DRAFT

GAME MANAGEMENT PLAN

July 2003 – June 2009

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

_____ _____

Director, Washington Department of Fish and Wildlife **Date**

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This Program Receives Federal Aid in Wildlife Restoration, Project W-96-R, Game Surveys.

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TABLE OF CONTENTS

Appendices

Game Management Plan
Executive Summary

This plan will guide the Washington Department of Fish and Wildlife's management of hunted wildlife for the next six years. The focus is on harvest management (hunting) and those factors that have the greatest effect on game populations. The history of this country and the state of Washington sets the stage for current wildlife management philosophy and the legacy of wildlife conservation provided by hunters. Hunting and hunters will continue to play a major role in wildlife conservation and management in Washington's future.

Washington's citizens played a very strong role in the development of this plan. Over the past two years, a variety of public involvement opportunities were utilized to solicit ideas. In all, several thousand citizens provided comments, edits, and priority issues. The Game Management Advisory Council, a group of citizens representing conservation and hunting organizations, landowners, and biologists was continually involved in identifying and refining issues. In addition, a very extensive public opinion survey was conducted for the Department by the private consulting firm, Responsive Management. Finally, a panel of scientists from various Universities and specialists from across the west reviewed several key issues associated with Washington's elk management and made recommendations to WDFW for changes. The information and the priority actions identified in this comprehensive process directed the development of this plan.

Chapter two of the plan addresses those priority issues identified by the public that are not specifically addressed in the species management sections in chapter three. These key issues are:

1. Scientific/professional management of hunted species
2. Public support for hunting as a management tool
3. Hunter ethics and fair chase
4. Private lands programs and hunter access
5. Tribal hunting
6. Predator management
7. Hunting season regulations
8. Game damage and nuisance

With all of these issues, it is understood that the development and implementation of strategies are conditioned first on meeting game population objectives. Science is the core of wildlife management and maintaining population objectives is what ensures accomplishment of the legislative mandate to preserve, protect, and perpetuate wildlife while maximizing recreation.

With science and the goal of sustaining game populations as the foundation, ~~M~~ many of the strategies in Chapter 2 identify education, public involvement in decisions, and subsequent monitoring of public satisfaction as priorities. Tribal hunting strategies hinge on the development of cooperative harvest management plans and increased coordination in the management of our respective hunters. Strategies to review and improve private

land programs and address game damage rely on working groups of stakeholders to develop recommendations for future actions.

Attention is given to those values identified in recent public opinion surveys for hunting preferences, predator management, and fair chase regulations. The intent is to provide intensive public education on key issues to maintain public support for hunting; address human/wildlife conflicts with very focused hunting strategies; and provide a variety of hunting opportunities to satisfy different preferences while meeting game population objectives.

The basis for all actions and issues identified in this plan is science and the professional judgment of biologists. At times the science may not be as strong as managers would like. In those instances, management actions will be more conservative to minimize the potential for negative impacts to hunted wildlife species. Chapter three focuses on the science and management of hunted species and lays out how those populations will be monitored to ensure long-term perpetuation.

Elk Management

The greatest issues for elk management stem from the recommendations of the panel of scientists and from existing elk herd plans. The most significant changes are to maintain or increase the number of mature (six points or greater) bulls that survive after hunting seasons and to increase harvest of antlerless animals. Both of these measures would be phased in over six years with expected improvements to recruitment and herd dynamics carefully monitored. Distinct population management units would be reviewed and updated to form the geographic boundaries for achieving herd objectives. From the recreational standpoint, current general season strategies would be maintained to the extent possible with a variety of hunting opportunities available and balanced within each of WDFW's seventeen districts. Spike only management would continue to be emphasized in most of eastern Washington and three point or better regulations in western Washington.

Deer Management

Recommended changes to deer management are more subtle with many ~~of the~~ factors that determine population levels beyond the control of state wildlife managers such as weather, wild fires, disease, and timber harvest. Activities that will be continued include improvement of population monitoring, mule deer research, and refinement of population model inputs such as mortality and recruitment rates. Actions will be increased for surveillance of Chronic Wasting Disease and to determine population impacts from hairslip syndrome. Hunting season changes will be similar to elk regarding maintenance of current general season strategies while ensuring that a variety of hunting opportunities are available and balanced within each of WDFW's seventeen districts. These guidelines would allow continued public debate over the current three point restriction for mule deer along the east slope of the Cascade mountains and in north central Washington as well as other preferences of hunters regarding season regulations while maintaining the minimum population objective of 15 bucks per 100 does after the hunting season.

Special Species Management
Management of bighorn sheep, mountain goats, and moose will largely continue along current paths. The greatest issues for bighorns continue to be a slow recovery of Rocky Mountain bighorns along the Snake and Grande Ronde rivers and reintroductions of California bighorns in suitable portions of their historic range. With populations of mountain goats in apparent decline and subsequent declines in hunting opportunity, a new mountain goat research project is being initiated with federal funding. Moose populations continue to expand their distribution and management will focus on better documentation of suitable range and development of appropriate levels of harvest. Carefully regulated hunting will continue for all three species by issuing limited numbers of permits and managing for high success rates in these once in a lifetime opportunities.

Black Bear Management
Strategies for black bear management will continue to be refined mainly to address concerns for public safety, pet and livestock depredation, and timber damage. Hunting opportunities will be increasingly focused on those issues with anticipated controversy over the potential expansion of spring hunts.

Cougar Management
~~Cougar management would change fairly dramatically with implementation of the plan's recommended strategies.~~ The greatest changes in cougar management would be to identify cougar reserves where hunting ~~would~~ is not currently ~~be~~ allowed and the development of harvest guidelines ~~quotas~~. ~~Once the quota was met within one of nine cougar management areas, the hunting season would be terminated.~~ Hunting seasons would be modified as needed to achieve guidelines. Similar to black bear management strategies, harvest would be focused in those areas with concerns for public safety and pet and livestock depredation. A recently initiated cougar research project will be continued to determine behavior and habitat use of cougars with an emphasis on the urban-wild lands interface.

Management of Migratory Birds
The U.S. Fish and Wildlife Service and the Pacific Flyway states, including Washington, cooperatively manage migratory birds. Management efforts will continue to emphasize protection and enhancement of declining wetland habitats and closely monitored harvest management. Refinement of harvest strategies will further emphasize regional differences and address crop damage concerns, while protecting populations of migratory birds of management concern.

Management of Upland Game Birds
Management strategies for upland game birds (pheasant, quail, and partridge) and wild turkeys will continue to target enhancing populations in suitable habitats and providing appropriate harvest opportunities for these largely non-native species. Wild turkey populations have expanded dramatically due to enhancement activities over the past twenty years. Several strategies are identified to review current management and success of introductions to determine future direction. Mountain quail are considered native to

parts of south central and southeast Washington. Strategies are identified to re-establish mountain quail in their native range in eastern Washington and to better monitor harvest in western Washington.

Pheasants continue to be the focus of upland bird management efforts. Other upland bird populations are either considered healthier such as California quail or receive less attention from hunters. Dedicated and targeted funding for pheasant management is discussed with identified strategies for changes in emphasis. Access to private lands continues to be emphasized with strategies to focus on expanding opportunities in higher quality pheasant habitat and hunting areas. Forest grouse management strategies suggest emphasis on improving harvest management and monitoring.

Management of Small Game Animals, Furbearers, and Unclassified Wildlife
Small game animal management strategies are largely focused on refining distribution information and addressing nuisance problems. Harvest and education strategies will attempt to minimize negative human-wildlife interactions.

Game Management Plan

CHAPTER 1

INTRODUCTION

The mission of the Washington Department of Fish and Wildlife~~'s~~ (WDFW) ~~mission~~ is "Sound Stewardship of Fish and Wildlife." The Department 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. Planning helps the Department prioritize actions to ensure accomplishment of its mission and mandate.

This Game Management Plan assesses current issues for hunted wildlife ~~and allows~~to help ~~the~~ WDFW to prepare for the future. The emphasis in this plan is on harvest management, and those factors that limit or significantly impact game populations in this state. This plan is dynamic. ~~and will~~It is intended to facilitate resolution of emergent issues and allow adjustment of priorities when issues are resolved. The issues and options in the plan are based on current management information. As new information becomes available they may be modified or new options developed. ~~It~~The plan identifies priorities and keeps the Department focused, directed, and accountable. This six-year plan will guide the development of the next two, three-year hunting season packages (2003-05 & 2006-08). In addition the plan will direct the development of work plans and budget proposals with implementation beginning in July 2003.

PUBLIC INVOLVEMENT

Active public involvement is important for successful planning. ~~This planning process was formally initiated i~~In May of 2001 ~~by asking~~WDFW asked the public to identify the key game management issues that needed to be addressed in the next 5 to 10 years. This was done using a series of questionnaires and by providing a place on the agency web site. Over 2500 responses were received. Based on the issues identified during this process WDFW hired a consulting firm to conduct a telephone survey of both the hunting public and the general public. This was used to get a more scientific sampling of the public. You will see references to public opinion based on this survey throughout this plan. To further refine the issues ~~that were identified,~~ WDFW ~~conducted opinion surveys and~~ also consulted with the Game Management Advisory Council, the Wildlife Diversity Advisory Council, and members of the Fish and Wildlife Commission. The advisory councils include a cross section of interested citizens who provide feedback and advice to WDFW on a variety of topics. The~~se~~ information from the surveys, polls, and consultations ~~issues~~ formed the issues this plan is based on~~basis for the development of this plan~~. Finally, the Environmental Impact Statement process is being utilized to facilitate public involvement in reviewing alternatives and setting priorities.

The main issues identified by the public were categorized into several key areas:

- Scientific/professional management of hunted wildlife
- Public support for hunting as a management tool
- Hunter ethics and fair chase

- Private lands programs and hunter access
- Tribal hunting
- Predator management
- Hunting season regulations
- Game damage and nuisance
- Species specific management issues

COMMISSION AND DEPARTMENT AUTHORITIES

~~This plan has been prepared consistent with the authorities granted t~~The Washington Fish and Wildlife Commission and Department of Fish and Wildlife are responsible for the management and protection of fish and wildlife resources in Washington State. Our legislative mandate includes the following for wildlife:

- The commission, director, and the department shall preserve, protect, perpetuate, and manage the wildlife…
- The department shall conserve the wildlife resources in a manner that does not impair the resource. The commission may authorize the taking of wildlife only at times or places, or in manners or quantities, as in the judgment of the commission does not impair the supply of these resources.
- The commission shall attempt to maximize the public recreational hunting opportunities of all citizens, including juvenile, disabled, and senior citizens. (see Title 77 Revised Code of Washington)

~~by the Washington State Legislature through Title 77 of the Revised Code of Washington (Appendix 1: Mandate of the Department and Commission). The Fish and Wildlife Commission develops regulations under their authority through the adoption of Washington Administrative Code.~~

In addition, various Commission and Department Policies and Procedures guided the development of the plan.

In particular ~~T~~the Washington Department of Fish and Wildlife Hunting Season Guideline (~~was adopted in~~ August ~~6,~~ 1999) provided further guidance for this plan: ~~as follows:~~

"Hunting seasons and regulation recommendations should be based on good science. When biological information is lacking or insufficient, management decisions should be conservative to ensure protection of wildlife resources. At no time should decisions favor income to the agency or recreation over protection of wildlife populations.

1. *In general, hunting seasons and game management units should be easy to understand while maintaining hunting opportunity and management options.*
2. *Continuity in hunting seasons over time is highly valued by the public, therefore Department recommendations for significant changes to seasons should be based on resource or management need.*

3. *Hunting season establishment shall be consistent with the Hunting Co-Management Guidelines between WDFW and Tribes.*
4. *Hunting seasons should be consistent with species planning objectives and provide maximum recreation days while achieving population goals.*
5. *A three year season setting process should be maintained which will provide consistent general seasons from year to year with annual changes in permit levels to address emergent resource concerns; natural disasters; and to meet requirement of federal guideline changes; etc.*
6. *Substantial public involvement and timely opportunity to comment must be provided for 3-year season recommendations and must be in compliance with state's Regulatory Reform Act.*
7. *Public involvement for annual permit season setting shall include at a minimum, a standard written comment period and one public meeting where comments will be considered.*
8. *Provide separate deer and elk general season recreational opportunities for archers, muzzleloaders, and modern firearm hunters.*
9. *Special deer and elk permit hunt opportunities shall be allocated among three principal user groups (archery, muzzleloader and modern firearm) using the approved formula of success/participation rate.*
10. *Weapon and hunting equipment restrictions should be easy to understand and enforce, maintain public safety, protect the resource, and allow wide latitude for individuals to make equipment choices.*
11. *Enhanced general season considerations, special access opportunities, and other special incentives should be developed for disabled, Advanced Hunter Education (AHE) graduates, youth, and hunters 65 and older rather than special permit hunts. AHE incentives should return to the program's original intent, which was to address private lands, and associated hunter ethics issues. Disabled hunter opportunities should emphasize equal access consistent with the Americans With Disabilities Act.*
12. *Private landowner hunting issues such as season length, damage control, and trespass should be given consideration when developing hunting season recommendations.*
13. *Standardize furbearer regulations that provide trapping opportunity and address damage control.*
14. *Establish migratory bird and small game regulations to provide maximum hunting opportunity considering federal guidelines, flyway management plan elements, and Department management objectives.*
15. *Hunting season closures and firearm restrictions should be based on resource conservation and public safety.*
16. *Maintain a high quality goat, sheep, and moose permit hunting opportunity consistent with resource availability. "*

~~HISTORICAL~~ BACKGROUND AND SETTING

NATIVE AMERICANS

The State of Washington has been inhabited by Native Americans for at least 9,000 years. The Cascade mountain range splits Washington State into two very distinctive environments: the dry conditions of the east and the much wetter, rain forest areas of the west. Native Americans adapted to these different conditions and evolved into two distinct patterns. The Pacific coastal Indians inhabited a land of plenty with an abundance of fish, shellfish, roots, berries, and game. While Native Americans east of the Cascades also had access to salmon and steelhead returning up the Columbia River system, they depended more on game and other food sources.

In 1853, Isaac I. Stevens was named the first Territorial Governor of the new Washington Territory. He was also appointed Commissioner of Indian Affairs, and negotiated treaties between Pacific Northwest tribes and the United States of America to pave the way for settlement and assimilation of Native Americans into non-Indian society. The treaties established a number of reservations for the Indian people, and in exchange the tribes ceded much of their territory to the U.S. government. The treaties and associated tribes are shown in Table 1.

The tribes that signed the treaties retained certain rights and privileges. For example, Article 3 from the Medicine Creek Treaty with the Nisqually, Puyallup, Squaxin Island, and Muckleshoot Tribes states:

> *The right of taking fish, at all usual and accustomed grounds and stations, is further secured to said Indians in common with all citizens of the Territory, and of erecting temporary houses for the purpose of curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses on open and unclaimed lands: Provided, however, that they shall not take shellfish from any beds staked or cultivated by citizens, and that they shall alter all stallions not intended for breeding-horses, and shall keep up and confine the latter.*

Washington State courts have interpreted this treaty language to mean that treaty tribes can hunt within the boundaries of the area ceded to the federal government by their treaty, or in areas of traditional use, on open and unclaimed lands that have not been put to a use that is inconsistent with hunting. As part of this ability, tribes are responsible for the management of their own hunters and hunting activities, on and off-reservation.

Not all of the tribes signed treaties with the government. Several of these tribes have reservations designated by presidential proclamation. These include the tribes of the Colville, Spokane, and Kalispel reservations in eastern Washington, and the Chehalis and Shoalwater reservations in western Washington. Tribal hunting rights for these tribes are typically limited to areas on the reservation, or in the case of the Colville tribe to areas that were formerly part of the reservation. There are additional tribal groups that are recognized by the federal government, but have no reservation or tribal hunting rights.

Since tribal and non-tribal hunters impact the wildlife resource over much of the state, it important that WDFW and the tribes work cooperatively to develop management strategies that can meet the needs of both. This process is complicated by the fact that tribal subsistence and ceremonial hunting and state recreational hunting are two very different philosophies steeped in different traditions and cultural heritages (McCorquodale 1997). This means that both sides have to work very hard to understand and appreciate other views.

Tribal governments take an active role in the management of wildlife resources. They typically have a tribal hunting committee that meets to develop regulations and management strategies. Many tribes have hired biologists, or have access to biological staff that can advise them on the development of management approaches. Tribes have taken the lead in several areas on research projects to gather the information that is needed to better manage wildlife resources. WDFW and various tribes are working together to develop herd plans for key wildlife populations. WDFW is also working cooperatively with tribes to rebuild or augment populations that are below desired levels.

Table 1. Treaties between the United States of America and Northwest Indian Tribes.

Treaty	**Indian Tribes**	**Location and Date**
Treaty with the Yakamas	Yakama confederated tribes and bands	Camp Stevens, Walla Walla Valley June 9, 1855
Treaty with the Walla Wallas	Walla Walla, Cayuse and Umatilla tribes and bands	Camp Stevens, Walla Walla Valley June 9, 1855
Treaty of Olympia	Quinault, Hoh, and Quileute	Qui-nai-elt River –Jan. 25, 1856 Ratified March 8, 1859 Proclaimed April 11, 1859
Treaty of Point No Point	Jamestown S'Klallam, Port Gamble S'Klallam, Lower Elwha S'Klallam, Skokomish	Point No Point, Suquamish Head Jan. 26, 1855 Ratified March 8, 1859 Proclaimed April 29, 1859
Treaty of Point Elliot	Lummi, Nooksack, Stillaguamish, Swinomish, Upper Skagit, Suquamish, Sauk Suiattle, Tulalip, and Muckleshoot	Point Elliott January 22, 1855 Ratified March 8, 1859 Proclaimed April 11, 1859
Treaty with the Nez Perces	Nez Perce' Tribe	Camp Stevens, Walla Walla Valley June 11, 1855
Treaty of Neah Bay	Makah	Neah Bay January 31, 1855 Ratified March 8, 1859 Proclaimed April 18, 1859
Treaty of Medicine Creek	Nisqually, Puyallup, Squaxin Island, Muckleshoot	Medicine Creek December 26, 1854 Ratified March 3, 1855 Proclaimed April 10, 1855

EUROPEAN SETTLEMENT

During the early European settlement of North America, hunting was primarily a subsistence activity (Organ and Fritzell 2000). The same was true for the ~~earliest~~ early immigrants to the Washington Territory ~~of Washington~~. Hunting was also used to eliminate animals that posed a

threat to humans or their livelihood. Hunting eventually became a profitable commercial venture promoted initially by the fur trade and later for food, clothing, and jewelry. ~~With the settlement of the state and establishment of a governing body, laws were enacted to protect the wildlife resources from indiscriminate takings.~~ Conflicts between market hunters and sport hunters began to occur by the mid 1800s and nationally some influential sportsmen's organizations were formed (Trefethen 1972).

During the 19th century, hunting changed from mostly a subsistence activity to a commercial one, and then to the beginnings of a leisure activity. At the same time, wildlife habitats were being fenced, plowed, burned, developed into towns, and cut by roads and rails (Madson and Kozicky 1971).

By the late 1800s~~,~~ there was a new movement of sportsmen and other conservation minded people. ~~, were led by~~ Theodore Roosevelt led a social movement that pressed for an end to commercial traffic in wildlife and for government oversight of wildlife conservation (Reiger 1975, Warren 1997).~~who introduced a new thought, "conservation through wise use" (Madson and Kozicky 1971).~~ Roosevelt~~-~~ introduced a new thought, "conservation through wise use" (Madson and Kozicky 1971).~~led a social movement that pressed for an end to commercial traffic in wildlife and for government over sight of wildlife conservation (Reiger 1975, Warren 1997).~~ It was also the foresight of President Roosevelt that was responsible for the establishment of the U.S. Forest Reserves (Service) and the creation the National Wildlife Refuges. His legacy of public lands is in place today, more important than ever before, as strongholds of fish and wildlife in Washington State and the Nation.

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In 1928, the American Game Conference, chaired by Aldo Leopold, formed a committee on Game Policy. During this period wildlife conservation programs focused on laws and enforcement, but a formal wildlife management profession did not exist. The report (Leopold 1930) described the problem of declining wildlife~~. The committee~~and recognized the need for scientific facts concerning game species management. The committee ~~and~~ called for the reorganization of state game departments and outlined the steps needed to reverse the trend (Madson and Kozicky 1971, Organ and Fritzell 2000).

"The report strongly urged that conservation be taken out of politics, that fish and game funds be earmarked for fish and game programs, and that every effort be made to build competent, stable, adequately-financed conservation departments (Madson and Kozicky 1971)*."*

Funding for key elements of the (government) agencies was linked to earmarked fees paid by hunters. Most ~~significantly~~significant were, the Migratory Bird Hunting Stamp Act (1934)~~,~~

which funded National Wildlife Refuges, and the Federal Aid in Wildlife Restoration Act (1937), which provided federal funding for state agencies.

As the population of Washington increased, laws were enacted to protect the wildlife resources. The Legislative Assembly of the Territory of Washington enacted the first laws concerning wild animals within the territory in 1863. On January 19, 1863, tThe first game species law was passed givingallowed the, *"county commissioners of each and every county authority, if they think proper, to offer a bounty for killing wild animals."* Although a few early laws were passed to preserve and protect game, they were largely ineffective and not enforced. In 1890, the Governor was given authority by the legislature to appoint game wardens in each county.

In 1901 the State Legislature passed the first hunting license requirement allowing counties to issues licenses for with a fee of $1.00 for residents and $10.00 for non-residents issued by the county. - In addition, any person killing a male elk was required to pay an additional sum of $20. Thus game management in Washington entered the twentieth century with the beginnings of a user-fee hunting program to be administered by the county. Appendix 2 shows the cost of hunting licenses and deer and elk tag fee changes since 1901.

The passage of the Pittman-Robertson Federal Aid in Wildlife Restoration Act specified that an eleven percent excise tax on sporting arms and ammunition must be maintained in a separate fund in the Treasury, and allocated annually to the states. In order for the states to participate, each state was required to pass enabling legislation and adhere to the provisions of the Act. This , which required that all hunting license fees be dedicated to use by the state game department. The enabling legislation was passed by the Washington State legislature and signed into law in 1939. This was the beginning of modern wildlife management.

NATIVE AMERICANS

The State of Washington has been inhabited for at least 9,000 years. Native American civilization in Washington evolved into two distinct patterns, with the Cascade mountain range generally dividing the two cultures. The Pacific coastal Indians inhabited a land of plenty with an abundance of fish, shellfish, roots, berries, and game. They built homes of wood and their lives were mostly sedentary owing to the availability and abundance of natural resources for their subsistence (Pryor 1997).

While Native Americans east of the Cascades also had access to salmon and steelhead returning up the Columbia River system, they depended more on game and other food sources. The horse was introduced to Washington in the early part of the eighteenth century and thereafter the inland Tribes became mostly nomadic. Their housing was mostly portable and their nomadic travels were of necessity in search of food (Pryor 1997).

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ceded their territory to the government. The tribes that signed the treaties retained certain rights and privileges.

For example, Article 3 from the Medicine Creek Treaty with the Nisqually, Puyallup, Squaxin Island, and Muckleshoot Tribes states: *The right of taking fish, at all usual and accustomed grounds and stations, is further secured to said Indians in common with all citizens of the Territory, and of erecting temporary houses for the purpose of curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses on open and unclaimed lands: Provided, however, that they shall not take shellfish from any beds staked or cultivated by citizens, and that they shall alter all stallions not intended for breeding horses, and shall keep up and confine the latter.*

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THE NATURAL ENVIRONMENT

Washington has a rich diversity ~~in~~ of flora. Forests cover about half of the state's land area. On the Olympic Peninsula there is a temperate rain forest consisting of spruce, cedar, and hemlock with an understory of ferns and mosses. The areas surrounding the Puget Sound and the western slopes of the Cascade Range ~~is~~ are a forest consisting mostly of cedar, hemlock, and Douglas fir with an understory of shrubs. On the eastern slopes of the Cascades and the Blue Mountains of southeastern Washington ponderosa pine, Douglas fir, Grand fir, Western hemlock, and sub alpine fir are the major species. The forests in these areas are more open with an understory of grasses and shrubs especially at the lower elevations. Across the northeast region of the state the forest is primarily made up of Douglas fir, Western red cedar, Western hemlock and sub-alpine fir. The forests of the state have been intensively logged and contain second and third growth forest plantations of mostly Douglas fir (Access Washington ~~Department of Information Services~~ 2002).

In the Columbia Basin the native vegetation is drastically different from the forested lands of the state, owing to the dryer and hotter climate of the region. The pristine vegetation consisted of shrubs and grass (shrub steppe). With the ~~advances in~~introduction of agriculture and livestock grazing in the mid-1800 the vegetative character of the land took on a new look. Overgrazing by sheep, cattle and horses was evident by 1885. Lands were cleared for intensive farming, both dry land and irrigated. On the prairies of the Palouse the conversion of all arable land was nearly complete by 1910 (Buchner 1953). Other lands are continuing to be converted to the growing of agricultural crops or converted to urban uses (AccessWashington ~~Department of Information Services~~ 2002).

The introduction of non-native weed species by imported livestock, contaminated commercial seeds, and other sources have resulted in a dramatic change in the landscape and the productivity of the land for commercial use as well as intrinsic values. In Washington invading weeds have adversely impacted native wildlife habitat and domestic livestock rangelands (Access Washington ~~Department Information Services~~ 2002).

THE SOCIAL ENVIRONMENT

The evolution of the human social environment and its impact on the natural environment has been dramatic from pre-settlement to the present. Some game species have benefited from this transition while others have not.

~~In~~Between 1950 - 1960 60% of Washington's human population ~~residing~~ resided in incorporated areas ~~in 1950 and 1960 represented 60 percent of the total~~. In 1990 ~~this has shifted and now approximately~~only 52 ~~percent~~ % live in incorporated ~~versus 48 percent in unincorporated areas~~ (AccessWashington ~~State Data Book 1999~~2002). This movement of people into rural and formerly undeveloped lands has significant impacts on wildlife habitat and abundance. ~~With expanding human population and development this trend will continue to impact wildlife and wildlife habitat.~~

Washington has the second largest human population of the western contiguous states but is the smallest in size. At the end of 2001 the population was estimated at 5,974,900 making it the 15th most populous state in the union. The long-term outlook in human population for the state of Washington is continued growth, with ever increasing impact to the natural resources of the state.

The ten largest cities are almost exclusively on the west side of the state, with Spokane and Yakima the two representatives from the east side. The Interstate Highway 5 corridor is the area of highest human population and where the greatest changes to the natural environment have taken place. Seattle is the largest city in the state with over a half million people. The cities of Spokane, Tacoma, Vancouver and Bellevue are all over 100,000 in population.

INDUSTRY

Prior to settlement, the Pacific Northwest region was important for its fur-trapping industry. With the completion of the Northern Pacific Railroad in 1886 and Great Northern Railroad in 1893, Washington's economy grew. Agriculture and the lumber industry developed in western Washington and eventually to the east. A transportation network was a key to the growth of the state's economy (AccessWashington ~~State Department of Information Services~~ 2002).

During the twentieth century the construction of dams on the Columbia and Snake ~~Rivers~~ rivers provided abundant, cheap electrical power, resulting in the rapid growth of manufacturing. Dams for agricultural irrigation also advanced farming in the dryer Columbia Basin. Farms in western Washington are small, and dairy products, poultry, and berries are the primary commodities produced. The eastern side of the Cascade Range has larger farms, and small grains such as wheat and barley, potatoes, fruit, and vegetables are the primary crops.

According to the Economic Research Service of the U.S. Department of Agriculture the 2000 Census of Agriculture showed that Washington farmland acreage totaled 15.7 million or about 35.6 ~~percent~~% of the total land area. Farmlands are highly valued wildlife habitats for which the landowner is not often recognized. Game species such as pheasants, quail, deer, and waterfowl are attracted to private lands for their abundance of food and water.

Recent changes in natural resource policies and implementation of new ecosystem management strategies have affected the timber industry, the people of Washington, and the Northwest. The timber harvest changes in Washington between 1989 and 1994 have been substantial (Table 2), (Dodge 2001). The changes in forestry practices are necessary for the survival of many species that require older, larger trees. However there may be~~may have~~ serious impacts to the future amount and quality of deer and elk forage and ~~the~~ population numbers over the long term.

Table 2. Timber harvest changes in Washington between 1989 and 1994.

Ownership	1989 harvest [a]	1994 harvest [a]	Percent Decrease
Private	4,027,278	2,965,848	-26.4
Public	1,929,039	592,045	-69.3
Total	5,956,317	3,557,893	-40.3

[a] in thousand board feet

LAND USE AND OWNERSHIP

~~Public lands:~~ The total land area of the state is 45.9 million acres. Out of this total 2.6 million acres are aquatic lands and 43.3 million acres are uplands. The public land ownership and principal uses in the state are found in Appendix 3, (Interagency Committee for Outdoor Recreation ~~1999~~2001).

Public lands make up about 52~~ percent~~% of the state. The largest amount of public land is owned and managed by the U.S. Forest Service, representing about 41~~ percent~~% of ~~the total~~public lands. The total of all federal ownership in Washington represents about 58~~ percent~~% of public lands. State lands represent about 27% of public lands~~of the total and t~~The Department of Natural Resources is the largest manager of state lands. Local and ~~Tribal~~ tribal lands make up the rest.

Public lands are not evenly distributed across the state, because of the historical pattern of settlement and development. The largest concentrations of public lands are at the higher elevations, while the lowlands and lands associated with waterways are mostly private. The Columbia Basin in eastern Washington and the Puget Trough region on the west side are mostly in private ownership.

WASHINGTON HUNTERS

The number of licensed hunters in the state of Washington grew rapidly with the increase in leisure time and availability of game. Historical records of hunting license sales by the counties are not readily available from 1901 to 1933. From 1933 to 1953 hunting license sales show a significant increasing trend, ~~peaking~~ peaking in 1953 at approximately 445,000 state and county hunting and fishing combination licenses sold (Figure 1). The incline in hunting license sales was particularly steep following World War II.

In 1954 a separate ~~A state~~ resident hunting license was introduced in ~~1954~~ resulting in a significant drop in total licenses sold. This drop most likely reflects the number of fishers who chose not to purchase a state hunting license rather than the hunting/fishing combination license because they had no intention of hunting. If this is true, then the increasing trend in hunters actually peaked quite a few years later in 1979 with about 358,000 hunting licenses sold. Thereafter sales showed a declining trend through 1989, when 269,000 licenses were sold. Since

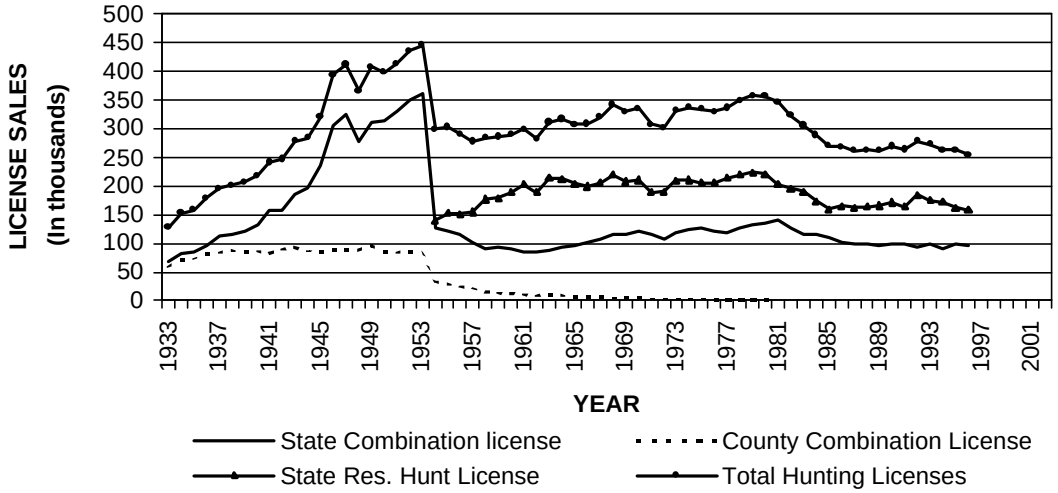


Figure 1. Washington hunting license sales and numbers, 1933-2002.

1989 there has been no clear trend.

A discussion of trends in hunting participation by Brown et al. (2000) suggests that the trend of stable to decreasing numbers of hunters continues. They predict managing wildlife damage through hunting will be increasingly challenging because of declining recruitment of hunters and declining social support for hunting. In Washington, an analysis of general season deer hunter trends does not support the predicted decline. Since 1984, deer hunting participation rates are highly variable from one year to the next and no clear trends are evident (Figure 2).

Washington hunter characteristics in 2002 are very different from a century ago. They are mostly well educated, having graduated from high school or equivalent (37%), some having additional college or trade school training (18%), college graduates (16%), and some with post-graduate or professional degrees (12%), (Duda 2002b). Washington hunters are mostly older than 45 and male dominated (93%). Waterfowl and furbearer hunter groups were almost exclusively males (Duda ~~et al.~~ 2002b). In comparing a demographic study of Washington hunters (Johnson 197~~3~~2) to the recent survey, there has not been any change in male dominance (94% males and 6% females) in the intervening 31 years. Age distribution of hunters in 1972 and 2002 are not directly comparable between the two studies, however, it is apparent the majority of hunters in 1972 were less than 29 years of age compared to 2002 data where age of respondents were predominantly over 35 years of age.

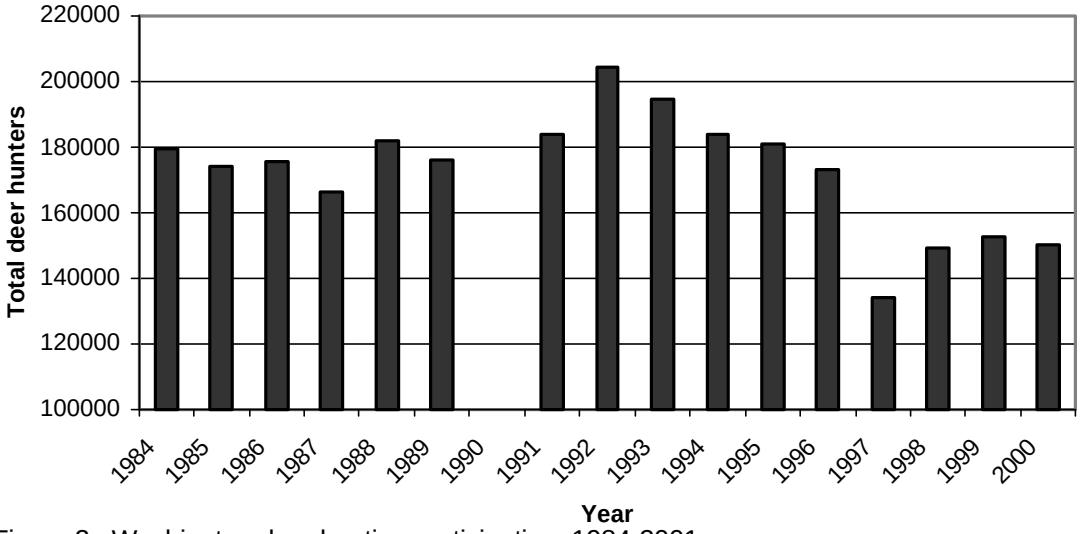


Figure 2. Washington deer hunting participation, 1984-2001.

RESOURCE ALLOCATION

During the 1970s, big game hunter numbers in Washington were at an all time high. Hunter crowding, competition among hunters, and the declining quality of the hunting experience resulted in significant hunter dissatisfaction. As a result, many hunters changed from the ~~traditional~~ use of modern firearms to primitive archery equipment and black powder muzzle loading rifles where hunting conditions were less crowded. In 1982, the Department formed a "Big Game AD Hoc committee" to address the problems facing hunters in Washington, and develop a plan of fair allocation of hunting opportunity. The committee identified three major goals as follows:

1. Reduce crowding in the more popular modern firearm hunting seasons.
2. Provide quality-hunting opportunity.
3. Provide early primitive weapon opportunity.

Following extensive debate and public involvement in 1984, the Fish and Wildlife Commission adopted a major change in deer and elk hunting. This new rule required all deer and elk hunters to select one type of gear for hunting (modern firearm, archery or black powder muzzleloading rifle). In addition all elk hunters continued to be restricted to an elk tag area.

Since 1984, modern firearm deer hunters have continued to maintain the majority of active hunters. Archery deer hunter numbers increased for the first 5 years and then stabilized. Muzzleloader deer hunters have shown a more protracted incline but appear~~s~~ to have stabilized, representing about 5 ~~percent~~% of the deer hunters (Johnson 1999).

Elk hunter numbers, on the other hand, have shown a more pronounced change in user group size. In 1984 modern firearm elk hunters represented 88 ~~percent~~%, archery hunters 9.5 ~~percent~~% and muzzleloader hunters 2.4 ~~percent~~%. In 1998 the modern firearm hunter only represented 68 ~~percent~~% of the total, archery hunter numbers doubled in percentage and muzzleloader hunters

increased six-fold. Since about 1994, the proportion of each user group (modern firearm, archery and muzzleloader elk hunter) has stabilized at about 69, 17 and 14 ~~percent~~% respectively (Johnson 1999).

Separating hunters by hunting method has successfully distributed hunting pressure, relieved congestion and increased primitive weapon opportunity. Quality hunting opportunity has been more difficult to assess.

Fair resource allocation continues to be a contentious issue with hunters. A few of the more contentious issues are related to:

1) Which group gets to hunt first?
2) How should timing of various hunting seasons between user groups be fairly established?
3) Should fairness be related to equal opportunity (days) or equal success?
4) How primitive should "primitive weapon" hunting seasons remain?

HUNTER EDUCATION/SAFETY TRAINING

Hunter education programs are in place in all fifty states reaching about 650,000 hunters annually (Duda et al. 1998). In Washington all individuals born after January 1, 1972, must show proof that they have completed a hunter education course prior to purchasing a hunting license.

The Washington Department of Game first offered ~~Hunter~~ hunter education in 1955 on a voluntary basis. In 1957, it became mandatory for all juveniles less than 18 years of age. In 1995, all individuals born after January 1, 1972 were required to successfully complete a hunter education class. In 1992 an Advanced Hunter Education Program was introduced as a voluntary program. For the last five years (1997-2001) enrollment in hunter education classes ~~have~~ has been increasing, with approximately 11,500 students taught by a shrinking voluntary corps of hunter education instructors. Currently, the demand for hunter education classes exceeds the schedule of classes offered each year (Mikitik personal communications 2002).

HUNTER ACCESS

As early as 1875 the Legislative Assembly of the Territory of Washington passed a law that prohibited persons from entering upon private lands (enclosed premises) without permission from the landowner for the purpose of hunting grouse during the open season ~~without permission from the landowner~~. This law demonstrates the early roots of conflict between hunters and landowners. Hunter access onto private lands and through private lands to public lands is a lingering issue.

~~The Washington Department of Fish and Wildlife~~WDFW has placed considerable emphasis over the years in obtaining sportsmen access to lands for the enjoyment of hunting. Currently there are several programs that are promoting hunter access. The Upland Wildlife Restoration Project provides incentives to private landowners through technical assistance, implementation of habitat enhancement strategies, and hunter management assistance. Landowners agree to open their

lands for recreational opportunity in exchange for materials and help planting and developing habitat. The Department provides free signs and assists the landowner in posting their lands as "free to hunt" or "hunt by written permission." There are over 4 million acres and over 1,300 landowners in Washington under cooperative agreement through 2001, (Johnson 2001).

The Private Lands Wildlife Management Area (PLWMA) program was developed and initiated on a trial basis in 1993. This program was designed to enhance wildlife habitat on private lands and encourage public access opportunities. Two PLWMAs were authorized in 1993, 201-Wilson Creek and 401-Champion's Kapowsin Tree Farm. A third PLWMA 600-Pysht was added in 1997.

Many changes have been made to improve the program for the private landowner as well as the public. A common criticism of this program from hunters is that public access is not adequately addressed. The value of enhanced wildlife habitat and other positive aspects of the program have yet to be fully evaluated.

There are many incentives for market-based programs on private lands; however, the major incentives are opening closed private lands to public access, protection and enhancement of wildlife habitat, economic benefit to private landowner and local economies. On the other-hand major impediments include loss of control by state agencies, potential for over-exploitation of the wildlife resource, and a potential for forced decline in participation rates because of escalating costs (Duda et al. 1998).

A survey of Washington hunters was conducted (~~Responsive Management~~Duda 2002b) to determine opinions about private land access and other private land programs. A strong majority of hunters felt that private lands were very important to wildlife and for outdoor recreation. All hunter groups surveyed felt that private land programs should provide incentives to landowners for improved wildlife habitat and allowing access onto their lands. The majority of all hunters agreed that access to private lands for hunting is important even if an access fee is charged.

Hunters are feeling the "crunch" in available hunting areas. Private lands are recognized as important to the future of hunting, especially upland game bird and waterfowl hunting. Maintaining hunting opportunities on these lands is becoming increasingly difficult and competitive. The hunter's willingness to pay landowners for hunting opportunity is a significant change from attitudes of the past.

ECONOMICS

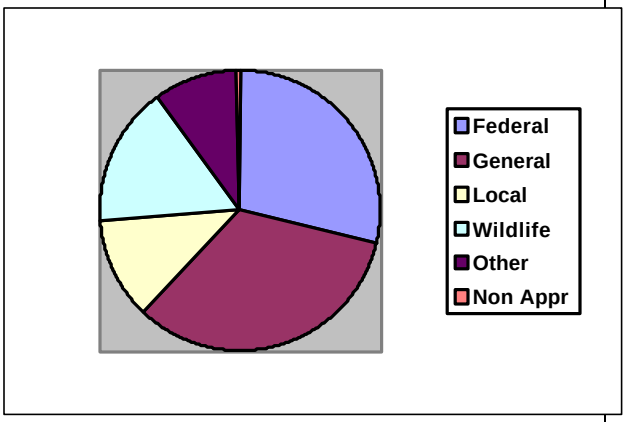
Washington hunters spent $327 million in 1996 for trip related expenses, equipment, and other expenditures primarily for hunting (U.S. Dept. of Interior et al. 1998). About 28~~ percent~~% of their expenditures were for food, lodging, transportation, 66~~ percent~~% for hunting equipment (guns, ammunition, camping), and 6~~ percent~~% for purchase of magazines, membership dues, land leasing, and licenses and permits.

The national survey reported there were 271,000 resident and nonresident hunters 16 years of age or older who hunted in Washington. These hunters spent 4.7 million days hunting in the state. The expenditures per hunter per day were $67.73 for all hunters.

WDFW's 1999-2001 Biennial Report shows an average annual increase in hunting license revenue of 1.9 million dollars over the previous ten year average. Hunting license revenue was $12.3 million in fiscal year 2000 and $14.3 million in fiscal year 2001. This increase coincides with a restructuring of licenses in 1999 and with improving deer populations after a hard winter in 1996-97.

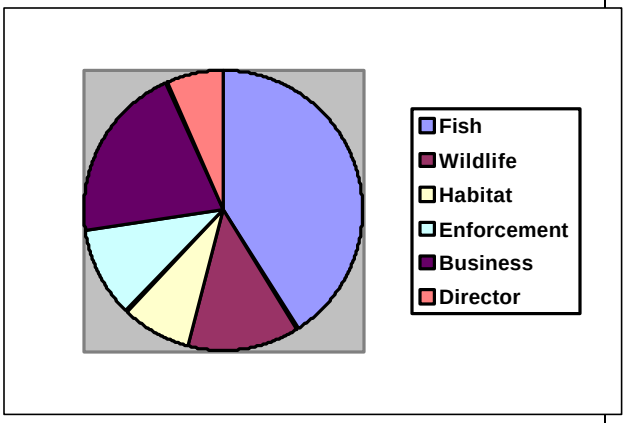
The budget for WDFW in the last biennium was made up from several sources of funds. The following chart shows the relative proportions of those funds:

Federal Funds - $78,333,088
General Funds - $92,695,990
Local Funds - $32,284,266
Wildlife Funds - $44,412,606
Other State Funds - $25,726,584
Non Appropriated - $1,394,473



There are six Programs within WDFW and their proportion of the operating budget is shown in the following chart:

Fish - $113,060,819
Wildlife - $35,631,483
Habitat - $22,606,582
Enforcement - $28,806,191
Business Services - $56,322,832
Director's Office - $18,419,100



The Game Division is one of five divisions in the Wildlife Program. The biennial budget for the Game Division is about 6 million dollars. Of that total, 1.3 million is dedicated to specific activities such as the migratory bird permit ($386,000), auction and raffle funds ($250,000), and the eastern Washington pheasant enhancement program ($670,000). Another $427,000 is from the general fund dedicated for monitoring sea ducks as part of the Puget Sound Ambient Monitoring Program. The remaining funds come from the general fund ($232,000), revenue from license sales or the wildlife fund ($2.1 million), and federal funds ($2 million), which is mostly from the Pittman-Robertson Act excise tax on sporting equipment and ammunition.

This 6.25 million dollars is the base funding for most of the activities identified in this plan except for private lands access, game damage, and law enforcement. The exceptions are funded from other Divisions or Programs within WDFW. Implementation of new activities in this plan will be dependant on additional funding and partnerships.

CHAPTER 2

GENERAL GAME MANAGEMENT ISSUES

~~Within this historical context, the priority issues identified by the public, and grounded in science, this plan will guide game species management for the next six years.~~ During the extensive public involvement process, ~~several~~ nine categories of issues were identified for WDFW to address in this plan. Eight of those issues will be dealt with in this chapter. These include scientific/professional management, public support for hunting as a management tool, hunter ethics and fair chase, private lands programs and hunter access, tribal hunting, predator management, hunting season regulations, and game damage and nuisance. Species specific management issues~~Some of the issues and the science behind the management~~ will be addressed in ~~chapter~~ Chapter ~~three~~3 ~~that deals with specific game species or groups of game species. Those issues that are not species specific will be addressed in this chapter.~~

For each of these issues we will give some brief background information stating the existing conditions, describe one or more issue statements which also decribe the significant impacts, identify one or more objectives, and lay out several strategies or measures that mitigate the issues and achieve the objectives. The goal is to provide ideas for the public to prioritize and provide comments.

