fish and Wildlife Owned Land</li> </ul> <p><b>Major Public Land Ownership</b></p> <ul style="list-style-type: none"> <li> Federal Land</li> <li> Other State Land</li> <li> County Land</li> <li> City Land</li> <li> Tribal Land</li> </ul> | <p><b>Administrative Boundaries</b></p> <ul style="list-style-type: none"> <li> Township Line</li> <li> Section Line</li> <li> Shore Line</li> <li> County Line</li> <li> State Line</li> <li> International Border</li> <li> City or Town Limits</li> </ul> | <p><b>Transportation Network</b></p> <ul style="list-style-type: none"> <li> Interstate Highway</li> <li> US Highway</li> <li> State Route</li> <li> Secondary Road</li> <li> Trail</li> </ul> | <p><b>Hydrography</b></p> <ul style="list-style-type: none"> <li> Annual Stream or River</li> <li> Intermittent Stream</li> <li> Canal</li> <li> Shoreline</li> <li> Lake or Wide River</li> </ul> |
|--|--|--|--|

1:50,000  
1 inch equals 0.79 miles



**Figure 2.9 W.T. Wooten Wildlife Area**



- |  |  |  |  |
|--|--|--|--|
| <p><b>Washington Department of Fish and Wildlife</b></p> <ul style="list-style-type: none"> <li> Wooten Wildlife Area Unit</li> <li> Conservation Easement</li> <li> WA Dept of Fish and Wildlife Owned Land</li> </ul> <p><b>Major Public Land Ownership</b></p> <ul style="list-style-type: none"> <li> Federal Land</li> <li> Other State Land</li> <li> County Land</li> <li> City Land</li> <li> Tribal Land</li> </ul> | <p><b>Administrative Boundaries</b></p> <ul style="list-style-type: none"> <li> Township Line</li> <li> Section Line</li> <li> Shore Line</li> <li> County Line</li> <li> State Line</li> <li> International Border</li> <li> City or Town Limits</li> </ul> | <p><b>Transportation Network</b></p> <ul style="list-style-type: none"> <li> Interstate Highway</li> <li> US Highway</li> <li> State Route</li> <li> Secondary Road</li> <li> Trail</li> </ul> | <p><b>Hydrography</b></p> <ul style="list-style-type: none"> <li> Annual Stream or River</li> <li> Intermittent Stream</li> <li> Canal</li> <li> Shoreline</li> <li> Lake or Wide River</li> </ul> |
|--|--|--|--|

1:150,000  
1 inch equals 2.4 miles

## 2.2 Purchase History and Purpose

### Asotin Creek Wildlife Area

The Asotin Creek Wildlife Area was created in 1962 and originally contained 2,468 acres. In 1965 WDFW purchased 1,260 acres, and by 1975 the Agency managed 8,726 acres, of which 4,438 acres were leased from DNR. In 1988 the Hedt Ranch was acquired near Lick Creek, bringing the wildlife area acreage up to 10,290. The 3,000-acre Weatherly unit was acquired in 1989 and later increased by 240 acres in the late 1990's. The U.S. Army Corps of Engineers Snake River Mitigation



*Asotin Creek Wildlife Area- Clover Foodplot*

purchases in the early 1990's included land on Parson and Pintler creeks, and added another 4,810 acres. The Halsey purchase was made in 2001 and contained 1,528 acres, of which WDFW currently manages 493 acres, and the other 1,035 acres are enrolled in the Conservation Reserve Program (CRP). These acres will be released to WDFW management when the CRP contract expires in 2007. The 8,500-acre Schlee Ranch was acquired in June 2003 with cooperative funding from the Bonneville Power Association and Rocky Mountain Elk Foundation. The ranch is divided into two parcels – the Smoothing Iron unit and George Creek unit – and an additional 720 acres of DNR land accompanied the acquisition. In June 2004, WDFW acquired the 1,600-acre Bickford property, located on lower George Creek and adjacent to the George Creek unit of the Schlee Acquisition. In June, 2005, the agency acquired the 1,052 acre Claassen acquisition on Meyer's Ridge and the 644 acre Candy acquisition in the South Fork of Asotin Creek. To date, WDFW owns 26,196 acres, leases nearly 6,000 acres from the Department of Natural Resources (DNR), and has approximately 1,000 acres enrolled in CRP.

The Asotin Creek Wildlife Area is considered a critical watershed for salmonids such as steelhead, bull trout and spring chinook, and the State of Washington has designated the Asotin Creek drainage as a wild steelhead refuge (Mayer and Schuck 2004). The area is considered at high risk for habitat degradation due to fragmentation and stream modifications. Deer, elk, turkey, quail, chukar and grouse afford a variety of hunting and wildlife viewing opportunities for sportsmen, hunters, and nature enthusiasts. Horseback riders, hikers, and bird watchers commonly make use of trails. Acquisition of the original property was sought to protect big game winter range and calving grounds, while later purchases served to protect threatened salmonid species and their habitat.

### Chief Joseph Wildlife Area

Originally, 9,735 acres were acquired in 1974, and of those acres WDFW owned 6,452, leased 640 from DNR, and had 2,643 under withdrawal from the BLM. In the early 1990's two additional

parcels were purchased through Snake River Mitigation Funds: the Luther/Johnson parcel - 2,033 acres located near the bottom of Shumaker Grade, and the Ziegler parcel - 1,647 acres located near the mouth of the Grand Ronde River.

Livestock use historically consisted of domestic sheep in the early 1900's, and then later shifted to cow/calf and horse operations. Cropland was planted in grain hay or alfalfa. In 1987 40 acres were enrolled in CRP and approximately 40 acres were irrigated to improve big game forage.

The Chief Joseph Wildlife Area supports a wide variety of functions and uses, and the land was originally purchased to enhance bighorn sheep, mule deer, and upland game bird populations. Since WDFW acquisition, bighorn sheep have been reintroduced, along with turkey and pheasant. Large populations of California quail exist, along with blue and ruffed grouse, Hungarian partridge, and chukar. Peregrine falcons that were injured and then rehabilitated have been released on this wildlife area in the past, though no known nest sites currently exist. The diversity of wildlife found on this area affords a variety of hunting and wildlife viewing opportunities for sportsmen, hunters, and nature enthusiasts. Horseback riders, hikers, and bird watchers commonly make use of trails, and over 100 species of birds have been identified. A remnant population of mountain quail still exists on this wildlife area.

#### W.T. Wooten Wildlife Area

The W.T. Wooten wildlife area was recommended for purchase in 1940 as the "Tucannon Deer and Elk Range" and the majority of the purchases took place between 1941 and 1943. The original bulk of acquisitions totaled approximately 12,000 acres in the form of 36 parcels bought from 31 different landowners, with an additional 880 acres withdrawn from DNR and 160 acres from BLM. The land was purchased to minimize conflicts between wildlife and livestock and provide land preserved exclusively for the use of wildlife and outdoor enthusiasts. In 1991 the Agency purchased the 1,835-acre Baker/Shelton property and the 507-acre Mannschreck parcel. These parcels were combined to form the Hartsock unit, which is managed for upland game bird habitat enhancement.

Lands in and around the Tucannon River are historic wintering areas for big game and receive year-round use by a variety of game and non-game species of wildlife. During the 1970's access to the wildlife area was improved with modifications to the roadway and public use increased dramatically. The majority of visitors (75-80 percent) come from the Tri-Cities (Kennewick, Richland and Pasco), with a large portion also coming from Spokane, Walla Walla and the Lewiston/Clarkston valley. The wildlife area currently averages a use rate of 120-140,000 visitor/days per year, with major holidays seeing use in quantities of 3,000 to 5,000 visitors. At present there are fish or wildlife harvest seasons taking place 12 months out of the year on the wildlife area (WDFW 1997).

Eight artificial lakes were created in the 1950's along with the Tucannon Fish Hatchery. The hatchery propagates and stocks the lakes and Tucannon River with steelhead, chinook salmon, and rainbow trout to enhance public fishing opportunities and supplement trout stocks in the Tucannon subbasin. Approximately 125,000 trout are stocked in the lakes annually. Presently, trout are planted only in the lakes and the in-river trout stocking has been curtailed. Salmon and steelhead smolts are released into the Tucannon River, and return as adults to augment steelhead recreational

fishing and to maintain native runs. All of these fish are raised and supplied by the Lyons Ferry Hatchery Complex, which includes the Tucannon Hatchery (Gephart and Nordheim 2001).

Camp Wooten, an Environmental Learning Center, was established in 1949, and is located on WDFW land leased and operated by the State Parks and Recreation Commission. Camp Wooten is designed to provide outdoor recreation and nature-related activities to local youth groups.

### Grouse Flat Wildlife Area

The Grouse Flat parcel was acquired in 1967 with the intent to reduce elk damage complaints and establish a large continuous wildlife area. No subsequent land acquisitions have occurred since the initial purchase.

Past land practices involved the clearing of trees to grow hay and grain crops on approximately 275 acres. Two of the smaller clearings have since returned to natural conifer cover, reducing the current area farmed to 200 acres. Timber surrounding the cropland was last logged in the 1950's, and later, 2,000 pines were planted along the county road in attempt to screen feeding wildlife from disturbance.

The open meadows of the wildlife area are currently enrolled in a sharecrop agreement which improves big game forage, and the lessee is responsible for weed control and fertilization to improve forage palatability for wildlife. Small ponds were developed to increase water available to wildlife and salt is put out annually.

In addition to elk, the wildlife area supports white-tailed and mule deer, turkey, ruffed and blue grouse, bear and cougar, in addition to a multitude of non-game wildlife species. Several state threatened and candidate species are also found on this wildlife area (WDFW 1997). Grouse Flat affords hunters and campers a variety of hunting, outdoor recreation, and wildlife viewing opportunities.

## 2.3 Ownership and Use of Adjacent Lands

**Table 2.1 Land ownership distribution in the southeast Washington ecoregion. (NHI 2003, as cited in Ashley and Stovall 2004).**

Land Ownership	Subbasin					Total
	Palouse	Lower Snake	Tucannon	Asotin	Walla Walla	
Federal Lands <sup>1</sup>	68,778	24,542	78,417	64,684	102,100	<b>338,521</b>
Native American Lands	0	0	0	1,241	8,500	<b>9,741</b>
State Lands <sup>2</sup>	79,890	35,432	19,111	16,742	16,634	<b>167,809</b>
Local Government Lands	0	139	0	31	595	<b>765</b>
Non-Government Organization Lands	49	0	0	0	0	<b>49</b>
Private Lands	1,977,093	999,816	228,657	164,544	998,369	<b>4,368,479</b>
Water	31	6	0	0	0	<b>37</b>
<b>Total</b>	<b>2,125,841</b>	<b>1,059,935</b>	<b>326,185</b>	<b>230,500</b>	<b>1,126,198</b>	<b>4,885,401</b>

<sup>1</sup> Includes lands owned by the U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Reclamation, and the U.S. Army Corps of Engineers.

<sup>2</sup> Includes lands owned by WDFW, Washington State Parks, University, and the Washington Department of Natural Resources



### Asotin Creek Wildlife Area

The nearest town is Asotin, WA, population 1,020. The closest urban areas lie seven miles north of Asotin, and they are the twin cities of Clarkston, WA and Lewiston, ID, with a combined population of approximately 37,000.

Other agencies owning land adjacent to the Asotin Creek Wildlife Area include USFS: Umatilla National Forest, Bureau of Land Management, and the Washington Department of Natural Resources. All of these agencies manage for natural resource protection, and have objectives for salmonid recovery, range condition, and wildlife management.

The Asotin Creek subbasin is recognized as a “usual and accustomed” use area of the Nez Perce Tribe as stated in the treaty of 1855. The subbasin provides opportunities for fishing, hunting and gathering by tribal members, and although much of the land is owned by private or public agencies, the Nez Perce still retain an active interest in the functional resources of the watershed.

A large portion of this wildlife area lies adjacent to private landowners predominantly managing their property as livestock rangeland or in agricultural production. Within the entire Asotin Creek drainage approximately 26 percent of the land (54,956 acres) is in agricultural production, predominantly winter wheat and spring barley, with another 43 percent (90,393 acres) in pasture and rangelands (ACCD 2004). After spring calving, most cattle graze lower canyon grasslands until they are moved to forest pastures in early summer. Livestock commonly spend fall and winter in the lower elevations of the subbasin, on either grain fields or grassland pastures.

### Chief Joseph Wildlife Area

The nearest town is Asotin, population 1,020, located 30 miles north of the wildlife area. The closest urban areas lie seven miles north of Asotin, and they are the twin cities of Clarkston, WA and Lewiston, ID, with a combined population of approximately 37,000.

Other land managing agencies that own parcels adjacent to the Chief Joseph Wildlife Area include Bureau of Land Management and the Washington Department of Natural Resources. Both of these agencies manage for natural resource protection and have objectives for salmonid recovery, range condition, and wildlife management. Other land managing agencies in close proximity to the wildlife area include the Nez Perce Tribe and the Idaho Department of Fish and Game (IDFG). The Nez Perce Tribe manages the Precious Lands Wildlife Management Area along the Oregon-Washington border, and IDFG manages the Craig Mountain area just east of the Snake River.

Sections of this wildlife area lie adjacent to private landowners utilizing their property as livestock rangeland. Both cattle and sheep operations currently exist along the wildlife area boundaries and there are significant management concerns for transmission of *Pasturella* to bighorn sheep in this area.

### W.T. Wooten Wildlife Area

The towns of Dayton, Waitsburg and Pomeroy, are the closest towns, with Pomeroy located 14 miles north of the wildlife area. Several metropolitan areas, Spokane, Tri-Cities (Richland-Kennewick-Pasco), Walla Walla and the Lewiston/Clarkston valley, all lie within 100 miles.

Other land managing agencies owning land adjacent to the Wooten Wildlife Area include: US Forest Service – Umatilla National Forest, and the Washington Department of Natural Resources. Both of these agencies manage for natural resource protection and have objectives for salmonid recovery, range condition, and wildlife management.

A large portion of this wildlife area lies adjacent to private landowners predominantly managing their property as livestock rangeland or agricultural production. Crop, forest, rangeland, pasture, and hay comprise over 90 percent of the watershed. Grazed rangeland includes approximately 40 percent of the Tucannon watershed (75,725 acres) and supports livestock production. Dry and irrigated cropland produces winter wheat, barley, peas, and bluegrass (SCS 1991, as cited in Gephart and Nordheim 2001). Approximately 880 acres of private inholdings are located within the boundaries of the wildlife area itself, extending along the Tucannon River and Tumalum Creek. These parcels of private land are broken into small residential lots spread among multiple owners.

The Tucannon subbasin is part of the aboriginal range of the Nez Perce, Walla Walla, Cayuse, Confederated Tribes of the Umatilla, and Palouse Tribes. The Tucannon River is the western boundary of ceded land to the Nez Perce in the Treaty of 1855 (Joseph 1965, as cited in Gephart and Nordheim 2001). The river is also the northern ceded territory boundary for the Cayuse, Umatilla, and Walla Walla Tribes. The tribes have retained the right to take fish at all “usual and accustomed” places and to hunt, gather and pasture livestock on open and unclaimed land.

A wind farm project, consisting of four building phases, is currently being installed on Hopkins Ridge. The first phase, implemented by Puget Sound Energy, began in 2005. WDFW is still clarifying the effects and mitigation measures that will impact wildlife, but the location of one section of the elk fence may be relocated to better protect elk calving grounds. Options for hunting access into the protected wind farmlands is being considered.

#### Grouse Flat Wildlife Area

The nearest town is Troy, Oregon, approximately 8 miles south of the wildlife area. The Lewiston/Clarkston valley is the closest urban area, and lies 70 miles to the north.

The USFS Umatilla National Forest lies adjacent to the northern boundary of the wildlife area. The Wenaha-Tucannon Wilderness is located within one mile to the north, and two miles west.

A large portion of this wildlife area lies adjacent to private land predominantly managed as livestock rangeland or agricultural hay production. This wildlife area is managed with the intent to pull wildlife off these private grounds and limit number of depredation complaints from nearby landowners.

## **2.4 Funding**

### Asotin Creek, Chief Joseph, and Grouse Flat Wildlife Areas

Funding sources for land purchase on the Asotin Creek W.A. included Pittman-Robertson Federal Aid in Wildlife Restoration, Interagency Committee for Outdoor Recreation (IAC) through the Washington Wildlife and Recreation Program, The Rocky Mountain Elk Foundation, The Corps of Engineers Snake River Mitigation, and the Bonneville Power Administration (BPA). Purchases have taken place from 1962 until the most recent in 2004. The Chief Joseph and Grouse Flat wildlife areas were purchased with IAC funds.

Operating funds for these three wildlife areas are allotted as a lump sum on a bi-annual basis. Funding sources include Washington State, Pittman-Robertson funds, and State Stewardship funds allocated by the legislature. There is additional funding provided by BPA for operation and management of lands on the Asotin Creek W.A. that were purchased in cooperation with BPA. Total biennium allotment for these three wildlife areas is approximately \$455,000, and is subject to change.

#### W.T. Wooten Wildlife Area

Funding for land purchases came from hunting and fishing license sales as well as Pittman-Robertson Federal Aid in Wildlife Restoration Funds.

Seventy five percent of operational funding comes from Pittman-Robertson, and additional monies come from Washington State and a small weed fund. Total biennial funding for operation of this wildlife area is approximately \$200,000, and is subject to change.

### **2.5 Climate**

#### Asotin Creek Wildlife Area

Elevations on the Wildlife Area range from 1,300 feet on Pintler Creek to 4,600 feet on Smoothing Iron Ridge. Precipitation ranges from approximately 15 inches to over 20 inches, and winter precipitation can fall in the form of rain or snow. Mountains to the west and prevailing westerly winds influence the region's climate. The area receives a mean annual precipitation of 23 inches, including a mean annual 65 inches of snow. Average annual precipitation on the lower reaches of Asotin Creek can be as little as 12 inches per year, while the upper reaches of the watershed receive up to 45 inches. The majority of the precipitation falls between September and May, with 30 percent occurring as snow. Temperatures range from  $-20^{\circ}$  to  $105^{\circ}$  F, and the growing season is between 115 and 155 days (ACCD 2004).

#### Chief Joseph Wildlife Area

Elevations on this wildlife area range from 825 feet along Joseph Creek up to 4,913 feet at Mt. Wilson, the highest point in the vicinity. Precipitation ranges from 12 to 18 inches. Winter precipitation may fall in the form of either rain or snow. Temperatures range from below zero to over 100 degrees Fahrenheit.

#### W.T. Wooten Wildlife Area

Elevations range from 4,100 feet on Hopkins Ridge, down to 1,800 feet on the lowest section of the Tucannon River. Mean annual precipitation in the Tucannon subbasin is 23 inches, including a mean annual snowfall of 65 inches. Rainfall can range from over 40 inches at high elevations to 10 to 15 inches in lower watersheds. Ninety percent of precipitation occurs between September and May, with 30 percent falling in the form of snow (Gephart and Nordheim 2001)

#### Grouse Flat Wildlife Area

Elevations range from 3,600 to 4,160 feet. Annual precipitation averages over 20 inches per year, about half in the form of snow. Temperatures range from below zero to 100 degrees Fahrenheit.

### **2.6 Soils and Geology**

The Blue Mountains were formed during the last 20 million years by the uplift of a broad anticline arch. The Blue Mountains are comprised of a core of Paleozoic and Mesozoic metamorphic rocks

mantled by flows of the Columbia River Basalt Group. The bedrock of the watersheds in this region consists nearly entirely of lava flows 6 to 16.5 million years old (Miocene) and belongs to the Grande Ronde and Wampur formations (Gephart and Nordheim 2001).

Parent bedrock material consists of basaltic rock, and includes fractured and folded lava flows (ACCD 2004). The basalt material has broken down into coarse gravels, cobbles, and boulders, with fine silts and clays (ACMWP 1995). The overlying soil is composed of fine-grained loess, deposits of volcanic ash, and silt loams, all of which are highly erosive. Two major soil types exist in the Blue Mountains area: vitrandepts, which originate from volcanic parent material and are found at higher elevations supporting forest habitats; and agrixerolls, which are developed from igneous rock and loess deposits, and support grass and shrubland vegetation (Fowler 2001). Folding of the bedrock caused uplift in the topography and over time stream channels cut through the fragile soils to form steep-sided, narrow canyons.

One of the most notable geologic features in the Tucannon subbasin is the Hite Fault. This fault system forms the western margin of the Blue Mountains between Pomeroy, Washington, and Pendleton, Oregon, and has been the focus of many historic earthquakes (U.S. Department of Energy 1988). This fault is 135 kilometers (83.9 miles) in length and crosses both the Tucannon River and Pataha Creek at right angles. The Hite Fault is still active and may be the cause of elevated ground water temperatures well above the standard geothermal gradient recorded in local wells (Covert *et al.* 1995, as cited in Gephart and Nordheim 2001).

## **2.7 Hydrology and Watersheds**

### Asotin Creek Wildlife Area

The Asotin Creek subbasin is comprised of 360 miles of perennial and intermittent stream channels (Groat 1994, as cited in ACMWP 1995), with a mean annual flow of 74 cubic feet/second (cfs). Normal low flow rates of 15-30 cfs occur in late summer, and high flow rates of 200-400 cfs occur between February and June (ACMWP 1995).

George Creek forms the largest subbasin within the Asotin Creek watershed, but this creek, along with its tributaries Pintler and Rockpile Creeks, has no surface flow for the majority of the lower reaches. Charley Creek and both North and South Fork Asotin Creeks are perennial streams.

Historically, Asotin Creek had a less severe gradient, a meandering flow pattern with point bars that formed pools and riffles, and a well-developed thalweg (low flow stream channel). This stream morphology has been altered, and now most of the tributaries in the watershed have been straightened, diked, or relocated (ACCD 2004). These channel modifications, exacerbated by multiple flood events, resulted in a loss of well-defined thalwegs and point bars, and created a braided channel that lacks instream structure, pools, and woody vegetation. Today's drainage is straighter, steeper, and more confined, and has modified runoff patterns. The combination of all these factors, most significantly the loss of thalwegs and naturally functioning point bars, is responsible for the degradation of fish habitat in much of the Asotin drainage (ACCD 2004).

### Chief Joseph Wildlife Area

Joseph Creek is the lowest tributary of the Grande Ronde River, and roughly 2.3 miles of Joseph Creek and 8 miles of the Grande Ronde run through or adjacent to the wildlife area. Both of these drainages contain anadromous fish species (see [APPENDIX 9](#)). The floods of 1996-7 modified

some stream characteristics in Joseph Creek and piled rock and debris in the flood plain near the Chief Joseph facilities.

The Oregon Department of Environmental Quality (ODEQ) has identified many stream segments within the Grande Ronde subbasin as “water quality limited”. Many of these streams are habitat for Chinook salmon, summer steelhead and bull trout. Water quality limited means instream water quality fails to meet established standards for certain parameters for all for a portion of the year (GRSP 2004). Joseph Creek fails to meet the temperature quality standard.

### W.T. Wooten Wildlife Area

The Tucannon River is the major drainage of the wildlife area, and approximately 10 miles of the river are within Wooten boundaries. A private inholding encompassing 2.5 miles of the Tucannon River is also located within wildlife area borders, but does not fall under WDFW management. Significant tributaries of the Tucannon River are Tumalum Creek and



Cummings Creek, each of which contributes approximately 4 miles

*Cummings Creek during the Winter*

of riparian cover and fish habitat. These waters support both native and planted stocks of steelhead, chinook, and bull trout. The Tucannon is designated critical habitat for these three federally endangered species (Southerland 2004).

Eight artificial lakes have been created to improve recreational fishing opportunities. Six of the eight lakes are fed by diversions from the Tucannon River, and two are spring-fed. Water passes through the lakes and returns to the river. During the summer months the water returning to the river is warmer than the diverted water, exacerbating water temperature problems. As early as 1981 elevated water temperatures were documented as a limiting factor for Tucannon River salmon production (Gephart and Nordheim 2001).

Since 1986, the average temperature for the Tucannon River has risen to 65°F (18.3°C). Beginning in 1992, WDFW began surveying the Tucannon River to locate radio-tagged spring chinook adults. In the 12-mile section between Marengo (approximately 5 miles downstream of the wildlife area northern boundary) and the Deer Lake outlet, there were 81 adult fish carcasses that had died before they could spawn. These losses occurred when water temperatures had risen into the zone of critical temperatures for salmonids. During the same time period in 1993, WDFW counted 56

unspawned chinook carcasses, even though the water temperature was noticeably cooler than in 1992 (Gephart and Nordheim 2001).

#### Grouse Flat Wildlife Area

Grouse Flat Wildlife Area does not contain any large permanent bodies of water or fish-bearing streams. Four small ponds were created to enhance wildlife watering sites, but the ponds are spring fed or filled by run-off.

### **2.8 Fire History**

Bunchgrasses of the Blue Mountain steppe zone are tolerant of low intensity fires, but the invasion of noxious weeds such as yellow starthistle and cheatgrass have altered the nature of burns. These weedy species grow in dense stands, filling interspaces between bunchgrasses and fueling intense fires that kill native forbs and grasses. Weedy invaders tend to out-compete native bunchgrasses after a fire, and spread readily throughout burned areas, thereby converting native communities to entire stands of exotics that are less palatable to wildlife and diminish diversity of vegetation. Currently, fires occur less frequently in these grasslands due to fire suppression, roads, and conversions to cropland (Morgan *et al.* 1996 as cited in Ashley and Stovall 2004).

Five natural (historic) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of timber stand replaced) of the fire on the dominant overstory vegetation. Three of the five regimes and their habitat occurrence are found in the Blue Mountains:

- I – 0-35 year frequency with low/mixed severity (<75% stand replacement).  
Occurrence: Dry Upland Forest – Ponderosa Pine/ Douglas Fir
- II – 0-35 year frequency and high severity (stand replacement - >75% of stand)  
Occurrence: Dry and Moist Upland Grasslands – mountain grasslands
- III – 35-100+ year frequency and mixed severity (<75% stand replacement).  
Occurrence: Moist Upland Forest – Grand Fir/ Douglas Fir

#### Asotin Creek Wildlife Area

Lightening strike grass fires are common on this wildlife area. The most recent fire occurrences were: 2003, a grassfire burned 1,300 acres in Ayers Gulch (a tributary of Pintler Creek) and in August 2004, a lightning strike ignited a 60-acre grass fire on the Smoothing Iron unit.

#### Chief Joseph Wildlife Area

The Joseph Creek drainage supports ponderosa pine/ pine grass communities favored by lighting-caused under-burns, which on average recur every 10 years or less (Hardy 1992). The most intense burn in recent history occurred in 1986 when the Joseph Creek/Starvation Ridge fire consumed over 40,000 acres. This was a combination of a rare high-intensity fire and a less intense under-burn (Hardy 1992). This burn probably altered stream conditions such as shading and sediment yield in a number of Joseph Creek tributaries for many years.

#### W.T. Wooten Wildlife Area

Three different categories of fire regimes existed naturally within the Tucannon subbasin. There were low-severity fire in areas where there was near continual summer drought. In these areas, fires were widespread and frequent, occurring every 5 to 25 years (Agee 1990). Moderate-severity

fires occurred in areas with typically long summer dry periods. Fires were rather infrequent, occurring every 25 to 100 years. Small stands of subalpine fir experienced high severity fires, with infrequent crown fires. Fire in this forest type is an agent of ecosystem instability and causes major shifts in forest structure and function (Agee 1990).

In 2000 a couple hundred acres burned in McGowan after a lightning strike, and Cummings Creek burned in 1960, consuming 9,000 acres of forest, range and farmland. A salvage log sale followed, removing 7 million board feet of pine and 1 million board feet of fir (G. Stendal, pers comm. 2004). In 2005, the majority of the Wooten burned in the School Fire.

#### Grouse Flat Wildlife Area

Fire history is unknown at this time

### **2.9 Vegetation Characterization**

The ecoregion of southeast Washington contains sixteen wildlife habitat types, each briefly described in Table 2. **Figures 2.10 and 2.11** display historic and current distribution of these habitat types.

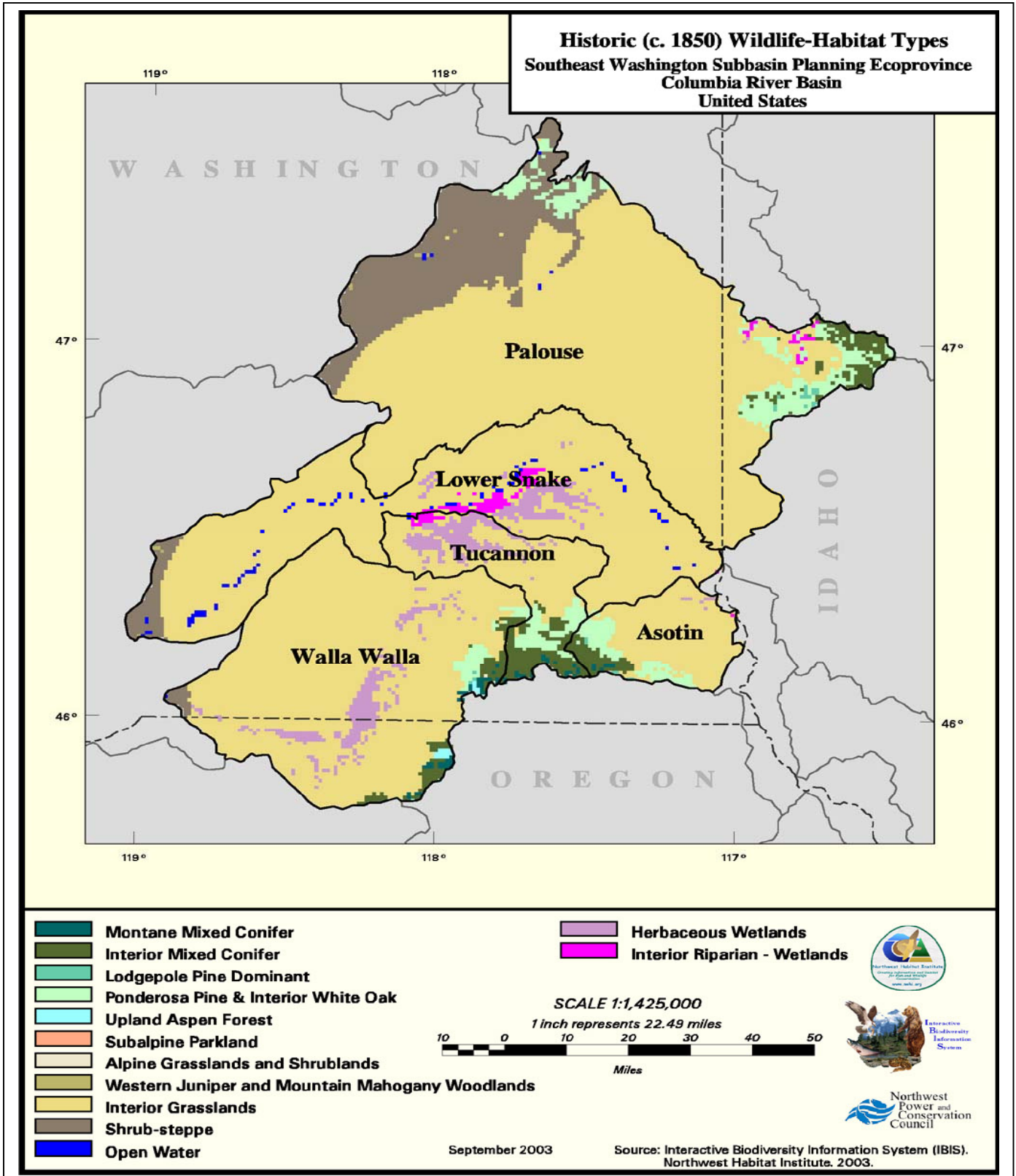


**Table 2.2 Wildlife habitat types found in the southeast Washington ecoregion (NHI 2003 as cited in Ashley and Stovall 2004)**

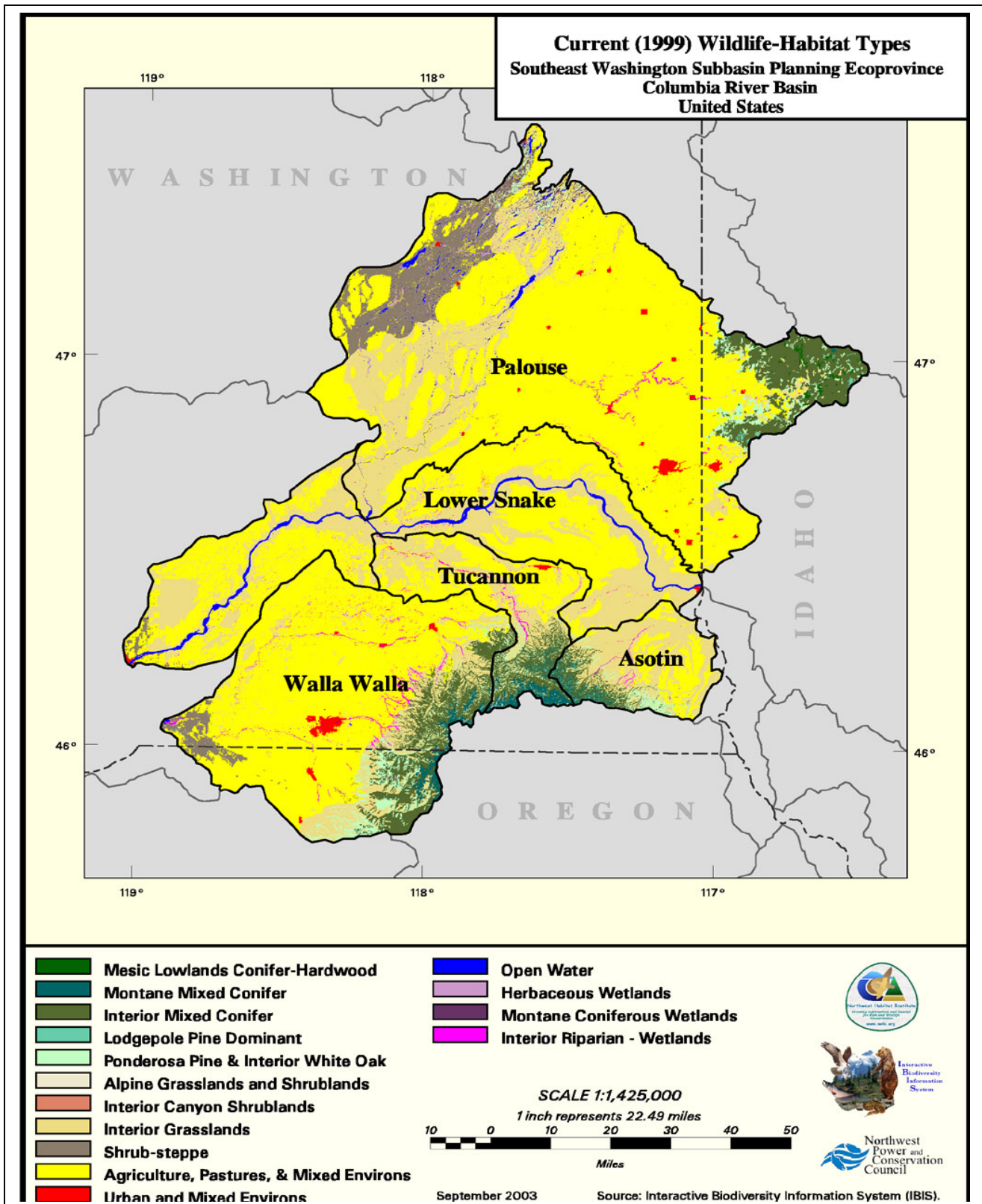
Habitat Type	Brief Description
Montane Mixed Conifer Forest	Coniferous forest of mid-to upper montane sites with persistent snowpack; several species of conifer; understory typically shrub-dominated.
Eastside (Interior) Mixed Conifer Forest	Coniferous forests and woodlands; Douglas-fir commonly present, up to 8 other conifer species present; understory shrub and grass/forb layers typical; mid-montane.
Lodgepole Pine Forest and Woodlands	Lodgepole pine dominated woodlands and forests; understory various; mid- to high elevations.
Ponderosa Pine and Interior White Oak Forest and Woodland	Ponderosa pine dominated woodland or savannah, often with Douglas-fir; shrub, forb, or grass understory; lower elevation forest above steppe, shrubsteppe.
Upland Aspen Forest	Quaking aspen is the characteristic and dominant tree in this habitat.
Subalpine Parkland	Whitebark pine is found primarily in the eastern Cascade mountains Okanogan Highlands, and Blue Mountains.
Alpine Grasslands and Shrubland	Grassland, dwarf-shrubland, or forb dominated, occasionally with patches of dwarfed trees.
Interior Canyon Shrublands	Chokecherry, oceanspray, and Rocky Mtn. maple with shrubs and grasses dominated the understory.
Eastside (Interior) Grasslands	Dominated by short to medium height native bunchgrass with forbs, cryptogam crust.
Shrubsteppe	Sagebrush and/or bitterbrush dominated; bunchgrass understory with forbs, cryptogam crust.
Agriculture, Pasture, and Mixed Environs	Cropland, orchards, vineyards, nurseries, pastures, and grasslands modified by heavy grazing; associated structures.
Urban and Mixed Environs	High, medium, and low (10-29 percent impervious ground) density development.
Lakes, Rivers, Ponds, and Reservoirs	Natural and human-made open water habitats.
Herbaceous Wetlands	Emergent herbaceous wetlands with grasses, sedges, bulrushes, or forbs; aquatic beds with pondweeds, pond lily, other aquatic plants species; sea level to upper montane.
Montane Coniferous Wetlands	Forest or woodland dominated by evergreen conifers; deciduous trees may be co-dominant; understory dominated by shrubs, forbs, or graminoids; mid- to upper montane.
Eastside (Interior) Riparian Wetlands	Shrublands, woodlands and forest, less commonly grasslands; often multilayered canopy with shrubs, graminoids, forbs below.

**Figure 2.10 Historic distribution of Wildlife Habitat Types in the southeastern Washington ecoregion.**

(NHI 2003 as cited in Ashley and Stovall 2004)



**Figure 2.11 Current distribution of Wildlife Habitat Types in the southeastern Washington ecoregion.**  
 (NHI 2003 as cited in Ashley and Stovall 2004)



## 2.10 Fish and Wildlife Resources

**Table 2.3 Resident Warm Water Fish Species (ACMWP 1995)**

Longnose Dace
Speckled Dace
Piute sculpin
Margined sculpin
Redside Shiner
Peamouth Chub
Largescale Sucker
Northern Squawfish
Bridgelip Sucker
Smallmouth Bass
Largemouth Bass

(See **Appendix 9** for scientific names of species mentioned in text)

In addition to resident fish, the tributaries and creeks of the three subbasins contain anadromous species. Steelhead, spring chinook, and bull trout are important culturally, ecologically and economically in the Asotin, Grande Ronde and Tucannon subbasins. All three species have Snake River populations that are federally listed as threatened under the Endangered Species Act (ESA). These salmonid species are present (or were historically present) at one life stage or another in many watersheds of the Blue Mountains. Habitat requirements are: good water quality, high concentrations of dissolved oxygen, cool water temperatures, sufficient flows, stable stream channels, clean spawning gravels, diverse instream and riparian habitat, a sufficient and diverse food supply, access to spawning and rearing habitat, and barrier-free migration corridors. Each of these factors is essential to the health and survival of individual fish and the population as a whole (CDFG 2002 as cited in SRSRB 2005). It is assumed that other aquatic life will benefit from managing toward suitable conditions for these species, due to their wide range of habitat requisites (ACCD 2004). Pacific Lamprey is also a species of interest due to its significance to Native Americans and native fish communities.

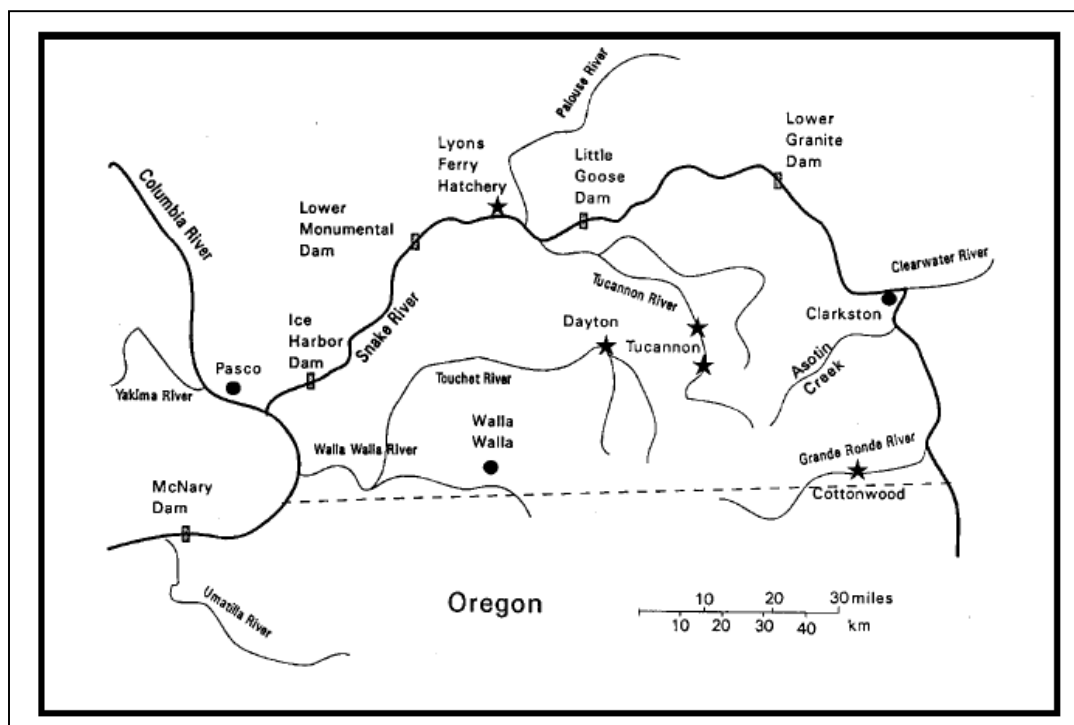
All three salmonids share similar life histories, although each species has developed its own variations and geographic preferences. Anadromous salmon and steelhead hatch and rear in freshwater streams, then migrate to the ocean to grow and mature. Bull trout are resident, rather than anadromous, and spend their entire life in or near their natal stream. Some bull trout travel long distances to larger streams and rivers, but none migrate into salt water (SRSRB 2005).

Salmonids typically remain in or near their natal stream during rearing, and feed primarily on aquatic invertebrates such as stoneflies and mayflies. The length of time juvenile fish remain in their natal streams before migrating to the ocean (outmigrating) varies. For example, some Chinook migrate a few months after emerging, while steelhead may reside in their natal stream up to 4 years. Once in the ocean, salmonids grow rapidly, spending between 1 to 4 years feeding on crustaceans and other species of fish (SRSRB 2005). Mature Snake River salmonids leave the ocean and enter the Columbia River system, crossing six dams to reach the Tucannon River and eight dams to reach either Asotin Creek or the Grande Ronde River (Figure 2.12). Adult Pacific

salmon generally do not feed during migration and spawning, and store fat prior to re-entering freshwater to provide energy during the “escapement” phase.