SCIENTIFIC/PROFESSIONAL MANAGEMENT OF HUNTED WILDLIFE

While this issue is difficult to specifically define, the concept is very important to the public. The use of scientific information and the judgment of professionals in management decisions were rated very high by both the general public and hunters. While less important than scientific information and professional judgment, economic and social concerns were also highly rated in making management decisions. The only factor that was poorly rated was political concerns. ~~Management strategies that are related to public preferences will only be implemented if and when they meet the game population objectives identified in chapter three.~~

Issue Statement: WDFW wildlife managers and biologists are committed to developing goals, objectives, and strategies for this plan that will ensure long-term perpetuation of all wildlife. The best available science will be the basis for the continued maintenance of all endemic wildlife populations. The impacts of strategies for hunted wildlife will not significantly impact the perpetuation of other wildlife. None of the strategies or subsequent hunting season recommendations or implementation of activities will deviate from these fundamental principles. Science is the core of wildlife management, the basis for achieving the agency's mandate, and the foundation of this plan.

Objective 1: Develop agency hunting season recommendations and management actions that ensure long-term perpetuation of endemic hunted and non-hunted wildlife.

Strategies:

a. Agency staff will maintain regular contact with peer scientists and wildlife managers and consider the best available scientific information when developing strategies and recommendations for hunting seasons and management actions.
b. Providing adequate opportunity to review recommendations for regulations and significant activities from agency staff and the public, prior to implementation, will identify the major impacts of agency actions on other wildlife.
c. Significant impacts and the scientific basis for recommended actions may be "peer reviewed" by scientists outside WDFW when determined necessary by managers making the recommendations.

Issue Statement: It is obvious that while science and professional opinion are important, social and economic issues often drive public opinion, and ultimately~~,~~ management strategies and regulations. A good public involvement process is necessary for people to make up their own minds and participate in the decision-making. The key is to develop programs that achieve biological objectives and are supported by the public.

Objective ~~5~~2: To provide multiple opportunities for stakeholders to participate in development of three year regulation packages, collection of biological information, and in planning efforts for game species.

~~*Alternative*~~ *Strategies:*
a. Maintain citizen advisory councils and use them throughout the process of developing plans and regulation packages.
b. Enhance the use of the WDFW Web page to encourage public comment and ideas for regulations and priorities.
c. Conduct one public meeting in each WDFW region for statewide issues, two per WDFW region for more local issues, and provide other routine opportunities for the public to interact with WDFW staff regarding plans and three-year regulation packages.
d. Conduct a public opinion survey at least once every five years to monitor support for agency programs, planned activities, and regulations.
e. Publicize and maintain a mailing list of citizens interested in receiving copies of plans and regulations and notify those on the list as plans and season recommendations are developed.
f. Encourage public participation and comment during the Fish and Wildlife Commission meeting process.
g. Develop new opportunities for citizens to help with collection of data and interaction with biological staff.

PUBLIC SUPPORT FOR HUNTING AS A MANAGEMENT TOOL

With accelerating human population growth in Washington, a largely urban society, and two recent citizen initiatives that restricted lawful hunting or trapping techniques, many are questioning general public support for hunting as a wildlife population management tool. This issue was identified by the public as one of the most significant issues for WDFW to address in the plan.

Issue Statement: When the general public was asked a series of questions about support for hunting, it is apparent that overall support for legal, regulated hunting is very strong (82%).

However, there are some specific issues where opinions are very pronounced:

- ~~In general~~While a majority of the general public supported ~~there is less public support for~~ hunting cougar~~,~~ and black bear, ~~and~~ they did not support hunting furbearing animals, and the level of support for cougar and black bear hunting was lower than for most other game species.
- Hunting for the purpose of obtaining a trophy was clearly not supported by the general public. Hunting contests were opposed by a majority of both the general public and hunters.
- The majority of respondents from the general public did not support introduction of non-native species and were split on the release of game birds to improve hunter success. A strong majority of hunters supported both of these activities.
- Sixty four percent of the general public did not think it is ~~the~~ WDFW's role to encourage participation in hunting.~~, and while a~~A majority of hunters do think it is the Department's role, but a surprising 39~~ percent~~% disagree.
- Somewhat surprising though perhaps related to the previous finding, was that the general public~~'s lack of~~ was split between those who supported and opposed ~~for~~ providing special youth hunting opportunity, while a slight majority supported special opportunities for seniors. Hunters showed strong support for special opportunities for both youth and senior hunters.

In order to maintain public support for hunting, the Department should be sensitive to public opinion on these issues while still achieving game population objectives.

Objective ~~1~~3: By 200~~8~~6, develop regulations and management actions that are supported by the ~~increase~~ public ~~support by 10 percent~~ for ~~using~~ hunting ~~to manage~~ cougar, black bear, and furbearers ~~populations~~; management of non-native species; ~~release of game birds to improve hunter success~~; and ~~providing special~~ youth and senior hunting opportunity.

~~*Alternative*~~ *Strategies:*

a. Educate the public regarding current regulations and the rationale for them.

~~a.~~b. Conduct public outreach and ~~measure subsequent~~ determine the level of support for ~~controversial actions~~ modifying regulations. ~~prior to implementation and only implement actions that receive greater than 55% public support~~.

c. Carefully consider public support for regulations and management actions prior to developing recommendations and implementing actions.

~~b. Publicize three news stories per year that demonstrate the value and contribution of hunting and hunters related to these issues.~~

~~c. Minimize changes to controversial programs associated with these issues to maintain a low public profile.~~

~~d. Only make very gradual changes to activities associated with these issues to improve public acceptance over time.~~

~~e.~~d. Emphasize hunting opportunities for cougar, black bear, and furbearers in those instances that specifically address public safety, pet and livestock depredation, protection of threatened and endangered species, or property damage.

~~f.~~e. Develop a fact sheet and~~/or white paper~~ news articles explaining the public values for each of these issues by 2005.

Objective ~~2~~4: By 2006, ~~improve public acceptance of~~ recommend changes to regulations associated with trophy hunting and hunting contests that are supported by the public.

~~*Alternative* Strategies:~~

a. Measure the current level of public support for specific Department regulations regarding these issues. ~~Then~~

b. Conduct public outreach to determine regulation modifications that would receive support.

c. Recommend regulation modifications to the Fish and Wildlife Commission.

~~b. Completely eliminate regulation of these issues.~~

~~c. Minimize changes to regulations for trophy hunting and hunting contests.~~

~~d. Ensure that changes to hunting regulations or programs do not support or even appear to support these concepts.~~

HUNTER ETHICS AND FAIR CHASE

This issue is actually closely related to the previous one ~~one in that~~ since the public perception of hunters and hunting regulations may strongly influence support for hunting as a management tool. This is also a very significant issue to hunters as identified during the initial public involvement process.

Issue Statement: Many hunters think that the latitude to determine what constitutes fair chase belongs to the individual. They feel that the public should not determine what is fair chase for someone else. ~~One~~ Other hunters are concerned that the image and standard of ethics for hunting may be compromised particularly with ~~issue that is being increasingly debated is~~ the expanding use of technology for hunting. This is particularly evident with equipment technology. During development of the 2000–2002 hunting season package, weapon technology was extensively debated and regulations were modified for archery, muzzleloader, and modern firearm equipment. The most recent debate has been over the use of motorized waterfowl decoys, with Fish and Wildlife Commission action in 2001 that restricted the use of electronic waterfowl decoys~~.~~

Objective ~~3~~5: To develop and modify regulations for use of electronic equipment and baiting of wildlife for hunting.

~~*Alternative* Strategies:~~

~~a. Minimize restrictions and allow individual hunters the latitude to determine what equipment constitutes fair chase in their mind.~~

~~b. Allow users to determine appropriate restrictions for their weapon of choice consistent with their idea of fair chase.~~

~~c.Conduct studies (as funds are available) on harvest effects of electronic devices used for hunting and only restrict those that result in greater harvest success.~~

~~d.Restrict the use of all electronic devices for hunting purposes and conduct studies (as funds are available) on harvest effects and only allow those devices that do not result in greater harvest success.~~

~~e.Regulate season length, timing, bag limits, and other restrictions rather than regulating equipment to address increased harvest success from electronic devices.~~

~~f.~~a. Conduct public outreach and restrict those electronic devices or baiting of wildlife that receive ~~greater than 60%~~ support for restrictions regardless of whether the opposition is based on improved harvest success or ~~perception~~ understanding of fair chase.

b. Regulate season length, timing, bag limits, and other restrictions as needed to address any increased harvest success from electronic devices not restricted.

c. Develop effective regulations regarding fair chase that are understandable and enforceable.

d. Consider exceptions to these regulations for hunters with disabilities.

HUNTER BEHAVIOR/ETHICS

Another very significant issue for hunters that was identified during the public involvement process is illegal activity, and a desire for greater enforcement presence in the field.

Issue Statement: A majority of the general public thinks that a lot of hunters violate hunting laws. They feel that hunting without a license and poaching are the major violations, with shooting game out of season and hunting over the bag limit also common violations. Hunters recite these same common violations with the addition of shooting from a vehicle. The public has also indicated that hunter compliance with these laws should be 100% and that they developed their opinions from direct observation, physical evidence, and from talking with others. In addition, they support hunter refresher courses and feel that an additional training requirement would improve their opinion of hunters.

Objective ~~4~~6: To improve compliance ~~rates~~ for common violations and public ~~perception~~ opinion of hunters and hunting violations ~~rates~~ by 2008.

~~*Alternative*~~ *Strategies:*

a. Emphasize the importance of hunter compliance with regulations and public ~~perception~~ opinion of hunters in hunter education classes, hunting pamphlets, and other information provided to hunters.

b. ~~Determine current compliance rates for the most common violations, c~~Concentrate enforcement efforts on ~~those~~ the most common violations, and monitor subsequent improvements in compliance.

c. Increase the frequency of field contacts and visible presence of officers and other uniformed agency staff during hunting seasons ~~openers~~ to improve public ~~perception~~ opinion of safety and enforcement.

d. Publicize three news stories per year that emphasize the value and contributions of hunters or successful programs to improve regulation compliance.

e. Publicize improvements in hunter compliance rather than just arrests.

f. Review and simplify, clarify, or eliminate regulations that are ambiguous or confusing.

g. Re-invigorate and publicize the Advanced Hunter Education program to help address public support for additional hunter training and to improve public opinion of hunters.
h. Provide incentives for hunters to complete additional training or refresher courses.

PRIVATE LAND PROGRAMS AND HUNTER ACCESS

The vast majority of hunters feel that private lands are important to wildlife and to outdoor recreation. They agree that maintaining the economic viability of farming, timber production, and controlling urban sprawl are vital for conserving the agricultural and rural landscape so important to wildlife. Hunters also support private lands programs that provide incentives, including access fees, to landowners in exchange for improvements of wildlife habitat and access onto their lands for outdoor recreation (Duda 2002b). This was identified as a major issue to hunters during the public involvement process leading to this plan. WDFW currently manages two programs, the Upland Wildlife Restoration Program and the Private Lands Wildlife Management Area (PLWMA) Program that address wildlife habitat and hunter access to private land.

Issue Statement: Even with these existing WDFW programs, hunters and landowners would like to see more. The major concerns for hunters are due to recent closures of private industrial timberlands in southwest Washington; a lack of access for waterfowl hunting in western Washington; limited pheasant hunting access in eastern Washington; extensive road management systems in south central Washington; and a lack of general information about how to access public lands and WDFW ~~program~~ lands.

Objective ~~6~~7: To determine hunter and landowner preferences for private land programs that address landowners needs and increase lands available for hunter access by ~~15~~25%.

~~*Alternative*~~ *Strategies:*
a. Publicize current programs better through the agency Web page, direct mail, the hunting pamphlet and other hunter publications.
b. Identify the current level of hunter access to private land through a landowner survey and determine incentives that would be effective in encouraging landowners to provide greater levels of hunter access.
c. Host a symposium in 2003 with experts from across the western states to gather ideas about what types of programs are effective in other states~~.~~ and to develop the key attributes necessary for a successful hunting access program.
d. ~~Conduct a Washington hunter/landowner workshop in 2004 to develop the key attributes necessary for a successful hunting access program.~~
e. Form a task group of stakeholders to develop an implementation plan by November 200~~4~~5, that includes recommendations for habitat and access requirements, addresses landowner needs, identifies a funding mechanism, includes draft legislation, and has strong public, hunter, and landowner support.

ROAD MANAGEMENT

While there is a need for public access for hunting, especially on private lands, there is also a need to control access during critical times of the year to protect wildlife resources. Road management has been recognized as an important means of controlling human disturbance by limiting vehicular access seasonally or permanently. Studies have shown that limited-vehicular access reduces human disturbance that results in reduced movements and poaching of elk, Cole et al. (1977), Smith et al. (1994), Phillips and Alldredge (2000).

Washington hunters consider road closures as important for controlling hunter numbers and impacts to wildlife. A majority of hunters surveyed (>70%) considered road closures important in reducing illegal activity and supported the Green Dot Cooperative Road Management System (Duda 2002b). A very high percentage also supported periodic or temporary hunting closure areas, road closures to protect game during critical periods of the year, and total access closure areas (refuges) to maintain numbers of game species in local areas.

Issue Statement: There is strong overall support for road management systems that are designed to help manage game populations as well as protect fish and wildlife habitat. WDFW recognizes the need to balance hunter access with wildlife and habitat protection. Some systems are more effective than others. Voluntary systems such as the Green Dot System require high levels of enforcement to be effective. Public comments and wildlife managers responsible for ~~dealing with~~ the issue of road management were mostly directed at southwest, northeast, and central Washington. In addition, with expanding regulations on road access, hunters are increasing use of off road vehicles (ORV) to gain motorized access. Indiscriminant ORV use can cause environmental damage and circumvents the intent of road access restrictions.

Objective ~~7~~8: Develop road management plans in southwest and northeast Washington and in the central Cascades.

~~Alternative~~ Strategies:

a. Because resources are limited, develop plans that focus on the Yakima, Colockum, Selkirk, Willapa Hills, and Mount Saint Helens areas that reduce active road densities to target levels, yet maintain well-distributed access for hunting.
b. Expansion of private lands incentive programs would receive emphasis in these geographic areas.
c. Gated and barrier type closures would be emphasized rather than voluntary systems.
d. Incorporate access exceptions for hunters with disabilities where possible and consider the needs of senior hunters.

~~d.De-emphasize road management in areas dominated by private lands (e.g., Willapa Hills and parts of the Mount Saint Helens area).~~

~~e.De-emphasize road management in forested areas and allow new Forest and Fish regulations (salmon recovery) to address road management.~~

Issue Statement: While Washington hunters supported most of the concepts and rationale for road management issues, significant concern continues to be expressed regarding the closure of specific roads and loss of hunting access. Many road closures on private lands are for reasons other than game management and in some cases have resulted in extensive access restrictions

over large areas. These concerns are especially evident in the Yakima area and in northeast and southwest Washington.

Objective ~~8~~9: Develop a plan that ~~I~~identifies~~y~~ the current level of hunter acceptance and understanding of road closures and resolves concerns, ~~that~~ while addressing the resource needs in the Yakima area ~~and improve as appropriate~~.

~~*Alternative* Strategies:~~
a. Survey hunters that utilize the Yakima area in 2004 to determine the current level of understanding and acceptance of road closures. Determine key areas of concern for hunters and develop a plan ~~to~~ that addresses those concerns.
b. Develop at least three news articles by 2005 that explain the rationale and demonstrate the value of road closures in the Yakima area.
c. Publish a comprehensive article for the 2003 Game Trails publication.
d. Develop and provide fact sheets at the Oak Creek viewing area, Regional and District offices, and hunter check stations.
e. Develop an electronic slide show presentation and use annually (2003-05) during presentations to hunting organizations.

Objective ~~9~~10: Maintain hunter access opportunities on private industrial timberland in northeast and southwest Washington.

~~*Alternative* Strategies:~~
a. Inventory current access levels and distribution including landowner surveys.
b. Determine landowner concerns and ways to alleviate problems they experience.
c. Educate hunters about landowner concerns and facilitate the development of partnerships to alleviate problems and open up access.
d. Coordinate with other private lands and hunter access strategies and programs.
e. The priority for expansion of WDFW access programs ~~should be~~is in southwest Washington.

TRIBAL HUNTING

Tribal hunting has seemed to become a more contentious issue ~~I~~in the past ten years ~~tribal hunters have been increasingly exercising their treaty rights to hunt game~~. ~~They~~ Native people have their own unique tradition, culture, and values related to hunting game and gathering traditional foods and medicines. Many tribes also ~~have a special status due~~ +reserved rights to hunting and gathering ~~to~~in the language of the treaties signed with the United States. These rights ~~that~~ allow~~s~~ tribes to manage their hunters, often with different seasons and rules than non-tribal hunters. This has lead to frustration, anger, and misunderstanding on the parts of both tribal and non-tribal ~~hunters~~citizens. At the same time limited state-tribal coordination has made it difficult for tribal and non-tribal wildlife managers to do their jobs of managing harvest and protecting game populations.

Issue Statement: Non-Indian hunters often do not understand the treaty rights issues, leading to anger and frustration.

Objective 11~~0~~: Improve public understanding and acceptance of treaty hunting rights.

~~Alternative~~ Strategies:

a. Develop an outreach package that can be sent to citizens concerned about tribal hunting.
b. Use Wild About Washington to highlight tribal rights and tribal management activities.
c. Develop cooperative management programs (see below) that can demonstrate state and tribal management programs.
d. Use links from the WDFW website to highlight tribal research, regulation packages, and harvest reporting.
e. Include a segment on tribal hunting rights and tribal management activities as part of the Hunter Education Program.
f. Include a description about tribal hunting rights and wildlife management programs in the hunting pamphlet.

Issue Statement: There is an increasing need to coordinate treaty and non-treaty hunting and wildlife management.

Objective ~~11~~12: By 2007, ~~develop~~ complete at least five additional coordinated tribal/state harvest management plans for deer, elk, and/or cougar populations subject to both tribal and non-tribal hunting.

~~Alternative~~ Strategies:

a. Use existing herd plans to develop coordinated harvest management plans for elk herds or other game species.
b. Determine level of tribal interest and availability and ~~P~~pick a key population in each treaty area as a starting place to build working arrangements and processes for developing coordinated harvest management plans.
c. Build upon existing working agreements where they exist to move the process forward as quickly as possible.
d. Pick key populations of concern where management and conservation are critical issues as early plans to develop.

PREDATOR MANAGEMENT

~~This~~ Predator management is one of the most contentious issues WDFW will face in the next few years. As mentioned previously, there is less support for hunting cougar and black bear than most other game species. In addition, a citizen initiative was passed in 1996 that restricted the use of hounds and baiting to hunt cougar and black bear. The passage of this initiative and subsequent debate, mainly centered on concerns for public safety and livestock depredation from cougar, has resulted in a ~~dramatic~~ polarization of public opinion regarding predator management. The legislature modified the initiative in 2000 to allow the use of hounds to hunt cougar to address public safety in limited areas.

Washington ~~is blessed with~~has healthy populations of both cougar and black bear and at times they come into conflict with humans. This conflict appears to be increasing, at least partly in response to the growing human population. Managing this conflict and maintaining an

appropriate balance between predator and prey populations will be a very significant challenge over the next several years.

Issue Statement: Both the general public and hunters showed strong support for managing predator populations to address human safety, protect endangered species, and to prevent the loss of livestock and pets. There was a significant divergence of opinion between the general public and hunters when asked about managing predators to increase game populations. Hunters showed strong support, though less than for all other purposes, and the general public did not support reduction of predators to increase game populations.

Objective 13~~2~~: While sustaining predator populations in balance with prey species and considering public safety and social tolerance, maintain public support ~~(greater than 55%)~~ for managing predator populations.

~~Alternative~~ Strategies:

a. Focus hunting and harvest efforts for predators to those areas and situations that address human safety, protection of pets and livestock, and recovery of listed species (specific management proposals in species sections of this plan).

~~b.Conduct extensive public involvement and education prior to recommending focused predator-hunting activities designed to address recovery of locally weak game populations. Ensure greater than 55% local public support prior to implementing actions.~~

~~c.Maintain current predator hunting programs and minimize changes.~~

~~d.~~b.Incorporate focused predator harvest activities using licensed hunters while ensuring healthy predator populations.

~~e.~~c. Make any changes to current predator hunting on a gradual basis to monitor success prior to expanding and to increase public support.

Issue Statement: Black bear damage to commercial timber in the spring is expensive and significant to timber managers. Forest owners have the legal authority to protect their forests from documented damage by killing black bears with a permit from WDFW. The general practice is to contract with hound hunters and kill bears in areas receiving damage (this was exempt from the initiative). Contractors (using hounds) kill over 100 black bears each spring to control damage. However, the public does not support reducing the number of black bears to prevent timber damage, opposes the use of hounds, and also opposes spring hunting seasons to control damage. Yet when asked about the manner in which predator populations might be reduced if determined necessary by the Department, the general public supports trap and relocation highest, but also supports using licensed hunters. ~~Contractors (using hounds) kill over 100 black bears each spring to control damage.~~

Objective 14~~3~~: ~~Develop greater than 55%~~ Determine the level of support from the public for spring black bear hunting in those commercial timber areas that receive damage and the feasibility of a spring damage hunt.

~~Alternative~~ Strategies:

a. Conduct extensive public involvement and education prior to recommending spring black bear hunting designed to reduce commercial timber damage. ~~Ensure greater than 55% public support prior to implementing actions.~~
b. ~~Determine~~ Develop a fact sheet describing the feasibility of trap and relocation efforts prior to implementing spring seasons.
c. Implement localized spring hunts on a limited basis to determine effectiveness prior to recommending expansion.
d. Retain current black bear timber damage management program using contractors.

HUNTING SEASON REGULATIONS

The Washington State Legislature provides the directive: *"The commission shall attempt to maximize the public recreational game fishing and hunting opportunities of all citizens, including juvenile, disabled, and senior citizens"* (RCW 77.04.012).

During the public involvement process leading to the development of this plan, hunters expressed general satisfaction with their hunting experience. Although eastern Washington pheasant hunters, waterfowl hunters, furbearer hunters, bear and cougar hunters, and even deer and elk hunters feel that satisfaction could be higher. Harvesting an animal (hunter success) and seeing plenty of game were the main factors driving hunter satisfaction. Not enough game and dislike of the regulations or general management strategies were the main reasons given for dissatisfaction (Duda 2002b). It is fairly clear that harvest success plays a significant role in hunter satisfaction. Yet when asked, hunters often rank ability to harvest much lower than things like hunting with friends and family, seeing game, and low hunter densities.

Issue Statement: While some predict continued declines in hunter numbers over time, hunter demand for opportunity and game harvest still exceeds the supply of game animals in most situations in Washington. Hunters also feel that seasons are crowded and regulations too confining. In addition, they say that seasons are too short, success rates are too low, antler restrictions on deer and elk are too onerous, and there is not enough game.

Objective 1~~5~~4: Maintain sustainable game species populations while reducing hunter dissatisfaction as measured by a "poor" rating to less than a 10% for all game species hunting by 2008.

~~*Alternative*~~ *Strategies:*
a. Consistent with population goals, conservation principles, and social constraints, develop and maintain a variety of deer and elk hunting season opportunities within each administrative District of WDFW:
    1. Provide sufficient hunting opportunities for all three weapon-types to equal average statewide participation rates and seek to equalize overall success rates by 2008~~5~~.

~~2.In at least 10% of Game Management Units (GMUs) with adequate populations, maintain a minimum three-year average, mature (3+ year old) buck and bull, harvest level at 10% of total harvest by 2008.~~

~~3.~~2.Develop at least two new hunting opportunities that emphasize low hunter densities and higher success rates (than current general seasons) through permit only restrictions.

~~4.~~3.Provide general season antlerless harvest opportunities approximately equal to recruitment in Population Management Units (PMUs)(these are combinations of GMUs) meeting population objectives. Provide harvest opportunities that exceed recruitment in populations that are above objectives.

(a) Provide general antlerless opportunity to users in the following order of priority:
1) Hunters with disabilities
2) Youth hunters
3) Senior hunters

(b) Provide antlerless opportunity to archery or muzzleloader hunters if needed to equalize success rates with modern firearm hunters; or equally between weapon types if success rates nearly equal.

~~5.~~4.Embrace the Advanced Hunter Education program by providing Master Hunter graduates primary consideration in hunting efforts designed to resolve private land and sensitive damage issues.

b. Within population goals, provide consistent general season opportunity rather than permit restrictions when ever possible. Use other techniques to manage success rates before considering permit only restrictions.
c. While achieving population goals, maintain season length as a second priority to maintaining general seasons. Use other techniques to manage success rates, such as timing, antler points, etc.
d. Identify high priority (top 10%) waterfowl and pheasant hunting areas, increase hunter access, and provide a variety of hunting opportunities in these areas using access easements, cooperative programs, or acquisition.
   1. Develop limited entry areas, marked sites, walk-in sites, or other restrictions to reduce crowding.
   2. Focus habitat programs and population enhancement activities in these high priority areas.
e. Implement multiple public involvement strategies leading to Fish and Wildlife Commission adoption of three-year regulation packages.
f. Following implementation of strategies and allowing time for results, monitor level of dissatisfaction through opinion survey in 2007.

GAME SPECIES DAMAGE AND NUISANCE

The legislature through RCW 77.36.005 has clearly articulated the state's policy that the responsibility to minimize and resolve conflicts between wildlife and humans is shared by all citizens of the state. However, in RCW 77.36.040, the legislature allows farmers and ranchers to receive payment for damages caused by deer and elk to crops and rangeland.

In a recent public opinion survey (Duda 2002a), a substantial percentage of respondents indicated they had experienced problems with wildlife (26%). Raccoons (47%), deer and opossums (14% each) were the major culprits in Washington. Damage to garbage, pets, gardens, yards and livestock were the most common problems identified.

The public identified nuisance as a major issue, especially associated with recent restrictions on the use of certain traps for furbearing species. ~~How the p~~Public ~~perceives~~ appreciation of wildlife is critical to maintaining wildlife protection over the long-term. If the public's experiences with wildlife are increasingly negative over time, they may not be as supportive for maintaining abundant populations. The public's ability to resolve problems they encounter with wildlife is important to help maintain support for wildlife.

Issue Statement: Twenty six percent of the public experienced problems associated with wildlife last year. The survey did not include questions regarding two important issues: 1) Is the public satisfied with WDFW's response and 2) Are property owner's satisfied with their ability to resolve their wildlife problems? The survey also found that the public is divided on whether funding for resolving problems should be the responsibility of impacted landowners or of local, state, or federal government.

Objective 16~~5~~: Determine public support and desires for WDFW assistance in dealing with wildlife nuisance and damage by 2005.

~~Alternative~~ Strategies:

a. Conduct a public opinion survey to determine satisfaction levels and desires for addressing nuisance and damage.
b. Develop Regional focus groups to help resolve local damage and nuisance problems.
c. Provide information to the public on how they can resolve nuisance problems themselves or by hiring contractors.
d. Develop alternate strategies to mitigate or prevent damage from taking place.
e. Form a task group of stakeholders to develop an implementation plan by November 2005~~4~~, that includes recommendations for deer and elk damage resolution, dangerous wildlife concerns, nuisance wildlife problems, identifies funding mechanisms as needed, develops draft legislation, and has strong public, hunter, and landowner support.

Issue Statement: The level of concern for deer and elk damage to croplands generally depends on landowner tolerance and landowner tolerance often depends on how quickly the problem is resolved. Historically, crop damage by deer and elk has been addressed with hunting as the primary tool. Washington residents continue to show strong support of hunting to control animal damage to private property. However some landowners and some situations do not favor resolution by hunting.

Objective 17~~6~~: Develop greater landowner understanding of available options and WDFW priorities for resolving crop damage. Respond to crop damage complaints ~~within 48 hours~~ quickly and initiate action to resolve damage ~~within one week~~.

~~Alternative~~ Strategies:

a. Develop a brochure explaining available tools and priorities for resolving crop damage.
b. Provide list of options to landowner for handling damage and allow flexibility to the landowner.
c. Use harassment and other non-lethal methods to address damage in deer and elk populations that are below management goals.
d. Continue to prioritize hunting as the most efficient means of resolving damage problems in those deer and elk populations that are above management goals and focus efforts on the animals causing the problem rather than general herd reductions. The ~~priority~~ alternatives for addressing damage problems:
    1. Provide landowner's name to hunters or landowner selects hunters during general season hunt.
    2. Provide landowner's name to hunters or landowner selects hunters during permit only hunt.
    3. Agency selects hunters through "Hot Spot" hunt.
    4. Allow the landowner (or immediate family member) to kill and retain one or more deer or elk through issuance of a "Landowner Preference" permit.
    5. Allow the landowner to select one or more hunters to kill and retain one deer or elk through issuance of a "Landowner Damage Access" permit.
    6. Issue the landowner a "Kill" permit to kill one or more deer or elk with state retaining the carcass. Provide the meat to programs like hunter's for hunger, other charitable organizations, or tribes to meet ceremonial and subsistence needs.
    7. Pay the landowner for the crop damage.
e. Conduct annual survey of landowners filing complaints to determine satisfaction with WDFW actions for resolving their problem.

MONITORING

In order to clearly identify accomplishment of the objectives identified throughout this plan, an annual reporting or "report card" will be prepared as part of the annual status report developed by the Game Division. The "report card" may be published separately in other publications as well. This list of accomplishments will clearly demonstrate public accountability associated with implementation of the Game Management Plan.

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ELK *(Cervus elaphus)*

I. POPULATION STATUS AND TREND

Elk (*Cervus elaphus*) have been present in Washington for 10,000 years (McCorquodale 1985, Dixon and Lyman 1996, Harpole and Lyman 1999). Although complete prehistoric distribution and prehistoric densities are not fully understood at this time, it is known that some form of elk was present in western Washington, on the Olympic Peninsula, on both sides of the Cascade Crest, in northeast and southeast Washington as well as the relatively arid Columbia Basin during the latter half of the Holocene epoch (McCorquodale 1985, Dixon and Lyman 1996, Harpole and Lyman 1999).

Both Roosevelt elk (*C. e. roosevelti*) and Rocky Mountain elk (*C. e. nelsoni*) are native to Washington (Murie 1951, Bryant and Maser 1982, Spalding 1992). Roosevelt elk are found on the Olympic Peninsula and portions of southwestern Washington. Based on preliminary genetic work conducted by WDFW, Rocky Mountain elk introduced in the early 1900s have interbred with Roosevelt elk on the west slope of the Cascade Crest. Elk occurring in central and eastern Washington are Rocky Mountain elk that either avoided extirpation or were reestablished by reintroductions of elk originating from Montana and Wyoming (Washington Dept. of Fish and Wildlife 1996).

Elk were utilized regularly, but not always extensively, by Indian tribes in both eastern and western Washington (McCabe 1981). As European settlement expanded into this region, both from the east and from the Pacific coast, elk exploitation increased dramatically. By the beginning of the 1900s, most if not all of the elk in eastern Washington had been eliminated. Small populations of Roosevelt elk persisted in southwestern Washington and on the Olympic Peninsula (Washington Dept. of Fish and Wildlife 1996).

By the beginning of the last century, Rocky Mountain elk had been eliminated or greatly reduced from their original ranges in eastern Washington (Wash. Dept. Fish and Wildlife 1996). Roosevelt elk were greatly reduced in numbers as well, but due to denser forests with more escape cover, small groups of Roosevelt elk were able to persist. Efforts to re-introduce Rocky Mountain elk were conducted from as early as 1912 through the 1930s (Washington Dept. of Fish and Wildlife 1996). Elk populations peaked in Washington in the late 1960s and early 1970s mostly due to habitat conditions and forest management practices. A marked reduction in timber harvest, especially west of the Cascade Crest, and an increase in the human population in Washington has reduced the overall carrying capacity for elk in Washington compared to decades past.

The Washington Department of Fish and Wildlife (WDFW) currently recognizes 10 major elk herds totaling approximately 56,000 animals. ~~Both Roosevelt elk (*C. e. roosevelti*) and Rocky Mountain elk (*C. e. nelsoni*) are native to Washington (Murie 1951, Bryant and Maser 1982, Spalding 1992). Roosevelt elk are found on the Olympic Peninsula and portions of southwestern Washington. Based on preliminary genetic work conducted by WDFW, Rocky Mountain elk introduced in the early 1900s have interbred with Roosevelt elk on the west slope of the Cascade~~

~~Crest. Elk occurring in central and eastern Washington are Rocky Mountain elk that either avoided extirpation or were reestablished by reintroductions of elk originating from Montana and Wyoming (Washington Dept. of Fish and Wildlife 1996).~~

II. RECREATIONAL OPPORTUNITY

In Washington, elk are hunted from September through December with some special permit hunts taking place as late as February to address agricultural damage. Hunting seasons for archery, muzzleloader, and modern firearms are currently available to both resident and non-resident hunters. ~~There are no restrictions on the number of non-resident elk licenses that can be sold.~~ There are currently no quotas on general elk season licenses sold. At the time of license sale, hunters are required to choose one weapon type and whether they will hunt east side or west side elk. Antler point restrictions are spike only with branch-antlered bulls by limited permit only in eastern Washington. West side elk restrictions are usually 3-point minimum or greater. Some "any elk" hunting opportunities exist in parts of northeast, south central, and southwest Washington where expansion of elk populations is discouraged. In a recent public opinion survey of hunters in Washington, elk hunters indicated that they prefer less restrictive hunting seasons with more opportunities to harvest a legal animal and with more days available to hunt elk (Duda et al. 2002a).

III. DATA COLLECTION

Elk populations are assessed for a variety of characteristics, often including herd composition and population size. Herd composition is an estimate of the proportions of various age and sex classes occurring in the population such as the number of calves per cows, the number of bulls per cows, or the number of spike bulls per total bulls. These data are collected using a variety of techniques, depending on data needs and local conditions. Common tools used to assess elk populations include:

- Surveys conducted by personnel on the ground.
- Aerial surveys with and without visibility (sightability) corrections.
- Mark-resight population estimates from air or ground surveys where a known number of animals are marked using neckbands or paintballs and then subsequent surveys are conducted and the number of marked and unmarked animals observed are entered in statistical formulas (models) to estimate the total population.
- Population modeling using aerial survey and/or harvest data and population reconstruction (Bender and Spencer 1999).

IV. ASSESSMENT OF CURRENT MANAGEMENT OF ELK

The Department is currently developing management plans for each of the ten elk herds in the state. Herd plans specifically address the unique conservation challenges that face each herd. Elk herd plans come under the <u>overall</u> management <u>guidance</u> ~~directive~~ of this Game Management Plan <u>(GMP)</u>. <u>The elk herd plans also facilitate cooperative management with Tribes. Existing herd plans were important resources used in development of this GMP and are designed to be revised and updated every three to five years.</u>

In April 2001, WDFW contracted with an external, independent panel of ~~elk experts~~ scientists to evaluate the current elk management program. That evaluation addressed 1) the effectiveness of using post-hunt bull:cow ratios as management objectives; 2) the effects of hunting elk during the rut; 3) the effects of late season elk hunting, especially from a disturbance and caloric expenditure standpoint; and 4) the genetic consequences of using post-hunt bull:cow ratios as management objectives. This evaluation culminated in an assessment report on elk management in Washington (Peek et al. in prep. ~~2002~~).

V. ELK MANAGEMENT GOALS

The statewide management goals for elk are:

1. Preserve, protect, perpetuate, and manage elk and their habitat to ensure healthy, productive populations.
2. Manage elk for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, subsistence, cultural and ceremonial uses by Native Americans, wildlife viewing, and photography.
3. Manage elk populations for a sustainable ~~sustained~~ annual harvest. ~~that fluctuates within some acceptable range.~~

VI. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Population Management

Background ~~*Issue Statement*~~: The primary goal is to manage for viable and productive elk populations with desirable population characteristics using the best available science ~~(Tables 1 and 2)~~. The Department measures elk populations using a variety of techniques. Techniques that work well in the more open habitats of eastern Washington may be of little value in areas that are densely forested. Population objectives defined in this plan are consistent with objectives defined in the respective elk herd plans. A realistic approach to the management of wild animal populations does not rely on round numbers and pinpoint accuracy. Therefore the preferred, target population objectives for each elk herd are presented as a point followed by an acceptable range of plus or minus 5 % in parentheses (Table 1). Consistent with the primary goal, the secondary goal is to provide recreational opportunity and sustainable ~~sustained~~ annual harvests that fluctuate somewhat due to weather conditions, hunter participation, the number and density of available legal animals, the number of special permits issued for a particular GMU etc. Hunting seasons are designed to limit extreme fluctuations from year to year in sustainable harvests, however some aspects are out of the control of the Department.

The commission shall attempt to maximize the public recreational game fishing and hunting opportunities of all citizens, including juvenile, disabled, and senior citizens (RCW 77.04.012).

The secondary goal can be met as long as it doesn't impinge on the population objectives for total population numbers and population composition and a viable productive elk population defined as the primary goal. Population composition is typically measured as a ratio of bulls per 100 cows and calves per 100 cows. In some elk populations these surveys are conducted prior to the hunt and then post-hunt ratios are projected using harvest information. In some populations

both pre-hunt and post-hunt information is gathered. In a limited number of GMUs, a large enough number of elk are radio-marked to allow biologists to estimate annual mortality rates for different age classes and sex classes (Table 2). There are no elk herds in Washington where all of the parameters listed in Table 2 are collected. Different information is collected for different elk herds that live in different habitats and under differing circumstances. Two or more of the parameters in Table 2 are collected for any elk sub-population that is monitored. Mature bulls are defined as having antlers with at least 6 tines on one side.

The parameters collected in Table 2 function as guidelines for biologists to make management decisions. The challenge presented to managers is to interpret parameters and guidelines that are not in complete agreement. Pre-hunt bull:cow ratios may be high for a particular population but post-hunt bull:cow ratios could be very low. Post-hunt bull:cow ratios may be acceptable however bull mortality rates may be higher than desired. These parameters are typically averaged over a 3-year period before changes are implemented, except for extreme cases when immediate action is required. These guidelines are not a rigid prescription. Often times extenuating circumstances will dictate whether management changes will be made and what direction those changes might take. Unhunted elk populations have shown bull to cow ratios ranging from 30 to 45+ bulls per 100 cows (Biederbeck et al. 2001, Houston 1982, Flook 1970).

Issue Statement: An effective strategic plan for wild animals allows a certain degree of flexibility for field staff to decide if changes are warranted. Biologists must take all of the parameters available for a particular elk population into account and use their professional judgment when making management decisions.

Table 1. Population estimates and population objectives with (+/- 5 %) acceptable range for 10 elk herds in Washington. ~~Current population levels and population objectives for 10 elk herds in Washington.~~

ELK HERD	CURRENT POPULATION ESTIMATE	POPULATION RANGE OBJECTIVE
Yakima	10,460[a]	9,025 to 9,975[a]
Olympic	8,620[b,c]	10,782 to 11,918[c]
Colockum	4,500	4,275 to 4,725
North Rainier	1,845[b]	2,660 to 2,940
South Rainier	2,100	2,850 to 3,150
North Cascades	425[b]	1,852 to 2,048
Selkirk	1,450	1,377 to 1,523
Willapa Hills	7,600	7,600 to 8,400
Mount St. Helens	13,350[d]	14,250 to 15,750
Blue Mountains	4,400	5,320 to 5,880

a: Does not include GMUs 372 and 382
b: Estimate made in 2000.
c: Does not include Olympic National Park.
d: Mean estimate from 1996 to 1999.

~~ELK HERD~~	~~CURRENT POPULATION~~	~~POPULATION OBJECTIVE~~
~~Yakima~~	~~10,500~~	~~9,500~~
~~Olympic~~	~~10,000~~	~~11,000~~
~~Colockum~~	~~4,500~~	~~4,000~~
~~North Rainier~~	~~1,825~~	~~2,800~~
~~South Rainier~~	~~2,100~~	~~3,000~~
~~North Cascades~~	~~350~~	~~800~~
~~Selkirk~~	~~1,200~~	~~1,200~~
~~Willapa Hills~~	~~7,600~~	~~7,600~~
~~Mount St. Helens~~	~~13,350~~	~~13,350~~
~~Blue Mountains~~	~~4,400~~	~~5,600~~

Table 2. Parameter guidelines that affect decisions pertaining to hunting season structure and which class of animals would be impacted by a change in season structure. ~~Criteria required for a shift in hunting season structure and which class of animals would be impacted by the change in season.~~

Criteria	Class of Elk ~~Sub-Population~~ Targeted by Season Change	Liberalize Season	Acceptable Range	Restrict Season
Pre-hunt Bull:Cow Ratio	Antlered & Antlerless	> 35 bulls:100 cows	15 to ~~20~~ 35 bulls:100 cows	< ~~20~~ 14 bulls:100 cows
Post-hunt Bull:Cow Ratio	Antlered & Antlerless	> 20 bulls:100 cows	12 to ~~18~~ 20 bulls:100 cows	< ~~18~~ 12 bulls:100 cows
Total Bull Mortality[a]	Antlered	< 40 ~~45~~ %	~~45 to~~ Less than or equal to 50 %	> 50 %
Percent Mature[b] Bulls In the Post-hunt Bull Sub-Population ~~Pop.~~	Antlered	> 10 %	~~5~~ 2 to 10 %	< ~~5~~ 2 %
Population Objective	Antlerless	Above Objective	At Objective	Below Objective

a: Total mortality from all sources including state hunting, tribal hunting, predation, winter kill, disease, etc.
b: Mature bulls are defined as having antlers with at least 6 tines on one side.

Objective ~~17~~ 18: Maintain elk populations that are consistent with Tables 1 and 2.

~~Alternative~~ Strategies:

a. Conduct aerial surveys to estimate populations, estimate indices, or to estimate composition ratios of bulls, cows, and calves.
b. Manage for ~~a~~ cow elk sub-populations ~~mortality rate~~ that are ~~is~~ consistent with the desired rate of increase or rate of decline for that elk herd (Table 2).
c. Manage for a post-hunt bull:cow ratio ~~of 18~~ from 12 to 20 bulls :100 cows (Peek et al. in prep., Biederbeck et al. 2001, Noyes et al. 1996, Squibb et al. 1991, Squibb 1985, Houston

1982, Prothero et al. 1979, Flook 1970,). ~~as stated in the Elk Management Risk Assessment Report (Peek et al. 2002) (Table 2).~~

d. Manage for pre-hunt bull cow ratios of 15 to 35 bulls: 100 cows (Peek et al. in prep., Biederbeck et al. 2001, Noyes et al. 1996, Squibb et al. 1991, Squibb 1985, Houston 1982, Prothero et al. 1979, Flook 1970,).
e. When bull mortality is measured for a population, manage for a total bull mortality rate of less than or equal to 50 % averaged over 3 years. ~~Manage for a total bull mortality rate of 50 % or less (Table 2).~~
f. Manage for a post-hunt mature bull (at least 6 antler points on one side) ~~(≥ 5 years old)~~ percentage of 2% to 10% ~~5 %~~ of the bull sub-population (Table 2).
g. Manage for herd composition and population goals at the Population Management Unit (PMU) level.
~~h. Reduce and maintain the Yakima elk herd to 9,500 by the year 2008.~~
   ~~1. Increase antlerless harvest for the Yakima elk herd.~~
   ~~2. Increase antlered harvest for the Yakima elk herd where appropriate.~~
~~i. Maintain Willapa Hills, Olympic, and Selkirk elk herds at their current population level.~~
   ~~1. Maintain the level of antlerless harvest consistent with the cow survival and annual recruitment to maintain population levels of Willapa Hills, Olympic, and Selkirk elk herds.~~
   ~~2. Maintain the level of bull harvest consistent with bull survival and annual recruitment to maintain population levels of Willapa Hills, Olympic, and Selkirk elk herds.~~
j. Manage for minimal ~~Minimize~~ disturbance and selective harvest of older bulls during the peak breeding period of September 15-30.

Issue Statement: Low recruitment in the Colockum elk herd may be the result of the elk herd exceeding the habitat's carrying capacity.

Objective ~~18~~ 19: Explore the possibility that the Colockum elk herd may be above carrying capacity which may be contributing to lower recruitment. ~~Manage the Colockum herd for an overall lower residual population (post-hunt, pre-birth pulse) population but a higher annual sustained yield (Peek et al. 2002).~~

~~*Alternative Strategies:*~~
~~a. Incrementally increase the antlerless portion of the harvest each year.~~
~~b. Monitor annual recruitment to detect a correlation between increased antlerless harvest and juvenile survival.~~
~~c. Monitor body condition of elk using ultrasonography to detect any correlations between reduced elk population density and changes in individual elk body condition.~~
~~d. Monitor forage quantity and quality to detect any changes in response to changes in elk population density.~~

Strategies:
a. Monitor annual recruitment.
b. Assess the strength of correlations between antlerless elk harvest and juvenile survival for years 2003 and 2004.

c. Monitor body condition of elk using ultrasonography or carcass fat indices to detect any correlations between elk population density and changes in individual elk body condition for years 2002 through 2004.
d. Monitor forage quantity and quality annually to detect any habitat changes in response to changes in elk population density.
e. If necessary, starting in the fall of 2005 incrementally increase the antlerless portion of the harvest each year for three years or until a new population objective is met and then maintain the new population objective.

Issue Statement: Elk are currently managed at the Population Management Unit (PMU) level. To be an effective tool in elk management and season setting, PMUs must have some biological relevance in terms of populations, sub-populations, and how elk physically use the landscape through all seasons of the year.

Objective ~~19~~ 20: Develop a report that assesses if the current PMU structure system is the most relevant grouping for elk populations and sub-populations by 2005.