Salmonids complete their life cycle by returning to their natal streams to spawn. Timing varies widely, and anadromous salmonids can be found migrating during all months of the year. However, seasonal peaks in migration, referred to as “runs”, have been identified and are used to differentiate between members of the same species, such as spring or fall Chinook, and “A-run” or “B-run” steelhead. All Pacific salmonids spawn in cold, flowing water with high levels of dissolved oxygen. Generally, they prefer pool “tail-outs” with clean gravel and cobble substrates. Salmonids die shortly after spawning, with the exception of bull trout and a small percentage of steelhead (SRSRB 2005).

**Figure 2.12 Lower Snake River dams and hatcheries (Mendel *et al.* 1996).**



Bull trout can live up to ten years, sexually maturing after four. Spawning every year or every other year, they require particularly silt-free gravel bars for redds. While even slight levels of silt can decrease egg survival, spawning success is even more sensitive to temperature. Although adults can withstand water temperatures up to 64° F, eggs do best in temperatures below 36° F. Bull trout prefer stream reaches with loose clean gravel for spawning, which begins in late August and continues through the first part of October (Fraley and Shepard 1989). Although emergence typically takes place in the spring, it may occur as late as August in some cold-water headwater areas. This year-round reliance on the streambed makes bull trout more susceptible to the effects of sedimentation and channel instability than other salmonids.

In addition to salmonids, Pacific Lamprey is also a species of interest in the three subbasins due to their ecological contributions to the watershed, and as a resource for Native peoples. The National Marine Fishery Service (NMFS) lists Pacific lamprey as a species of concern, and the Umatilla Tribe has begun investigations on the status of lamprey in the Snake River and Walla Walla



systems. Pacific lampreys are significant to the Nez Perce Tribe as a valued subsistence food and for their cultural importance. The Nez Perce are working toward re-establishing a sustainable lamprey population in the Asotin subbasin (SRSRB 2005).

Historical evidence suggests Pacific Lampreys were an important component of native freshwater fish communities. Pacific Lampreys share a similar life cycle to that of anadromous salmonids, and migrate to the ocean to mature. During migration lamprey would have served as buffers for both juvenile and adult salmon from predation by marine mammals, gulls and other fish species (Close *et al.* 1995). In addition, immature lampreys were an important food source for white sturgeon (Galbreath 1979).

Pacific lamprey numbers have been in great decline since the installation of numerous dams (Figure 2.12) and habitat degradation in the Columbia Basin. Currently there is no empirical data on the numbers of Pacific lamprey that may still be returning to these watersheds. Additional research is required to establish current numbers, limiting factors, available habitat and rehabilitation potential (SRSRB 2005).

#### Asotin Creek Wildlife Area

WDFW assessed populations of steelhead and spring Chinook in the Asotin subbasin using the Ecosystem Diagnosis and Treatment (EDT) method. Insufficient data made it impossible to run the EDT model on bull trout, but even without analysis it was clear that suitable bull trout habitat was significantly less prevalent than in pre-development times (ACCD 2004). The most common limiting factors found for steelhead and Chinook were habitat diversity, sediment load, and quantity of key habitats for various life stages. Deficiencies in habitat diversity are attributed to the confined structure of Asotin creek reaches, and stream gradients above three percent (ACCD 2004).

Historic habitat structure in the lower George Creek reach and lower South Fork Asotin was thought to have contained more cottonwoods and increased riparian cover. Large woody debris (LWD) would have come from local and upstream reaches, increasing the number of pools, lowering water temperatures, and increasing flow due to better ability to retain water. Some beaver may have been present on the lower George Creek reach, which would have increased LWD recruitment. Sediment loads were thought to be less due to better upland ground cover from both forest and grassland communities, and better-developed stream banks would have decreased bank-full widths (ACCD 2004).

EDT analysis indicates that restoration efforts should focus on restoring riparian function (off-channel habitat, connection to the floodplain, and riparian vegetation), minimizing manmade confinement (roads and dikes), increasing LWD density, and reducing sediment load throughout the watershed. Addressing these habitat attributes will benefit steelhead, spring Chinook, and bull trout (ACCD 2004).

#### **Steelhead – Asotin**

In general, as Asotin Creek and many of its tributaries descend from upper reaches down into private land, grazing pressure increases and riparian/stream quality decreases. George Creek in particular descends through approximately 18 miles of private land to its confluence with Asotin Creek. It transitions from a mountain stream with gravel/cobble substrate and riparian vegetation with little sign of grazing damage, to a low gradient stream with large depositional areas, little

riparian vegetation, and seasonal dewatering. This degraded condition is most severe from the mouth of George Creek upstream to Meyers Ridge Road (Mendel *et al.* 2004).

Spawning survey data from 2000 and 2001 (Table 2.4) indicate redd densities were greatest in the Asotin mainstem from George Creek to the forks, and in the North Fork Asotin Creek. Substantially lower redd densities were found on Charlie Creek, South Fork Asotin Creek, and George Creek (from its mouth to Wormell Creek). Lowest redd densities occur in Asotin Creek from its mouth to the confluence with George Creek (ACCD 2004). Juvenile steelhead densities are relatively high in the Asotin Creek drainage with the exception of the mainstem from its mouth to the forks.

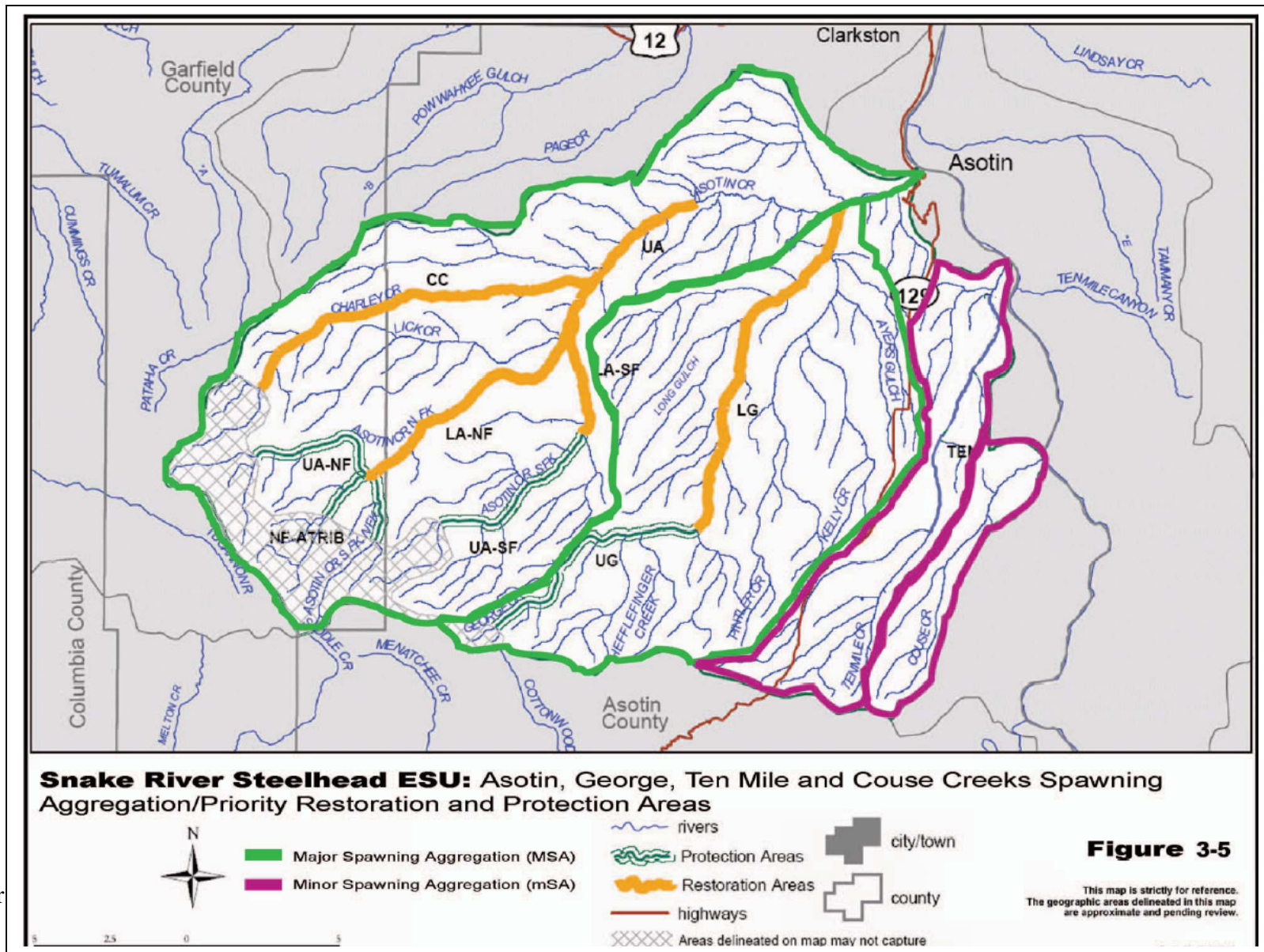
Based on the 2000 redd count (482) for the Asotin Subbasin, escapement (fish returning from the ocean) is estimated at 651 adult spawners. These data can be compared to historical escapement, which may have exceeded 1,000 adults between 1954 and 1961 (ACCD 2004). See Figure 2.13 for spawning aggregation areas. Major Spawning Aggregations (**MSAs**) are those areas estimated to have supported at least 500 spawners historically. Minor spawning aggregations (**MSAs**) are areas estimated to have supported fewer than 500 spawners. In this report, mSAs have been interpreted as having had the historical ability to support between approximately 50 and 500 spawners (SRSRB 2005).

#### **Pacific Lamprey – Asotin**

Pacific Lamprey has significant ecological and cultural importance in the Asotin subbasin. The lamprey was once a valuable resource to Tribes of the area and was significant as an alternative subsistence food. The town of Asotin was named for the Nez Perce word Heustiin, meaning “place of eels” (ACCD 2004), implying that significant numbers of lamprey once occupied the Asotin Creek drainage. No adult Pacific Lamprey have been documented in Asotin Creek since 1980, though (Mendel 1994, personal comm., as cited in ACMWP 1995) and others have seen small lamprey that could not be identified. Currently there is no empirical data on the numbers of Pacific Lamprey that may still be returning, and they are considered functionally extirpated. Additional study is required to assess current (if any) numbers, limiting factors, and habitat availability (ACCD 2004).



Figure 2.13 Steelhead – Asotin Subbasin Spawning Aggregation Areas (SRSRB 2005)



Figure

### Spring/summer Chinook - Asotin

There is little or no reliable data on historic population trends of spring/summer Chinook in the Asotin subbasin, but past references suggest a medium sized population existed (ACCD 2004). In 2002 WDFW rated the population as functionally extinct (SRSRB 2005), meaning that there were so few returning spawners that the population was no longer self-sustaining. Historically the Asotin drainage supported a Major Spawning Aggregation (Figure 2.14), but it is unknown whether spring/summer Chinook observed in Asotin Creek in recent years are of native stock or are strays from other subbasins (ACCD 2004). Juveniles are currently documented in low numbers in the North Fork Asotin and are rarely sighted in the upper mainstem Asotin or lower South Fork (ACCD 2004).

The Asotin Creek subbasin has a much greater production potential for spring chinook than it now displays, and if habitat were restored, numbers may increase to the level of a viably sustaining population (ACCD 2004). EDT modeling estimated the current average spawning population of spring Chinook to be 158 fish, with a carrying capacity of 558 fish, and a productivity of 1.4 returning adults per spawner. This estimate seems generous considering the empirical data, which shows average abundance of approximately 0-6 adults per year (ACCD 2004).

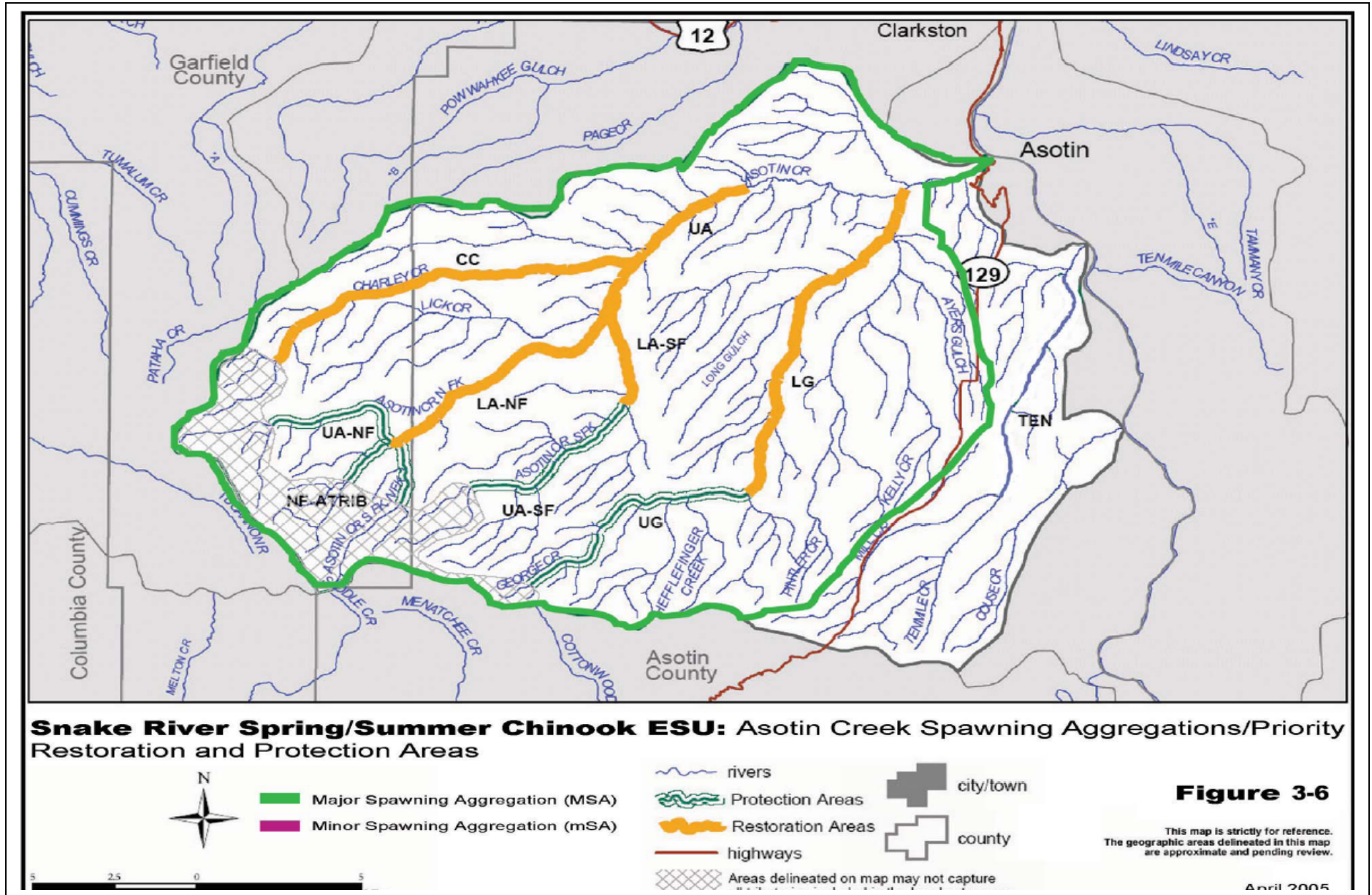
Redd abundance in North Fork Asotin Creek and upper mainstem Asotin Creek has decreased to less than six per year over the past 15 years (Table 2.5). Limited habitat availability and low summer flows are the most significant limiting factors. Spawning has been documented in the mainstem Asotin Creek and in North Fork Asotin Creek. Distribution is limited primarily to the North Fork, the lower South Fork, and the upper mainstem of Asotin Creek. On the basis of 2004 spring estimates, Chinook smolt production is approximately 1,300 fish (SRSRB 2005). This figure is based on a raw catch of 600 spring/summer Chinook smolts and an estimated trapping efficiency of 46 percent (K. Mayer, WDFW, personal comm. 2004 as cited in SRSRB 2005).

**Table 2.5 Recent Redd and Spawner Counts in North Fork Asotin Creek**

Year	Total Redd Count	Live + Dead Fish
1972	12	76
1973	13	21
1984	8	17
1985	1	8
1986	1	3
1987	3	6
1988	1	0
1989	0	0
1990	2	0
1991	0	0
1992	0	0
1993	2	1
1994	0	0
1995	0	0
1996	0	0
1997	1	0
1998	0	0
1999	0	0
2000	1	0
2001	4	4
2002	4	0
2003	1	0



Figure 2.14 Spring/summer Chinook – Asotin Subbasin Spawning Aggregation Areas (SRSRB 2005)



## **Bull Trout – Asotin**

No historic data exist regarding distribution of bull trout in the Asotin subbasin. Past distribution is assumed to have been much more extensive, and likely included both resident and migratory populations. ACCD (2004) estimates that bull trout were present, at least during the winter and spring, in George Creek, Charlie Creek, and the North and South Forks of Asotin Creek and some of their major tributaries, as well as in the Asotin Creek mainstem. It is believed that prior to significant modifications to the habitat, bull trout from both the Tucannon River and Asotin Creek migrated into the Snake River to forage and overwinter (G. Mendel, WDFW, personal comm., Feb. 2005 as cited in SRSRB 2005). In spring 2004, Bull trout that were apparently migrating in lower Asotin Creek were captured in a smolt-trap by WDFW biologists (SRSRB 2005).

StreamNet (2004) reports documented presence of bull trout only in North Fork Asotin Creek and three of its tributaries: North and Middle branches of the North Fork Asotin, and South Fork Asotin Creek. However, bull trout have been documented periodically over many years by WDFW staff in other streams including Charlie Creek, Asotin Creek (mainstem), and the North and South Forks of Asotin Creek (ACCD 2004). A 1993 USFS survey documented the presence of bull trout in the Middle Branch of North Fork Asotin Creek, the lower 1.5 miles of the South Branch of the North Fork Asotin Creek, and in Charlie Creek (Table 2.6). Bull trout are also known to spawn in Cougar Canyon Creek (a tributary to the upper North Fork). Juvenile rearing generally occurs in the spawning areas, but sub-adult and adult bull trout may migrate to other areas of the drainage when water temperatures and flows permit.

**Table 2.6 Bull Trout Redd Counts in the Asotin Subbasin 1994-2000**

<b>Watershed</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>
Lower Snake/Asotin							
NF. Asotin Creek	n/a	n/a	3	n/a	n/a	53	n/a
Cougar Canyon Creek	n/a	n/a	n/a	n/a	n/a	15	n/a

It was not possible to perform EDT modeling on bull trout, but many of the habitat problems identified for spring Chinook or steelhead would apply. Bull trout require colder water temperatures than the other two species, therefore where water temperature was of poor quality for steelhead or Chinook, it is also a significant limiting factor for bull trout. WDFW considers bull trout a “category 1” species on the state list of threatened and endangered species, and lists the Asotin Creek population as being at “high risk” of extinction (Stoval 2001). Barrier removal, reduction of sediments, and reducing stream temperatures are primary habitat recommendations.

## **Chief Joseph Wildlife Area**

Radiotelemetry data and other evidence reported by Baxter (2002) indicate that migratory bull trout exist in the Grande Ronde River, but there is no documentation of bull trout in the Joseph Creek tributary that runs through the Chief Joseph wildlife area. Of the three threatened salmonid species, only summer steelhead are known to exist within Joseph Creek, although anecdotal evidence suggests that spring and fall Chinook once inhabited the drainage (Hardy 1992). Joseph Creek is a wild fish management area and receives no hatchery supplementation. It has been closed to wild steelhead angling since the mid 1970's (GRSP 2004).

### **Steelhead – Chief Joseph**

The Snake River flows through terrain that is typically warmer and drier than other areas containing steelhead. This warmer climate, combined with highly erodible soils, produces a river system that is warmer, more turbid, and has higher pH and alkalinity than most systems in the species' range. Smaller tributary streams also have irregular stream flows, particularly during spring and summer, when highly variable flows create dewatering and re-watering issues during critical life history stages, such as spawning and egg incubation (G. Mendel, WDFW, personal comm., May 2004 as cited in SRSRB 2005).

Steelhead migrate through the Washington portion of Joseph Creek en route to spawning and rearing habitat just south of the Oregon/Washington border. Low flows and poor instream conditions, e.g. high width-to-depth ratios, create an environment that is less favorable for migrating, pre-spawn holding, spawning, and rearing (StreamNet 2004).

Based on EDT modeling estimates, the Joseph Creek summer steelhead population showed an estimated 80% decrease in abundance from historic times (GRSP 2004). The model predicts the potential for relatively large (75%) changes in steelhead abundance through restoration of Lower Chesnimnus, Lower Joseph Creek, Upper Joseph Creek, Swamp Creek, and Crow Creek (GRSP 2004).

The EDT summary indicates sediment and temperature are the biggest and most widespread impacts on Joseph Creek summer steelhead. EDT modeling shows some reduction in rearing life stages, indicative of poor channel wetted widths, and a reduction in the incubation stage, indicative of reduced presence of suitable gravels. Pathogens reflect presence of whirling disease in the basin, however there is no indication it is impacting populations (GRSP 2004).

### W.T. Wooten Wildlife Area

#### **Spring/summer Chinook – Wooten**

Prior to the late 1800's there was an annual spawning return (escapement) of Snake River spring/summer Chinook salmon that may have exceeded 1.5 million fish (Bevan *et al.* 1993). Information on the historical distribution and abundance of Tucannon spring/summer Chinook is not available, although the Tucannon Subbasin Plan (Gephart and Nordheim 2001) cites an estimate of 30,000 adult spawners in the Tucannon River prior to 1916. Due to local factors the Tucannon River Chinook run had already begun to decline before Bonneville Dam was constructed, but fish losses from dams is well documented (Gephart and Nordheim 2001) and it can be assumed there was a further decline with the installation of McNary Dam in 1953, The Dalles in 1957, Ice Harbor Dam in 1961, John Day in 1968, and the Lower Monumental Dam in 1969.

A spawning index area monitored by WDFW since 1954 showed a long-term decline in spring/summer Chinook redds. The area above Panjab Creek had substantially decreased Chinook use from the mid-1980s through 2000, but has recently rebounded along with total run size (ACCD 2004). The Tucannon run averaged 316 wild Chinook annually between 1985 and 2002 (Table 2.7).

**Table 2.7 Estimated Spring/summer Chinook Salmon Run - Tucannon River 1985-2003 (SRSRB 2005)**

Year <sup>a</sup>	Total Redds	Fish/Redd Ratio <sup>b</sup>	Spawning Fish in the River	Broodstock Collected	Pre-Spawning Mortalities <sup>c</sup>	Total Run-Size	Percent Natural
1985	219	2.6	569	22	0	591	100%
1986	200	2.6	520	116	0	636	100%
1987	185	2.6	481	101	0	582	100%
1988	117	2.6	304	125	0	429	96%
1989	106	2.6	276	169	0	445	76%
1990	180	3.39	611	135	8	754	66%
1991	90	4.33	390	130	8	528	49%
1992	200	2.82	564	97	92	753	56%
1993	192	2.27	436	97	56	589	54%
1994	44	1.59	70	70	0	140	70%
1995	5	2.20	11	43	0	54	39%
1996	68	2.00	136	80	16	232	63%
1997	73	2.00	146	97	45	288	47%
1998	26	1.94	51	89	4	144	59%
1999	41	2.60	107	136	2	245	1%
2000	92	2.60	239	81	19	339	24%
2001	298	3.00	894	106	12	1,012	71%
2002	299	3.00	897	107	1	1,005	35%
2003	118	3.10	366	77	1	444	56%

a In 1994, 1995, 1998, and 1999, fish were not passed upstream. In 1996 and 1997, high pre-spawning mortality occurred in fish passed above the trap; therefore, fish/redd ratio was based on the sex ratio of broodstock collected.

b From 1985 to 1989, the TFH trap was temporary, thereby underestimating total fish passed upstream of the trap. The 1985 to 1989 fish/redd ratios were calculated from the 1990 to 1993 average, excluding 1991 because of a large jack run.

c Effort in looking for pre-spawn mortalities has varied from year to year with more effort expended during years with poor conditions.

Source: WDFW 2004c.

Releases of native, hatchery-reared Chinook have occurred in the Tucannon River since the early 1980s and the Tucannon River spring/summer Chinook population is likely sustained by hatchery production (ACCD 2004). Tucannon River spring Chinook runs were relatively stable from 1985 to 1993 with a mean run of 550 fish (Table 2.7). However, between 1994 and 1999, the average run declined to 196 fish, with record lows in 1994 and 1995. The 1994 return of 1,822 fish, 0.12 percent of the historic run, was the lowest ever recorded, and estimated escapement into the Tucannon River that year was only 140 fish. In 1995, the return to the Tucannon River was even lower, at only 54 fish (Bumgarner *et al.* 2000). In addition to the poor adult returns, floods during the winters of 1996 and 1997, coupled with relatively low redd counts because of the depressed runs, left the river well below historical carrying capacity (SRSRB 2005).

The Tucannon River spring Chinook population declined significantly in 1994 and 1995, reducing the population to only 54 adult fish. In response to this decline, WDFW collected the majority of the run in 1995 for hatchery broodstock in an effort to maximize survival and sustain the population. It should be noted that, except for two years in the 1960s, non-native, hatchery-reared

spring/summer Chinook have never been released in the Tucannon River. While the use of local broodstock somewhat lessens the risk to the natural population, natural-origin fish comprised only 38 percent of the natural escapement from 1998 to 2002 (Gallinat and Varney 2003).

From 1999–2003 the highest incidence of spawning occurred from Tumalum Creek to the Little Tucannon River (Table 2.8). The remaining three areas, particularly Enrich to Marengo, have significantly lower redd densities. The highest juvenile densities (Table 2.9) occur between Marengo and the Little Tucannon River, particularly from Tumalum to the Tucannon Fish Hatchery dam. The lowest densities in the subbasin occur from Pataha to Marengo and from the Little Tucannon River to Bear Creek. Data from 2000-2003 surveys indicate minimal spring/summer Chinook production in Panjab Creek and its tributaries (SRSRB 2005).

**Table 2.8 Tucannon River Spring/summer Chinook Average Redd Counts (1999–2003) (SRSRB 2005)**

	Redds/mi	Miles Available	Average Redds
Enrich to Marengo	0.37	9.96	3.7
Marengo – Tumalum	3.7	8.37	31.0
Tumalum – L. Tucannon	10.3	11.91	122.7
L. Tucannon to Sheep Creek	3.1	6.69	20.7
			178.1
Total Redds Range		41-299 redds	

**Table 2.9 Tucannon River Juvenile Spring/summer Chinook Population Estimates 2000-2003 (SRSRB 2005)**

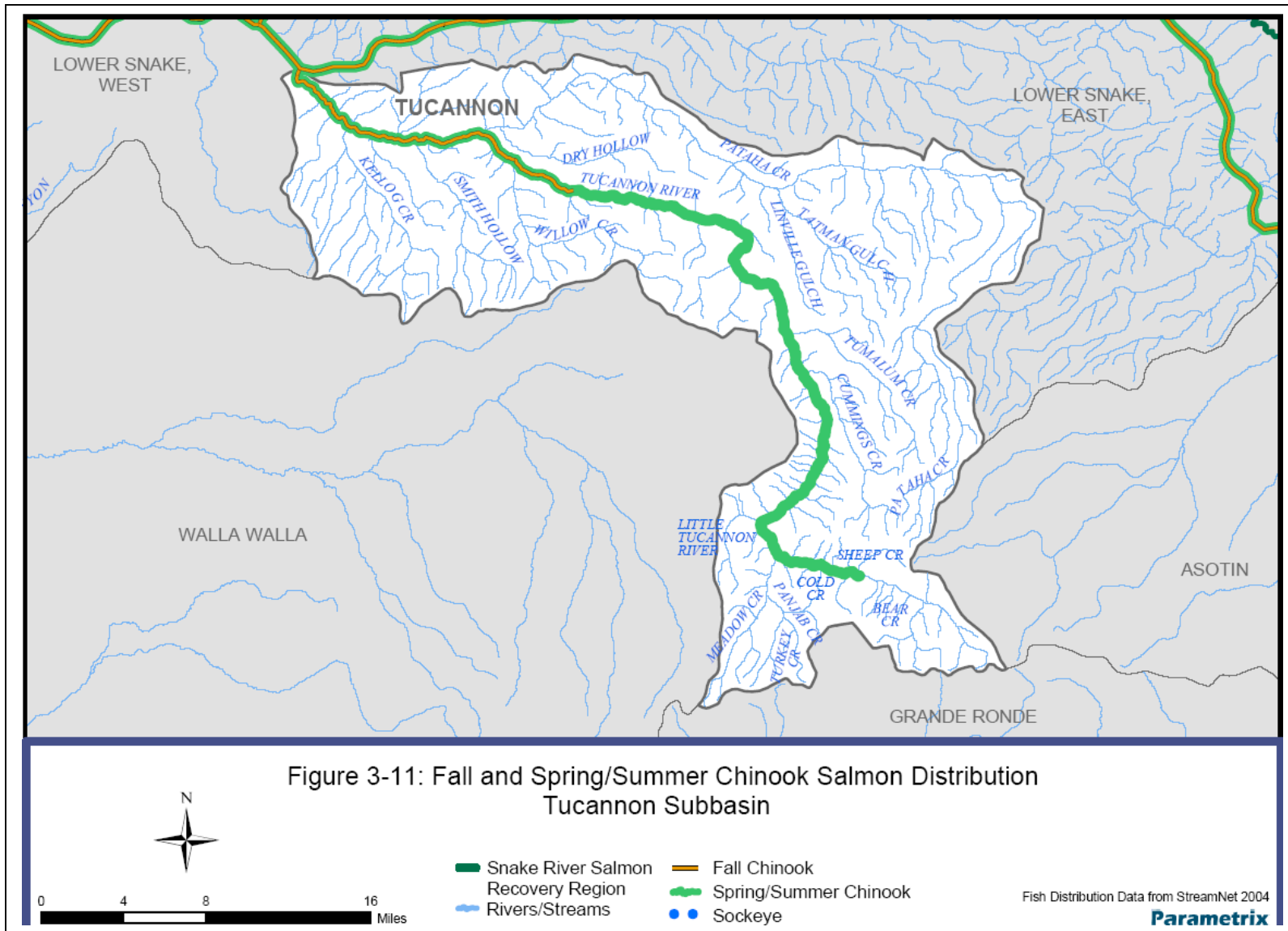
	Reach Length		Width (meters)	Total Density (per/100 m)	Total Population (estimate)
	Miles	Meters			
Pataha Creek to Marengo	14.02	22,572	12.2	3.2	8,895
Marengo to Tumalum Creek	8.37	13,475	11.9	8.5	13,593
Tumalum Creek to TFH dam	4.06	6,536	11.4	11.9	8,882
TFH dam to L. Tucannon	7.85	12,638	11.0	9.0	12,517
L. Tucannon to Bear Creek	6.69	10,770	7.5	3.3	5,677
Panjab Creek	2.2	3,542	3.6	0.0	0
					<b>46,564</b>

Tucannon River (Figure 2.15). Further downstream are five man-made, partially spring-fed lakes that receive water from the Tucannon River through screened diversion structures. Over the years, these lakes filled in with sediment and became "heat-sinks," adding warmer water back to the river. WDFW excavated three of the river-fed lakes and installed outlet structures that return cooler water to the river. The water temperature increases at each site from Panjab Creek downstream 9 miles to Deer Lake, and again from Bridge 14 to the Marengo Bridge. At Cummings Creek, however, the river is noticeably cooler. According to Schuck (1995), the river flow near the mouth of Cummings



Creek increased by at least 15 percent, and biologists suspect a spring supplying water at 50-55°F increases the temperature (Gephart and Nordheim 2001). Temperature of the Tucannon River consistently increases downstream from Cummings Creek. In late summer 1995 the Columbia Conservation District excavated a large, shallow sediment basin at the mouth of Hartsock Creek, and preliminary observations by WDFW indicate that this pond heats up to over 75°F (24°C). The pond empties into a larger, spring-fed channel that enters the river 300 ft. downstream (Gephart and Nordheim 2001). Temperature at the Marengo Bridge has consistently exceeded the Class A standard. Primary impacts to juvenile fish is that 193 (73 percent) of the 266 readings through July and August 1992 exceeded 73°F (23°C) resulting in a low juvenile chinook population compared to other areas upstream (Gephart and Nordheim 2001).

Figure 2.15. Spring/Summer and Fall Chinook Salmon distribution on the Tucannon River (SRSRB 2005)



## **Steelhead – Wooten**

Data regarding historical steelhead distribution in the Washington portion of the Snake River ESU are limited. However, because culverts, dams, seasonally dewatered stream reaches, and unsuitable water quality currently limits habitat use and migration, it is likely that historic distribution significantly exceeded current distribution (SRSRB 2005). The limited data available regarding historic abundance clearly indicate that run sizes were significantly greater prior to the 20th century (ACCD 2004). Dams, commercial harvest, and land management practices including timber harvest, road construction, agriculture, and urban development, have severely depleted anadromous salmonid stocks in the region (SRSRB 2005).

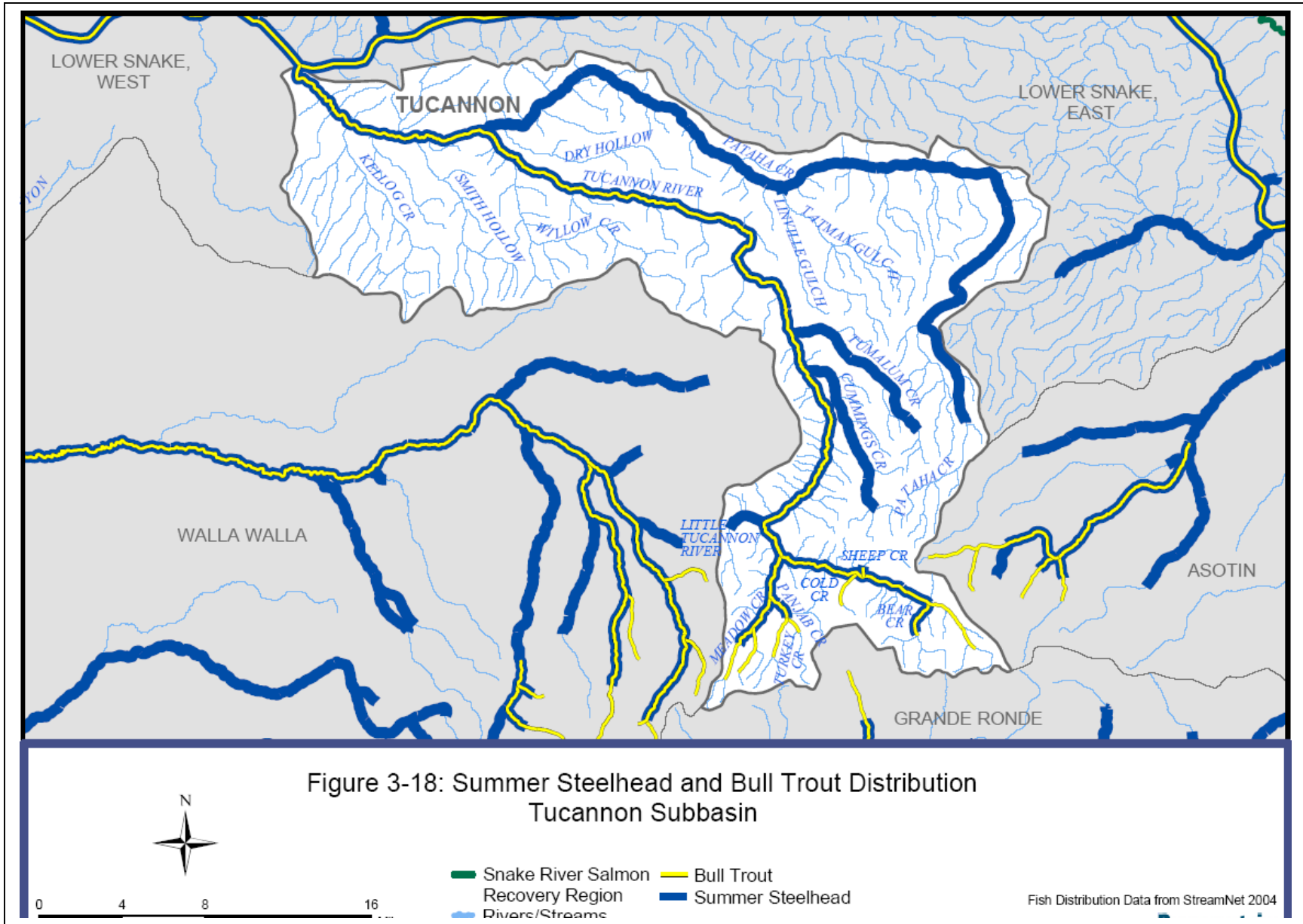
Prior to 1970, returns of native steelhead to the Tucannon River were estimated at 3,400 (WDF *et al.* 1990). Historic steelhead harvest report data estimated catches ranged from 689 in 1957 down to 24 in 1973. The sport fishery was closed in 1974, but has been open since 1985 with a requirement that all wild fish be released. In spite of this restriction the estimated number of returning wild fish has steadily declined since 1988 (Gephart and Nordheim 2001). ACCD (2004) estimated an average annual Tucannon River escapement of 177 fish from 1986 to 2001.

In an effort to supplement adult steelhead harvest in the Snake and Tucannon rivers, 120,000 to 160,000 non-native steelhead smolts were released annually to the Tucannon River from 1985 to 1997 (SRSRB 2005). Cultivation of native Tucannon broodstock began in 1991 due to concerns regarding hatchery supplementation. This program was suspended in 1993, but was re-instated in 2000. WDFW is currently evaluating the performance of the program, and releases of non-native hatchery steelhead will continue at a reduced level until a decision is made. Hatchery smolts are released below RM 24.8 (Marengo) to minimize their potential interaction with wild salmonids (SRSRB 2005).

In 2000, all rainbow/redband trout releases into the Tucannon River also were terminated. Currently, only the eight artificial lakes on the Wooten Wildlife Area are stocked with hatchery reared steelhead or rainbow trout (SRSRB 2005).

Figure 2.16 illustrates the known distribution of summer steelhead in the Tucannon Subbasin (StreamNet 2004). Dewatering is a significant problem only in portions of Tumulium Creek and Pataha Creek (G. Mendel, WDFW, personal comm., July 2004 as cited in SRSRB 2005). StreamNet (2004) and ACCD (2004) report spawning and rearing activity in the Tucannon River and several of its tributaries, including Tumulium and Cummings creeks. Redd densities are highest in the mainstem Tucannon from its confluence with Pataha Creek upstream to Marengo (RM 12.0 to 26.0), while the lowest densities were found in the Tucannon River from its confluence with the Little Tucannon River upstream to its confluence with Bear Creek (RM 46.2 to 56.5) (Table 2.10). Juvenile densities are highest in Cummings Creek, and to a lesser extent Marengo to the confluence with Tumulium Creek - RM 26.0 to 34.3. Steelhead are present in the Pataha Creek watershed, the largest Tucannon River tributary; however, relatively little is known about their distribution, abundance, and habitat use (ACCD 2004). WDFW (G. Mendel, personal comm., May 2004) reports that spawning in Pataha Creek has been confirmed, however, complete spawning surveys have not been conducted.

Figure 2.16 Summer Steelhead and Bull Trout Distribution – Tucannon Subbasin (SRSRB 2005)



	Reach Length		Mean # of Redds/m	Estimated # of Redds	Redds per Mile	Width (meters)	Total Density per/100 m	Total Pop. Estimate	Age1+Den sity	Age 1+ Pop Est.	Age 1 + Per/Mile
	Miles	Meters									
Tucannon											
Mouth to Pataha	11.24	18,096				14.4	1.3	3,388	0	0	
Pataha to Marengo	14.02	22,572	0.0083	188	5.2	12.2	26.8	73,802	2.92	8,041	574
Marengo to Tumalum	8.37	13,475	0.0045	60	2.8	11.9	32.29	51,781	7.47	11,979	1,431
Tumalum to TFH dam	4.06	6,536	0.0040	26	2.5	11.4	27.52	20,507	5.97	4,449	1,096
TFH dam to L. Tucannon	7.85	12,638	0.0019	24	1.2	11	25.2	35,034	4.56	6,339	808
L. Tuc to Bear	10.28	16,550	0.0005	8	0.3	7.5	22.6	28,054	9.56	11,867	1,154
Cummings Creek	6.78	10,915	0.0030	33	1.9	3.4	72.57	26,933	25.01	9,282	1,369
L. Tucannon	1.9	3,059				3	37.43	3,435	12.82	1,176	619
Panjab Creek	5.49	8,838				3.6	44.18	14,058	39.8	12,664	2,307
<b>Total</b>				<b>339 redds</b>				<b>256,991</b>		<b>65,798</b>	
<b>Tucannon PPP = 1 210 adults</b>				<b>= 458</b>							<b>Total average escapement 1999-2001</b>



### **Bull Trout - Wooten**

Bull trout spawn in headwater areas of the Tucannon River and use the remainder of the river for migration (Faler, Mendel, and Fulton 2004) (Figure 2.16). Historically, the entire mainstem Tucannon was open to harvest during the general trout season, but beginning in 1996, the river above Panjab Creek was closed to all fishing, and in 1999 the river was closed to bull trout harvest. The bull trout population appears to be responding positively to these actions as the number of redds has increased on the spawning grounds in this area (Gephart and Nordheim 2001).

Bull trout spawning surveys have been conducted intermittently since 1990 (Table 2.10). The headwater areas known to support bull trout spawning include the upper reaches of the mainstem Tucannon (from Panjab Creek to a point well above Bear Creek) and upper Tucannon tributaries including Cummings Creek, Sheep Creek, Cold Creek, Bear Creek, Panjab Creek, and several tributaries of Panjab Creek, including Turkey Creek, Meadow Creek, and Turkey Tail Creek (SRSRB 2005).

**Table 2.10 Bull Trout Redd Survey – Tucannon Subbasin 1990-2003 (SRSRB 2005)**

<b>Year</b>	<b>Number of redds</b>	<b>Miles surveyed</b>	<b>Redds/mile</b>
1990	63	6.0	10.5
1991	57	12.9	4.4
1992	66	10.8	6.1
1993	NA	NA	NA
1994	131	8.5	15.4
1995	114	11.5	9.9
1996	184	16.0	11.5
1997	78	18.5	4.2
1998	108	17.2	6.3
1999	222	30.6	7.2
2000	151	17.6	8.6
2001	68	3.5	19.4
2002	90	19.5	4.6
2003	188	27.1	6.9

### **Pacific Lamprey - Wooten**

Although historically abundant, as few as 40 adult lamprey were counted passing Ice Harbor Dam in 1993. Pacific lamprey numbers have been in great decline since the installation of numerous dams and habitat degradation in the Columbia Basin. Pacific lampreys historically were common in the Tucannon Subbasin. Juvenile lamprey have been captured in the smolt trap located on the Tucannon River at RM 1.9 every spring since 1986, and WDFW staff occasionally sees adults. Pacific lamprey are a valuable resource for the Nez Perce Tribe, and are harvested to this day as a subsistence food that is highly regarded for its cultural value (SRSRB 2005). River and brook lamprey may also exist in the Tucannon River, but their presence is uncertain (Gephart and Nordheim 2001).

## Amphibians and reptiles

Table 2.11 lists amphibian and reptile species that could potentially be found on any or all of the four Blue Mountains Wildlife Areas. This list is based on habitat only, and most species have not had comprehensive surveys conducted to verify current presence or absence.