~~Alternative~~ Strategies:
a. Determine the status of the current PMU system through a review of the current PMU data and a mapping and GIS inventory of the current PMU structure.
b. If necessary, radio-collar elk within a PMU and determine annual movements, migrations, and seasonal use of available habitat types.
c. Determine annual and seasonal use within and outside the designated PMU. Compare area use between hunting season, winter, the calving period, summer, and transitional periods. As data becomes available, consider the possible genetic influences on PMU delineation.
d. Redefine PMUs ~~if~~ where necessary.

Issue Statement: Data on elk population size and composition often are collected using helicopter surveys. Age ratios or sex ratios by themselves are inadequate when trying to detect population growth or decline (Caughley 1974, 1977). The use of sightability models has improved population estimates derived from helicopter surveys by accounting for sighting biases (Samuel et al. 1987). Segregation between males and females can potentially bias aerial surveys during certain times of the year ~~(Bender and Spencer 1999)~~. However, the assumption that mixing of the sexes in the fall significantly reduces or eliminates gender-based sighting biases remains untested as well. The assumption that sightability models eliminate negative sighting biases associated with different age classes and sex classes (i.e. juveniles, adults, males, females, breeders, non-breeders) should be tested. The benefits of surveying elk at times when they are freely intermixing could be outweighed by lower overall sightability during summer-fall. These effects on the accuracy and precision of parameter estimates should be explored further (Lancia et al. 1996, 2000).

Objective ~~20~~ 21: Evaluate ~~the efficacy of~~ summer and fall aerial surveys and evaluate and refine the use of winter helicopter surveys to estimate population size, population indices ~~size~~ and population composition of Washington elk ~~populations~~ by 2005. Continue efforts to standardize and improve survey protocols to provide reliable data on the size and structure of Washington elk herds.

~~*Alternative*~~ *Strategies:*

a. Assess current protocols for winter helicopter surveys of elk and refine where necessary. Identify populations that are most effectively monitored with winter helicopter surveys. Develop herd-specific models where appropriate.
b. Refine current data collection protocols and explore the development of new approaches to monitor elk populations and the effects of management strategies on elk populations (Bender and Spencer 1999).
c. Expand efforts to monitor elk populations with summer and fall surveys where appropriate.
d. If necessary, conduct sightability experiments to assess bias and precision associated with summer/fall helicopter surveys for elk.
e. If necessary, construct new sightability bias models for elk on summer and fall range in Washington.
f. Validate sightability models used in Washington.
~~g. Refine current data collection protocols and explore the development of new approaches to monitor elk populations and the effects of management strategies on elk populations.~~
~~h. Expand efforts to monitor elk populations with summer-fall surveys where appropriate.~~
   ~~1. Assess current protocols for winter helicopter surveys of elk and refine where necessary. Expand winter survey efforts where needed.~~
   ~~2. Identify populations that are most effectively monitored with winter helicopter surveys.~~
   ~~3. Continue efforts to standardize and improve survey protocols to provide reliable data on the size and structure of Washington elk herds.~~
~~i. Explore the utility of currently available winter sightability models and develop herd-specific models where appropriate.~~
~~j. Validate and refine sightability models used in Washington.~~
~~k. Conduct sightability experiments to assess bias and precision associated with summer/fall helicopter surveys for elk.~~
~~l. If needed, construct new sightability bias models for elk on summer and fall range in Washington.~~

Issue Statement: Sex-age-kill and other modeling techniques are currently used to assess some elk populations in Washington (Bender and Spencer 1999). Data have generally been obtained from harvest reporting and aerial survey composition counts. Although the approach is sound if input data are unbiased and precise, the relative impact of biased input parameter estimates on estimates of population size and composition has not been rigorously addressed.

Objective 22: Improve the reliability of population estimates derived from the sex-age-kill model.

Strategies:

a. Assess the utility of population modeling approaches currently being used in Washington and evaluate the need for new models and/or applications of population modeling.
b. Compare independent and unbiased estimates of sex-age-kill model input parameters with estimates routinely estimated for sex-age-kill modeling. Conduct this work on 2 separate elk populations by 2008.

Recreation Management

Issue Statement: Eighty-thousand Washington elk hunters harvest approximately 7,000 elk annually from an estimated population of approximately 56,000. Washington has more elk hunters per elk than any other western state and has no quotas or limits on the number of elk licenses sold. Subsequently, success rates for hunters are low and without 3-point minimum or spike only antler point restrictions, the male sub-population would be over-harvested. Under the guidelines adopted by the Fish and Wildlife Commission for the hunting season setting process (page 2), guideline number four states "*Hunting seasons should be consistent with species planning objectives and provide maximum recreation days while achieving population goals*." Considering all of the guidelines as well as the Agency's legislative mandate, it becomes clear that the primary goal of the Commission is to achieve the population objectives of managed game species. The secondary goal is to provide the most opportunity possible without compromising the primary game population objectives. Opportunities to hunt and spend time afield must be balanced against achieving or maintaining elk population objectives.

Objective ~~21~~ 23: Maintain a sustained annual elk harvest that is consistent with Tables 1 and 2 (see Objective 17).

~~Alternative~~ Strategies:

a. Maximize season length where possible while maintaining or approaching elk population objectives.
b. In those GMUs that currently have spike only hunting seasons, retain spike only seasons in eastern Washington and adjust branch antlered bull permit levels to achieve bull ratio objectives. Retain any bull and any elk seasons in northeastern Washington as long as population objectives are being met or have a reasonable likelihood of being met.
c. Retain 3-point restriction in western Washington as long as population objectives are being met or have a reasonable likelihood of being met over time.
d. If necessary, develop cooperative road access restrictions or limited permit only units to achieve bull ratio objectives.
e. Design and implement harvest strategies based on the best available information collected for those specific elk populations and sub-populations.
f. Unless extreme circumstances warrant, allow at least three years to determine effectiveness of regulation changes designed to achieve population objectives.
~~g. Conduct aerial surveys to estimate populations or to estimate composition ratios of bulls, cows, and calves.~~
~~h. Manage for a cow mortality rate that is consistent with the desired rate of increase or rate of decline for that elk herd.~~
~~i. Maximize season length where possible while maintaining consistent elk hunting seasons in eastern and western Washington.~~
~~j. Retain spike only seasons in eastern Washington and adjust bull permit levels to achieve bull ratio goals.~~
~~k. Retain 3-point restriction in western Washington and develop road access restrictions, limited permit only units, and/or refuges to achieve bull ratios.~~

~~l. Develop hunter quotas for PMUs that do not achieve goals – permit only.~~
~~m. Design and implement harvest strategies based on the best available information for recruitment rates and mortality rates of specific elk populations and sub-populations.~~
~~n. Manage for a post-hunt bull:cow ratio of 18 to 20 bulls:100 cows as stated in the Elk Management Risk Assessment Report (Peek et al. 2002) (Table 2).~~
~~o. Manage for a total bull mortality rate of 50 % or less (Table 2).~~
~~p. Manage for a post-hunt mature bull (≥ 5 years old) percentage of 5 % of the bull sub-population (Table 2).~~
~~q. Manage for herd composition and population goals at the Population Management Unit (PMU) level.~~
~~r. Minimize hunting and focused harvest pressure on older age class bulls during the peak of breeding, September 15-30.~~
~~s. Allow three years to determine effectiveness of regulation changes designed to achieve ratio goals.~~
~~t. Reduce and maintain the Yakima elk herd to 9,500 by the year 2008.~~
~~u. Increase antlerless harvest for the Yakima elk herd.~~
~~v. Increase antlered harvest for the Yakima elk herd where appropriate.~~
~~w. Maintain Willapa Hills, Olympic, and Selkirk elk herds at their current population level.~~
~~x. Maintain the level of antlerless harvest consistent with the cow survival and annual recruitment to maintain population levels of Willapa Hills, Olympic, and Selkirk elk herds.~~
~~y. Maintain the level of bull harvest consistent with bull survival and annual recruitment to maintain population levels of Willapa Hills, Olympic, and Selkirk elk herds.~~

Objective ~~22~~ 24: Maintain overall stability of elk hunting season regulations as provided during the last three years ~~1997-2002 time period~~ if possible, while still targeting the objectives ~~maintaining the criteria set forth~~ in Tables 1 and 2.

~~Alternative~~ Strategies:
a. When feasible under budget and manpower restrictions, document recruitment and mortality rates for elk populations under a wide variety of conditions such as weather, human access, range condition, supplemental feeding, and herd densities.
b. Adjust hunting season regulations to achieve the desired population characteristics.
c. Monitor elk population responses to various harvest strategies.
d. Develop population models that simulate various harvest strategies before implementation.
e. Validate results of population modeling efforts using abundance, composition, mortality, recruitment, and harvest data collected annually.
f. Implement an adaptive harvest strategy based on the past season harvest, composition counts, and/or population estimates or population indices available for each population or sub-population.

Issue Statement: Elk are important to non-consumptive forms of recreation. Elk provide a wide variety of viewing and photographic opportunities for the citizens of Washington.

Objective ~~23~~ 25: Increase non-harvest recreational opportunity pertaining to ~~for~~ elk when consistent with the health and viability of elk populations.

~~*Alternative* Strategies:~~

a. Develop one new elk viewing site by 2008.
b. Improve one existing elk viewing site by 2008.
c. Develop a World Wide Web opportunity that promotes elk viewing by 2006.

Issue Statement: Not all elk hunters are the same (Duda et al. 2002a). Some hunters want a high probability of harvesting an elk every year. Other elk hunters will accept a lower probability of success if they have a chance to take a mature bull ~~trophy animal~~. Still others just want the opportunity to recreate outdoors with some chance of harvesting an elk. Meeting the needs of all hunters requires a variety of harvesting schemes across the landscape. Five of the six WDFW Administrative Regions provide some level of elk hunting. However, the types of elk hunting opportunities vary by location. Depending upon the type of elk hunting opportunity one is interested in, a hunter may have to travel across the state to participate in a desired type of hunt.

Objective ~~24~~ 26: Provide more than one type of elk hunting opportunity within an Administrative District, allowing elk hunters to select a GMU or group of GMUs that best fits their preferred style of hunting.

~~*Alternative* Strategies:~~

a. Identify elk population management units that can tolerate or are currently experiencing higher hunter numbers with less focus on hunter success by 2005. Hunter opportunity (maximum days) would be the priority in these units.
b. Identify elk population management units that can be managed for or are currently being managed for higher levels of hunter success without focusing on mature bull harvest by 2005. Hunter success rates would be the priority in these units.
c. Identify population management units that can be managed for or are currently being managed for lower success rates but with a better chance to harvest older age class bulls by 2005. Opportunity for mature bull harvest would be the emphasis in these units.
d. Determine by 2008 if a variety of elk hunting opportunities can be provided within each of the Administrative Districts that have elk hunting.
~~e. Identify elk population management units that can be managed for lower hunter densities and higher bull escapement by 2005.~~
~~f. Identify elk population management units that can be managed for higher levels of recreational opportunity by 2005.~~
~~g. Identify population management units that can be managed for low success but with some chance to harvest older age class bulls.~~

Issue Statement: Annual harvest data are used as an index to elk population abundance and herd health and to monitor impacts of changing regulations.

Objective ~~25~~ 27: Improve the accuracy and precision ~~utility~~ of harvest data to monitor elk populations and the effects of various management strategies.

~~*Alternative* Strategies:~~

a. Continue to implement and improve the mandatory harvest reporting system.

b. Explore the possibility of expanding efforts to collect age-at-harvest data from elk teeth collected from successful hunters.
c. Explore the possibility of collecting data on elk body condition from harvested elk at check stations or using other sampling strategies.

~~*Issue Statement:* Sex-age-kill and other modeling techniques are currently used to assess some elk populations in Washington. Data have generally been obtained from harvest reporting and aerial survey composition counts. Although the approach is sound if input data are unbiased and precise, the relative impact of biased input parameter estimates on estimates of population size and composition has not been rigorously addressed.~~

~~*Objective 26:* Improve the reliability of population estimates derived from the sex-age-kill model.~~

~~*Alternative Strategies:*~~
~~c. Assess the utility of population modeling approaches currently being used in Washington and evaluate the need for new models and/or applications of population modeling.~~
~~d. Compare independent and unbiased estimates of sex-age-kill model input parameters with estimates routinely estimated for sex-age-kill modeling. Conduct this work on 2 separate elk populations by 2008.~~

Issue Statement: Historically hunters and managers have been conservative in harvesting antlerless elk. The philosophy is based on a desire for ever increasing elk populations. With some populations at or exceeding population goals, antlerless harvest could be expanded to match recruitment.

Objective ~~27~~ 28: Increase ~~Maximize~~ antlerless harvest opportunities in elk populations that are at or above population goals.

~~*Alternative* Strategies:~~
a. Monitor annual recruitment and population response to increased or decreased harvest.
b. In stable populations meeting population objective, develop harvest strategies to approach but not exceed ~~equal~~ recruitment of new animals into the population minus estimated annual, non-harvest mortality.
c. In populations above population goals, incrementally increase antlerless hunting opportunity and antlerless harvest each year until the population stabilizes within the preferred population range ~~some targeted range of criteria~~.

~~Damage~~ Management of Crop Damage and Nuisance Problems

Issue Statement: Elk provide a sustained annual harvest, but they also contribute to agricultural damage in some cases. Some herds that are at or below population objective can still contribute to agricultural damage.

Objective ~~28~~ 29: Identify areas of elk damage and minimize the number of damage incidents if possible.

~~*Alternative* Strategies:~~

a. Provide information and advice to landowners regarding techniques to prevent elk damage. Reduce elk damage using non-lethal means in elk herds below population objective.
b. Increase antlerless harvest in specific damage areas that target elk causing damage. Use site-specific lethal means in elk herds at or above population objective. Identify and map areas that will not be managed for elk and provide liberal harvest opportunities in those areas.
c. Increase any elk harvest in certain situations where localized bull herds are causing depredation problems.
d. Address site-specific damage situations by utilizing hot spot hunts, landowner preference tags, or issuing kill permits.
e. Consider damage-related elk harvest data in management and harvest recommendations.
f. Investigate the impacts of vehicle collisions on elk populations and explore options to mitigate some of those impacts.
~~g. Increase antlerless harvest in specific damage areas that target elk causing damage.~~
~~h. Increase any elk harvest in certain situations where localized bull herds are causing depredation problems.~~
~~i. Address site-specific damage situations by utilizing hot spot hunts, landowner preference tags, or issuing kill permits.~~
~~j. Reduce elk damage using non-lethal means in elk herds below population objective.~~
~~k. Use site-specific lethal means in elk herds at or above population objective. Identify and map areas that will not be managed for elk and provide liberal harvest opportunities in those areas.~~

Habitat Management

Issue Statement: Elk habitat in Washington State is declining due to human population expansion, changes in timber management practices, progression of successional age of habitat, and competition with domestic livestock. The biggest threat to the sustainability of elk populations is loss of quality habitat. To effectively manage for elk in Washington, certain priority lands must be set aside with the management of elk habitat identified as the primary activity on those lands.

Objective ~~29~~ 30: Maintain, enhance, and acquire habitat for Rocky Mountain and Roosevelt elk.

~~*Alternative* Strategies:~~

a. Identify and prioritize important elk habitat that is at risk of being lost to other land use practices. Identify highest priority elk ranges to target for acquisition or conservation easements.
b. Identify lands that fit financial and biological criteria consistent with WDFW's elk management program.
c. Identify and access funding sources to complete acquisitions and easements that will benefit elk.
d. Where habitat condition or quantity limits herd productivity, identify and implement large scale habitat conservation and enhancement projects.

e. Improve habitat condition where possible, by implementing habitat enhancements and coordinating with land management agencies and private landowners to improve elk habitat quality where those opportunities exist.
f. Establish cooperative cost share projects with U. S. Forest Service, Washington Department of Natural Resources, U. S. Fish and Wildlife Service, Tribal Governments, Rocky Mountain Elk Foundation, Safari Club International and other entities to improve elk habitat.
g. Manage for elk herd distribution within tolerance limits of landowners.
h. Take a more active role with county governments in Growth Management Planning to prevent human encroachment on important elk habitat.
i. Take a more active role with USFS and DNR in timber stand management that provides better elk habitat. Provide advice to USFS, DNR, and the private timber industry on pre-commercial thinning and commercial thinning that would improve elk habitat. Provide advice to DNR and private timber industry regarding herbicide treatments of understory plants that are important elk forage.
j. Secure private lands with valuable winter range in GMU 368 (Yakima Herd).
k. Secure in-holdings in the Wenas Wildlife Area in GMU 342 (Yakima Herd).
l. Acquire important elk habitat in the Skookumchuck and Naneum Basins (Colockum Herd).
m. Purchase, lease, acquire easements and use other incentives to protect and enhance critical elk habitat located along the North Fork of the Lewis River (Mount St. Helens Herd).
n. Secure important elk habitat in the Lick Creek unit GMU 175 (Blue Mountains Herd).
o. Secure important elk habitat in the Tumalum Drainage of the Tucannon unit, GMU 166 (Blue Mountains Herd).
p. Secure elk winter range in the Mountain View unit, GMU 172 (Blue Mountains Herd).
q. Secure important elk habitat in the bottomlands along the Upper Cowlitz River (South Rainier Herd).
r. Purchase, lease, acquire easements and use other incentives to protect and enhance critical elk winter ranges located along the Skagit River bottomlands (North Cascades Herd).
s. Purchase, lease, acquire easements and use other incentives to protect and enhance other key areas identified in the elk herd plans.

~~a. Identify highest priority elk ranges to target for acquisition or conservation easements.~~
~~b. Identify lands that fit financial and biological criteria consistent with WDFW's elk management program.~~
~~c. Identify and access funding sources to complete acquisitions and easements that will benefit elk.~~
~~d. Where habitat condition or quantity limits herd productivity, identify and implement large scale habitat conservation and enhancement projects.~~
~~e. Improve habitat condition where possible, by implementing habitat enhancements and coordinating with land management agencies and private landowners to improve elk habitat quality where those opportunities exist.~~

~~f. Establish cooperative cost share projects with U. S. Forest Service, Washington Department of Natural Resources, U. S. Fish and Wildlife Service, Rocky Mountain Elk Foundation, Safari Club International and other entities to improve elk habitat.~~
~~g. Manage for elk herd distribution within tolerance limits of landowners.~~

Issue Statement: Elk in the Mount St. Helens herd suffer some winter mortality even during mild winters. It is possible that elk from this herd are going into winter in less than prime condition due to poor summer and fall forage quantity and quality.

Objective 31: Determine if available summer and fall forage is predisposing Mount St. Helens elk to higher than normal winter mortality by 2008.

Strategies
a. Measure body condition of Mount St. Helens elk before and after winter.
b. Correlate body condition with current vegetation information that's being collected or collect new vegetation information to assess available forage quantity and quality.
c. If necessary, develop cooperative projects with USFS, DNR, and Rocky Mountain Elk Foundation to improve elk habitat for Mount St. Helens Herd.

~~*Issue Statement:* The biggest threat to the sustainability of elk populations is loss of quality habitat. To effectively manage for elk in Washington, certain priority lands must be set aside with the management of elk habitat identified as the primary activity on those lands.~~

~~*Objective 30:* Identify and prioritize important elk habitat that is at risk of being lost to other land use practices. Acquire the land or acquire conservation easements that will benefit elk on those lands classified as high priority.~~

~~*Alternative Strategies:*~~

~~Yakima Herd~~
~~a. Secure private lands with valuable winter range in GMU 368.~~
~~b. Secure in-holdings in the Wenas Wildlife Area in GMU 342.~~

~~Colockum Herd~~
~~c. Acquire critical elk habitat in the Skookumchuck and Naneum Basins.~~

~~Blue Mountains Herd~~
~~d. Secure important elk habitat in the Lick Creek unit GMU 175.~~
~~e. Secure important elk habitat in the Tumalum Drainage of the Tucannon unit, GMU 166.~~
~~f. Secure elk winter range in the Mountain View unit, GMU 172.~~

~~South Rainier Herd~~
~~g. Secure important elk habitat in the bottomlands along the Upper Cowlitz River.~~

~~North Cascades Herd~~

~~h. Purchase, lease, acquire easements and use other incentives to protect and enhance critical elk winter ranges located along the Skagit River bottomlands.~~

Information and Education

Issue Statement: Washington citizen's want to know more about elk and their natural history (Duda et al. 2002b).

Objective ~~31~~ 32: Inform and educate all portions of the general public regarding elk biology and elk issues impacting the state of Washington. Provide the general public with ~~more pertinent~~ additional information about elk.

~~Alternative~~ Strategies:

a. Expand educational opportunities pertaining to elk on the agency web site and develop brochures for direct mailing by 2008.
b. Develop a brochure that informs the public how to best enjoy elk without adding undue stress during critical times of the year (e.g. winter, calving, breeding).
c. Publish two news articles per year regarding watchable opportunities.
d. Update and improve the Department's current brochure on "Identification and Age Determination of Washington Deer and Elk" by 2005.
e. Investigate the possibility of writing and publishing a book about the deer and elk of Washington using outside cooperators and outside funding sources. Determine feasibility of the project by 2008.

Winter Feeding

It is the policy of the Washington Department of Fish and Wildlife that wildlife should exist under natural conditions supported by suitable habitat. Although artificial feeding may assist in wildlife winter survival, it should not be considered a substitute for lost habitat and feeding shall be done only in limited situations as prescribed by Department policy.

The Department maintains some supplemental feeding operations for wildlife where adequate winter habitat is not available. The Department also recognizes that extreme winter conditions sometimes necessitate implementation of emergency feeding operations. Both supplemental and emergency feeding of wildlife introduce an artificial food source. Feeding also results in the concentration of animals, which can make them more susceptible to disease, predation, and poaching.

The Department will attempt to identify methods designed to balance the size of populations with available winter habitat. Winter feeding will not occur in areas where species can be hunted for recreation while feeding activities are underway. The Department will periodically evaluate the need to continue winter feeding operations.

Issue Statement: Supplemental Feeding is defined by the Department as the regular winter feeding operations to provide feed to wildlife where adequate winter habitat is not available and

feeding is necessary to support the population level as identified in a management plan, or for specific control of deer or elk damage.

What is considered to be historic elk winter range prior to European settlement has been removed due to agriculture and housing development. At current population levels, some elk in Washington must be fed every winter due to inadequate winter range that is available. To prevent elk in the Yakima herd from causing agricultural damage, elk fencing and a winter feeding program was established. The average amount of hay fed annually from 1981 to 2001 was 1,302 tons (range 320 to 5,100 tons). Elk winter feeding programs can be problematic. The programs are expensive. Elk that congregate at high densities have a higher potential for spreading diseases. Elk that are fed in the winter can have extreme impacts on shrubs, trees, and riparian zones near feeding sites. Winter feeding programs may allow elk populations to exceed the carrying capacity of the available winter range. Winter range can often be one of the most important factors that dictate the size of an elk population that the landscape can support.

Objective 33: Evaluate the current elk feeding program. Reduce the dependency on supplemental feeding if possible.

Strategies:

a. Evaluate the current Yakima elk feeding program by 2005.
b. Using the data generated from the Yakima elk herd study (see Research Section), report on the costs, benefits, and impacts on range condition of managing for different Yakima elk herd sizes by December 2007.
c. Using the data generated from the Yakima elk herd study, determine if the Yakima elk herd population objective needs to be adjusted by December 2008. If the population objective is changed, determine what impact that will have on the surrounding environment, hunting opportunities, viewing opportunities, and the current feeding program.
d. Identify which feeding sites are essential to meeting Yakima elk herd management objectives.
e. Identify areas where elk feeding efforts might be reduced. Eliminate some elk feeding sites if possible.
f. Evaluate alternatives to the current feeding program such as diversionary forage plots, additional winter range acquisition, mineral supplements, or any other approaches that help redistribute elk activity.

Issue statement: Emergency feeding is defined as the occasional feeding of wildlife, which the Department implements because of extreme winter conditions or a disaster such as fire or drought. Emergency feeding operations will be implemented when the Director or the Director's designee determines that an emergency exists in a specific location of the state, using the emergency factors below. The Director's Emergency Feeding Advisory Team will include the Assistant Directors of Enforcement, Lands and Restoration Services, Wildlife Management, and Regional Operations and the affected Regional Director(s). The factors evaluated to determine if an emergency exists include weather conditions and forecast, concentration and distribution of wildlife, access to natural forage, the nature of the disaster and its impact on wildlife, and the physical condition of the wildlife in question.

Objective 34: Assess whether current winter feeding policy is being followed.

Strategies
a. Identify all locations where emergency feeding and supplemental feeding of wildlife is taking place by 2004.
b. Ascertain whether winter feeding policy is being followed in all locations of Departmental feeding by 2005.
c. Make recommendations for those sites that are not adhering to policy to bring them into compliance.
d. Look for alternatives to supplemental and emergency feeding whenever possible. Determine if salt or mineral supplements would be a useful tool in improving body condition, recruitment of young, reducing parasite loads, or disease management.

~~*Issue Statement:* Historic elk winter range has been removed due to agriculture and housing development. At current population levels, some elk in Washington must be fed every winter due to inadequate winter range available. The average amount of hay fed annually from 1981 to 2001 was 1,302 tons (range 320 to 5,100 tons). Elk winter feeding programs can be problematic. The programs are expensive, elk that are unnaturally congregated have a higher potential for spreading diseases, elk that are fed in the winter can have extreme impacts on shrubs and trees near feeding sites, winter feeding programs may artificially allow elk populations to exceed the carrying capacity of the land.~~

~~*Objective 32:* Maintain Yakima elk feeding program.~~

~~*Alternative Strategies:*~~
~~g. Identify which feeding sites are essential to meeting Yakima elk herd management objectives.~~
~~h. Pursue outside fund sources to augment winter feeding budget.~~
~~i. Identify areas where elk feeding efforts might be reduced. Eliminate some elk feeding sites if possible.~~
~~j. Evaluate alternate feed sources such as forage grains on some areas if cost effective or if it helps redistribute elk activity.~~

Disease

Issue Statement: Wild elk suffer from a wide variety of diseases. Some diseases are commonplace and have very little impact at the population level. Other diseases can be far more serious, have major impacts at the population level and have severe economic consequences.

Objective ~~33~~ 35: Monitor the health and disease status of wild elk in Washington.

~~Alternative~~ Strategies:
a. Take blood and tissue samples when elk are captured and test for diseases common to elk.
b. Sample hunter harvested elk for chronic wasting disease.

c. Follow U. S. Department of Agriculture and Washington Department of Agriculture guidelines for reporting and action when a disease is detected.

Research

Issue Statement: The Yakima elk herd is one of the largest in the state, and herd characteristics have responded well to management strategies designed to increase bull:cow ratios and the survival of adult bulls. Recruitment during recent years has typically been below long-term means, similarly to other regional elk populations. Much of the historical winter range for ungulates is now under agricultural and rural development. Much of the potential winter range is used for high-value agriculture. Fences and artificial feeding are used to control elk distribution and movements on the very limited winter range. The U.S. Forest Service (USFS) has questioned whether the size of the current elk population can be maintained without damage to sensitive habitats, such as wet and dry meadows, on spring-summer-fall range. Better information is needed on the relationship between the size of the Yakima elk herd and the habitat supporting that herd.

Objective ~~34~~ 36: Determine the appropriate population size for the Yakima elk herd given the number of environmental, social, recreational, and economic values assigned to this herd by various user-groups.

~~Alternative~~ Strategies:
a. Detailed analysis of habitat condition and trend is needed to better define a population goal that protects other values, including environmental, social, and economic values of this region.
b. Conduct intensive remote sensing data collection and GIS analyses.
c. Use radio-telemetry to define elk use of sensitive habitats.
d. Use radio-telemetry to define movements of elk between specific summer and winter ranges.

Issue Statement: The Blue Mountains elk herd has historically provided considerable recreational hunting opportunity and supported subsistence and ceremonial needs for Native Americans. Like many other regional elk herds, the Blue Mountains herd has exhibited declining recruitment in the past decade. The herd is below population objective. Although spike-only hunting has improved bull elk survival, limited, hunting opportunities for branch-antlered bulls continues in some areas. The lack of documentation of tribal harvest impacts has complicated management of this elk herd. In some units, high poaching losses have contributed to a reduction or elimination of mature bull hunting opportunity. Estimates of both adult and yearling bull survival as well as adult cow survival need to be improved for this elk herd. The overall impact of human-caused mortality is known only in very general terms.

Objective ~~35~~ 37: Identify research questions to be answered regarding elk ecology and management and design experiments and studies that address those questions. Estimate total mortality for adult elk in the Blue Mountains. This project would focus on estimating survival for male elk, but information on female elk survival would also be useful to managers. Partition the total mortality as accurately as possible among all sources of mortality. Complete project by 2008.

~~*Alternative* Strategies:~~

a. Quantify total mortality for adult elk for one or more PMUs in the Blue Mountains. To accomplish this, a large-scale telemetry project is needed to obtain defensible survival estimates.
b. Quantify the impact of human-caused mortality on elk in the Blue Mountains, particularly the impacts of various sources of hunting mortality on adult and yearling bull elk.
c. Quantify the impacts of unreported mortality, such as tribal harvest, wounding losses, damage hunt loss, and poaching losses.
d. Address the management implications of those various sources of mortality.

Issue Statement: The Colockum elk herd has long been plagued by low bull:cow ratios, and during the last decade, calf:cow ratios have also declined precipitously. In 1994, spike-only hunting was adopted for general license holders. This regulatory change occurred throughout eastern Washington and was designed to increase bull survival, increase the ratios of adult bulls to adult cows, and to yield early, synchronized breeding. In the Yakima elk herd, the effect on bull:cow ratios was rapid and dramatic. A similar response has not occurred in the Colockum herd. Bull survival apparently remains low. Bull:cow ratios have generally remained below objective. Branch-antlered bull hunting has essentially been eliminated. No positive effects have been seen in recruitment patterns in the Colockum herd as well. Habitat condition also appears to be generally poor in some concentrated use areas, such as the Coffin Game Reserve. There are a number of potential factors that may be impacting elk recruitment, including poor nutrition, predation, and low numbers of breeding adult bulls. Defensible estimates of yearling bull survival and calf survival are needed.

Objective ~~36~~ 38: Ascertain the population dynamics of the Colockum elk herd by 2008.

~~*Alternative* Strategies:~~

a. Determine adult and juvenile elk survival for the Colockum elk herd.
b. Determine the cause of poor recruitment, including an assessment of body condition dynamics of adult cow elk.
c. Analyze habitat conditions and trends at the landscape scale using remote sensing and ground-truthing.

Issue Statement: Forage enhancement areas were created to mitigate elk habitat loss associated with construction of the Wynoochee Reservoir. No assessment of the realized value of these areas to elk has been done. It is unclear if the costs of such mitigation efforts are warranted or if the enhancement areas actually benefit elk relative to the background habitat mosaic. The efficacy of this and similar mitigation projects compensating for elk habitat loss is unknown.

Objective ~~37~~ 39: Quantify the differences in body condition, productivity, and recruitment for 2 elk sub-populations, one having access to mitigation enhancement fields and one that does not.

~~*Alternative* Strategies:~~

a. Using telemetry, evaluate elk use of the Wynoochee forage enhancement fields.
b. Assess the effect of use of the fields on elk body condition and productivity.

c. Monitor demographics in both elk sub-populations.
d. Monitor body condition in both sub-populations and relate body condition scores to elk landscape use, including use of the forage enhancement fields.

Issue Statement: Movements and population dynamics of elk and deer in the upper Kittitas valley are poorly understood. Elk-landowner conflicts have been increasing on private lands in the upper Kittitas valley. Specific movement patterns for this sub-population of elk are poorly understood and abundance is unknown. Development continues to change the landscape of the upper Kittitas valley and the planned community will increase elk-human interaction. Management of elk numbers and distribution can be anticipated to become increasingly complicated. This area is also the study area for Project CAT, a large-scale cougar ecology project. The goal of Project CAT is to better define the movements and behavior of cougars in human occupied landscapes such as the I-90 corridor. It will be difficult to fully understand how cougars use this landscape without better knowledge of the movements and landscape use of their primary prey, elk and deer.

Objective ~~38~~ 40: Gain a better understanding of the population dynamics and habitat use of elk in the upper Kittitas Valley.

~~Alternative~~ Strategies:
a. Gather specific information on elk and deer movements, landscape use, and population dynamics in the upper Kittitas Valley.
b. Collect data on deer and elk in a dynamic landscape where managing human-wildlife interactions can be expected to become increasingly complex.
c. Coordinate project with staff conducting the Project CAT effort.
d. Explore possible elk management options despite the presence of a large private land refugium.
e. Enhance the specific project objectives of the on-going cougar project.

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DEER

I. POPULATION STATUS AND TREND

Black–tailed deer (*Odocoileus hemionus columbianus*), mule deer (*O. h. hemionus*), and white-tailed deer (*O. virginianus*) are all native to the state of Washington. The total deer population for the state numbers approximately 300,000 to 320,000 (Washington Dept. of Fish and Wildlife 2001). White-tailed deer populations are stable or increasing. Mule deer populations in northeastern Washington are below historical levels. Other mule deer populations in central and eastern Washington are growing in response to recent mild winters. Black-tailed deer populations seem to be stable or declining across their range. The goal set by Washington Department of Fish and Wildlife (WDFW) for the management of black-tailed deer, mule deer, and white-tailed deer populations in Washington is to maintain numbers within habitat limitations. Landowner tolerance, a sustained harvest, and non-consumptive deer opportunities are considered within the land base framework.

II. RECREATIONAL OPPORTUNITY

Deer are hunted in Washington from September to December. Archery, muzzleloader, and modern rifle seasons are accommodated. Historically about 45 percent of Washington's deer harvest was black-tailed deer, 35 percent mule deer, and 20 percent white-tailed deer. Due to expanding white-tailed deer populations, recently depressed mule deer populations and conservative hunting seasons for mule deer, white-tailed deer have outnumbered mule deer in the harvest for the past few years (Table 1). For the 2001 hunting season, initial estimates suggest that mule deer and white-tailed deer harvest are equal at approximately 10,500 animals or 31% of the harvest respectively.

White-tailed deer hunting seasons have remained consistent for the last few years, except for northeastern Washington where the white-tailed deer antlerless opportunity has gradually increased. Beginning in 1997, youth, senior, and disabled hunters were allowed to take antlerless white-tailed deer during general buck seasons in northeast Washington.

Eastern Washington mule deer seasons have been much more restrictive since 1997, although some mule deer opportunity is being reestablished in areas where mule deer herds are recovering. Some of the restrictive measures include a three-point minimum restriction for all mule deer in eastern Washington and a shortened deer hunting season for most hunters. Antlerless hunting opportunities are offered mostly by special permit only. The 2001 hunting season provided some additional antlerless opportunity as well as some any deer opportunity for youth and disabled hunters.

Throughout western Washington, black-tailed deer harvest has remained relatively stable in terms of total numbers harvested in recent years. However success per unit of effort has decreased in southwest Washington black-tailed deer regions. Black-tailed deer still provided the most of Washington's 2001 deer harvest with initial estimates at 13,200 or approximately 38.5% of the total deer harvest. The 7-year average for black-tailed deer harvest was 14,875.

Table 1. Estimated Washington deer harvest by deer type for 1995 through 2001.

Year	Black-tailed Deer	White-tailed Deer	Mule Deer	Total
1995	17,048	9,800	10,971	37,765
1996	14,808	11,600	13,034	39,442
1997	15,875	9,700	6,566	32,141
1998	13,966	8,960	7,327	30,253
1999	15,268	11,007	9,232	35,507
2000	13,932	15,161	11,883	40,976
2001	13,226*	10,574*	10,519*	34,319

* Initial estimates not finalized.

III. DATA COLLECTION

WDFW conducts composition surveys from the air and the ground to index buck, doe, and fawn ratios. Depending on the species, location and terrain involved, deer composition surveys are conducted in the spring, the summer, pre-hunt in the early fall and post-hunt in the early winter prior to deer shedding their antlers. Population estimates are also conducted for mule deer using the visibility bias model initially developed in Idaho for elk (Samuel et al. 1987). Variants of the model have been developed for a variety of other species including mule deer. All survey work is restricted by budget and manpower constraints.

In western Washington, black-tailed deer surveys are coupled with hunter check station information and harvest data to model populations. Sex ratios, age ratios, and survival rates are reconstructed using harvest information and those vital statistics are then entered into a sex/age/kill (SAK) population model to estimate population size (Bender and Spencer 1999).

Pre-hunt and post-hunt surveys are conducted in eastern Washington for both white-tailed deer and mule deer. Deer populations in selected areas are surveyed again in March and April to assess winter survival and recruitment.

White-tailed deer are surveyed in summer to determine pre-hunting season fawn and buck ratios and again in spring to determine recruitment – those fawns that have survived their first 10 or 11 months and will likely reach their first birth date alive. Hunter check stations and harvest report cards are used to monitor age distribution of whitetail bucks in the harvest.

IV. DEER MANAGEMENT GOALS

The statewide management goals for deer are:

1. Preserve, protect, perpetuate, and manage deer and their habitat to ensure healthy, productive populations.
2. Manage deer for a variety of recreational, educational, and aesthetic purposes including hunting, scientific study, cultural, subsistence, and ceremonial uses by Native Americans, wildlife viewing, and photography.

3. Manage statewide deer populations for a ~~sustained~~ sustainable annual harvest.

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Population Management

Deer population management goals are to maintain relatively stable growth for both white-tailed deer and black-tailed deer populations. The population goal for mule deer management is an increase in populations within the limitations of available mule deer habitat, landowner tolerance, and extreme weather events (i.e. summer and fall drought, catastrophic fire, protracted winters with deep snow). Recreation management for deer is directly tied to population management. The recreation goal for deer is to maintain or increase hunting opportunity, improve hunting quality, and be responsive to landowner conflicts (see below). The general, post-hunt buck:doe ratio goal for deer in Washington is greater than 15 bucks:100 does for most populations although this may vary depending on the location, species, or subspecies. A post-hunt range of 20 to 25 bucks:100 does is targeted in areas managed for mature buck deer hunting. Recruitment rates and mortality rates also vary substantially depending upon species, subspecies, and location.

ALL DEER

Issue Statement: Deer in Washington are currently managed at the Population Management Unit (PMU) level by WDFW. Most PMUs are made up of more than one Game Management Unit (GMU). Hunting season dates and bag limits are set at the GMU level with the understanding that total harvest will reflect on the deer population at the PMU level.

Objective 41: Determine if the current PMU designations for Washington deer populations are representative from a biological standpoint by 2008.

Strategies:

a. Review the current information available for Washington deer including the primary literature, WDFW reports, federal reports, tribal reports, university research, and contractual reports. Investigate the current information seasonal movements, migrations, critical areas, home range sizes etc.
b. Maintain those PMUs that adequately represent deer populations.
c. Modify those PMUs that do not currently represent deer population movement, activity, and harvest.

BLACK-TAILED DEER

Issue Statement: Of the three types of deer hunted in Washington, black-tailed deer have historically provided the highest number of deer harvested. Black-tailed deer are difficult to survey and detect population changes due to the type of habitat they occupy. Age ratios or sex ratios by themselves are inadequate when trying to detect population growth or decline (Caughley 1977). Incumbent to the process of setting deer harvest objectives is having some estimate or index of the number of animals in the population available for harvest.

Objective 42: Determine how well existing survey protocols for black-tailed deer are working by 2005.

Strategies:

a. Conduct a literature search for existing population estimate and population index techniques that would be appropriate for black-tailed deer.
b. Document and/or standardize existing survey protocols for black-tailed deer.
c. When necessary, develop and standardize new survey protocols for black-tailed deer.
d. Determine key parameters to monitor for black-tailed deer. Incorporate those parameters in population models. Validate the parameters.

Issue Statement: Black-tailed deer habitat has been reduced in western Washington due to a reduction in timber harvest and the natural progression of aging timber stands (succession). Annual harvest reports tend to indicate that black-tailed deer numbers are remaining fairly static, however, the number of days per harvested animal would suggest that black-tailed deer may have declined somewhat over the past 2 decades. To complicate matters further, hunting regulations have varied quite a bit over the years. Because of the terrain they inhabit and the difficulties involved with surveying them, there are still many unknowns about black-tailed deer population dynamics that have yet to be revealed.

Objective 43:

i. Maintain black-tailed deer population numbers within habitat limitations.
ii. Maintain greater than 15 bucks:100 does after the hunting season.
iii. Maintain both antlered and antlerless opportunity for black-tailed deer at appropriate levels.

Strategies:

a. Review the current information available for black-tailed deer including the primary literature, WDFW reports, federal reports, tribal reports, other state agency reports university research, and contractual reports.
b. When appropriate, conduct post-hunt population surveys to ascertain population size or index.
c. When appropriate, conduct post-hunt population survey or conduct mortality studies to ascertain buck survival through the hunt period.
d. When appropriate, conduct pre-hunt surveys in summer and early fall to measure productivity and to measure the ratio of bucks per does and the ratio of legal bucks per does.
e. When possible, influence federal, state, and private landowners to manage western Washington deer habitat to benefit black-tailed deer.

MULE DEER

Issue Statement: Mule deer population levels are closely tied to severe winter events and are susceptible to over harvest. Depending on the district, mule deer may be surveyed after the hunting season, before the hunting season, or during the spring green-up. Some mule deer populations may be surveyed more than one time during the year.

Objective ~~39~~ 44:

i. Maintain ≥ greater than 15 bucks: 100 does in post-hunt surveys.
ii. Define which Population Management Units (PMUs) or Game Management Units (GMUs) will be managed for older age structure in the buck sub-population.

~~Maintain ≥ 20 to 25 bucks:100 does in post-hunt surveys in those GMUs that are being managed for older age class bucks.~~

~~Maintain an adequate number of mature bucks in the post-hunt population for breeding purposes and for biological, genetic, and behavioral integrity of the population.~~

iii. Increase both antlered and antlerless hunting opportunity for all user groups when ~~biologically feasible~~ appropriate.
iv. Maintain mule deer populations within tolerance of landowners.

~~Alternative~~ Strategies:

a. Conduct post-hunt population surveys to ascertain population size or index.
b. Conduct post-hunt population survey to ascertain buck survival through the hunt period.
c. Conduct spring "green-up" surveys to determine winter survival of adults and juveniles and use this information to set special permit quotas and antlerless seasons for the coming fall hunting season.
d. Conduct pre-hunt surveys in summer and early fall to measure productivity and to measure the ratio of bucks per does and the ratio of legal bucks per does.

Issue Statement: Another measurement that can be used for deer in North America is a body condition score measured using ultrasonagraphy. As part of the cooperative mule deer research study (see research section), cooperators and WDFW are developing body condition baseline scores that will allow the technique to be used for mule deer. This effort is time consuming and very expensive. If successful, this technique may also be developed and established for other deer in Washington.

Objective 45: Develop a baseline set of measurements using body condition ultrasonagraphy for mule deer.

Strategies:

a. Complete cooperative mule deer research study.
b. As part of the cooperative mule deer study, report on the development of a body condition score that can be used for Washington mule deer.
c. If feasible, implement body condition scoring to assess overall health of mule deer and mule deer range.

Issue Statement: Mule deer populations are more amenable to population surveys than the other two types of deer in Washington. Currently, not ~~enough resources are being invested to adequately survey mule deer populations in all parts of the state~~ all mule deer populations in all parts of the state are being surveyed (Mayer et al. 2002).

Objective ~~40~~ 46: Improve and expand the survey protocols for mule deer by ~~2005~~ 2008.

~~*Alternative* Strategies:~~
a. Conduct a literature search for existing population estimation techniques that would be appropriate for mule deer.
b. Document and/or standardize best-case survey protocols for mule deer throughout the state.
c. Validate ~~the efficacy of~~ existing survey protocols for mule deer.
d. When necessary, develop and standardize new survey protocols for mule deer.

~~*Issue Statement*: Of the three types of deer hunted in Washington, black-tailed deer have historically provided the highest number of deer harvested. Black-tailed deer are difficult to survey and detect population changes due to the type of habitat they occupy. Age ratios or sex ratios by themselves are inadequate when trying to detect population growth or decline (Caughley 1977). Incumbent to the process of setting deer harvest objectives is having some estimate or index of the number of animals in the population available for harvest.~~

~~*Objective 41:* Determine the efficacy of existing survey protocols and how the resulting information is used for black-tailed deer management decisions by 2004.~~

~~*Alternative Strategies:*~~
~~e. Conduct a literature search for existing population estimate and population index techniques that would be appropriate for black-tailed deer.~~
~~f. Document and/or standardize existing survey protocols for black-tailed deer.~~
~~g. When necessary, develop and standardize new survey protocols for black-tailed deer.~~
~~h. Determine key parameters to monitor for black-tailed deer. Incorporate those parameters in population models. Validate the parameters.~~

WHITE-TAILED DEER

Issue Statement: White-tailed deer population levels are closely tied to severe winter events. White-tailed deer have the highest potential maximum rate of increase of all North American ungulates due to the type of habitat they occupy, their age at first reproduction when on a high nutritional plane, and their ability to successfully recruit twins into the population (McCullough 1987). Compared to mule deer, white-tailed deer are less susceptible to overharvest. The antlerless component of white-tailed deer populations are often under utilized. Age ratios or sex ratios by themselves are inadequate when trying to detect population growth or decline (Caughley 1977).

Objective ~~42~~ 47: ~~Manage white-tailed deer populations to meet appropriate post-hunt buck ratios while providing as much opportunity to all user groups as is biologically sound.~~
i. Maintain ≥ greater than 15 bucks:100 does in post-hunt surveys.
~~Maintain an adequate number of mature bucks in the post-hunt population for breeding purposes and for biological, genetic, and behavioral integrity of the population.~~
ii. ~~Increase both~~ Maintain antlered and antlerless hunting opportunity for all user groups if possible ~~when biologically feasible~~.
iii. Maintain white-tailed deer populations within the tolerance of landowners.

~~*Alternative* Strategies:~~

a. Conduct post-hunt population surveys to ascertain population size or index.
b. Conduct post-hunt population survey to ascertain buck survival through the hunt period.
c. Conduct spring "green-up" surveys to determine winter survival of adults and juveniles and use this information to set special permit quotas for the coming fall hunting season.
d. Conduct pre-hunt surveys in summer and early fall to measure productivity and to measure the ratio of bucks per does and the ratio of legal bucks per does.

Issue Statement: Like black-tailed deer, white-tailed deer populations are difficult to estimate in Washington (Roseberry and Woolf 1991, Lancia et al. 1996, Lancia et al. 2000, Mayer et al. 2002). Age ratios or sex ratios by themselves are inadequate when trying to detect population growth or decline (Caughley 1977).

Objective ~~43~~ 48: Improve and expand the existing survey protocols for white-tailed deer by 2008.
~~Develop a population index or a population estimate for white-tailed deer in Washington.~~

~~*Alternative* Strategies:~~

a. Conduct a literature search of existing techniques.
b. Consult with statisticians at various universities for latest developments in population estimation.

~~Develop a new technique for estimating or indexing white-tailed deer in eastern Washington.~~
~~Determine key parameters to monitor for white-tailed deer.~~
~~Incorporate those parameters in population models.~~
~~Validate the parameters.~~

c. Document and/or standardize best-case survey protocols for white-tailed deer throughout the state.
d. Validate existing survey protocols for white-tailed deer.
e. If necessary, develop a new survey protocol for a population estimate or a population index for white-tailed deer in eastern Washington.
f. Determine key parameters to monitor for white-tailed deer. Incorporate those parameters in population models. Validate the models.

Issue Statement: Habitat quality and herd health can be expressed through a variety of proxy measurements. One measurement used for white-tailed deer in other parts of North America is the live weight or the dressed, carcass weight of 1.5 year-old males. In those GMUs that allow any buck hunting, carcass weights of field dressed 1.5 year-old males can be readily obtained through check station data collection. Live weight estimates can be made using known conversion factors or measuring chest girth of the animal. Lower than desired 1.5 year-old male weights can be an indicator of deer densities that are too high and may suggest a more aggressive harvest strategy.

Objective ~~44~~ 49: Explore the possibility ~~Evaluate the efficacy~~ of using 1.5 year-old male weights as a measurement of herd health or habitat condition in those GMUs that allow any buck hunting for white-tailed deer.

i. If possible, develop a range of standardized weights that indicate whether a 1.5 year-old buck is in good, fair, or poor condition.

~~*Alternative*~~ *Strategies*:
a. If necessary, conduct hunting season check stations and collect data on yearling buck carcass weights.
b. If feasible, correlate yearling buck carcass weights to deer population density and quality of available forage.

~~*Issue Statement:* Another measurement that can be used for deer in North America is a body condition score measured using ultrasonagraphy.~~

~~*Objective 45:* Develop a baseline set of measurements using body condition ultrasonagraphy for mule deer.~~

~~*Alternative Strategies:*~~
~~d. Complete cooperative mule deer research study.~~

Recreation Management

ALL DEER

Background ~~*Issue Statement*~~*:* The recreation goals for deer management ~~is~~ are to maintain ~~or increase~~ hunting opportunity, improve hunting quality when possible, provide non-consumptive recreational opportunity when possible, and be responsive to landowner/deer conflicts.

Issue Statement: Deer hunters do not all have similar expectations (Duda et al. 2002a). Some hunters want a high probability of harvesting a mature buck. Others want a high probability of harvesting a legal deer. Meeting the needs of all hunters requires a wide diversity of hunting opportunities spread across the landscape. In some areas of the state, where escape cover for deer is extensive, some any buck opportunities are still available. An example would be some black-tailed deer units west of the Cascades. Other units in western Washington have less escape cover and are in close proximity to high-density, human populations. Still other units have more open terrain and less escape cover. An example would be units with 3-point minimum antler restrictions for either mule deer or white-tailed deer in central and eastern Washington.

Objective ~~46~~ 50: Maintain a variety of deer hunting opportunities within each administrative District. ~~of WDFW.~~ Increase antlerless hunting whenever possible.
~~i.~~
~~ii. Maintain a minimum of ten percent mature bucks in the harvest.~~
~~iii. Increase antlerless hunting opportunity to harvest 50 percent of recruitment in PMUs meeting population goals.~~

~~*Alternative*~~ *Strategies:*
a. Increase or decrease the number of days in the general hunting season when appropriate.
b. Increase or decrease the number of antlerless special permits when appropriate.

c. Increase or decrease the number of any deer opportunities when appropriate. Allocate opportunity according to general strategies identified in Chapter 2 under Hunter Regulations.

Research

MULE DEER

Issue Statement: In the 1990s mule deer exhibited declines across most of the western United States. The public, the press, and wildlife scientists have postulated a variety of theories to explain this decline. ~~One of the~~ Major contributors to the decline in mule deer numbers in Washington were deterioration of mule deer habitat due to successional progression and also high winter mortality due to the severe winter of 1996-97. As a result of this decline, the Department invested in a multi-cooperator, long-term mule deer research project.

Objective ~~47~~ 51: Determine the relationship between habitat, predation, body condition and other factors as they relate to Washington mule deer survival and recruitment.

~~Alternative~~ Strategies:

a. Complete Mule Deer Cooperative Study.
b. Provide information summaries and technical reports to the public.
c. Present results for the study in a variety of public forums.
d. Publish the results of the study in the primary, scientific literature.

BLACK-TAILED DEER

Issue Statement: For several years, black-tailed deer in western Washington have been observed with a condition known as hair loss syndrome. Deer suffering from this condition have both internal and external parasites that are affecting their health. The internal parasite is a muscle worm. The external parasite is a common louse that often affects deer. Deer become hypersensitive to the lice and groom excessively, removing and breaking off hairs. Some deer are affected severely by this condition and die of hypothermia from the hair loss or from verminous pneumonia caused by the larvae of the internal parasite residing in the lungs. Other deer survive the condition and grow new hair the following summer after shedding what's left of their winter coat. Because black-tailed deer are so difficult to monitor, it is unclear whether the mortalities resulting from this condition are having a major impact on the black tailed deer population.

Objective 52: Determine the population level impact to black-tailed deer of hair loss syndrome by 2008.

Strategies:

a. Identify areas with black-tailed deer populations that have a high incidence of hair loss syndrome and populations with low or no levels of hair loss syndrome.
b. Initiate comparative studies on black-tailed deer populations with high levels of hair loss syndrome and those at lower levels to determine differences in fawn and doe survival.

BLACK-TAILED DEER

Issue Statement: The total mortality rate on male black-tailed deer in hunted populations has been, for the most part, unknown. The Department initiated studies on buck mortality in both Region 4 and Region 6 in 1999 through 2001 (WDFW unpubl. data). Initial work suggests that buck mortality in black-tailed deer is quite variable both between years and between sites. Further work on this topic would help the Department better understand black-tailed deer mortality rates at various locations and under various hunting season regulations.

Objective 53: Develop a better understanding of mortality rates in adult, male black-tailed deer.

Strategies:

a. Identify new locations to conduct black-tailed deer buck mortality studies.
b. If funding is available, continue the black-tailed deer buck mortality studies initiated in 1999.

WHITE-TAILED DEER

Issue Statement: Due to changes in land use practices and habitat condition, white-tailed deer seem to be expanding in some parts of the state. A substantial amount of speculation is occurring about the impacts of an expanding population of white-tailed deer. There are some questions about the impact of white-tailed deer populations in areas that were formerly inhabited by mule deer. There are also questions about the impact of increasing white-tailed deer populations on large predator populations.

Objective 54: Explore the possibility of conducting white-tailed deer research in areas that have increasing white-tailed deer populations and declining mule deer populations.

Strategies:

a. Identify areas that have declining populations of mule deer and increasing populations of white-tailed deer.
b. Explore the possibility of investigating the impact of expanding white-tailed deer populations on mule deer populations.
c. Explore the possibility of investigating the impact of expanding white-tailed deer populations on large predator populations.

Habitat Management

BLACK-TAILED DEER

Issue Statement: Black-tailed deer foraging habitat is being lost due to changes in forest practices and the ecological succession of younger aged habitat.

Objective 55: Try to maintain or enhance black-tailed deer foraging habitat.

Strategies:

a. When funding permits, acquire critical black-tailed deer habitat or conservation easements on critical black-tailed deer habitat.
b. Work with state, federal, and private land managers to conduct pre-commercial thinnings and commercial thinnings that will benefit black-tailed deer.

MULE DEER

Issue Statement: Mule deer habitat is being lost throughout the west due to urban/suburban sprawl, expansion of agriculture into mule deer habitat, fire suppression, and ecological succession of younger aged habitat.

Objective ~~48~~ 56: Try to maintain ~~and~~ or enhance mule deer habitat including forage and security cover. Direct the Department's focus toward mule deer habitat improvement and protection.

~~Alternative~~ Strategies:

a. Acquire critical mule deer habitat or conservation easements on critical mule deer habitat.
b. Work with state, federal, and private land managers to conduct prescribed burns that will benefit mule deer.
c. Work with county governments to limit the expansion of human development on mule deer range.
d. Work with the Mule Deer Foundation to conduct projects that improve winter range for mule deer.

WHITE-TAILED DEER

Issue Statement: White-tailed deer habitat is expanding due to human development, agricultural expansion, and changes in forest practices.

Objective 57: Try to maintain current status of white-tailed deer habitat.

Strategies:

a. Work with state, federal, and private land managers to conduct prescribed burns that will benefit mule deer and not expand white-tailed deer habitat.
b. Work with county governments to limit the human development.

Information and Education Goal

ALL DEER

Issue Statement: The general public has an interest in deer from more than a consumptive standpoint (Duda 2002b). ~~Information pertaining to deer for the general public is lacking at this time.~~ Information for the general public pertaining to deer needs to be expanded.

Objective ~~49~~ 58: Provide more information regarding deer biology and deer issues to the general public. ~~Inform and educate all portions of the general public regarding deer biology and deer issues impacting the state of Washington.~~

~~Alternative~~ Strategies:

a. Interact with local outdoor groups to discuss deer management topics.
b. Produce new informational handouts for black-tailed deer, white-tailed deer, and mule deer on deer biology and natural history. ~~for~~ Provide this information to the general public and the Regional Offices and Headquarters.
c. Incorporate ~~Insert~~ deer information in the Go Play Outside program.
d. Update and continue to produce the chronic wasting disease (CWD) handout, fact sheet, and web site.
e. Publish two news articles regarding watchable deer opportunities.
f. Update and improve the Department's current brochure on "Identification and Age Determination of Washington Deer and Elk" by 2005.
g. Investigate the possibility of writing and publishing a book about the deer and elk of Washington using outside cooperators and outside funding sources. Determine feasibility of the project by 2008.

Damage and Depredation Goal

ALL DEER

Issue Statement: Deer cause agricultural damage. Expansion of agricultural operations on deer range has increased in the last 20 years. Conflicts between deer and the agricultural community will continue to grow as human activity expands across traditional deer habitat.

Objective ~~50~~ 59: Reduce damage caused by deer.

~~Alternative~~ Strategies:

~~Increase antlerless harvest in damage areas using all 3 major weapon groups (archery, muzzleloader, and modern firearm).~~
~~Offer early and late season hunts specific to damage areas.~~
~~Increase harassment factor with archery hunters.~~

a. Identify priority areas for deer caused damage.
b. Focus more attention on prevention of damage to reduce the number of lethal removals and the number of cash payments made by the Department.
c. Increase antlerless harvest in damage areas using all 3 major weapon groups (archery, muzzleloader, and modern firearm) when appropriate.
d. Offer early and late season hunts specific to damage areas for muzzleloader and modern rifle hunters.
e. Increase harassment factor in chronic damage areas using archery hunters.
f. Explore the possibility of using more hunters with disabilities to deal with damage problems.

Disease

ALL DEER

Issue Statement: Wild deer suffer from a number of diseases. Some can have severe but localized impacts on a sub-population.

Objective ~~51~~ 60: Monitor deer for disease and reduce the risk of disease when possible

~~Alternative~~ Strategies:

a. Continue to monitor for chronic wasting disease (CWD).
b. Develop a prevention plan by December 2002 to reduce the risk of CWD entering Washington.
c. Enforce the current regulations that prevent the captive farming of native deer and elk in Washington.
d. Develop a contingency plan by December 2002, in the event that CWD is ever found in Washington.
e. Continue to monitor for epizootic hemorrhagic disease (EHD).
f. Continue to monitor for adenovirus hemorrhagic disease (AHD).
g. Continue to monitor for tuberculosis.
h. Continue to monitor the affects of hair loss syndrome on black tailed deer populations (see Research section).

~~*Objective 52:* Determine the population level impact to black-tailed deer of hair loss syndrome.~~

~~*Alternative Strategies:*~~

~~c. Initiate comparative studies on herds with high levels of hair loss syndrome and those at lower levels to determine differences in fawn and doe survival.~~

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BIGHORN SHEEP (*Ovis canadensis*)

I. POPULATION STATUS AND TREND

Washington State has approximately 1,100 bighorn sheep distributed in 16 herds. Of those, 11 herds are California bighorn sheep and 5 are Rocky Mountain bighorn sheep. Average herd size is 6~~9~~8 sheep, and ranges from 2~~4~~7 to 173 sheep. Populations are stable to increasing in 11 herds and declining in 5 herds, where diseases and parasites are the primary causes for decline.

II. RECREATIONAL OPPORTUNITY

Currently, only California bighorn sheep are hunted in Washington, as populations of Rocky Mountain bighorns are still recovering from the *pasteurella* die-off. In Washington, hunters typically pursue mature rams. Therefore, harvest thresholds are based on total population size, sex structure, and the number of mature rams in a herd. Hunting opportunity is allocated by permit drawing and is a once in a lifetime opportunity (except for raffle and auction permit holders). The number of controlled hunt applications received annually ranges from 1,000-4,500, which averages approximately 151-applications per bighorn sheep hunting permit. Statewide, permit levels have ranged from 9-22 and hunter success is high (92%).

Figure 1. Bighorn sheep herds in Washington, 2002.

III. DATA COLLECTION

The Department surveys each herd 1-2 times annually, using either aerial or ground surveys. Surveys typically are conducted during lambing or rutting periods and data are used to estimate lamb recruitment, sex ratio, adult survival, population size, and percentage of mature rams in the population. In addition to surveys, individuals from selected herds are screened for disease and parasites during winter captures or feeding operations.

IV. BIGHORN SHEEP MANAGEMENT GOALS

The statewide goals for bighorn sheep are:

1. Preserve, protect, perpetuate, and manage bighorn sheep and their habitats to ensure healthy, productive populations.
2. ~~Manage statewide bighorn sheep populations for a sustained yield.~~
3. Manage bighorn sheep for a variety of recreational, educational and aesthetic purposes

including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.

4. Manage statewide bighorn sheep populations for a sustained yield.

~~3. Preserve, protect, perpetuate, and manage bighorn sheep and their habitats to ensure healthy, productive populations.~~

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Habitat quality influences bighorn sheep reproduction, survival, and abundance. Unfortunately, habitat conditions are deteriorating in many bighorn herds, primarily due to the spread of noxious weeds, poor forage growth, and forest encroachment. To improve habitat quality for bighorn sheep, there is a need to conduct various habitat improvement projects, as the need and opportunity arises, in several herds.

Objective ~~53~~ 61: Conduct habitat improvement projects on ≥10% of the habitat in bighorn ranges in Vulcan Mountain, Swakane, and the Blue Mountains.

~~Alternative~~ Strategies:

a. Inventory and map habitat conditions.
b. Conduct controlled burns to improve habitat quality.
c. If not detrimental to other habitat or wildlife objectives, consider distributing fertilizer and herbicides to improve forage quality.
d. Distribute mineral blocks to supplement forage quality.
e. Distribute water sources to improve habitat quality.
f. Pursue other activities that enhance desirable native plant communities.

Population Management

Issue Statement: Washington's bighorn sheep populations are few in number, isolated, and relatively small. To address these concerns, relocation is used as a tool to increase sheep abundance and link populations. With this comes the need to prioritize potential relocation areas, while considering funding limitations, availability of sheep, social-economical concerns, and biological merit.

Objective ~~54~~ 62: Develop a prioritized list of potential bighorn sheep relocation areas by January 2003.

~~Alternative~~ Strategies:

a. Prioritize potential relocation areas using a geographical information system (GIS), coupled with various landscape variables (e.g., forage, cover, and anthropogenic activities), and a meta-population analysis.
b. Prioritize potential relocation areas based on cooperative agreements, collaborations, and funding availability.
c. Prioritize potential relocation areas using on-the-ground habitat evaluations.

Issue Statement: Relocation is used as a tool to establish new populations and augment existing ones. This, in turn, increases the long-term viability of bighorn sheep by increasing total

population size, increasing the number of populations, and providing linkages between populations for the exchange of individuals and genetic material (Bailey 1992).

Objective ~~55~~ 63: Establish two new bighorn sheep herds by 2008.

~~Alternative~~ Strategies:
a. Relocate sheep from existing herds in Washington or out-of-state herds.
b. Allow the establishment to new herds through natural colonization of bighorn sheep.
c. Re-establish the Tucannon herd as Rocky Mountain bighorns instead of California bighorns.

Issue Statement: To properly manage bighorn sheep populations, managers strive to maintain sustainable and healthy populations of bighorns, while at the same time maintain sheep at levels that minimize the risk of disease and reduce agricultural damage on private lands.

Objective ~~56~~ 64: Maintain bighorn sheep population size as indicated in Table 1.

~~Alternative~~ Strategies:
a. For herds that are exceeding population goals trap and relocate sheep to an alternate area.
b. For herds that are exceeding the desired population size, establish ewe harvest opportunities as indicated in ***Objective ~~59~~ 67, Strategy g***.
c. For herds that are below the desired population size, consider restricting harvest (see ***Objective ~~59~~ 67, Strategy d***) and augmenting the population.

Table 1. Population size objectives for specific bighorn sheep herds.

Herd	Population Size	
	~~2002~~ Current	**Desired**[b]
Hall Mountain[a]	29	40-70
Asotin Creek[a]	38	50-60
Black Butte[a]	80	300
Wenaha[a]	65	140
Cottonwood Creek[a]	27	50-60
Tucannon	27	60-70
Vulcan	24	80-110
Mt. Hull	65	55-80
Sinlahekin	30	50
Swakane	~~35~~ 53	50-60
Quilomene	165	~~150-~~250-300
Umtanum(+Selah Butte)	173	250-300
Cleman Mountain	156	~~150~~ 140-160
Lincoln Cliffs	95	60-70
Lake Chelan	~~47~~ 46	100-150
Tieton River	37	75-150
Total	**1,110 ~~1,093~~**	**1,750-2,130**

[a] Rocky Mountain bighorn sheep
[b] Based on biologists estimates of habitat capacity, including forage, escape cover, and water sources

Issue Statement: Bighorn sheep populations are sensitive to over-exploitation because of their low population growth rate and low population size (Berger 1990). As such, assessing the status of each bighorn population annually is necessary to ensure sustainability.

Objective ~~57~~ 65: Monitor bighorn sheep herds at a level where a 20% change in population size can be detected within 3-years or less.

~~Alternative~~ Strategies:
a. Estimate minimum number of sheep, ram:ewe ratio, and ewe:lamb ratio annually for each herd.
b. Develop a sightability correction factor to estimate population size from annual surveys (Bodie et al. 1995).
c. Use radio collared sheep to enhance sightability of sheep during surveys.
d. Use population models to estimate changes in population size.

Issue Statement: Certain types of *Pasteurella* spp. are pathogenic and produce acute bacterial pneumonia in bighorn sheep (Forety and Jessup 1982). The occurrences of lethal strains of *Pasteurella* in bighorns are most commonly associated with overlapping ranges of bighorn and domestic sheep; as *Pasteurella* is commonly found in domestic sheep. There are many uncertainties about the mode of transmission, vulnerability, and other epidemiological factors of *Pasteurella* (Martin et. al 1996). However, given the present state of knowledge, the current management practice used throughout North America to prevent the disease in bighorn sheep is to eliminate the interactions between domestic sheep and bighorn sheep (Schommer and Woolever 2001).

Objective ~~58~~ 66: Eliminate interactions between domestic sheep and bighorn sheep in the Swakane herd, Hells Canyon herds, Cleman Mountain, and areas identified for repatriation of bighorn sheep.

~~Alternative~~ Strategies:
a. Maintain at least a 9-mile buffer between domestic sheep and bighorn sheep (BLM 1998).
b. Pursue the purchase of grazing leases and conservation easements.
c. Develop physical or habitat barriers between domestic and bighorn sheep.
d. Work with livestock producers to reduce transmission of disease and parasites from domestic sheep to bighorns.

Recreation Management

Issue Statement: The demand for bighorn sheep hunting opportunity exceeds the allowable harvest for sustainable populations. Therefore, the Department restricts bighorn sheep harvest to a level compatible with long-term sustainability of each herd. With bighorn sheep, hunters typically select the largest, hence oldest, rams in the herd. Consequently, the Department manages sheep as a high quality hunting opportunity and takes precautionary steps to ensure that ample numbers of mature rams are left in the population. The result is a relatively high harvest success (mean = 92%) and post-season ram: ewe ratios that are favorable for healthy bighorn sheep populations.

Objective ~~59~~ 67: Provide recreational hunting season opportunities for individual bighorn sheep herds where harvest success averages ≥85% over a 3-year period, while at the same time bighorn population size remains stable or increasing.

~~Alternative~~ Strategies:
a. Conduct bighorn sheep hunts by permit only and allow harvest of any ram.

b. Do not hunt transplanted animals for at least 5 years after initial release to ensure success of the transplant.
c. Survey herds annually for at least 2 years prior to being hunted to determine size, composition, and trend.
d. Set ram permit levels as indicated in Table 2 below:

Table 2. Permit levels for all bighorn sheep herds (see example below).

	…when the herd has…			
	Population	**Ram:ewe**	**Number rams with…**	
Permit level is…	**Size [a]**	**ratio**	**≥½ curl [b]**	**≥ ¾ curl [c]**
20% of the mature rams[d]	≥30	>50:100	8	2
15% of the mature rams[d]	≥30	25-50:100	8	2
10% of the mature rams[d]	≥30	<25:100	8	2

[a] Total population size, excluding lambs. Population must be stable or increasing.
[b] Used as a measure of >3-year-old rams.
[c] Used as a measure of >6-year-old rams.
[d] Rams ≥½ curl.

For example, the permit level for herd X is 15% of the mature ram population because the total population size is >30 sheep, the ram:ewe ratio is between 25-50 rams per 100 ewes, and the number of rams with ½ curl is >8 and at least 2 of those 8 rams are >¾ curl.

e. Adjusted permit levels for herds bordering other states and provinces to account for management activities of these other areas.
f. Consider reducing permit levels or terminating all permits (depending on population size and rate of decline) for herds declining due to disease or high parasite loads.
g. Use trap and relocation as the primary method of reducing overpopulated herds. Consider ewe harvest as a secondary method, with the following conditions:
   - Ewe permits should not exceed 10-20% of the adult ewe population.
   - A harvested ewe would not count toward the one sheep a hunter can harvest in a lifetime.

Issue Statement: The number of bighorn sheep applications/permit makes the odds of drawing a permit low (151 applications/available permit). As such, there is a need for a fair and equitable approach for allocating permits while maintaining a quality hunt experience.

Objective 68: Distribute recreational opportunity to as many individuals as possible, compatible with high quality sheep hunting experiences and the biological status of bighorn populations.

Strategies:
a. Allow bighorn sheep hunting by permit only*.
b. Allow individuals to hunt bighorn sheep only once during their lifetime*.
c. Consider developing a preference point system consistent with deer and elk systems.
d. Consider other alternatives to reduce crowding.

*Strategy currently is implemented.

Issue Statement: Bighorn sheep claim a strong aesthetic value throughout most western states. However, because bighorns have a relatively small range in Washington, viewing opportunities are limited. Where viewing opportunities do exist, they have proven to be extremely popular with the public.

Objective ~~60~~ 69: Develop viewing opportunities for two bighorn sheep herds.

~~Alternative~~ Strategies:
a. Develop vehicle tour and education board for bighorn sheep viewing areas.
b. Develop a web-cam viewing opportunity for bighorn sheep.

Information and Education

Issue Statement: Bighorn sheep were extirpated from Washington by the early 1900s. However, by securing critical habitats and transplanting sheep, bighorns have slowly recovered. As bighorns continue to do well in Washington, it's important to inform the public about the biology and management of bighorn sheep, as well as their ecological role in the ecosystem.

Objective ~~61~~ 70: Provide educational information on bighorn sheep to at least 50,000 people annually and emphasize contribution of hunters to bighorn sheep recovery.

~~Alternative~~ Strategies:
a. Develop a brochure describing bighorn sheep ecology and management, threats to disease, as well as their history in Washington.
b. Develop educational viewing opportunities for bighorn sheep (see Objective 69).
c. Discuss bighorn sheep management at public forums.
d. Develop segment for Wild About Washington.

Enforcement

Issue Statement: There are only about 1,100 bighorn sheep in Washington. So any illegal harvest or harassment has the potential to impact populations. Unfortunately, the rarity and majestic nature of mature rams (i.e., their horns) makes them likely targets for illegal take.

Objective ~~62~~ 71: Account for all known bighorn sheep mortalities.

~~Alternative~~ Strategies:
a. Permanently mark the horns of all dead bighorn sheep rams that are recovered from the field*.
b. Require mandatory reporting for all bighorn sheep hunters*.

* Strategy currently is implemented

Research

Issue Statement: Bighorn sheep are vulnerable to many parasites and diseases that significantly impact population levels. In addition, small population sizes create situations where predators and genetic inbreeding can cause impediments to population growth.

Objective ~~63~~ 72: Acquire biological information that aids in bighorn management.

~~Alternative~~ Strategies:
a. Investigate parasite outbreak in the Vulcan Mountain herd.

b. Investigate the recovery of bighorn sheep from *pasteurella* in Hells Canyon.
c. Investigate the impacts of predation on recently established herds or herds with fewer than 100 animals.
d. Investigate the probability of interactions between bighorn sheep and domestic sheep in areas where the two overlap.
e. Investigate inbreeding effects among bighorn sheep.

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MOUNTAIN GOAT (*Oreamnos americanus*)

I. POPULATION STATUS AND TREND

Mountain goat populations have been on the decline in Washington for many years. Historically, goat populations may have been as high as 10,000 animals. Today goats likely number fewer than 4,000. Hunting opportunity has decreased accordingly, and current permit levels are conservative and represent 4% of the known population in herds that are stable to increasing. Despite reductions in hunting opportunity many local goat populations continue to decline. However, a few populations are doing well. Goat populations along the southern Cascades, the north shore of Lake Chelan, and the Methow region appear to be stable to slightly increasing.

II. RECREATIONAL OPPORTUNITY

Mountain goats have been hunted in Washington State since 1897, when hunters could harvest two goats annually (Johnson 1983). Following several years of over hunting, seasons were restricted in 1917, and all hunting closed by 1925. Later, goat populations rebounded and hunting resumed in 1948. Since 1948 mountain goat hunting opportunity has been limited by permit.

Figure 1. Historic mountain goat distribution and current hunting units for goats.

Unfortunately, goat abundance has decreased dramatically over the last decade. As such, hunting opportunity has declined from 218 permits in 1991 to 26 permits in 2001 – about a 9% decline/year. The number of permit applications received annually tends to range from 2,000 to 4,200, which averages about 42-applications/mountain goat permit. The hunting season for mountain goat is generally about 47 days (September 15 to October 31) and harvest success averages 63% (n = 9 years).

Currently, mountain goat hunting is an once-in-a-lifetime opportunity. Hunters may harvest any adult goat with horns $\geq$4 inches, although hunters are urged not to harvest a nanny and it's unlawful to harvest a nanny accompanied by kids. During the 2001 season, only a fraction of the mountain goat range was open to hunting, with 24 permits in 11 goat units (Fig. 1).

III. DATA COLLECTION

For many years, funding limitations greatly reduced the Department's ability to conduct thorough and consistent surveys. However, during the last three years, funding from cooperative grant sources, and auction and raffle revenue, allowed the Department to survey all goat units open to hunting. All surveys were conducted using a helicopter and generally occurred between July and September. Because the funding level hasn't been enough to survey all goat units,

hunted units have been the priority. As such, no consistent survey effort has been accomplished during the last 5 years for goat units closed to hunting.

IV. MOUNTAIN GOAT MANAGEMENT GOALS

The statewide goals for mountain goats are:

1. Preserve, protect, perpetuate, and manage mountain goats and their habitats to ensure healthy, productive populations.
1. ~~Enhance statewide mountain goat populations and manage goats for a sustained yield.~~
2. Manage mountain goats for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
3. Enhance statewide mountain goat populations and manage goats for a sustained yield.
4. ~~Preserve, protect, perpetuate, and manage mountain goats and their habitats to ensure healthy, productive populations.~~

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Mountain goat populations typically occur as meta-populations scattered across the landscape on "habitat islands" where structural and vegetative characteristics are suitable for goats. The sizes and distribution of these islands of suitable habitats are largely unknown in Washington. Understanding the juxtaposition and quality of these habitats and their potential carrying capacity is critical for sustainable management of mountain goats.

Objective ~~64~~ 73: Develop a document identifying the locations and quality of suitable mountain goat habitat in Washington.

~~Alternative~~ Strategies:

a. Map goat habitats from a review of historic distribution and local expertise of all mountain goat sub-herds.
b. Conduct surveys to determine locations and quality of suitable goat habitats.
c. Develop a GIS model predicting quality and locations of suitable mountain goat habitats.
d. Develop cooperative partnerships for mapping suitable goat habitats.

Population Management

Issue Statement: Mountain goat populations are sensitive to over-exploitation because of their low population growth rate and relatively low densities (Cote et al. 2001, Gonzales-Voyer et al. 2001). As such, assessing the status of each mountain goat population annually is necessary to ensure sustainability.

Objective ~~65~~ 74: Monitor population demographics of mountain goats at a level where a 20% decline in population size can be detected within 3-years or less.

~~*Alternative* Strategies:~~
a. Survey all goat populations annually to estimate minimum population size and recruitment.
b. As a supplement data source, estimate goat population trends annually through hunter reports.
c. Develop a sightability model to estimate population size from annual surveys.
d. Re-define goat unit boundaries if spatial use patterns of distinct population are inconsistent with current unit boundaries.

Recreation Management

Issue Statement: In most native mountain goat populations, recovery from population reductions is relatively slow (Cote and Festa-Bianchet 2001). This is the result of the low reproductive potential, extended parental care, low juvenile survival, and older age of sexual maturity in mountain goats. Given these demographic characteristics, the population growth rate of goats is sensitive to exploitation. As a result, harvest levels for mountain goats should be restricted to levels that approximate recruitment and the status of goat populations should be evaluated annually (Cote et al. 2001).

Objective ~~66~~ 75: Provide recreational hunting opportunities in individual mountain goat herds where harvest success averages ≥50% over a 3-year period, while at the same time goat population size remains stable or increasing.

~~*Alternative* Strategies:~~
a. Goat populations will be surveyed annually beginning at least 3 years prior to being hunted to determine population size, herd composition, and trend.
b. For populations to be hunted, surveys must indicate:
   - Population size of at least 50 goats (Oldenburg 1991).
   - Average production ratio of at least 25 kids: 100 non-kids over a 3-year period.
c. For herds meeting the above criteria, permits shall be issued to limit the goat harvest to 4% of the estimated local population (excluding kids) (Hebert and Turnbull 1977, Kuck 1977, Cote et al. 2001).
d. For each hunted population, nanny harvest will be maintained at or below 30% of the total harvest. This will be accomplished by:
   - Requiring all goat hunters to view an educational video on mountain goat sex identification.
   - Restricting hunting opportunity for populations with excess nanny harvest for 3 years of a 5-year period.
e. Populations declining due to disease or high parasite loads may still be hunted but harvest generally will be reduced or possibly terminated depending on population size and rate of decline.

Issue Statement: The number of goat applications/permit has steadily increased from 11 in 1992 to 182 in 2001. There is a need for a fair and equitable approach for allocating goat permits while maintaining a quality hunt experience.

Objective ~~67~~ 76: Distribute recreational opportunity to as many individuals as possible, compatible with high quality goat hunting experiences and the biological status of goat populations.

~~*Alternative* Strategies:~~
a. Allow mountain goat hunting by permit only~~*~~.
b. Allow individuals to hunt mountain goat only once during their lifetime~~*~~.
c. Consider developing a preference point system consistent with deer and elk systems.
d. Consider other alternatives to reduce crowding.

*Strategy currently is implemented.

Issue Statement: Mountain goats are intriguing to many people. However, goats are a species that occur in low densities and typically occur in areas far from human disturbances. Nonetheless, some mountain goat populations are visible from roads, but viewing opportunities are limited.

Objective ~~68~~ 77: Develop one viewing opportunity for mountain goats.

~~*Alternative* Strategies:~~
a. Develop a web-cam viewing opportunity for mountain goats.
b. Develop vehicle tour and education board for mountain goat viewing areas.

Information and Education

Issue Statement: The public is not engaged in the recovery of declining goat populations. The public either is not aware of the status of mountain goats or lacks the necessary information to make informed decisions.

Objective ~~69~~ 78: Provide educational information on mountain goats to at least 50,000 people annually.

~~*Alternative* Strategies:~~
a. Develop a brochure describing mountain goat ecology and history of Washington's populations and their locations.
b. Develop an educational viewing opportunity and information website.
c. Discuss management of mountain goats at public forums.
d. Develop a segment for "Wild About Washington".

Enforcement

Issue Statement: Mountain goats naturally occur as bands of relatively low-density meta-populations. The scattered nature of these bands plus the marginal status of some specific mountain goat populations make illegal harvest or harassment a potentially critical factor. To ensure the sustainability of specific sub-populations, and the long-term existence of the entire meta-population, it's important to document all mortalities, and minimize illegal harvest and harassment of mountain goats.

Objective ~~70~~ 79: Develop a procedure to account for all mountain goat harvest mortalities.

~~*Alternative* Strategies:~~
a. Require reporting of all harvested mountain goats~~*~~.
b. Permanently mark all mountain goat mortalities.

* Strategy currently is implemented.

Research

Issue Statement: Mountain goat abundance has declined steadily over the last decade throughout much of their historic range. Little is know about the cause of the decline or the necessary steps to reverse the trend.

Objective ~~71~~ 80: Develop a peer-reviewed publication that describe at a minimum why mountain goat populations are declining, how to reverse the decline, and how to monitor goat populations.

~~Alternative~~ Strategies:
a. Conduct a mountain goat research project investigating the cause of the goat decline.
b. Solicit funding to sustain a five-year research project.
c. Encourage partnerships with interested stakeholders to fund and participate in mountain goat research projects.

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MOOSE (*Alces alces*)

I. POPULATION STATUS AND TREND

The number of moose in Washington has increased from about 60 in 1972 to 850-1,000 in 2002, corresponding to about a 9.6% annual increase in population size (Poelker 1972, Zender, pers. Commun.). This increase is the result of both increased moose density in prime habitats and colonization of moose into new areas. Today, moose occur in the northeastern counties of Ferry, Pend Oreille, Stevens, and Spokane (Figure 1). Moose are occasionally spotted in Lincoln, Whitman, Okanogan, and Whatcom Counties, and a few dispersing animals have been documented in surrounding areas.

II. RECREATIONAL OPPORTUNITY

Moose hunting in Washington began in 1977 with three permits in the Selkirk Mountains. Since then, moose populations have increased and expanded and the number of permits has increased accordingly. Since 1977, moose hunting has been limited by permit and the demand for moose hunting is high. The number of applications for moose permits has ranged from 1,214–8,623, corresponding to about 63–152 applications/permit (1992–2001 seasons).

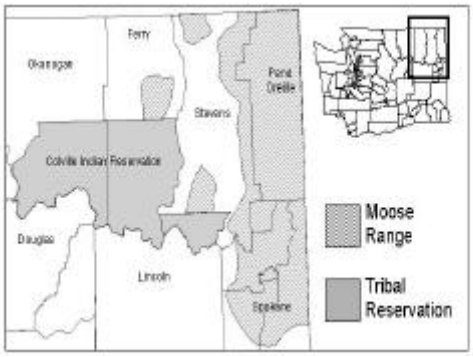

Figure 1. Occupied moose range in Washington, 2002.

Currently, moose hunts are by permit only and, if drawn, it is an once-in-a-lifetime opportunity (except youth-only antlerless hunts). Hunting season dates are October 1 - November 30 and hunters may use any legal weapon. Moose hunts are either “any moose” or “antlerless only”. In “any moose” hunts, the majority of the harvest is adult bulls. Antlerless only hunts are typically associated with population control efforts near suburban areas. Hunters typically see seven moose/day and, as such, harvest success is high (mean = 91%; 1992–2002). All moose hunters are required to report their hunting activities, regardless if they harvest a moose or not.

III. DATA COLLECTION

The Department conducts aerial surveys of all moose populations once every 1 to 3-years. Surveys typically are conducted during early winter and data are used to estimate calf recruitment, sex ratio, and trend. In addition to surveys, the Department monitors trends in harvest data, including number of hunters, total harvest, days hunted/kill, harvest success, moose seen while hunting, antler spread (if harvested a bull), and age of harvested moose.

IV. MOOSE MANAGEMENT GOALS

The statewide goals for moose are:

1. Preserve, protect, perpetuate, and manage moose and their habitats to ensure healthy, productive populations.
2. Manage moose for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
3. Manage statewide moose populations for a sustained yield.

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Moose are expanding both in abundance and range in Washington. However, the quantity and quality of moose habitat has not been evaluated or mapped. Therefore, the potential density and range expansion of moose is unknown.

Objective ~~72~~ 81: Develop a document that identifies the distribution and quality of moose habitat in Washington State.

~~Alternative~~ Strategies:
a. Conduct literature review on moose habitat requirements.
b. Conduct a survey to assess the quality of moose habitats.
c. Develop a GIS model to predict moose range and the quality of moose habitats.
d. Develop cooperative partnerships to assess the quality of moose habitats.

Population Management

Issue Statement: Currently, the status of moose populations is estimated through aerial surveys that are conducted on a 3-year rotation (i.e., all units surveyed once every 3-years). The efficacy of the data collected to serve as an indicator of population sustainability is unknown and has not been quantified.

Objective ~~73~~ 82: Monitor population demographics of moose at a level where a 20% decline in population size can be detected within 3-years.

~~Alternative~~ Strategies:
a. Conduct helicopter surveys for all moose population annually to estimate minimum abundance, bull:cow ratios, and cow:calf ratios.
b. Develop a sightability correction factor to estimate relative moose density from aerial surveys.
c. Develop an index (e.g., snow track or pellet group) to estimate moose density.

Recreation Management

Issue Statement: The demand for moose hunting opportunity exceeds the allowable harvest for sustainable moose populations. As such, the Department restricts moose harvest to a level compatible with long-term sustainability. In doing so, the Department manages moose harvest

as a high quality hunting opportunity, with moderate densities of moose and ample numbers of mature bulls. The result is a relatively high harvest success (mean = 91%) and post-season bull: cow ratios that are favorable for healthy moose populations.

Objective ~~74~~ 83: Provide recreational hunting opportunities in individual moose herds where harvest success averages ≥85% over a 3-year period, while at the same time moose population size remains stable or increasing.

~~Alternative~~ Strategies:

a. Moose populations will be surveyed annually beginning at least 2 years prior to being hunted to determine size, composition, and trend.
b. Moose harvest will be prescribed as follows:
   - Maintain ≥90% adult bulls in total harvest (Boer and Keppie 1988).
   - Maintain 10-30% antlerless moose in total harvest in areas where moose present a threat to human safety or property damage (Boer and Keppie 1988).
c. Consider liberalizing or restricting moose hunting opportunity as indicated below:

	Harvest		
Parameter [a]	**Liberalize**	**Acceptable**	**Restrict**
Average bull:100 cow ratio	>75 ~~70~~ bulls	~~50-70~~ 60-75 bulls	<60 ~~50~~ bulls
Average calf:100 cow ratio[b]	>50 ~~60~~ calves	30-~~60~~ 50 calves	<30 calves
Median age of harvested bulls	>6.5 years	4.5-5.5 years	<4.5 years

[a] Averaged over a 3-year period

[b] From Courtois and Lamontagne 1997

Issue Statement: Since 1991, the average number of moose applications/permit was 104 (range = 63–152). Given the high demand for hunting moose, there is a need for a fair and equitable approach for allocating moose permits while maintaining a quality hunt experience.

Objective ~~75~~ 84: Distribute recreational opportunity to as many individuals as possible, compatible with high quality moose hunting experiences and the biological status of moose populations.

~~Alternative~~ Strategies:

a. Allow moose hunting by permit only.
b. Allow individuals to hunt moose only once during their lifetime (except youth-only antlerless moose hunts, and auction and raffle hunts).
c. Consider developing a preference point system consistent with deer and elk systems.
d. Consider other alternatives to reduce crowding.

*Strategy currently is implemented.

Information and Education

Issue Statement: The Department has ~~no~~ limited information available for the public on moose ecology, population status, and management. To encourage public involvement in moose, there is a need for ~~an~~ additional educational materials ~~document~~.

Objective ~~76~~ 85: Develop educational document for moose in Washington.

~~Alternative~~ Strategies:

a. Develop a brochure describing moose ecology and management in Washington.
b. Expand WDFWs website on moose to include basic biology, population statistics, management.

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BLACK BEAR (*Ursus americanus*)

I. POPULATION STATUS AND TREND

Washington State has an abundant and healthy black bear population. Statewide, there are an estimated 25,000-30,000 bears and regional populations are likely stable to slightly increasing (Washington Dept. of Fish and Wildlife 1997). For management purposes, the state is divided into nine black bear management units (BBMUs) (Fig. 1). Harvest levels vary between BBMU depending on local population dynamics and conditions. To maintain stable bear populations, modifications to harvest levels are made on a 3-year rotation. The percentage of females in the total harvest and median ages of males and females are used as indicators of under or over exploitation (Beecham and Rohlman 1994) (Table 1).

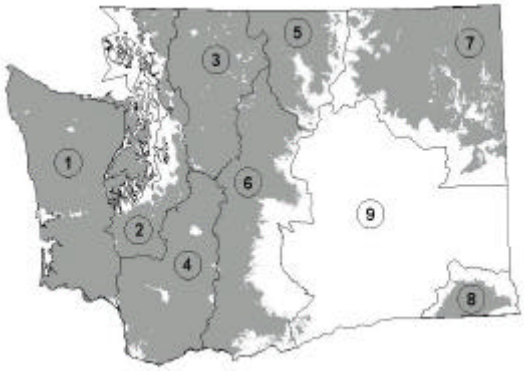

Figure 1. Black bear distribution and black bear management units (BBMU) in Washington, 2002.

II. RECREATIONAL OPPORTUNITY

Black bear seasons have changed significantly over the last 6 years. Washington voters passed Initiative 655 (which banned the use of bait and hounds for hunting black bear) in the November 1996 general election. Therefore, the use of bait and hounds for the hunting of black bear became illegal for the 1997 season. In an effort to mitigate the anticipated decrease in bear harvest (i.e., post I-655), 1997 bear seasons were lengthened and bear bag limit was increased in some areas. Legislation also was passed that provided the authority to the Fish and Wildlife Commission to establish reduced costs for black bear transport tags; an effort to increase the number of bear hunters and, therefore, bear harvest. As a result of these efforts, the post I-655 black bear harvest has stabilized similar to previous levels.

Table 1. Statewide black bear harvest, hunter effort and median age information, 1990 - 2000.

								Median Age		
Year	Male	Female	Total	# hunters	Success	Hunter Days	Days per kill	Males	Females	% females
1991	876	503	1,379	10,839	13%	84,771	61	3.5	4.5	36%
1992	921	521	1,442	13,642	11%	98,434	68	4.5	4.5	36%
1993	986	521	1,507	12,179	12%	102,558	68	3.5	5.5	35%
1994	654	419	1,073	11,530	9%	110,872	103	3.5	4.5	39%
1995	850	368	1,218	11,985	10%	102,859	84	3.5	4.5	30%
1996	951	359	1,310	12,868	10%	104,431	80	4.5	5.5	27%
1997	546	298	844	11,060	8%	97,426	115	4.5	5.5	35%
1998	1,157	645	1,802	20,891	9%	216,456	120	4.5	5.5	36%
1999	757	349	1,106	37,033	3%	481,319	435	4.5	5.5	32%
2000	777	371	1,148	37,401	3%	296,849	259	4.0	6.0	32%

III. DATA COLLECTION

No formal surveys are conducted in Washington for black bears. In the recent past, Washington Department of Fish and Wildlife conducted bait station surveys as an index of relative bear abundance. However, an analysis of statistical power indicated that at the level of survey intensity (limited by funding), managers would not be able to detect a change in bear abundance using bait stations (Rice et al. 2001). As such, the survey technique was discontinued. Ideas for future survey efforts are being planned and will likely focus on monitoring adult female survival and capture-recapture via DNA or resight methods.

IV. HUMAN-BEAR CONFLICT

Bears and humans are often in conflict given the distribution of bears in Washington and their adaptability to suburban environments. Approximately 300-600 human-bear interactions are documented annually (Washington Dept. of Fish and Wildlife 2001). There is a tendency to equate levels of human-bear interactions with bear abundance. However, bear nuisance and damage activity may not be a good indicator of population status, but more likely reflects the variability of environmental conditions. For example, in 1996 human-bear complaints were at an all time high, the same year Washington experienced a late spring with poor forage conditions for black bear, followed by a poor fall huckleberry crop.

V. MANAGEMENT

Washington has a unique and challenging situation when it comes to management of our black bear population. Washington is the smallest of the eleven western states, yet has the second highest human population; a population that continues to grow at record levels. Washington also has one of the largest black bear populations in all of the lower 48 states. Given that approximately 75% of the black bear habitat is in federal or private industrial ownership, a large portion of core black bear habitat is relatively secure. This means that the long-term outlook for black bear is generally good.