**Table 2.11 Amphibian and Reptile species**

<b>Snakes</b>	<b>Frogs and Toads</b>	<b>Lizards</b>	<b>Salamanders</b>	<b>Turtles</b>
Rubber Boa	Tailed Frog	Short-horned Lizard	Tiger Salamander	Painted Turtle
Western Terrestrial Garter Snake	Pacific Chorus (Tree) Frog	Southern Alligator Lizard	Long-toed Salamander	Western Pond Turtle
Racer	Great Basin Spadefoot	Sagebrush Lizard		
Night Snake	Roughskin Newt	Western Skink		
Ringneck Snake	Northern Leopard Frog	Western Fence Lizard		
Common Garter Snake	Columbia Spotted Frog			
Western Rattlesnake	Bullfrog (Non-native)			
Striped Whipsnake	Western Toad			
Gopher Snake				

## Birds

Table 2.12 lists bird species that could potentially be found on any or all of the four Blue Mountains Wildlife Areas. This list is based on habitat only, and most species have not had comprehensive surveys conducted to verify current presence or absence.

**Table 2.12 Bird Species**

Great Blue Heron	Black-chinned Hummingbird	Golden-crowned Kinglet
Canada Goose	Calliope Hummingbird	Ruby-crowned Kinglet
Tundra Swan	Rufous Hummingbird	Western Bluebird
Mallard	Belted Kingfisher	Mountain Bluebird
Cinnamon Teal	Lewis's Woodpecker	Townsend's Solitaire
Common Merganser	Williamson's Sapsucker	Veery
Osprey	Red-naped Sapsucker	Swainson's Thrush
Northern Harrier	Downy Woodpecker	Hermit Thrush
Sharp-shinned Hawk	Hairy Woodpecker	American Robin
Cooper's Hawk	White-headed Woodpecker	Varied Thrush
Northern Goshawk	Three-toed Woodpecker	Gray Catbird
Swainson's Hawk	Black-backed Woodpecker	Sage Thrasher
Red-tailed Hawk	Northern Flicker	European Starling
Ferruginous Hawk	Pileated Woodpecker	Bohemian Waxwing
Rough-legged Hawk	Olive-sided Flycatcher	Cedar Waxwing
Golden Eagle	Western Wood-pewee	Orange-crowned Warbler
American Kestrel	Willow Flycatcher	Yellow Warbler
Prairie Falcon	Hammond's Flycatcher	Yellow-rumped Warbler
Chukar	Dusky Flycatcher	Townsend's Warbler
Gray Partridge	Pacific-slope Flycatcher	MacGillivray's Warbler
Ring-necked Pheasant	Cordilleran Flycatcher	Wilson's Warbler
Ruffed Grouse	Say's Phoebe	Yellow-breasted Chat
Blue Grouse	Western Kingbird	Western Tanager
Wild Turkey	Eastern Kingbird	Green-tailed Towhee
Mountain Quail	Northern Shrike	Spotted Towhee
California Quail	Cassin's Vireo	American Tree Sparrow
Killdeer	Warbling Vireo	Chipping Sparrow
Greater Yellowlegs	Red-eyed Vireo	Brewer's Sparrow
Lesser Yellowlegs	Gray Jay	Vesper Sparrow
Solitary Sandpiper	Steller's Jay	Lark Sparrow
Spotted Sandpiper	Clark's Nutcracker	Savannah Sparrow
Western Sandpiper	Black-billed Magpie	Grasshopper Sparrow
Least Sandpiper	American Crow	Fox Sparrow
Baird's Sandpiper	Northwestern Crow	Song Sparrow
Pectoral Sandpiper	Common Raven	Lincoln's Sparrow
Long-billed Dowitcher	Horned Lark	White-crowned Sparrow
Herring Gull	Tree Swallow	Dark-eyed Junco
Tayer's Gull	Violet-green Swallow	Lapland Longspur
Glaucous Gull	Northern Rough-winged Swallow	Black-headed Grosbeak
Rock Dove	Bank Swallow	Lazuli Bunting
Mourning Dove	Cliff Swallow	Red-winged Blackbird
Barn Owl	Barn Swallow	Western Meadowlark
Flammulated Owl	Black-capped Chickadee	Yellow-headed Blackbird
Western Screech-owl	Mountain Chickadee	Brewer's Blackbird
Great Horned Owl	Chestnut-backed Chickadee	Brown-headed Cowbird
Northern Pygmy-owl	Red-breasted Nuthatch	Bullock's Oriole

Barred Owl	White-breasted Nuthatch	Cassin's Finch
Long-eared Owl	Pygmy Nuthatch	House Finch
Short-eared Owl	Brown Creeper	Red Crossbill
Northern Saw-whet Owl	Rock Wren	Pine Siskin
Common Nighthawk	Canyon Wren	American Goldfinch
Common Poorwill	House Wren	Evening Grosbeak
Vaux's Swift	Winter Wren	House Sparrow
White-throated Swift	American Dipper	

## Mammals

Table 2.13 lists mammal species that could potentially be found on any or all of the four Blue Mountains Wildlife Areas. This list is based on habitat only, and most species have not had comprehensive surveys conducted to verify current presence or absence.

**Table 2.13 Mammal Species**

Preble's Shrew	Snowshoe Hare	Water Vole
Vagrant Shrew	White-tailed Jackrabbit	Muskrat
Montane Shrew	Black-tailed Jackrabbit	Norway Rat
Water Shrew	Yellow-pine Chipmunk	House Mouse
Merriam's Shrew	Yellow-bellied Marmot	Western Jumping Mouse
Coast Mole	Columbian Ground Squirrel	Common Porcupine
California Myotis	Golden-mantled Ground Squirrel	Coyote
Western Small-footed Myotis	Eastern Fox Squirrel	Black Bear
Yuma Myotis	Red Squirrel	Raccoon
Little Brown Myotis	Northern Flying Squirrel	American Marten
Long-legged Myotis	Northern Pocket Gopher	Ermine
Fringed Myotis	Great Basin Pocket Mouse	Long-tailed Weasel
Long-eared Myotis	American Beaver	Mink
Silver-haired Bat	Western Harvest Mouse	American Badger
Western Pipistrelle	Deer Mouse	Western Spotted Skunk
Big Brown Bat	Northern Grasshopper Mouse	Striped Skunk
Hoary Bat	Bushy-tailed Woodrat	Mountain Lion
Townsend's Big-eared Bat	Southern Red-backed Vole	Bobcat
Pallid Bat	Heather Vole	Elk
Eastern Cottontail	Montane Vole	Mule Deer
Nuttall's (Mountain) Cottontail	Long-tailed Vole	White-tailed Deer
		Bighorn Sheep

### 2.11 Special Status Habitats and Species

*Focal Habitats* and associated *Focal Species* were selected by subbasin planners to identify management goals for all resources on an ecoregional level. By managing toward suitable conditions for these sensitive habitats and species, it is assumed that other less demanding wildlife and habitats will also benefit.

On the state level, WDFW has identified *Priority Habitats and Species* throughout Washington that are most in need of protection. Often these habitats have limited distribution throughout the landscape or provide a limited life requisite for a priority wildlife species. Recent land acquisitions in the Blue Mountains area have been driven by WDFW's commitment to protecting these priority resources.

*Target Wildlife Species* are used to evaluate the quality of lands acquired through use of BPA mitigation funding. A species modeling technique called Habitat Evaluation Procedure, or HEP, is applied to all BPA mitigation lands, and is used as a standard to compare life requisite values for target wildlife species over various parcels of land.



Plant and wildlife species registered on State or Federal lists as Rare, Threatened, Endangered, or Species of Concern are all significant to the management and conservation practices of the Blue Mountain wildlife areas. A table of these species can be found in APPENDIX 9.

### **Focal Habitats of the Ecoregion**

Ecoregional planners selected three focal habitat types that occur in the local subbasins: ponderosa pine, interior grasslands, and riparian/riverine wetlands. An assemblage of focal wildlife species was created for each focal habitat type. The planning team proposed use of these multiple species' life requisites (umbrella species concept) to guide regional management. The main assumption is that life requisites of demanding species assemblages would also include the requisites of many co-occurring, less demanding, species. Therefore, managing habitat conditions for a species assemblage should provide requisite needs for a large number of species (Ashley and Stovall 2004). Life requirements of the assemblage were combined to create a desired range of "Recommended Future Conditions" (Table 2.14). These ecoregional recommendations can be used to ensure WDFW's wildlife area management is consistent with other landscape-level management issues, and where appropriate, guide future actions.

### **Ponderosa pine**

Ponderosa pine was selected as a focal habitat in the southeast Washington ecoregion because it supports a high number of vertebrate wildlife species compared to other eastside forest habitats, and has experienced extensive loss of acreage and degradation. In addition, several bird species associated with this habitat are showing declining population trends due mainly to loss of snags (standing dead trees) and old-growth conditions (Ashley and Stovall 2004). This habitat type has been heavily altered by past forest management, specifically, logging of large overstory pines, and decades of fire suppression. See Table 2.14 for a summary of recommendations for this habitat type.

Historically, ponderosa pine stands contained widely spaced large trees with open understories free of shrubs. Fire scar evidence indicates that ponderosa pine forests burned approximately every 1-30 years, preventing contiguous understory development, and thereby maintaining relatively open stands (Arno 1988; Habeck 1990). Ponderosa pine is adapted to frequent fires - trees are protected by thick insulating bark, and meristems are protected by needles and bud scales. Lower branches often fall off the trunk, reducing ladder fuels. Seedlings germinate more readily when a fire has cleared grass and forest floor litter and creates an ash-enhanced seedbed. Ponderosa pine is more vulnerable to fire in sites where other conifers such as Douglas-fir, and grand fir form dense understories that carry fire up into the canopy.

In the Blue Mountains it is possible to find ponderosa pine up to nearly 5,000 feet on southern aspects. Frequently, the aspect dependence of this zone creates a complex inter-digitization between steppe and ponderosa pine stands, so that disjunct steppe fragments occur on south-facing slopes deep within forests, while ponderosa pine woodlands reach well into steppe habitats along drainages and north slopes. At higher elevations, ponderosa pine is seral to trees more shade tolerant and moisture demanding, such as Douglas-fir, grand fir, and white fir (Howard 2001). Undergrowth in forest settings is generally dominated by herbaceous species such as pinegrass, Geyer's sedge, Ross' sedge, long-stolon sedge, or blue wildrye. Drier savanna and woodland settings typically contain bunchgrass steppe species such as Idaho fescue, rough fescue, bluebunch wheatgrass, or needlegrass.

Quigley and Arbelbide (1997) found the Ponderosa Pine cover type to be significantly reduced from pre-1900 coverage, and the greatest structural change has been a reduction in late-seral, single-layer condition. This habitat is commonly found in degraded condition due to an increase in exotic plants and decrease in native bunchgrasses.

**Table 2.14 Ponderosa Pine Management Assessment (Ashley and Stovall 2004)**

<p><b>WORKING HYPOTHESIS STATEMENT:</b>          The major factors affecting this focal habitat type are direct loss of habitat due primarily to timber harvesting, fire reduction/wildfires, mixed forest encroachment, development, recreational activities, reduction of habitat diversity and function resulting from invasion by exotic species and vegetation and overgrazing. The principal habitat diversity stressor is the spread and proliferation of mixed forest conifer species within ponderosa pine communities due primarily to fire reduction and intense wildfires. Habitat loss and fragmentation (including fragmentation resulting from extensive areas of undesirable vegetation) coupled with poor habitat quality of existing vegetation have resulted in extirpation and or significant reductions in ponderosa pine habitat obligate wildlife species.</p>
<p><b>RECOMMENDED RANGE OF CONDITION:</b>  <u>Mature ponderosa pine forest:</u> The white-headed woodpecker represents species that require/prefer large patches (greater than 350 acres) of open mature/old growth ponderosa pine stands with canopy closures between 10 - 50 percent and snags (a partially collapsed, dead tree) and stumps for nesting (nesting stumps and snags greater than 31 inches DBH).   <u>Multiple canopy ponderosa pine mosaic:</u> Flammulated owls represent wildlife species that occupy ponderosa pine sites comprised of multiple canopy, mature ponderosa pine stands or mixed ponderosa pine/Douglas-fir forest interspersed with grassy openings and dense thickets. Flammulated owls nest in habitat types with low to intermediate canopy closure (Zeiner <i>et al.</i> 1990), two layered canopies, tree density of 508 trees/acre (9 foot spacing), basal area of 250 feet<sup>2</sup>/acre (McCallum 1994), and snags greater than 20 inches DBH 3-39 feet tall (Zeiner <i>et al.</i> 1990). Food requirements are met by the presence of at least one snag greater than 12 inches DBH/10 acres and 8 trees/acre greater than 21 inches DBH.   <u>Dense canopy closure:</u> Rocky Mountain Elk were selected to characterize ponderosa pine habitat with greater than 70 percent canopy closure and over 40 feet in height.</p>
<p><b>MANAGEMENT STRATEGIES:</b>          1) Protect extant habitat in good condition through easements and acquisitions; protect poor quality habitat and/or lands with habitat potential adjacent to existing protected lands (avoid isolated parcels/wildlife population sinks).          2) Coordinate with public and private land managers on the use of controlled fire regimens and stand management practices.          3) Restore forest functionality by providing key environmental correlates through prescribed burns and silviculture practices.          4) Fund and coordinate weed control efforts on both public and private lands.          5) Identify and protect wildlife habitat corridors/links.</p>

**Eastside (Interior) Grasslands**

Eastside (interior) grasslands were selected as a focal habitat type because land use practices in the past 100 years have reduced this habitat by 97 percent, and impacts to grassland dependent species

such as sharp-tailed grouse have been significant (NHI 2003). In addition, remaining parcels of native prairie are subject to weed invasions and occasional drifts of aerially applied pesticides. The grasshopper sparrow and sharp-tailed grouse have been selected to represent the needs of obligate grassland wildlife species. This habitat type will be significant in WDFW's future sharp-tailed grouse restoration plans. See Table 2.15 for a summary of recommendations concerning this habitat type.

Interior grasslands historically included four steppe vegetation zones: Palouse, Blue Mountain, wheatgrass/fescue, and canyon grassland (Daubenmire and Daubenmire 1970; Cassidy 1997). The small, distinctive Blue Mountains steppe vegetation zone occupies 160,550 acres in the extreme southeastern corner of Washington. The canyon grassland steppe vegetation zone occupies a 516,230-acre area occurring in two disjunct segments. Only one of these segments – the portion along the Snake River drainage – occurs on WDFW wildlife areas in the Blue Mountains.

Structurally, interior grassland habitat is dominated by short to medium-tall grasses (<3.3 ft), and tends to be arranged in an open and irregular spacing of grass clumps rather than mat-forming sod cover. These medium-tall grasslands often have scattered patches of short shrubs, but few or no medium-tall shrubs. Native forbs may or may not be present. Blue Mountains steppe vegetation is characterized by shrubby swales regularly alternating with herb-covered “humps” on slopes. Canyon grasslands are dominated by bunchgrasses growing in lower densities than on deep-soil prairie sites. The soil surface between plants can be covered with a cryptogamic or microbiotic layer of mosses, lichens, and various soil bacteria and algae (Crawford and Kagan 2004).

Species composition for interior grasslands consists largely of Bluebunch wheatgrass and Idaho fescue and either or both can be dominant. Idaho fescue is common in more moist areas and bluebunch wheatgrass more abundant in drier areas. Sand dropseed or three-awn are native dominant grasses on hot dry sites in deep canyons. Sandberg bluegrass is usually present, and occasionally codominant in drier areas. Bottlebrush squirreltail and Thurber needlegrass can be locally dominant. Annual grasses are usually present; cheatgrass is the most widespread. In addition, medusahead, and other annual bromes may be present to co-dominant. Moist environments, including riparian bottomlands, are often co-dominated by Kentucky bluegrass (Crawford and Kagan 2004).

A dense and diverse forb layer can be present or entirely absent; more than 40 species of native forbs can grow in this habitat including balsamroots, biscuitroots, buckwheat, fleabane, lupines, and milkvetches. Common exotic forbs that can grow in this habitat are knapweeds, tall tumbled mustard, and Russian thistle (Crawford and Kagan 2004).

Without fire, black hawthorn shrub patches expand on slopes along with common snowberry and rose. Fires burning over large areas of shrub habitat can eliminate shrubs and their seed sources and create grassland habitat. Fires that follow heavy grazing or repeated early season fires can result in a change of species composition from perennial natives to annual species such as cheatgrass (Ashley and Stovall 2004).

**Table 2.15 Interior Grassland Management Assessment (Ashley and Stovall 2004)**

<p><b>WORKING HYPOTHESIS STATEMENT:</b></p> <p>The proximate or major factors affecting this focal habitat type are direct loss of habitat due primarily to conversion to agriculture, reduction of habitat diversity and function resulting from invasion of exotic vegetation and wildfires, and overgrazing. The principal habitat diversity stressor is the spread and proliferation of annual grasses and noxious weeds such as cheatgrass and yellow-star thistle that either supplant and/or radically alter entire native bunchgrass communities significantly reducing wildlife habitat quality. Habitat loss and fragmentation (including fragmentation resulting from extensive areas of undesirable vegetation) coupled with poor habitat quality of existing vegetation have resulted in extirpation and or significant reductions in grassland obligate wildlife species.</p>
<p><b>RECOMMENDED RANGE OF CONDITION:</b></p> <p>Grasshopper sparrow and sharp-tailed grouse were selected to represent interior grassland wildlife species. The range of conditions recommended for interior grassland habitat includes:</p> <ol style="list-style-type: none"><li>1. Native bunchgrasses greater than 40 percent cover</li><li>2. Native forbs 10 to 30 percent cover</li><li>3. Herbaceous vegetation height greater than 10 inches</li><li>4. Visual obstruction readings (VOR) at least 6 inches</li><li>5. Native non-deciduous shrubs less than 10 percent cover</li><li>6. Exotic vegetation/noxious weeds less than 10 percent cover</li></ol>
<p><b>MANAGEMENT STRATEGIES:</b></p> <ol style="list-style-type: none"><li>1. Protect extant habitat in good condition through easements and acquisitions; protect poor quality habitat and/or lands with habitat potential adjacent to existing protected lands (avoid isolated parcels/wildlife population sinks).</li><li>2. Fund and coordinate weed control efforts on both public and private lands.</li><li>3. Restore grassland functionality by providing vegetation structural elements through reestablishment of native plant communities where practical and cost effective.</li><li>4. Identify and protect wildlife habitat corridors/links.</li><li>5. Restore viable populations of grassland obligate wildlife species where possible.</li></ol>

### **Eastside (Interior) Riparian Wetland**

Riparian wetland was selected as a focal habitat because wetted areas comprise the least amount of acreage on the landscape, but are the most ecologically important cover types. Riparian cover is a primary factor influencing the quality and health of fish habitat and significantly impacts terrestrial wildlife species. Up to 80 percent of all wildlife species are dependent upon this habitat type at some time in their lifecycle (Thomas 1979). See Table 2.16 for a summary of subbasin recommendations concerning this habitat type.

Within the past 100 years, an estimated 95 percent of this habitat has been altered, degraded, or destroyed by a wide range of human activities, including river channelization, unmanaged livestock grazing, clearing for agriculture, water impoundments, urbanization, timber harvest, exotic plant invasion, recreational impacts, groundwater pumping, and fire (Krueper, n.d.). Riparian vegetation provides thermal cover, creates stream channel features such as pools, and maintains stream bank stability – all of these features are significant in the protection of quality habitat, but were listed as problems for the Asotin Creek drainage by the ACMWP (1994).

Flood cycles occur within 20-30 years in most riparian shrublands, and fires recur typically every 25-50 years. Historically, many riparian habitats were maintained by beaver activity. Beaver-dammed streams create pools that harbor fish and other species; dams also reduced flooding and broaden riparian habitat. Natural flooding is an important ecological process that redistributes sediments and reestablishes riparian vegetation. Grazing and trampling is a major influence in altering structure, composition, and function of this habitat; some portions are very sensitive to heavy grazing. Anthropogenic-induced disturbances are often of greater magnitude and/or frequency compared to natural disturbances. These higher rates may reduce the ability of riparian systems, and associated fish and wildlife populations, to sustain themselves at the same productive level as in areas with natural rates of disturbance (Ashley and Stovall 2004).

Riparian wetland habitat structure includes shrublands, woodlands, and forest communities. Stands are closed to open canopies and often are multi-layered. Typical riparian habitat would be a mosaic of forest, woodland, and shrubland patches along a stream course. The tree layer can be dominated by broadleaf, conifer, or mixed canopies composed most commonly of black cottonwood, quaking aspen, white alder, paper birch, or occasional ponderosa pine. Tall-shrub layers, with and without trees, are deciduous and often nearly completely closed



*S. Fork Asotin Creek-Typical Riparian Habitat*

thickets. Common species include serviceberry, red-osier dogwood, mountain alder, and black hawthorn. These woody riparian habitats have undergrowth composed of low shrubs such as gooseberry, rose, and common snowberry, or dense patches of grasses, sedges, or forbs. Native grasses and sedges are significant in many habitats, and Kentucky bluegrass can be abundant where riparian areas have been historically heavily grazed. Some forbs include Columbian monkshood, alpine leafybract aster, ladyfern, field horsetail, cow parsnip, skunkcabbage, arrowleaf groundsel, stinging nettle, California false hellebore, American speedwell, and pioneer violet (Ashley and Stovall 2004).

**Table 2.16 Riparian Wetland Management Assessment. (Ashley and Stovall 2004)**

<p><b>WORKING HYPOTHESIS STATEMENT:</b></p> <p>The major factors affecting this focal habitat type are direct loss of habitat due primarily to urban/agricultural development, reduction of habitat diversity and function resulting from exotic vegetation, livestock overgrazing, fragmentation and recreational activities. The principal habitat diversity stressor is the spread and proliferation of invasive exotics. This coupled with poor habitat quality of existing vegetation have resulted in extirpation and or significant reductions in riparian habitat obligate wildlife species.</p>
<p><b>RECOMMENDED RANGE OF CONDITION:</b></p> <p>The yellow warbler, beaver, and great blue heron represent wildlife species associated with riverine habitats. Ecoregion wildlife/habitat managers recommend the following ranges of conditions for the specific riparian/riverine habitat attributes described below.</p> <ol style="list-style-type: none"> <li>1. Forty to 60 percent tree canopy closure (cottonwood and other hardwood species)</li> <li>2. Multi-structure/age tree canopy (includes trees less than 6 inches in diameter and mature/decadent trees)</li> <li>3. Woody vegetation within 328 feet of shoreline</li> <li>4. Tree groves greater than 1 acre within 800 feet of water (where applicable)</li> <li>5. Forty to 80 percent native shrub cover (greater than 50 percent comprised of hydrophytic shrubs)</li> <li>6. Multi-structured shrub canopy greater than 3 feet in height</li> </ol>
<p><b>MANAGEMENT STRATEGIES:</b></p> <ol style="list-style-type: none"> <li>1. Protect extant habitat in good condition through easements and acquisitions; protect poor quality habitat and/or lands with habitat potential adjacent to existing protected lands (avoid isolated parcels/wildlife population sinks).</li> <li>2. Work with Conservation Districts, NRCS, Forest Service, landowners, et al., to implement best management practices (BMPs) in riparian areas in conjunction with CRP, CREP, WHIP programs, road abandonments, etc.</li> <li>3. Restore riparian area functionality with enhancements, livestock exclusions, in-stream structures and bank modifications if necessary (includes removal of structures), and stream channel restoration activities.</li> <li>4. Fund and coordinate weed control efforts on both public and private lands.</li> <li>5. Identify and protect wildlife habitat corridors/links.</li> </ol>

**Focal Species of the Ecoregion**

Focal habitats and associated focal species assemblages (Table 2.17) were used in the ecoregional planning process to identify and protect species and habitats with the most demanding requirements. Focal wildlife are species whose life requisites, if met, describe the parameters of a healthy habitat and identify those resources that are most often lacking.

**Table 2.17 Focal species assemblage by habitat type. (Ashley and Stovall 2004)**

Riparian/Riverine Wetlands	Ponderosa Pine	Interior Grasslands
Yellow Warbler	Whiteheaded Woodpecker	Grasshopper Sparrow
Great Blue Heron	Flammulated Owl	Mule Deer
Beaver	Elk	Sharp-tailed Grouse
		Bighorn Sheep



**Focal Species: Beaver**

Beavers consume a general variety of herbaceous vegetation, preferring species such as duck potato, duckweed, pondweed, and water weed over woody vegetation if it is available (Jenkins 1981). Food preferences may vary seasonally or yearly, as a result of nutritional food values (Jenkins 1979), and often leaves, small limbs, and bark of woody plants are consumed in addition to herbaceous vegetation. Denney (1952) reported that beavers preferred, in order of palatability, aspen, willow, cottonwood, and alder.

Beaver habitat must contain a water source with little annual or seasonal fluctuations or a stream channel gradient less than 15 percent. Lakes less than 20 acres in size are assumed to provide suitable habitat if sufficient food is available, and lakes greater than 20 acres must have irregular shorelines to provide optimum habitat. Other than the availability of food, water function is the key requisite determining the occurrence of beaver.

Historically, many riparian habitats were maintained by beaver activity. Beaver-dammed streams create pools that harbor fish, and beaver dams broaden riparian habitats, aiding in the redistribution of sediments and transportation of riparian tree and shrub seeds. Agricultural development along waterways has resulted in a loss of habitat due to the removal of riparian vegetation and alteration of stream morphology.

**Focal Species: Bighorn Sheep**

Bighorn sheep are an ecologically fragile species adapted to limited and increasingly fragmented habitats. This species is very loyal to their home ranges, which occur in river canyons, talus slopes, cliffs, open meadows, and clear-cut or burned forests. Bighorns are particularly susceptible to death during their first year of life. Early spring mortality is due to predation, disease, poor maternal nutrition, or human disturbance. Late summer mortality is usually due to starvation. Mountain lions commonly prey upon adult bighorns, and coyotes prey heavily on lambs (Valdez and Krausman 1999).

Decimating factors include overgrazing by cattle and sheep, disease, uncontrolled hunting, competition with deer and elk, off-road vehicle use, introduced exotic species, and usurped water resources. Habitat loss and fragmentation stem from dams, canals, fence and road construction, logging, urban expansion, and mining (Valdez and Krausman 1999). Die-offs of greater than 50% are common and seem to result from a combination of stress and viral or bacterial infection (Valdez and Krausman 1999).

Much of the bighorns' historic range is no longer suitable habitat due to urbanization, cultivation, and fire suppression. Native shrub and grasslands that were used as winter range have been converted to agriculture, and many requisite habitats such as whitebark pine forests have gone through a successional transition to Engelman spruce-subalpine fir forests (Wisdom *et al.* 2000).

Historically, bighorn sheep were an important resource to Native Americans, and early reports of explorers, trappers and settlers suggest that bighorn sheep were once abundant in the region (Valdez and Krausman 1999). Extirpated in Washington in 1917, the population of bighorn sheep in the Blue Mountains area has improved as a result of transplants conducted by WDFW. The first bighorn sheep population was established on the W.T. Wooten wildlife area in the Tucannon River drainage during the early 1960's. This first herd consisted of California bighorns transplanted from

the Sinlahekin Wildlife Area, located in central Washington. Following the Tucannon re-introduction, four additional herds of bighorn sheep have been established in the Blue Mountains: Mountain View, Wenaha, Black Butte, and Asotin Creek herds. The first two herds (Tucannon and Mt. View) were comprised of California bighorn sheep, but subsequent transplants have been Rocky Mtn. bighorns. Due to the spread of scabies into the Mountain View and Tucannon herds during the late 1980's and 1990's, very few California bighorns still exist. This disease caused a massive die-off, and the majority of remaining herds are comprised of Rocky Mtn. bighorn sheep (Fowler and Wik 2004).

Four herds are included in the Hells Canyon Initiative, which is a cooperative working group that includes Idaho Dept. of Fish and Game, Oregon Dept. of Fish and Wildlife, U.S. Forest Service, BLM, Nez Perce Tribe (NPT), and Foundation for North American Wild Sheep. Population management objectives for each herd are based on habitat conditions within the herd range of each population. The overall population objective for the Blue Mountains is 500-550 bighorn sheep; Tucannon herd-60, Mt. View herd-60-70, Asotin herd-75-100, Black Butte herd-150-200, Wenaha herd-90+.

State regulated bighorn sheep hunting has been closed since 1997 in all Rocky Mountain herd management units in SE Washington, including Mt. View, Black Butte, Wenaha, and Asotin Creek (Fowler 2003). In recent years, Nez Perce tribal members have harvested bighorns within the Asotin Creek herd, but in consideration of recovery goals, the Nez Perce Fish and Wildlife Commission instituted a conservation closure in 2003. The closure effects all treaty harvest of bighorn sheep within the Craig Mountain area in Idaho, that portion of NE Oregon supporting the Joseph Creek and Black Butte herds, and the Blue Mountains of SE Washington, including Asotin Creek.

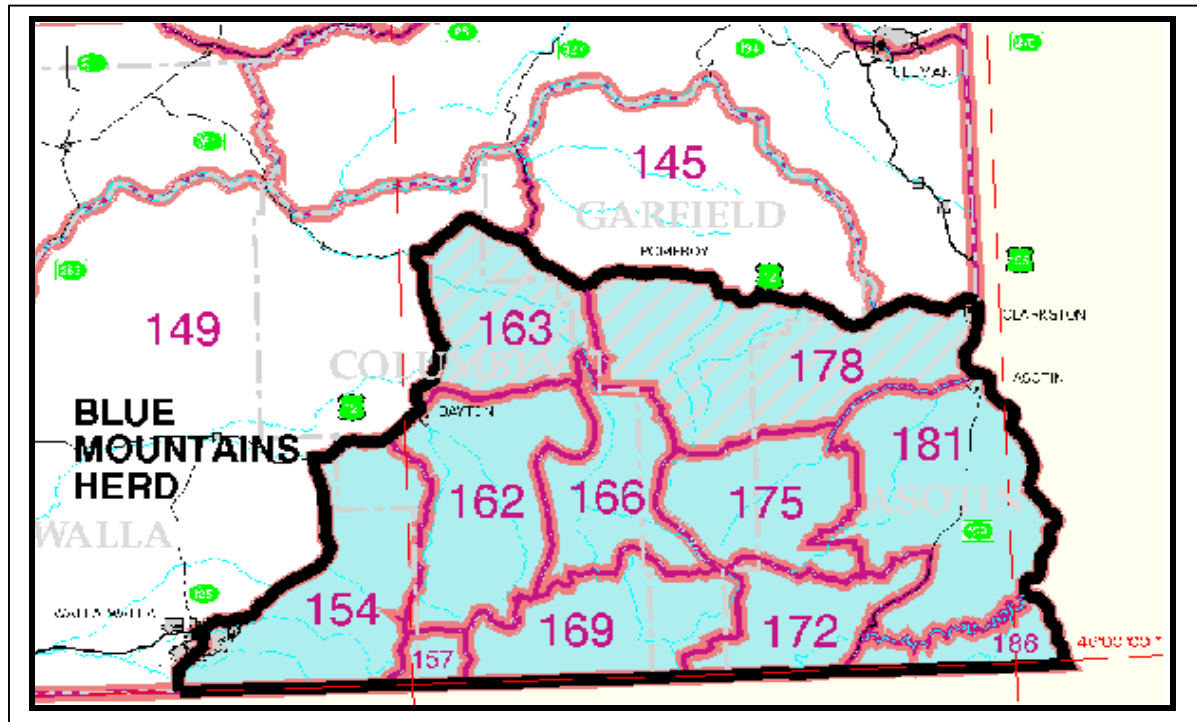
Domestic sheep and goats are occasionally kept in small herds along the river bottoms of Asotin Creek and Snake River, which introduces disease into the area. The Mt. View bighorn herd occasionally is the source of individual dispersal of Rocky Mountain bighorn sheep to the Asotin sub-basin. These emigrating bighorn sheep could come in contact with domestic sheep and become infected with pasteurella and then carry the disease into the Asotin Creek herd. The Mt. View herd may also be responsible for introducing scabies into the Asotin Creek herd (Fowler 1999, as cited in Ashley and Stovall 2004). Studies conducted in Hells Canyon indicate pasteurella continues to be the leading cause of mortality in Washington's Rocky Mountain bighorns. The devastating die off of 1995-96 was believed to have originated with a feral goat contacting bighorns in the Tenmile Creek drainage south of Asotin (Cassirer *et al.* 1996).

### **Focal Species: Elk**

Historically, elk were common throughout the Blue Mountains but were almost extirpated during the late 1800's. Various transplant efforts were enacted in the early 1900's to revitalize this population. Twenty-eight elk were released from Pomeroy in 1911, 50 elk from Walla Walla in 1919, and 26 elk from Dayton in 1931 (Urness 1960). The transplants, along with habitat changes, allowed the elk population to grow, eventually reaching a peak population of 6,500 animals in the early 1980's (McCorquodale 1985; Fowler 2001). Elk herd size in the Blue Mountains began declining in the late 1980's due to drought and productivity factors such as poor pregnancy rates and low bull:cow ratios. This trend led herd managers to adopt a "spike only" hunting program in 1989, allowing older branch antlered bulls to be harvested by permit only (Fowler 2001).

Since 1995, elk populations have remained fairly stable, ranging from a low of 3,902 to a high of 4,750. The goal is to increase elk populations that are below management objective in units containing primarily public land, with an overall population management objective of 5,600 elk in the Blue Mountains herd (Fowler 2001) (Figure 2.17). In March 2000, 72 elk from the Hanford Site were released in GMU 175 (Lick Creek) in an effort to improve productivity and increase the population to management objective levels. Approximately 80 percent of the released elk moved out of the unit within three months.

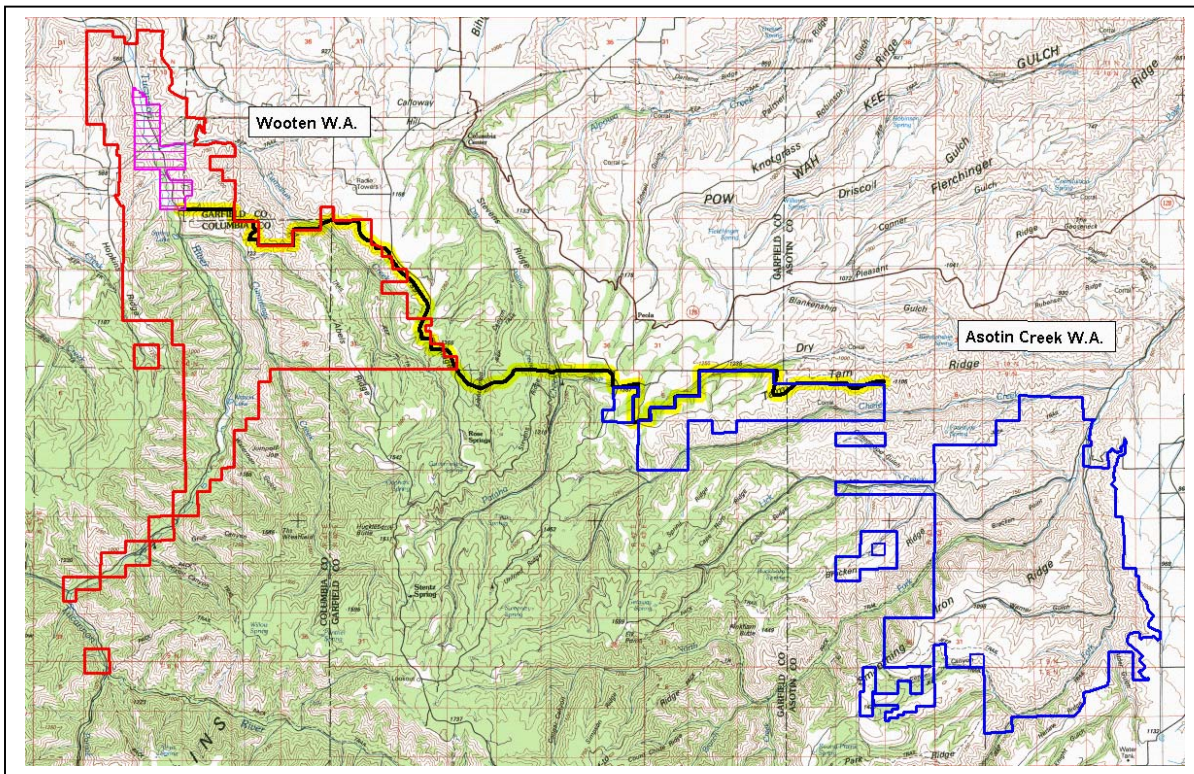
**Figure 2.17 Elk Management Units in Southeast Washington (Fowler 2001).**



175	Lick Creek	1,000
178	Peola	30
181	Couse	≤50
186	Grande Ronde	≤150

WDFW biologists conducted helicopter surveys in March 2004 using the Idaho Elk Sightability Model. Aerial counts located 3,579 elk, which, when run through the model resulted in a population estimate of 4,723 (Fowler 2001). The population objective for the entire Blue Mountains elk herd is 5,600, but in some units the population is managed at a reduced level to limit depredation complaints and minimize elk damage on private ground. Elk depredation is a common problem on units 154, 162, 181, and 172 (Fowler 2001). Antlerless permits, hot-spot permits and depredation tags are often issued to deal with elk damage, and over 20 miles of elk fence (Figure 2.14) is maintained in attempt to reduce migration onto private lands.

**Figure 2.18 Elk Fence (yellow) Extending From Asotin Creek W.A. to Wooten W.A.**



Elk were selected as a focal species due to their habitat requirements and their cultural and economic importance in the Blue Mountains area. Myers (1999) documented that road densities, silviculture practices, grazing, and noxious weeds influence seasonal elk habitat use, and Lyndaker (1994) found that elk use of optimum habitat is reduced significantly by human activity. Protection from disturbance in breeding areas, winter ranges, and calving areas is an important consideration in the management of the Blue Mountains herd. Several area closures have been implemented on winter ranges and calving areas to protect elk from disturbance when they are most vulnerable and in the poorest condition.

In addition to anthropomorphic effects, elk habitat quality and use has been negatively impacted due to long-term fire suppression. Satisfactory cover for elk consists of coniferous stands that are greater than 40 feet tall, with a canopy closure of greater than 70 percent. Marginal cover is defined as coniferous trees greater than 10 feet tall with a canopy closure of greater than 40 percent.

### **Focal Species: Flammulated Owl**

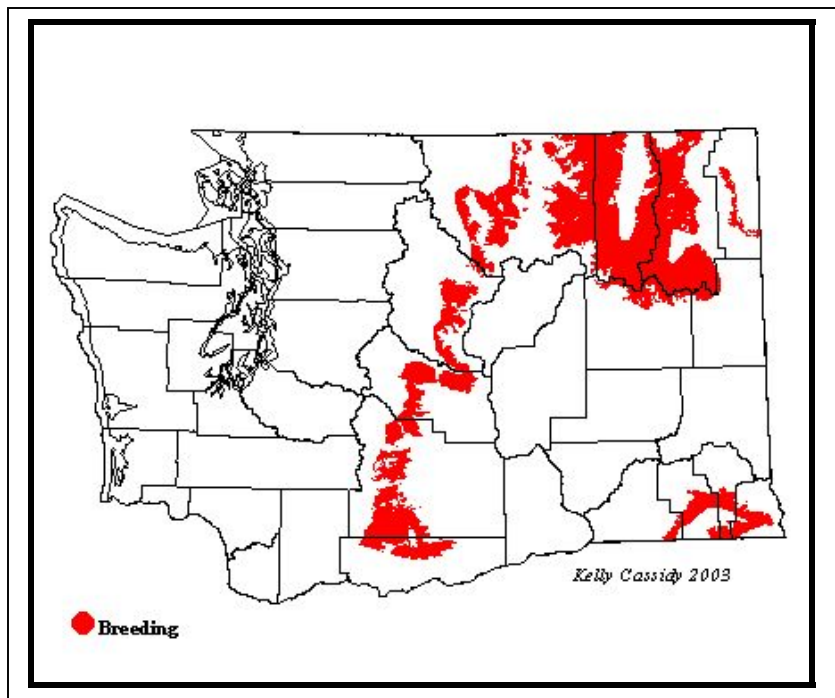
The flammulated owl is listed as a Washington State candidate species. Research has been limited, but indicates that demography and life history, in addition to narrow habitat requirements, make this species vulnerable to habitat alterations (Ashley and Stovall 2004). The flammulated owl occurs mostly in mid-level conifer forests between 1,200 to 5,500 feet elevations, containing a significant ponderosa pine component (McCallum 1994) (Figure 2.18). It is a small, nocturnal, insectivorous owl that preys on grasshoppers, moths, and beetles (Groves et al 1997). These owls are obligate secondary cavity nesters, and prefer large ponderosa pine snags for nesting and roosting (McCallum 1994).



Activities such as intensive forest management, forest stand improvement, and the felling of snags and diseased trees for firewood remove many cavities suitable for nesting (Reynolds *et al.* 1989). Wildfire suppression has allowed many ponderosa pine stands to develop into more shade tolerant fir species less suitable as flammulated owl habitat.

Flammulated owls are closely associated with medium to large, multi-story, moderate to closed canopy ponderosa pine forests, or medium to large multi-story/open canopy forests. Of the three ponderosa pine focal species, flammulated owls are the most structurally dependent (Ashley and Stovall 2004).

**Figure 2.19 Flammulated Owl Distribution, Washington (Kaufman 1996).**



**Focal Species: Grasshopper Sparrow**

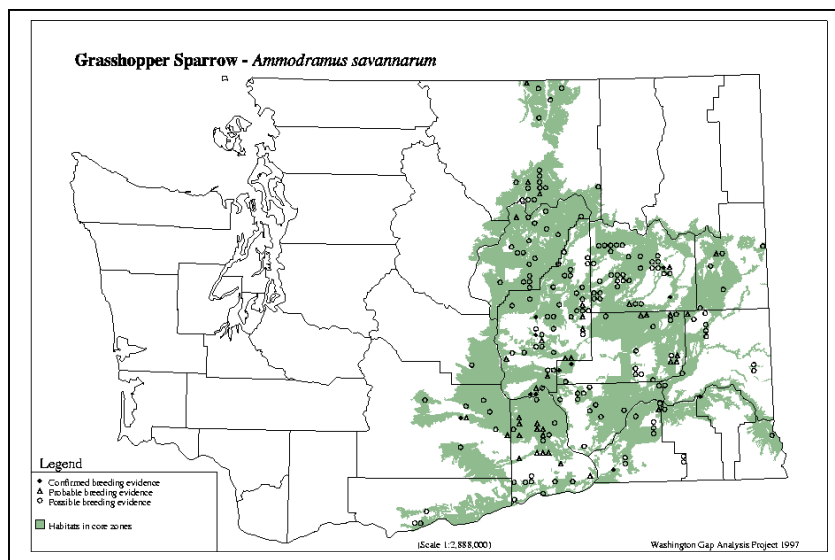
Land conversion and livestock grazing coupled with the rapid spread of cheatgrass and a resulting change in the natural fire regime has effectively altered much of the grassland habitats to the effect that it is difficult to find stands which are still in relatively natural condition (Altman and Holmes 2000). In 1996, Vickery (1996) reported that grasshopper sparrow populations have declined by 69% across the U.S. since the late 1960s (see Figure 2.20). In Washington, the grasshopper sparrow is considered a State Candidate species. Grasshopper sparrows have been detected during breeding bird point-count surveys conducted in 2004-05 on the Asotin Creek Wildlife area.

Grasshopper sparrows prefer grasslands of intermediate height and are often associated with clumped vegetation interspersed with patches of bare ground (Bent 1968; Blankespoor 1980; Vickery 1996), with few shrubs or trees. In east central Oregon grasshopper sparrows occupied relatively undisturbed native bunchgrass communities dominated by bluebunch wheatgrass and or Idaho fescue, particularly north-facing slopes (Holmes and Geupel 1998). Because of their

preference for native grass communities, the presence of grasshopper sparrows can indicate relatively undisturbed grassland habitat.

Grasshopper sparrows eat primarily grasshoppers, other invertebrates, and seeds. They actively search on the ground or in low shrubs, and exposed bare ground is critical for foraging (Vickery 1996). Bent (1968) observed that grasshopper sparrows forage in fairly dense grasslands, and sometimes scratch in litter. Nests are built on the ground, near a clump of grass or at the base of a shrub sheltered by overhanging vegetation (Vickery 1996). Mammals, birds, and snake species commonly prey on grasshopper sparrow nests, and seasonal flooding may be a source of mortality during nesting season (Vickery 1996). Mowing and haying operations can cause mortality by reducing height and cover of grass, destroying active nests, killing fledglings, causing nest abandonment, and increasing exposure and predation (Bollinger *et al.* 1990).

**Table 2.18 Grasshopper Sparrow distribution in Washington (Ashley and Stovall 2004)**



### **Focal Species: Great Blue Heron**

Great blue herons occur in a variety of habitats from freshwater lakes and rivers to brackish marshes, lagoons, mangrove areas, and coastal wetlands (Spendelow and Patton in prep.). In southeast Washington, blue herons are often seen hunting along rivers and streams. In the winter months they are often seen hunting rodents in alfalfa fields (P. Fowler, WDFW, pers. comm. 2003 as cited in Ashley and Stovall 2004). Fish are preferred food items of the great blue heron in both inland and coastal waters (Kirkpatrick 1940; Palmer 1962; Kelsall and Simpson 1980), although a variety of dietary items have been documented. The number of herons breeding in a local area is directly related to the amount of feeding habitat.

Great blue herons tend to nest in treetops, and the same nest may be enlarged and reused year after year (Eckert 1981). Herons are particularly sensitive to disturbance while nesting, and activities should not take place within 300 m of a heron colony from March to August (Ashley and Stovall 2004). Juvenile mortality is high: crows, ravens, gulls, raptors, and raccoons prey upon both eggs and young. Heavy rains and cold weather at the time of hatching also take a heavy toll, and pesticides are suspected of causing reproductive failures and deaths. Draining of marshes and destruction of wetland habitat is the most serious threat.



Surveys of blue heron populations have not been conducted, but populations appear to be stable and possibly expanding in some areas. Two new nesting colonies have been found on the Lower Snake River: one on a railroad bridge over the Snake River at Lyons Ferry, and one near Chief Timothy Park on the Snake River. The Lyons Ferry colony contained approximately 11 nests, and the Chief Timothy colony 5 nests (P. Fowler, WDFW, personal comm., 2003 as cited in Ashley and Stovall 2004).

### **Focal Species: Mule Deer**

Mule deer have always been an important resource in eastern Washington. Historically mule deer provided a food source for Native Americans, and currently they provide numerous recreational, aesthetic, and economic opportunities.

Mule deer range throughout southeast Washington, occupying various habitats from coniferous forest at 6,000 feet in the Blue Mountains, to agricultural fields and steppe/grassland habitats along the Snake River (Ashley and Stovall 2004). As a result, habitat requirements vary with vegetative and landscape components. Forested habitats provide mule deer with forage as well as snow intercept, thermal, and escape cover. Mule deer occupying mountain-foothill habitats live within a broad range of elevations, climates, and



*Mule Deer*

topography. Mule deer are found in the deep canyon complexes along the major rivers and in the channeled scablands of eastern Washington; these areas are dominated by native bunch grasses or shrub-steppe vegetation. Mule deer also occupy agricultural areas which once were shrub-steppe. Mule deer in the Blue Mountains of Washington do not normally migrate long distances to winter range, but move from higher elevations (6,000 ft) to the foothills to winter (Ashley and Stovall 2004).

Mule deer habitats have been negatively impacted by dam construction, urban and suburban development, road and highway construction, over-grazing by livestock, inappropriate logging operations, competition by other ungulates, drought, fire, over-harvest by hunters, predation, disease and parasites. The conversion of shrub-steppe and grassland habitat to agricultural croplands has resulted in the loss of hundreds of thousands of acres of deer habitat in southeast Washington. However, this has been mitigated to some degree by the implementation of the Conservation Reserve Program. Approximately 400,000 acres have been converted to CRP in southeast Washington (Ashley and Stovall 2004).

Noxious weeds, fire suppression, development and predation have all had significant contributions to the suppression of mule deer populations in southeast Washington over the last 20 years. Invasive weeds have occupied many areas of historic mule deer range. Yellow starthistle, spotted and diffuse knapweed, and scotch thistle have invaded the breaks of the Snake River from Asotin to the Oregon border, greatly reducing the ability of this area to support mule deer populations at historic levels. Yellow starthistle is a major problem in the Asotin, Tucannon and Touchet River watersheds (Ashley and Stovall 2004). Fire suppression has resulted in a degradation of habitat quality. Browse needs to be regenerated by fire to maintain availability and nutritional value, but a lack of fire has allowed many browse species to grow out of reach for mule deer (Leege 1968; 1969; Young and Robinette 1939). Land development in the foothills of the Blue Mountains has caused significant fragmentation of mule deer habitat. Subdivisions have resulted in the loss of thousands of acres of range, and mule deer populations in those areas have declined accordingly. In addition, predation by mountain lions and coyotes can have a significant impact on deer populations when predator populations are high and fawn productivity is low. (P. Fowler, WDFW, personal comm., 2003 as cited in Ashley and Stovall 2004).

In southeast Washington, the largest populations of mule deer occur in the foothills of the Blue Mountains, in farmlands areas, and along the Snake River. Agricultural lands are important for mule deer in these areas because croplands and CRP lands provide both food and cover. Since 1986, approximately 126,953 acres of croplands have been converted to CRP land, which has greatly enhanced habitat for mule deer and other wildlife in southeast Washington: County breakdown of CRP land includes Columbia 46,095 acres; Garfield 51,225 acres; Asotin 29,633 acres (USDA 2003).

Mule deer populations in southeast Washington vary by Game Management Unit (GMU). Along the breaks of the Snake River in GMU 145 and 149 (Lower Snake), mule deer populations have peaked and may start declining over the next few years, especially if summer/fall drought conditions continue to prevail. Mule deer populations in the mountains have declined significantly over the last 15 years, but appear to be slowly improving. The mule deer population along the breaks of the Snake River in GMU 181 Couse and GMU 186 Grande Ronde have declined from historic levels, and have not improved significantly over the last 15 years. Two factors may be responsible for the lack of recovery in these mule deer populations – noxious weeds and predation. Noxious weeds (yellow-starthistle) have inundated thousands of acres of prime mule deer habitat along the breaks of the Snake and Grande Ronde Rivers. At the same time, mountain lion populations have also increased, putting additional pressure on the mule deer population.

In 1990, a three point regulation and nine day season was implemented in an effort to improve post-season buck/doe ratios and increase the number of adult bucks available for breeding. From 1990 to 1998, the percentage of adult mule deer bucks in the post-hunt population increased by 600%, compared to the pre-three point era (Bender 1999).

Between 1990 and 2001, winter fawn/doe ratios ranged from a low of 35 fawns/100 does to a high of 70 fawns/100 does, and averaged 51 fawns/100 does (Table 2.19). Late summer and fall drought has a negative impact on mule deer fawn production and survival. Southeast Washington has been plagued by a late summer/fall drought for the last two years, which has resulted in lower fawn ratios; 2002- 35 fawns/100 does, 2003- 47 fawns/100 does. Lower fawns ratios result from a

decline in fertility rates for does the previous fall, and higher fawn mortality due to poor physical condition in does and fawns.

Mule deer populations are at management objective along the breaks of the Snake River and in the foothills of the Blue Mountains. Mule deer populations in the mountains are still depressed, but are improving. Five years of mild winters contributed to low over winter deer mortality, although fall drought is having an impact on fawn production in arid areas along the breaks of the Snake River.

Three user groups have general seasons in the Blue Mountains, archery, muzzleloader, and modern rifle. Over the last three years, modern firearm hunter numbers have averaged 9,375 for the general season, with an average harvest of 2,251 bucks. Modern firearm hunters harvested 2,382 bucks and 981 antlerless deer in 2002. General season hunters had a success rate of 28%.

**Table 2.19 Blue Mountains Post-hunt Mule Deer Surveys 1989-2002 (Ashley and Stovall 2004).**

Year	Bucks		Does	Fawns	Total	Per 100 Does Fawns:100:Bucks
	Adults	Yearlings				
1989	6	23	790	234	1053	30:100:4
1990	15	111	1358	544	2028	40:100:9
1991	17	133	943	455	1548	48:100:16
1992	40	153	1231	431	1868	35:100:17
1993	45	119	995	559	1718	56:100:17
1994	20	163	879	381	1443	43:100:21
1995	43	69	693	264	1069	38:100:16
1996	51	85	993	697	1826	70:100:14
1997	47	157	822	489	1515	60:100:25
1998	81	117	705	460	1363	65:100:28
1999	72	180	1316	796	2364	61:100:19
2000	8	20	98	52	78	53:100:29
2001	71	109	876	471	1529	53:100:21
2002	77	158	1651	581	2465	35:100:14

**Focal Species: Sharp-tailed Grouse**

The Columbian sharp-tailed grouse is the only one of six subspecies of sharp-tailed grouse found in Washington. Relatively stable populations are present in Idaho, but only remnant populations remain in Washington. In southeast Washington, the last known sighting of a sharp-tailed grouse was in 1947 (P. Fowler, personal comm., 2003, as cited in Ashley and Stovall 2004). Other unconfirmed sightings indicate several sharp-tailed grouse may have been observed in the Asotin subbasin as late as 2000 (M. Schroeder, personal comm., 2003, as cited in Ashley and Stovall 2004). Populations of Columbia sharp-tailed grouse in Washington have continued to decline over the last 30 years, leading the State to list this species as threatened in Washington (Hays *et al.* 1998). This reduction has been attributed to the dramatic alteration of native habitat due to agricultural conversion, overgrazing and invasion of noxious weeds (Ashley and Stovall 2004). Columbian sharp-tailed grouse currently occupy less than 10 percent of their historic range (Engle and Harris 2001).

Columbian sharp-tailed grouse occupy mesic grasslands and shrub-steppe habitats, and their home range is usually restricted to within .75 miles of leks (dancing grounds) (Wisdom et al 2000). Native habitats critical to sharp-tailed grouse survival include grassland cover types for use as nesting habitat, and deciduous shrub cover types used as wintering habitat (Giesen and Connelly 1993; Connelly *et al.* 1998). Nesting and brood rearing cover consists of grasses and forbs at least ten inches tall. This habitat feature is necessary for concealment and protection and considered a critical requirement during spring and summer (Marks and Marks 1988). Nests are located on the ground in relatively dense vegetation, and fields enrolled in Crop Reserve Programs (CRP) are often preferred. These grouse winter almost exclusively in mountain shrub and riparian cover types where water birch and black hawthorn are present (Marks and Marks 1988), and drainages containing year-round berry producing vegetation are important during droughts and as late summer feeding areas (Hays *et al* 1998).

Although juveniles and adults consume insects, chicks eat the greatest quantity during the first few weeks of life (Parker 1970; Johnsgard 1973). Summer foods consist of insects, grasses and forbs, while winter foods are comprised mainly of hawthorn, serviceberry, and chokecherry (Marks and Marks 1988).

Efforts are being made by WDFW to secure quality habitat and increase productivity of these populations throughout the State. The Smoothing Iron parcel of the recent Schlee ranch acquisition contains potentially high-quality grouse habitat. Further studies will be conducted to assess year-round habitat requirements necessary to restore a viable population of Columbian sharp-tailed grouse on the Asotin Creek wildlife area and on neighboring Forest Service lands.

### **Focal Species: White-headed Woodpecker**

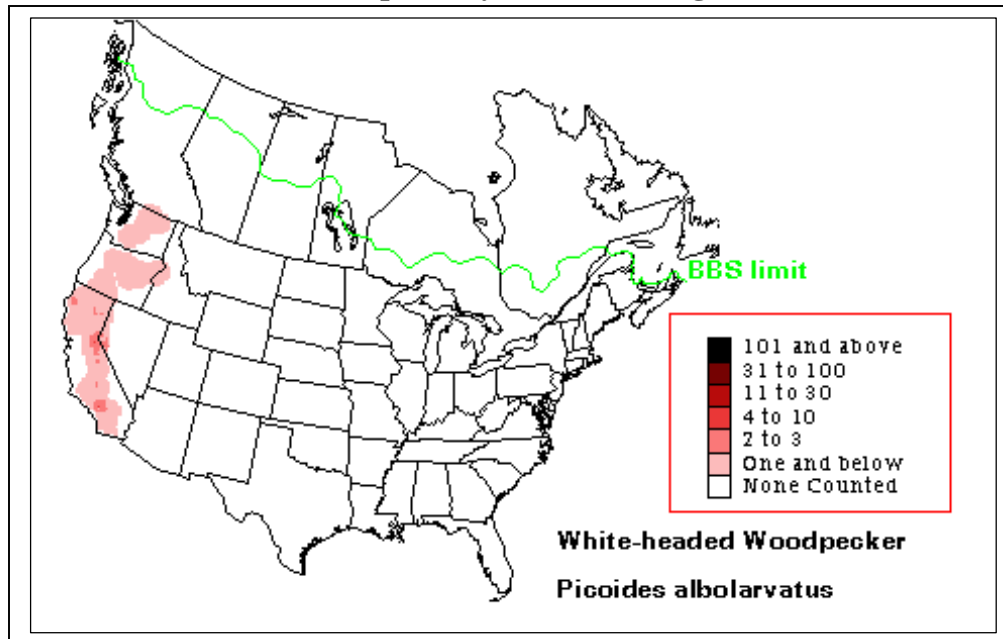
The white-headed woodpecker is a year round resident of lower elevation Ponderosa pine forests (generally below 950m). These woodpeckers are particularly vulnerable to population decline due to their highly specialized winter diet of ponderosa pine seeds. Nesting and foraging requirements are two critical habitat attributes limiting the population growth of this species. Both factors are closely linked to the habitat attributes of mature open stands of ponderosa pine. Past land use practices, including logging and fire suppression, have resulted in significant changes to the forest structure within the Ponderosa pine ecosystem (Ashley and Stovall 2004). The highest abundance of white-headed woodpeckers (Figure 2.17) occurs in old-growth conifer stands, particularly those with a mix of two or more pine species. These birds are uncommon or absent in monospecific ponderosa pine forests and stands dominated by small-coned or closed-cone conifers, e.g., lodgepole or knobcone pine (Ashley and Stovall 2004).

White-headed woodpeckers live in montane coniferous forests from British Columbia to California and seem to prefer a forest with a relatively open canopy (50-70 percent cover) and an availability of snags (standing dead trees) and stumps for nesting. The birds prefer to build nests in trees with large diameters, and show increasing preference with larger diameter. The understory vegetation is usually very sparse within the preferred habitat and local populations are abundant in burned or cut forest where residual large diameter live and dead trees are present.

White-headed woodpeckers are monogamous and may remain associated with their mate throughout the year. They build their nests in old trees, snags or fallen logs but always in dead wood. Nesting generally occurs in large ponderosa pine snags with hard outer wood and soft

heartwood. In British Columbia 80 percent of reported nests were in ponderosa pine snags, while only 20 percent were in Douglas-fir snags (Ashley and Stovall 2004).

**Figure 2.20 White-headed woodpecker year-round range (Sauer *et al.* 2003)**



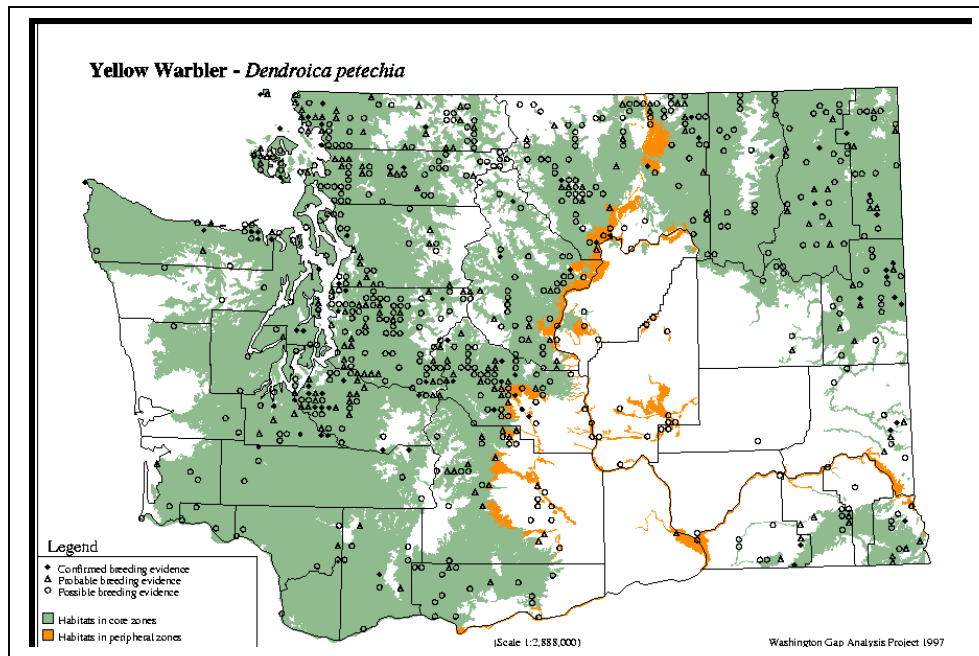
### **Focal Species: Yellow Warbler**

The yellow warbler is a riparian obligate species strongly associated with wetland habitats and deciduous tree cover. In Washington it is found in many areas, generally at lower elevations (Figure 2.18). The yellow warbler is a good indicator of functional under story shrub habitats in riparian areas (Ashley and Stovall 2004). Abundance is positively associated with deciduous tree basal area, and bare ground, and negatively associated with mean canopy cover (Rolph 1998). Yellow warblers capture and consume a variety of insects, arthropods and occasionally wild berries (Lowther *et al.* 1999).

The yellow warbler is a long-distance neo-tropical migrant. Spring migrants begin to arrive in the region in April. Southward migration begins in late July, and peaks in late August to early September; very few migrants remain in the region by October (Lowther *et al.* 1999).

Yellow warblers have developed effective responses to nest parasitism by the brown-headed cowbird. The cowbird is a brood parasite that does not build a nest, but instead lays eggs in nests of other species. When cowbird eggs are recognized, yellow warbler females will often build a new nest directly on top of the original. Up to 40 percent of yellow warbler nests can be parasitized, and some nests are completely abandoned after a cowbird egg is laid in the nest (Lowther *et al.* 1999).

**Figure 2.21 Breeding bird atlas data (1987-1995) and species distribution for yellow warbler (Washington GAP Analysis Project 1997 as cited in Ashley and Stovall 2004)**



### **Priority Habitats of Washington State**

In addition to the specific focal habitats utilized in subbasin planning, the Washington Department of Fish and Wildlife has identified Priority Habitats throughout Washington (Table 2.20). Priority Habitats support diverse, unique, and/or abundant communities of fish and wildlife, or contain features of significant value to a multitude of species. A Priority Habitat may consist of a unique vegetation type or dominant plant species, a successional stage, or a specific structural element present within the habitat. Recent land acquisitions in the Blue Mountain area, such as the Schlee purchase, were driven by WDFW's commitment to protecting these important resources.



**Table 2.20 Priority Habitats as identified by WDFW**

<b>HABITAT</b>	<b>DESCRIPTION</b>	<b>CRITERIA</b>
<b>Aspen Stands</b>	Pure or mixed stands of aspen > 0.8 ha (2 acres)	High fish and wildlife species diversity, limited availability, highly vulnerable to alteration.
<b>Caves</b>	A naturally occurring cavity, recess, void, or system of interconnected passages (including associated dendritic tubes, cracks, and fissures) which occurs under the earth in soils, rock, ice, or other geological formations, and is large enough to contain a human. Mine shafts may mimic caves, and those abandoned mine shafts with actual or suspected occurrences of priority species should be treated in a manner similar to caves. A mine is a man-made excavation usually used to extract minerals.	Comparatively high wildlife density, important wildlife breeding habitat and seasonal ranges, limited availability, vulnerable to human disturbance, dependent species.
<b>Cliffs</b>	> 7.6 m (25 ft) high and occurring below 1524 m (5000 ft)	Significant wildlife breeding habitat, limited availability, dependent species
<b>Freshwater Wetland and Fresh Deepwater Wetland</b>	Lands between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. Wetlands must have one or more of the following attributes: the land supports, at least periodically, predominantly hydrophytic plants; substrate is predominantly undrained hydric soils; and/or the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year. Deepwater habitats are permanently flooded lands lying below the deepwater boundary of wetlands. Deepwater habitats include areas where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. Dominant plants are hydrophytes; however, the substrates are considered nonsoil because the water is too deep to support emergent vegetation. These habitats include all underwater features (e.g., woody debris, rock piles, caverns).	Comparatively high fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important fish and wildlife seasonal ranges, limited availability, high vulnerability to habitat alteration.
<b>Instream</b>	The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and invertebrate resources.	Comparatively high fish and wildlife density and species diversity, important fish and wildlife seasonal ranges, limited availability, high vulnerability to habitat alteration, dependent species.

<p><b>Old-growth/ Mature Forest</b></p>	<p><u>Old-growth</u> east of Cascade crest: Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be &gt;150 years of age, with 25 trees/ha (10 trees/acre) &gt; 53 cm (21 in) dbh, and 2.5-7.5 snags/ha (1 - 3 snags/acre) &gt; 30-35 cm (12-14 in) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions.</p> <p><u>Mature forests</u>: Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west and 80 - 160 years old east of the Cascade crest.</p>	<p>High fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important fish and wildlife seasonal ranges, limited and declining availability, high vulnerability to habitat alteration.</p>
<p><b>Prairie and Steppe</b></p>	<p>Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.</p>	<p>Comparatively high fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important fish and wildlife seasonal ranges, limited and declining availability, high vulnerability to habitat alteration, unique and dependent species.</p>
<p>Riparian</p>	<p>The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems, which mutually influence each other. In riparian systems, the vegetation, water tables, soils, microclimate, and wildlife inhabitants of terrestrial ecosystems are influenced by perennial or intermittent water. Simultaneously, the biological and physical properties of the aquatic ecosystems are influenced by adjacent vegetation, nutrient and sediment loading, terrestrial wildlife, as well as organic and inorganic debris. Riparian habitat encompasses the area beginning at the ordinary high water mark and extends to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. Riparian habitat includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to stream courses.</p>	<p>High fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important wildlife seasonal ranges, important fish and wildlife movement corridors, high vulnerability to habitat alteration, unique or dependent species.</p>
<p><b>Rural Natural Open Space</b></p>	<p>A priority species resides within or is adjacent to the open space and uses it for breeding or regular feeding; and/or the open space functions as a corridor connecting other priority habitats, especially areas that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and surrounded by agricultural developments. Local consideration may be given to open space areas smaller than 4 ha (10 acres).</p>	<p>Comparatively high fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important fish and wildlife seasonal ranges, important fish and wildlife movement corridors, high vulnerability to habitat alteration, unique species assemblages in agricultural areas.</p>
<p><b>Snags and</b></p>	<p>Snags and logs occur within a variety of habitat types that</p>	<p>Comparatively high fish</p>

<b>Logs</b>	support trees. Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and > 30 cm (12 in) in eastern Washington, and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. Abundant snags and logs can be found in old-growth and mature forests or unmanaged forests of any age, in damaged, burned, or diseased forests, and in riparian areas. Priority snag and log habitat includes individual snags and/or logs, or groups of snags and/or logs of exceptional value to wildlife due to their scarcity or location in a particular landscape. Areas with abundant, well distributed snags and logs are also considered priority snag and log habitat. Examples include large, sturdy snags adjacent to open water, remnant snags in developed or urbanized settings, and areas with a relatively high density of snags.	and wildlife density and species diversity, important fish and wildlife breeding habitat and seasonal ranges, limited availability, high vulnerability to habitat alteration, large number of cavity-dependent species.
Talus	Homogenous areas of rock or rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap, slides, and mine tailings. May be associated with cliffs.	Limited availability, unique and dependent species, high vulnerability to habitat alteration.
<b>Urban Natural Open Space</b>	A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other priority habitats, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development. Local considerations may be given to open space areas smaller than 4 ha (10 acres).	

### Priority Species of Washington State

Priority species are those fish and wildlife species identified by WDFW as requiring special efforts to ensure their perpetuation. Often these species are susceptible to population declines due to already low numbers, sensitivity to changes in habitat, tendency to form vulnerable aggregations, or because they are a significant commercial, recreational, or tribal resource. Potential priority species that may be found on each wildlife area are listed in Tables 2.20 – 2.23.

These reports (Tables 2.20–2.23) only include information WDFW maintains in a central computer database. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas for which comprehensive surveys have not been conducted. Site-specific surveys are frequently necessary to rule out the presence of priority resources. To insure appropriate use of this information users are encouraged to consult WDFW biologists. **Explanation of codes follows Table 2.24.**

**Table 2.21 Priority Species of the Asotin Creek Wildlife Area**

Report Date: May 10, 2005

WDFW Priority	State Status	Federal Status	Species Code	Species Use	Species Common Name	Species Scientific Name
YES			ALCH	:RC	:CHUKAR	:ALECTORIS CHUKAR
YES	SC		AQCH	:B	:GOLDEN EAGLE	:AQUILA CHRYSAETOS
NO	NA	NA	CAMA	:PR	:LARGESCALE SUCKER	:CATOSTOMUS MACROCHEILUS
YES			CEELN	:P	:ROCKY MOUNTAIN ELK	:CERVUS ELAPHUS NELSONI
YES			CEELN	:RLC	:ROCKY MOUNTAIN ELK	:CERVUS ELAPHUS NELSONI
NO	SM		COBE	:IO	:PIUTE SCULPIN	:COTTUS BELDINGI
NO	NA	NA	COPL	:PR	:LAKE CHUB	:COUESIUS PLUMBEUS
NO	NA	NA	CORH	:PR	:TORRENT SCULPIN	:COTTUS RHOZEUS
NO	NA	NA	COT	:PR	:SCULPIN	:
NO	NA	NA	CPY	:PR	:GENERAL CRAPPIE	:
YES		FC	HIHI	:IO	:HARLEQUIN DUCK	:HISTRIONICUS HISTRIONICUS
NO	NA	NA	LARI	:PR	:WESTERN BROOK LAMPREY	:LAMPETRA RICHARDSONI
NO	NA	NA	LATR	:PR	:PACIFIC LAMPREY	:LAMPETRA TRIDENTATA
NO	NA	NA	LEGI	:PR	:PUMPKINSEED	:LEPOMIS GIBBOSUS
YES			MEGAIN	:RLS	:RIO GRANDE WILD TURKEY	:MELEAGRIS GALLOPAVO INTERMEDIA
YES	SC		MELE	:B	:LEWIS' WOODPECKER	:MELANERPES LEWIS
YES			ODHEH	:RC	:MULE DEER	:ODOCOILEUS HEMIONUS HEMIONUS
YES			ODHEH	:RLC	:MULE DEER	:ODOCOILEUS HEMIONUS HEMIONUS
YES	NA	NA	ONMY	:PR	:RAINBOW TROUT	:ONCORHYNCHUS MYKISS
YES	NA	NA	ONMY	:PR	:SUMMER STEELHEAD	:ONCORHYNCHUS MYKISS
YES			ORPI	:IO	:MOUNTAIN QUAIL	:OREORTYX PICTUS
NO	NA	NA	PRWI	:PR	:MOUNTAIN WHITEFISH	:PROSOPIUM WILLIAMSONI
NO	NA	NA	RHCA	:PR	:LONGNOSE DACE	:RHINICHTHYS CATARACTAE
NO	NA	NA	RHOS	:PR	:SPECKLED DACE	:RHINICHTHYS OSCULUS
NO	NA	NA	RIBA	:PR	:REDSIDE SHINER	:RICHARDSONIUS BALTEATUS
YES	NA	NA	SACO	:PR	:DOLLY VARDEN/BULL TROUT	:SALVELINUS CONFLUENTUS
NO	NA	NA	SUN	:PR	:SUNFISH	:

**Table 2.22 Priority Species of the Chief Joseph Wildlife Area**

Report Date: May 10, 2005						
WDFW Priority	State Status	Federal Status	Species Code	Species Use	Species Common Name	Species Scientific Name
YES	:	:	:ALCH	:RC	:CHUKAR	:ALECTORIS CHUKAR
YES	:SC	:	:AQCH	:B	:GOLDEN EAGLE	:AQUILA CHRYSAETOS
YES	:SE	:	:BALO	:B	:UPLAND SANDPIPER	:BARTRAMIA LONGICAUDA
NO	:NA	:NA	:CACO	:PR	:BRIDGELIP SUCKER	:CATOSTOMUS COLUMBIANUS
NO	:NA	:NA	:CAMA	:PR	:LARGESCALE SUCKER	:CATOSTOMUS MACROCHEILUS
YES	:SC	:	:CAPL	:IO	:MOUNTAIN SUCKER	:CATOSTOMUS PLATYRHYNCHUS
YES	:	:	:CEEL	:RLC	:ELK	:CERVUS ELAPHUS
YES	:	:	:CEELN	:RLC	:ROCKY MOUNTAIN ELK	:CERVUS ELAPHUS NELSONI
NO	:NA	:NA	:COT	:PR	:SCULPIN	:
YES	:SS	:FC	:FAPE	:H	:PEREGRINE FALCON	:FALCO PEREGRINUS
YES	:SC	:	:FINU	:IO	:GIANT COLUMBIA RIVERLIMPET	:FISHEROLA NUTTALLI
YES	:ST	:FT	:HALE	:B	:BALD EAGLE	:HALIAEETUS LEUCOCEPHALUS
YES	:ST	:FT	:HALE	:RC	:BALD EAGLE	:HALIAEETUS LEUCOCEPHALUS
YES	:NA	:NA	:ICPU	:PR	:CHANNEL CATFISH	:ICTALURUS PUNCTATUS
NO	:NA	:NA	:LARI	:PR	:WESTERN BROOK LAMPREY	:LAMPETRA RICHARDSONI
NO	:NA	:NA	:LATR	:PR	:PACIFIC LAMPREY	:LAMPETRA TRIDENTATA
NO	:NA	:NA	:LEGI	:PR	:PUMPKINSEED	:LEPOMIS GIBBOSUS
YES	:SC	:FC	:LICO	:IO	:GIANT COLUMBIA SPIRE SNAIL	:FLUMINICOLA COLUMBIANA
YES	:	:	MEGAIN	:RLS	:RIO GRANDE WILD TURKEY	:MELEAGRIS GALLOPAVO INTERMEDIA
YES	:NA	:NA	:MIDO	:PR	:SMALLMOUTH BASS	:MICROPTERUS DOLOMIEUI
YES	:	:	:ODHEH	:RLC	:MULE DEER	:ODOCOILEUS HEMIONUS HEMIONUS
YES	:	:	:ODVI	:RLC	:WHITE-TAILED DEER	:ODOCOILEUS VIRGINIANUS
YES	:	:	:ODVIO	:PA	:NORTHWEST WHITE-TAILED DEER	:ODOCOILEUS VIRGINIANUS OCHROURUS
YES	:NA	:NA	:ONMY	:PR	:RAINBOW TROUT	:ONCORHYNCHUS MYKISS
YES	:NA	:NA	:ONMY	:PR	:SUMMER STEELHEAD	:ONCORHYNCHUS MYKISS
YES	:NA	:NA	:ONTS	:PR	:FALL CHINOOK	:ONCORHYNCHUS TSHAWYTSCHA
YES	:NA	:NA	:ONTS	:PR	:SPRING CHINOOK	:ONCORHYNCHUS TSHAWYTSCHA
YES	:	:	:ORPI	:IO	:MOUNTAIN QUAIL	:OREORTYX PICTUS
YES	:	:	:OVCA	:RC	:BIGHORN SHEEP	:OVIS CANADENSIS
YES	:	:	:OVCA	:RLC	:BIGHORN SHEEP	:OVIS CANADENSIS
NO	:NA	:NA	:PRWI	:PR	:MOUNTAIN WHITEFISH	:PROSOPIUM WILLIAMSONI
NO	:NA	:NA	:PTOR	:PR	:NORTHERN SQUAWFISH	:PTYCHOCEILUS OREGONENSIS
NO	:NA	:NA	:RHCA	:PR	:LONGNOSE DACE	:RHINICHTHYS CATARACTAE
NO	:NA	:NA	:RHOS	:PR	:SPECKLED DACE	:RHINICHTHYS OSCULUS
NO	:NA	:NA	:RIBA	:PR	:REDSIDE SHINER	:RICHARDSONIUS BALTEATUS
YES	:NA	:NA	:SACO	:PR	:DOLLY VARDEN/BULL TROUT	:SALVELINUS CONFLUENTUS
YES	:NA	:NA	:SOCK	:PR	:SOCKEYE SALMON	:
NO	:NA	:NA	:SUN	:PR	:SUNFISH	:

Report Date: May 10, 2005

WDFW Priority	State Status	Federal Status	Species Code	Species Use	Species Common Name	Species Scientific Name
YES	:SC	:FC	:ACGE	:IO	:NORTHERN GOSHAWK	:ACCIPITER GENTILIS
NO	:NA	:NA	:CAMA	:PR	:LARGESCALE SUCKER	:CATOSTOMUS MACROCHEILUS
YES	:	:	:CEELN	:P	:ROCKY MOUNTAIN ELK	:CERVUS ELAPHUS NELSONI
YES	:	:	:CEELN	:PA	:ROCKY MOUNTAIN ELK	:CERVUS ELAPHUS NELSONI
YES	:	:	:CEELN	:RLC	:ROCKY MOUNTAIN ELK	:CERVUS ELAPHUS NELSONI
NO	:SM	:	:COBE	:IO	:PIUTE SCULPIN	:COTTUS BELDINGI
YES	:SS	:FC	:COMA	:IO	:MARGINED SCULPIN	:COTTUS MARGINATUS
NO	:NA	:NA	:COPE	:PR	:RETICULATE SCULPIN	:COTTUS PERPLEXUS
NO	:NA	:NA	:CORH	:PR	:TORRENT SCULPIN	:COTTUS RHOZEUS
NO	:NA	:NA	:CPY	:PR	:GENERAL CRAPPIE	:
NO	:NA	:NA	:CYAG	:PR	:SHINER PERCH	:CYMATOGASTER AGGREGATA
NO	:	:FC	:LATR	:IO	:PACIFIC LAMPREY	:LAMPETRA TRIDENTATA
YES	:	:	:MEGAIN	:RLS	:RIO GRANDE WILD TURKEY	:MELEAGRIS GALLOPAVO INTERMEDIA
NO	:NA	:NA	:MRS	:PR	:RIVER SCULPIN	:
YES	:	:	:ODHEH	:RC	:MULE DEER	:ODOCOILEUS HEMIONUS HEMIONUS
YES	:NA	:NA	:ONMY	:PR	:RAINBOW TROUT	:ONCORHYNCHUS MYKISS
YES	:NA	:NA	:ONMY	:PR	:SUMMER STEELHEAD	:ONCORHYNCHUS MYKISS
YES	:NA	:NA	:ONTS	:PR	:SPRING CHINOOK	:ONCORHYNCHUS TSHAWYTSCHA
YES	:	:	:ORPI	:IO	:MOUNTAIN QUAIL	:OREORTYX PICTUS
YES	:	:	:OVCA	:RLC	:BIGHORN SHEEP	:OVIS CANADENSIS
NO	:NA	:NA	:PRWI	:PR	:MOUNTAIN WHITEFISH	:PROSOPIUM WILLIAMSONI
NO	:NA	:NA	:PTOR	:PR	:NORTHERN SQUAWFISH	:PTYCHOCHEILUS OREGONENSIS
YES	:SC	:FC	:RALU	:IO	:COLUMBIA SPOTTED FROG	:RANA LUTEIVENTRIS
NO	:NA	:NA	:RHCA	:PR	:LONGNOSE DACE	:RHINICHTHYS CATARACTAE
NO	:NA	:NA	:RHOS	:PR	:SPECKLED DACE	:RHINICHTHYS OSCULUS
NO	:NA	:NA	:RIBA	:PR	:REDSIDE SHINER	:RICHARDSONIUS BALTEATUS
YES	:NA	:NA	:SACO	:PR	:DOLLY VARDEN/BULL TROUT	:SALVELINUS CONFLUENTUS

**Table 2.23 Priority Species of the Grouse Flat Wildlife Area**

Report Date: April 25, 2005

WDFW Priority	State Status	Federal Status	Species Code	Species Use	Species Common Name	Species Scientific Name
YES			CEELN	RLC	ROCKY MOUNTAIN ELK	CERVUS ELAPHUS NELSONI
YES			ODHEH	RLC	MULE DEER	ODOCOILEUS HEMIONUS HEMIONUS



**Table 2.24 Codes Used in the Priority Species Lists (Tables 2.20 – 2.23)**

**WDFW PRIORITY:**

Species and habitats that are considered to be priorities for conservation and management by WDFW. For a copy of the most current Priority Habitats and Species (PHS) List contact WDFW PHS Section at (360) 902-2543 or it is available on our web site at <http://www.wdfw.wa.gov/hab/phspage.htm>.

YES: indicates that the species or habitat is considered a WDFW priority and is on the Priority Habitats and Species List and/or Species of Concern List.

NO: indicates that the species or habitat is not a WDFW priority.

**STATE STATUS:**

State status of species as published on the WDFW Species of Concern List. For the most current copy contact WDFW Endangered Species Section at (360) 902-2515 or on our web site at <http://www.wdfw.wa.gov/wlm/diversty/soc/soc.htm>.

This is blank if the species is not state listed.

SE = state endangered

ST = state threatened

SS = state sensitive

SC = state candidate

SM = state monitor

NA = State status not available in database. Please see WDFW Species of Concern List for current status.

**FEDERAL STATUS:**

Federal status of species. For the most current status contact the appropriate federal agency.

FE = federal endangered

FT = federal threatened

FC = federal candidate

FCo = federal concern

NA = Federal status not available in database. Please contact the appropriate federal agency for current status.

**SPECIES CODE:**

WDFW standard species codes derived from the first two letters of the genus and species of the scientific name.

**SPECIES USE:**

Identifies how an area is used by the indicated species.

ART = artificial nest

AS = artificial structure

B = breeding occurrence

BOX = nest box

CF = peregrine falcon cross foster

CR = communal roost

D = damage control area

DEN = den

E = peregrine falcon eyrie

EW = elk wallow

F = artificial feeding site

GR = general range

H = peregrine falcon hack site

HC = very high concentration

HO = haulout

IO = individual occurrence

IR = individual roost

LEK = lek

M = migration

OS = marbled murrelet occupancy site

PA = parturition

PR = fish presence

RC = regular concentration

RI = regularly occurring individual

RLC = regular large concentration

RLS = turkey release site

RNG = range

RSC = regular small concentration

SC = spotted owl site center

T = breeding territory

X = cross foster

## Target Species Used in HEP Accounting

Under the Northwest Power Planning Act, the BPA was mandated to mitigate for wildlife habitat losses incurred by the construction of various hydroelectric dams in the Pacific Northwest. To compare different project land values, BPA must be able to measure the amount and quality of habitat lost and gained as a result of their activities. The accounting system adopted by BPA is a modeling strategy known as Habitat Evaluation Procedure (HEP), developed by the U.S. Fish and Wildlife Service. Vegetation and habitat structures are measured to assess a wide range of life requisite variables for multiple wildlife species and monitor overall trends in vegetation community health and diversity.

*Target wildlife species* are used to evaluate quality of habitat acquired with BPA mitigation funding. HEP analysis is applied to all BPA mitigation lands, and is used as a standard to compare life requisite values for target wildlife species. The Schlee acquisition consisted of two units – Smoothing Iron, and George Creek, which were purchased in 2003. The Bickford parcel was later purchased in 2004 using BPA mitigation funds. HEP species used to evaluate mitigation purchases are as follows:

### Smoothing Iron

Sharp-tailed Grouse  
Western Meadowlark  
Yellow Warbler  
Black-capped Chickadee  
Chukar  
Downy Woodpecker  
Lewis Woodpecker  
Mule Deer

### George Creek

Sharp-tailed Grouse  
Western Meadowlark  
Yellow Warbler  
Chukar  
Downy Woodpecker  
Mule Deer

### Bickford

Sharp-tailed Grouse  
Western Meadowlark  
Mule Deer  
Yellow Warbler  
Black-capped Chickadee

One product of HEP is an evaluation of habitat quality expressed in HU's or Habitat Units. The HU accounting system is used on all mitigation projects to measure the amount of land BPA receives credit for protecting.

The HEP system measures required habitat variables such as snag density, height of herbaceous vegetation, etc. in a cover type (i.e. – grassland, forest, etc). These variables represent the necessary features that must be present for particular wildlife species to live in that habitat. The presence or absence of variables can be used to evaluate overall habitat quality, which is expressed in a Habitat Suitability Index, or HSI value. An HSI can range from .00 (poor habitat) to 1.0 (optimal habitat). The HSI value is multiplied by the number of acres of that particular cover type, and the resulting product is expressed in Habitat Units, or HU's. An HU is equivalent to one acre of optimal habitat.

For a full discussion of BPA requirements and HEP findings, see **Appendices 6 and 7**.

## **Species receiving reintroduction or population enhancement**

### **Sharp-tailed Grouse**

See section 2.11 for full description of sharp-tailed grouse issues and habitat requirements. Acquisition of the Smoothing Iron and George Creek parcels was driven by the directive to protect quality steppe habitats and as potential habitat for reintroduction of sharp-tailed grouse. WDFW

plans to cooperate with the U.S Forest Service in assessing these WDFW lands and adjacent USFS lands for a possible future release site for sharp-tailed grouse.

### **Mountain Quail**

Mountain quail are considered a priority species on the Asotin Creek, Chief Joseph, and W.T. Wooten wildlife areas. WDFW's Eastside goals for mountain quail are as follows:

- 1) Preserve, protect, perpetuate, and manage mountain quail and their habitats to ensure healthy, productive populations.
- 2) Manage mountain quail for a variety of recreational, educational, and aesthetic purposes including hunting, scientific study, wildlife viewing, cultural and ceremonial uses by Native Americans, and photography (WDFW 2003)

The last known mountain quail population in eastern Washington existed in Asotin County. Currently mountain quail occupy little of their historic range, and WDFW has identified an objective to reestablish mountain quail in eastern Washington by 2006 (WDFW 2003).