VI. BLACK BEAR MANAGEMENT GOALS

The statewide goals for black bear are:

~~1. Manage statewide black bear populations for a sustained yield.~~
~~2. Manage black bear for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.~~
~~3. Preserve, protect, perpetuate, and manage black bear and their habitats to ensure healthy, productive populations.~~
~~4. Minimize threats to public safety from black bears, while at the same time maintaining a sustainable and viable bear population.~~

1. <u>Preserve, protect, perpetuate, and manage black bear and their habitats to ensure healthy,</u>

productive populations.

2. Minimize threats to public safety from black bears, while at the same time maintaining a sustainable and viable bear population.
3. Manage black bear for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
4. Manage statewide black bear populations for a sustained yield.

VII. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Management of Hunting Opportunity

Issue Statement: Public support for hunting black bears is lower than support for hunting several other big game animals (Duda et al. 2002). In 1995, voter initiative 655 reflected those attitudes and, when passed in 1996, banned the use of dogs and bait for hunting bears. Recognizing public and hunter attitudes, WDFW faces challenging decisions about balancing hunter opportunities with public attitudes.

Objective 86: Consider implementing at least two management strategies related to black bear hunting by 2008 to address public opinions.

Note: Some of the following strategies correspond to specific objectives within the Plan.

Strategies:

a. Establish black bear reserves (see objective 88).
b. Maintain current predator hunting programs and minimize changes (see objective 90)
c. Provide strategies to mitigate problem bears that correspond to methods supported by the public (see objective 93).
d. Focus bear hunting efforts to those areas and situations that address human safety, protection of pets and livestock, and recovery of listed species (see objectives 90 and 93).
e. Make any changes to current bear hunting on a gradual basis to promote public involvement.

Habitat Management

Issue Statement: Black bear distribution and habitat use are influenced by a variety of environmental and anthropogenic factors. It's important to understand and predict how these factors influence bears to properly manage bear populations for sustainable harvest as well as minimizing negative human-bear interactions.

Objective ~~77~~ 87: Develop a document and map identifying core habitat areas for black bears.

~~Alternative~~ Strategies:

a. Delineate core habitat areas for black bears from regional staff expertise.
b. Expand habitat preference results from 2001 black bear study final report to entire state.
c. Work cooperatively with state, federal, tribal, and private entities to develop relative habitat use probability model for black bears.

Population Management

Issue Statement: Protecting black bears from harvest in key geographic areas is one way to safeguard from potential over-harvest. Bear reserves protect a core population of breeding females and act as a source for surplus animals to disperse in to surrounding habitats. Reserves can be specific areas closed to hunting solely to protect bears, or areas that are closed to hunting for other reasons and thereby act as *defacto* reserves (e.g., national parks, private land with restricted access).

Objective ~~78~~ 88: ~~Develop a document that identifies 10% of land area as black bear reserves in each BBMU (except BBMU 9).~~ Develop a document that identifies existing land areas that function as black bear reserves in each BBMU (except BBMU 9).

~~Alternative~~ Strategies:

a. Identify all public and private lands currently closed to bear hunting that are functioning as reserves.
b. Identify priority areas that may be necessary ~~closed to bear hunting~~ as potential bear reserves.
c. Coordinate with state, federal, tribal, and private landowner for identifying potential bear reserves.

Issue Statement: Managers often use sex and age structure data of harvested bears as an index to population growth (Pelton 2000). However, examining just sex and age structure may provide misleading interpretations (Caughley 1974, Bunnell and Tait 1981, Garshelis 1991, Clark 1999). That is, the age structure of a declining bear population can be exactly the same as the age structure in an increasing population. In addition to this shortcoming, there is often a time lag between when a population begins to decline and when that decline is evident in sex and age structure data (Harris 1984). In some cases, by the time a decline is detected, bear numbers may have been reduced to a point where it could take as long as 15-years to recover the population. However, detecting a decline early can enable managers to make a quicker recovery.

Sensitivity analyses of bear populations indicate that adult female and cub survival are the most influential parameters to population growth rates (Clark 1999). As such, managers should focus survey efforts on improving the estimates of these parameters, while at the same time evaluating harvest data to assess long-term trends (Clark 1999).

Objective ~~79~~ 89: Monitor population demographics of black bears at a level where a 20% decline in population size can be detected within 3-years or less.

~~Alternative~~ Strategies:

a. Develop a survey method to estimate female and cub survival of bears in each BBMU (excluding BBMU 9).
b. Estimate population growth using population reconstruction and modeling.
c. Use sex and age ratio's of harvest bears as indicators of population change.

Recreation Management

Issue Statement: Hunting is the largest source of mortality for hunted bear populations (Bunnell and Tait 1985, Pelton 2000). Coupled with the low reproductive potential of bears, this makes bear populations especially sensitive to over-exploitation. For that reason, managers use a variety of biological and population trend data to assess the impacts of hunting on bear populations. In Washington, managers have used sex and age data from harvested bears as an indicator of exploitation levels (Washington Dept. of Fish and Wildlife 1997). The premise of this method is based on the vulnerability of different sex and age classes of black bears (Beecham and Rohlman 1994). As ages of harvest bears decline, and percentage of females in the harvested population increases, the exploitation level of the bear population is increasing. A drawback of this method is that sex and age data alone are not necessarily accurate measures of population status (see ***Issue Statement for Objective 79***). A supplemental measure of population status is needed to properly manage bear populations in Washington.

The harvest guidelines identified below favor a stable and healthy bear population and are consistent with long-term sustainability. The corresponding bear population should remain at or near current levels and it is unlikely it will result in greater impacts to other wildlife species (i.e., deer and elk) or habitat communities.

Objective ~~80~~ 90: Provide recreational hunting opportunities to harvest 800–1,200 black bears statewide, while at the same time maintaining a sustainable bear population in each BBMU.

~~Alternative~~ Strategies:

a. Provide black bear hunting opportunities in each BBMU, with focused harvest in areas where public safety, property damage, and pet and livestock depredation are evident.
b. Develop harvest criteria that incorporate survey data from monitoring female and cub survivorship.
c. Until more robust harvest criteria are developed, consider liberalizing or restricting bear hunting opportunity in each BBMU as indicated below:

	Harvest		
Parameter	**Liberalize**	**Acceptable**	**Restrict**
% Females in harvest	< 35%	35-39%	> 39%
Median age of harvested females	> 6 years	5-6 years	< 5 years
Median age of harvested males	> 4 years	2-4 years	< 2 years

Note: Thresholds outlined in strategy "c" above are currently implemented.

Issue Statement : Prior to 1996, the majority of harvested black bear were taken with the aid of dogs or bait. At that time, the public voiced concern about potential impacts to grizzly bears. This is, inadvertently attracting a grizzly bear to a bait site or dogs inadvertently pursuing a grizzly bear. With the prohibition on the use of dogs and bait for recreational hunting of bears, potential impacts to grizzly bears caused by dogs or bait was eliminated.

Objective 91: Minimize impacts of black bear hunting on grizzly bears.

Strategies:

a. Provide educational materials to black bear hunters that are hunting in areas with a known grizzly bear population*.
b. Consider conducting agency-hunter contacts during black bear hunting season in areas with a known grizzly bear population*.

* These strategies currently are being conducted.

Public Safety

Issue Statement: A primary objective of WDFW is to protect people from dangerous wildlife, including black bears. While guaranteeing that black bears will never negatively impact people is impossible, the Department does implement activities to reduce human-bear interactions.

Objective 92: Minimize negative human-bear interactions so that the "number of interactions per capita" is constant or declining.

Strategies:

a. Conduct "Living with Wildlife" workshops annually.
b. Distribute educational materials to key entities and locations.
c. Evaluate the efficacy of capture-relocation of problem bears for mitigating conflict.
d. Encourage recreational bear harvest in areas with demonstrated human-bear interactions.
e. Revise "control of dangerous wildlife" policy.
f. Utilize agency kill authority and depredation permits for problem bear incidents.

Timber damage

Issue Statement: Bear foods are scarce during spring, particularly those with a high nutritional value. Consequently, bears often forage on the cambium layer of coniferous trees. During spring, cambium is one of the few foods available to bears and it has a relatively high nutritional value compared to other available foods. Trees with the highest nutritional value, hence preferred by bears, are those with high growth rates, such as trees on private industrial timberlands. Bear selection for high-nutritional cambium is so acute that industrial timberlands can experience damage that exceeds one-third of the trees in a given stand. These damage rates can result in economic losses for landowners. For that reason, private landowners of industrial timberlands seek ways to mitigate tree damage caused by bears.

Objective ~~81~~ 93: Reduce annual bear damage to <30 trees/stand* on private industrial timberlands.

~~Alternative~~ Strategies:

a. Provide educational information on how to avoid timber damage by bears.
b. Encourage the use of non-lethal methods, such as capture-relocation or aversive conditioning, for responding to timber damage by bears.
c. Provide focused recreational bear hunting seasons in spring to mitigate timber damage by bears (see objective 94).
d. Issue a bear depredation permit when one of the following criteria is met:

- ≥ 30 trees peeled in a spring and trees are in a clumping pattern within a stand*.
- ≥ 30 trees peeled over an ongoing 3-year period and trees in a clumping pattern within a stand* of precommerically-thinned timber, ≤ 30 years of age.

e. Collaborate mitigation efforts with state, federal, and private landowners, particularly efforts associated with Private Lands Wildlife Management Areas.

* Efforts will be made to standardize the definition of a "stand" to account for the frequency of damage per unit area

Objective 94:* Determine the level of support from the public for spring black bear hunting in those commercial timber areas that receive damage and the feasibility of a spring damage hunt.

* See objective 14 in Chapter 2 for issue statement

Strategies:

a. Conduct extensive public involvement and education prior to recommending spring black bear hunting designed to reduce commercial timber damage.
b. Develop a fact sheet describing the feasibility of trap and relocation efforts prior to implementing spring seasons.
c. Implement localized spring hunts on a limited basis to determine effectiveness prior to recommending expansion.
d. Retain current black bear timber damage management program using contractors.

Enforcement

Issue Statement: In several Asian countries, gall bladders of native Asian bear species are used for food or medicinal purposes (Williamson 2001). The high demand for bear gall has resulted in severe over-exploitation, in both Asiatic and brown bear. This situation has placed greater pressure on North American bears to supply the exorbitant demand for gall bladders. To protect Washington's black bears from this type of commercialization, laws were established to make it illegal to trade, barter, buy, or sell any bear parts. However, the demand for bear gall is so high, that several states have found commercialized poaching rings that specialize in black bears only. Given the economic incentives for poaching bears for galls and the history of offenses in numerous states, it's important to develop a long-term program to assess this form of illegal activity.

Objective ~~82~~ 95: Develop a long-term monitoring plan for assessing the level of illegal trading of bear gall bladders.

~~Alternative~~ Strategies:

a. Develop protocols to determine the prevalence of hunters that illegally sell the gall bladders from bears they harvest.
b. Assess the level of poaching by monitoring radio marked bears.
c. Use under cover enforcement operations, to prevent over exploitation of black bears, focused on public lands and reserves.
d. As opportunities occur, consider incorporating other methods to assess illegal take of black bears.

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COUGAR (*Puma concolor*)

I. POPULATION STATUS AND TREND

Cougar occur throughout most of the forested regions of Washington State, and encompass approximately 88,497 km^2 or 51% of the state (Figure 1). No reliable estimate of lion abundance is available, however ~~model~~ estimates using population reconstruction and home range analysis indicate that their current population size ranges between 2,500-4,000 animals statewide. For management purposes, the state is divided into nine cougar management units (CMUs)(Figure 1).

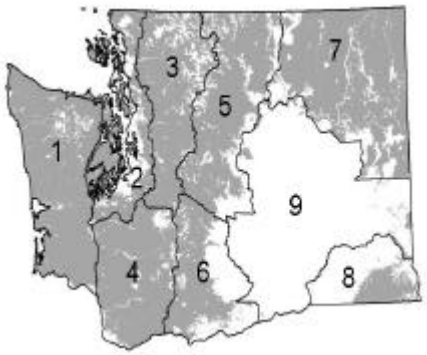

Figure 1. Distribution of cougars (gray) and cougar management units (CMUs) (numbers) in Washington.

II. RECREATIONAL OPPORTUNITY

Cougar were classified as a bounty animal in Washington State from 1935-1960. They were reclassified as a predator from 1961-1965, and again as a game animal from 1966-present (Figure 2). Historically, dogs were used to aid in lion harvest and accounted for about 90% of the take. In the last decade, hunting methods have shifted toward spot and stalk harvest and incidental take by deer and elk hunters. As a result of the season structure changes, the number of recreational days open to lion hunting has increased from a low of 30 days in 1996 to a high of 228 days in 1999.

The number of hunters purchasing a cougar tag has increased in Washington, largely an artifact of changes in license cost, bag limits, and season length. ~~Interestingly, the number of lions harvest annually has not significantly changed. This disparity is most likely a result of the lower success rate of lion hunting without hounds (1%) compared to hunting with hounds (60%), and~~

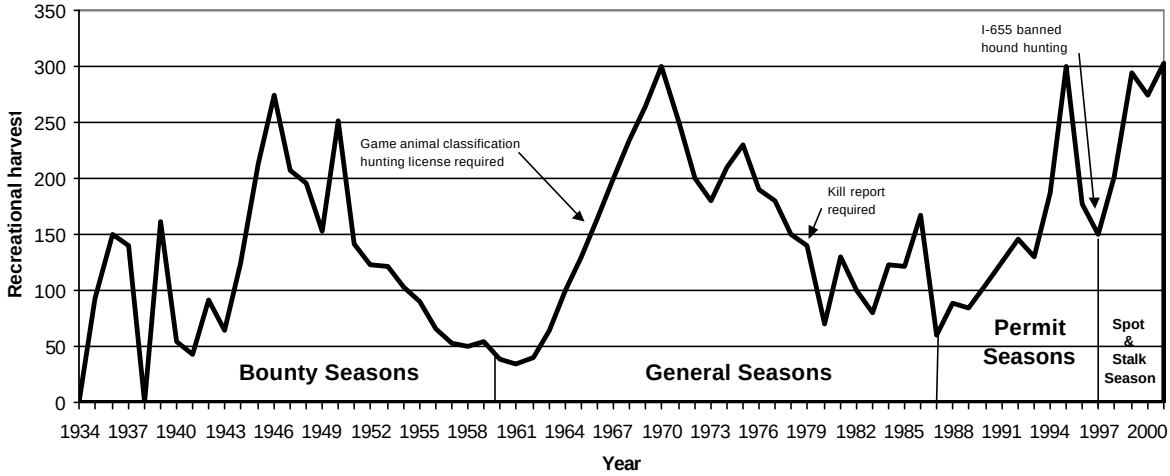

Figure 2. Trends in cougar season structure and harvest in Washington, 1935-2001.

~~the increase in the number of hunters purchasing a cougar tag.~~ This has, in part, resulted in an increase in the number of lions harvested.

III. DATA COLLECTION

The majority of data collected on cougar is from harvest, as no formal surveys are conducted. A mandatory carcass check is required for all harvested lions, where data samples are collected including; kill date and location, sex, age (via cementum annuli analysis), physical condition, weight, DNA (via tissue sample), and hunter information. From these data the Department monitors kill date and location, total kill, and sex and age composition of the harvest. In addition, age and sex data are used to develop population size estimates using reconstruction and modeling.

IV. COUGAR MANAGEMENT GOALS

The statewide goals for cougar are:

1. Preserve, protect, perpetuate, and manage cougar and their habitats to ensure healthy, productive populations.
2. Minimize threats to public safety from cougars, while at the same time maintaining a sustainable and viable cougar populations.
3. Manage cougar for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
4. Manage statewide cougar populations for a sustained yield.

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Management of Hunting Opportunity

Issue Statement: Public support for hunting cougars is lower than support for hunting several other big game animals (Duda et al. 2002). In 1996, voter initiative 655 reflected those attitudes and banned the use of dogs for hunting cougars. Recognizing public and hunter attitudes, WDFW faces challenging decisions about balancing hunter opportunities with public attitudes.

Objective 96: Consider implementing at least two management strategies related to cougar hunting by 2008 to address public opinions.

Note: Some of the following strategies correspond to other objectives within the Plan and are noted as such.

Strategies:

a. Identify cougar reserve areas (see objective 98).
b. Reduce cougar harvest to approximately 250 cougars annually (see objective 100)
c. Provide strategies to mitigate problem cougars that correspond to methods supported by the public (see objective 100 and 103).
d. Focus cougar hunting efforts to those areas and situations that address human safety, protection of pets and livestock, and recovery of listed species (see objective 100).

Habitat Management

Issue Statement: The density of cougars is not uniform across the landscape. Rather, cougar densities likely vary based on prey abundances, vegetation conditions, human disturbances, and other factors that influence cougar habitat. To properly manage cougar populations (e.g., harvest, public safety), it's important to identify core and peripheral habitats so management decisions can be adjusted accordingly.

Objective ~~83~~ 97: Develop a map identifying core habitat areas for cougar.

~~Alternative~~ Strategies:
a. Conduct literature review on cougar habitat requirements.
b. Identify distributions of important prey items.
c. Develop a model identifying relative habitat suitability for cougar.
d. Incorporate data from past and current studies.

Population Management

Issue Statement: The statewide cougar population likely is declining by at least 5% annually given the harvest levels during the last 3-years. This decline is supported by analyses of cougar harvest trends, sex and age ratio data from harvested cougar, and population modeling. Using modeling to predict population growth, this decline can be stabilized through a combination of reducing total harvest, limiting the harvest of adult females to approximately 30%, and establishing cougar reserves. As such, the impacts of the management strategies for the cougar population are a gradual shift from a declining cougar population to a long-term sustainable and stable cougar population in areas where public safety and protection of property are not a concern. In those area where public safety and property protection are a concern, cougar population may be managed at lower levels consistent with maximize public safety.

The population management objectives and strategies for cougar are consistent with current management strategies for prey species. That is, it is unlikely that cougar populations will be negatively impacted by management strategies for deer, elk, and other prey species. However, the population management objectives and strategies potentially may impact predator-prey relationships; primarily with small, isolated ungulate populations. As a result of a lower cougar harvest level is some CMUs (Objective 100), a corresponding increase in some local cougar populations may result in more predation by cougar on ungulates. If there was an increase in the predation rate, it's unknown whether the prey mortality would be additive or compensatory, or whether the net result would be large enough to detect. While there is evidence that cougar populations can impact a prey population's growth rate, these incidences typically are associated with a small, isolated prey population or a prey population that suffers from other environmental stressors. As such, the above objectives and strategies provide the flexibility, when warranted, to address declines in prey species as a result of predation by cougar.

Within the framework of maintaining a sustainable cougar population statewide, the primary tool used to manage cougar abundance is lethal control (either through recreational harvest or public

safety removal). However, the lethal taking of a predetermined number of cougars is not always achieved and annual harvest can fluctuate widely. This makes managing cougars on an annual basis, and within sustainable levels, problematic.

Protecting cougars from harvest in key geographic areas is one way to provided added safeguards from potential over-harvest (Clark 1999, Logan and Sweanor 2001). Cougar reserves protect a core population of breeding females and provide a source for surplus animals to disperse in to surrounding habitats (Lindzey et al. 1988, Spreadbury et al. 1996, Spencer et al. 2001). Reserves can be specific areas closed to hunting solely to protect cougars, or areas that are closed to hunting for other reasons and thereby act as *defacto* reserves (e.g., national parks, watersheds, wilderness areas, and private land with restricted access).

Objective ~~84~~ 98: ~~Develop a document and map that identifies 10% of land areas as cougar reserves in each CMU (except CMUs 2 and 7)~~. Develop a document that identifies existing land areas that function as cougar reserves in each CMU (except CMUs 2, 7, 9).

~~Alternative~~ Strategies:
a. Identify all public and private lands currently closed to cougar hunting that are functioning as reserves.
b. ~~Identify all private lands with restricted access~~
c. Identify priority areas that may be necessary as potential ~~cougar~~ reserves.
d. Coordinate with state, federal, tribal, and private landowner for identifying potential cougar reserves.

~~Population Management~~

Issue Statement: Historically, trends in sex ratios and ages of harvested cougar were used to evaluate the impact of cougar harvest on long-term sustainability. However, trend analyses are only useful when the parameters being monitored are proven to be valid indicators of population status and when the collection methods are constant overtime (Caughley 1977). Today, neither of these two requirements have been satisfied for cougars in Washington. As such, there is a critical need for a robust population indicator to properly manage cougars.

Objective ~~85~~ 99: For each CMU, monitor population demographics of cougar at a level where a 20% decline in population size can be detected within 3-years or less.

~~Alternative~~ Strategies:
a. Evaluate the utility of age structure and sex ratio as indicators of relative population size.
b. Develop inventory and monitoring protocols for cougars.
c. Estimate population growth using population reconstruction and modeling.
d. Estimate minimum and maximum harvest thresholds through modeling.

Recreation Management

Issue Statement: Prior to 1996, the majority of harvested cougar were taken with the aid of dogs. At that time, the public voiced concern about impacts to non-target species (i.e., dogs pursuing

lynx or grizzly bear). With the prohibition on the use of dogs for recreational hunting of all native cats and bears, potential impacts to non-target species caused by dogs was eliminated. The only exception to this is the potential impacts to lynx or grizzly bears during public safety cougar removals, when it's lawful to use dogs to pursue cougar. However, the potential for an encounter between dogs and these listed species is low given the narrow geographical focus of the removals and the relatively low number of participants. In addition, the timing of the cougar removals (Dec.–Mar.) corresponds to the winter dormancy period for bears, thereby greatly diminishing any potential for impacts to grizzly bears. Recognizing that there is some potential to encounter a lynx, specific educational materials that outline steps to minimize impacts to lynx will be provided to all cougar removal participants.

In general, cougars are managed to protect human safety and property, and provide recreational hunting opportunities, while at the same time ensuring long-term sustainability. To accomplish this cougars are managed geographically in nine CMUs and the management needs vary based on the biological and public safety issues in each CMU.

To enhance this type of management system, ~~cougar~~ harvest ~~is regulated through harvest quotas~~ guidelines for male and female lions were established for each CMU (Ross and Jalkotzy 1996). ~~Quotas vary according to biological information, public safety concerns, and local public opinion. Within that framework, total harvest represents about 11% of the cougar population in each CMU and adult females are afforded added protected compared to males (Ross and Jalkotzy 1996, Logan and Sweanor 2000).~~ These harvest guidelines were developed by evaluating trends in past harvest, age and sex structure data, population reconstruction models, and population growth projections. The guidelines are consistent with managing for a stable and sustainable cougar population, and this is mainly achieved by regulating total harvest and limiting female harvest to about 30% of the total take (Ross and Jalkotzy 1996, Logan and Sweanor 2000). Within that framework, the harvest guidelines are adjusted to address concerns for public safety and protection of property (Objective 101).

Objective ~~86~~ 100: Provide recreational opportunities to harvest approximately ≤ 250 ~~236~~ cougars statewide, while at the same time maintaining a sustainable cougar population in each cougar management unit (excluding CMU 2 and 9).

~~Alternative~~ Strategies:

~~a. Implement male and female harvest quotas for areas open to hunting (Table 1).~~
~~b. Close cougar hunting in each CMU when female or total quota is achieved (except CMUs 2 and 7).~~

a. Establish recreational hunting seasons that target the harvest guidelines identified in Table 1.
b. Update harvest guidelines every 3-years, corresponding to the 3-year hunting season package.
c. Provide educational materials to all public safety cougar removal participants to help minimize interactions with lynx.

Table 1. ~~Harvest quota[a] for cougar~~ Female and male cougar harvest guidelines[a] by Cougar Management Unit (CMU).

CMU	~~Quota~~ Guideline[a] Female	Male	Total	Ave. harvest 1999-2001
1. Coastal	10	18	28	26
2. Puget Sound[b]	No harvest limit			16
3. North Cascades	10	18	28	15
4. South Cascades	7	15	22	17
5. East Cascades North	13	27	40	56
6. East Cascades South	4	9	13	13
7. Northeastern[c]	40 ~~26~~	54	94 ~~80~~	113
8. Blue Mountains	8	17	25	24
9. Columbia Basin[d]	No harvest limit			3
Statewide	**92 ~~78~~**	**158**	**250 ~~236~~**	**282**

[a] Guidelines ~~quotas~~ are based on current biological information and harvest levels during the past 3-years; guidelines include recreational harvest, depredation kills, and public safety cougar removals. However, guidelines ~~quotas~~ may be exceeded for depredation kills and public safety cougar removals.
[b] No guidelines ~~quotas~~ due to public safety concerns.
[c] Female harvest guideline exceeds 30% due to concerns for public safety and property damage.
[d] No guidelines due to area not considered cougar range.

Public Safety

Issue Statement: The public safety objectives and strategies will likely impact the public by increasing public safety in specific areas. Objectives 100 and 101 outline a more flexible harvest strategy for areas with a demonstrated history of human-cougar interactions. In addition, objective 101 and 102 include an enhanced educational program and research activities aimed specifically at gaining information to better manage cougars in suburban versus rural environments.

A primary objective of WDFW is to protect people from dangerous wildlife, including cougars. While guaranteeing that cougars will never negatively impact people is impossible, the Department does implement activities to reduce human-cougar interactions in areas with a demonstrated history of conflict (Conover 2001).

Objective ~~87~~ 101: Minimize cougar-human interactions to fewer than 11 confirmed complaints annually in each Game Management Unit (GMU).

~~Alternative~~ Strategies:
a. Conduct "Living with ~~Dangerous~~ Wildlife" workshops annually.
b. Distribute educational materials to key entities and locations.

c. Consistent with Agency policy, consider capture-relocation as a tool for managing problem cougar (See Research strategies)
d. Encourage recreational cougar harvest in areas with demonstrated human-cougar interactions.
e. Revise "control of dangerous wildlife" policy.
f. Utilize agency kill authority and depredation permits for problem cougar incidents.
g. Conduct public safety cougar removals in GMUs with demonstrated history of human-cougar interactions.

Enforcement

Issue Statement: To properly manage cougar populations for sustainability, prevent over harvest, and achieve public safety goals, it's imperative to know how many animals are lethally removed each year, the kill location, and biological data related to the animal (e.g., age, sex, weight).

Objective ~~88~~ 102: Account for all human related cougar mortalities.

~~Alternative~~ Strategies:
a. Require mandatory carcass check of all harvested cougar*.
b. Mark all harvested cougar with a unique pelt identification tag*.
c. Collect biological information from all harvested cougar*.

* These strategies currently are implemented.

Research

Issue Statement: Cougars and people live in close proximity to each other in several areas of the state, making the potential for conflict high. Unfortunately, little information is known about cougar populations, particular in suburban environments. Understanding cougar dynamics in these environments is critical, as the potential for conflict will likely increase as human populations continue to increase and expand into rural environments (Spencer et al. 2001).

Objective ~~89~~ 103: Develop a document that describes the demographic and behavioral differences between cougar populations in suburban versus rural environments.

~~Alternative~~ Strategies:
a. Initiate a cougar research project investigating cougar populations in rural and suburban environments.
b. Evaluate the efficacy of capture-relocation of problem cougars for mitigating conflict.
c. Investigate the role of corridor design for facilitating or discouraging cougar movements.

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WATERFOWL (Family *Anatidae*)

I. POPULATION STATUS AND TREND

Washington provides wintering habitat for approximately 850,000 ducks, 125,000 geese, and 8,000 swans annually. In addition, the state provides habitat for approximately 160,000 breeding ducks and 50,000 breeding geese each spring and summer. The Pacific Flyway waterfowl population contains almost six million ducks, geese, and swans, and many of these birds pass through the state during fall and spring. Washington ducks are classified in the subfamily *Anatinae*, and belong to 4 tribes, 12 genera, and 27 species. The most common duck species in the winter, in the harvest, and during breeding season is the mallard. Washington geese and swans are classified in the subfamily *Anserinae*, and belong to 2 tribes, 4 genera, and 8 species. Canada geese found in Washington include 7 subspecies. The most common goose during the breeding season and in the harvest is the western Canada goose. The most common swan using Washington wintering habitats is the tundra swan.

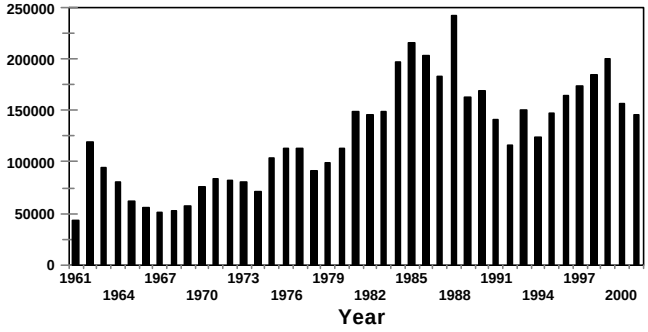

Figure 1. Eastern Washington breeding ducks.

II. RECREATIONAL OPPORTUNITY

Waterfowl are hunted from September's youth hunt through special damage hunts in March. Seasons are based on frameworks established by USFWS, in conjunction with the Pacific Flyway Council. Over 40,000 hunters harvest 500,000 ducks and 70,000 geese each year in Washington, providing over 400,000 days of recreation annually. Washington ranks second among the 11 Pacific Flyway states and in the top ten states in the U.S. considering waterfowl harvested and number of hunters.

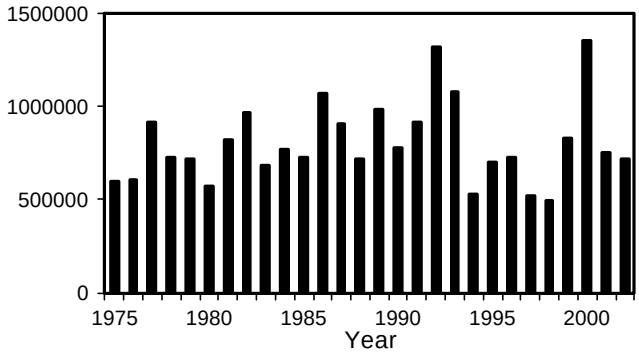

Figure 2. Washington mid-winter waterfowl inventory.

III. DATA COLLECTION

The Department maintains a variety of activities to estimate the size of the waterfowl population, productivity, movements, and harvest. Breeding surveys are completed in April and May, duck production surveys in July, migration counts in October-December, and winter index counts in January, completed cooperatively with USFWS. Duck and goose harvest is estimated using a mail questionnaire and special card survey completed in May.

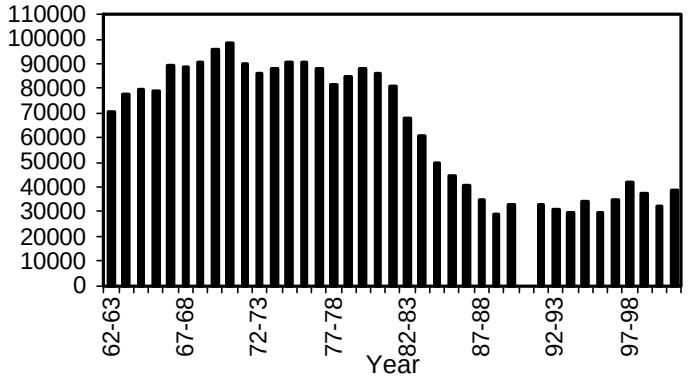

Figure 3. Western Washington waterfowl hunters.

IV. MANAGEMENT

This section describes the management direction of the waterfowl program on a statewide basis. Management of Washington waterfowl is linked to numerous long-term interagency and international management programs. Although the USFWS has nationwide management authority for migratory birds, effective management of these resources depends on established cooperative programs developed through the Pacific Flyway Council and North American Waterfowl Management Plan (NAWMP) Joint Ventures. Goals and objectives described in this plan follow interagency and other cooperative planning efforts. Strategies identified in this plan will guide work plan activities and priorities, and must be accomplished to meet the goals and objectives.

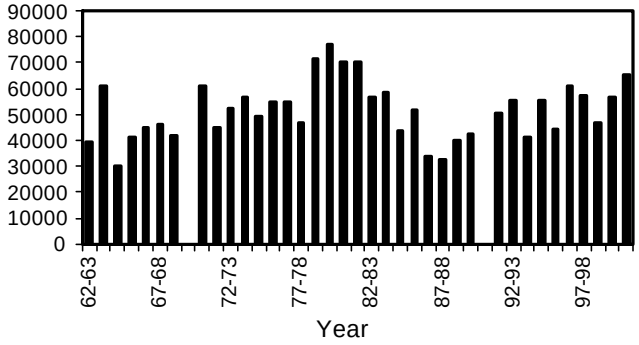

Figure 4. Washington Canada goose harvest.

V. WATERFOWL MANAGEMENT GOALS

The statewide goals for waterfowl are:

1. Manage statewide populations of ~~mourning doves, band-tailed pigeons, coots, and snipe~~waterfowl for a sustained yield consistent with Pacific Flyway management goals.
2. Manage waterfowl for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
3. Preserve, protect, perpetuate, and manage waterfowl and their habitats to ensure healthy,

productive populations.

VI. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Wetlands and other waterfowl habitats are being lost throughout Washington due to development and conversion to other uses.

Objective ~~90~~ 104: Quantify and reduce habitat loss to achieve Joint Venture objectives.

~~Alternative~~ Strategies:

a. Update or develop habitat management guidelines and maps ~~showing~~ recent habitat losses by 2008.
b. Provide resource information to other agencies and organizations to influence land use decisions.
c. In cooperation with other agencies, track critical habitat status and trends (e.g., freshwater wetlands)

Objective ~~91~~ 105: Provide funding through state migratory bird stamp/print revenues and the Washington Wildlife and Recreation Program to protect / enhance 1000 acres of new habitat annually for all migratory birds. This acreage target was selected based on past annual accomplishments of the migratory bird stamp/print program.

~~Alternative~~ Strategies:

a. Determine habitat protection and enhancement needs considering Joint Venture plans, literature, and regional expertise.
b. Solicit project proposals from regional staff and external organizations.
c. Develop a stamp/print expenditure plan before the start of each new biennium, using an evaluation team from a statewide cross-section of Department experts.
d. Provide emphasis on projects to increase waterfowl recruitment in eastern Washington, wintering habitat and access in western Washington.
e. When allocating migratory bird stamp funds, consider fund allocation goals presented to the Legislature when the program was established:
   - Habitat acquisition 48%
   - Enhancement of wildlife areas 25%
   - Project administration 18%
   - Food plots on private lands 9%
f. Monitor effectiveness of habitat projects through focused evaluation projects before and after implementation.

Objective ~~92~~ 106: Interact with other agencies and organizations to leverage migratory bird stamp funding by at least 100% annually. This percentage target was selected based on past annual accomplishments of the migratory bird stamp/print program.

~~Alternative~~ Strategies:

a. Participate in organizations designed to deliver habitat improvements via multi-organization partnerships (e.g., Pacific Coast Joint Venture, Intermountain West Joint Venture).

b. Seek outside funding sources to leverage state revenues, through habitat improvement grants (e.g., National Coast Wetlands Grant, North American Wetlands Conservation Act).

Population Management

Issue Statement: Documentation of population size, movements, and mortality factors is difficult due to the highly migratory nature of waterfowl species.

Objective ~~93~~ 107: Manage waterfowl populations consistent with population objectives outlined in Table 1, developed considering NAWMP, Pacific Flyway Council, and Joint Venture plans.

~~Table 1. Waterfowl population objectives.~~

Table 1. Waterfowl population objectives (3-yr averages, unless noted).

~~Species / subsp. / population~~	~~Area~~	~~Population Objective~~	~~Measure~~
Species / subsp. / pop.	**Area**	**Current Index (2002)**	**Population Objective**	**Measure**
~~Mallard~~		~~N. America~~	~~8.7 million~~	~~breeding index~~
Mallard	N. America	7.5 million (annual)	8.7 million (annual)	breeding index
~~Pintail~~		~~N. America~~	~~6.3 million~~	~~breeding index~~
Pintail	N. America	1.8 million (annual)	6.3 million (annual)	breeding index
~~Western Canada goose~~		~~W. Wash.~~	~~1,500~~	~~nest index~~
Western Canada goose	W. Wash.	1,705	1,500	nest index
~~Western Canada goose~~		~~E. Wash.~~	~~2,000~~	~~nest index~~
Western Canada goose	E. Wash.	2,340	2,000	nest index
~~Cackling Canada goose~~		~~Flyway~~	~~250,000~~	~~breeding index~~
Cackling Canada goose	Flyway	166,986	250,000	breeding index
~~Dusky Canada goose~~		~~Flyway~~	~~16,000~~	~~winter index~~
Dusky Canada goose	Flyway	16,665	16,000	winter index
~~Canada goose~~		~~L. Col. R. / W.V.~~	~~reduce 133K 107K~~	~~winter index~~
Canada goose	L. Col. R. / W.V.	137,010 (annual)	reduce 133K 107K	winter index
~~Wrangel Island snow goose~~		~~Skagit/Fraser~~	~~35,000~~	~~winter index~~
Wrangel Island snow goose	Skagit/Fraser	54,354	35,000	winter index
~~Wrangel Island snow goose~~		~~Flyway~~	~~120,000~~	~~spring index~~
Wrangel Island snow goose	Flyway	103,000	120,000	spring index
~~Black brant~~		~~Flyway~~	~~150,000~~	~~winter index~~
Black brant	Flyway	132,177	150,000	winter index
~~Black brant~~		~~Wash. Bays~~	~~13,000~~	~~winter index~~
Black brant	Wash. Bays	5,256	13,000	winter index
~~Western High Arctic brant~~		~~Skagit/Fraser~~	~~12,000~~	~~winter index~~
Western High Arctic brant	Skagit/Fraser	7,255	12,000	winter index
~~White-fronted goose~~		~~Flyway~~	~~300,000~~	~~breeding index~~
White-fronted goose	Flyway	381,843	300,000	breeding index
~~Tundra swan~~		~~Flyway~~	~~60,000~~	~~winter index~~
Tundra swan	Flyway	78,541	60,000	winter index
~~Trumpeter swan~~		~~Flyway~~	~~13,000~~	~~breeding index~~

Trumpeter swan	Flyway	17,551 (every 5 yr.)	13,000 (every 5 yr.)	breeding index

~~*Alternative* Strategies:~~

a. Monitor annual status and trends of waterfowl populations through coordinated surveys with other agencies, including USFWS, flyway states, Puget Sound Action Team (PSAT).
b. Work with other agencies to improve estimates of waterfowl in other areas of the flyway important to Washington, by 2004.
c. Provide ongoing training for new observers in waterfowl population estimation techniques.
d. ~~Periodically re-evaluate surveys~~Evaluate surveys through Research Division to optimize accuracy and precision, including review of current literature and peer review, by 2004.

Objective ~~94~~ 108: Maintain regional populations in accordance with Joint Venture population ~~goals.~~objectives.

~~*Alternative* Strategies:~~

a. Evaluate needs for modifying waterfowl distribution in major concentration areas every five years.
b. ~~Establish~~Evaluate needs for game reserves and closure areas in proximity to other habitat components every 5 years.
c. ~~Publish~~Annually publish results in game status reports.

Objective ~~95~~ 109: Document distribution, movements, and survival in accordance with flyway management goals.

~~*a.Alternative* Strategies:~~

a. Band a minimum of 500 mallards each year~~(2003-2008)~~ to provide survival estimates.
b. Participate in operational annual dusky Canada geese banding and observation programs to estimate distribution, survival, abundance, and derivation of harvest.
c. Conduct focused banding emphasis on select species (e.g., ~~harlequins, seaducks,~~harlequins-2008, seaducks-2002, lesser Canada geese-2003, dark Canada geese-ongoing, and western Canada ~~geese) as time allows.~~geese-annually).

Objective ~~96~~ 110: Minimize mortality due to disease and contaminants.

~~*Alternative* Strategies:~~

a. Conduct surveillance monitoring to identify sources of disease and contaminants associated with mortality events (e.g. lead shot mortalities of swans in Whatcom County).
b. In cooperation with other management agencies (e.g., National Wildlife Health Research Center, USFWS), take corrective action to minimize exposure to disease and contaminant sources.

Recreation Management

Issue Statement: Federal harvest management strategies are not specific to Washington duck populations, although states are given more flexibility in developing goose harvest management strategies.

Objective ~~97~~ 111: ~~Measure~~Increase accuracy of surveys to measure harvest, number of hunters, and effort, accurate to ±10% at the 90% CI for each management unit.

~~Alternative~~ Strategies:

a. Participate in federal Harvest Information Program (HIP) for migratory birds.
b. Provide supplemental estimates to determine regional differences in harvest (e.g., hunter questionnaire, daily card survey, snow goose harvest reports, brant color composition).

Objective ~~98~~ 112: ~~Maximize~~Continue current policies to maximize duck hunting recreation consistent with USFWS Adaptive Harvest Management (AHM) regulation packages, considering duck availability during fall and winter.

~~Alternative~~ Strategies:

a. Establish regulations to maximize effective season days and bag limits, locating most season days later in the framework period:

Table 2. AHM Regulation Packages and Washington Season Timing.

	EASTERN WASHINGTON			WESTERN WASHINGTON		
Regulation package	**Days**	**Limit** total/mall/ mall	**Season Timing***	**Days**	**Limit** total/mall/ mall	**Season Timing***
Liberal	107	7/7/2	mid-Oct. thru late Jan.	107	7/7/2	mid-Oct. thru late Jan.
Moderate	93	7/5/2	mid-late Oct. – 9 days; remainder early-Nov. thru late-Jan.	86	7/5/2	mid-late Oct. – 9 days; remainder mid-Nov. thru late-Jan.
Restrictive	67	4/3/1	mid-late Oct. – 9 days; remainder mid-Nov. thru mid-Jan.	60	4/3/1	mid-late Oct. – 9 days; remainder mid-Nov. thru early-Jan.
Very Restrictive	45	4/3/1	mid-Nov. thru early Dec.; late Dec. thru mid-Jan.	38	4/3/1	mid-Nov. thru early Dec.; late Dec. thru early-Jan.

* USFWS rules on duck season timing:

1. Washington zones (2) – E. Washington and W. Washington
2. Season dates must be the same within each zone
3. Seasons may only be split into 2 segments
4. Youth days in addition to above days, except for liberal package

b. Assist in refining USFWS duck harvest management programs to reflect regional population differences (e.g., western mallards) by 2003.
c. Maintain state harvest restrictions, in additional to federal frameworks, on waterfowl species of management concern in Washington (e.g., harlequin ducks, scoters), depending on population status.

Objective ~~99~~ 113: Maximize goose hunting recreation consistent with Pacific Flyway Council plans, considering goose availability during fall and winter.

~~Alternative~~ Strategies:

a. ~~Establish~~Continue to establish regulations to follow flyway and state harvest ~~thresholds:~~thresholds (see Table 1 for current population indexes).

~~Table 3. Pacific Flyway Goose Harvest Thresholds (except WDFW action levels denoted by *).~~

Table 3. Flyway and State Harvest Thresholds (3-yr. averages unless noted)

~~Goose~~ Goose	~~Area~~ Area	~~Harvest Threshold~~ Flyway Harvest Thresholds	~~2001 Index~~ Additional WDFW Harvest Thresholds	~~Measure~~ Measure
~~Western Canada goose~~	~~W. Wash.~~	~~Restriction level: 800~~ ~~<800 = reduce days/limit*~~ ~~Liberalization level: 1,500~~ ~~<1,500 = eliminate Sept. season*~~	~~2,145~~	~~West index~~
Western Canada goose	W. Wash.	Restriction level: 800 Liberalization level: 1,500	<800: reduce days/limit <1,500: eliminate Sept. season	nest index
~~Western Canada goose~~	~~E. Wash.~~	~~Restriction level: 1,300~~ ~~<1,300 = reduce days/limit*~~ ~~Liberalization level: 2,000~~ ~~<2,000 = eliminate Sept. season*~~	~~2,225~~	~~nest index~~
Western Canada goose	E. Wash.	Restriction level: 1,300 Liberalization level: 2,000	<1,300: reduce days/limit <2,000: eliminate Sept. season	nest index
~~Dusky Canada goose~~	~~Flyway~~	~~Closure level: 6,500~~ ~~Restrict level 1: 6.5-8K = 70 quota~~ ~~Restrict level 2: 8-16K = 85 quota~~ ~~Liberalization level = 16,000~~ ~~>85 quota, increase limit/days*~~	~~16,665~~	~~winter index~~
Dusky Canada goose	Flyway	Closure level: 6,500 Restrict level 1: 6.5-8K = 70 quota Restrict level 2: 8-16K = 85 quota Liberalization level: 16,000	>85 quota: increase limit/days	winter index
~~Cackling Canada goose~~	~~Flyway~~	~~Closure level: 80,000~~ ~~Reopening level: 110,000~~	~~181,659~~	~~nest index~~
Cackling Canada goose	Flyway	Closure level: 80,000 Reopening level: 110,000	None	nest index
~~Wrangel Island snow goose~~	~~Skagit~~	~~Closure level: <35,000 and 3 yrs. <10% juv.*~~ ~~Liberalization level: 120,000 (flyway) = end date Jan.8*~~	~~54,354, >10% juv. last 3 yrs.~~ ~~97,000~~	~~winter index + % juveniles~~ ~~spring pop.~~
Wrangel Island snow goose	Flyway	No closure level Liberalization level: 120,000	<120,000: Skagit end date Jan.8	spring pop.
	Skagit	None	Closure level: 30,000 / 3 yr. <10% juv. Reopening level: 35,000	winter index + % juveniles
~~Brant~~	~~Flyway~~	~~Closure level: 90,000~~ ~~Restrict level 1: 90-110K~~ ~~Restrict level 2: 110-135K~~ ~~Liberalization level: >135K~~	~~129,664~~	~~winter index~~

Brant	Flyway	Closure level: 90,000 Restrict level 1: 90-110K Restrict level 2: 110-135K Liberalization level: >135K	None	winter index
~~Brant~~	~~Skagit~~ ~~Others~~	~~Closure level: 6,000*~~ ~~Closure level: 1,000*~~	~~8,964**~~ ~~Willapa 2,628**, others<1000~~	~~winter index~~ ~~winter index~~
	Skagit	None	Closure level: 6,000 (annual)	winter index
	Others	None	Closure level: 1,000	winter index
~~White-fronted goose~~	~~Flyway~~	~~Closure level: 80,000~~ ~~Reopening level: 110,000~~	~~392,953~~	~~nest index~~
White-fronted goose	Flyway	Closure level: 80,000 Reopening level: 110,000	None	nest index

b. Utilize recreational harvest as the primary method to address depredating / nuisance goose populations above management objectives (e.g., implement Pacific Flyway SW Wash. / NW Oregon Goose Depredation Control Plan).