The mountain quail is reclusive and often found in steep terrain with dense shrub cover (Heekin and Reese 1995, Wisdom *et al.* 2000). Winter habitat typically consists of mixed brush or riparian shrubs; chokecherry, serviceberry, and rose are important habitat components (Wisdom *et al.* 2000). Diet consists of bulbs, succulent greens, conifer seeds, fruits from various shrubs, and insects (Johnsgard 1973, Wisdom *et al.* 2000). During breeding season mountain quail utilize riparian/shrub, conifer/shrub and mountain shrub communities (Heekin and Reese 1995). Occasionally mountain quail will hybridize with California quail (Johnsgard 1973). Nests are usually well concealed, often being placed under pine branches, at the base of trees, beside boulders, or in dense shrubby or herbaceous vegetation (Johnsgard 1973). Nests are primarily located within 200-300 yards of water since chicks require water soon after hatching (Johnsgard 1973, Wisdom *et al.* 2000). In unusually dry years, little or no nesting occurs, and coveys will be comprised entirely of adults (Johnsgard 1973).

Mountain quail populations have been declining in the intermountain west for the past several decades (Heekin and Reese 1995). Populations have undergone broad regional and local extinctions as a result of anthropogenic changes to key aspects of their habitat (Engle and Harris 2001), such as water impoundments, grazing, residential development and intense agricultural activities (Wisdom *et al.* 2000). Fire suppression, logging activities, and the loss of riparian shrub habitat have reduced the amount of shrub-dominated cover types favored by mountain quail (Wisdom *et al.* 2000). Human encroachment negatively affects nesting/brood-rearing pairs, and domestic dogs and cats are effective predators of quail (Wisdom *et al.* 2000). Competition with chukar can possibly displace mountain quail (Engle and Harris 2001).

In 2004 a University of Idaho (UI) graduate student conducted habitat surveys on both Washington and Idaho State lands to locate suitable habitat for mountain quail. In 2005 WDFW released 75 mountain quail in the North Fork Asotin Creek, and an additional 76 birds were released by Idaho Fish and Game on Craig Mountain. Radio transmitters were attached to a portion of the birds, and UI students track the released quail throughout 2005 to assess mortality, dispersal and reproductive success. By June 2005 two nests had been established in Washington, although total nest success is still unknown at this date.

## **Bighorn Sheep**

See section 2.11 for a full description of habitat requirements and limiting factors.

Bighorn sheep management in Washington centers on three main issues at this time: minimizing disease outbreaks, increasing forage conditions, and establishing new self-sustaining herds. Disease outbreaks associated with domestic-bighorn interactions is the primary concern for several herds. Disease has decimated or threatens at least 6 bighorn sheep herds. For those herds, eliminating the risk of disease transmission between domestic and bighorn sheep is the priority. Noxious weed control is important for maintaining quality forage. Noxious weed control can be accomplished only in conjunction with better overall range grazing practices. Where the potential exists for conflicts between bighorn sheep and domestic sheep, particularly on federal lands, we should seek cooperative agreements that place a priority on the restoration of native species (i.e., bighorn sheep). Several herds may need augmentation if they are to rebound from apparent stagnation (Fowler 2001).

Bighorn sheep are extremely loyal to their territories and will not readily move into new ranges, therefore transplanting is required to encourage new populations in unoccupied habitats (Parker 1985). WDFW has worked in cooperation with the Foundation for North American Wild Sheep (FNAWS), IDFG, ODFW, U.S. Forest Service (USFS), and the Bureau of Land Management (BLM) on restoration of bighorn sheep within Hells Canyon. Project activities include monitoring lamb production and mortality, sightability surveys, and disease investigations related to domestic-bighorn sheep (Fowler 2001). Range condition for bighorn sheep is fair to poor in most units. Noxious weed invasion, primarily by yellow-star thistle, continues to be a major concern for most bighorn sheep, particularly in the Blue Mountains. Grazing also is a concern in several areas of the Blue Mountains (Fowler 2001).

### **Asotin Creek Wildlife Area (Asotin Creek subbasin)**

Bighorn sheep were reintroduced into the Asotin Creek drainage in 1991 with the release of six bighorn sheep from the Hall Mountain herd in northeast Washington. Another supplemental release occurred in 1994 with the release of nine bighorn sheep from Hall Mountain. The population fluctuated between 10 and 15 bighorn sheep, but failed to show significant growth, probably due to low lamb survival. A supplemental release of 10 bighorn sheep from British Columbia occurred in 1998: 2 yearling rams, 7 ewes, and 1 female lamb. Surveys conducted in June of 1998 produced a count of 27 bighorn sheep: 7 rams, 13 ewes, and 7 lambs (Fowler 2001). The Asotin Creek herd was not impacted by the *Pasteurella* die-off that occurred in 1995-96. However, the herd has contracted scabies from rams that mingle with the Mt. View herd. Scabies appeared to increase in severity in 2001 (Fowler 2001). The management objective for the Asotin Creek herd is between 75-100 bighorn sheep.

### **W. T. Wooten Wildlife Area (Tucannon subbasin) – Tucannon herd**

The Tucannon herd was established in the early 1960s with a release of California bighorns from the Sinlahekin Wildlife Area. The Tucannon herd has declined 75% over the last four years. This population has fluctuated in numbers over the last 25 years, mostly due to periods of low lamb survival. Predation appears to be the primary factor impacting lamb mortality, but a combination of scabies and predation may be the central factors in the current crisis. The bighorn sheep population has declined below 20 animals. If this decline continues it will be difficult to recover

this population to management objective. At the present time, the Tucannon herd may only contain 15 bighorn sheep; 4 rams, 7 ewes, 4 lambs. The herd objective is 60 animals.

**Chief Joseph Wildlife Area (Grande Ronde subbasin) – Black Butte and Mt. View herds**

The Black Butte herd is struggling due to the *Pasteurella* die-off that occurred in 1995-96, and possible re-infection from domestic sheep on a neighboring ranch. The bighorn sheep population has fluctuated since the die-off from a low of 45 in 1996, to 60+ sheep in 1998, to approximately 50 in 2001. Due to constant mortality of adults and lambs the herd is not recovering and may decline slightly over the next year. The long-term management objective for the Black Butte herd is to increase the population to approximately 150-200 sheep (Fowler 2001).

From the time the Mt. View herd was established with California bighorns in 1974 until the first major die-off in 1988, the population stayed primarily within the Wenatchee and Cottonwood Creek drainages. Since that die-off, Rocky Mountain bighorn sheep have dominated, with much interchange occurring between the Wenaha and Mt. View herds. The Mt. View herd is still struggling due to the *Pasteurella* die-off in 1996. The population increased slightly after the die-off to approximately 30 sheep in 1999, but has remained fairly stable since. Poor lamb survival and adult mortality have resulted in no growth in this herd. The population is at a critical level where low productivity and adult mortality may prevent this herd from recovering for many years. Management direction is to increase the Mt. View bighorn population to 60+ animals.

Surveys conducted for the five herds in early 2004 resulted in a count of 216 bighorn sheep, 103 ewes, 50 lambs, and 63 rams, for a ratio of 61 rams and 48 lambs per 100 ewes (Table 2.25).

**Table 2.25 Bighorn Sheep Population Trend and Herd Composition, Blue Mountains 1994-2004 (March Surveys) [( ) indicates number of Class-4 rams in > 3/4 segment] (Fowler and Wik 2004).**

Year	Lambs	Ewes	Y1	Rams		Total	Count Total	Population Estimate	Per 100 Ewes R:100:L
				< 3/4	> 3/4				
1994	89	202	3	35	57(14)	95	386	450	47:100:44
1995	20	138	10	11	28(8)	49	208	242	36:100:14
1996	16	115	8	6	13(3)	27	158	176	23:100:14
1997	26	135	11	16	19(7)	46	207	220	34:100:19
1998	31	105	17	15	23(7)	55	191	214	52:100:30
1999	42	104	13	15	15(5)	43	189	216	41:100:40
2000	32	100	15	22	18(5)	55	187	212	55:100:32
2001	33	99	5	17	30(5)	52	184	206	53:100:33
2002	29	83	7	15	35(7)	57	169	192	69:100:35
2003	38	96	9	13	32(6)	54	188	206	56:100:40
2004	50	103	17	10	36(6)	63	216	227	61:100:48

### **2.12 Cultural Resources.**

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



## **CHAPTER III. MANAGEMENT OBJECTIVES, ISSUES AND STRATEGIES**

Statewide goals and objectives listed in chapter one shape management priorities on wildlife areas. Specific wildlife area information including why the area was purchased, habitat conditions, species present, and public issues and concerns are evaluated to identify wildlife area activities or strategies. The following Objectives and Strategies will be prioritized by resource needs and goals identified in Section 1.6, and implemented as funds allow. Items underlined are in need of funding and time allotment.

### **Agency Objective: Protect, restore and enhance fish and wildlife populations and their habitats**

#### **1. Improve or Maintain Big Game Populations**

WDFW has identified Rocky Mountain elk, white-tailed deer, mule deer and bighorn sheep as Priority Species due to the significant role they play in local economies and ecosystems. Big game populations are often highly visible and attract citizens to public lands for numerous reasons. Big game species generate hunting and recreation revenues, attract recreational users, and fill important niches in the environment.

The District Team and CAG have identified the following needs related to big game: protect ecologically sensitive areas i.e. big game winter range; increase number of big game wildlife available for hunting; manage big game populations to ensure Tribal treaty harvest opportunities; and regulate public uses that disturb wildlife, i.e. horn hunting. In addition, the application of grazing as a tool to improve wildlife habitat should be investigated.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

#### **A. Region Wide Strategies**

##### Enforcement

Enforce hunting, fishing and land use regulations on all Wildlife Areas to ensure protection of resources. Implement road closures on winter range and calving grounds to ensure health and productivity of big game.

##### Grazing

The use of livestock as a habitat management tool will be assessed in 2006 on a landscape level. Soil types will be used to identify forage production potential of each wildlife area, and current vegetation condition will be compared to this standard. The forage nutrition needs of wildlife will be allotted first, and where appropriate (i.e. no rare or listed plant/fish/wildlife species impacted, no environmental concerns present such as highly eroded soils, etc.), surplus forage will be considered for use in grazing permits that can be shown to benefit wildlife. Assess sites as time and funding allow using either BPA funding or Non-PR funds.

Implement Pilot Grazing Program in 2006. Pilot grazing is a cooperative project between WDFW and Washington Cattleman's Association (WCA). Two sites have

been identified on the Asotin Creek Wildlife Area and another site has been identified on the Chief Joseph Wildlife Area. The Asotin WLA sites are located in the Pintler Creek Area and Smoothing Iron Ridge on the Schlee acquisition. The Chief Joseph site is located on the Shumaker unit near the Grande Ronde River. Grazing is scheduled to begin on the Pintler unit in 2006, Smoothing Iron in 2007, and Shumaker in 2008. The length of each project is 3 years. Funding for these projects will come from Non-PR funding and grant funds to be applied for.

Please see **Appendix 2** – Forage Production and Management Plan for an expanded discussion of the forage assessment process and potential grazing uses.

Elk

Maintain 5,320-5,880 elk in the Blue Mountains herd. In some units, elk populations are maintained below the objective to minimize depredation on private lands.

<u>Unit</u>	<u>Name</u>	<u>Associated Wildlife Area</u>	<u>Population Objective</u>
154-7	Blue Creek/Watershed	W.T. Wooten	800
162	Dayton	W.T. Wooten	800
163	Marengo	W.T. Wooten	n/a
166	Tucannon	W.T. Wooten	700
169	Wenaha	Chief Joseph	1,400
172	Mountain View	Grouse Flat/ Chief Joseph	700
175	Lick Creek	Asotin Creek	1,000
178	Peola	Asotin Creek	30
181	Couse	Chief Joseph	≤50
186	Grande Ronde	Chief Joseph	≤150

Bighorn Sheep

Improve total bighorn sheep population in the Blue Mountains to 500-550 animals. Control of noxious weeds will continue in an effort to improve habitat quality. Total herd size estimated in 2004 was 227 bighorn sheep in the Blue Mountains. The Tucannon herd continues to decline due to disease and poor productivity, and further transplants may be required to augment the population. Individual herd population objectives are:

<u>Herd Name</u>	<u>Population Objective</u>
Asotin Creek	75-100
Tucannon	60
Mt. View	60-70
Black Butte	150-200
Wenaha	90+

Deer

Maintain deer herd sizes and control noxious weeds to improve habitat quality. Populations of Mule deer and White-tailed deer in the Blue Mountains are currently at management objective.

## **B. Asotin Creek Wildlife Area Strategies**

### Maintain Boundary Fence

Maintain approximately 90 miles of boundary fence to control trespass livestock. Evaluate at least 20 miles of fence per year and maintain or rebuild as necessary. BPA and Non-PR funded on a yearly basis

### Remove Hazard Fence

Remove approximately 2 miles of old or down fence on the Smoothing Iron unit to minimize entanglement hazards to wildlife. Volunteer project for RMEF members and nearly completed.

### Food Plots

Establish food plots to improve nutrition for wintering elk and minimize crop damage by pulling elk and deer off private lands. Establish/maintain 3 food plots on this wildlife area. Clover/legume plots will be mowed each fall, and re-seeded as necessary; wheat fields will be planted annually. Maintenance of food plots will be carried out by Wildlife Area staff as time permits; if this cannot be maintained by staff, local sharecroppers will be approached as a means to trade farming services for sharecrop lease fees. Funded by Non-PR dollars and sharecrop revenue. This is a yearly activity on the wildlife area.

### Pilot Grazing Program

Implement Pilot Grazing program on Pintler unit in 2006 and on Smoothing Iron unit in 2007. Goal on the Pintler Unit is to show livestock grazing can increase palatable forage to positively effect wildlife population – mainly mule deer. Monitor changes and response to grazing through photo points, vegetation plots, breeding bird surveys, noxious weed surveys, exclosures, and mule deer population counts. Repeat transects, surveys, and plots as needed to assess effects of grazing. Monitor changes and response to grazing through photo points, vegetation plots, breeding bird surveys, noxious weed surveys, exclosures, and mule deer population counts. Repeat transects, surveys, and plots as needed to assess effects of grazing. Ensure that grazing causes no harm to landscape through careful monitoring.

Goal on Smoothing Iron unit is to show that grazing can manipulate range vegetation in a positive way to have a beneficial response for wildlife – mainly elk. Monitor changes and response to grazing through photo points, vegetation plots, breeding bird surveys, noxious weed surveys, exclosures, and mule deer population counts. Repeat transects, surveys, and plots as needed to assess effects of grazing. Funded mainly with Non-PR dollars.

## **C. Chief Joseph Wildlife Area Strategies**

### Food Plots

Irrigate a 6-acre clover/grass food plot and assorted small grass pastures to maintain quality wildlife forage throughout the summer. Plant 2 fields of spring wheat (12 acres) as wildlife forage enhancement. Funded by Non-PR funds and conducted on a yearly basis.

#### Native Habitat Restoration/ Weed Control

Plant 35 acres of native grass/forbs to improve forage for elk and bighorn sheep, provide cover for ground nesting birds and control weeds. Use matching grant funds provided by RMEF. Plant native trees and shrubs along the county road to act as screening cover and reduce poaching and harassment of wildlife. Project was implemented in 2005.

#### Boundary Fence

Maintain 5 miles of hog-wire boundary fence annually, and 33 miles of barbed wire boundary fence as time permits. Although stock fence is an impediment to elk calves and deer fawns, this section is necessary to exclude trespass sheep and livestock from a neighboring ranch. Due to the high rate of disease transmission and disease-related deaths in bighorn sheep, hog-wire is necessary to separate wild bighorns from domestic stock where possible. Funded by Non-PR funds and conducted on an annual basis.

#### Pilot Grazing Program

Implement Pilot Grazing program on Shumaker unit in 2006 by gathering baseline data on wildlife populations, noxious weeds, and range condition. Begin grazing in spring 2008 with the goal of positively manipulating range vegetation for a positive effect on wildlife populations – mainly mule deer. Graze in early spring with livestock numbers suitable enough to stimulate vegetation while leaving enough time in the growing season for range plants to put on new growth. Set up photo points, vegetation surveys, noxious weed maps, breeding bird surveys, mule deer surveys, and construction of range exclosures. Fund with Non-PR funds and grant monies to be applied for.

### **D. Grouse Flat Wildlife Area Strategies**

#### Hay Lease

Maintain agriculture lease to improve forage quality for wildlife. Lessee will fertilize field and enhance orchardgrass pasture with legume species to enhance wildlife forage and pull elk off of neighboring private lands. Implemented in 2005. Sharecropper will pay for habitat improvements.

#### Grazing Permit

Implement temporary grazing permit late summer 2005 on 160 acres of land currently enrolled in an agricultural lease. Project will be a cooperative effort between WDFW and the current lessee. Livestock will be applied in a short-duration, high-intensity grazing scheme and used to reduce standing dead material and improve spring forage palatability for elk. Grazing effects will be monitored bi-weekly and livestock will be on the pasture no longer than two weeks. Implemented in 2005.

#### Fence Maintenance

Maintain 5 miles of boundary fence to control trespass livestock. Lessee shall be responsible for fence maintenance and WDFW will provide requisite materials.

Non-PR funds and sharecrop dollars will pay for fence materials. Implemented in 2005 and carried out on annual basis.

### **E. W.T. Wooten Wildlife Area Strategies**

#### Fence Maintenance

Maintain approximately 50 miles of boundary fence to control trespass livestock – go over at least 15 miles of fence per year and repair or replace as time and funds permit. Remove approximately 8 miles of old or down fence near Abel’s Ridge to minimize entanglement hazard to wildlife. Examine another 15 miles of interior fence – sections in good condition will be left standing until this area has been assessed for grazing potential and forage production. These sections will be removed if grazing is found to be unsuitable for this area. Funded by Non-PR dollars and carried out on an annual basis.

#### Seep Enhancement

Maintain or improve 3 seeps on Abel’s Ridge as upland water sources for wildlife. Visit each seep bi-annually. Non-PR funded. To be completed by 2007.

#### Food Plots

Re-establish old grass/legume food plot on Abel’s Ridge and add others as required by wildlife needs and as funding allows. Please see [APPENDIX 2](#) – Forage Production and Management Plan for an expanded discussion of the landscape forage assessment process. Non-PR funded and completed in 2005.

## **2. Protect, Enhance and Restore Function and Structure of Native Habitats**

The condition classes used to guide management strategies for native habitats were taken from the subbasin planning efforts and Washington’s Priority Habitats (section 2.11).

The District Team and CAG have identified the following concerns related to native habitats: identify, control and map noxious weeds; evaluate habitat conditions on WDFW lands; identify ecologically sensitive areas and preserve them; compare current and historic grazing uses; incorporate habitat management with neighboring landowners; identify the desired future condition of wildlife areas; work with USFS in cooperative logging/thinning of diseased timber; and protect Threatened and Endangered species.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Vegetation Map

Produce vegetation map delineating cover type distribution on Blue Mountains Wildlife Areas in 2006. With assistance from Spokane staff, incorporate extent and distribution of Washington’s Priority Habitats, common cover types, and noxious weed populations, size, and locations.

### Landscape Level Assessment

Investigate ways to improve condition of present cover types and, where possible, restore natural species, functions, disturbance regimes, and structure as identified in section 2.11. Evaluate the tools available i.e. grazing, burning, logging; and the timing, use, effects, benefits and hazards associated with each method. This assessment will begin in 2005 by evaluating forage production (see Appendix 2) on wildlife areas in the Blue Mountains, and continue as funding permits. Some portion of BPA funding will be available annually to conduct studies on those parcels purchased as mitigation lands. Other funding sources will need to be pursued as time allows to implement assessments on non-mitigation lands.

## **B. Asotin Creek Wildlife Area Strategies**

### Campbell Field Restoration

Restore the 200-acre Campbell field to native grass and forb cover. Remove old smooth brome and cultivate/re-seed to enhance big game forage. Restore at least 20 acres per year. A grant from WWRP is being applied for in 2006 to seek funding for this activity. Initial plans call for restoration of 50 acres into native grass habitat.

### Habitat Evaluation Procedure (HEP)

Conduct HEP surveys to assess condition and health of vegetation communities on mitigation lands. Repeat select transects at 5-year intervals to monitor changes over time. Contract original survey team to repeat surveys. Utilize BPA funding for this activity on Schlee and Bickford acquisitions. No funding for PR funded lands

### Restore Native Vegetation

Convert some agricultural leased fields on the Smoothing Iron unit to native grass/forb cover after lease contract expires in 2008. Restore at least 30 acres per year, and use appropriate methods of seeding to minimize soil erosion and disturbance. Areas that cannot be restored in a 3-year period will be re-enrolled into another agricultural lease or grazing permit and reclaimed at a later date. Long-range plans call for utilizing BPA funding for this project.

### Photopoint Monitoring of Restoration

Establish permanent photopoints in Rockpile Creek, upper and lower George Creek, and SF Asotin Creek to monitor active restoration project success (Rockpile Creek) or natural (passive) restoration processes. Weeds will be aggressively sprayed in Rockpile Creek during 2005 and in 2006 (funding provided by BPA). If adequate weed control is achieved, planting of woody vegetation could begin as early as 2007. The purpose of this project is to provide shading along the creek, restore riparian overstory cover and wildlife habitat, and improve water retention in the drainage.

### Prescribed Burning

Evaluate wildlife benefits/losses that may result from prescribed burning. Assess WDFW lands adjacent to USFS for inclusion in Forest Service prescribed burns (see Appendix 3 – Fire Management Plan).

### Forest Assessment

Request WDFW forestry staff evaluate the Weatherly unit timber stand for removal of bug-killed trees. Consider wildlife impacts and conduct snag survey prior to any tree removal. Make request to agency forestry staff in 2007.

### Protect Seeps and Springs

Fence 3 ponds in the Weatherly grazing allotment during 2006 when the pasture will be rested. Provide off-site watering to a float-controlled trough and plant vegetation if needed. In addition, fence 1 spring on Cook Ridge to reduce damage by trespass livestock and pipe water to an off-site trough available for wildlife use. Utilize Non-PR funds and sharecrop money to achieve this task as time allows.

## **C. Chief Joseph Wildlife Area Strategies**

### Move Parking Area to Preserve Vegetation

Evaluate impacts to riparian habitat at Pine Bar day-use area. Move parking area alongside the county road to deter vandalism, destruction of vegetation, and improper site use. Limit travel on access road to foot, horse and ATV by placing boulder barricade across road. Implement in 2006 if funding and time allow.

### Move Camp Sites to Preserve Vegetation

Evaluate at-large camping impacts to riparian habitat along Rogersburg Road. Move camping areas away from riverside and establish 5 designated campsites. Assess the cost/need for a permanent toilet facility and fire rings. Establish vegetation at new campsites and reclaim old riverside sites. Implement as funds allow.

## **D. Grouse Flat Wildlife Area Strategies**

### Prescribed Burn/ Thinning

Assess forest stand health and current value to wildlife. Evaluate the benefits of thinning or burning to minimize fuel load, insect damage, and disease. Conduct bird surveys and snag retention surveys prior to thinning or burning activities. Implement in 2006 or as time and funding allow.

### Plant Native Trees

Aspen stands are a Washington Priority Habitat, and 100 quaking aspen seedlings will be planted to increase habitat diversity. Aspen will be fenced in small groups to prevent wildlife or trespass livestock from browsing young trees. Implement as funds allow (this project may be performed by the area sharecropper in trade for lease fees).

### Assess Camp Site Impacts to Native Vegetation

Evaluate at-large camping impacts to wildlife and wildlife habitat. Consider establishing designated campsites. Assess the need to establish permanent toilet facilities and fire rings. Implement as funds allow and assessments indicate.



### **E. W.T. Wooten Wildlife Area Strategies**

#### Modify Campgrounds /Protect Riparian Corridor

Modify campgrounds 1, 3, and 7-10. Rip compacted soils and replant with native vegetation. Rock barriers will be placed to modify campsite locations. Close campground 1 and 3, and enlarge campground 2. Move 2 toilets from campground 1 (one to parking area at Spring Lake and one to campground 2). Move toilet from closed Deer lake campground to south end of enlarged campground 5. Define future plans to modify campgrounds 6-10. Have \$100,000 allotment spent by July 2005. Fund using WWRP funding or salvage logging income.

#### CREP Enrollment

Enroll approximately 450 acres of riparian habitat in the CREP program in 2005 – Starting at Porter Bridge and running south along Tucannon River to southern boundary, including campground 10. This enrollment will protect roughly 15 miles of riparian corridor. WDFW is attempting to enroll this area in CREP spring 2006.

### **3. Monitor and Control of Noxious Weeds**

Subbasin planning identified noxious weeds and degradation of native habitats as a limiting factor for many native plant/fish/wildlife species. Priority species such as Salmonids, elk, bighorn sheep, sharp-tailed grouse and mountain quail all suffer detrimental effects due to exotics. The subsequent invasion of weed species such as cheatgrass, scotch thistle, and yellow starthistle has degraded a large percentage of the native bunchgrass cover types.

The District Team and CAG have identified the following concerns related to the control of noxious weeds: identify, control and map noxious weeds; identify ecologically sensitive areas and preserve them; give new invasive weed species the highest priority for control efforts; develop good weed baseline data; utilize recreational visitors to identify new weed outbreaks; investigate the use of livestock to control noxious weeds; work in cooperation with neighboring landowners' weed control efforts; and participate in cooperative weed control efforts to manage weeds on a landscape level.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

#### **A. Region Wide Strategies**

##### **Minimum WDFW Weed Control Acreage per Year**

Treat noxious weed outbreaks on a minimum of 400 acres per year. Conduct control activities on WDFW lands, or assist weed control efforts on neighboring properties when requested. Control may include spraying, hand pulling, cutting, mowing, grazing, or the release of bio-control agents. Funded through Non-PR and BPA funds.

##### Weed Map

As mentioned in Protect, Restore and Enhance Fish and Wildlife Populations and their Habitats. Sub-objective 2-A, a weed mapping effort will be included in the

2005-2006 mapping of Priority Habitats: With assistance from Spokane staff, incorporate extent and distribution of Washington's Priority Habitats, common cover types, and noxious weed populations, size, and locations.

Prioritization of Weed Control

Prioritize weed control efforts by: 1) "A-list" weed species (see Appendix 2); 2) critical wildlife habitats or plant communities, i.e. riparian corridors, or federal/state listed species requisites; 3) trails, access sites, and roads; and 4) neighboring boundaries. All other sites shall be treated as funds and opportunity allow. Implement using BPA, sharecrop funds, and Non-PR funding.

Investigate Grazing as a Weed Control Tool

Examine the possibility of using grazing to control annual grasses and stimulate bunchgrass growth. Grazing will only be implemented in cases where it will produce a benefit to wildlife (see Appendix 2). Examine this tool through the Pilot Grazing program beginning in 2006.

**B. Asotin Creek Wildlife Area Strategies**

Hire Weed Crew

Allocate BPA funding to hire a weed crew in 2005 and 2006. Crew will focus weed control efforts on mitigation lands, particularly Rockpile Creek, to improve conditions for 2007 restoration efforts. Time will also be spent hiking newly acquired lands to document weed populations and prioritize control efforts. Funded with BPA funding.

Riparian Weed Treatment

Treat approximately 5 acres of sulfur cinquefoil on SF Asotin Creek. Continue annual treatment until contained. Spray broadleaf weeds along trails up both North and South Forks of Asotin Creek. Riparian corridors are areas of high priority for weed control, and major waterways will be evaluated annually for new weed outbreaks. Implement using BPA funding on South Fork and Non-PR funding on North Fork.

A-list Weed Treatment

Treat population of "A" list species: Mediterranean Sage along Meyers Ridge and Rush Skeletonweed in various locations. Seek to eradicate these populations. Monitor annual plant density to ensure sufficient control measures are being taken. Fund using sharecrop money or Non-PR funds.

Cooperative Weed Control

Provide herbicide in a cooperative effort between WDFW and the Asotin County Weed Board (RMEF grant funding). Hire a horseback weed contractor to control weeds on parts of WDFW's Pintler unit and adjoining private lands. Target Rush Skeletonweed, Mediterranean Sage, Sulfur Cinquefoil, Dalmatian Toadflax, and outlying patches of Poison Hemlock in remote locations. Fund using sharecrop money or Non-PR funds.

#### Trail Weed Control

Control 4 acres of scotch thistle at head of North Fork Asotin Creek trail by cultivating and re-seeding to spring wheat. Funded with Sharecrop and Non-PR funding.

#### Access Areas/Roadway Weed Control

Annually spot treat roadways and access sites throughout the Wildlife Areas as necessary. Funded by Non-PR funds.

### **C. Chief Joseph Wildlife Area Strategies**

#### Access Areas/Roadway Weed Control

Annually spot treat roadways and access sites throughout the W.A. as necessary. Mow thistle in fields too large to treat with herbicide. Fund with Non-PR funds.

#### Trail Weed Control

Selectively control weeds along Green Gulch road up to Lime Point - remove annual grasses that create a fire hazard but maintain perennial grasses to hold soil. Fund with Non-PR funds.

#### A-list Weed Treatment

Contain Rush skeletonweed population on along Rogersburg road with annual spraying. Monitor annually to track population changes. Fund with Non-PR funds and grants from Wallowa Resources.

### **D. Grouse Flat Wildlife Area Strategies**

#### Haying as Weed Control

Ensure weed outbreaks are being treated by agricultural leaseholder. Regular haying should help reduce noxious weeds, but site visits will be conducted twice per year to verify success.

### **E. W.T. Wooten Wildlife Area Strategies**

#### Access Areas/Roadway Weed Control

Annually spot treat approximately 50 acres along roadways and access sites throughout the W.A. as necessary. Fund using Non-Pr funds.

#### Cooperative Weed Control

Annually contract to have 300 acres of yellowstar thistle aerially sprayed in inaccessible reaches of the wildlife area. Cost is approximately \$7,000 annually, paid in cooperation with RMEF.

## **4. Enhance and Protect Endangered, Threatened, and Sensitive Species**

Federal and State listed species receive the highest priority when considering management actions to be employed on Blue Mountains wildlife areas. Occurrence for many listed species is unknown, and survey methods need to be researched to better understand the limiting factors or possible habitat requisites that can be created to

enhance populations of these species. Protection of Endangered or Threatened species takes precedence over all other management activities.

The District Team and CAG have identified the following concerns related to Endangered, Threatened and Sensitive species: conserve and manage for bio-diversity while taking into consideration the needs of Threatened and Endangered species, identify ecologically sensitive areas and preserve them; and rare plant surveys need to be conducted on all areas before any grazing is implemented.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Habitat Improvement

Improve habitat quality where studies have identified limiting factors that inhibit a listed species' occurrence i.e. quality of riparian vegetation, water conditions, or channel morphology.

#### Surveys for Listed Species

Lists of Federal Threatened and Endangered Species and Washington's Priority Species should be analyzed for those plants and animals most likely to occur on the Blue Mountains Wildlife Areas. If sightings or reports of listed species are documented, biologists will investigate and conduct formal surveys as necessary.

#### Bird Surveys

Wildlife biologists have been conducting Golden Eagle surveys during 2004-5. This study will end in 2006, and Peregrine Falcon surveys will begin. In addition, a 25-mile Breeding Bird Survey route is sampled annually in southeast Washington.

Presence or absence of particular species can be an indicator of habitat quality, and changes in species diversity can help monitor trends in habitat function. Currently four breeding bird point count surveys are conducted on the Asotin Creek Wildlife Area to document restoration effects, but more surveys are needed to cover major drainages, priority habitats, or sites where management activities are planned (i.e. prescribed burns or timber thinning). Each survey site is visited three times (between mid-May and late June) during a survey year. Surveys are conducted annually for three years to establish baseline data, and then once every five years to monitor changes. Funded using BPA funding.

#### Bighorn Sheep

WDFW has worked in cooperation with the Foundation for North American Wild Sheep (FNAWS), IDFG, ODFW, U.S. Forest Service (USFS), and the Bureau of Land Management (BLM) on restoration of bighorn sheep within Hells Canyon. WDFW has also implemented transplant projects in the Tucannon and Asotin Creek subbasins. Area staff will continue to try and protect this species by maintaining boundary fences that exclude trespass domestic sheep.

### Sharp-tailed Grouse

Research the life requisites and current ecological limiting factors of Columbian Sharp-tailed Grouse. This is a cooperative project between WDFW and USFS, and initial assessments will begin on USFS lands in the near future. If sufficient habitat is present to support a population of Sharp-tailed grouse, the Agencies will be put on a waiting list for transplant grouse. Time frame is unknown.

## **B. Asotin Creek Wildlife Area Strategies**

### Mountain Quail

Reestablish a viable population of Mountain Quail in NF Asotin Creek and Craig Mountain, ID as a cooperative effort between WDFW, IDFG and the University of Idaho. Various shrubby draws were assessed in 2004 to delineate areas of high quality mountain quail habitat. In March 2005 145 birds were released (73 in Asotin Creek, 72 at Craig Mountain). Mountain quail will be released again in 2006. A University of Idaho graduate student will collect radio-telemetry data and record dispersal and mortality rate of released quail. Assist Mountain quail project with Non-PR and sharecrop funds. Continue support of field activities through 2006.

### Bird Surveys

Wildlife Area staff conduct four breeding bird point count surveys to document restoration effects (See Agency Objective: Protect, Restore and Enhance Fish and Wildlife Populations and their Habitats. Sub-objective 4-A for further discussion). Two survey sites are located in a riparian cover type (one in quality habitat, one in degraded habitat), and two are in a grassland cover type (one in quality habitat, one in degraded habitat). Baseline surveys were initiated in 2004 and will end in 2006, to be revisited at 5-year intervals. Funded on Schlee acquisitions with BPA funding. Initiate surveys on pilot grazing areas in 2006 with Non-PR funding.

### Fish Assessment

WDFW staff is currently assessing populations of threatened salmonid species in the Asotin Creek drainage. This is a BPA funded project implemented by fish management division.

### Pacific Lamprey

Cooperate with Nez Perce Tribe Fisheries in their efforts to examine viability and status of Pacific Lamprey in the Asotin Creek drainage. Provide information and assistance upon request. Fund using Non-Pr funds.

### Rare Plant Survey

Allocate BPA funds to hire a contractor to identify rare plant species on the Smoothing Iron and Rockpile units. Survey other units of the wildlife area as funds allow. Spalding's Silene has been found within the Lick Creek watershed on both WDFW and USFS lands. If found, protect rare plant populations by appropriate means, i.e. fencing, information kiosk to inform public, etc. Fund on BPA lands as required in statement of work and implement/fund on other non-BPA lands as funding allows.

### Amphibian Survey

Currently amphibian surveys are conducted at the few ponds located on the wildlife area, but protocols should be researched to expand this effort to creeks and streams containing quality habitat for any listed amphibian species. Rocky Mountain Tailed Frogs were documented in George Creek in 1958, and surveys should be conducted to assess if current populations exist. Fund using Non-PR funding as time allows.

### **C. Chief Joseph Wildlife Area Strategies**

#### Rare Plants - Spalding silene

The Nez Perce Tribe found populations of Spalding's silene within the Joseph Creek watershed in 2004, and it can be assumed that populations are likely on this wildlife area. Survey for this species and other rare plants as funding allows.

### **D. Grouse Flat Wildlife Area Strategies**

#### Bird Surveys

Pileated Woodpeckers are known to inhabit the area, and requisite snags and habitat features will be identified to protect this species. Regardless of timber management plans, a bird survey will be conducted as time allows identifying species of concern that may be present, including owl species.

### Amphibian Survey

Currently amphibian surveys are conducted at two ponds located on the wildlife area. Fund using Non-PR funding.

### **E. W.T. Wooten Wildlife Area Strategies**

#### Bird Surveys

Breeding bird point count surveys are planned in the near future. If sensitive species are identified, management action will be taken to protect these species and their habitat. Fund using Non-PR funding as time allows.

#### Fish Assessment

WDFW staff members are currently assessing populations of threatened salmonid species in the Tucannon River drainage. Funded through Fish Management division.

## **5. Improve and Maintain Fish Populations**

Chinook salmon, Steelhead, and Bull trout are all federally listed, and WDFW has identified them as Priority Species due to the significant role they play in local economies and ecosystems. These species are often highly sought by anglers, generating substantial fishing and recreation revenues, and attracting citizens to public lands. In addition, Salmonids fill important niches in the environment by providing nutrient sources for many aquatic and terrestrial species.

The District Team and CAG have identified the following needs related to fish populations: identify ecologically sensitive areas and preserve them; man-made lakes are important to the local economy and should not be closed, include fish in the management process, manage fish and wildlife resources to protect and restore treaty right harvest

opportunities for local tribes, address lamprey issues, inventory non-game fish and aquatic insects, and consider commercial enterprises such as Steelhead guiding on the Grande Ronde River.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Non-listed Species Inventories

Base-line surveys are needed for resident species of fish and aquatic invertebrates that are not covered in Priority, Federal, State, or Game listings. These species play a significant role in stream functions and often little is known of their distribution or status.

#### Enforcement

Enforce hunting and land use regulations on all Wildlife Areas to ensure protection of resources. Enforcement Division carries out these activities on a routine basis.

### **B. Asotin Creek Wildlife Area Strategies**

#### Salmonid Population Monitoring

Continue surveys and monitoring efforts by WDFW fisheries staff to assess salmonid population trends in the Asotin Creek watershed. Staff members operate both adult and juvenile fish traps, conduct spawning ground (redd) surveys, and conduct electro-fishing surveys.

#### Habitat Improvement

Improve riparian vegetation along Rockpile Creek, George Creek, and South Fork Asotin Creek by excluding livestock and controlling noxious weeds. Restoration planting efforts will begin in 2007 for Rockpile Creek. Funding provided by BPA.

#### Monitor Water Quality

Continue operation of nine water quality-monitoring stations on the North and South Fork of Asotin Creek, and on Charley Creek. This activity carried out by USDA.

### **C. Chief Joseph Wildlife Area Strategies**

#### Monitor Water Quality

Department of Ecology (DOE) operates a water quality monitoring station on the wildlife area. DOE collects air temperature, water temperature and flow data. DOE funded and implemented.

#### Riparian Weed Control

Participate in a Grande Ronde River cooperative weed control effort coordinated by Wallowa Resources. Maintain quality riparian cover and improve adjacent upland areas by controlling weeds. Fund using grants from Wallowa Resources and Non-PR funding.



#### Floodplain Restoration

Restore native vegetation to flood-damaged fields. A Rocky Mountain Elk Foundation Project was initiated in 2004 to restore 35 acres adjacent to Joseph Creek to native vegetation.

#### **D. Grouse Flat Wildlife Area Strategies**

N/A

No streams or fish-bearing ponds are present on this wildlife area.

#### **E. W.T. Wooten Wildlife Area Strategies**

##### Population Monitoring

WDFW staff members monitor populations of Chinook, Steelhead and Bull Trout through various means. Ongoing studies include: smolt trapping, snorkel surveys, electro-fishing surveys and spawning ground (redd) surveys.

##### Cooperative Studies

WDFW and USFS participate in an ongoing cooperative effort to monitor Bull Trout populations on upper reaches of the Tucannon drainage.

##### Stream Channel Modification

In the past the NRCS conducted habitat improvement projects, but none have been implemented recently. In 2004 a habitat consultant recommended stream modifications to areas of the Tucannon River. Recommendations included: add large woody debris, rip substrate and plant cover vegetation to reduce water temperature, and excavate off-channel rearing and refuge areas for juvenile salmonids. Implement as funds become available. Utilize salvage logging funds or Non-PR funding.

##### Maintain Stocked Lakes

Maintain 8 plant and take' lakes stocked with rainbow trout for recreational fishing. Fund using Non-PR funds.

##### Maintain Lake Dikes

Maintain dike on Spring Lake. Repair damage caused by vegetation and leaking of dike to meet DOE codes.

##### Maintain Hatchery Operations

Maintain hatchery and rearing facilities for rainbow trout that are used to stock lakes, and chinook and steelhead that are released into the Tucannon River to augment depressed populations. The hatchery also operates an adult fish trap that monitors escapement counts.

##### Monitor Water Quality

WDFW documents water temperature at stations from Sheep Creek down to the mouth of the Tucannon River, and an additional six stations in the major tributaries. DOE also collects water quality data at two sites along the Tucannon River. DOE funded and implemented.

## **6. Protect Upland Game Birds**

WDFW has identified Chukar, Blue Grouse, Mountain Quail, Ring-necked Pheasant, Sharp-tailed Grouse and Wild Turkey as Priority Species due to their economic and aesthetic contributions to local wildlife areas. As game birds, these species generate hunting and recreation revenues and attract sportsmen and recreational users to public lands. The Sharp-tailed Grouse and Mountain Quail are species that once occurred in the area and are being assessed for reintroduction efforts.

The District Team and CAG have identified the following needs related to upland game birds: protect upland game bird habitat and consider planting food sources near guzzlers, consult USFS in coordinating sharp-tailed grouse habitat assessments, and utilize volunteer groups and hunting clubs to maintain game bird guzzlers.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Enforcement

Enforce hunting and land use regulations on all wildlife areas to ensure protection of resources. This activity is routinely carried out by the enforcement division.

### **B. Asotin Creek Wildlife Area Strategies**

#### Guzzlers

Evaluate existing guzzlers and repair or discard as necessary. Install new guzzlers if necessary, to reach a total of 13 upland game bird guzzlers on various sites throughout the Smoothing Iron, George Creek and Bickford units. Select sites in 2006 and install/maintain as necessary. Funded using BPA funding.

#### Restore Native Species

Restoration efforts are planned for both Mountain Quail and Sharp-tailed Grouse (See Agency Objective: Protect, Restore and Enhance Fish and Wildlife Populations and their Habitats. Sub-objective 4-B). In 2005, 73 mountain quail were released in the Asotin Creek drainage, and a second release occurred in 2006. To date, eight mountain quail nests have been reported. Support mountain quail project using sharecrop and Non-PR funding.

Restoration efforts for sharp-tailed grouse will begin with habitat surveys on both WDFW and USFS lands to assess if sufficient high-quality habitat exists to support a viable population. It is possible that a small remnant population of sharp-tails still occurs, and surveys will be needed to assess number and distribution. Implementation of this project is still in the planning stage and will be funded using BPA funds.

#### Habitat Improvement

Restore agricultural fields to native grassland to improve habitat for ground nesting birds (See Agency Objective: Protect, Restore and Enhance Fish and Wildlife

Populations and their Habitats Sub-objective 2-B) Work with Sharecroppers to establish winter foodplots. Establish shrubplots for winter cover as funding allows.

### **C. Chief Joseph Wildlife Area Strategies**

#### Habitat Improvement

Funding has been secured through a Rocky Mountain Elk Foundation grant to restore 35 acres of weedy pasture to native grass and forb species. A Great Basin wild rye mix was planted in 2005 improve cover for ground nesting birds and reduce noxious weeds.

#### Wheat Plantings

Plant 23 acres of wheat to enhance upland game bird forage and reduce cover of reed canarygrass. Restore these fields to native grass/forb mixes once canarygrass has been removed, and leave a strip of wheat along the perimeter as game bird forage. Fund using Non-PR funding.

#### Guzzlers

Maintain 10 guzzlers for upland game bird use. Utilize volunteer groups to help with maintenance and upkeep duties if possible. Fund using Non-PR funds as time allows.

#### Shrubs

Maintain existing tree and shrub plantings – mainly through summertime irrigation. Plant additional tree and shrub plantings as time and funding allow. Non-PR funded.

### **D. Grouse Flat Wildlife Area Strategies**

#### Improve Habitat

Maintain an agricultural lease on pasturelands to control annual weeds and improve quality turkey habitat. Fund using sharecrop agreement.

#### Maintain Water Sources

Assess two ponds and implement any actions needed to improve water quality. Fund using Non-PR funding.

### **E. W.T. Wooten Wildlife Area Strategies**

#### Maintain Guzzlers

Maintain 12 upland guzzlers and 6 water troughs throughout the Hartsock Unit and main wildlife area. Improve 3 seeps for game bird use on the Hartsock unit and maintain 3 seeps on Abel's ridge. Repair or remove those watering facilities damaged by wind at the Cummings Creek and Hatchery Ridge sites. Replace/repair guzzlers damaged in school fire using salvage logging income if possible.

## **7. Protect and Manage Non-Game Species**

Although federal and state listed species draw significant funding and interest, non-game species also need to be considered in wildlife area planning to ensure their continued existence. Often presence of a species is unknown, even if sufficient habitat exists, and

baseline surveys need to be conducted so that populations or requisite habitat features are not inadvertently lost. As funding allows, inventories of non-game species should be conducted to help define the status and range of these populations, particularly those with a record of historic occurrence.

The District Team and CAG have identified the following concerns related to the protection of other species: conduct baseline surveys for non-game species and aquatic invertebrates.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

Studies of non-game species are often under funded compared to game species due to the revenue generated by licenses and tags for recreational use of game. The following Strategies identify data gaps requiring research on the wildlife areas, but currently no funding exists for these projects.

#### Song Bird Surveys

Coordinate with WDFW biologists to establish 5 breeding bird point count surveys that will be sampled on rotation – one each year – so that each site is surveyed every five years. Sites may include: Joseph Creek wildlife area, Weatherly unit (Asotin Creek wildlife area), Hartsock Ridge and Cummings Creek (Wooten wildlife area), and Grouse Flat. Each survey year consists of three visits to the transect between mid-May and late June. Fund using Non-PR and BPA funding.

#### Bat Inventory

Pursue funding to purchase an ANABAT detector. Conduct a bat inventory of suitable habitats on the wildlife areas using most appropriate method (ANABAT, mistnet, or visual observation) to cause least amount of disturbance. Townsend's big-eared bats, a listed species, roost in old buildings and rocky cliffs/caves. Survey for bat presence in buildings before removing or destroying old structures.

#### Amphibian Inventory

Four amphibians may be found on the Blue Mountains wildlife areas that are either federal or state listed species: Columbia spotted frog, Northern leopard frog, Rocky Mountain tailed frog, and Western toad. Monitor amphibian populations in at least 10 permanent ponds throughout the four wildlife areas (2-3 ponds per wildlife area). Establish baseline species diversity and population data. Monitor ponds on a rotating basis – two ponds per year – and visit each pond three times between March and August. Annually submit data to the Declining Amphibian Population Task Force (DAPTF) database, and appropriate WDFW databases. Fund using Non-PR funds as time allows.

Consult District biologists on most appropriate methods to survey stream habitats and riparian cover types for other amphibian species.

#### Reptile Inventory

Coordinate with WDFW biologists to conduct an inventory of reptiles on the wildlife areas. Install pitfall trap arrays in most suitable habitats. The State-listed sagebrush lizard has the potential to occur in this region.

#### Forest Bird Surveys

Coordinate with WDFW biologists to conduct forest bird surveys (particularly cavity nesters, owls and woodpeckers) to ensure that prescription management practices such as burning or thinning of timber stands does not cause negative impacts to species or requisite habitat features. Survey pre- and post-treatment to monitor fire effects. Pileated, Black-backed, Lewis's and White-headed woodpeckers are all listed species that may occur, in addition to the Flammulated owl.

#### Terrestrial Invertebrate Inventory

Coordinate with WDFW biologists to conduct inventory of terrestrial invertebrates on the wildlife areas. Pursue funding to hire a specialized contractor if necessary. Three butterflies are listed species that have the chance to occur on the Blue Mountains Wildlife Areas: Juniper hairstreak, Shephard's parnassian, and Silver-bordered fritillary.

#### Small Mammal Inventory

Coordinate with WDFW biologists to conduct an inventory of small mammal species on the wildlife areas. Merriam's shrew and the Washington ground squirrel are listed species that might occur in this area.

#### Raptor Inventory

Coordinate with WDFW biologists to conduct an inventory of raptors on the wildlife areas. Bald and Golden eagles, Ferruginous hawk, Merlin, Northern goshawk, and Prairie falcons are all listed species with potential to occur.

### **B. Asotin Creek Wildlife Area Strategies**

#### Breeding Bird Point Count Surveys

Monitor four breeding bird point count plots established in 2004 to measure vegetation response to livestock removal and WDFW riparian restoration efforts. Plots are visited three times per year in each survey year, between mid-May and late June. Surveys are performed annually for the first three years (2004-6) and then revisited once every five years to monitor changes over time. Submit data to WDFW coordinating biologist and national Partners in Flight database administered by the Rocky Mountain Bird Observatory. Funded using BPA dollars.

### **C. Chief Joseph Wildlife Area Strategies**

#### Upland Sandpiper Surveys

Coordinate with WDFW biologists to conduct upland sandpiper surveys. This is a listed species with unknown occurrence on the wildlife area, but quality habitat exists.

### Bat Surveys

Conduct a bat survey up Green Gulch and Joseph Canyon using ANABAT detection equipment. A state and federally listed species (Townsend's big-eared bat) was historically found in canyons near Joseph Creek and other species of concern are likely to occur.

### **D. Grouse Flat Wildlife Area Strategies**

#### Forest Bird Survey

Establish a bird survey transect to inventory forest species. Survey once every five years (three visits in a survey year), or before any timber management projects are implemented.

### **E. W.T. Wooten Wildlife Area Strategies**

#### Forest Bird Survey

Establish a bird survey transect to inventory forest species. Survey once every five years (three visits in a survey year), or before any timber management projects are implemented. Fund using Non-PR funding.

#### Nest Boxes

Maintain/install 25 bluebird boxes and 10 wood duck boxes. Utilize volunteers to build and maintain throughout the year.

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

#### **1. Provide Public Access Compatible With Fish, Wildlife and Habitat Protection**

Protecting fish, wildlife, and quality habitat is the highest priority of wildlife area management, but there are many opportunities for recreation and public use that improve local economies and are compatible with preservation of the ecological setting. WDFW is committed to providing many recreational opportunities while still maintaining the requisite needs of plants, fish, wildlife, and habitats on these lands.

The District Team and CAG have identified the following concerns related to public use incorporated with species and habitat protection: identify ecologically sensitive areas and preserve them; protect Threatened and Endangered species, consider elderly and disabled hunting opportunities, maintain man-made lakes at Wooten Wildlife Area, maintain trailheads/access areas and consider utilizing volunteers to assist with maintenance duties, consider allowing ATV use on trails before hunting season, establish a trail on South Fork Asotin Creek outside the creek bed, enforce a horn hunting permit system if this sport is a problem for elk, gather data that documents numbers of horn hunters and impacts to elk, work cooperatively with area Tribes concerning protection and management of cultural resource sites located on WDFW lands, define policies that regulate the use of facilities on WDFW lands, explain reasons for road closures or resource effects by posting information at kiosks, and conserve and manage wildlife areas for bio-diversity first and foremost including Threatened and Endangered species.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Disabled Hunter Access

Asotin Creek wildlife area should to have a disabled recreation access area defined and posted –implement in 2006. The W.T. Wooten wildlife area offers many hunting opportunities that are easily accessible by vehicle. In addition, the Chief Joseph wildlife area allows ATV access for the first five miles up Green Gulch road during hunting season to allow access to disabled or elderly hunters, and due to the small size of Grouse Flat, much of the wildlife area is accessible by the single road that enters from the east, or the county road that borders to the south. Implement using agency funding.

#### Road Closures in Winter

Protect critical habitat areas by allowing no access during vulnerable times of the year. Currently there are winter closure gates on North Fork Asotin/Lick Creek, and South Fork Asotin Creek road. These gates are closed December 1 – April 1 to protect elk during the winter months when survival is most difficult and continuous disturbance reduces body condition. Cummings Creek trail was closed to all human entry in 2004 as an emergency action due to a number of elk that passed through a hole in the elk fence and had the potential to move onto private ground. Continue to implement using Non-PR funding.

#### Trail Access

Trail access on all wildlife areas is limited to non-motorized modes of travel such as: hiking, biking, and horseback riding. This restriction reduces erosion, noise, air pollution and disturbance to wildlife. Continue as necessary.

#### Buildings/Facilities Use

Two houses located on WDFW land are rented to private citizens, but most buildings are maintained as storage or staging areas for work performed by WDFW personnel. Some areas are maintained as field housing for staff performing work in remote areas. On rare occasions, cooperative agencies such as the Foundation for North American Wild Sheep, or Rocky Mountain Elk Foundation ask to hold conferences in areas where they have participated in cooperative studies or supplied grant funds for particular projects, but for the most part these facilities are not available for general public use due to liability issues.

## **2. Provide Commercial Opportunities Compatible With Fish, Wildlife and Habitat Protection**

Protecting fish, wildlife, and quality native habitat is the highest priority of wildlife area management. However, there are many opportunities for recreation and public use that improve local economies in a manner compatible with landscape preservation. WDFW is



committed to providing a variety of opportunities while still maintaining the requisite needs of plants, fish, wildlife, and habitats found on these lands.

The District Team and CAG have identified the following concerns related to commercial use incorporated with species and habitat protection: consider using a permit entry system for horn hunters, identify ecologically sensitive areas and preserve them; protect Threatened and Endangered species, maintain man-made lakes at Wooten Wildlife Area, use the land to generate operating funds for the wildlife area i.e. agricultural leases or grazing permits, and consider commercial enterprises on wildlife areas i.e. Steelhead guiding on the Grande Ronde River.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Prescription Timber Management

Utilize local companies to perform timber removal/salvage projects for the benefit of wildlife. In Grouse Flat and Asotin Creek wildlife areas need to be assessed for possible timber management activities. Local logging facilities will be considered when designing these actions.

#### Agricultural Leases

Agricultural leases add revenue to the wildlife area and support the local economy. In addition, if applied correctly, these leases can improve stands of pasture grass for big game forage by receiving regular fertilization, weed control and removal of standing dead material. Most commonly lease holders trade their lease fee amount for goods and services that can be utilized on the wildlife area i.e. fence construction /repair, habitat improvements, or herbicide purchases

### **3. Provide Fish and Wildlife Recreational Opportunities**

WDFW has identified many Priority species that contribute significant economic and aesthetic value to local wildlife areas. Chinook salmon, steelhead, bighorn sheep, and elk are just a few of the highly sought species inhabiting Blue Mountain wildlife areas. Sportsmen, hikers, campers and photographers can all enjoy the recreational opportunities offered by these species. hunting of upland game birds and big game species attract sportsmen and recreational users from across the country. Game species generate hunting and recreation revenues that support public lands, and WDFW is committed to providing the public with the numerous opportunities associated with these species. In addition, WDFW plans to restore locally extirpated species such as sharp-tailed grouse and mountain quail in hopes that the establishment of a viable population will add to the diversity and recreational opportunities on public lands.

The District Team and CAG have identified the following needs related to provision of recreational activities relating to fish and wildlife: consult USFS in coordinating sharp-tailed grouse habitat assessments, provide informational kiosks describing area wildlife and issues, consider allowing ATV use on trails before hunting season to view wildlife.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Continue to Enhance Limited or Locally Extirpated Species

WDFW will continue its work on reintroducing species that were once found in the area but have recently declined due to various causes. Reintroduction of new and often rarely seen species such as mountain quail, sharp-tailed grouse, and bighorn sheep increases the aesthetic diversity of a wildlife area and offers previously unavailable viewing opportunities. Fund using grants, BPA, and Non-PR funding.

#### Maintain Tucannon Hatchery Production

Tucannon Hatchery produces rainbow trout, Chinook salmon and steelhead to augment local populations. Chinook and steelhead are released into the Tucannon River, and rainbow trout are stocked in eight man-made lakes. Continued enhancement of declining steelhead and Chinook populations increases favorable fishing opportunities for anglers and encourages use of public lands.

#### Provide Opportunities for Disabled Hunters

See Agency Objective: Agency Objective: Provide sustainable fish and wildlife-related recreational and commercial opportunities compatible with maintaining healthy fish and wildlife populations and habitats. Improve the economic well being of Washington by providing diverse, high-quality recreational and commercial opportunities. Sub-objective 1-A.

#### Post Informational Signs and Kiosks

Install at least one information kiosk on each wildlife area as funds permit. Post information such as: road/trail closures, fire restrictions and contact numbers, changes in hunting/fishing regulations, noxious weeds in the area, and wildlife or rehabilitation projects of interest (i.e. mountain quail reintroduction). Maintain signs at wildlife area entrances. Post boundaries and access areas clearly. Identify WDFW lands using agency signs. Fund using BPA and Non-PR funding.

### **Agency Objective: Minimize adverse interactions between humans and wildlife**

#### **1. Provide Refuge Areas For Wildlife and Reduce Winter Disturbance**

The highest priority of wildlife area management is to protect and preserve wildlife and quality wildlife habitat. WDFW is committed to providing many recreational opportunities while still maintaining the requisite needs of wildlife found on these lands.

The District Team and CAG have identified the following concerns related to winter disturbance of wildlife: identify ecologically sensitive areas and preserve them; enforce a horn hunting permit system if this sport is a problem for elk, gather data that documents numbers of horn hunters and impacts to elk, explain reasons for road closures and affected resources by posting information at kiosks.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Emergency Closures

Emergency closures will be enforced when unusual circumstances place wildlife in potentially dangerous or adverse situations. The Cummings Creek closure of 2004 was applied to keep a number elk from moving on to private cropland after they had passed through a hole in the elk fence.

### **B. Asotin Creek Wildlife Area Strategies**

#### Winter Gate Closure

Close gates on South Fork and North Fork Asotin Creek from December 1 – April 1 to protect big game on their winter range. Fund this longtime program using Non-PR funds.

### **C. Chief Joseph Wildlife Area Strategies**

#### Limited Access to Provide Refuge

Close gates at the county road outside of hunting season to protect big game winter range and provide a security refuge. Maintain closed gate 5 miles up Green Gulch road during hunting season – lower 5 miles are accessible by ATV's from October 1-November 30. Continue this activity using Non-PR funding.

### **D. Grouse Flat Wildlife Area Strategies**

#### Maintain Security Cover

Maintain forest stand as quality security cover for elk (See Agency Objective: Protect, Restore and Enhance Fish and Wildlife Populations and their Habitats. Sub-objective 2-D)

### **E. W.T. Wooten Wildlife Area Strategies**

#### Document Disturbance

Evaluate disturbance to deer, elk and bighorn sheep on winter range and calving areas caused by public use. As time and funds allow, track numbers of recreational users within view of wildlife, and wildlife response. Work with district wildlife biologists to accomplish this activity.

#### Evaluate Cummings Creek Road Closure

Cummings Creek road was closed to protect wildlife and keep elk off private ground. Road has been closed to all motorized traffic for years, and the closure to all human entry was an emergency action taken in 2004. Effect and wildlife response to this closure are still being assessed to determine if a closure will be applied on a yearly basis.

## **2. Implement Strategies to Reduce Elk Damage on Private Lands**

Elk are often highly visible and attract citizens to public lands for numerous reasons. This big game species generates hunting and recreation revenues, attracts recreational

users, and fills an important niche in the environment. Unfortunately, a large percentage of Blue Mountains elk range includes agricultural fields and farms and crop damage caused by elk herds can be substantial. WDFW attempts to reduce the damage in many ways, while still maintaining a viable elk population for recreational and hunting opportunities.

The District Team and CAG have identified the following needs related to elk depredation: protect ecologically sensitive areas i.e. big game winter range; plant sufficient food plots to fulfill elk herd nutrition requirements, and regulate public uses that disturb wildlife, i.e. horn hunting. In addition, the application of grazing as a tool to improve wildlife habitat should be investigated.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region Wide Strategies**

#### Food Plots

Establish food plots to improve wintering elk nutrition and minimize crop damage. Based on population objectives (some herds are purposefully maintained below objective to minimize depredation), forage nutrition requirements need to be calculated. Food plots can be created of a size and location to best provide supplemental forage for each elk herd. Clover/legume plots will be mowed each fall, and re-seeded or fertilized as necessary; wheat fields will be planted annually. Wildlife Area staff will maintain food plots as time permits; if this cannot be accomplished by area staff, local sharecroppers will be approached to trade food plot farming services for agricultural lease fees.

Further study of nutrition needs and current forage production will be conducted in 2006 to determine how many food plots are necessary to support population objectives of resident big game herds. Please see [APPENDIX 6 – Forage Production and Management Plan](#) – for an expanded discussion of the forage assessment process.

#### Grazing

The use of livestock as a habitat management tool will be assessed in 2006 on a landscape level. Soil types will be used to identify forage production potential of each wildlife area, and current vegetation condition will be compared to this standard to estimate actual standing forage. The forage nutrition needs of wildlife will be allotted first, and where appropriate (i.e. no rare or listed plant/fish/wildlife species impacted, no environmental concerns present such as highly eroded soils, etc.), surplus forage will be considered for use in grazing permits that will benefit wildlife.

The agency is also implementing the pilot-grazing program in three areas in Asotin County. One of which on Smoothing Iron Ridge is targeting elk for habitat improvement.

### Maintain Elk Fence

Over 20 miles of elk fence has been built between Asotin Creek and W. T. Wooten Wildlife Areas. The fence was constructed to keep elk off private ground and hold them on state or federally managed lands. Maintenance of this fence requires substantial effort due to fallen trees pulling down sections, wildlife breaking through, and people cutting holes or propping open gates. Annual maintenance of the fence is costly, but effective, in directing a substantial number of elk away from agricultural fields. Fund utilizing Non-PR funding and volunteer labor.

## **B. Asotin Creek Wildlife Area Strategies**

### Maintain Elk Fence

Perform yearly maintenance on eastern half of elk fence (11 miles). Repair or rebuild as necessary. Fund using Non-PR funding and volunteer labor

### Restore Campbell Field

As funds allow, restore 200-acre Campbell field to native grass and forb cover. Remove old smooth brome and cultivate/re-seed to native species to enhance big game forage. Seek funding from WWRP grant in 2006.

### Mineral Stations

Establish and maintain nine mineral stations: 6 on Weatherly, 6 on Smoothing Iron, and 1 on each food plot, to draw wildlife off private lands. Drop blocks as necessary. Fund using BPA and Non-PR funding.

### Food Plots

Maintain 3 clover food plots to improve elk forage and reduce depredation on agricultural fields: Cook Ridge (30 acres), Sourdough (30 acres), and Weatherly (20 acres). Maintain as time and funding allow, by mowing, re-seeding, and fertilizing as necessary. Fund using Non-PR and sharecrop funds.

### Pilot Grazing

Implement pilot grazing program on Smoothing Iron Ridge in 2007 with the intent of having a positive effect on resident elk populations. Funded in this area using monies from BPA.

## **C. Chief Joseph Wildlife Area Strategies**

### Mineral Stations

Establish and maintain 4 mineral stations, one at the Joseph Creek facility and three others up Green Gulch road to draw wildlife off private lands. Drop blocks as necessary. Fund utilizing Non-PR funding.

### Habitat Improvement

Implement RMEF grant project in 2005 to improve herbaceous forage on three weedy fields bordering the Joseph Creek riparian corridor.

Food Plot

Maintain and irrigate clover food plot (6 acres) and two annual wheat fields (23 acres). Maintain as time and funding allow, by irrigating, controlling weeds, mowing, re-seeding, and fertilizing as necessary. Fund using Non-PR funding.

**D. Grouse Flat Wildlife Area Strategies**

Mineral Stations

Maintain 1 mineral station in northwest corner of the Wildlife Area to provide requisite minerals. Fund using Non-PR funding.

Agricultural Lease

Maintain agricultural lease to retain high quality forage on 200 acres of pasture. Seed legume mix through established cover of orchard grass to improve nutrition and palatability

**E. W.T. Wooten Wildlife Area Strategies**

Maintain Elk Fence

Perform yearly maintenance on western half of elk fence (10 miles). Repair or rebuild as necessary. Fund using Non-PR funding when elk fence is rebuilt by WDFW Engineers.

Mineral Stations

Maintain 4 mineral stations on Abel's ridge to draw wildlife off private lands and provide requisite minerals. Continue this project utilizing Non-Pr funding.

Food Plot

Maintain one clover food plot on Abel's Ridge to improve elk forage and reduce depredation on agricultural fields. Maintain as time and funding allow, by mowing, re-seeding, and fertilizing as necessary. Actual nutritional requirements of elk will be calculated in 2006 to determine if this food plot is sufficient. Fund using Non-PR funding.

**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 Noxious Weeds in a Manner Consistent With Local, State, and Federal Regulations**

Subbasin planning identified noxious weeds and subsequent degradation of native habitats as a limiting factor for many native plant/fish/wildlife species. The invasion of weed species such as cheatgrass, scotch thistle, leafy spurge, rush skeletonweed, and yellow starthistle has degraded a large percentage of native bunchgrass and riparian cover types.

The District Team and CAG have identified the following concerns related to the control of noxious weeds: identify, control and map noxious weeds; identify ecologically sensitive areas and preserve them; give new invasive weed species the highest priority for

control efforts; develop good weed baseline data; utilize recreational visitors to identify new weed outbreaks; investigate the use of livestock to control noxious weeds; work in cooperation with neighboring landowners' weed control efforts; and participate in cooperative weed control efforts to manage weeds on a landscape level.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level.

### **A. Region Wide Strategy**

#### **Pesticide Use**

WDFW staff shall always follow pesticide label guidelines and restrictions, and control weeds as required by state law. Appropriate chemicals shall be used in riparian habitats to protect aquatic species.

## **2. Manage Species and Habitats in Compliance With ESA and EPA Regulations. Utilize Recommendations Compiled by Other Regional Planning Efforts**

A multifaceted approach has been undertaken to assess strategies proposed for management of wildlife areas in the Blue Mountains (see section 1.5). This process includes identifying agency goals and objectives; reviewing the purpose for purchasing the area; reviewing existing habitat conditions and species; formation of a Wildlife Area Citizens Advisory Group (CAG); and soliciting input and review from an internal District Team. This plan is part of a statewide planning process to ensure consistency in management and policy implementation. It is one part of the Statewide Wildlife Area Plan, currently under development. The Statewide Plan brings together federal, state and local laws, agency goals and objectives, Commission and agency policies, and other statewide policy guidance in one document that will go out for public review.

Multiple watershed and subbasin-level plans were used heavily in the compilation of the Blue Mountains Wildlife Areas Plan due to their comprehensive recommendations for landscape level management. Subbasin plans represent the efforts and knowledge of multiple cooperative parties, and include members from Federal, Tribal, State, and County governments, Conservation Districts, and Landowner groups. As such, the prioritization of resource protection identified in subbasin plans represents an integrated view of regional needs.

The District Team and CAG have identified the following concerns and issues related to the use of past regional planning efforts: consider USFS land use plans while writing the Blue Mountains Plan; consider neighboring landowners/Agencies' weed control plans; participate in cooperative weed control efforts to promote a landscape level approach to weed management; work cooperatively with area tribes concerning protection and management of cultural resources; document use of water rights; coordinate sharp-tailed grouse habitat assessments with USFS; clearly state the relationship between this plan and other planning efforts such as the Snake River Salmon Recovery Plan; work with tribal governments to ensure management objectives of fish and wildlife are achieved while providing opportunities for treaty right harvest; rare plant surveys need to be conducted on all native plant communities before grazing is implemented, mitigation



measures should be developed if rare plant populations are found, and keep County Commissioners advised of management planning process.

### **A. Region wide Strategy**

#### Road Assessment

WDFW will complete an assessment of all roads within State lands. Follow recommendations for decommission, obliteration, or closure of any roads identified as detrimental or otherwise hazardous to fish and wildlife or their habitats.

#### Subbasin Plans

Identify and protect priority species and habitats as indicated in the Southeast Washington Subbasin Planning Ecoregional Wildlife Assessment, and the Asotin, Grande Ronde, and Tucannon Subbasin plans.

#### WDFW Plans and Management Documents

Please see section 1.6 – Prioritization of Effort for a discussion of Washington’s Priority Species and Habitats, and Appendix 8: Planning documents and species accounts guiding management.

## **2. Provide Fire Management on WDFW Lands**

### **A. Region Wide Strategies**

#### Fire Management Plan (Appendix 3)

Create a Fire Management plan to address timber management issues previously identified in regional planning efforts, assess risk areas, and prioritize protection needs. Discuss the role of prescribed burning and identify fire control contact agencies and personnel.

#### Fire Rehabilitation

By 2006, create a fire rehabilitation plan outlining mitigating actions taken before, during, and after a burn to minimize negative impacts such as erosion, noxious weed invasion, and sedimentation of fish-bearing streams.

## **3. Protect Cultural Resources Consistent With State and Federal Law**

Once lost, cultural and historic resources are irreplaceable, and WDFW is committed to making every effort to provide protection for any known sites located on WDFW lands.

The District Team and CAG have identified the following concerns and issues related to the protection of cultural resources: work cooperatively with area tribes concerning protection and management of cultural resources; work with tribal governments to ensure management objectives of fish and wildlife are achieved while providing opportunities for treaty right harvest, protect old grave sites located at historic homesteads, protect tribal treaty rights and consider traditional hunting and gathering sites.

### **A. Region Wide Strategies**

#### Cooperative Research

Solicit input as to known cultural or historic sites from CAG members, local tribal representatives, and neighboring landowners when purchasing new lands. Identify

historic sites through solicitation of the National Historical Society before destroying old structures. Protect those areas identified as culturally sensitive by fencing, placement of informative signs, and/or restricting public access.

#### **4. Pay PILT (Payment In Lieu of Taxes) and Assessment Obligations**

These fees are paid in Olympia and not directly dealt with in normal management and operation of the wildlife areas.

#### **Agency Objective: Work with Tribal governments to ensure fish and wildlife management objectives are achieved.**

##### **1. Discuss Mutual Concerns for Wildlife Resources With Tribal Representatives**

Because plant and wildlife populations and their requisite resources extend beyond individual subbasins or socio-political jurisdictions, a system of cooperative management must include participation by all affected agencies and land managers. Resource planning efforts should include members from Federal, Tribal, State, and County governments; Conservation Districts; and Landowner groups.

The District Team and CAG have identified the following concerns and issues related to the protection of wildlife and fisheries resources: Work cooperatively with area tribes concerning protection and management of cultural resources; Work with tribal governments to ensure management objectives of fish and wildlife are achieved while providing opportunities for treaty right harvest, Protect tribal treaty rights and consider traditional hunting and gathering sites.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level.

#### **A. Region Wide Strategies**

##### Coordination Meetings

Hold annual coordination meetings with the Nez Perce Tribe Wildlife and Fisheries Departments to plan cooperative management goals for plant, wildlife, and fisheries resources.

##### Review of Planning Documents

Submit Blue Mountains Plan to Nez Perce Tribe for comment and review.

#### **Agency Objective: Reconnect with those interested in Washington's fish and wildlife.**

##### **1. Offer Volunteer Projects to Involve the Public in Wildlife Area Efforts**

WDFW makes a concerted effort to preserve and protect fish, wildlife, and plant communities, while still offering diverse opportunities for the public to encounter, utilize, and appreciate wildlife and wild areas.

The District Team and CAG have identified the following issues related to utilization of volunteers on wildlife areas: Consider utilizing volunteers to assist with maintenance duties of trails and access areas, Use volunteers to take care of water sites, salt sites,

guzzlers, troughs and springs, Continue to use hunters for assistance in locating new weed populations.

### **A. Region wide Strategies**

#### Habitat Improvement and Maintenance

Recruit volunteers for habitat improvement projects such as fencing springs, trail maintenance, native shrub/tree plantings, refuse cleanup, removal of hazardous or down fence sections, guzzler maintenance, blue bird box construction and maintenance, and re-supply of mineral stations. This is an ongoing activity and will be supported logistically using sharecrop, Non-PR, and BPA funding.

#### Birding Lists

Create local bird species list and make available to public. Encourage public to participate in visiting Wildlife Areas and adding new species.

#### Plant Identification

Establish 5 kiosks at major trailheads: Foredyce trail, North and South Forks of Asotin Creek (all Asotin Creek W.A.), Green Gulch road (Chief Joseph W.A.), and Cummings Creek (Wooten W.A.). Post identification information for both rare plant species and noxious weed species. Post a contact number for visitors to call if they have located a species of interest. Fund using BPA and Non-PR funding.

## **2. Participate in Local Cooperative Projects**

Protecting fish, wildlife, and quality habitat is the highest priority of wildlife area management, but many management issues occur on a landscape level. Because plant and wildlife populations and their requisite resources extend beyond individual subbasins or socio-political jurisdictions, a system of cooperative management must include participation by all affected agencies and land managers.

The District Team and CAG have identified the following concerns related to participation in cooperative projects: Work in cooperation with neighboring landowners' weed control efforts; and Participate in cooperative weed control efforts to manage weeds on a landscape level.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level.

### **A. Region wide Strategies**

#### Cooperative Weed Control

Participate in at least 2 cooperative weed control efforts per year with volunteers, local landowners, or agencies such as the Asotin County Weed Board, The Nature Conservancy, Rocky Mountain Elk Foundation or Wallowa Resources. Provide labor, materials or other resources as necessary using BPA, Non-PR, and sharecrop funding.

### Cooperative Funding

The Wooten W.A. continues to implement an annual cooperative weed spraying effort with RMEF. Agreements of this nature should be pursued on all wildlife areas to provide funding for greater weed control efforts and implementation of habitat improvement projects.

### Cooperative Burns

Continue to cooperate with USFS prescription burns designed to reduce fire danger. USFS maintains trained personnel and regularly uses prescribed understory burns to reduce ladder fuels and limit disease potential for timber stands in the Umatilla National Forest. Because a large percentage of the four wildlife areas lie adjacent to federal lands, the USFS includes some WDFW lands in their prescribed fires. Burns have been conducted in Lick Creek, Charley Creek, Tucannon River, and the North Fork Asotin Creek drainages

### **3. Be Responsive to Public Concerns and Implement the “Good Neighbor” Policy**

WDFW is entrusted with the management of State-owned lands and the preservation of the natural resources associated with those properties. As a steward of the land, the Department is dedicated to protecting, restoring, and perpetuating healthy ecosystems throughout the State while fostering an attitude of partnership with the community.

The District Team and CAG have identified the following issues related to the Department’s responsiveness to local concerns: Consider neighboring landowners/Agencies’ weed control plans; Work cooperatively with area tribes concerning protection and management of cultural resources; Keep County Commissioners advised of management planning process; Consider using local sportsmen or volunteer groups to assist on wildlife area projects; Make considerations for elderly or disabled hunters; Explain reasons for road closures to the public by posting signs; establish more grazing permits on state lands; use grazing or food plot installation to reduce elk depredation on private land, increase the personnel/enforcement on state lands before purchasing more land, consider effects to local economy when making management decisions, maintain homesteads on purchased land instead of removing them from the community, support professional development of employees keep them informed of latest technology and best available science.

#### **A. Region Wide Strategies**

##### Respond to Concerns

Respond to local agencies or landowners’ reports of new weed sightings, problem wildlife, depredation issues, or sightings of rare species within 1 week. Either implement management action or provide explanation of when management action may occur.

### Consider Local Economy

Revenue generating practices such as grazing, timber harvest, agriculture, and recreational related business will be considered when making management decisions. Where possible, WDFW will utilize local groups for wildlife projects, investigate the option of grazing permits for the benefit of wildlife, implement sharecrop leases, employ local citizens, and consider the impacts to local business when modifying management practices.

### Weed Control

WDFW has committed to treating noxious weed outbreaks on a minimum of 400 acres per year on the four wildlife areas. As time allows, WDFW will assist in control activities on other properties or in cooperation with other organizations, tribes, or landowners when requested. Control may include use of herbicide, hand pulling, cutting, mowing, grazing, or the release of bio-control agents. Control of noxious weeds on state land is prioritized by: 1) "A-list" weed species (see [APPENDIX 2](#)) critical wildlife habitats or plant communities, i.e. riparian corridors or federal/state listed species requisites; 3) public trails, access sites, and roads; and 4) neighboring boundaries. WDFW is investigating the use of grazing as a tool to control noxious weeds, benefit wildlife, and support the local community in 2006 through the pilot grazing program. Weed control efforts are funded by BPA and Non-PR dollars.

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

### **1. Monitor Livestock Grazing to Ensure Proper Land Use**

Protecting fish, wildlife, and quality native habitat is the highest priority of wildlife area management. However, there are many opportunities for recreation and public use that improve local economies in a manner compatible with landscape preservation. Grazing is an historic land use practice that, when properly applied, can benefit wildlife.

The District Team and CAG have identified the following concerns related to grazing and grazing assessments on state lands: identify ecologically sensitive areas and preserve them; protect Threatened and Endangered species, use the land to generate operating funds for the wildlife area i.e. agricultural leases or grazing permits, post signs to inform the public what is being accomplished by the use of livestock grazing, rare plant surveys need to be conducted on all areas before any grazing is implemented, and mitigation measures need to be developed if any rare plant populations are found.

The following Strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at the landscape level.

### **A. Region Wide Strategies**

#### Further Study

The use of livestock as a habitat management tool will be assessed in 2006 on a landscape level. Soil types will be used to identify forage production potential of each wildlife area, and current vegetation condition will be compared to this

standard to estimate actual standing forage. The forage nutrition needs of wildlife will be allotted first, and where appropriate (i.e. no rare or listed plant/fish/wildlife species impacted, no environmental concerns present such as highly eroded soils, etc.), surplus forage will be considered for use in grazing permits that will benefit wildlife.

#### Active Grazing Permit

The 1,040-acre Weatherly unit on Asotin Creek wildlife area was the last active grazing permit in operation. It currently is being rested to allow WDFW staff time to repair approximately one mile of fence in pasture. WDFW staff will also be planting and fencing of a big-game clover foodplot within the grazing unit. Renewal of this grazing permit is expected in 2007. Funding for improvements will come from Non-PR funds and will be implemented spring 2006.

#### Assessment Methods

Conduct livestock impact surveys twice per year on grazing allotments to ensure prescribed plan is meeting vegetation condition goals. Assess pastures before livestock come on and after they come off by establishing 5-10 (dependent upon pasture size) 50m transects. Height of vegetation will be measured every 10m along the transect and averaged. Transects are spread among high-use areas (near water or mineral stations) and low use areas (farthest areas away from water). Average height measurements for all transects will be averaged to derive overall pasture stubble height, and photographs will be taken at the beginning of each transect. Funding for monitoring will come from Non-PR funding.

While livestock are on the wildlife area, grazing utilization transects will be monitored and photographed every two weeks to assess forage use trends. Results of each sampling effort will be shared with the permittee so that forage use patterns and remaining forage can be tracked. The Weatherly grazing permit calls for removal of livestock when average stubble height reaches six inches, but livestock may also be removed earlier, depending upon available water.

#### Pilot Grazing Program

The agency implemented the pilot grazing program in spring 2006 on the Asotin Creek and Chief Joseph Wildlife Areas. There are 3 identified sites; Pintler Creek, Shumaker, and upper Schlee. Cattle began grazing Pintler in April 2006. Tentative plans call for grazing to begin on upper Schlee in 2007 and on Shumaker in 2008. Baseline monitoring including deer surveys, vegetation surveys, noxious weed surveys, breeding bird surveys, and establishment of photo-point monitoring stations has been implemented. Staff will compare baseline data with data collected post grazing to measure habitat response and make sure no harm is being done to the wildlife area. As a cooperative effort between WDFW and WCA, the main goal of the pilot program is to show that careful grazing can have a positive effect on wildlife populations. Funding for this program on Blue Mountain Wildlife Area lands is coming from Non-PR dollars and BPA on upper Schlee.

## **2. Maintain Roads and Trails as Necessary to Perform Management Functions**

The highest priority of wildlife area management is to protect and preserve wildlife and quality wildlife habitat. Often this limits recreational use due to detrimental impacts to fish, plants, wildlife or their habitats. WDFW is committed to providing many recreational opportunities while still maintaining the requisite needs of native species found on these lands.

The District Team and CAG have identified the following concerns related to maintenance of roads and trails: identify ecologically sensitive areas and protect them; explain reasons for road closures and affected resources by posting information at kiosks, improve maintenance at trailheads, consider using volunteers to help with trail maintenance duties, relocate the South Fork Asotin Creek trail up out of the creek bottom, consider “Permit Only” entry as opposed to the option of “No Human Entry” closures, consider the possibility of fire suppression needs before obliterating roads.

The following strategies will be implemented as a means to address the issues and concerns expressed by the District Team and CAG. Strategies are identified at a broad landscape level, followed by specific strategies for individual wildlife areas.

### **A. Region wide Strategies**

#### Road Assessment

WDFW will complete an assessment of all roads within State lands. Follow recommendations for decommission, obliteration, restriction, or closure of any roads identified as detrimental or otherwise hazardous to fish and wildlife or their habitats. Implementation will occur as funding from the agency allows

#### Road Maintenance

Remove rocks that pose a safety hazard or block passage on public roads and trails. This is an ongoing project funded mainly with Non-PR and BPA funding.

### **B. Asotin Creek Wildlife Area Strategies**

#### South Fork Asotin Creek Decommission

South Fork Asotin Creek trail was originally a road that was severely damaged in 1996 flood and has since grown over. Currently, passage is restricted to vehicles of ATV size or foot traffic. Road was officially decommissioned to passenger vehicles in 2005 due to siltation issues and detrimental impacts to threatened fish species. Allow minimal “Authorized Vehicle Use Only” as required by wildlife area maintenance needs such as weed control and fence repair. BPA funded.

#### South Fork Asotin Creek Trail Alteration

Assess the possibility of moving the current South Fork Asotin Creek trail further up the slope and out of the creek bed. Consult with WDFW Habitat biologists to pick relocation site, and utilize volunteer groups to perform trail relocation. Utilize cooperative funding from Nez Perce tribe if opportunity presents itself.



### Charley Creek

The Nez Perce Tribe Watershed Department and USFS initiated a road obliteration project in Charley Creek due to siltation issues. The project includes a corner of WDFW land on upper Charley Creek, and that section of road was removed in 2005. WDFW will remove old rolls of elk fence wire stacked alongside the road before obliteration. Lower Charley Creek is still accessible by WDFW staff to perform weed control and fence maintenance tasks.

## **C. Chief Joseph Wildlife Area Strategies**

### Road Maintenance

Grade and gravel roads as necessary in cooperation with WDFW Engineering Division.

### Camping Area Maintenance

Maintenance of ‘at large’ camping areas performed by WDFW maintenance staff. See Agency Objective: Protect, Restore and Enhance Fish and Wildlife Populations and their Habitats. Sub-objective 2-C, regarding potential modifications to camping sites.

## **D. Grouse Flat Wildlife Area Strategies**

### Road Maintenance

Grade and gravel roads as necessary in cooperation with WDFW Engineering Division.

### Camping Area Maintenance

See Agency Objective: Protect, Restore and Enhance Fish and Wildlife Populations and their Habitats. Sub-objective 2-D, regarding potential modifications to camping sites.

## **E. W.T. Wooten Wildlife Area Strategies**

### Road Maintenance

Maintain six miles of gravel road – annually gravel and grade in cooperation with WDFW Engineering Division. Maintain 20 miles of trails. Remove windfall and rocks along eight miles of Cummings Creek road.

### Camping Area Maintenance

Maintain campgrounds. See Agency Objective: Protect, Restore and Enhance Fish and Wildlife Populations and their Habitats. Sub-objective 2-E., regarding potential modifications to camping sites.

## **3. Remove Old Ranching Debris From Newly Acquired Properties**

The mitigation land purchased as the “Schlee Acquisition” contained two large refuse sites. During initial purchasing of the property the Rocky Mountain Elk Foundation, as one of the primary funding sources, agreed to have volunteers clean up the sites to minimize hazards for recreational hunters and wildlife.

#### **A. Asotin Creek Wildlife Area Strategies**

##### Refuse Clean-up

Clean up Rockpile and Stringtown refuse sites. Utilize volunteer assistance by RMEF members.

#### **4. Maintain a Knowledgeable and Well-trained Workforce**

WDFW strives to utilize appropriate and current methodologies when implementing management activities. Training of WDFW staff often reflects the issues and concerns that have arisen in the past, and the Department continues to provide training as it is deemed necessary to maintain worker safety, requisite skill levels, or resource protection.

#### **A. Region wide Strategies**

##### Fire Fighting

Provide Manager, Assistant Manager, and Wildlife Biologist with fire fighting training to help identify conditions that pose a fire danger and learn how to react to fire events on the wildlife areas. Attend annual refresher course to keep red card certification current. Fund using Non-PR funding.

##### Pesticide Licensing

Send employees with herbicide applicators licenses to recertification courses and identification workshops to stay current on weed issues, use of applied chemicals, hazards and precautions. Fund using BPA and Non-PR funding.

##### First aid training

WDFW will provide basic first aid and CPR training for field employees that work alone, in remote locations, or perform hazardous tasks such as operation of chainsaws, etc.

#### **5. Maintain or Remove Facilities, Outbuildings and Structures**

#### **A. Region wide Strategies**

Remove those buildings indicated as unstable or unnecessary by the WDFW wildlife area building assessment. Demolition of buildings will be implemented in 2005 in cooperation with the WDFW Engineering Division and paid for with Capitol Funding.

#### **B. Asotin Creek Wildlife Area Strategies**

##### Weatherly and Pintler Units

Remove 1 deteriorated homestead structure on the Weatherly unit and 4 deteriorated sheds on the Pintler unit. Maintain the Pintler unit well-house. Accomplish using Capitol funding.

#### **C. Chief Joseph Wildlife Area Strategies**

##### Joseph Creek Facility

Maintain 10 structures on the Joseph Creek facility using Non-PR funding.

#### **D. Grouse Flat Wildlife Area Strategies**

##### Grouse Flat Cabin

Maintain one cabin utilized as field quarters by staff cooperatively with Enforcement. Fund using Non-PR funding.

**E. W. T. Wooten Wildlife Area Strategies**

W.T. Wooten Headquarters

Maintain the Wooten office, rental house, barns, and storage facilities using Non-PR funding and house rental income on an ongoing basis.

## **CHAPTER IV. PERFORMANCE MEASURES, EVALUATIONS AND UPDATES**

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

### **1. The Asotin Creek Wildlife Area performance measures for 2006 include:**

- Assess and maintain 33 miles of boundary stock fence including 5 miles of woven hog wire fence on the Chief Joseph Wildlife Area designed to exclude domestic sheep annually
- Irrigate foodplots and shrubs at Chief Joseph and Wooten Wildlife Areas at least twice annually
- Assess and maintain 21 miles of elk fence on Asotin Creek and Wooten Wildlife Areas twice annually or as conditions require.
- Initiate and set up at least one new grazing agreement on the Asotin Creek Wildlife Area.
- Conduct at least two grazing evaluations annually on grazing agreements. Submit completed forms to Olympia. Attempt to assess range condition every two weeks during grazing season of use.
- Maintain and monitor agricultural lease on Grouse Flat Wildlife Area annually.
- Maintain and monitor four agricultural leases on Asotin creek Wildlife Area annually.
- Initiate at least 1 habitat enhancement project annually with RMEF, Blue Mountains Elk Initiative, TNC, etc
- Continue yellow starthistle cooperative project for aerial control on Wooten Wildlife Area.
- Plant and maintain at least two annual foodplots on Chief Joseph Wildlife Area annually.
- Establish and maintain four big-game foodplots on Asotin Creek and Wooten Wildlife Areas (15 acres minimum each). Plant/replant/maintain one out of four of the foodplots annually.
- Treat weed outbreaks on a minimum of 500 acres annually on the four wildlife areas.
- Participate in at least two cooperative weed control project with local weed boards, Wallowa resources, TNC, etc.
- Continue to support and assist with Mountain Quail reintroduction project on Asotin Creek Wildlife Area.
- Pursue research into life requisites and ecological limiting factors for sharp-tailed grouse on Asotin Creek Wildlife Area.
- Complete endangered plant surveys on BPA funded portions on Asotin Creek Wildlife Area. Survey other non-BPA funded lands as funding opportunities allow.
- Maintain 8 “plant and take” lakes stocked with rainbow trout, steelhead, and Chinook salmon on the Wooten Wildlife Area.
- Maintain dike on Spring Lake. Repair damage caused by vegetation and leaking dike to meet DOE codes and standards on Wooten Wildlife Area.
- Evaluate existing guzzlers and either repair or discard as necessary. Five evaluations annually.