Objective ~~100~~ 114: Distribute harvest evenly over public hunting areas.

~~Alternative~~ Strategies:

a. Evaluate needs for modifying waterfowl distribution in one of the six major harvest areas each year.
b. Evaluate and establish game reserves and waterfowl closures every five years to maximize harvest opportunity.
c. Develop map of reserves and closures and some measure of harvest or use in surrounding areas by 2005.

Objective ~~101~~ 115: Maintain hunter numbers between 35,000-45,000 and recreational use days between 300,000-500,000, consistent with population objectives.

~~Alternative~~ Strategies:

a. Periodically (e.g. every three years) survey hunter opinion to determine and recommend optimal season structures within biological constraints, to reduce the percentage of hunters who are very dissatisfied with waterfowl hunting to less than 15%.
b. Work with USFWS to simplify hunting regulations and minimize annual hunting regulation changes.
c. To reduce confusion, minimize closed periods within seasons, maximize overlap between duck and goose seasons, and reduce the number of zones with different season structures.
d. Provide special opportunity for youth by providing special recreational opportunities separate from regular seasons (e.g., youth hunts 2 weeks before regular season opener).
e. Modify regulations to reduce crowding and increase hunt quality on wildlife areas (e.g., shell limits, limited entry, established blind sites, limited open days), without reducing total use days.
f. Utilize habitat funding in combined programs to provide hunter access to private lands with and emphasis in western Washington.

g. Work with local governments to maintain opportunity in traditional hunting areas, minimizing or finding alternatives to no shooting zones.
h. Maintain diversity of recreational hunting and viewing opportunities.

Research

Issue Statement: Additional information is needed to manage populations and harvest more effectively.

Objective ~~102~~ 116: Generate or support at least one publication every year regarding waterfowl research or management.

~~Alternative~~ Strategies:
a. Support and/or conduct research investigating limiting factors influencing duck recruitment.
b. Support and/or conduct research investigating factors related to waterfowl wintering distribution and carrying capacity.
c. Support and/or conduct research investigating duck survival.
d. Support and/or conduct research investigating genetic relationships of goose subspecies / populations.
e. Support and/or conduct research investigating goose distribution and survival.
f. Develop current list of research needs to guide additional research emphasis.

Information and Education Goal

Issue Statement: Members of the general public and recreational users are sometimes uninformed about management issues and waterfowl hunting opportunities.

Objective ~~103~~ 117: Generate at least 5 information and education products each year to improve transfer of information to public.

~~Alternative~~ Strategies:
a. Increase public awareness through brochures, news releases, internet, pamphlets.
b. Provide materials to assist waterfowl identification in the field by 2003.
c. Provide information to improve hunter proficiency by 2003.
d. Obtain outside review of hunting pamphlet annually to improve clarity.
e. ~~Discuss~~Continue to discuss waterfowl population management at public meetings and select sports group forums.
f. Develop materials describing waterfowl hunting opportunities in Washington by 2004.

Enforcement Goal

Issue Statement: Compliance with regulations is low in areas where regulations are not enforced at adequate levels.

Objective ~~104~~ 118: Ensure a 90% compliance rate for waterfowl hunting regulations (i.e. 90% of hunters checked are in compliance with regulations).

~~Alternative~~ Strategies:

a. Develop annual enforcement priorities to target regulations affecting population status (e.g., dusky Canada goose reporting requirements) and changes in select species bag limits (e.g., pintail).
b. Provide adequate training of enforcement officers in waterfowl identification and regulations.
c. Conduct emphasis patrols to determine nontoxic shot compliance in Skagit and Whatcom counties.

VII. LITERATURE CITED

North American Waterfowl Management Plan, 1998. USFWS, Washington DC.

Pacific Coast and Intermountain West Joint Venture Management Plans, USFWS, Portland, OR.

Pacific Flyway Council Management Plans for Pacific Population of Western Canada Goose, Cackling Canada Goose, Dusky Canada Goose, Wrangel Island Snow Goose, Brant, White-fronted Goose, Tundra Swan, Pacific Coast Population of Trumpeter Swans, USFWS, Portland, OR.

I. POPULATION STATUS AND TREND

Washington provides habitat for a variety of migratory game birds other than waterfowl, including mourning doves, band-tailed pigeons, coots, and snipe. Mourning doves and band-tailed pigeons are monitored by cooperative breeding surveys in Washington, which provide indices but not estimates of actual abundance. Coots and snipe population trends are monitored by USFWS standardized surveys on breeding areas.

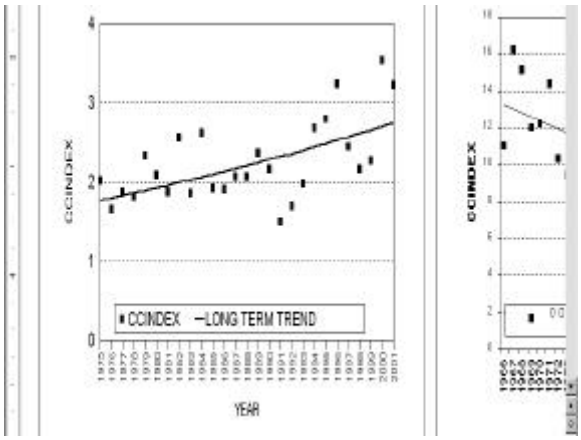

Figure 1. Band-tailed pigeon survey information, Washington, 1975-2001.

II. RECREATIONAL OPPORTUNITY

Mourning doves provide the majority of recreational opportunity for this group of species, and are hunted during a September season. Seasons are based on frameworks established by USFWS, in conjunction with the Pacific Flyway Council. Approximately 9,000 hunters harvest 90,000 doves annually in Washington.

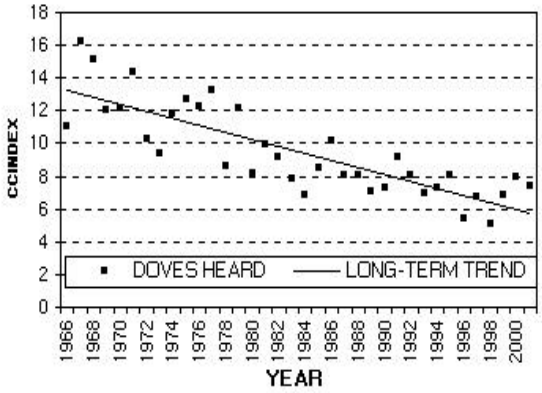

Figure 2. Morning dove survey information, Washington, 1966-2001.

III. DATA COLLECTION

The Department maintains two surveys to estimate the size of dove and band-tailed pigeon populations. Dove call-count surveys are completed in May, band-tailed pigeon call-count surveys are conducted in June / July, and winter index counts for coots are completed with waterfowl surveys in January. These surveys are completed cooperatively with USFWS. Harvest of these species is monitored by a variety of state and USFWS questionnaire surveys.

IV. MOURNING DOVE, BAND-TAILED PIGEON, COOT, AND SNIPE MANAGEMENT GOALS

This section describes the statewide management direction for mourning doves, band-tailed pigeons, coot, and snipe. Management of these species in Washington is accomplished through

the Waterfowl Section of WDFW. Although the U.S. Fish and Wildlife Service (USFWS) has nationwide management authority for migratory birds, effective management of these resources depends on established cooperative programs developed through the Pacific Flyway Council. Goals and objectives described in this plan follow interagency and other cooperative planning efforts. Strategies identified in this plan will guide work plan activities and priorities, and must be accomplished to meet the goals and objectives.

The statewide goals for mourning doves, band-tailed pigeons, coots, and snipe are:

1. Manage statewide populations of mourning doves, band-tailed pigeons, coots, and snipe for a sustained yield consistent with Pacific Flyway management goals.
2. Manage mourning doves, band-tailed pigeons, coots, and snipe for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
3. Preserve, protect, perpetuate, and manage mourning doves, band-tailed pigeons, coots, and snipe and their habitats to ensure healthy, productive populations.

V. ISSUE STATEMENTS, OBJECTIVES, AND~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Habitats for mourning doves, band-tailed pigeons, coots, and snipe are being lost throughout Washington due to development and conversion to other uses.

Objective ~~105~~ 119: Quantify and reduce habitat loss by developing habitat maps and management guidelines.

~~Alternative~~ Strategies:

a. Provide resource information to other agencies and organizations to influence land use decisions (e.g., PHS management guidelines for band-tails).
b. In cooperation with other agencies, track critical habitat status and trends (e.g., mineral sites, freshwater wetlands)

Objective ~~106~~ 120: Provide funding through state migratory bird stamp/print revenues to protect / enhance 30 acres of habitat annually for doves, pigeons, coots, and snipe.

~~Alternative~~ Strategies:

a. Determine habitat protection and enhancement needs considering literature and regional expertise.
b. Solicit project proposals from regional staff and external organizations.
c. Develop expenditure plan before the start of each new biennium, using an evaluation team from a statewide cross-section of Department experts, to fulfill funding requirements for non-waterfowl migratory birds specified in legislation.
d. Monitor effectiveness of habitat projects through focused evaluation projects before and after implementation.

Population Management

Issue Statement: Documentation of population size, movements, and mortality factors is difficult due to the highly migratory nature of dove, band-tailed pigeon, coot, and snipe species.

Objective ~~107~~ 121: Assist in meeting Pacific Flyway Council goals for mourning doves (15 calls/route in flyway) and band-tailed pigeons (1980-84 call-count index in Washington).

~~Alternative~~ Strategies:

a. Monitor annual status and trends of doves and band-tailed pigeons through coordinated breeding ground surveys with other agencies, including USFWS and flyway states.
b. Monitor annual status and trends of coots through the Midwinter Inventory, coordinated with other agencies including USFWS and flyway states.
c. Provide training aids for new observers in population estimation techniques, particularly for call-count surveys, by 2004.
d. Participate in focused banding projects to answer specific management questions (e.g., dove reward band study in 2002-2003).

Objective ~~108~~ 122: Minimize mortality due to disease and contaminants.

~~Alternative~~ Strategies:

a. Conduct surveillance-monitoring studies to identify sources of disease and contaminants associated with mortality events.
b. In cooperation with other management agencies (e.g., National Wildlife Health Research Center), take corrective action to minimize exposure to disease and contaminant sources (e.g., trichomoniasis in band-tailed pigeons.)

Recreation Management

Issue Statement: Management of limited populations requires refined harvest estimates.

Objective ~~109~~ 123: ~~Measure~~Increase accuracy of surveys to measure statewide harvest, number of hunters, and effort, accurate to ±10% at the 90% CI.

~~Alternative~~ Strategies:

a. Participate in federal Harvest Information Program (HIP) for migratory birds, including new focus on providing estimates for lightly harvested species (e.g. snipe).
b. Provide supplemental measures to refine harvest estimates (e.g. band-tailed pigeon harvest report).

Objective ~~110~~ 124: Maximize recreational opportunities consistent with population status.

~~Alternative~~ Strategies:

a. Maintain state harvest restrictions in addition to federal frameworks.

b. Maintain opening/closure level for band-tailed pigeons based on 3-yr. ave. call-count, compared to Pacific Flyway plan population objective.
c. Maintain restrictive dove season length until significant increase in 10-year call-count index trend is observed.

Issue Statement: Traditional hunting areas are being lost to development or no shooting ordinances.

Objective ~~111~~ 125: Maintain a minimum of 5,000 hunters and current recreational use days between 90,000-110,000, consistent with population status.

~~Alternative~~ Strategies:
a. Utilize habitat funding in combined programs to provide hunter access to five new private land holdings.
b. Work with local governments to maintain opportunity in three traditional hunting areas, minimizing or finding alternatives to no shooting zones.

Information and Education

Issue Statement: Members of the general public and recreational users are sometimes uninformed about management issues and hunting opportunities.

Objective ~~112~~ 126: Generate at least one information and education product each year to improve transfer of information to public.

~~Alternative~~ Strategies:
a. Increase public awareness about management issues through brochures, news releases, Internet, pamphlets.
b. Develop materials describing hunting opportunities for other migratory game birds in Washington.

Research

Issue Statement: Additional information is needed to manage populations and harvest more effectively.

Objective ~~113~~ 127: Generate or support at least one publication every five years regarding research or management of doves, band-tails, coots, or snipe.

~~Alternative~~ Strategies:
a. Support and/or conduct research investigating habitat use around mineral springs.
b. Support and/or conduct research investigating optimal survey and timing for band-tailed pigeon trend analysis.
c. Support and/or conduct research investigating band-tailed pigeon distribution and survival.
d. Support and/or conduct research investigating limiting factors affecting mourning dove populations in Washington.

e. Support and/or conduct research on snipe habitat use, survival, effects of harvest, and incidental take of other species.

~~e.~~f. Develop current list of research needs to guide additional research emphasis.

VII. LITERATURE CITED

Pacific Flyway Council, Management Plans for Band-tailed Pigeons and Mourning Doves, USFWS, Portland, OR.

WILD TURKEY (*Meleagris gallopavo*)

I. POPULATION STATUS AND TREND

Turkey introductions in Washington State occurred as early as 1913, however, these early release efforts (1913–1959) did not result in established populations. In 1960, 12 wild-trapped Merriam's turkeys from New Mexico were released in Klickitat County. This release resulted in establishment of Washington's largest, most stable turkey population from 1960 through 1990. In addition, 15 Merriam's turkeys were released in 1961 in the Rice area of Stevens County and a population became established. From the mid 1960s through the early 70s, turkeys were released in several Washington counties, including Okanogan, Chelan, Whitman, Pend Oreille, Kittitas, Ferry, Spokane, Clallam, Thurston, San Juan, and Lewis. Many of these releases did not result in established populations.

From 1984 through 2001, major transplant projects were undertaken to establish wild turkey populations in eastern and southwestern Washington. Wild turkeys trapped in Texas, South Dakota, Missouri, and Pennsylvania were brought into the state and released in suitable habitats in eastern and southwestern Washington. By the early 1990s wild turkey populations in eastern Washington had increased to the point that the WDFW began to transplant Washington birds into other suitable habitats within several eastern Washington counties. Western Washington wild turkey populations also received additional augmentation in the 1990s when several hundred wild-trapped birds from Iowa were released in Thurston, Lewis, Cowlitz, and Grays Harbor counties.

According to harvest trend information, most turkey populations in Washington are increasing with Stevens County having the highest population density. Other eastern Washington counties, such as Ferry, Lincoln, Pend Oreille, and Columbia, also have substantial turkey populations. Wild turkey populations in western Washington are not experiencing the same level of expansion as northeastern Washington, however, there are areas in Thurston, Cowlitz, Mason, and Grays Harbor counties that support huntable populations of the eastern sub-species of wild turkey.

II. RECREATIONAL OPPORTUNITY

Hunting seasons for wild turkeys have varied from a 2-day fall season in 1965 to the current 31-day spring season statewide and 5-day fall permit-only seasons. The statewide, April 15 to May 15, spring season was established in 1994 and a fall season has existed since 1965. At one time, the fall season was in late November, but in 2000, fall hunting was changed from a general season to a permit-only hunt by drawing and the hunt dates were moved from late November to early October to avoid overlapping other seasons.

Statewide harvest and hunter numbers have increased each year since 1991 (Figure 1). In 2000, 1,615 turkeys were taken and 19,209 tags were purchased. Prior to turkey augmentation activity in the late 1980s, hunter numbers fell to a low of 428 (1987) and turkey harvests averaged 65 birds per year (1983-1987).

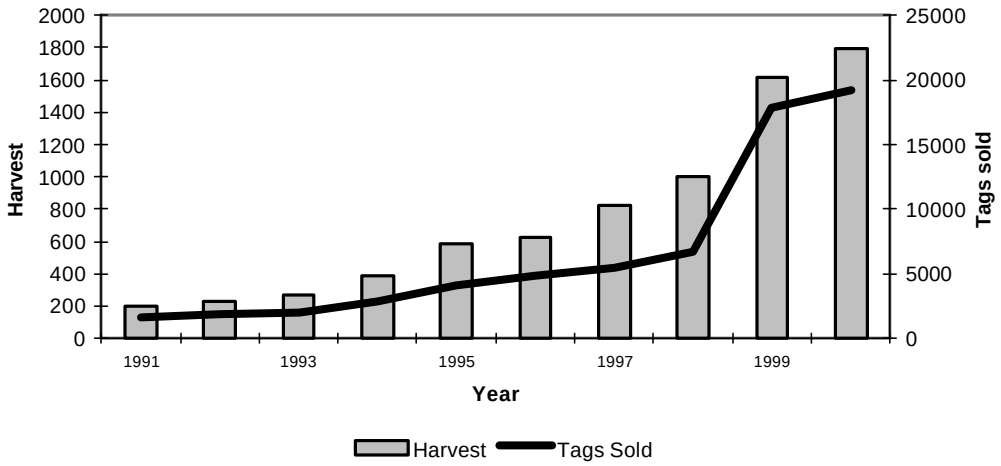

Figure 1. Trend in turkey harvest and number of tags sold in Washington, 1991-2000.

III. DATA COLLECTION

The largest amount of data collected on wild turkeys has been estimated harvest and hunter effort. Some limited radio tracking has been done in Pend Oreille, Yakima, Chelan, and western Washington counties to help estimate survival and production of recently released birds. Future efforts to collect these types of data are described in the management section below.

IV. WILD TURKEY MANAGEMENT GOALS

The statewide goals for wild turkeys are:

1. Preserve, protect, perpetuate, and manage wild turkeys and their habitats to ensure healthy, productive populations.
2. Manage wild turkeys for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
3. Manage statewide wild turkey populations for a sustained harvest.

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Population Management

Issue Statement: Wild turkeys have been introduced in Washington State since 1960. Since the late 1980s, WDFW has been more aggressive in transplanting turkeys into suitable habitats in much of the state. An evaluation of past activities and a plan for future activities is needed.

Objective ~~114~~ 128: Develop a population management ~~enhancement~~ plan by December 2003.

~~*Alternative* Strategies~~:
a. Develop criteria for evaluating ~~success of~~ past wild turkey releases.
b. Evaluate past translocations within each WDFW region on a district-by-district basis.
c. Evaluate reintroduction focus area criteria and make modifications to primary wild turkey population areas as necessary.
d. Develop criteria that help identify areas where turkey populations are not desired (e.g. environmentally sensitive, urbanized ~~urbanization~~, and depredation or nuisance areas).
e. Conduct an assessment of potential release areas for habitat suitability, potential negative impacts, as well as public and agency support.
f. Restrict release of turkeys into unoccupied areas until a population management plan is completed.
g. Develop a population management plan.
h. ~~Develop population enhancement plans for areas that analysis and evaluation deem appropriate.~~
i. ~~Conduct an analysis of potential release areas for habitat suitability as well as public and agency support.~~

Issue Statement: Turkey populations in some areas of eastern Washington have expanded substantially over the past 5 years. WDFW is receiving a considerable number of damage complaints from residents in some of these areas.

Objective ~~115~~ 129: Develop a damage response plan by December 2003.

~~*Alternative* Strategies~~:
a. Document locations of complaints.
b. Evaluate WDFW responses to past complaints.
c. Determine major factors relating to damage complaints.
d. Develop a plan that addresses major factors and incorporates multiple methods of addressing the issues. Possible methods may include, but are not limited to, liberalizing hunting seasons, deterrent activities, habitat enhancements, removal through trapping, and depredation permits.

Issue Statement: Turkey populations need to be monitored to help determine appropriate hunting seasons and identify population management needs.

Objective ~~116~~ 130: Monitor turkey populations in primary management zones of the state on a yearly basis.

~~*Alternative* Strategies~~:
a. Identify areas within the state that have population monitoring needs.
b. Evaluate potential monitoring tools and develop a recommended monitoring protocol.
c. Implement recommended turkey population monitoring protocol.

Recreation Management

Issue Statement: Turkey populations in some portions of Washington have ~~expanded~~ increased to the point that expanded hunting opportunities need to be evaluated.

Objective ~~117~~ 131: By December 2003, develop a fall hunting opportunity recommendation for Fish and Wildlife Commission consideration.
Strategies:

a. Define population indexes for turkey populations.
b. Evaluate the potential impacts of season options (including open season, increased season length, and increased permits).

Issue Statement: Members of the public have contacted the WDFW and expressed a desire to eliminate inclusion of a turkey tag with the purchase of a small game license. In response, hunters were asked whether they would like to see the turkey tag separated in the hunter opinion survey conducted in January 2002. Survey results show that 57% of turkey hunters oppose separating the tag (48% strongly opposed) while 39% support separating the tag (24% strongly supporting).

Objective ~~118~~ 132: By December 2002, determine if a turkey transport tag should be included with the purchase of a small game license.

~~Alternative~~ Strategies:
a. Survey and/or discuss the subject with hunters and hunting groups to determine their position.
b. Evaluate what impacts including or not including the tag may have on recreational opportunity.
c. Develop a recommendation by ~~2003~~ 2004.

Issue Statement: Turkey hunters and district biologists report that turkey-hunting opportunities in some areas of eastern Washington are limited due to large acreage owned by private landowners. Private land access has also been identified as an important issue in hunter opinion surveys conducted by WDFW.

Objective ~~119~~ 133: Over the next 5 years, increase the number of acres of private land available for public turkey hunting ~~opportunities~~ by 10% within priority turkey range.

~~Alternative~~ Strategies:
a. Identify the priority turkey range.
b. Increase public access to private lands through the efforts of WDFW's upland restoration program.
c. Investigate ~~using~~ paying private entities for public hunting access to private property (e.g., block management, landowner incentives).

Issue Statement: A definitive method of determining when a hunting season change would be appropriate does not currently exist.

Objective ~~120~~ 134: By April 2005, develop a set of criteria that, when met, would direct a change in season structure or hunting opportunity.

~~Alternative~~ Strategies:
a. Continue to collect harvest information via mandatory reporting.
b. Define turkey population indexes for the different areas of the state.
c. Develop and/or implement a method of monitoring turkey populations and harvest that includes triggers for adaptive management.

Habitat Management

Issue Statement: Opportunities to enhance wild turkey habitat exist on private and public lands throughout areas supporting turkey populations. Improving habitat conditions for turkeys also has additional values to other wildlife species that utilize the same resources.

Objective 135: Enhance wild turkey habitat within the primary turkey management zone.

Strategies:
a. Utilize available enhancement grants (e.g. guzzlers for gobblers) to improve habitats utilized by wild turkeys.
b. Facilitate habitat enhancement projects on private and public properties within the primary turkey management zone.
c. Develop habitat enhancement projects to help address issues related to winter nuisance complaints.

Public Education

Issue Statement: The public is not well informed of turkey management history or practices in Washington and does not support introduction of non-native wildlife.

Objective ~~121~~ 136: Create educational pamphlets and news releases describing past management activities and future management objectives on a yearly basis.

~~Alternative~~ Strategies:
a. Produce a publication that provides information about non-native wildlife and inter-specific competition issues related to turkeys in Washington.
b. Create a wild turkey pamphlet that describes past and future WDFW management activities and watchable wildlife opportunities.
c. Produce timely news releases that cover substantial new management activities.
d. Create an informational web page that addresses common concerns or interests surrounding wild turkeys.
e. Develop a pamphlet or flyer that addresses the potential negative effects of feeding turkeys and guidelines describing how to avoid negative turkey interactions.

Research

Issue Statement: Research on wild turkeys in the western United States is not common. If research were to be done in western habitats, managers would have a better tool to use when managing the species.

Objective ~~122~~ 137: By 2008, participate in or support research projects that increase our knowledge of wild turkeys in western habitats.

~~Alternative~~ Strategies:

a. Conduct a literature review of western U.S. wild turkey research.
b. Identify and prioritize research needs.
c. Cooperate with public agencies and natural resource groups (e.g., National Wild Turkey Federation) to develop research projects in Washington.
d. Develop and/or participate in inter-specific competition research projects funded through the National Wild Turkey Federation.

Enforcement

Issue Statement: Illegal activities such as trespass are becoming a problem in some areas of the state, especially in parts of northeastern Washington where turkey hunter numbers are rising annually.

Objective ~~123~~ 138: Concentrate efforts on ~~reducing~~ illegal ~~methods of~~ harvest, public education, ~~and emphasizing~~ and landowner relations during appropriate times of the year ~~on a yearly basis~~.

~~Alternative~~ Strategies:

a. Increase enforcement patrols in areas where turkey hunters are concentrated.
b. Work with landowners to address their concerns/needs.

MOUNTAIN QUAIL (*OREORTYX PICTUS*)

I. POPULATION STATUS AND TREND

Historically, mountain quail are thought to have existed in western Washington and along the southern border in eastern Washington; however, mountain quail populations in Washington have been low for several years. While there are a few areas in western Washington that hold birds, eastern Washington populations have all but disappeared. The last known mountain quail populations in eastern Washington were in southeastern Asotin County. The current status of this, and other eastern Washington populations is largely unknown but is assumed to be minimal at best.

II. RECREATIONAL OPPORTUNITY

Mountain quail hunting season extends from October 6 through November 30 in western Washington; however, there have been no hunting seasons for mountain quail in eastern Washington since 1997. The 2000 mountain quail harvest was likely less than 200. Mountain quail do not represent a major recreational opportunity in the state of Washington.

III. DATA COLLECTION

To date, only incidental data on mountain quail populations in Washington have been collected. These data suggests that mountain quail are limited in distribution and abundance. Future data collection may be focused on monitoring reintroduction efforts in eastern Washington.

IV. MOUNTAIN QUAIL MANAGEMENT GOALS

The statewide goals for mountain quail are:

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 and photography.
3. Manage western Washington mountain quail populations for a sustained harvest.

V. MANAGEMENT ISSUES, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Little is known about mountain quail habitat in eastern Washington. Historic distribution has been estimated, but suitability and ability to sustain mountain quail populations is largely unknown.

Objective ~~124~~ 139: Determine distribution of potential mountain quail habitat in ~~southeastern~~ Washington and conduct an evaluation of key areas of native range by 2008.

~~Alternative~~ Strategies:
a. Develop a map showing potential mountain quail habitat ~~in eastern Washington.~~
b. Evaluate potential habitat areas in southeastern Washington to determine the most appropriate areas for re-introduction efforts.
c. Conduct an evaluation of eastern Washington mountain quail habitat conditions and suitability based on results from monitoring released quail.

Population Management

Issue Statement: Mountain quail occupy little of their historic range in eastern Washington.

Objective ~~125~~ 140: Re-establish mountain quail populations in historic range in eastern Washington by 2006.

~~Alternative~~ Strategies:
a. Secure funding for a reintroduction project.
b. Enter into a cooperative project with Oregon and Idaho designed to address mountain quail re-introduction in southeastern Washington, northern Oregon and western Idaho.
c. Support and/or conduct trapping of wild mountain quail in Oregon and release into identified areas of southeastern Washington.
d. Implement a post-release monitoring program for quail as part of re-introduction efforts.
e. Evaluate the need to close California quail hunting seasons in areas targeted for reintroduction.

Recreation Management

Issue Statement: Harvest of mountain quail in western Washington is not well understood. To date, mountain quail harvest has been reported as part of general quail harvest and cannot be reliably separated.

Objective ~~126~~ 141: By 2007, determine what proportion of the reported western Washington quail harvest is mountain quail.

~~Alternative~~ Strategies:
a. Develop wing collection survey to estimate mountain quail harvest in western Washington.
b. Develop a telephone survey to sub-sample quail hunters who report harvest in counties supporting mountain quail populations.
c. Recommend requiring mountain quail hunters to possess an authorization permit and report harvest annually.

Issue Statement: Recreational hunting opportunities in western Washington are still available, but are limited in distribution.

Objective ~~127~~ 142: Maintain a limited hunting season for mountain quail in western Washington unless harvest declines by greater than 30% ~~50%~~ over 3 years.

~~Alternative~~ Strategies:

a. Recommend the use of a mandatory mountain quail harvest report and authorization card to maximize accuracy of harvest estimates.
b. ~~Monitor mountain quail harvest in Mason and Kitsap counties in such a way that a 50% decline over 3 years can be detected with confidence.~~

FOREST GROUSE (Blue (*Dendragapus obscurus*), Ruffed (*Bonsa umbellus*), and Spruce (*Falcipennis canadensis*))

I. POPULATION STATUS AND TREND

Forest grouse in Washington include blue (*Dendragapus obscurus*) and ruffed grouse (*Bonsa umbellus*), which occur throughout the forested lands in Washington, and spruce grouse (*Falcipennis canadensis*) that are closely tied to higher elevation spruce/fir habitats. Statewide biological surveys designed to estimate forest grouse populations have not been conducted in Washington. For many years, population monitoring has been based on the long-term harvest trend (Figure 1). This trend shows an apparent decline in forest grouse populations, however, it is difficult to draw concrete conclusions because harvest estimation methods have changed over time and other factors such as hunter effort and access to private lands may be biasing results.

From 1984 to 2000, harvest estimates were conducted using a 3 wave mailed hunter survey (as opposed to a one-mailing survey in prior years). The harvest trend during that time shows a moderate decline (P = 0.0464). In 1999, the small game survey was conducted differently than other years, which may explain the extremely low estimated harvest. If that data point is removed from the analysis, then the decreasing trend from 1984 to 2000 is not statistically significant (P = 0.1535).

A wing collection study in 1997 revealed that hunters did not accurately report the species of grouse harvested. Since hunters have not been able to accurately report the species harvested, evaluating harvest, and thus population trends for individual species is very difficult. Current grouse populations are thought to be relatively healthy, however, loss of habitat to urban expansion and changes in forest management techniques may impact population status over time.

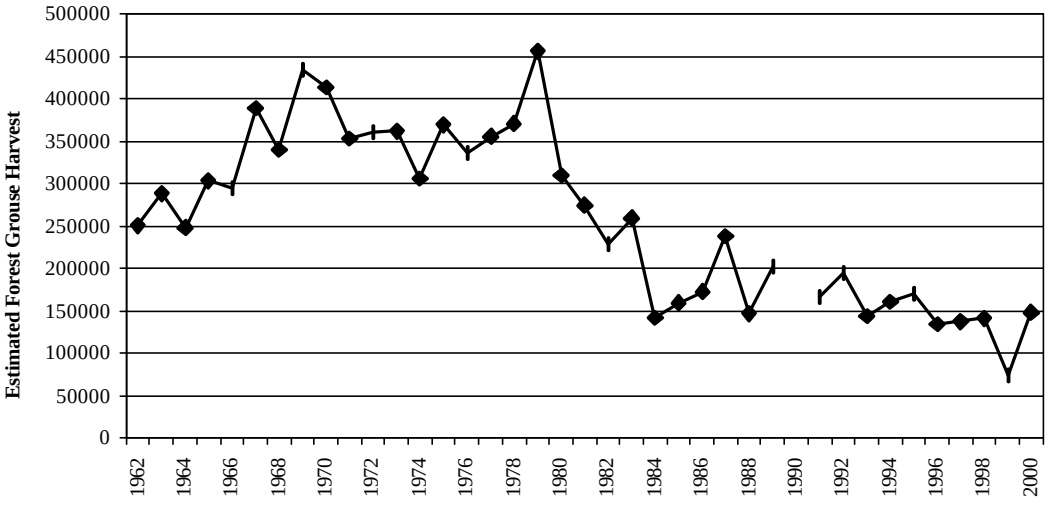

Figure 1. Estimated forest grouse harvest in Washington State from 1962 to 2000.

II. RECREATIONAL OPPORTUNITY

The current Sept. 1 to Dec. 31 hunting season, which is similar to forest grouse seasons in Oregon (Sept. 1 – Jan. 6) and Idaho (Sept. 1 – Dec. 31), has been in place since 1987. The daily bag limit of 3 of any species (mixed or straight bag) has not changed since 1952. Estimated hunter numbers slowly declined from the late 1980s through 1997, but then fell sharply in 1998 and 1999 (Figure 2). The decline seen in 1999 may be a result of sampling difficulties that made data collection inconsistent with previous and subsequent years. Hunter numbers rebounded in 2000, but are still below historic levels.

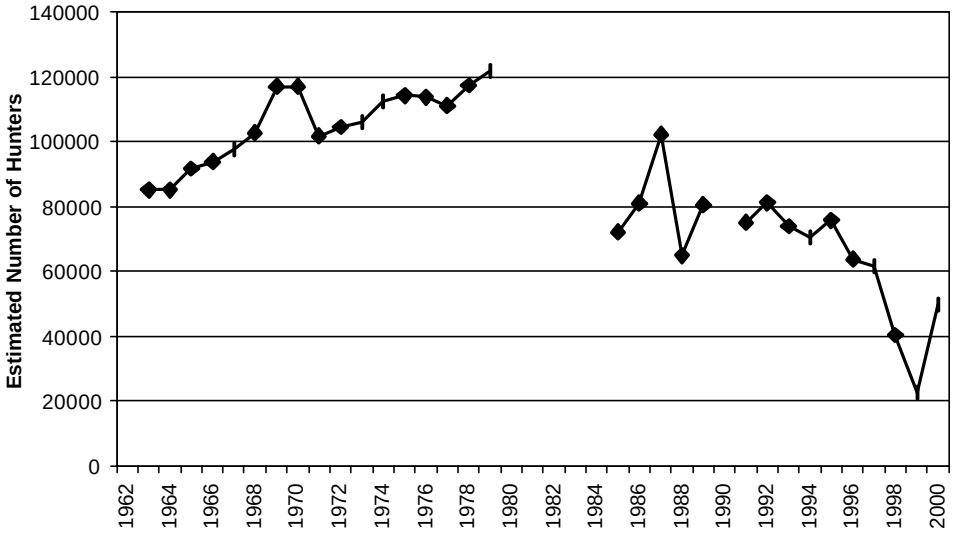

Figure 2. Estimated number of forest grouse hunters in Washington from 1963 to 2000.

III. DATA COLLECTION

Statewide population surveys for forest grouse have not been conducted, however, forest grouse wings were collected in 2000 by placing barrels in strategic locations in north-central Washington where hunters voluntarily deposited one wing from each grouse killed. Wings were classified as to species, sex, and age.

Statewide wing collections from 1993-95 provided several pieces of important information, such as, more than 70% of forest grouse harvest occurs in September and early October, before modern firearm deer seasons. Therefore, current seasons that extend through December probably have very little impact on grouse populations. In addition, there is a tendency for hunters to misidentify grouse species, which has resulted in forest grouse species being combined for current harvest survey purposes.

The most extensive data set held for forest grouse is harvest estimation, which has been collected since 1963. Data was collected by surveying approximately 10% of hunting license buyers. These data are reported in the annual WDFW Game Harvest Report.

IV. FOREST GROUSE MANAGEMENT GOALS

The statewide goals for Forest Grouse are:

1. Preserve, protect, perpetuate, and manage forest grouse and their habitats to ensure healthy, productive populations.
2. Manage forest grouse for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, wildlife viewing and photography.
3. Manage statewide forest grouse populations for a sustained harvest.

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Forest grouse habitat quality is tied directly to forest management strategies implemented on public and private lands. As new information about forest grouse management becomes available, it is important to make that information available to forest managers.

Objective ~~128~~ 143: Develop one additional habitat management publication by 2008.

~~Alternative~~ Strategies:

a. Review forest grouse literature concerning forest management techniques.
b. Update existing or create additional forest grouse habitat management guidelines.
c. Make guidelines available to forest landowners and encourage them to incorporate management practices that benefit forest grouse.

Population Management

Issue Statement: Current harvest estimation, which is used as an indicator of population trend, is not adequate to detect a significant change in the forest grouse harvest at a local geographic level.

Objective ~~129~~ 144: Improve harvest estimation to detect a 50% decline over a 3-year period at the WDFW Regional level.

~~Alternative~~ Strategies:

a. Analyze harvest report data to include estimation at the WDFW Regional level.
b. Develop a statistical model of harvest that includes the effects of weather and hunter effort.
c. Investigate the potential to report grouse harvest on the WDFW website and implement if appropriate.

Objective ~~130~~ 145: When harvest estimates at the WDFW Regional level show a decline of 50% over a 3-year period, focus management efforts on determining the causes for decline.

~~Alternative~~ Strategies:

a. ~~Evaluate and implement population monitoring protocols independent of harvest monitoring.~~
b. Determine whether large-scale habitat changes have occurred in areas of concern.

c. Determine if changes in forest grouse habitat and populations correlate with changes in timber management practices.

Issue Statement: Having population trend data that is independent of harvest estimation available would help in monitoring population trends.

Objective 146: Track forest grouse populations in key areas of Washington and report the results in the annual Game Status and Trend Report.

Strategies:
a. Identify key areas for monitoring populations.
b. Develop and/or implement a method to track population trends independent of harvest and compare the trends to trends in harvest estimation.

Recreation Management

Issue Statement: Some grouse hunters and other members of the public have questioned the ethics of hunting forest grouse with a center-fire cartridge firearm. The main issues are ethical fair chase, wastage, and respect for the species being hunted.

Objective ~~131~~ 147: Develop a recommendation for the Commission regarding regulating legal firearms and ammunition for forest grouse hunting by December 2003.

~~Alternative~~ Strategies:
a. Determine level of hunter support for greater firearm or ammunition restrictions and evaluate the rationale behind their opinion.
b. Work with hunters to develop firearm and ammunition use alternatives ~~recommendations~~.

Objective ~~132~~ 148: Develop a method to identify harvest of forest grouse species and report findings in the annual Game Status Report by 2008.

~~Alternative~~ Strategies:
a. Develop a species distribution map.
b. Use wing collection data to create a correction factor to adjust hunter species composition reports.
c. Develop and distribute educational materials that identify the differences between forest grouse species.

Objective ~~133~~ 149: Develop a report on hunting season impacts on grouse populations by 2008.

~~Alternative~~ Strategy:
a. Conduct a literature review targeting grouse hunting season impacts on forest grouse populations and assimilate results into a report with recommended management actions if appropriate.
b. ~~Determine impacts of grouse harvest through banding studies.~~

UPLAND GAME BIRDS: Pheasant (*Phasianus colchicus*) California Quail (*Callipepla californica*), Chukar (*Alectoris chukar*) and Hungarian Partridge (*Perdix perdix*)

I. POPULATION STATUS AND TREND

According to harvest estimates, (used as an index of population densities), pheasant populations in Washington have apparently been declining since the early 1980s (Figure 1). Harvest estimation techniques did not change between 1984 and 2000, so estimates made during that time should be comparable. In addition, crowing count surveys and brood index surveys conducted between 1984 and 1998 also indicate a decrease in pheasant populations in many areas of eastern Washington (Cliff Rice, pers comm.). Interviews with hunters and biologists support the theory that pheasant populations have decreased over time. The cause of the decline is not definitively known, although several factors are thought to have contributed, including loss and degradation of habitat.

The cause of the increase in pheasant harvest from 1995 to 1997 may be an artifact of the eastern Washington pheasant enhancement program. Since rooster pheasants were released in the fall between 1997 and 2000, harvest estimates may be artificially high when compared to harvest estimates between 1992 and 1996 when no pheasants were released in eastern Washington. Current populations do not appear to be significantly higher than periods prior to 1997.

Upland game bird fall population densities, and related harvest, are often dependent on spring weather conditions since chicks have a difficult time thermoregulating in cold, wet weather conditions. In addition, chicks need high protein diets in the spring and cold, wet springtime weather often decreases insect availability (Offerdahl and Fivizzani, 1987). Although variable from year to year, harvest estimates for quail, chukar and Hungarian partridge (Huns) have not dropped below 1993 levels. Currently, harvest levels are at or near the 17 year high for quail and Huns, but chukar harvest is 60% lower than the 17 year high (Figure 2). In general, biologist opinions of upland game bird populations correlate with the harvest trends, or lack thereof, seen in Figures 1 and 2.

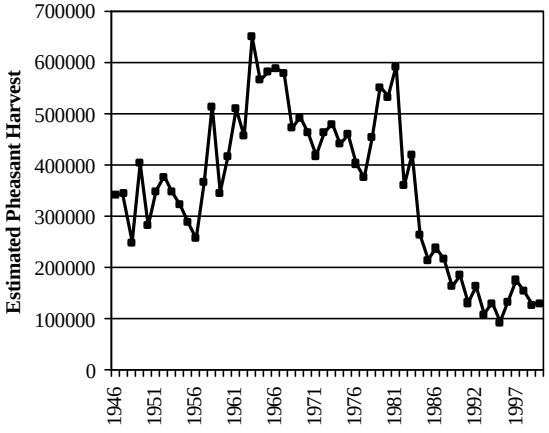

Figure 1. Estimated pheasant harvest for Washington, 1946 - 2000.

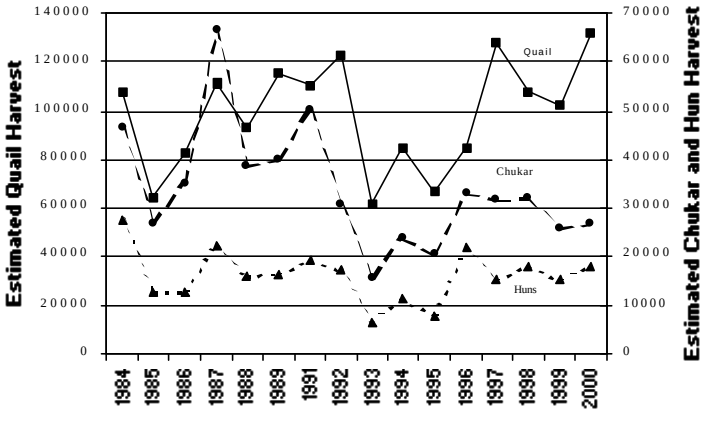

Figure 2. Estimated quail, chukar and Hungarian Partridge harvest for Washington, 1984-2000

II. RECREATIONAL OPPORTUNITY

Pheasant season timing in Washington State has varied only slightly over the past 10 years, usually starting in mid-October and lasting through December. For many years, pheasant hunters have been able to hunt for 11 or 12 weeks, depending on the year, with a daily bag limit of 3 roosters. In 2000, an estimated 35,789 people hunted pheasant in Washington. For 9 out of the last 10 years, fewer than 40,000 people hunted pheasants, down from an estimated high of 142,000 in the early 1950s and a more recent high of 109,000 in 1979 (Figure 3). The spike in hunter participation in 1997 may have been due to the initiation of the eastern Washington pheasant enhancement program that year. In 2000, hunters spent over 233,000 days pursuing pheasant.

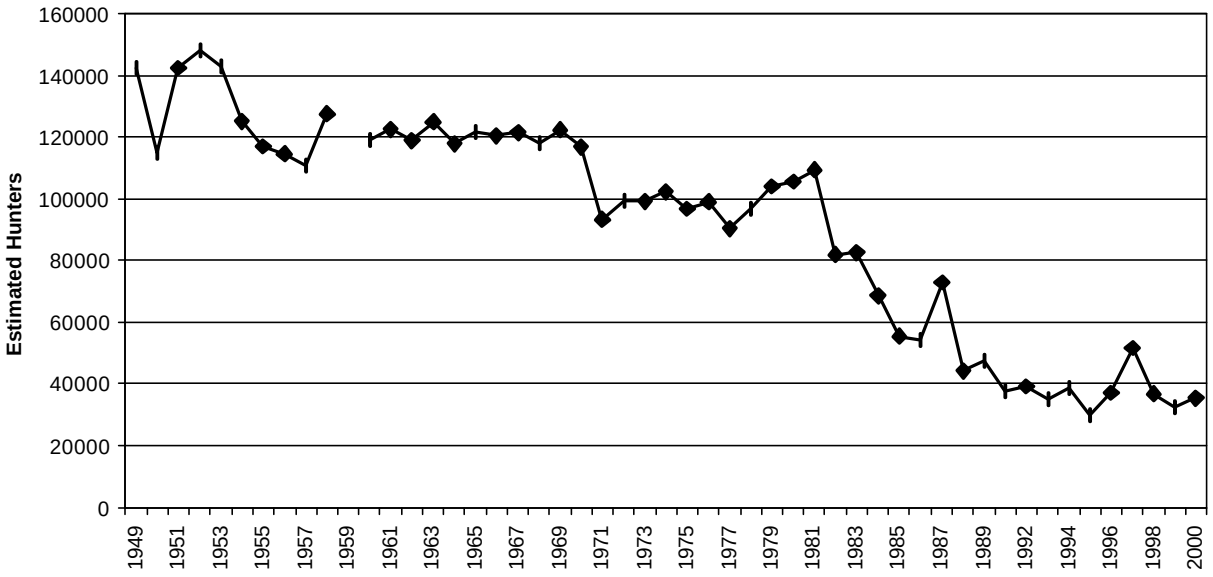

Figure 3. Estimated pheasant hunter participation in Washington State, 1949 to 2000.

Hunting seasons for other upland game birds have also varied in length over the years. During the 1960s and 70s, the chukar season was split into early and general seasons, depending on geographic area. In 1997, the early-general season was eliminated in favor of a standardized season running from early October to mid-January, which is the current regulation. The bag limit for chukar was reduced after the population crash in the early 1980s, from 10 birds per day to 6. Currently, the daily bag limits for chukar and Huns are 6 of each species and quail has a bag limit of 10. In 2000, an estimated 17,317 people hunted quail, 7713 hunted chukar, and 6979 hunted Huns. Hunters spent over 159,000 days afield pursuing these upland birds.