- Evaluate old agricultural fields for restoration into native grass habitat. Evaluate two fields per year on the Blue Mountain Wildlife Areas.
- Establish and monitor amphibian populations in at least 10 permanent ponds throughout the four wildlife areas on an annual basis.
- Continue to monitor four breeding bird point-count plots established in 2004 on the Asotin Creek Wildlife Area.
- Begin establishment of bird survey transects to inventory avian species on the four wildlife areas.
- Continue to limit trail access to non-motorized vehicles only on the four wildlife areas except for green gulch on the Chief Joseph Wildlife Area which is open Oct. 1 – Nov. 30.
- Continue to implement and monitor big-game winter range closure gates on the Asotin Creek Wildlife Area.
- Maintain mineral enhancement sites for big game on the four wildlife areas. Asotin Creek – 9, Wooten – 4, Chief Joseph – 4, Grouse Flats – 1
- Maintain agricultural lease on Grouse Flats Wildlife Area to retain high quality forage on 100-acre agricultural field for elk retention.
- Evaluate wildlife area campgrounds and consider establishment of designated campsites with fire rings as funding allows.
- Continue to monitor and maintain established campgrounds on the four wildlife areas.
- Monitor and utilize where possible, water rights on the four wildlife areas. Install flow meters on irrigation pumps to accurately monitor water usage. Document usage.
- Install 5 informational Kiosks displaying Wildlife Area maps, noxious weed information and plant and animal species of concern. Install one at Chief Joseph Wildlife Area, three on the Asotin Creek Wildlife Area, and one on the Wooten Wildlife Area.

## **2. Annual Evaluation of Performance**

Every year the accomplishments of a wildlife area will be compared against the listed strategies designed by the CAG, District Team, and WDFW management staff to meet the needs of the resources. Shortfalls in funding, changes in policy or unforeseen circumstances may alter timeline of accomplishments, but those strategies not met in the current year will be pursued in the next year.

## **3. Annual Update to Blue Mountains Plan**

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**

### District Team and Citizen Advisory Group Issues and Concerns

The purpose of meeting with the CAG and DT was to obtain input and direction for the management plan. A draft of the introduction and history sections, and copies of the Agency's goals and objectives were distributed for review and discussion. Below is a list of issues and concerns identified by the CAG and DT.

This input was used in developing strategies to implement management goals and objectives. Underlined statements below indicate that the input was received from the DT. Issues that are not underlined originated from the CAG.

#### **Issue A. Access/Recreation**

- Improve maintenance at trailhead parking lots.
- Consider using volunteers to maintain trails (Horsemen for example).
- Make considerations for elderly and disabled hunters.
- The man-made lakes are important to the local economy and should not be closed or obliterated on the Wooten Wildlife Area.
- Separate designated areas for disabled hunters are not necessary on the Wooten Wildlife Area.
- Consider allowing people to ride ATV's on established trails before hunting seasons to enjoy panoramic views and view wildlife.
- Put trail on South Fork of Asotin Creek above the creek.
- If horn hunting is a problem for elk, then outlaw horn hunting.
- For future closures that utilize "No Human Entry", show concrete data to support the closure and document it.
- Try to document horn hunter numbers.
- Consider permit entry as an alternative to complete human entry closures.
- Maintain diverse user group opportunities – recreation supports local economy.
- Maintain all lakes open to public fishing

#### **Issue B. Wildlife Area Management**

- Manage for multiple species not just single species or game species.
- Compare habitat conditions on private land verses wildlife areas.
- Consider using volunteers to build and maintain wildlife water structures.
- Compare a vegetative map of wildlife areas to a noxious weed map.
- Consider USFS land use plans while writing WDFW plan.
- Look at wildlife historical use vs. grazing historical use.
- Conserve and manage wildlife areas for bio-diversity first and foremost including T & E species (Lamprey for example).
- Identify ecologically sensitive areas and preserve them.
- Don't forget fish in management planning process.
- Consider neighboring weed control plans.
- New invasive weed species should have the highest priority for control efforts.
- Develop good baselines for weed surveys.

- Keep in mind while planning that more wildlife on WDFW land is desirable.
- Include previous owners on planning process for WDFW lands.
- Use the land to generate operating revenue for the wildlife areas if possible. Grazing and Sharecrop agreements for example.
- On recent acquisitions, there is good grass on the properties. There is a reason why it was there before acquisition.
- Use volunteers to take care of water sites, guzzlers, troughs, and springs. Also salting.
- Continue to use hunters for assistance – weed identification for example.
- Need to clearly state the relationship of this plan with more regional plans such as subbasin plans and the new draft Salmon Recovery Plan for the Snake River Region of WA.
- What is the preferred future condition of the wildlife areas over the next 10 – 15 years?
- Should this plan identify certain parcels of land to trade and others that we want to acquire?
- Show all other public lands along with the wildlife areas in the map section.
- Use the new draft Salmon Recovery Plan as a source of information.
- Updating this document after the first year may be OK, but then should jump up to 3 to 5 year intervals afterwards.
- The option of using livestock to control noxious weeds should be investigated.
- Work with USFS in cooperative logging/thinning of diseased timber stands.
- Ensure that good data exists before any closures to human entry are enacted in the future.
- Continue to use sharecrop leases and grazing leases as a reliable funding source for the wildlife areas.
- Use entry by permit instead of closing areas to human entry when trying to minimize disturbance to elk
- There is a list of T & E species but nowhere does the plan address T & E species.
- What is WDFW going to do with species in the T & E list?
- Purify species lists to plants and animals that actually could be on the areas.
- Manage fish and wildlife resources to protect and restore treaty right harvest opportunities for local tribes.
- Work with tribal governments to ensure fish and wildlife management objectives are achieved while providing opportunities for treaty-reserved harvest opportunities.
- Add lamprey to Asotin Creek Wildlife Area discussions.
- Consider adding songbirds listed by Partners in Flight as high conservation concern for the Blue Mountain Region.
- Need to fully and completely disclose hunting and fishing policies for the four wildlife management areas.
- Participate in local Cooperative Weed Management Areas and work with neighboring landowners to promote a coordinated, landscape approach to weed management.
- Work cooperatively with area tribes concerning protection and management of cultural resource sites located on WDFW lands.
- Add “Confederated Tribes of the Umatilla Indian Reservation” as well as the Nez Perce Tribe.
- Would be helpful to have a statement on general policy regarding use of buildings at each site. Who is allowed to use WDFW buildings?



- The winter range (February 1 – April 10; page 47 insert) human closure appears to be forever. Any plans to monitor its effectiveness and adjust?
- Water Rights: Document how we are using agency water rights.
- How does the agency use it's water rights in a given five year period – Document use with meters installed on irrigation pumps.
- Set up an annual review of how much water is used and document it.

### **Issue C. Habitat**

- What areas on the wildlife areas have historically been farmed compared to what is currently being farmed.
- Consider using grazing as a tool for noxious weed control.
- Use wildlife friendly fence when fencing.
- Consider critical areas as the most in danger from invasive weeds (floodplains).
- Grazing or foodplot installation on Hopkins/Maloney ridge could be useful in reducing elk depredation.
- Protect upland game bird habitat and consider planting food sources next to guzzlers.
- Use food plots as a way to retain wildlife on WDFW lands.
- Need to mention bio-controls in weed management. Use bio-controls for weeds, especially after fire events.
- Add information from USFS fish habitat assessment showing that large woody debris and poor pool quality and quantity were limiting factors for fish habitat in Joseph Creek.
- Specify riparian hardwood species as black cottonwood and white alder.
- Protect aspen plants from herbivore damage until established.
- Plant forage plots for wildlife on upper Schlee acquisition and calculate number of AUM's required to retain elk.
- Set a vision of what the agency desires the wildlife areas to look like 10-15 years from now.
- Check with USFS to see if they are doing any assessments on Federal land for Sharp-tailed Grouse.

### **Issue D. Roads**

- Only a small section of Charley Creek road will be obliterated in 2005 by the Nez Perce Tribe and USFS. If no access is allowed on a road, does this mean that it is decommissioned by WDFW's philosophy?
- Minimize closure of state lands, and communicate reasons for closures.

### **Issue E. Enforcement**

- How does WDFW plan to carry enforcement out? More personnel?
- Fund more field personnel or enforcement before funding new land purchases.

### **Issue F. Public Information, Education and Involvement**

- Explain reasons for road closures or natural resource closures to the public with signs.
- Mapping – pursue refining maps of WDFW lands to include other neighboring public ownerships and fishing easements.

### **Issue G. Monitor, Survey and Inventory**

- HU and HEP species need to be identified.
- Ensure that established Breeding Bird Survey route along Asotin Creek is conducted yearly
- Need to be specific about survey methods and what specifically is being monitored
- Conduct rare plant surveys on lands being assessed for grazing and develop mitigation actions for populations of rare plants if they are found
- Set up permanent range monitoring sites – cycle through in a five year period.

### **Issue H. Other (Grazing)**

- What Areas on the wildlife area have historically been grazed compared to what is currently being grazed by livestock?
- Involve WSU in monitoring and evaluation of grazing leases (Weatherly).
- Grazing should be continued on newly acquired WDFW lands (Schlee).
- Initiate new grazing leases on the Chief Joseph Wildlife Area.
- Campbell field grazing alternative is not realistic as a stand-alone plan.
- Grazing & Weeds: Cattle actually eat the center of yellow starthistle and make the plant stool out more.
- In the Shumaker area, cattle would have to be pushed daily to keep them where they would utilize the entire pasture.
- NRCS range expert not overly concerned with grazing the riparian area along the Grande Ronde River in the Shumaker Area as specified in the plan.

### **CAG Input: 2004-2005**

Public issues such as utilization of resources, community identity, historic traditions and economic concerns are expressed to WDFW by the involvement of a Citizens Advisory Group. The CAG is comprised of citizens, landowners, representatives of special interest groups, and members of other land-managing agencies. The following topics were brought up during multiple CAG meetings held in 2004-2005.

### **Asotin, Chief Joseph, Grouse Flats**

#### **Resources**

- Minimize closures of state lands
- Communicate reasons for closures (weed outbreak, wildlife protection, etc)
- Utilize volunteer groups to work on wildlife area projects
- Maintain diverse user-group opportunities
- Control noxious weeds – particularly on borders and public access areas
- Assess grazing or burning to improve/maintain vegetation
- Identify and protect ecologically sensitive areas

#### **Fish and Wildlife**

- Minimize elk damage on private lands
- Manage for multiple species, not just single species or game species
- Establish a permit/season if shed hunting causes excessive disruption to elk
- Investigate grazing as a tool to improve elk forage on state land and reduce elk depredation on private ground

#### **Land Purchase**

- Consider local economy when purchasing lands
- Investigate options other than land acquisition to manage wildlife – i.e. use lands to generate management funds through agricultural leases

### **W.T. Wooten CAG**

#### **Resources**

- Minimize closures of state lands
- Communicate reasons for closures (weed outbreak, wildlife protection, etc)
- Maintain diverse recreation opportunities – recreation supports local economy
- Control noxious weeds – assess grazing as a control measure
- Cooperate with USFS to log/thin diseased timber stands

#### **Fish and Wildlife**

- Minimize elk damage on private lands
- Maintain all lakes open to public fishing
- Establish a permit/season if shed hunting is causing excessive disruption to elk
- Investigate grazing or foodplots to reduce elk depredation on private ground

#### **Land Purchase**

- Do not remove homes on newly purchased land – consider local economy
- Fund more field personnel and enforcement before funding further land purchases

## **APPENDIX 2. BLUE MOUNTAINS WILDLIFE ARE WEED MANAGEMENT PLAN**

### **Weed Control Goals on WDFW Lands**

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

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

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

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

### **Weed Management Approach**

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

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

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

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

Treatment- Treatment of a weeds using biological, cultural, mechanical, and chemical control serves to eradicate pioneering infestations, reduce established weed populations below densities that impact management objectives for the site, or otherwise diminish their impacts. The method used for control considers human health, ecological impact, feasibility, and cost-effectiveness.

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

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

### Weed Species of Concern on the Blue Mountains WLA

Weeds of concern on the Blue Mountains include Scotch Thistle (*Onopordum acanthium*), Dalmatian Toadflax (*Linaria dalmatica*), HoundsTongue (*Cynoglossum officinale*), Knapweed (*Centaurea spp.*), Yellow starthistle (*Centaurea solstitialis L.*), Leafy spurge (*Euphorbia esula*), Rush Skeletonweed (*Chondrilla juncea*), and Mediterranean Sage (*Salvia aethiopsis*). This list is based on species that have been documented on the wildlife area (Table 1).

**Table 5.1. Blue Mountains Wildlife Area weeds including the state and county weed class listing and acres treated.**

	2005 State	2005 County	Wildlife	2005
Weed Species	Weed Class	Weed Class	Unit(s)	Treated Acres
Mediterranean Sage	A	A	Asotin Creek	25
Dalmatian Toadflax	B	B	Asotin Creek and Chief Joseph	5
Houndstongue	B	B	Asotin Creek , Chief Joseph, Wooten	10
Spotted Knapweed	B	B	Asotin Creek and Chief Joseph, Wooten	25
Leafy spurge	B	B	Asotin Creek and Chief Joseph	5
Rush Skeletonweed	B	B	Asotin Creek, Chief Joseph, Wooten	50
Scotch Thistle	B	B	Asotin Creek and Chief Joseph	100
Starthistle, Yellow	B	B	Asotin Creek, Chief Joseph, Wooten	400

A-Designate are state-listed and of the highest priority. By law total eradication is mandatory of all plants.

B-Designate are state-listed and mandatory for control and containment at a local level to prevent further seed production/spread.

C-Designate are state-listed and control is at the discretion of Asotin County.

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

## MEDITERRANIAN SAGE CONTROL PLAN

**Scientific name:** *Salvia aethiopsis* L.

**Common Name:** Mediterranean Sage

**Updated:** 2006

**DESCRIPTION:** An aromatic biennial, growing 2 to 3 feet tall. In the first season it develops a rosette of large grayish wooly leaves. In the second season the plant bolts, producing multi-branched stems with white to blue-green, wooly, felt-like leaves. Lower leaves have petioles, are lobed with coarsely-toothed blades 1/3 to 1 foot long. Upper leaves are smaller and clasp the stem. The upper surface of leaves may eventually shed some of the pubescence, revealing the green wrinkled leaf. Flowers are yellowish-white, borne in clusters on profusely branched stems. The four nutlets, developing from each flower, are smooth with dark veins. One plant may produce thousands of seeds.

Meadow sage (*S. pratensis* L.) resembles Mediterranean sage, but usually has blue flowers, and is more coarsely hairy. Mediterranean sage is a native of the Mediterranean or northern Africa. It is spreading rapidly in many parts of the West, invading pastures, meadows, rangeland, and other open areas.

### MANAGEMENT INFORMATION:

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing. This is a high priority weed and outbreaks are aggressively controlled by hand pulling and herbicide application.

### CURRENT DISTRIBUTION ON THE SITE

Current outbreaks of Mediterranean sage are found along Meyer's Ridge Road on the George Creek unit of the Asotin Creek Wildlife Area. More than likely, the plant dispersed onto the WLA from the County Road. Outbreaks are aggressively attacked by hand pulling and herbicide application.

**ACRES AFFECTED BY WEED:** ~50

**WEED DENSITY:** Low (Widely Scattered)

### GOALS:

- Control expanding populations
- Prevent new occurrences
- Eradicate

### OBJECTIVES

- Survey and map existing populations
- More accurately calculate the acres affected Med Sage
- Investigate biological control availability and literature off-target effects.
- Treat all plants found
- Survey nearby units for pioneering infestations

**ACTIONS PLANNED**

Survey, record, and treat existing and new populations  
Monitoring will continue on an annual basis on nearby units.

**CONTROL SUMMARY AND TREND**

2005- Approximately 50 acres were treated.



## DALMATION TOADFLAX CONTROL PLAN

**Scientific name:** *Linaria dalmatica ssp. dalmatica*  
**Updated:** 2006

**Common name:** Dalmatian toadflax

**DESCRIPTION:** Dalmatian toadflax is an erect, short-lived, perennial herb, 0.8 to 1.5 m tall. Dalmatian toadflax is a perennial species that spreads by horizontal or creeping rootstocks and by seed. A mature plant can produce up to 500,000 seeds, which are primarily dispersed by wind. The seeds may live up to ten years in the soil (Robocker 1974; Morishita 1991). Most seedlings emerge in the spring when soil temperature reaches 8° C at 2.5 cm. Germination in the fall is probably limited by soil water content, as well as possibly seed dormancy with the average life span of a plant being three years (Robocker 1974).

Mature Dalmatian toadflax plants are strongly competitive. Studies indicate that plots without Dalmatian toadflax may produce two and a half times as much grass as plots with toadflax (Robocker 1974). Mature plants are especially competitive with shallow-rooted perennials and winter annuals. Because of its competitive ability, Dalmatian toadflax is a concern in pasture and rangelands, as well as in natural areas, where it may out-compete more desirable, native species. Dalmatian toadflax occurs in a variety of habitats, including: roadsides, pastures, rangelands, and waste areas. It has spread most extensively west of the 100th meridian, occurring primarily on coarse-textured soils, ranging from sandy loams to coarse gravels (Alex 1962).

This weed appears to be spread by cars, deer, and birds. Individual plants and small groups of plants are found throughout Asotin County.

Dalmatian toadflax is a state-listed class B-Designate in the management areas.

### MANAGEMENT INFORMATION:

Intensive clean cultivation can effectively control Dalmatian toadflax. A successful approach includes at least a two year effort, with eight to ten cultivations in the first year and four to five cultivations in the second year (Morishita 1991; Butler and Burrill 1994). Cultivation should begin in early June and be repeated so that there are never more than seven to ten days with green growth visible (Butler and Burrill 1994). Since Dalmatian toadflax seedlings do not compete well for soil moisture against established winter annuals and perennials, control efforts should include attempting to establish and manage desirable species that will compete with toadflax (Morishita 1991; Butler and Burrill 1994).

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing.

*Calophasia lunula*, a defoliating moth, is well established in Washington and reportedly provides good control (William et al. 1996) and *Mecinus janthinus*, a recently introduced stem-boring weevil, shows promise. *Brachypterolus pulicarius*, although usually associated with yellow toadflax, can survive and may reduce seed production of Dalmatian toadflax.

### **CURRENT DISTRIBUTION ON THE SITE**

The weed infestations are highest along the Snake River Road and along the Grand Ronde River in Asotin County. Given this fact, it is very likely the plant could move up into the Asotin Creek or Chief Joseph Wildlife Areas. Small infestations on the WLA now occur in several places, most notably in sandy or gravel areas along roads or streams.

**ACRES AFFECTED BY WEED:** unknown

**WEED DENSITY:** low

### **GOALS**

Control expanding populations  
Prevent new occurrences

### **OBJECTIVES**

Survey and map existing populations  
More accurately calculate the acres affected by Dalmation Toadflax  
Release biological controls  
Treat all plants that can be reached by ATV before they produce seed  
Survey nearby areas for pioneering infestations

### **ACTIONS PLANNED**

Check past treated sites for any new plant growth and continue to survey new areas where the weed would likely occur and treat and record any new infestations.

Work with Asotin County Weed Agent on obtaining and releasing bio-control agents

### **CONTROL SUMMARY AND TREND**

2005- Approximately 5 acres were treated.

## **HOUNDSTONGUE CONTROL PLAN**

**Scientific name:** *Cynoglossum officinale*  
**Updated:** 2006

**Common name:** Houndstongue

**DESCRIPTION:** Houndstongue is a biennial or short-lived perennial that grows 1-4 ft tall. Houndstongue is a very strong competitor that competes with desirable forage. Its thick, deep taproot enables it to be a strong competitor for soil resources. The seeds have the ability to attach to people, the coats of livestock and vehicles, enabling the plant to spread great distances. Houndstongue is poisonous. It contains pyrrolizidine alkaloids that stop the reproduction of liver cells. Considered non-palatable under range conditions, livestock will avoid it. However, houndstongue is eaten when dried plants are found in hay, and the toxic properties are still capable of poisoning livestock.

Seeds germinate from February to May. Seeds remaining on the soil surface can remain viable up to two years. At 1-6 inch soil depth the seeds germinate within one year. The highest germination percentage occurred in seeds buried at 1/2inch. A rosette forms the first year and is able to resist mowing and grazing and also able to withstand severe drought. Flowering occurs the following year around June and seeds are formed and dropped at the end of the summer. The seeds overwinter in about the top 1cm of soil.

### **MANAGEMENT INFORMATION:**

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing.

Cultivation of young rosettes in the autumn or early spring gives effective control. Mow flowering stems close to ground to reduce seed set. Clipping during the second year flowering can greatly reduce seed production. Reseed problem areas with fast growing grasses. Do not overgraze. Bio-controls for houndstongue include *Mogulones cruciger* (approved and released in Canada) is a root-feeding weevil. Another, *Longitarsus quadriguttatus*, has good results but may have an effect on native North American Boraginaceae (Lamming).

### **CURRENT DISTRIBUTION ON THE SITE**

Houndstongue is found throughout the Blue Mountains Wildlife Area complex lands.

**ACRES AFFECTED BY WEED:** ~200

**WEED DENSITY:** Low (Widely Scattered)

### **GOALS**

Control expanding populations  
Prevent new occurrences

### **OBJECTIVES**

Survey and map existing populations  
More accurately calculate the acres affected by houndstongue  
Investigate biological control availability and literature off-target effects.  
Treat all plants that can be reached by ATV before they produce seed  
Survey nearby units for pioneering infestations

**ACTIONS PLANNED**

Survey, record, and treat existing and new populations

Monitoring will continue on an annual basis on nearby units.

**CONTROL SUMMARY AND TREND**

2005- Approximately 15 acres were treated.

## SPOTTED KNAPWEED CONTROL PLAN

**Scientific name:** *Centaurea maculosa*  
**Updated 2006:**

**Common Name:** *Spotted Knapweed*

**DESCRIPTION:** Spotted knapweed is a biennial or short-lived perennial with a stout taproot. It can have one or more stems, branched 1 to 3 feet tall. Basal leaves up to 6 inches long, blades narrowly elliptic to oblanceolate, entire to pinnately parted; principle stem leaves pinnately divided. Flowering heads are solitary at end of branches; involucral bracts stiff and tipped with a dark comb-like fringe. The ray flowers are pinkish-purple or rarely cream-colored. Fruits are about 1/8 inch long, tipped with a tuft of persistent bristles.

Spotted knapweed, which was introduced from Eurasia as a contaminant of alfalfa and clover seed, ranks as the number one weed problem on rangeland in western Montana. Other western states can expect a reduction in desirable plant communities if this species is allowed to spread. Knapweeds readily establish themselves on any disturbed soil, and their early spring growth makes them competitive for soil moisture and nutrients. There is some evidence that knapweeds release chemical substances, which inhibit surrounding vegetation. The flowering period extends from June to October.

### MANAGEMENT INFORMATION:

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing. Cultivation can be an effective tool to control scotch thistle where possible. There are also effective bio-controls available.

### CURRENT DISTRIBUTION ON THE SITE

Found along the Tucannon River corridor and on the Asotin Creek Wildlife Area in patches.

**ACRES AFFECTED BY WEED:** ~200

**WEED DENSITY:** Medium/scattered

### GOALS

Control expanding populations  
Prevent new occurrences

### OBJECTIVES

Survey and map existing populations  
More accurately calculate the acres affected by houndstongue  
Investigate biological control availability and literature off-target effects.  
Survey nearby units for pioneering infestations

### ACTIONS PLANNED

Survey, record, and treat existing and new populations  
Monitor and continue control by chemical and mechanical methods.  
Monitoring will continue on an annual basis on nearby units.

**CONTROL SUMMARY AND TREND**  
2005- Approximately 25 acres were treated.

## LEAFY SPURGE CONTROL PLAN

**Scientific Name:** *Euphorbia esula*  
**Updated:** 2006

**Common Name:** Leafy Spurge

**DESCRIPTION:** Perennial, up to 3 feet tall; reproduces by vigorous rootstalks and seed. Leaves are alternate, narrow, 1 to 4 inches long. Stems are thickly clustered. Flowers are yellowish-green, small, arranged in numerous small clusters and enclosed by paired heart-shaped yellow-green bracts. Roots are brown, containing numerous pink buds which may produce new shoots or roots. The entire plant contains a milky juice. Seeds are oblong, grayish to purple, contained in a 3-celled capsule, each cell containing a single seed.

Leafy spurge is a native to Eurasia and was brought into the United States as a seed impurity about 1827. However, it seems to be a serious problem only in North America where it infests almost 2.7 million acres, mostly in Southern Canada and the North Central United States. It has been reported to cause severe irritation of the mouth and digestive tract in cattle, which may result in death. Capsules explode when dry, often projecting seeds as far as 15 feet. Seeds may be viable in the soil for up to 8 years. An extensive root system containing large nutrient reserves makes leafy spurge extremely difficult to control.

### MANAGEMENT INFORMATION

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing. Cultivation can be an effective tool to control Leafy Spurge where possible

### CURRENT DISTRIBUTION ON THE SITE

Most outbreaks of leafy spurge are on the Chief Joseph Wildlife Area – mainly along the Grande Ronde river corridor. Control usually involves herbicide application using backpack sprayers given the rough terrain it is found in. Outbreaks on the Asotin Creek Wildlife Area are aggressively controlled.

**ACRES AFFECTED BY WEED:** unknown

**WEED DENSITY:** low

### GOALS

Control expanding populations  
Prevent new occurrences

### OBJECTIVES

Survey and map existing populations  
More accurately calculate the acres affected by Leafy Spurge  
Treat all plants that can be reached by ATV before they produce seed  
Survey nearby areas for pioneering infestations

**ACTIONS PLANNED**

Check past treated sites for any new plant growth and continue to survey new areas where the weed would likely occur and treat and record any new infestations.

Work with Asotin County Weed Agent and Wallowa Resources for cooperative control projects.

**CONTROL SUMMARY AND TREND**

2005- Approximately 5 acres were treated.



## **RUSH SKELETONWEED CONTROL PLAN**

**Scientific name:** *Chondrilla juncea* L.

**Common Name:** *Rush Skeletonweed*

**Updated:** 2006

**DESCRIPTION:** Rush skeletonweed is a perennial, 1 to 4 feet tall. Starting at the stem base for 4 to 6 inches, stems usually have downwardly bent coarse hairs; smooth above, erect, stiff, much branched with bare appearance. Leaves form in a basal rosette, sharply toothed, and wither as the flower stem develops. Leaves of the stem are inconspicuous, narrow and entire. Flowering heads are scattered in branches, approximately ¾ inch in diameter, 7 to 15 flowered, with yellow, strap-shaped flowers. Fruits are pale brown to nearly black, about 1/8 inch long. Body of fruit is several-ribbed, smooth below with tiny scaly projections above, terminated by numerous soft white bristles.

Rush skeletonweed is an introduced Eurasian species, which presently infests several million acres in Idaho, Oregon, Washington, and California. It generally inhabits well-drained, light-textured soils along roadsides, in rangelands, grain fields and pastures. Soil disturbance aids in establishment. The extensive root system makes skeletonweed difficult to control. Cut surfaces of the leaves and stems exude a milky latex. Flowering and seed production occur from mid-July through frost.

### **MANAGEMENT INFORMATION**

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing. Cultivation can be an effective tool to control skeletonweed where possible. Tordon is the herbicide of choice for control work.

### **CURRENT DISTRIBUTION ON THE SITE**

Rush skeletonweed is currently found along riparian areas on the Chief Joseph WLA, particularly the Grande Ronde river. It has also been found in isolated circumstances on the Asotin Creek WLA and Wooten WLA.

**ACRES AFFECTED BY WEED:** 50

**WEED DENSITY:** Low (Widely Scattered)

### **GOALS**

Control expanding populations  
Prevent new occurrences  
Aggressively treat new occurrences with herbicide

### **OBJECTIVES**

Survey and map existing populations  
More accurately calculate the acres affected by houndstongue  
Investigate biological control availability and literature off-target effects.  
Treat all plants that can be reached they produce seed  
Survey nearby units for pioneering infestations

**ACTIONS PLANNED**

Survey, record, and treat existing and new populations  
Aggressively spray infestations with Tordon Herbicide  
Monitoring will continue on an annual basis on nearby units.

**CONTROL SUMMARY AND TREND**

2005- Approximately 30 acres were treated.

## **SCOTCH THISTLE CONTROL PLAN**

**Scientific Name:** *Onopordum acanthium* L.  
**Updated:** 2006

**Common Name:** Scotch Thistle

**DESCRIPTION:** Scotch Thistle is a biennial that grows up to 8 feet tall. Stems have broad, spiny wings. Leaves are large, spiny, and covered with fine dense hair, giving a grayish appearance. Upper leaves are alternate, coarsely lobed; basal leaves may be up to 2 feet long and 1 foot wide. Flowers are violet to reddish. Fruits are about 3/16 inch long, tipped with slender bristles.

Scotch thistle is a native of Europe and eastern Asia and is now sparsely naturalized over much of the U.S. It can be found along waste areas and roadsides. It is an aggressive plant and may form stands so dense that they are impenetrable to livestock. Scotch thistle can be controlled with herbicides.

### **MANAGEMENT INFORMATION:**

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing. Cultivation can be an effective tool to control scotch thistle where possible. Mechanical control can also be effective provided control is timed while the plant is flowering. Mow or chop to early and the plants will continue to flower.

### **CURRENT DISTRIBUTION ON THE SITE**

Scotch thistle is found throughout the Asotin Creek, Wooten, and Chief Joseph Wildlife Areas. It seems to grow in areas where livestock congregated when much of WDFW's lands were privately owned cattle ranches. It seems to grow rather thickly in riparian areas forming dense stands. Outbreaks are aggressively controlled where access with herbicide application equipment or mowers is feasible.

### **CURRENT DISTRIBUTION ON THE SITE**

Most outbreaks of leafy spurge are on the Chief Joseph Wildlife Area – mainly along the Grande Ronde river corridor. Control usually involves herbicide application using backpack sprayers given the rough terrain it is found in. Outbreaks on the Asotin Creek Wildlife Area are aggressively controlled.

**ACRES AFFECTED BY WEED:** 500

**WEED DENSITY:** medium

### **GOALS**

Control expanding populations  
Prevent new occurrences  
Aggressively control on BPA funded lands

### **OBJECTIVES**

Survey and map existing populations  
More accurately calculate the acres affected by Scotch thistle  
Treat all plants that can be reached by ATV before they produce seed  
Survey nearby areas for pioneering infestations

**ACTIONS PLANNED**

Check past treated sites for any new plant growth and continue to survey new areas where the weed would likely occur and treat and record any new infestations.

Work with Asotin County Weed Agent and other interested partners on cooperative control projects.

**CONTROL SUMMARY AND TREND**

2005- Approximately 300 acres were treated.

## YELLOW STARHISTLE CONTROL PLAN

**Scientific name:** *Centaurea solstitialis* L.

**Common Name:** *Yellow starthistle*

**Updated:** 2006

**DESCRIPTION:** Yellow starthistle is an annual, 2 to 3 feet tall, has rigid branching, winged stems covered with a cottony pubescence. Basal leaves are deeply lobed while upper leaves are entire and sharply pointed. Flowers are yellow, located singly on ends of branches, and armed with sharp straw-colored thorns up to  $\frac{3}{4}$  inch long. Fruits from ray flowers are dark-colored without bristles, while fruits from disk flowers are lighter and have a tuft of white bristles.

Yellow starthistle, introduced from Europe, grows on various soil types and is usually introduced on roadsides and waste areas. "Chewing Disease" results when horses are forced to eat the yellow starthistle. A related species, Malta starthistle (*C. melitensis* L.) is similar to the yellow starthistle except the malta starthistle has smaller seed heads having smaller spines which are branched at the base.

### MANAGEMENT INFORMATION:

Herbicide can be an effective tool for control and applicators should refer to the PNW Weed Management Handbook, or other reputable resources, for product recommendations and timing. Cultivation can be an effective tool to control starthistle where possible. Tordon is the herbicide of choice for control work.

### CURRENT DISTRIBUTION ON THE SITE

Yellow starthistle is probably the most troublesome weed infesting the Blue Mountains wildlife Area Complex. Approximately 6,000 acres are infested on the Chief Joseph WLA and approximately 5,000 acres are infested on the Asotin Creek WLA. The Wooten WLA also has sizable infestations.

**ACRES AFFECTED BY WEED:** ~12,000 ac      **WEED DENSITY:** high in places (Widely Scattered)

### GOALS

Control using bio-agents.  
Aggressively spray on winter range on Wooten WLA using RMEF grant funding  
Aggressively spray and control on WDFW lands South of Grande Ronde River  
Control expanding populations  
Prevent new occurrences

### OBJECTIVES

Survey and map existing populations  
More accurately calculate the acres affected by yellow starthistle.  
Survey nearby units for pioneering infestations

**ACTIONS PLANNED**

Survey, record, and treat existing and new populations.

Continue to work with RMEF, Wallowa Resources, and other interested parties on cooperative weed control projects.

Aggressively control on WDFW lands south of Grande Ronde River.

Continue to release bio-agents.

Monitoring will continue on an annual basis on nearby units.

**CONTROL SUMMARY AND TREND**

2005- Approximately 1,500 acres were treated.

## **GENERAL WEEDS CONTROL PLAN**

**Scientific name:** *Many*

**Common name:** General Weeds

**Updated:** 2005

**DESCRIPTION:** General weeds describe mixed vegetation that interferes with maintenance, agricultural, or restoration activities, where keying plants to individual species is not appropriate. Examples of general weeds may include vegetation occurring along roadsides, parking areas, trails, and structures and include species like puncture vine, knapweed, sulfur cinquefoil, and white-top. General weeds may also occur in agricultural fields, or comprise the dominant vegetation at a site identified for habitat restoration and includes species like cheatgrass, brome, mustard, reed canary grass, bindweed, Canada thistle, etc.

### **MANAGEMENT INFORMATION:**

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

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

### **CURRENT DISTRIBUTION ON THE SITE**

All public accesses and roadsides on the wildlife area contain general weeds to varying degrees. Several agricultural fields at the Big Valley and Methow Units are comprised of general weeds.

**ACRES AFFECTED BY WEEDS:** ~1000

**WEED DENSITY:** High

### **GOALS**

Maintain public access  
Restore agricultural fields  
Reduce fire danger

### **OBJECTIVES**

Treat high public use areas with residual herbicide to prevent seed production.  
Summer fallow fields in second phase of restoration.  
Maintain firebreaks

### **ACTIONS PLANNED**

In the spring of 2006, problematic portions of roadsides, parking lots, access sites, and trailheads will be treated with a residual herbicide to eliminate the production and spread of weed seeds and improve appearance and public access for the entire season.

Agricultural fields on the wildlife area will be fallowed, sprayed, and planted in seasonal food plots. This serves two purposes:

1. Establishment of a seasonal, supplemental food source for wildlife.
2. Restoration efforts through actively working the land and cleaning up weedy areas until a long-term stand of perennial vegetation can be established.

General weeds around outbuildings on the wildlife area will be controlled through chemical methods to create a firebreak and reduce fuels. .

### **CONTROL SUMMARY AND TREND**

2005- Approximately 500 acres were treated.

Roadside and access management have required a consistent, yearly maintenance effort. However, using new residual herbicide has reduced the effort needed to accomplish the same amount of work. Increases in general weed management reflects the restoration work that has occurred in recent years on the Blue Mountains Wildlife Areas. There are approximately 1,000 acres of acres of general weed infested fields that must be eventually controlled over the next 8 years.



The following list data was taken from the Washington State Noxious Weed List (2005) and the Asotin County Noxious Weed List pamphlet (2005).

### Class A Noxious Weeds

Class A weeds are non-native species with limited distribution in Washington. Preventing new infestations and eradicating old infestations is the highest priority. Eradication required by law

**Table 5.2. Class A noxious weeds of Washington State**

Common Name	Scientific Name
bean-caper, Syrian	<i>Zygophyllum fabago</i>
blueweed, Texas	<i>Helianthus ciliaris</i>
broom, Spanish	<i>Spartium junceum</i>
buffalobur	<i>Solanum rostratum</i>
clary, meadow	<i>Salvia pratensis</i>
cordgrass, salt meadow	<i>Spartina patens</i>
crupina, common	<i>Crupina vulgaris</i>
flax, spurge	<i>Thymelaea passerina</i>
four o'clock, wild	<i>Mirabilis nyctaginea</i>
hawkweed, yellow devil	<i>Hieracium floribundum</i>
hogweed, giant	<i>Heracleum mantegazzianum</i>
hydrilla	<i>Hydrilla verticillata</i>
johnsongrass	<i>Sorghum halepense</i>
knapweed, bighead	<i>Centaurea macrocephala</i>
knapweed, Vochin	<i>Centaurea nigrescens</i>
lawnweed	<i>Soliva sessilis</i>
nightshade, silverleaf	<i>Solanum elaeagnifolium</i>
peganum	<i>Peganum harmala</i>
sage, clary	<i>Salvia sclarea</i>
sage, Mediterranean	<i>Salvia aethiopis</i>
saltcedar	<i>Tamarix ramosissima</i>
spurge, eggleaf	<i>Euphorbia oblongata</i>
starthistle, purple	<i>Centaurea calcitrapa</i>
thistle, Italian	<i>Carduus pycnocephalus</i>
thistle, milk	<i>Silybum marianum</i>
thistle, slenderflower	<i>Carduus tenuiflorus</i>
velvetleaf	<i>Abutilon theophrasti</i>
woad, dyers	<i>Isatis tinctoria</i>

## Class B Noxious Weeds

Class B noxious weeds are non-native species presently limited to portions of the state. Species are designated for control in regions where they are not yet wide-spread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal.

**Table 5.3. Class B noxious weeds of Asotin County**

Common Name	Scientific Name	Common Name	Scientific Name
Alyssum, hoary	<i>Berteroa incana</i>	knapweed, brown	<i>Centaurea jacea</i>
blackgrass	<i>Alopecurus myosuroides</i>	knapweed, diffuse	<i>Centaurea diffusa</i>
blueweed	<i>Echium vulgare</i>	knapweed, meadow	<i>Centaurea jacea x nigra</i>
broom, Scotch	<i>Cytisus scoparius</i>	knapweed, Russian	<i>Acroptilon repens</i>
bryony, white	<i>Bryonia alba</i>	knapweed, spotted	<i>Centaurea biebersteinii</i>
bugloss, common	<i>Anchusa officinalis</i>	knotweed, Bohemian	<i>Polygonum bohemicum</i>
bugloss, annual	<i>Anchusa arvensis</i>	knotweed, giant	<i>Polygonum sachalinense</i>
camelthorn	<i>Alhagi maurorum</i>	knotweed, Himalayan	<i>Polygonum polystachyum</i>
carrot, wild	<i>Daucus carota</i>	knotweed, Japanese	<i>Polygonum cuspidatum</i>
catsear, common	<i>Hypochaeris radicata</i>	kochia	<i>kochia scoparia</i>
chervil, wild	<i>Anthriscus sylvestris</i>	lepyrodiclis	<i>Lepyrodiclis holosteoides</i>
cinquefoil, sulfur	<i>Potentilla recta</i>	loosestrife, garden	<i>Lysimachia vulgaris</i>
cordgrass, smooth	<i>Spartina alterniflora</i>	loosestrife, purple	<i>Lythrum salicaria</i>
cordgrass, common	<i>Spartina anglica</i>	loosestrife, wand	<i>Lythrum virgatum</i>
daisy, oxeye	<i>Leucanthemum vulgare</i>	nutsedge, yellow	<i>Cyperus esculentus</i>
elodea, Brazilian	<i>Egeria densa</i>	parrotfeather	<i>Myriophyllum aquaticum</i>
fanwort	<i>Cabomba caroliniana</i>	pepperweed, perennial	<i>Lepidium latifolium</i>
fieldcress, Austrian	<i>Rorippa austriaca</i>	Primrose, water	<i>Ludwigia hexapetala</i>
Floating heart, yellow	<i>Nymphoides peltata</i>	puncturevine	<i>Tribulus terrestris</i>
gorse	<i>Ulex europaeus</i>	ragwort, tansy	<i>Senecio jacobaea</i>
Grass-leaved arrowhead	<i>Sagittaria graminea</i>	saltcedar	<i>Tamarix ramosissima</i>
hawkweed, mouseear	<i>Hieracium pilosella</i>	Scotch broom	<i>Cytisus scoparius</i>
hawkweed, orange	<i>Hieracium aurantiacum</i>	sandbur, longspine	<i>Cenchrus longispinus</i>
hawkweed, oxtongue	<i>Picris heiracium</i>	skeletonweed, rush	<i>Chondrilla juncea</i>
Hawkweed, polar	<i>Hieracium atratum</i>	sowthistle, perennial	<i>Sonchus arvensis ssp. arvensis</i>
Hawkweed, queendevil	<i>Hieracium glomeratum</i>	spurge, leafy	<i>Euphorbia esula</i>
hawkweed, smooth	<i>Hieracium laevigatum</i>	starthistle, yellow	<i>Centaurea solstitialis</i>
hawkweed, yellow	<i>Hieracium caespitosum</i>	Swainsonpea	<i>Sphaerophysa salsula</i>

hedgeparsley	<i>Torilis arvensis</i>	thistle, musk	<i>Carduus nutans</i>
helmet, policeman's	<i>Impatiens glandulifera</i>	thistle, plumeless	<i>Carduus acanthoides</i>
herb-Robert	<i>Geranium robertianum</i>	thistle, Scotch	<i>Onopordum acanthium</i>
houndstongue	<i>Gynoglossum officinale</i>	toadflax, Dalmatian	<i>Linaria dalmatica ssp.</i>
indigobush	<i>Amorpha fruticosa</i>	watermilfoil, Eurasian	<i>Myriophyllum spicatum</i>
knapweed, black	<i>Centaurea nigra</i>		

### Class C Noxious Weeds

Class C noxious weeds are non-native weeds found in Washington. Many of these species are widespread in the state. Long-term programs of suppression and control are a County option, depending upon local threats and the feasibility of control in local areas.