III. DATA COLLECTION

Three types of pheasant surveys were conducted up until the mid to late 1990s in most areas of the state; 1) sex ratio counts in February and March, 2) crow counts in late April and early May, 3) production counts in late July and August. In addition, population surveys for quail and chukar were completed through the late 1990s. All of these surveys were discontinued mainly due to the limited funding and time for district biologists considering all game species priorities.

Data are still collected annually in the irrigated farmland portions of Grant and Adams counties to provide indices of breeding population size and production of chicks. The population index is useful in determining long-term trends and major short-term population changes. The production index is a good predictor of hunting prospects and may provide information useful in determining reasons for annual changes in population size. In addition, a post-season mail survey of hunters is conducted to estimate harvest and hunter effort.

IV. UPLAND GAME BIRD MANAGEMENT GOALS

The statewide goals for upland game birds are:

1. Preserve, protect, perpetuate, and manage upland game birds and their habitats to ensure healthy, productive populations.
2. Manage upland game birds for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, wildlife viewing and photography.
3. Manage statewide upland game bird populations for a sustained harvest.

V. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Habitat Management

Issue Statement: Pheasant habitat in eastern Washington has been lost, altered or degraded over the past 50 years. This is considered to be a major factor in the decline in pheasant populations (Flaherty 1979).

Objective ~~134~~ 150: By 2008, increase the quantity and quality of pheasant habitat in select WDFW districts within identified key pheasant management areas.

~~Alternative~~ Strategies:

a. Inventory current pheasant habitat and identify and prioritize key areas for improvement.
b. Define quality pheasant habitat.
c. Develop specific strategies for enhancing pheasant habitat.
d. Purchase high priority pheasant habitat acreage using funds from the sale of western Washington land holdings identified for that purpose.
e. Work with public and private landowners and funding agencies (e.g. United States Department of Agriculture (USDA)) to increase quality pheasant habitat acreage through programs like the Conservation Reserve Program (CRP), and the Wildlife Habitat Incentives Program (WHIP).
f. Improve pheasant habitat quality by funding habitat improvement projects through the Eastern Washington Pheasant Enhancement Program (EWPEP).
g. Integrate pheasant habitat improvements and priorities with native species needs (e.g. sharp-tailed grouse and salmon).

Issue Statement: The WDFW has been involved with improving upland wildlife habitat through the Upland Wildlife Restoration Program and various federal government sponsored programs such as CRP. Maximizing future involvement in federal and state programs is critical to increasing pheasant populations in eastern Washington in the future.

Objective ~~135~~ 151: By 2006, develop a report that evaluates past upland habitat program involvement and identifies those that are most effective.

~~Alternative~~ Strategies:
a. Evaluate the impacts of USDA programs and develop recommendations on how to best support these programs in Washington.
b. Evaluate past acquisitions for their contribution to pheasant population densities.
c. Support or conduct a thorough literature review and/or study to help determine the value of guzzlers to upland game species.

Population Management

Issue Statement: Harvest and survey trends indicate that pheasant populations have declined over the past 50 years.

Objective ~~136~~ 152: Monitor population status and trend within the key areas identified for habitat improvement and document results in the annual Game Status Report by 2006.

~~Alternative~~ Strategies:
a. Develop and/or adopt a standardized method to monitor pheasant population status.
b. Consistently monitor pheasant populations to provide a gauge of how habitat improvements are affecting population trends.

Recreation Management

Issue Statement: Hunters and district biologists report that upland game bird hunting opportunities in some areas of eastern Washington are limited due to large acreage owned by private landowners. Private land access has also been identified as an important issue in hunter opinion surveys conducted by WDFW.

Objective ~~137~~ 153: By 2008, increase the number of acres of private land available for hunting by 10% and provide a variety of hunting opportunities within the areas identified as priorities.

~~Alternative~~ Strategies:
a. Utilize the WDFW upland restoration program to increase public access to private lands.
b. Investigate paying private entities for public hunting access to private property (e.g., block management) ~~public funding to acquiree~~.
c. Investigate alternatives to replace the loss of access to Snake River mitigation properties.
d. Publicize where public hunting access is available.
e. Develop limited entry areas, marked sites, walk-in sites, or other restrictions to reduce crowding and provide quality hunting areas.

Issue Statement: Estimated harvest figures show that there has been a decline in pheasant and chukar harvest over the past 18 years and other upland game birds have experienced large fluctuations in harvest. Harvest estimation data are used as an indicator of overall harvest, and population status as well as hunter effort and are the best long-term data set held by WDFW.

Objective ~~138~~ 154: Monitor upland game bird harvest on a yearly basis.

~~Alternative~~ Strategies:
a. Continue to collect harvest information on a yearly basis such that it is comparable to previous seasons.
b. Evaluate harvest data to estimate trends in population status.
c. Develop a method to collect eastern Washington pheasant release harvest data (e.g. an additional box on the hunter questionnaire) by 2004.

Issue Statement: Some upland game birds exist in areas where sharp-tailed grouse and sage grouse can be found. Concerns over misidentification of game birds have been expressed and it is important that hunters know the differences between upland game birds and non-game upland wildlife.

Objective 155: Provide educational materials to hunters that describe the differences between upland game species and non-game upland birds.

Strategies:
a. Include information describing the differences between pheasants and sharp-tailed grouse and sage grouse and include it in the annual upland bird hunting pamphlet.
b. Post signs notifying hunters of sage or sharp-tailed grouse being present in areas where upland game bird hunting occurs.

Public Education

Issue Statement: Broad distribution of information regarding the biology and management of upland game birds will increase public understanding of management activities implemented by the WDFW.

Objective ~~139~~ 156: Provide information to the public on a yearly basis that increases the public's understanding of upland game bird management in Washington.

~~Alternative~~ Strategies:
a. Produce timely news releases when substantial developments in upland game bird management occur with an emphasis on youth hunting opportunities.
b. Produce pamphlets or other informational material that addresses upland game bird biology, emphasizing the impact of weather on annual population density.
c. Enter into cooperative educational ventures with resource-oriented groups such as Pheasants Forever.
d. Produce news releases and/or pamphlets that explain the potential impacts of lead shot on Washington's wildlife.

Research

Issue Statement: Pheasant populations in Washington have declined over the past 50 years and the causes for the decline are not known with confidence.

Objective ~~140~~ 157: By 2008, develop a report that identifies the factors limiting pheasant populations in Washington and provides management recommendations.

~~Alternative~~ Strategies:
a. Conduct a literature review to identify potential factors and related research needs.
b. Conduct studies that identify factors that are limiting pheasant populations in eastern Washington if needed.
c. Compare brood count/crow count data with population decline and habitat change data.

Issue Statement: Noxious weeds such as yellow star thistle and knapweed may be impacting habitat quality for upland birds, especially Huns and chukar.

Objective ~~141~~ 158: ~~Support and/or conduct activities that~~ Evaluate the effects of noxious weeds on chukar and Hun habitat and ~~populations~~ help develop and implement noxious weed control efforts in high priority areas.

~~Alternative~~ Strategies:
a. Support and/or conduct activities that document ~~current~~ ~~historic~~ habitat distribution ~~as well as~~ and current noxious weed distribution for high priority chukar and Hun areas.
b. ~~Identify and secure additional funding that would allow an evaluation of noxious weed impacts on chukar and Hun populations.~~
c. ~~Conduct a study that evaluates the impacts of noxious weeds on chukar and Hun populations.~~
d. Complete a report that provides weed management recommendations for high priority upland bird areas.
e. Participate in activities that identify and secure additional funding to aid in noxious weed control in high priority chukar and Hun areas.

Eastern Washington Pheasant Enhancement Program

Issue Statement: The EWPEP was developed "to improve the harvest of pheasants by releasing pen-reared rooster pheasants…and by providing grants for habitat enhancement…". It is not known if the program is achieving its objectives. Also, the Program should be implemented to achieve the objectives in this plan.

Objective ~~142~~ 159: Evaluate the EWPEP and develop recommendations for any needed changes for legislative action in 2003.

~~Alternative~~ Strategies:
a. Review and analyze past EWPEP funded pheasant releases and develop a summary document that evaluates the success of the program and provides recommendations for future action.

b. Work with conservation organizations, such as Pheasants Forever, to develop recommendations.
c. Focus habitat enhancements in identified key management areas.

Western Washington Pheasant Program

Issue Statement: In 1997, the WDFW closed the Whidbey Island game farm to increase the efficiency of the program. Since that time, the program has gone from being 61% self-funded to 78% with the remainder being paid for by general hunting license revenue. It is important that this program become 100% self-funded since it is a recreational program serving a specific group of hunters and it is appropriate to ensure the program does not have a financial impact on general hunting license revenues. In addition, being self-funded helps maximize the chances that the program can continue to operate ~~since it would not compete well for funding~~.

Objective ~~143~~ 160: Evaluate the current funding mechanism for the western Washington pheasant program and identify new ways to create a self-funded budget by June 2003.

~~Alternative~~ Strategies:
a. Work with hunting public to determine the best way to increase revenue.
b. Determine what percentage of small game license buyers hunts strictly western Washington pheasants.
c. Identify cost saving efficiencies in pheasant production.

Issue Statement: Hunter crowding and safety at several existing western Washington pheasant release sites are becoming more common.

Objective ~~144~~ 161: Develop and implement a plan to reduce hunter crowding by 2004.

~~Alternative~~ Strategies:
a. Identify and secure access to additional pheasant release sites.
b. Evaluate need for even/odd regulation at additional release sites.
c. Coordinate with western Washington pheasant program volunteers to develop crowd reduction recommendations.

Issue Statement: Returned pheasant harvest permits have been used to help allocate pheasants to the different release sites, however, a very low number of these permits are returned every year making accurate allocation difficult.

Objective ~~145~~ 162: Develop a more effective method to appropriately allocate pheasants to pheasant release sites by September 2003.

~~Alternative~~ Strategies:
a. Visit release sites and document hunter use on high participation weekends.
b. Integrate landowners supporting a release site into the decision making process.
c. ~~Require hunters to identify their primary hunting site when purchasing a permit.~~
d. ~~Survey hunters at release sites.~~

e. ~~Conduct a telephone survey of registered western Washington pheasant hunters.~~

Issue Statement: Lead shot is known to be toxic to wildlife species that ingest pellets. In 2000, WDFW required non-toxic shot to be used at several western Washington release sites. Members of the general public, and some hunters and wildlife professionals have suggested that all western Washington release sites should go to the non-toxic shot requirement due to the high level of use release sites receive.

Objective 163: Determine if non-toxic shot should be required on all western Washington release sites by 2008.

Strategies:
a. Test lead content and availability in the soils of select western Washington release sites.
b. Survey hunters and other wildlife enthusiasts to help determine appropriate actions.
c. Conduct a literature search and compile lead density, availability, and risk informa tion found in other states.

Enforcement

Issue Statement: Protecting the resource from illegal exploitation and working together with landowners is important.

Objective ~~146~~ 164: Concentrate efforts on ~~reducing~~ illegal harvest, public education, and ~~emphasizing~~ landowner relations ~~on a yearly basis~~.

~~Alternative~~ Strategies:
a. Maintain a field presence in areas of high hunter density.
b. Work with landowners to address their concerns/needs.

VI. LITERATURE CITED

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I. CLASSIFICATION

In Washington, there are approximately 31 mid-to-small sized mammals or mammal groups that can be hunted or trapped for recreational purposes (Table 1). Of these, 6 species are classified as game species (including 3 cross-classified as furbearers) and can be hunted (RCW 77.12.020; WAC 232-12-007). Eleven of the 31 species or groups are classified as furbearers (indicating that their hide has a commercial value in the fur industry). These 11 species can be trapped but not hunted unless seasons have been established (i.e., 3 species cross-classified as game species). The remaining species or species groups are "unclassified", and can be trapped or hunted year-around.

Table 1. Mid-to-small sized mammals that can be hunted or trapped in Washington.

Species	Genus species	Classification	Trapped	Hunted
Bullfrog	*Rana catesbeiana*	Game animal		X
Cottontail rabbits	*Sylvilagus spp.*	Game animal		X
Snowshoe hare	*Lepus americanus*	Game animal		X
Bobcat	*Lynx rufus*	Game animal & furbearer	X	X
Raccoon	*Procyon lotor*	Game animal & furbearer	X	X
Red fox	*Vulpes vulpes*	Game animal & furbearer	X	X
American beaver	*Castor Canadensis*	Furbearer	X	
Badger	*Taxidea taxus*	Furbearer	X	
Ermine	*Mustela erminea*	Furbearer	X	
Long-tailed weasel	*Mustela frenata*	Furbearer	X	
Marten	*Martes Americana*	Furbearer	X	
Mink	*Mustela vison*	Furbearer	X	
Mountain beaver	*Aplodontia rufa*	Furbearer	X	
Muskrat	*Ondatra zibethicus*	Furbearer	X	
River otter	*Lutra canadensis*	Furbearer	X	
Coyote	*Canis latrans*	Unclassified	X	X
European rabbit	*Oryctolagus*	Unclassified	X	X
Gophers	*Thomomys spp.*	Unclassified	X	X
Gray and fox squirrels [a]	*Sciurus spp.*	Unclassified	X	X
Ground squirrels [b]	*Sperophilus spp.*	Unclassified	X	X
Mice	*Mus, Onychomys, Reithrodontomys, Peromyscus, Perognathus, Zapus spp.*	Unclassified	X	X
Moles	*Scapanus spp.*	Unclassified	X	X
Nutria	*Myocastor coypus*	Unclassified	X	X
Virginia opossum	*Didelphis virginiana*	Unclassified	X	X
Porcupine	*Erethizon dorsatum*	Unclassified	X	X
Rats	*Dipodomys, Neotoma, Rattus spp.*	Unclassified	X	X
Shrews	*Sorex, Neurotrichus spp.*	Unclassified	X	X
Spotted skunk	*Spilogale gracilis*	Unclassified	X	X
Striped skunk	*Mephitis mephitis*	Unclassified	X	X
Voles	*Clethrionomys, Lemmiscus, Micotus, Phenacomys spp.*	Unclassified	X	X
Yellow-bellied marmot	*Marmota flaviventris*	Unclassified	X	X

[a] Except western gray squirrels (*S. griseus*) are protected and cannot be hunted or trapped.

[b] Except golden-mantled ground squirrels (*S. saturatus* and *S. lateralis*) and Washington ground squirrels (*S. washingtoni*) are protected and cannot be hunted or trapped.

II. POPULATION STATUS AND TREND

The abundance of individual small game animals, furbearers, and unclassified wildlife is largely unknown. However, because these animals typically have high population growth rates and often experience compensatory mortality, the risk of over-exploitation is low. Nonetheless, because biological data on individual species populations are limited, harvest levels are generally managed at conservative levels.

III. RECREATIONAL OPPORTUNITY

A combination of hunting and trapping seasons are provided for small game and furbearing animals, respectively. Hunting seasons for small game animals typically extend from late fall to early spring of the following year. Combining all species, an average of 7,038 hunters harvest 18,436 small game animals per year, which averages about 1–6 harvested animals per hunter (Table 2). The majority of the harvest is cottontail rabbits (64%), followed by raccoons (20%), snowshoe hares (13%), and bobcats (3%).

Trapping season for furbearers are generally through the winter months. Combining all species, an average of 475 trappers take 14,207 furbearers annually (Table 3). The majority of the take is muskrat (44%) and beaver (37%), followed by raccoon (6%), river otter (6%), mink (4%), and bobcat (2%); other species represent less than 1% of the total trapping harvest.

Unclassified wildlife can be hunted or trapped year-around and no bag limits are set. Harvest pressure is low for the majority of these animals, as there is little to no documented harvest for 12 of the 16 species or groups. Those that are harvested or trapped are usually associated human-wildlife conflict and lethal take is a mitigating tool for nuisance or damage activities.

Table 2. Harvest trends for small game mammals, 1991-2000, Washington.

Species	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Cottontail rabbit										
Harvest	15,528	17,706	12,574	14,944	13,619	12,704	7,304	8,203	7,065	7,203
Hunters	5,954	6,354	4,411	5,101	4,883	5,178	3,502	2,809	2,409	3,485
Snowshoe hare										
Harvest	2,017	4,488	3,793	3,110	2,826	2,533	1,042	1,463	483	2,398
Hunters	1,744	2,207	2,013	1,638	1,948	1,405	1,113	991	729	1,270
Raccoon										
Harvest	3,418	3,792	3,843	8,329	4,632	4,985	1,759	1,838	2,776	2,008
Hunters	1,255	1,261	1,076	1,787	1,551	1,408	484	794	504	1,117
Bobcat										
Harvest	675	1,026	661	565	1,074	1,227	152	140	253	206

Table 3. Trapping trends for furbearers and unclassified wildlife, 1991-2000, Washington.

Species	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Furbearers										
Bobcat	218	257	245	262	485	691	365	180	296	59
Raccoon	1,172	833	950	1,105	810	1,273	1,307	832	571	250
Red fox	9	0	0	0	0	0	0	0	0	0
Badger	30	20	17	40	6	11	14	2	13	7
Beaver	5,036	3,785	5,968	7,347	5,163	7,456	8,116	4,558	4,819	642
Mink	732	624	640	720	375	596	607	424	462	101
Marten	246	140	67	176	52	74	80	14	140	18
Muskrat	9,275	4,420	6,005	6,056	5,335	11,028	10,924	4,117	3,572	1,159
River otter	482	597	564	798	1,368	2,070	772	656	727	83
Weasels	66	78	2	78	49	49	49	47	87	44
Unclassified wildlife										
Coyote	1,875	1,610	2,341	2,288	1,770	1,864	1,606	922	838	503
Nutria	0	0	289	365	320	923	1,116	486	712	267
Skunks	0	0	146	204	79	225	127	164	175	16
Number of Trappers	492	445	435	537	451	562	601	488	473	261

IV. ~~VI~~. DATA COLLECTION

There are no formal population surveys for small game mammals, furbearers, or unclassified wildlife. Rather, WDFW examines trends in total harvest and catch-per-unit-effort, which are collected annually using a hunter questionnaire or mandatory "Trapper's report of catch" form.

Data are also collected when any of these species are in conflict with humans. For bona fide human-wildlife conflicts, the species, location, number of animals, sex and age information, and fate of the animals are record. These data are used to help assess trends in wildlife populations and identify species distributions at the local scale.

V. SMALL GAME, FURBEARERS, AND UNCLASSIFIED WILDLIFE MANAGEMENT GOALS

The statewide goals for small game mammals, furbearers, and unclassified wildlife are:

1. Preserve, protect, perpetuate, and manage species and their habitats to ensure healthy, productive populations
2. Manage wildlife species for a variety of recreational, educational and aesthetic purposes including hunting, trapping, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
3. Manage statewide populations for a sustained yield.

VI. ISSUE STATEMENTS, OBJECTIVES, AND ~~ALTERNATIVE~~ STRATEGIES

Population Management

Issue Statement: There is little documentation on the ~~known~~ current distribution and relative densities of individual small game and furbearer species in Washington.

Objective ~~147~~ 165: Revise the distribution map for all small game and furbearer species by 2008.

~~Alternative~~ Strategies:
a. Revise the distribution maps using Priority Habitats and Species (PHS) protocols.
b. Revise the distribution maps from harvest and trapping data, sightings, and regional biologist interpretations.
c. Revise the distribution maps from survey and ground truthing activities.

Issue Statement: Managers typically define and organize species populations by geographical units (e.g., Game Management Units). Management prescriptions are then applied according to the status of the population within each unit. This approach helps distribute sustainable populations evenly across the species range.

Currently, furbearers are managed at a relatively large geographical scale; that is, eastern and western Washington. Because of this, the densities of individual furbearer species probably fluctuate widely, making local management of nuisance activity and sustainability problematic.

Objective ~~148~~ 166: Develop furbearer management units by ~~2005~~ 2008.

Strategies:
~~a. Maintain current management units (eastern and western Washington) for furbearer species.~~
a. Develop furbearer management units based on species biology and populations dynamics.
b. Develop furbearer management units based on nuisance activity.

Issue Statement: Accurate information on the status of furbearer populations is absent; as a result harvest levels are conservative. A more rigorous method of assessing animal populations is needed in order to maximize recreational opportunities and suppress nuisance problems.

Objective ~~149~~ 167: Develop quantitative protocols for assessing the population status of small game and furbearing species by 2005.

Strategies:
a. Develop quantitative methods for assessing population status from harvest data (e.g., catch-per-unit-effort, population modeling).
b. Develop quantitative methods for assessing population status from survey data; the appropriate survey also would be developed and implemented.
c. Improve the precision of current harvest estimates.
d. Develop management criteria that address damage and nuisance problems on private property while ensuring long-term sustainability of populations on public lands.

Recreation Management

Issue Statement: Information on the status of individual populations is necessary to accurately prescribe a harvest level that is compatible with maintaining sustainable and healthy populations. In the absence of such information, managers typically set conservative harvest levels, thereby minimizing the potential for over-exploitation (see page 2).

Objective ~~150~~ 168: Until *Objective 167* is completed, use at least two methods to assess the impacts of harvest on populations, and then set harvest levels based on the more conservative method.

~~Alternative~~ Strategies:
a. Assess harvest impacts from three-year trends in total harvest, catch-per-unit-effort, or nuisance activity.
b. Assess harvest impacts using population modeling (e.g., population viability analysis, sensitivity analysis).
c. Assess harvest impacts using survey data, research findings, or other biological information.

Issue Statement: Currently, there is no harvest reporting mechanism for unclassified wildlife, except those that are reported as non-target or nuisance captures on trapper's report of catch forms. Moreover, the trappers report of catch form is problematic in terms of ease of reporting and data utility.

Objective ~~151~~ 169: Develop a web based reporting system for furbearers and unclassified wildlife.

~~Alternative~~ Strategies:
a. Phase in a web-reporting system for the trapper's report of catch forms.
b. Provide a mechanism for reporting capture of non-target species.
c. ~~Provide web reporting in addition to mail-in version of trapper's report of catch forms~~
d. ~~Provide web reporting only and discontinue the mail-in version of trapper's report of catch forms.~~
c. Develop web-reporting system in collaboration with Washington Trappers Association.

Issue Statement: One of the public's concerns about trapping is that trapping is non-discriminating to some extent. That is, non-target species can inadvertently be trapped and killed. With the prohibition on the use of body-gripping traps for recreational trapping of all furbearers and unclassified wildlife, potential lethal impacts to non-target species caused by trapping was eliminated. Nonetheless, public support for trapping is still relatively low compared to other recreational hunting opportunities. Therefore, efforts should be made to shape trapping opportunities based on public attitudes, while at the same time fulfilling the Agency's mandate to maximize recreational hunting and trapping opportunities.

Objective 170: Address at least two issues related to trapping by 2008 to increase public acceptance of trapping.

Strategies:
a. Incorporate best management practices for trapping and trap types in Washington.
b. Consider revising trap check times for lethal trap types.
c. Require all new trappers to take a trapper education course prior to being issued a trapping license.
d. Consider restricting hunting or trapping opportunities that greatly impact other native species.

Issue Statement: Coyotes are categorized as "unclassified" wildlife, and can be hunted or

trapped year-round. The public has voiced concern about the chance for misidentification between coyotes and wolves, particularly in the event that wolves become established in Washington State.

Objective171: Minimize the negative impacts of coyote hunting/trapping on wolves.

Strategies:
a. Consider restricting coyote harvest opportunities in areas occupied by wolves.
b. Distribute educational information to hunters in areas occupied by wolves.

Problem wildlife ~~Nuisance~~ management

Issue Statement: In the last two years, approximately 26% of Washingtonians have experienced problems with wild animals or birds. Of these, over half the problems were associated with small game mammals, furbearers, and unclassified wildlife (Duda et al. 2002). This accounts for nearly 425,000 human-wildlife interactions annually.

Objective ~~152~~ 172: Minimize negative human-wildlife interactions so that the "number of interactions per capita" is constant or declining.

~~Alternative~~ Strategies:
a. Develop limited hunting seasons for appropriate furbearer species.
b. Simplify special trapping permits via Enforcement Program to resolve damage caused by furbearers.
c. Increase recreational harvest (trapping and hunting) in areas prone to furbearer complaints.
d. Develop educational package with tips on how to avoid furbearer damage and nuisance activity.
e. Develop educational partnerships for informing the public on how to avoid furbearer damage and nuisance activity.
f. Develop contracts with private wildlife control specialists for managing individual furbearer species involved in damage and nuisance activities.

Issue Statement: Washington's fauna includes wildlife species that are not native to the state. Some of these include nutria, Virginia opossum, eastern gray squirrel, and bullfrog. Non-native species can potentially impact native wildlife through competition, predation, habitat manipulations, and other ecological processes. However, major impacts have not been observed, so no management actions have been conducted that specifically target non-native species. Nonetheless, an indicator mechanism is needed to detect major negative impacts to native wildlife caused by non-native species.

Objective 173: Develop a mechanism to assess the impacts of non-native species on native wildlife and habitat communities.

Strategies:
a. Provide a reporting process for hunters and trappers to report lethal take of non-native species.
b. Assess the impacts of non-native species by annually evaluating the problem wildlife complaint database.

c. Coordinate monitoring efforts of non-native species with federal, state, tribal, county, and private organizations

Public Education

Issue Statement: Hunters may misidentify game species of rabbit or unclassified wildlife with a protected, non-game species or furbearers.

Objective ~~153~~ 174: Develop at least 2 publications or products that describe the differences between game and non-game or furbearer species that may be easily mistaken.

~~Alternative~~ Strategies:
a. Develop publications, in conjunction with WDFW diversity staff, describing the differences between similar game and non-game species, including ground squirrels and western gray squirrels.
b. Develop simple identification materials for use in hunting pamphlets.
c. Develop pygmy rabbit/cottontail rabbit informational signs and post areas where pygmy rabbits exist.

Issue Statement: Washington State is home to approximately five million people and one-half million furbearers. Both people and furbearers exert pressures on one another (such as encroachment and habitat modification) and these pressures will likely increase in future years. Therefore, it's important the public understands the role of habitat for both conserving furbearer species and minimizing human-furbearer conflicts.

Objective ~~154~~ 175: Provide educational information on furbearer habitat that reaches 100,000 people annually.

~~Alternative~~ Strategies:
a. Develop a website describing proper habitat management for maintaining furbearer populations while at the same time minimizing human-furbearer conflicts.
b. Develop a viewing opportunity demonstrating proper habitat management for maintaining furbearer populations while at the same time minimizing human-furbearer conflicts.
c. Develop a brochure describing proper habitat management for maintaining furbearer populations while at the same time minimizing human-furbearer conflicts.

VII. LITERATURE CITED

Duda, M. D., P. E. De Michele, M. Jones, W. Testerman, C. Zurawski, J. Dehoff, A. Lanier, S. J. Bissell, P. Wang, and J. B. Herrick. 2002. Washington residents' opinions on and attitudes toward hunting and game species management. Harrisonburg, Virginia, USA.

APPENDIX A

RCW 77.04.012

Mandate of department and commission.
Wildlife, fish, and shellfish are the property of the state. The commission, director, and the department shall preserve, protect, perpetuate, and manage the wildlife and food fish, game fish, and shellfish in state waters and offshore waters.

The department shall conserve the wildlife and food fish, game fish, and shellfish resources in a manner that does not impair the resource. In a manner consistent with this goal, the department shall seek to maintain the economic well-being and stability of the fishing industry in the state. The department shall promote orderly fisheries and shall enhance and improve recreational and commercial fishing in this state.

The commission may authorize the taking of wildlife, food fish, game fish, and shellfish only at times or places, or in manners or quantities, as in the judgment of the commission does not impair the supply of these resources.

The commission shall attempt to maximize the public recreational game fishing and hunting opportunities of all citizens, including juvenile, disabled, and senior citizens.

Recognizing that the management of our state wildlife, food fish, game fish, and shellfish resources depends heavily on the assistance of volunteers, the department shall work cooperatively with volunteer groups and individuals to achieve the goals of this title to the greatest extent possible.

Nothing in this title shall be construed to infringe on the right of a private property owner to control the owner's private property.

[2000 c 107 § 2; 1983 1st ex.s. c 46 § 5; 1975 1st ex.s. c 183 § 1; 1949 c 112 § 3, part; Rem. Supp. 1949 § 5780-201, part. Formerly RCW 75.08.012, 43.25.020.]

APPENDIX B

Resident Hunting License, Deer and Elk Tag Fee Changes Since 1901

Year	State Hunt & Fish	State Hunt	County Hunt & Fish	Deer Tag	Elk Tag
1901	NA*	NA	$1,00		$20 additional for killing a male elk
1905	NA	**$5.00**	$1,00	NA	NA
1913	**$5.00**	NA	$1.00	NA	NA
1921	**$7.50**	NA	**$1.50**	NA	NA
1929	$7.50	NA	$1.50	NA	**$5.00****
1933	**$3.00**	NA	$1.50	NA	$5.00
1948	**$5.00**	NA	**$2.50**	NA	$5.00
1953	$5.00	NA	$2.50	**$1.00**	**$5.50**
1954	**$7.00**	**$4.00**	**$3.00**	$1.00	$5.50
1956	$7.00	$4.00	**$3.50**	$1.00	$5.50
1957	$7.00	$4.00	$3.50	$1.00	**$7.50**
1958	**$8.00**	**$4.50**	**$4.25**	**$2.00**	$7.50
1966	**$9.00**	**$5.50**	**$5.25**	$2.00	$7.50
1971	**$12.00**	**$6.50**	**$8.00**	**$3.00**	**$10.00**
1975	$12.00	$6.50	$8.00	**$5.00**	$**11.00**
1976	**$14.00**	**$7.50**	**$9.00**	$5.00	$11.00
1981	$14.00	$7.50	$9.00	**$10.00**	**$15**.00
1982	**$20.00**	**$10.50**	**NA**	$10.00	$15.00
1985	**$24.00**	**$12.00**	NA	**$15.00**	**$20.00**
1992	**$29.00**	**$15.00**	NA	$15.00	$20.00
1999	**NA**	**NA**	NA	**$36 deer only. $28 with elk.**	**$36 elk only. $28 with deer.**

* Not Applicable

** Bold Indicates change from previous year.

APPENDIX C

Summary of 1999 Public land ownership and use (acres) in Washington State.

Landowner/ Agency	Outdoor Recreation, Habitat, Environmental Protection.	Resource Production and Extraction	Transportation and Utilities Infrastructure	Other Government Services and Facilities	Unknown Upland Uses	Total Upland Acres	Total Aquatic Acres	Grand Total
Federal								
US Forest Service	6,887,490	2,115,089	82,703	531	18,560	9,104,373	85,045	9,189,418
National Park Ser.	1,831,274		9			1,831,283	0	1,831,283
B. of Reclamation			468,808			468,808	11,341	480,149
US Army				404,313		404,313	0	404,313
Bureau of Land Mgt.	74,154	318,429				392,583	3,346	395,929
US Dept. Energy	162,879		1,094	198,723		362,696	916	363,612
Corp of Engineers	1,098		84,916	4		86,018	5,764	91,782
All Other Federal	186,567	2,032	9,798	36,787	162	235,345	1,905	237,250
Federal Total	9,143,462	2435,550	647,328	640,358	18,722	12,885,421	108,317	12,993,738
State								
Natural Resources	82,474	2,830,167	18,211	3,523	40,762	2,975,136	2,407,000	5,382,136
Fish and Wildlife	456,289	4,677	8	62		461,036	540	461,576
Transportation			150,561	1,903		152,464	0	152,464
Parks	107,608			11		107,619	0	107,619
All Other State	2,127	1,850	70	29,307	5	33,359	11,689	45,048
State Total	648,498	2,836,694	168,850	34,806	40,767	3,729,614	2,419,229	6,148,843
Local								
Counties	46,930	45,596	90,683	14,278	15,581	213,068	4,054	217,122
Cities/towns	167,044	14,981	119,897	12,049	2,691	316,661	3,189	319,850
Port Districts	4,032	2,836	18,170	16,779	176	41,993	3,849	45,841
All Other Local	19,033	2,491	14,185	24,153	781	60,643	15,489	76,132
Local Total	237,038	65,903	242,935	67,259	19,229	632,365	26,580	658,945
Total Public	10,028,998	5,338,147	1,059,113	742,424	78,718	17,247,400	2,554,126	19,801,526
Tribal	47,358	205,980	1,502	10,415	2,412,026	2,677,281		2,677,281
Total Public/Tribal	10,076,356	5,544,127	1,060,615	752,839	2,490,744	19,924,681	2,554,126	22,478,807
Total Private Lands								20,821,193

State of Washington
DEPARTMENT OF FISH AND WILDLIFE

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October 18, 2002

Dear Interested Parties:

From July 26 to August 26, 2002, Washington Department of Fish and Wildlife (WDFW) solicited public comments on a Draft Environmental Impact Statement (DEIS) for their Game Management Plan (GMP). Attached are the public comments received from that open public comment period.

To give the public an opportunity to see how those comments where addressed in the revised draft game management plan, the revised Plan contains strikethrough and underline text. Strikethrough text corresponds to original text that will be deleted and underlined text corresponds to new text. The final draft of the EIS will include WDFW response to all public comments, including those not addressed by text changes.

Thank you for your interest and comments.

NOTE: *Many comments listed in this appendix refer to specific objectives listed in the first draft of the Game Management Plan. Many of the objective numbers have changed due to changes in the plan. For example, Objective 128 is now Objective 143.*

GAME MANAGEMENT PLAN PUBLIC COMMENT

PUBLIC COMMENT
GENERAL COMMENTS
A definition of game vs. non-game animals is needed. Game appears to be confined to mammals and exclude fish.
It is absolutely critical that the following statement be included in the introductory remarks for each species. "The issues and options for this species are based on current management information. If additional information becomes available, they may be modified or other more appropriate options may be developed."
Fact sheet, section B – The Tribes may not have been adequately consulted as co-managers.
Page vi. – While there is an attempt to estimate cougar numbers, this is basically a best guess. There has not been a detailed analysis if the prey base can support the level of cougar predation likely experienced by the objective cougar population. Cougars appear to be favored while attempting to "…provide maximum recreation days…" for elk and deer. The objectives are not necessarily compatible.
Page vi. – Increase harvest of antlerless animals assumes population at or beyond objective, and assumes density-dependent effects will result in better production with fewer antlerless animals.
Page vi – Deer Management: First sentence states "factors that determine population levels beyond the control of state wildlife managers such as weather, wild fires, disease, and timber harvest." I find this statement inaccurate. I agree that climatic conditions are unpredictable, but timer harvest and to a limited degree wildfire and disease are more predictable and therefore allow for management opportunities. Presently there is a WDFW representative setting on the WA State Forest Practices Board who could provide input into timber management practices on private and state lands. This group needs to be put back on track and once again thinking of how to provide for and linking functioning watersheds.
Page vi. – WDFW proposes to increase elk bull:cow ratios to 18:100 and beyond, but bucks only at 15. The mating system of deer is less polygamous and consequently more male deer are needed to breed the same number of females than for elk.
Page vii. – While the idea of a cougar protection area is nice on paper in reality cougars are highly effective obligate carnivores that have the potential of significantly limiting their prey and consequently their own numbers. Over the long term cougar reserves will not function as reserves because their prey will have been reduced to where few cougars exist in the reserve.
Hunting Season Guidelines: - Item 15, Hunting season closures. Are closures warranted when manageable factors other than hunting are shown to have a more significant impact? Action should be directed toward those other factors as well as hunting season closures.
Page 4, Native American section should be reviewed by Tribal cultural folks.
Page 4. The statement, "the State of Washington has been inhabited for at least 9,000 years." Should be specific as to whom it is referring to. It should read inhabited for at least 9,000 years by Native Americans.
Page 4 – This chapter needs to be expanded slightly to help educate individuals of state and tribal relationships. I think it would be useful to list all of the Federally recognized tribes of the state and those that may be affected by this plan
Page 5. We disagree with the term sedentary as meaning people who did not travel. In fact, all of the Tribes in the State of Washington traveled for subsistence purposes.
Page 5 concerning discussion of differences between west side and east side Tribes. We offer the following: "the Cascade Mountain range splits Washington State into two distinctive environments; the dry desert-like conditions of the east and the rain forested areas of the west. Native Americans relied on the conditions of their environment, the changing seasons and knowledge of their land in order to provide shelter, hunt, fish, gather, and interact with their neighbors. A network of trails and ability to navigate the river systems gave Native Americans mobility. This mobility increased with the introduction of the horse."
Page 5 concerning assimilation of Native Americans. The sentence should be changed to include "white" settlement into the area, as it was already settled by a people that had been here for centuries. Also, "encourage" is not the term for the assimilation and placement onto Reservations. We would view this as forced assimilation.
Note that the appendices are lettered and not numbered as written in the text.
Note: appendix B columns are not aligned.
Page 7 – The Social Environment: The State of Washington is extremely diverse in many respects and it would be helpful to regionalize information accordingly. This regionalized concept needs to be applied throughout the plan respectively.

PUBLIC COMMENT
Page 9, figure 1 and text. There is a tendency to address populations as total numbers rather than % when discussing population growth i.e. a fall in sale of hunting and fishing licenses as a population has grown amplifies the negative impact population growth is having on wildlife preservation in general, as well as game, and may be a particular problem when it comes to justify general funds. This assumes the general population cares and wants to contribute to its preservation at a time that the contents of our states general fund continues to decrease.
Do as much as you can to encourage youth to enter the sport of hunting.
The document is generally well written and is quite comprehensive in scope
There is no description of how this document is to be used, and how the alternatives relate to the issues. Some of the alternatives seem to be in conflict while in other cases all alternatives could be implemented.
I assume that one or more of the alternatives would be selected for action. How would this be accomplished? Are you asking for identification of preferred alternatives at this time?
The plan is extremely ambitious, and I question whether the Department has the resources to implement the plan.
I would like to express my support for the Washington State Game Department (WDFW) with their planning for the management of game resources in this state.
Impact statement needs to be written to reach grass roots people, especially in wording more common to hunters and fishers. Legalistic, scientific nomenclature, biological references, etc are not common amongst most user groups.
Impacts of certain strategies are not listed. Please also note impacts can be positive as well as adverse.
Impact statement needs to address that majority of funds raised to manage WDFW comes from people who buy a license to hunt or fish. Rules, regulations, and management strategies that are not simplified, logical, or favorable to license paying users will have a considerable economic adverse impact toward funding the mandate.
The EIS doesn't address that anti-fish/hunt sentiments from Wildlife commissioners appointed by the Governor and/or employees hired by the Department also impact sales of licenses.
The public involvement process is poorly explained. Additional information would be helpful such as the process of soliciting public involvement
An appendix should be added to the document showing public comment and response by WDFW.
The primary concern of the Makah Tribe pertains to the major changes in the direction of elk management by WDFW. The Makah Tribe has provided comments for use in finalizing this EIS. However, additional dialogue between the Tribe and WDFW will be required and welcomed in the future to ensure proper management of wildlife resources on the Olympic Peninsula.
In the Introduction Section, amend the WDFW Hunting Season Guidelines, by replacing the word "should" with "shall."
Page 8, 3rd paragraph. & Table 2. This is a key item that gets lost in the rest of the document dealing with deer and elk. We noted a potential loss of deer and elk habitat capacity of 70% or more from impacts of Late Success ional Reserve HCP for central Cascades of Washington for Plum Creek Timber. This would also affect bear and grouse.
I am concerned with the way the State and other jurisdictions go about obtaining land. If the state plans to take land or land rights they should pay market value and assure that taxation and zoning aren't used to diminish property values and usages.
Page 8, 5th paragraph. US Forest Service does not "own" any land. It manages public lands for the public good. Delete "owned and"
Page 11, 3rd paragraph. Actually hunter allocation limited primitive weapon opportunity over time, as many of the initial seasons were eventually eliminated, as I understand the system, you cannot hunt in modern firearm seasons with a primitive weapon. The latter is a tremendous reduction in opportunity.
Page 11, in the list of questions: You should add, "Should fairness be a combination of opportunity (days) and success?"
Page 16, "b", and "c". at top of page: Why is greater harvest success a problem. This should be re-written to say, "only restrict those that result in over-harvest". If you want to eliminate all items that increase success, what about riflescopes, duck calls, binoculars, etc.? What is wrong with increased success if the harvest is regulated? Alternative "d" would seem to be the best option.
Research dollars are limited and can take away from other needs. The plan should contain a section identifying ALL proposed research projects and assign each a priority for funding. The WDFW will never have enough funds to conduct all identified research needs, and could use the priority listing to address the most needed problems and market the plan to potential research partners (other agencies, industry, universities, etc.). All research needs should be prioritized for funding.
I understand that if this 6-year EIS is accepted by the Commission, that as an EIS, it cannot be changed for 6 years and all strategies will become law (set in stone) for all the species mention. It is unbelievable that there is no mention of considerations for any of the species, where environmental impact is (drought, fire, flood, pestilence, predation, acts of God, or other calamities) factored in.
I believe the Commission should not consider this very flawed 6-year plan. It should instead look at and ask for assistance outside the F&W Department. WDFW needs to listen and work with those that are financing them. WDFW has always used a 3-year plan, so now why the 6-year attempt?
Page 12. The Private Lands Wildlife Management Area (PLWMA) program almost seems like the state is selling wildlife for the benefit of private landowners and may seem that way to the general public.
Page 13. The tribes should have been in on developing the management plan, not reviewing a draft.

PUBLIC COMMENT
HUNTER EDUCATION/SAFETY TRAINING
Have all new hunters regardless of age take the hunter education course.
The image projected here is that firearms are only important in hunting and omits the importance of general firearm safety. The current program needs to expand to firearm safety for everyone not just hunters.
Find ways to increase the hunter education courses or drop the requirement.
Loaded gun in a vehicle should no longer be a game violation.
STATE ENVIRONMENTAL POLICY ACT & PROCESS
The game management plans draft environmental impact statement is grossly inadequate, and fails to comport with even the most basic requirements set forth in the SEPA rules and regulations.
The objectives and alternatives contained within the DEIS do not represent the interest of a majority of Washington citizens. Thus WDFW has failed to adequately identify game management plan priorities.
SEPA requires that an EIS be prepared prior to the implementation of agency actions likely to significantly impact the environment.
EIS's may be combined with agency plans or may be issued as a separate document, but they should include a detailed statement regarding (i) the environmental impact of the proposed action/ (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented; (iii) alternatives to the proposed action [WAC 197-11-440(5)]; (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.
The agency is required to consult with and obtain the comments of any public agency that has jurisdiction by law or special expertise with respect to an environmental impact involved.
Copies of such statement and the comments and views of the appropriate federal, province, state, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the governor, the department of ecology, the ecological commission, and the public.
The implementing regulations set forth the content requirements for an EIS. WDFW must comply with these regulations.
An EIS cannot be quickly adapted to meet changing needs. Game management isn't a rigid set of rules; it must be able to be changed as conditions change. Therefore, I think implementing an EIS that will govern game management plans is a HUGE mistake.
The EIS must contain a fact sheet, table of contents, summary of the contents, and discussion of alternatives, a discussion of how the proposed action affects the environment, significant impacts, and mitigation measures.
The department's decisions and/or recommendations regarding environmental impacts are not "clearly identifiable."
The EIS must include a summary of the proposal as identified in WAC 197-11-440(4).
Disregard of public opinion regarding sport hunting. Rather than incorporating the public's opinion into the management plan, the Department has identified ways in which to circumvent or change the public's values in order to gain acceptance for activities and practices from which the Department profits.
Blatant disregard for the public interest is found in Objective 2 concerning trophy hunting. It is unclear whether alternatives "b" and "c" would result in the reduction or elimination of trophy hunting and contest hunts or whether they are intended to allow such activities to continue…
It would seem that if the publics at large as well as a large number of hunters object to trophy hunting and contest hunts, the Department should offer an alternative that would prohibit all trophy and contest hunts.
Trophy hunting and hunting contests are probably not something that the Tribes would like to see promoted. Shooting animals for their horns or antlers is not a good thing to promote.
Way too much emphasis has been put on conforming to public concerns and not enough to science. It is the Department's duty to manage the wildlife to maintain the population and maximize recreation even when that conflicts with the general public opinion. Management should never be based on public opinion from an uninformed, emotional public.
The Alternative Strategies listed under Objective 5 is listed out of order, appearing on page 13 before Objectives 1 through 154.
Even if citizen advisory councils are formed, public meetings are held, and opinion surveys conducted, there is no guarantee that the public, particularly the non-consumptive public's inters, will be considered since most commissioners overwhelming represent the views of hunters, trappers, and other consumptive wildlife users.
We urge the Division to address unequal representation on the Fish and Wildlife Commission by adding a section in the strategic plan that represent the interests of non-consumptive wildlife users and of non-game wildlife.
API recommends no new hunting programs.
Investigate new funding sources for wildlife and habitat preservation that could be generated from non-consumptive wildlife users.
The active inclusion of hunters and the overt exclusion of non-hunters from wildlife management decisions violate the Division's responsibility to both wildlife and the public at large, and is an affront to this country's democratic process.
Holding a public meeting only six days prior to the comment deadline is ridiculous. Insufficient time was allowed for public comment.