**Table 5.4 Class C Noxious Weeds of Asotin County**

<b>Common Name</b>	<b>Scientific Name</b>
babysbreath	<i>Gypsophila paniculata</i>
bindweed, field	<i>Convolvulus arvensis</i>
Butterfly bush	<i>Buddleia davidii</i>
canarygrass, reed	<i>Phalaris arundinacea</i>
cockle, white	<i>Silene latifolia ssp. alba</i>
cocklebur, spiny	<i>Xanthium spinosum</i>
Common reed (non-natives)	<i>Phragmites australis</i>
cress, hoary	<i>Cardaria draba</i>
dodder	<i>Cuscuta approximata</i>
goatgrass, jointed	<i>Aegilops cylindrica</i>
Hawkweed spp	<i>Non-natives not in A or B list</i>
henbane, black	<i>Hyoscyamus niger</i>
houndstongue	<i>Cynoglossum officinale</i>
Iris, yellow flag	<i>Iris pseudocorus</i>
Ivy, English	<i>Hedera spp.</i>
knotweed, giant	<i>Polygonum sachalinense</i>
knotweed, Japanese	<i>Polygonum cuspidatum</i>
mayweed, scentless	<i>Matricaria perforata</i>
Old man's beard	<i>Clematis vitalba</i>
poison-hemlock	<i>Conium maculatum</i>
Pondweed, curl-leaf	<i>Potamogeton crispus</i>
rye, cereal	<i>Secale cereale</i>
spikeweed	<i>Hemizonia pungens</i>
Spurge, myrtle	<i>Euphorbia myrsinites</i>
St. Johnswort, common	<i>Hypericum perforatum</i>
tansy, common	<i>Tanacetum vulgare</i>
toadflax, yellow	<i>Linaria vulgaris</i>
thistle, Canada	<i>Cirsium arvense</i>
thistle, bull	<i>Cirsium vulgare</i>
whitetop, hairy	<i>Cardaria pubescens</i>
wormwood, absinth	<i>Artemisia absinthium</i>

## **APPENDIX 3. FIRE MANAGEMENT PLAN**

The practice of fire suppression has altered successional patterns and created stand and forest conditions that differ from those that occurred in the past. Altering the natural disturbance regimes has changed the historical stand structure, tree species compositions, tree stocking levels, and fuel loadings in native ecosystems (Gephart and Nordheim 2001). Frequent surface fires that characterized the ponderosa pine and mixed conifer forests of the past have been effectively eliminated today. Hence, the drier mixed-conifer and ponderosa pine sites have become dominated by shade tolerant species such as Douglas fir. These sites did not typically have a fir understory to provide ladder fuels to the crowns. In many stands, it is these ladder fuels that pose the biggest fire hazard threat (Gephart and Nordheim 2001).

Due to conditions created by fire suppression it is likely a wildfire today would be of higher intensity and cover a greater area than in the past. The potential for catastrophic fires exists that could have negative impacts on fish and wildlife habitat, riparian vegetation, timber, wildlife, soil, and water quality. To reduce the risk of these potential impacts, the USFS uses prescribed fire and fuels treatments to:

- 1) Reduce the risk of large, high intensity wildfires
- 2) Reintroduce disturbance regimes that support resilient and sustainable ecosystems
- 3) Achieve desired future conditions of healthy, resilient, and productive forests
- 4) Establish sustainable, vigorous, and resistant stands, while retaining a natural appearing landscape.
- 5) Help facilitate recovery and improvement of fish and wildlife habitat

### **PRESCRIPTION FIRE**

The USFS regularly uses prescribed understory burns to reduce ladder fuels and limit disease potential for timber stands in the Umatilla National Forest. Because a large percentage of the four wildlife areas lie adjacent to federal lands, the USFS includes some WDFW lands in their prescribed burns to accomplish the goals (1-5) as stated above. Burns have been conducted in Lick Creek, Charley Creek, Tucannon River, and the North Fork Asotin Creek drainages.

#### Asotin Creek

USFS burns approximately 1,000 acres per year in the Lick Creek and Asotin Creek drainages. Most areas are burned on a 10-12 year rotation, and this prescription will be continued into the foreseeable future (M. Martin, USFS, personal comm. May 2005).

#### Chief Joseph

Zendal Field, located at the Grande Ronde bridge, was burned in 2004 as a weed control measure. There are currently no prescription burns anticipated on the Chief Joseph wildlife area.

#### Wooten

The majority of the Wooten Wildlife Area burned in the school fire in 2005. A salvage logging operation is currently ongoing with proceeds from the fire intended for use in rehabilitating burned areas through the use of shrub, tree, and grass plantings.

Grouse Flat

The Grouse Flat wildlife area is being assessed for thinning due to decadent stands and high tree mortality. If WDFW timber assessment personnel prescribe thinning, an understory/slash burn may follow tree removal.

**Table 5.5. Fire Response Contact List**

<b>Wildlife Area</b>	<b>Fire Control Entity and Contact Number</b>	<b>Agency Contact</b>
Chief Joseph Wildlife Area	BLM, Baker District Vale Dispatch 541-473-6296	Bob Dice: 509-758-3151 Cell: 509-780-2293 Home: 509-751-0969 David Woodall: 509-758-3151 David W. Cell: 509-780-2692 Paul Wik Cell: 509-780-1052 Kevin Robinette: 509-892-7895 John Andrews: 509-892-7852
Asotin Creek Wildlife Area West half including Weatherly, Smoothing Iron, Lick Creek, and Asotin Creek Areas	DNR: Contact Fire Dispatch: 1-800-562-6010 USFS Pendleton Dispatch: 541-278-3732	Bob Dice: 509-758-3151 Cell: 509-780-2293 Home: 509-751-0969 David Woodall: 509-758-3151 David W. Cell: 509-780-2692 Paul Wik Cell: 509-780-1052 Kevin Robinette: 509-892-7895 John Andrews: 509-892-7852
Asotin Creek Wildlife Area East half including Meyer's Ridge, George Creek, Pintler Creek, and Ayers Gulch	DNR: Contact Fire Dispatch: 1-800-562-6010	Bob Dice: 509-758-3151 Cell: 509-780-2293 Home: 509-751-0969 David Woodall: 509-758-3151 David W. Cell: 509-780-2692 Paul Wik Cell: 509-780-1052 Kevin Robinette: 509-892-7895 John Andrews: 509-892-7852
Grouse Flats Wildlife Area	DNR: Contact Fire Dispatch: 1-800-562-6010 USFS Pendleton Dispatch: 541-278-3732	Bob Dice: 509-758-3151 Cell: 509-780-2293 Home: 509-751-0969 David Woodall: 509-758-3151 David W. Cell: 509-780-2692 Paul Wik Cell: 509-780-1052 Kevin Robinette: 509-892-7895 John Andrews: 509-892-7852
W.T. Wooten Wildlife Area	DNR: Contact Fire Dispatch: 1-800-562-6010 USFS Pendleton Dispatch: 541-278-3732	Shana Winegeart: 509-843-1530 Shana W. Cell: 509-780-2292 Pat Fowler: 509-526-4377 Kevin Robinette: 509-892-7895 John Andrews: 509-892-7852

Chief Joseph, Asotin Creek, and Grouse Flats **wildlife area staff satellite phone:** 254-241-7431. For emergency use only – phone will only be on during emergency situations.

## APPENDIX 4 WATER RIGHTS

**Table 5.6 Water Rights of the Blue Mountains Wildlife Areas**

	File #	Originating Person	Status	Doc	Purpose	Date	Qi	UOM	Qa	Ir Acres	County	TRS	1stSrc	Unit
Chief Joseph	S3-*21632ALCWRIS	Tippett JW	A	CERT	IR	06/04/69	1.20	CFS	220	60.00	ASOTIN	06.ON 46.0E 02	Joseph Creek	Joseph Creek
Chief Joseph	S3-024404CL	Appleford D H	A	CLAIM L	ST						ASOTIN	07.ON 46.0E 14		Joseph Creek
Chief Joseph	S3-*21631ALCWRIS	Tippett JW	A	CERT	IR	06/04/69	0.80	CFS	148	40.00	ASOTIN	07.ON 46.0E 23	Grande Ronde River	Joseph Creek
Asotin Creek	S3-008478CL	Weatherly G & S	A	CLAIM L	ST						GARFIELD	09.ON 43.0E 05		Weatherly
Asotin Creek	S3-29491	WDFW	A	NewApp	WL,ST	06/10/93	0.01	CFS			GARFIELD	09.ON 43.0E 05	McGilvra spring	Weatherly
Asotin Creek	S3-010151CL	Weatherly G & S	A	CLAIM L	ST						GARFIELD	09.ON 43.0E 07		Weatherly
Asotin Creek	S3-058548CL	WDFW	A	Claim L	IR			CFS			ASOTIN	09.ON 44.0E 09	NFAsotin Creek	Asotin Unit
Asotin Creek	G3-046063CL	WDFW	A	Claim L	DG			GPM			ASOTIN	09.ON 44.0E 10	well	Asotin Unit
Asotin Creek	S3-058549CL	WDFW	A	Claim L	IR			CFS			ASOTIN	09.ON 44.0E 10	SFAsotin Creek	Asotin Unit
Asotin Creek	S3-058550CL	WDFW	A	Claim L	IR			CFS			ASOTIN	09.ON 44.0E 16	NFAsotin Creek	Asotin Unit
Asotin Creek	S3-091537CL	HAGENAH HERMAN	A	CLAIM L	ST						ASOTIN	09.ON 45.0E 01	spring	Asotin Unit
Asotin Creek	S3-122150CL	Halsey DW	A	CLAIM L	ST						ASOTIN	09.N 45.0E 14	spring	Asotin Unit
Asotin Creek	S3-122140CL	Halsey DW	A	CLAIM L	SY						ASOTIN	09.ON 46.0E 07	spring	Asotin Unit
Asotin Creek	S3-122141CL	Halsey DW	A	CLAIM L	ST						ASOTIN	09.ON 46.0E 07	spring	Asotin Unit
Asotin Creek	S3-122142CL	Halsey DW	A	CLAIM L	ST						ASOTIN	09.ON 46.0E 07	spring	Asotin Unit
Asotin Creek	S3-122143CL	Halsey DW	A	CLAIM L	NO ID						ASOTIN	09.ON 46.0E 07	spring	Asotin Unit
Asotin Creek	S3-122144CL	Halsey DW	A	CLAIM L	NO ID						ASOTIN	09.ON 46.0E 18	spring	Asotin Unit
Asotin Creek	G3-122137CL	Halsey DW	A	CLAIM L	DG,ST						ASOTIN	09.ON 46.0E 19	well	Asotin Unit
Chief Joseph	S3-024404CL	Appleford D H	A	CLAIM L	ST						ASOTIN	07.ON 46.0E 14		Joseph Creek
Chief Joseph	S3-*21631ALCWRIS	Tippett JW	A	CERT	IR	06/04/69	0.80	CFS	148	40.00	ASOTIN	07.ON 46.0E 23	Grande Ronde River	Joseph Creek
Wooten	G3-046065CL	WDFW	A	Claim L	DG			GPM			COLUMBIA	10.ON 41.0E 16	well	Wooten WA HQ

## 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
Michael		Eastern Washington

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

Comments received on the Blue Mountains 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
	<b>General Support</b>	
Michael	I'd like to know why the game department wants to wipe out the elk on the westside of the blue mountains? My family and I have spent thousands of dollars in recreational property, not just to hunt, but also for a place to view these magnificent animals all year. I have many neighbors who are in the same position we are and are very concerned also. If you could give me a answer to the slaughter of cows every year. I would try to understand.	The wildlife area plan does not include lands to the west side of the Blue Mountains. The plan only covers agency owned or controlled land in Columbia, Garfield, and Asotin Counties. Further, the plan does not address game management issues. The Wildlife Program's Game Division, through the implementation of Game Management Plans, would address such issues.



## **APPENDIX 6. FORAGE PRODUCTION AND MANAGEMENT**

In 2005-2007 WDFW will begin investigating ways to improve status of present cover types and, where possible, restore natural species, functions, disturbance regimes, and structure as identified in section 2.11. All tools available i.e. grazing, burning, logging, will be evaluated as to the timing, use, effects, benefits and hazards associated with each disturbance method. This assessment will begin in 2005 by evaluating forage production and the use of applied grazing on wildlife areas in the Blue Mountains, and continue as funding permits. Some portion of BPA funding will be available annually to conduct these studies on parcels of mitigation land. Other funding sources will need to be found to implement assessments of non-mitigation lands.

### **Forage Assessment Method:**

In 2006, WDFW staff will begin assessing forage potential on wildlife areas. Using NRCS soil maps, the production potential for each unit of the wildlife area can be calculated. The soil map will provide information such as soil type, native plant species that should occur, and quantity of forage produced by native species. Non-native pasture will be assessed based on the forage potential for the established mix, i.e. orchardgrass and clover.

Multiple sites will be visited in each wildlife area unit, and the current vegetation will be evaluated in comparison to the native grass standard. If a site contains only 50% native grasses, it will be rated as producing 50% of optimal potential. A site that contains cheatgrass (0% native grass) will not have any forage remaining for summer grazing, and will have a forage potential rating of zero. As mentioned above, cultivated pastures will be assessed based on planted species production.

All prospective grazing areas will be assessed by the potential standing crop of forage they could potentially produce each year. Because Washington Department of Fish and Wildlife is entrusted with the stewardship of state lands for the purpose of protecting wildlife, the forage nutrition needs of wildlife will be allotted first, and where appropriate, surplus forage will be considered for use in grazing permits. It is important to note that all grazing permits must be designed to benefit wildlife (a permit will not be well received if one species benefits and others are negatively impacted), but this can be accomplished with cooperation and input by both WDFW staff and local livestock operators.

### Excerpt from Appendix A – WDFW Agency Grazing Policy

The Washington Department of Fish and Wildlife acquires and manages land to protect fish and wildlife and their habitats, maintain biodiversity and provide opportunities for fish and wildlife related recreation.

#### **GENERAL POLICIES:**

Domestic livestock grazing on Department owned or controlled lands may be permitted if determined to be consistent with desired ecological conditions for those lands, or with the Department's Strategic Plan.

Livestock grazing on Department lands is a practice that can be used to manipulate vegetation for fish and wildlife, accomplish a specific habitat objective, or facilitate coordinated resource management. If permitted, livestock grazing must be integrated with

other uses to ensure the protection of all resource values, the most important of which is maintaining ecological integrity.

Grazing permits are of agency-wide interest. The Department will develop procedures that include a cross-program review to ensure all grazing permits are subject to the best available science.

New grazing permits will be made available for Commission review before being forwarded to the Director for approval. All grazing permits, excluding temporary permits, must include a domestic livestock grazing management plan that includes a description of ecological impacts, fish and wildlife benefits, a monitoring and evaluation schedule, and a description of desired ecological conditions.

Coordinated Resource Management Plans will be encouraged where appropriate.

The Department will promote adaptive management and continued improvement of programs and practices as new knowledge and understanding of habitat ecology becomes available.

#### **Wildlife Needs:**

Using WDFW's big game herd size objectives, the amount of forage needed to feed the objective population will be calculated (if herds are below objective, that population figure will be used). Areas with little or no use by big game will have a higher percentage of surplus forage available.

Every wildlife area in the Blue Mountains Plan has identified a strategy to install food plots. Food plots often supply high quality forage in a small area, and the needs of big game will be considered when determining the necessary quantity of acres required as wildlife forage. Food plots can help satisfy a percentage of big game nutritional needs and reduce impacts caused by depredation on private lands.

#### **Considerations:**

Grasslands and grazing animals have coexisted for millions of years, and migratory herbivores such as bison are integral to the functioning of grassland ecosystems. Through grazing, these animals stimulate regrowth of grasses and remove older, less productive plant tissue. Thinning of older plant tissues allows increased light to reach younger tissues, promoting growth, increasing soil moisture, and improving water-use efficiency of grasses. Grazing by domestic livestock can replicate many of these beneficial effects, but herding and grazing regimes can also harm grasslands if not properly applied. Livestock are often present in greater numbers than wild herbivores and can put higher demands on an ecosystem. In addition, herds of domestic cattle, sheep, and goats do not replicate the grazing patterns of herds of wild grazers due to the use of water pumps and barbed wire fencing that leads to more sedentary and often more intense use of grasslands (Frank *et al.* 1998 in McNaughten 1993). Grazing animals applied in high densities can destroy vegetation, change the balance of plant species, reduce biodiversity, compact soil, accelerate soil erosion, introduce noxious weeds, and impede water retention, depending on the number and breed of livestock and their grazing pattern (Evans 1998).

Taking these potential impact factors into consideration, there may be instances where ample forage is available, but where the site will not be considered suitable for grazing. A permit can be

designed to utilize forage at the proper time and intensity, but some factors such as presence of listed or priority plant/fish/wildlife species or their requisite habitat, fragile or erosive soils, type/timing of wildlife use (ground-nesting birds incubating, or elk calving grounds) will require special consideration. Often the time and rotation of a grazing permit can greatly alter the effect it has on wildlife, and every effort will be made to create grazing permits that benefit both wildlife and livestock and limit negative impacts to the ecosystem.

### **Monitoring:**

Condition surveys will be conducted twice per year on grazing allotments to ensure the prescribed plan is meeting vegetation condition goals. Pastures will be assessed within one week prior to livestock coming on WDFW land, and within one week after they come off. Dependent upon pasture size, between 5 and 10 transects (each 50 m long) will be established to assess grass height. The height of vegetation (determined by average height of leaves, not by tallest seed head) will be measured every 10m along the transect and averaged. Transects are spread among high-use areas (near water or mineral stations) and low use areas (farthest areas away from water). Average vegetation height for all transects will be averaged again to derive overall pasture stubble height. Photographs will be taken at the beginning of each transect, and additional photo points may be established to monitor specific features such as water sites or condition of woody vegetation. After the post-grazing condition survey is completed the goals and methods of the past grazing season will be evaluated and adjusted as necessary to minimize impacts and achieve vegetation condition goals.

Grazing utilization surveys will be monitored and photographed every two weeks to assess forage use trends. These are the same transects and data collection protocol as described for condition surveys. Results (photos and data) from each sampling effort will be shared with the permittee after each monitoring effort so that forage use patterns and remaining forage can be tracked and any issues can be resolved in a timely manner.

The Weatherly grazing permit (Figure 3.1) calls for removal of livestock when average stubble height reaches six inches, but livestock may also be removed earlier, depending upon available water. Livestock will be brought on July 2, so a pre-livestock condition survey was conducted on June 30, with the establishment/monitoring of seven transects and a single photopoint. This same procedure will be conducted every two weeks while livestock are on the pasture. The permittee has established two mineral stations at the near and middle sections of the pasture, and has agreed to move one to the far end of the pasture in 3-4 weeks to encourage more even utilization of forage.

### **Data Collection and Purpose:**

Currently, wildlife area staff are working in cooperation with WDFW range specialists, to assess soil/forage production data for three wildlife area parcels: the Asotin Creek BPA mitigation land (Smoothing Iron, George Creek, and Bickford units), the Shumaker unit on the Chief Joseph wildlife area, and the Pintler unit of the Asotin Creek wildlife area.

#### BPA (Smoothing Iron, George Creek, Bickford)

Evaluate forage potential on approximately 10,000 acres of native and non-native grassland habitat. Purpose: reduce depredation complaints, support local economy, and improve winter forage for elk.

### Shumaker

Evaluate forage potential on 2,100 acres of native/non-native grassland habitat.

Purpose: reduce depredation complaints and improve winter forage for bighorn sheep and deer.

Investigate the use of small-bodied Corriente cattle to get up steep slopes and better utilize forage.

### Pintler

Evaluate forage potential on 5,000 acres for early spring grazing.

Purpose: utilize a three-pasture rest rotation scheme as a means to control noxious weeds and reduce annual grasses.

### Pilot Grazing Program

In 2006, WDFW implemented the pilot grazing program in three areas on the Blue Mountains Wildlife Area Complex. Pilot grazing began in Pintler Creek in April 2006. Grazing is scheduled to begin on smoothing Iron in 2007 and on Shumaker in 2008. These are experimental grazing programs intended to run for three years on each unit and are in cooperation with Washington Cattleman's Association (WCA). WCA and WDFW currently have a signed memorandum of understanding stating goals and intentions of the program. Permits for this project will utilize concurrent temporary permits for the duration of the program.

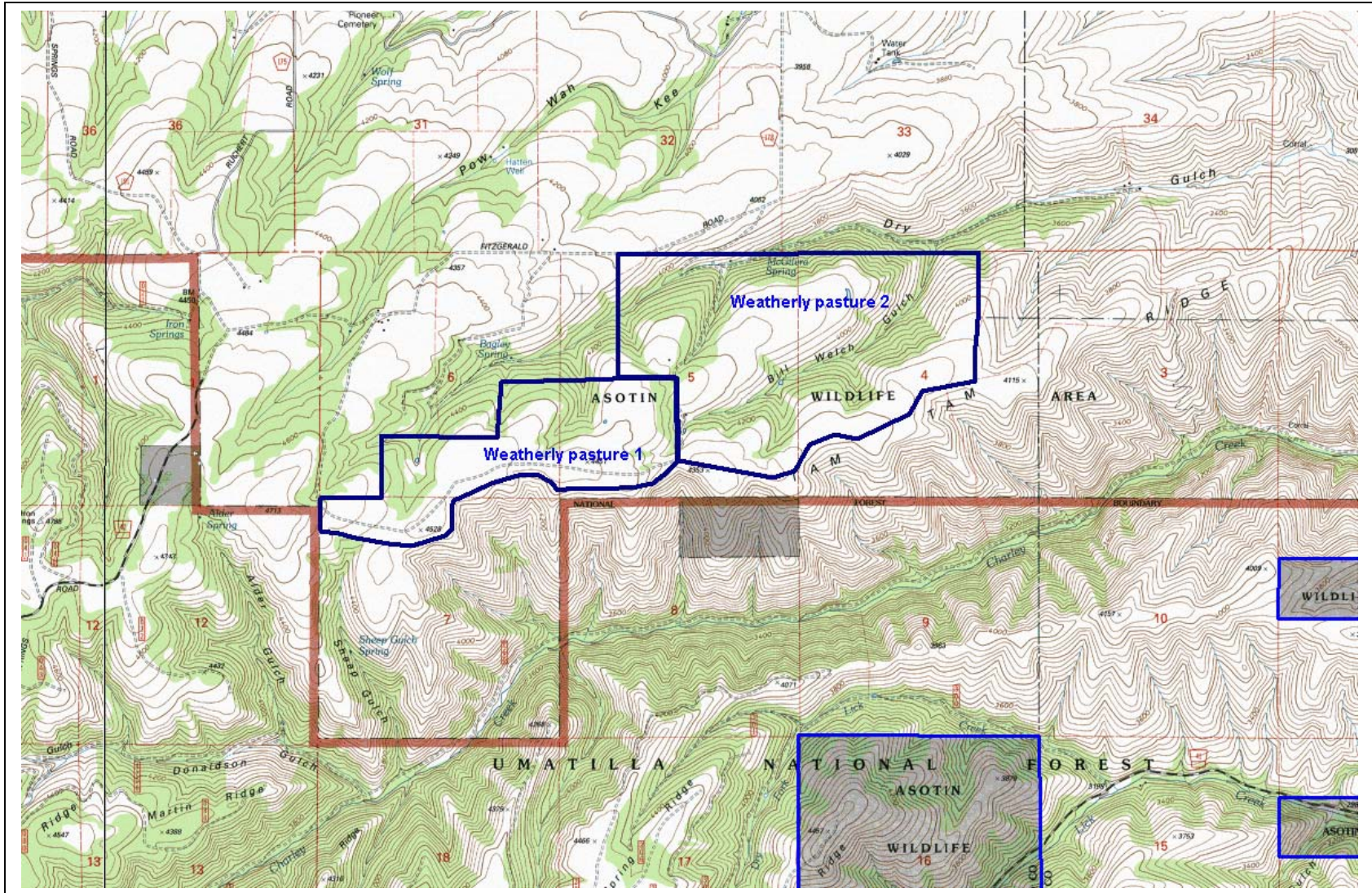
### Temporary grazing

The use of livestock to reduce standing dead material on a new agricultural lease will be implemented in fall 2005. Old standing orchardgrass has created a thick sod mat and livestock will be used in a short-term, high intensity trial as an alternative to burning. Grazing will take place on the 200-acre hay pasture of the Grouse Flat wildlife area in August 2005. Because the grazing will occur over less than two weeks, the usual permitting process is not as rigorous. A long-term late-summer grazing permit will be pursued if the goals of this temporary grazing trial are met successfully. Monitoring of temporary grazing effects will be similar to the monitoring described for longer grazing permits.



Figure 6.1. Grazing Allotment – Asotin Creek Wildlife Area. Currently being rested in 2006.

**WEATHERLY UNIT – 2 pastures – 1,040 acres**



## APPENDIX 7. HEP SURVEY RESULTS

Table 5.7. Smoothing Iron HEP results

Species / Cover Type	Acres	Mean HSI	HU's
<b>Sharp-tailed Grouse Nest/Brood Rearing</b>			
All nesting cover types (name cts)	3954	0.34	1351.43
<b>Sharp-tailed Grouse Winter Habitat</b>			
Shrubland	357	0.33	117.13
<b>Western Meadowlark</b>			
Grassland	3545	0.59	2079.71
<b>Yellow Warbler</b>			
Riparian	104	0.19	19.83
<b>Black-Capped Chickadee</b>			
Conifer Forest	71	0.23	15.98
<b>Chuckar</b>			
Hay Field	151	0.55	83.05
Grassland / CRP	3803	0.82	3131.68
<b>Downy Woodpecker</b>			
Riparian	104	0.07	6.93
<b>Lewis Woodpecker</b>			
Conifer Forest	71	0.15	10.65
<b>Mule Deer</b>			
Grassland	3545	0.33	1181.67
Shrubland	182	0.55	99.97
<b>Total HU's</b>			<b>8098.03</b>

**Table 5.8. George Creek HEP results**

<b>Species / Cover Type</b>	<b>Acres</b>	<b>HSI</b>	<b>HU'S</b>
<b>Western Meadowlark</b>			
Grasslands	2536.92	0.56	1413.71
CRP	326.5	0	0
SS	2.4	0.16	0.4
<b>Mule Deer</b>			
SS	2.4	0.16	0.38
Grassland	2899	0.21	601.42
<b>Downy Woodpecker</b>			
Rip. Dec. Woodland	132.8	0.21	27.22
<b>Yellow Warbler</b>			
Rip. Dec. Shrub	132.8	0.22	28.97
<b>Chuckar</b>			
Grassland	2536.92	0.61	1557.12
CRP	362.5	0.53	191.64
SS	2.4	0.62	1.5
<b>Sharp-tailed Grouse</b>			
Nest/Brood Rearing	2928.92	0.24	714.05
Winter Habitat	138.18	0.1	14.21
<b>Total HU'S</b>			<b>4550.62</b>

## **APPENDIX 8. PLANNING DOCUMENTS AND SPECIES ACCOUNTS GUIDING MANAGEMENT**

Information was excerpted from Ashley and Stovall 2004

### **Status Reports**

Bald eagle, 2001	Northern leopard frog, 1999
Burrowing owl, draft 2004	Oregon spotted frog, 1997
Common loon, 2000	Peregrine falcon, 2002
Fisher, 1998	Sharp-tailed grouse, 1998
Lynx, 1993; 1999	Streaked horned lark, draft 2004
Mountain quail, 1993	Washington ground squirrel, draft 2004

### **Recovery/Management Plans**

Bald eagle, 1990, federal 1986	Gray wolf, federal
Bighorn sheep, 1995	Grizzly bear, federal 1993
Black bear, 1997	Lynx, 1993; 2001
Cougar, 1997	Moose, 1997
Deer, 1997	Mountain quail, 1993
Elk, 1997	Oregon spotted frog, 1998
Ferruginous hawk, 1996	Sharp-tailed grouse, 1995
Fisher, draft 2004	Waterfowl, 1997
Furbearers, 1987-93	Upland birds, 1997

### **Game Management Plans**

Volume III – Amphibians and Reptiles, 1997

Columbia spotted frog	Northern leopard frog
Oregon spotted frog	Striped whipsnake

Volume IV – Birds, 2003

American white pelican	Mountain quail
Bald eagle	Northern goshawk
Black-backed woodpecker	Peregrine falcon
Blue grouse	Pileated woodpecker
Burrowing owl	Prairie falcon
Cavity-nesting ducks	Ring-necked pheasant
Chukar	Sage sparrow
Common loon	Sage thrasher
Flammulated owl	Sharp-tailed grouse
Golden eagle	Shorebirds
Great blue heron	Vaux's swift
Harlequin duck	Wild turkey
Lewis' woodpecker	White-headed woodpecker
Loggerhead shrike	



## **Management Recommendations for Washington’s Priority Habitats and Species**

*May 1991*

Bighorn sheep	Elk
Elk	Deer
Fisher	Bighorn Sheep
Gray wolf	Moose
Grizzly bear	Black Bear
Lynx	Cougar
Marten	Waterfowl
Merriam’s turkey	Migratory Birds (e.g., Mourning Dove)
Moose	Wild Turkey
Osprey	Mountain Quail
Pygmy shrew	Forest Grouse
Rocky Mountain mule deer	Upland Game Birds
Townsend’s big-eared bat	Small game (e.g., rabbits)
Western bluebird	Furbearers (e.g., beaver)
White-tailed deer	Unclassified Species (e.g. coyote)
Yellow-billed cuckoo	

### **Bighorn Sheep Plan**

The Washington State management plan for bighorn sheep describes the geographical range, natural history, habitat requirements and status, population dynamics and status, and management activities and implementation for 16 herds statewide. The plan identifies goals and objections for managing bighorn sheep and addresses specific issues related to monitoring, recreation, enforcement, reintroductions, research, and disease. The plan was adopted in 1995 and fits within the umbrella of the Game Management Plan for 2003-2009.

### **Black Bear Plan**

The Washington State management plan for black bear describes the geographical range, life history, habitat, population dynamics, and management direction for bears. The plan identifies goals and objections for managing black bear and addresses specific issues related to nuisance activity, recreation, enforcement, habitat protection, and education. The plan was adopted in 1997 and fits within the umbrella of the Game Management Plan for 2003-2009.

### **Elk Herd Plans**

Washington state elk herd plans summarize historic and current distribution and abundance. The Department recognizes ten, distinct elk herds in the state. Five of the ten elk herd management plans have been completed. The plans address the major factors affecting abundance and persistence. Population management objectives, spending priorities, and management strategies are spelled out. Priorities for habitat enhancement are identified.

## **Blue Mountains Elk Herd Plan, February 2001**

### **Interagency waterfowl management plans**

Washington Department of Fish and Wildlife (WDFW) is a member of the Pacific Flyway Council, an organization of 11 western states that develops management recommendations for migratory waterfowl. Management plans developed by the Council include population objectives, harvest strategies, habitat recommendations, and basic biological information. The Council also participates in the development of nationwide management plans for waterfowl. The following interagency plans deal with Washington's waterfowl resources:

- Canada Geese Plan
- Western Tundra Swan Plan

### **Related Plans**

- North American Waterfowl Management Plan
- Pacific Coast Band-tailed Pigeons
- National Mourning Dove Plan

### **Joint Venture habitat plans**

WDFW is an active participant in two joint ventures under the North American Waterfowl Management Plan, the Pacific Coast Joint Venture and the Intermountain West Joint Venture. The joint ventures include representatives of agencies from all levels of government and nonprofit organizations, who are interested in conservation and enhancement of habitat for migratory birds and related fish and wildlife resources. The joint ventures have developed strategic plans to guide conservation efforts of all the partners:

- Pacific Coast Joint Venture Strategic Plan
- Intermountain West Joint Venture Strategic Plan

## APPENDIX 9. PLANT AND WILDLIFE SPECIES WITH FEDERAL OR STATE LISTED STATUS

### Federally Listed Species

#### Federal Status

FC = Federal Candidate

FT = Federally Threatened

FE = Federally Endangered

<i>Common Name</i>	<i>Status</i>	<i>Common Name</i>	<i>Status</i>
Bald Eagle	FT	Washington Ground Squirrel	FC
Yellow-billed Cuckoo	FC	Lynx	FT
Chinook Salmon	FT	Pacific Steelhead	FT
Bull Trout	FT		

**Table 5.9. Washington State Listed Species With Potential to Occur in Region 1 -Eastern Washington**

<i>Common Name</i>	<i>Common Name</i>
River lamprey	Western Grebe
White sturgeon	Breeding concentrations: Grebes and Cormorants
Lake chub	Eastern Washington breeding Terns
Leopard dace	Black-crowned night heron
Umatilla dace	Great blue heron
Mountain sucker	Cavity-nesting ducks: Wood duck, Barrow's goldeneye, Common goldeneye, Bufflehead Hooded merganser
Channel catfish	Harlequin duck
Bull trout/Dolly Varden	Swans: Trumpeter swan, Tundra swan
Chinook salmon	Waterfowl concentrations -excluding Canada geese in urban areas
Rainbow trout/Steelhead	Bald eagle
Sockeye salmon	Ferruginous hawk
Westslope cutthroat	Golden eagle
Margined sculpin	Merlin
Largemouth bass	Northern goshawk
Smallmouth bass	Peregrine falcon
Walleye	Prairie falcon
Columbia spotted frog	Blue grouse
Northern leopard frog	Chukar
Rocky Mountain tailed-frog	Mountain quail
Western toad	Ring-necked pheasant
American white pelican	Sage grouse
Common loon	Yellow-billed cuckoo
Wild turkey	California floater

Sharp-tailed grouse	Giant Columbia River limpet
Upland sandpiper	Great Columbia River spire snail
Eastern Washington breeding occurrences of: Phalaropes, Stilts and Avocets	Roosting concentrations of: Big brown bat, Myotis bats (Myotis spp.), Pallid bat
Flammulated owl	Townsend's big-eared bat
Vaux's swift	Bighorn sheep
Black-backed woodpecker	Moose
Lewis' woodpecker	Northwest white-tailed deer
Pileated woodpecker	Rocky Mountain elk
White-headed woodpecker	Rocky Mountain mule deer
Loggerhead shrike	Black-tailed jackrabbit
Sage sparrow	White-tailed jackrabbit
Sage thrasher	Washington ground squirrel
Fisher	Merriam's shrew
Gray wolf	Columbia River tiger beetle
Lynx	Mann's mollusk-eating ground beetle
Marten	Juniper hairstreak
Mink	Shepard's parnassian
Wolverine	Silver-bordered fritillary

**Table 5.10. Rare Plants known to occur in Asotin, Columbia, and Garfield Counties (WNHP 2005)**

Scientific Name	Common Name	State Status	Federal Status
<u>Allium campanulatum</u>	Sierra Onion	T	
<u>Allium dictuon</u>	Blue Mountain Onion	T	SC
<u>Arabis crucisetosa</u>	Cross-haired Rockcress	T	
<u>Asclepias cryptoceras ssp. davisii</u>	Davis' Milkweed	X	
<u>Astragalus arthurii</u>	Arthur's Milk-vetch	S	
<u>Astragalus cusickii var. cusickii</u>	Cusick's Milk-vetch	S	
<u>Astragalus riparius</u>	Piper's Milk-vetch	E	
<u>Bolandra oregana</u>	Bolandra	S	
<u>Calochortus macrocarpus var. maculosus</u>	Sagebrush Mariposa-lily	E	
<u>Calochortus nitidus</u>	Broad-fruit Mariposa	E	SC
<u>Cheilanthes feei</u>	Fee's Lip-fern	X	
<u>Crepis bakeri ssp. idahoensis</u>	Idaho Hawksbeard	R1	
<u>Cryptantha rostellata</u>	Beaked Cryptantha	T	
<u>Cyperus bipartitus</u>	Shining Flatsedge	S	
<u>Cypripedium fasciculatum</u>	Clustered Lady's-slipper	S	SC
<u>Hackelia diffusa var. diffusa</u>	Diffuse Stickseed	T	
<u>Hackelia hispida var. hispida</u>	Rough Stickseed	T	
<u>Impatiens aurella</u>	Orange Balsam	R2	
<u>Lipocarpha aristulata</u>	Awned Halfchaff Sedge	T	
<u>Lomatium cusickii</u>	Cusick's Desert-parsley	X	
<u>Lomatium rollinsii</u>	Rollins' Desert-parsley	T	
<u>Lomatium serpentinum</u>	Snake Canyon Desert-parsley	S	
<u>Lupinus cusickii</u>	Prairie Lupine	R1	SC
<u>Lupinus sabinii</u>	Sabin's Lupine	E	
<u>Lupinus sericeus var. asotinensis</u>	Asotin Silky Lupine	R1	
<u>Mimulus washingtonensis</u>	Washington Monkey-flower	X	
<u>Oenothera caespitosa ssp. marginata</u>	Tufted Evening-primrose	T	
<u>Petrophyton caespitosum var. caespitosum</u>	Rocky Mountain Rockmat	T	
<u>Physaria didymocarpa var. didymocarpa</u>	Common Twinpod	S	
<u>Ranunculus populago</u>	Mountain Buttercup	S	
<u>Ribes cereum var. colubrinum</u>	Squaw Currant	E	
<u>Ribes oxycanthoides ssp. irriguum</u>	Idaho Gooseberry	S	
<u>Rubus nigerrimus</u>	Northwest Raspberry	E	SC
<u>Silene spaldingii</u>	Spalding's Silene	T	LT
<u>Spiraea densiflora var. splendens</u>	Subalpine Spiraea	R2	
<u>Trifolium douglasii</u>	Douglas' Clover	E	

**State Status:**

Determined by the Washington Natural Heritage Program. Factors considered include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness.

Values include:

**E** = Endangered,

**T** = Threatened,

**S** = Sensitive,

**X** = Possibly extinct or Extirpated from Washington

**R1** = Review group 1. Potential concern, needs more fieldwork to assign another rank

**R2** = Review group 2. Potential concern, but with unresolved taxonomic questions

**Federal Status**

Under the U.S. Endangered Species Act (ESA) as published in the Federal Register:

**LE** = Listed Endangered. In danger of extinction.

**LT** = Listed Threatened. Likely to become endangered.

**PE** = Proposed Endangered.

**PT** = Proposed Threatened.

**C** = Candidate species. Sufficient information exists to support listing as Endangered or Threatened.

**SC** = Species of Concern. Unofficial status, species seems to be in jeopardy, but insufficient information to support listing.

**NL** = Not Listed. Used when two portions of a taxon have different federal status.

## APPENDIX 10. COMMON SCIENTIFIC NAMES OF SPECIES MENTIONED IN THE TEXT

Table 5.11. Plant species mentioned in the text

Common Name	Scientific name	Common Name	Scientific name
Annual bromes	<i>Bromus commutatus</i> , <i>B. mollis</i> , <i>B. japonicus</i>	Paper Birch	<i>Betula papyrifera</i>
Arrowleaf Balsamroot	<i>Balsamorhiza sagittata</i>	Peachleaf willow	<i>Salix amygdaloides</i>
Big sagebrush	<i>Artemisia tridentata</i>	Ponderosa pine	<i>Pinus ponderosa</i>
Biscuitroots	<i>Lomatium spp.</i>	Ponderosa pine	<i>Pinus ponderosa</i>
Black Cottonwood	<i>Populus trichocarpa</i>	Pricklypear	<i>Opuntia polyacantha</i>
Black hawthorn	<i>Crataegus douglasii</i>	Quaking Aspen	<i>Populus tremuloides</i>
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	Red-osier dogwood	<i>Cornus stolonifera</i>
Bottlebrush Squirreltail	<i>Elymus elymoides</i>	Rough fescue	<i>Festuca campestris</i>
Buckwheats	<i>Eriogonum spp.</i>	Gray Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Cheatgrass	<i>Bromus tectorum</i>	Russian Thistle	<i>Salsola kali</i>
Common snowberry	<i>Symphoricarpos albus</i>	Sand dropseed	<i>Sporobolus cryptandrus</i>
Currant	<i>Ribes spp.</i>	Sandberg bluegrass	<i>Poa sandbergii</i>
Diffuse Knapweed	<i>Centaurea diffusa</i>	Sedges	<i>Carex spp.</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>	Smooth brome	<i>Bromus inermis</i>
Fleabane	<i>Erigeron spp.</i>	Smooth sumac	<i>Rhus glabra</i>
Grand Fir	<i>Abies grandis</i>	Spotted Knapweed	<i>Centaurea maculosa</i>
Green Rabbitbrush	<i>Chrysothamnus viscidiflorus</i>	Sulfur Cinquefoil	
Idaho fescue	<i>Festuca idahoensis</i>	Tall Tumblemustard	<i>Sisymbrium altissimum</i>
Junegrass	<i>Koeleria spp.</i>	Red Three-awn	<i>Aristida longiseta</i>
Kentucky bluegrass	<i>Poa pratensis</i>	Thurber needlegrass	<i>Stipa thurberiana</i>
Lupines	<i>Lupinus spp.</i>	Water Birch	<i>Betula occidentalis</i>
Medusahead	<i>Taeniatherum caput- medusae</i>	Western juniper	<i>Juniperus occidentalis</i>
Milkvetches	<i>Astragalus spp.</i>	Willows	<i>Salix spp.</i>
Mountain alder	<i>Alnus tenuifolia</i>	Woods' rose	<i>Rosa woodsii</i>
Netleaf Hackberry	<i>Celtis reticulata</i>	Yellow Starthistle	<i>Centaurea solstitialis</i>
Nootka rose	<i>Rosa nutkana</i>	Serviceberry	
Nutkana rose	<i>Rosa nutkana</i>	ladyfern	<i>Athyrium filix-femina</i>
Pioneer violet	<i>Viola glabella</i>	field horsetail	<i>Equisetum arvense</i>
alpine leafybract aster	<i>Aster foliaceus</i>	pinegrass	<i>Calamagrostis rubescens</i>
cow parsnip	<i>Heracleum maximum</i>	Geyer's sedge	<i>Carex geyeri</i>
skunkcabbage	<i>Lysichiton americanus</i>	Ross' sedge	<i>Carex rossii</i>

arrowleaf groundsel	<i>Senecio triangularis</i>	long-stolon sedge	<i>Carex inops</i>
stinging nettle	<i>Urtica dioica</i>	blue wildrye	<i>Elymus glaucus</i>
California false hellebore	<i>Veratrum californicum</i>	Idaho fescue	<i>Festuca idahoensis</i>
American speedwell	<i>Veronica americana</i>	rough fescue	<i>F. campestris</i>
pondweed	<i>Potamogeton spp</i>	needlegrasses	<i>Stipa comata, S. occidentalis</i>
water weed	<i>Elodea spp.</i>	duck potato	<i>Sagittaria spp</i>
duckweed	<i>Lemna spp.</i>		

**Table 5.12. Fish and Wildlife species mentioned in the text**

<b>Common Name</b>	<b>Scientific name</b>	<b>California quail</b>	<b>Calipepla californicus</b>
Steelhead	<i>Oncorhynchus mykiss</i>	Mountain quail	
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Chukar	
Coho salmon	<i>Oncorhynchus kisutch</i>	Hungarian partridge	
Bull trout	<i>Salvelinus confluentus</i>	Ruffed grouse	
White basin sturgeon	<i>Acispenser transmontanus</i>	Blue Grouse	
Pacific Lamprey	<i>Lampetra tridentata</i>	Peregrine falcon	<i>Falco peregrinus</i>
Sharp-tailed Grouse	Typan	White-headed woodpecker	<i>Picoides albolarvatus</i>
Mountain Quail		Flammulated owl	<i>Otus flammeolus</i>
Rocky Mountain Bighorn sheep		Grasshopper sparrow	<i>Ammodramus savannarum</i>
California Bighorn sheep		Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>
Mule Deer		Yellow warbler	<i>Dendroica petechia</i>
Whitetailed Deer		American beaver	<i>Castor canadensis</i>
Rocky Mountain elk	<i>Cervus canadensis</i>	Great blue heron	<i>Ardea herodias</i>
turkey			



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