PUBLIC COMMENT
Inadequate opportunity for public comment, and a lack of public understanding as to the magnitude of the effect of the plan on hunting opportunities, particularly with elk.
There is a need for a format to establish how the outcome of the proposed actions will be determined.
This whole public process has been a fouled up mess and should be stopped and redone correctly so the public can make well-informed decisions. The mess: 1) The PSA's did not reach many media sites and did not include any mention of such a major change to elk mgmt. 2) The mailing list to individuals was not the one with the currently most interested people or organizations. 3) The cited Peek report was not available. 4) The comment period was only 4 days after last public meeting until it was extended. 5) The GMP's were not available at some regional offices.
GENERAL GAME MANAGEMENT ISSUES
The state desperately needs to use our hunting and fishing management dollars for big game and upland birds and not for songbirds, reptiles, and non-huntable species.
Our "game dollars" are being misused. Migratory birds receive the most attention while upland birds get very little and big game gets almost none (around a .05% return).
Evaluate the new study in the Journal Science, Researchers at Stony Brook University, New York suggest bigger fish be allowed to live, and the species may double in size and number and produce offspring that are bigger. Consider the implication and then explore the possibility that those dynamics may work for all other wildlife and then reduce the harvest of the biggest species.
The plan starts with the assumption that the only possible way to control wild animal populations are via hunting and killing the animals. There are other ways to control animal populations that should be explored as alternatives.
The rights of the people of Washington to petition, vote on initiatives, and have them upheld should never be abridged.
We are particularly concerned about how WDFW manages resources adjacent to national park Service areas, especially those that seasonally use habitats within the parks.
We request that WDFW consult with individual park managers prior to management activities that would be likely to affect the abundance and diversity of species within nearby park ecosystems. Obviously, we would not like to see non-native species introduced on lands adjacent to or near National Park Service areas.
SCIENTIFIC AND PROFESSIONAL MGMT. OF HUNTED SPECIES
Yakama Nation recommends management must be based on science to succeed in the long run. The State needs to make concerted efforts to educate the public and especially the Fish and Wildlife Commission on these issues.
The GMP should be based upon fact and data, not opinion. Several comments appeared to be opinion, not objective discussion. The data should be presented in the document so the reader can assess the rationale behind WDFW's management direction.
Management should be conservative – there is a problem with cougar and prey and we feel that cougar management may not be conservative with respect to prey protection.
Management should be flexible and adaptive.
Objective 5, all alternatives are important. Alternative "c" should be expanded to include more public meetings on important issues and use of WDFW web site as a public comment vehicle.
Objective 5 – We recommend that the composition of citizen advisory councils should be limited to hunters/general public with no rabid anti-hunting element.
Objective 5 – Public opinion surveys should be conducted so that extreme anti-hunting views are identified and discounted so as not to bias the survey.
The citizen advisory council needs to be more diverse than present group and reach out to public hunting segment of the public.
It is the experience of this membership that the WDFW use citizen advisory councils as a cover and there is little follow through.
Page 17, This section should be moved to the start of the chapter. There is little "science" in the section, and the section seems to defer all management to political concerns. This may be my bias, but I think the section should clearly state that scientific principals are primary and political concerns are secondary. Perhaps this section should be renamed Public Involvement, as all alternatives deal with those issues, and have nothing to do with scientific or professional management.
Use hunting public user-group comments from WDFW web page as usable input, not just interesting reading.
Conduct hunting public opinion surveys every two years not five years.
Science is always the deciding factor and this plan lacks the obvious scientific allowances for natural occurrences along with finding and maintaining accurate species numbers. It is the Department's job to educate the public and gain their approval when making decisions.
Get the politics out of WDFW. Take Commission and WDFW power away from the Governor and try this one too…tell the public the truth.
All species should be managed on a sustainable yield, scientific methodology, not according to political whim. The department should cease using the phrase "trophy" hunting.
Many studies indicate that sport hunting does not result in an overall population decrease of targeted predators, reduction in wildlife-human conflicts, or an increase of prey species.

PUBLIC COMMENT
Page 14, public support for hunting as a management tool. Data needs to be provided from WDFW's questionnaire (surveys) so that one can see how strongly issues were supported and were not supported. How was the random sampling performed?
Page 14 Issue Statement: - The first bullet statement needs some data, some references, some facts, some questionnaire results (along with confidence intervals) to back it up. How did WDFW come to this opinion? There should be supportive data in the appendices so the reader can be assured that this statement is true.
Micro-managing predators won't increase deer populations or aid ecosystem health.
Build a new legacy. There is no need to turn the general public into hunters (or even pro-hunting). They need to understand the management purpose and rationale for harvesting. They need to be assured that harvesters have the skills, values and knowledge that will allow them to be effective management tools. Once consumptive recreation's stigma is erased (itself a predictable result of unrestrained, unethical slaughter and waste which preceded formal wildlife management) WDFW can carry out its wildlife mission.
Trophy hunting is not acceptable to our organization. The harvest and consumption of game is not a waste of wildlife. To kill an animal for the horns and cape or any other small collectable part and leave the majority of the animal to rot is not a viable option in this new century. Harvest of wildlife must include the responsibility of ensuring that the animal is treated with respect after it is harvested.
Hunting for the purpose of harvesting a trophy animal will only continue to affirm the public perception that hunting is bad. Possibly WDFW should be promoting the cultural and traditional ties to hunting rather than over emphasizing recreational harvesting of animals for sport.
The Department has a responsibility to Washington's citizens to manage large carnivores in a biologically sound, ethical, and humane manner that emphasizes these keystone species ecological importance rarely than merely their utility as a "resource."
The time, money, and energy required to manage predators for hunting would be better spent educating the public about the important ecological role of predators and how to prevent human/predator conflicts.
Readdress the issue of the explosion of the cougar population as a result of the initiative passed banning the use of dogs in hunting cougars and bears.
Objective 1 – Rather than management of non-native species, we should strive to eliminate them and prevent further introductions.
Objective 1 –WDFW should develop a fact sheet on predator impacts-how many deer and elk can a cougar eat, what the potential impacts are on prey populations, discussion of additive versus compensatory mortality, depensatory effects, and lost hunting opportunity (reduced success, reduced hunter satisfaction, and reduced recreation days).
Objective 1 is completely flawed and should be withdrawn. It is not the place for WDFW to try to shape public opinion; rather, the WDFW should shape its policies based on public opinion.
Your agency has violated the public trust and it is extremely difficult to support your agency in any way because it does not manage wildlife for the public, but rather the mighty $$.
Objective 1 – I would rather see tax dollars spent on exploring non-lethal wildlife population management tools rather than on increasing public support for hunting.
Objective 1 – Change focus to understanding what needs to occur in wildlife management rather than increase public support.
Objective 1 – The agency should strive for public approval, but science should determine management of our wildlife. Under no circumstances should any percentage of an uneducated, often emotionally guided public determine management of wildlife resources, whether controversial or not? Education of the public so they understand the reason for actions that may be taken, whether they agree or not, is a key agency responsibility.
WDFW currently has strong support of the public for the use of hunting as a management tool. It would be cumbersome, expensive, and time-consuming to poll the public each time WDFW contemplates an action, and establishing a policy that only favorable and politically-correct actions would be implemented could potentially fly in the face of science-based management and professional judgment. Keep the biological objectives foremost, not public opinion.
Given the results of the public opinion survey, it shouldn't take WDFW until 2006 to develop a policy either supporting or not supporting trophy hunting and hunting contests and modifies their regulations accordingly.
Tangentially the WDFW has restricted bird dog training and field trial by confining field trials to a few, specific areas.
Please continue to provide youth hunting opportunities. These hunts are ideal for youngsters.
Objective 1 – Need to increase public support by 20% not 10%. Keep problem animal logs like the Department use to do in order to prove to general public the need.
Objective 1 strategy "a" – The general public comments on what is controversial only means that the Department is not sure or afraid of its authority to manage wildlife. Get the facts first and then back them. You do not need to wait for 55% general public approval all the time. You are not doing the job our license money is paying for.
Objective 1, strategy "a" is too restrictive.
Objective 1, strategy "b" Publicize 6 stories per year to show value of hunting.
Objective 1 – We believe that an aggressive program attempting to engender support for hunting/trapping needs to be initiated. Strategies 'b" and "f" are steps in the right direction, but much more effort on a continual basis is required, particularly in urban areas. Success in increasing public support for hunting may allow more forthright approaches in strategies "c" and "d".

PUBLIC COMMENT
Objective 1 – Eliminate alternative strategy "c".
Objective 1, strategy "c". Need to be honest and not run "under the radar."
Objective 1, strategy "c" Drop this one, instead implement school programs for biological and social studies in elementary, middle and high school classes emphasizing hunting as a tool of wildlife management.
Objective 1 strategies "c" & "d"; are equally absurd to this objective.
Objective 1, strategy "d" Drop this one.
Objective 1 a strategy that expands "f" that includes the director speaking directly to urban audiences on the public values of regulated hunting and "hunter recruitment."
Objective 2 – You are blatantly ignoring what the public is telling you.
Objective 2 – trophy hunting may be inconsistent with the bull:cow ratio goal of 18:100 if the goal is to draw out the age structure and allow older bulls to breed.
Objective 2 should either be removed or rewritten to say "by 2006, modify regulations associated with trophy hunting and hunting contests to more closely match public opinion."
Objective 2, strategies "b", "c" and "d" should be deleted.
Objective 2, add the following strategy: Eliminate hunting contests. The survey shows an overwhelming 73% opposition to hunting contest. There is no reason for these contests to remain legal.
Public surveys shouldn't affect game policy. Ask the hunters!
I think the WDFW should try to get the legislature to overrule all these "activists" initiatives and take over the game management.
It is important to try and educate and generate support for the use of hunting as an effective game management tool. I think hunting is especially important to effectively manage predators such as cougars and bears.
I am concerned with an apparent disparity of values, goals, and actions between the public and the WDFW. The public seems to expect the WDFW to act as caretakers for our wildlife while the WDFW appears to be run as a recreational hunt club for the benefit of hunters who dominate the board and their meetings.
It is a sad commentary when the biggest threat to our wildlife appears to come from the very Department that should be their first line of defense.
Again, note under predator management on page 20 the same indifference and hostility to the public mandate (you apparently feel you do not work for the public but rather the hunting special interests).
I would suggest your priorities are clearly misplaced here and need to be corrected to reflect the public and wildlife interest and not just those of recreational and commercial interests.
Pay off the commercial interests if you must (though they are the intruders), apprehend and prosecute the poachers, and restrict hunting and takings to only that allowed that can be reasonably (scientifically) substantiated.
Despite public survey results, the DEIS has objectives that focus on increasing public support for hunting of cougar, black bear, and furbearers and public acceptance of trophy hunting and hunting contests. This is difficult to understand. WDFW should implement law and protect the wildlife of the state, not attempt to mold public opinion.
HUNTER ETHICS AND FAIR CHASE
I would prefer a ban on all sources of artificial motion in hunting decoys. A plain decoy that sits on the water and does absolutely nothing. Hunters do not need more efficient ways to kill ducks. The reverse does hold true however; ducks need more protection from humans.
Harassment of hunters in the field by animal rights groups should be made a criminal act with a stiff fine.
Expanding technologies are hurting hunting, in my opinion.
The archery regulation changes that were made during the 2000-2002 hunting season package were bad changes. We need the 400-grain minimum arrow weight to ensure adequate energy delivery. A compromise would have been 350 grains. The current regulation, allowing a 240-grain arrow, is woefully lacking in the ethics Department.
Objective 3 – Please add, "To develop and modify regulations for the use of electronic and mechanical equipment for hunting.
Objective 3, strategy "a" is ethically completely unacceptable and strategy "d" is contrary to the hunting season guideline to "provide maximum recreation days."
The concept of making hunting easier by allowing more and more shortcuts to success is sickening. Put the "primitive" back into hunting in this state. Imagine hunters who give their quarry every advantage…That's the heart and soul of hunting.
Objective 3 – Eliminate strategies "a" through "e".
Objective 3 Eliminate strategies "d", "e", and "f". Restrictions should be based on research and science not on the opinions of the urban public in the Puget Sound area.
Objective 3 – Develop and modify regulations for use of electronic equipment for hunting. The EIS needs to address what is an advantage and if so according to last 10 years of deer harvest with more advanced equipment why than is the previous 10 years of deer harvest not much different if not more. EIS needs to see what other states are doing that has a successful hunting/management program.

PUBLIC COMMENT
Objective 3 – Electronic devices used for hunting purposes have been in use for many years. In the past 5-10 years many new such devices have been developed and are in common use. WDFW figures show no significant increase in hunter harvest, which would lead one to believe that electronic devices have no significant impact. It is not necessary for WDFW to study this issue. Use our FTEs and dollars for other purposes.
Objective 3, alternative "c" We disagree, use our precious funds to create more game. Alternative "d" - Totally disagree with this one.
There seems to be an assumption that greater harvest success is a negative thing, yet there are numerous places that the plan indicates greater harvest may be desirable. Increased harvest opportunity may also provide WDFW an opportunity to address the demand for alternative weapons and/or certain electronic equipment. Suggesting the restricted use of ALL electronic devices is too vague.
We believe that the current allowable utilization of advances in equipment technology is more than enough to permit hunters to succeed in their pursuit of game. We do not support the approval for in-field use of additional advances in equipment, electronic or otherwise. The time and funding spent in modifying/developing regulations for use of equipment advances would better be spent on other programs.
Our life and world around us is filling up with gadgets to aid in all aspects of living, the hunting and fishing world included. It does not matter whether an electronic device aids in the harvest numbers of game or not. If hunting is to continue to have public support, then devices like laser sights, distance finders, and radio collars for hunting dogs, mechanical decoys, or other such aids must be banned to keep the element of fair chase for wildlife. Wildlife needs a sporting chance in a world that already is coming at them with a rifle, as opposed to a bow and arrow or muzzleloader that was the only option 150 years ago. Keep electronics or other high tech aids out of hunting, if for no other reason than to keep public support for hunting. After all, it is the public that really determines what "fair chase" means.
HUNTER BEHAVIOR/ETHICS
I don't see the need for more F&G officers in the field; it only increases costs.
Objective 4 – Use all the strategies. The WDFW should enforce the laws, but use good judgment as to the true intent of the regulations; abuses have occurred in the enforcement of the laws.
Objective 4 – Delete strategies "d" and "e". It is not the job of WDFW to help improve the image of hunters.
Objective 4 should have some quantifiable target. The survey results indicate that public expects 100% compliance; therefore alternative "e" doesn't seem to be a practical approach. Strategies that increase field presence would do more to show the public that WDFW has the same expectation of 100% compliance and zero tolerance for offenders.
Objective 4 – Hunter compliance can only be improved with increased numbers of actual agent contacts. Wildlife and poaching are not confined to schedules and cannot be handled within defined days and hours of work. Agents must have the latitude and freedom to do the job as they see fit in their particular areas of assignment. Furthermore, the number of agents now enforcing wildlife regulations is grossly inadequate.
Objective 4, strategy "f". - This is a major need. You are not using your website as much as could be done to improve hunter understanding and ability to access regulations effectively. Delete strategies "b" and "c".
We believe that the single most important thing that could be done to improve hunter behavior in the field would be to greatly increase the number of enforcement officers.
Enforce the regulations with the intent they were written.
Seriously crack down, arrest, and jail all Indian violators.
PRIVATE LAND PROGRAMS AND HUNTER ACCESS
Continue to provide incentives for landowners to create beneficial habitat for wildlife and allow outdoorsman to utilize their land for outdoor sports. Promote partnerships between outdoorsmen and landowners.
Follow the model of other states, who have discovered that light and sporadic cutting of timber provides a food source for deer.
Objective 6, alternative "d" should provide more workshops in several locations and tied to existing landowner groups (timber, cattlemen, etc) and coordinated with their scheduled meetings.
Objective 6 – Delete strategies "a" – Publicity alone isn't the answer. And "b" – Survey alone won't work; need to do "c", "d" and "e". Add strategy – To allow landowner to receive habitat incentives without having to post as open access by permission or otherwise.
Objective 6 – The sooner the better. Many of us are both hunters and landowners and consider the hunting permit system in need of revamping. Consider the Idaho system.
Objective 6 – EIS needs to address payments to private landowners for wildlife damages should be offset with permission to hunt to keep these damages down, and hunter access needs to increase by 20% if we are going to keep up with wildlife populations.
Objective 6, alternative "f" Offer money incentives similar to Montana Block Management Program. Alternative "g" - Offer money incentives for damages only if permission for hunting is given.
Objective 6 – Do all solutions need to be found to minimize damage claims?
Objective 6 – This objective needs to address the fact that hunters, in general, need to improve their behavior on, and respect for, private lands. Otherwise, we'll see access opportunities decrease rather than increase. Many of those clamoring for WDFW to facilitate increased access behave like pigs when out in the woods.

PUBLIC COMMENT
Before consideration of approaching private land owners for hunter access, it would be prudent to look at which private lands are refugia for maintaining game populations on open-to-hunting lands. Some private lands may be the source areas for hunting opportunity on huntable lands. To open the currently closed lands might jeopardize the hunting opportunity as a whole. Areas not jeopardizing a particular population might be opened for additional hunting opportunity. The incentives to do so should be balanced by the conservation of all species on those lands.
To encourage owner cooperation develop an access permitting system similar to the access permit currently purchased with licenses and tags and direct the proceeds to the private owners to help defray expenses for security, vandalism, garbage collection, etc.
Start negotiations with Weyerhaeuser now to open up their lands for hunting. Weekend access during the general firearm season is not enough.
We would like to see a regulation saying that hunters can only enter private land if they have a written statement giving them the right to do so. Make hunters take the responsibility of seeking access first.
Page 12, 5th paragraph. How does the state lose control in the PLWMA process? The entire process is controlled by WDFW and seasons set are agreed to by WDFW, and annual monitoring is required. Also, the potential for over-exploitation is no greater under a PLWMA plan than in a general open season, and in most cases would be less of a risk.
Page 12, last paragraph. This paragraph ignores the long tradition of paid hunting in duck clubs. Many duck clubs in Washington state go back decades or even to the early 1900's. The change is in forestland and other uplands. Hunting on private clubs on private lands is a very old tradition in the USA.
ROAD MANAGEMENT
A voluntary road closure system would not work well in the majority of the state due to the general lack of compliance with current closures on public lands. Gates and other vehicle blocking devices are necessary to keep roads closed, especially during high use times like hunting seasons. The red dot, green dot system would only work with gates and other road blocking devices.
Reduce road densities on all state lands, and then reduce them some more.
When the state enters into a cooperative road closure system, all cooperators need to be notified and have the opportunity to participate in the process. A process needs to be created for informing Tribes of road closures.
Road management has a place in protecting game populations but it must not be biased against Indians. Cooperative road management must be a process involving all co-managers at the local level. There should not be unwarranted prohibited access from areas protected by Treaty.
WDFW needs to work with WSDOT on high impact areas studies. High kill areas need to be identified and management strategies need to be developed for those areas.
The overwhelming support by the hunting public (>70%) is not well known to the general public. The roads issue comes up as a concern by the public in a number of natural resource and recreation programs. This support by the hunting community needs to come to the general public's attention in the natural resource debate.
Another issue statement/objective/alternate strategy section should be developed to deal with wildlife/vehicle deaths, particularly for deer and elk.
Objective 7 – An explanation is needed as to why road management plans in SW Washington and the central Cascades area are identified. It gives the impression road management is less important or does not exist elsewhere. Some explanation is offered in Objectives 8 & 9, but it should be moved to correspond with Objective 7. A target date should be established to measure achievement of this objective.
Objective 7 Delete strategy "d' and "e", if we want to have an environment conducive to maintaining a viable wildlife habitat, hunters will have to sacrifice. Give private landowners more incentive to produce quality habitat that includes public access limitations.
Objective 8 seems to indicate that WDFW does not know if there is a problem or not, about hunter acceptance and understanding of road closures. It does not provide a quantifiable way to measure success as stated.
Objective 9 states "maintain" hunter access. This should be stated more quantifiably to measure success. The alternative interjects another element beside more access; landowner problems associated with increased access.
Objective 9, strategy "e" delete, leave these alone for a few years so that we can study the benefits. Add, "road density issues need to be addressed by giving incentives to landowners to reduce same – maybe through Timber Fish and Wildlife."
Page 18, 1st paragraph - Actually, the Smith et al. (1994) report found that the distance to urban centers was the most important factor, and that road closures were a minor issue.
ADA access needs to be addressed for road closures that impact disabled hunters. If we are to have closed roads then they need to be spur roads and not mainline access roads. ADA access (gate keys) needs to be made available to the disabled hunter.
An effort should be made on behalf of the bow hunters to address increased access of timber company lands that are routinely un-gated for other groups to have access. Equal access for all user groups.
TRIBAL
The first sentence under the tribal hunting header needs to be cited if this claim is going to be made. Is this opinion or fact?
What is a non-tribal hunter? Call them what they are; "State" authorized hunters, which includes Native Americans.
Research the issue of tribal over harvesting (truckloads) of wildlife.

PUBLIC COMMENT
I don't know how anyone could have misinterpreted the native American Treaty rights as badly as they have regarding hunting and fishing.
Regarding the proposal to try and generate support for tribal hunting, I am not sure I agree that it should be included as part of the Game Management Plan.
The tribal hunting paragraph should read as follows: "Tribal enrolled hunters have been increasingly exercising their Treaty Rights to hunt game within their ceded area(s). Native People have a unique tradition, culture, and value related to gathering of traditional foods and medicines. Many Tribes have a inherited reserved right due to the language of Treaties signed with the United States that allows tribes to harvest and gather game, fish, and other traditional foods and medicines, often with different seasons and reason than non-tribal recreational hunters. This has lead to frustration, anger, and misunderstanding on the parts of both tribal and non-tribal citizens. At the same time limited state-tribal coordination has made it difficult for tribal and non-tribal wildlife managers to do their jobs of managing harvest and protecting game populations."
Tribal hunting is an entirely unfair and discriminatory practice. I have to ask how 200 years from now the state is going to determine who is allowed to participate in special exclusive tribal hunts? Are the tribes going to obtain sovereignty to the degree they determine their own membership? If so, will they then have become nations within our borders who practice the most discriminatory types of admittance? Tribal privilege needs to cease now.
More information should be placed in the hunting and fishing guide regarding Tribe Treaties and what they mean to all of us.
More education must be given to show how WDFW is working with the tribes to better increase wildlife for all, hunter and non-hunter.
Objective 10 – Improving public understanding and acceptance of treaty hunting is a very positive step for the Department to take. Tribes should be involved in the process.
Objective 10 needs a quantifiable measure to evaluate implementation. Additional outreach to sportsman clubs, outdoor shows, schools, etc should be used.
Objective 10 – Add two strategies as follows; "e" Information on Tribal hunting and treaty rights need to be included in Hunter Education classes and "f" Joint outreach efforts on tribal hunting, treaty rights, and management needs to occur between the WDFW and Tribes.
Objective 10 – Improve hunting public's understanding and acceptance of treaty hunting rights. Alternative "a" we disagree. Alternative "d" we disagree unless funding can be had from BIA. Alternative "e" Native American hunting rules should be the same as the State rules for off reservation hunting at least with regards to weapon types, hours, seasons.
Objective 10 – Other strategies are to educate hunters when taking hunter safety classes on Tribal rights and link the WDFW website to the NWIFC website to view the Tribal annual harvest reports.
Objective 10 – Include information on the tribes efforts to manage game including research on collared animals, money invested in such projects, efforts to wisely use the resource with examples of tribal regulations, and examples of tribal enforcement programs and actions.
Objective 11 "…plans for deer, elk, and/or cougar…" – Does "and/or" mean that there are already 5 plans (S. rainier, N. Rainier, N. Cascade, Yakima, and Olympic) in place and no more need to be completed or that there should be 5 per species?
Objective 11- If possible, a prioritized list of proposed plans should be presented to indicate WDFW focus of effort.
Objective 11 Tribal hunting is a critical issue, especially for elk. Management and harvest by all hunters must be coordinated to effectively manage populations.
Objective 11, strategy "a". – As stated earlier the herd plan process was very interactive and took a long time to arrive at a document that was generally acceptable. But elsewhere in this document it is stated "elk herd plans come under the management directive of this Game Management Plan…" (pg.28) Suggesting that objectives in the GMP supercede the elk herd plans. The GMP elk objectives have not been closely scrutinized by the Tribes and the rationale behind the objectives have not been backed up with available reference material.
Objective 11 – How would these plans relate to the herd management plans? Did the current plans not consider tribal hunting? I am not sure that all "a" to "d" alternatives could not and should not be implemented in all areas at the same time.
The first sentence under Tribal hunting needs to be removed or cited from a specific document. This type of blanket statement is not valid for many of the Tribes in Washington.
We would like to encourage the Department to enter into relationships with tribes over treaty rights and game management. It would also be wise to advise the public on treaty obligations that the Department works under.
Very little in the way of management of elk and deer can be accomplished until some sort of common ground is met between tribal and state game managers.
WDFW should review the Bolt and other similar court decisions and then modify their present management strategies to conform to the direction and intent of those decisions.
Tribal wildlife violations committed off-reservation should receive the same treatment as non-tribal violations.
PREDATOR MANAGEMENT
Page 20 Predator Management introduction. – The statement "Washington is blessed with healthy population of both cougar and black bear…" are relative terms. Many people may not agree with Washington being "blessed."

PUBLIC COMMENT
Page 20 issue statement, "…and the general public did not support reduction of predators to increase game populations…" – The actual question and survey result data behind this statement must be presented in the Appendices.
Bears and lions have been feeding heavily on young elk and deer, depleting the states herds in many areas. This along with miss-management has resulted in larger predator populations that need immediate reductions.
Hunting of cougars and bears is the most reasonable way to solve this increasing problem of public safety.
Predator management should be based on the best science available, which should help sell it to the public. The need for control of predators needs to be clearly delineated and an established protocol needs to be adhered to.
This section seems to side-step the tough issues, such as the role of predators in limiting game populations (hotly debated in professional circles) and the impacts of the initiatives limiting hunting of bear and cougar (e.g., did this species increase as a result).
On page 21, 2nd paragraph. The conflict problems seem to be laid entirely on the issue of increased human population and not on an increase in cougars and bears. However, in many cases, problems have increased in rural areas where not great human population growth has occurred, or problems have spread geographically.
Objective 12 – The Tribes were involved with setting elk population goals in the elk herd plan process, however, the Tribes have not been involved with setting cougar population goals. No data has been presented that sustaining predator populations will result in a balance with prey, especially considering meeting other hunting objectives of recreation days, hunter satisfaction, and population objectives. Predator-prey modeling has not been presented that shows whether the prey base is capable of supporting the guesstimated predator population while meeting other objectives. The objective sounds noble, but the alternative strategies may not ensure a balance with prey species.
Objective 12 – An alternative that addresses public education and outreach for all predator management activities, not just those stated in alternative "c" should be included.
Objective 12 – harvest numbers need to be more flexible to adapt to problem areas.
Objective 12 does not meet with the mandate given to the Department to enhance game population resource for hunting public. It is the Departments job to educate the public that bears and cougars are not "Walt Disney" characters, and that increased population impact more than public safety and livestock. The Department has not handled social impacts and education correctly. We don't agree with alternatives "c" or "e". Be more aggressive on "a" and "b".
Objective 12, la. To require greater than 55% public support before protecting game populations weakened through predation destroys any appearance of scientific game management.
Objective 12, strategy "c" should be deleted. Public education on this issue is the biggest problem the WDFW faces.
Objective 13 – WDFW is willing to conduct targeted hunts to protect commercial interests but is unwilling to conduct targeted hunts where it has been documented that predators are having a limiting effect on game populations in the absence of hunting.
Objective 13 – There is no need for this action. Timber companies already have the authority to conduct hunts, including with the use of dogs, to alleviate timber damage.
Objective 13 and the black bear issue statement completely ignores predation and its effect on deer fawns and elk calves.
Objective 13, alternative "a" The Department needs to insure public understands that "Smokey" bear strips and kills young trees and 55% public support doesn't pay to control this problem. The licensed hunter does it voluntarily saving the taxpayers a lot of money and time. Alternative "b" Problem bears are not Yogi and Boo Boo. The Department is the expert, do your job and keep politics out. Alternative "d" We agree but on a limited basis try to provide opportunity for non-contract hunters as much as possible.
Objective 13 – Is the lack of public support or lack of hunter access (for fall or spring seasons) the limiting factor in developing a spring hunting program? Isn't this closely tied to Objectives 7 and 9?
Objective 13 – Alternative "b": I strongly recommend against attempts to demonstrate the feasibility of trapping and transplanting problem bears or other large animals for that matter. The literature is full of evaluations that show this is largely ineffectual, and creates an impression in the public that this is a viable alternative.
Concerning trap and relocation efforts, it has been established in other states and probably in Washington, that trap and relocation of bears has a high rate of failure. This approach should be abandoned.
Objective 13, delete strategy "b", it won't work. Concerning strategy "d" allowing so called contractors to deal with the problem can concentrate on problem areas works the best. Also since several landowners supplement feed, allowing boot hunters around feeding stations amounts to baiting, which is illegal.
Public opinion surveys on predator management should be conducted such that extreme anti-hunting input is discounted.
Predator management should fall under the guise of the regular hunting season for specific species. Where there are substantial problems with cougar or bears not dealt with by public safety removals, hunting seasons should be utilized where actual complaints are numerous.
Coyotes should have a season versus being open for killing year round. Research on coyotes has shown, unequivocally, that indiscriminate killing only leads to higher population densities.
Spring bear hunts, even for supposed timber damage, will probably never be acceptable to the general public. Rather than allow a spring hunt on bears, a better idea would allow the timber companies to feed the bears from food stations. This would get the bears through the post-denning season and prevent the mothers from teaching the young to strip bark for the spring sugar flow to the needles. This has been used in other places to prevent damage to young stands of conifers.

PUBLIC COMMENT
Bears and lions continue to depredate heavily on fawns and calves throughout this state, decreasing herd health and age composition. Very low youth survival rates result in an older overall ungulate herd age. This over predation problem (including poaching and tribal over hunting) creates a situation where older bucks and does and bulls and cows, no longer can breed to sustain herd composition and health. Thus, the herd with very low youth survival can no longer survive and its numbers steadily decrease as is the current problem with most of this states herds.
Predators will continue to move into rural areas becoming a "more than major issue" for wildlife management and possible lawsuits against the state for their lack of proper management. This is a terrible waste of sportsmen's dollars where they should be used for management and also an unnecessary cost to taxpayers. Non-lethal harassment, using hounds must be utilized to augment (change) cougar behavior.
HUNTING SEASON REGULATIONS
Page 21 Hunting Season Regulations (RCW 77.04.012). – Managing for maximum recreational use may be inconsistent with managing populations for other objectives. Larger deer and elk populations mean more recreation days but in some areas predators are having a far greater impact than tribal and state hunters combined.
This DEIS is incomplete without a thorough set of references to WDFW's enforcement capability, or lack thereof. Sophisticated management efforts are meaningless without adequate enforcement. Restricting of hunting opportunity based on criteria such as elk population tables 1 and 2 simply results in a reallocation of resources to illegal harvesters.
To lessen conflicts between tribal and non-tribal hunters in the ceded area their needs to be more days available in the fall where there are no state hunting seasons in effect. Presently most of the days between September 1st and December 9th are open for either deer or elk in Region 3. Extensive harassment from continual hunting by non-tribal hunters may also lead to poorer condition going into the winter.
Regulations that require harvest of three-point or better deer or elk contradicts the spike-only hunting in east side elk herds and is not the best science.
The present method of game allocation is very good.
Hunting success should not be equal for all weapon types. Primitive weapons users should expect lower success rates. Long primitive weapon seasons can over stress big game animals.
All hunter types (i.e. Youth, Disabled, Archery, etc.) in a unit, regardless of timing, should have the same antler restrictions.
Has the state every considered a "primitive" weapons season? It seems like with the way the new muzzleloaders are, and some of the compound bows created today, they really aren't using equipment that is based in the spirit of what archery and muzzleloader hunting are based on. What about grouping re-curved and long bows; flint lock muzzleloader and compound bows; and modern muzzleloaders with modern day rifle?
Reduce crowding of popular modern firearm deer areas by providing split seasons similar to primitive weapon users.
At the current price for nonresident deer tags, I feel this state is pricing its way right out of the market.
Provide quality deer hunting opportunities by providing quality timing of hunts shared by all user groups instead of being monopolized by primitive weapon users.
Provide "early" deer hunting opportunity for all user groups equally.
Why, on the late deer hunt do archers get to take a doe if they don't get a buck? Aren't we trying to increase the deer populations in some areas (most areas)?
Objective 14 – Would like to see more even hunting seasons between archery, muzzleloader and modern firearm user groups.
Objective 14 add strategy to provide more places where hunters with disabilities can get out and use electric scooters in the field.
Objective 14 – This whole section is hard to follow and unclear. Unrealistic strategies for equal opportunity.
Objective 14 – Under alternative "d" the goals of increasing hunter access and reducing crowding seem to contradict each other.
Objective 14, alternative a.1: The plan to "equalize overall success rates by 2005" is in conflict with the original goals of hunter opportunity allocation. I was on some ad hoc committee that reviewed this issue at the time of adoption, and I provided a mathematical analysis of the formulae developed to allocate hunter opportunity. The stated goal was not to equalize success rates, but rather a combination of hunter success and number of days in the field.
Objective 14, strategy "a" 1. Equalizing success rates is not a good goal. Archers don't expect to have the success rate of a rifleman. Archery hunting was intended to be more difficult.
Objective 14 - It is difficult to understand the goal of a. 1 & 2. For a. 1., is the objective to equalize the success rate and the number of hunters between archery, muzzleloader, and rifle seasons? For a. 2. I am completely at a loss to understand the goal of this strategy. My best guess is that 10% of the GMUs would have 10% of the harvest comprised of "mature animals". If so it would seem to require permit hunting opportunities to achieve as stated in a. 3.
The goal of having 10% buck and bull harvest over age three in at least 10% of the GMUs seems to be a very limited goal for maintaining older age class males. According to my math this would lead to 1% of these harvested animals being older than 3 years old. More older age class animals are needed for a well functioning population.
Objective 14 needs to state "expand" populations not "maintain." We disagree on strategies "a-3", "c", and partially agree "a-4". On the latter add "Provide hunters antlerless opportunity in lowlands by utilizing weapons restrictions." Amend alternate "e" by replacing "general" public with "hunting" public. Amend alternate "f" by adding "satisfaction and/or dissatisfaction".

PUBLIC COMMENT
Objective 14, strategy "a" 3. (a), is too vague. I am a staunch supporter of increasing opportunity for disabled hunters but only for those with permanent, serious disabilities. A doctor's note won't cut it.
Objective 14 alternate strategy a.4. States provide general season antlerless harvest opportunities equal to recruitment in PMUs. First, a caveat should be added that states antlerless harvest by permit during general seasons. Second, it would be wrong to base the number of antlerless permits on recruitment at the PMU scale. The correct approach would be to determine the number of antlerless permits on a GMU basis in consultation with tribes hunting each GMU to ensure that harvest does not exceed recruitment.
Objective 14 will try to lower the level of hunter dissatisfaction to less than 10%. We feel there is no need to jeopardize the management of any species just so hunter dissatisfaction is below 10%. Base game management on sound science and let the chips fall where they may in regards to hunter satisfaction.
Objective 14 – Why not use disabled hunters for damage control hunts. There is a need for more opportunity for disabled hunters.
Objective 14 – I would like to see more even hunting seasons between archery, muzzleloader and modern firearm user groups.
I would like to see the special permits for deer and elk available for dates either before or after the general firearms season. I don't enjoy crowded hunting conditions, particularly elk hunting.
No crossbows during archery seasons or any season for that matter.
Archery and muzzleloader hunting should be limited in the amount of technology allowed, these were originally intended to be a way to re-live the past, the primitive way.
No elk hunting should be allowed during the rut.
Antlerless elk permits should be completely eliminated except in those areas where orchards and farms are being damaged.
Allow a person to apply for eastern Washington special permit elk hunts, while purchasing a western Washington elk tag for the general season or vice versa. Because the number of special permits given out limits the numbers of hunters, hunter crowding would not be an issue.
Continue with the 3-point requirement for mule deer in Okanogan County.
Is the potential for negative impacts to non-game species used as a criterion for determining management actions such as setting a hunting season?
The Issue Statement needs to drop prediction statement. Also the statement that there isn't enough game should only apply if you are talking about deer in the highland areas.
Move bow season back to late September/early October.
The Stella GMU elk numbers are declining. It seems 125 muzzleloader antlerless permits is too many.
We need quality elk and deer hunting areas (permit only) west of Interstate 5, in southwest WA. The areas are currently way too crowded.
GAME SPECIES DAMAGE AND NUISANCE
Objective 15 calls for a new public opinion survey in 2005. Several preceding objectives (1,24,14) call for new surveys to measure progress. Other objectives discuss maintaining specified levels without discussing when it would be re-measured. Is there a need to coordinate these target dates better among the plan's objectives? Shouldn't prevention also be discussed as an alternative?
Objective 15, strategies "a" and "e" – These strategies are too involved and will depend on who specifically are the stakeholders, how much time they have available to work thru this lengthy process.
Objective 15 – We disagree. Public support is not going to solve this. The Department needs to step up and take charge. Responsible kill harvest is what gets the job done and public education is needed. Alternative "a" we disagree, use past data wisely save the money to do something for a change. Alternative "b" we disagree. Reintroduce damage control agents. Alternative "c" we partially agree. Alternative "d" we disagree, save the money. Alternative "e" we disagree. You already have professionals to do this job. If they are inadequate fire them and get somebody that understands animals.
Objective 16 – Delete strategy "c" Let the landowner designate anyone he wants to using any weapon to kill as many deer and elk as necessary.
Objective 16 – If hunting is an effective tool in managing this problem, then do it, regardless of public opinion. This is not a popularity contest among the non-hunting public.
Objective 16 – policy needs to review and interject methods for WDFW enforcement to work with Tribes on damage complaints.
Objective 16 – To better satisfy problems regarding elk and deer damage, forget about setting a 48-hour time response. Provide the responding agent the latitude and time needed to meet the needs of the situation. In addition many people are offended by an agent who contacts them regarding wildlife damage while displaying their gun, mace and other enforcement items. Leave the guns, etc. in the pickup.
Objective 16 focuses on resolving deer and elk crop damage through a complaint and resolution process. Also need to discuss methods of prevention.

PUBLIC COMMENT
Suggest the Department should include plans for control of overly large populations of deer, including does, in many areas of western Washington. There should be incentives for hunters to hunt does wherever deer populations are too large.
Issue statement is inadequate. Need to explain past history and involvement compared to today. Also need to use data that has been gathered in the past and what is being gathered today.
Objective 16 alternative "a" we agree, but develop brochures utilizing past data. Alternative "c" we disagree. Sometimes an initial harvest once saves hours and actually proves better survival of remaining herd. Alternative "d" we agree, except on "d"-7, pay only if they allow hunting.
Objective 16 – Tribes/Tribal hunters should be considered as an alternative strategy to harvest damage causing animals whenever landowners are agreeable.
One of the most effective means to prevent wildlife damage to crops and landowners is through education. Another is to visually inspect the damage and make recommendations the untrained landowner may not have seen to prevent further damage
The Department should develop a legislative strategy to allow the development of professional nuisance wildlife industry in our state. Professional, licensed companies who are regulated by WDFW should deal with many wildlife/landowner problems.
ELK
Assessment of current management of elk; evaluation #3. – This objective is aimed at late season tribal hunting when it should be more broad-based and assess the caloric expenditure from all forms of winter activities such as skiers, hikers, snowmobiles, and even vehicles traveling to ski destinations through winter range.
Assessment of current management of elk states that elk herds come under the management directive of this Game Management Plan. This statement seems to indicate that the extensive work Tribes have contributed to each elk herd plan in the State are negated by this document. If many of the agreed upon components of the herd plans are negated it is extremely unfair to the Tribes. Tribes had far more opportunity to comment and work directly with WDFW staff on the content of the herd plans than on the Game Management Plan.
Assessment of current management of elk. – Last sentence in first paragraph. What does this mean for our current elk herd plans?
Elk management goals, #2 for all species should list "…scientific study, uses by Native Americans,…" Recommend drop "cultural and ceremonial" or revise to include subsistence to read "subsistence, cultural, and ceremonial".
Page 29 Issue Statement. – Predator goals may conflict with the stated elk goals. Desirable is a relative term – there must be a biological rationale or agreed-upon objectives by all user groups to base population characteristics.
Tribes had substantial opportunity to provide input to elk herd plans and generally were supportive of the plans. Because of the involvement and extensive review by both staff and policy the Tribe does not see the GMP as superceding the elk herd plan. WDFW has not attempted to bring the GMP to policy as it did with the herd plan. Further interaction with tribes needs to occur before tribal acceptance of the GMP.
WDFW is unable to control hunter numbers using general seasons and the Tribe recommends using permit-only seasons to allow for more control over harvest to meet population and sex ratio goals.
Elk herds need to be managed to reduce competition with other species such as deer. Yakama Nation.
Elk winter-feeding issue statement should include concerns for damage to riparian areas caused by concentration of elk. Significant soil erosion and heavy impact to riparian vegetation is occurring around the Oak Creek Wildlife Area. Current conditions along the Tieton River are similar to areas of intensive cattle grazing, and when combined with extensive human use of the area, deplete the value of this environment for other wildlife species (western gray squirrel). I understand that elk feeding has been enormously popular, but this may be a case where sensitive application of science and education could improve condition for both elk, and other wildlife species, without sacrificing public benefits.
At the public meetings we heard that this EIS was only to be used on one or two elk herds (Blue Mountains or Colockum). We have since discovered that this plan will be applied (as it does not state otherwise) to all of the states elk herds. Here is still another example of WDFW not being truthful and also is why there is little or no trust between the Department and the sportsmen.
Why does the Department conduct meetings with the public and make statements like the Peek Report will not apply to the Peninsula Herd, yet the Director in phone conversations with individuals then comes back and says the genetic method of managing will apply to all herds? Why does the Peek Report itself say that it should be used in small, restricted populations, yet we will have it used throughout the whole State?
Elk are important for the variety of other reasons not explicitly stated in the assessment and goals; elk's importance to healthy predator populations and elk's contribution to scavengers through natural attrition or the bio mass (viscera and other parts) produced through the legal harvest of 7,000 elk annually.
The WDFW has created for itself a public relations problem specifically as it relates to the elk management portion of the GMPEIS. There are many elk hunters and concerned sportsman in the state who do not understand the specifics of this plan. The complexity of the information and size and scope for the proposal was not presented in such a fashion that the average Washington citizen would reasonably be expected to understand.
The WDFW has got to come to grips with, and address, the simple fact that many of their constituents do not trust them.

PUBLIC COMMENT
The delivery of this message and discussion should be done by individuals who completely grasp the complexities of this elk plan and who can convey the management principles to the public in a way that can be understood. This was not accomplished in this instance.
We strongly suggest that public comment be reopened as it relates to the elk portion of the plan. At this point, it does not matter much what merit this plan actually has, the perception is that it has very little. With this in mind, we believe that the resources of Washington would be better served if this plan were revisited with the public and that the current 3-year plan be extended one year.
Why isn't the effect of cougar and bear predation on elk calves in the Blue Mountains, and maybe other herds, not identified as a problem and addressed?
We do not support the development of additional elk viewing sites. Funding for this activity would better be used on other programs.
The issue statement for elk management seems to indicate that a blanket increase in antlerless harvest would occur statewide. This would be a terrible mistake on the Olympic Peninsula.
Allow disabled hunters to use ATVs to retrieve game.
No trophy hunting for bull elk should be allowed from Sept. 15-30.
I do not support increasing bull cow ratios to 18/100.
I feel that the number of bulls/cow ratio objective is too high.
Increase the number of ground surveys you do in the rut to effectively count bull/cow/calf ratios.
Stay with the 3-point minimum antler regulation.
I am alarmed by and deeply concerned about the push by the WDFW to implement an elk management program that is based on questionable data and methods. The Peek Report should not be the basis for handling Washington's elk, nor should an EIS!
The elk population data contains errors (Olympic herd).
The 18/100-bull ratio objective will reduce hunting opportunity.
The Peak report is totally unproven and should not be implemented on a statewide basis.
A plan based on studies that don't have a thing to do with our state cannot be implemented, from a biological or scientific point of view, and certainly not from a game management point of view.
This is someone's "pet project" that they are trying to ram down the throats of the public and the Department's own biologist, through fast-track secrecy and misinformation.
In southeastern Washington archery elk hunting seasons should be Sept. 1-21.
Washington has a problem with its elk management program. After a thorough review of past and present season strategies, habitat variations and hunter/public demands, it is obvious that changes and or modification of today's management concepts are in order.
The Peek Report, as submitted to the WDFW, presents an in-depth insight as to possible management adjustments. Whether hunter/public support for management changes of that nature are acceptable remain to be seen.
Reducing overall herd numbers and restricting hunter opportunities may or may not lead to a more productive elk population, but something needs to change and be tried.
Reduced hunter generated income and loss of public support could lead to undesirable consequences – thus the need for an in-depth, concentrated effort to educate the public and gain their support. This cannot be accomplished over night and lends credence to extending the 3-year plan for one year and doing the job right.
Washington has the lowest hunter success rate of all the major elk producing states. This would indicate that regardless of the lack of harvest, hunter interest and participation remains high.
To insure that mature bulls do the majority of the breeding, restrict elk hunting until after the major breeding period. Again the hunting public must be educated and understand the reason for such a restriction.
Antlerless seasons should continue as herd size and available habitat allows. Calf survival has plummeted since I-655 restricted proper management of cougar and bear numbers. Support of sportsmen's efforts to overturn anti-hunting sponsored initiatives would certainly help in getting predator management back to a reasonable level. A few major predators removed from calving grounds before and during critical periods would dramatically improve survival.
Archery elk seasons should include some antlerless opportunity.
Relax restrictions on archery equipment such as allowing use of lighted sights.
I recommend cutting if not even temporarily closing the elk harvest in areas where ratios are below 25 bulls per 100 cows.
I would like to see continued transplanting of elk from Hanford.
Elk habitat management section is weak and does not give enough attention to the issue of habitat capacity loss due to changes in forest management.
State needs to focus on acquiring more important elk winter range to keep it out of developer's hands.

PUBLIC COMMENT
WDFW needs to make more of an effort to keep timber harvest in balance with elk cover needs on State DNR lands. This may require changes to the Forest Practice Act. There needs to be sufficient coordination of the plan with other federal agencies as well.
Elk management goal number 2 include subsistence for uses by Native Americans. This wording should be included in each section for the species contained in the Game Management Plan.
Under population management, table 1 the current population for the Olympic Herd is absolutely wrong. The best available science indicated that the spring population size in 2000 was 8,030 elk. The population is still below the objective and antlerless harvest needs to be either restricted or carefully planned to allow further population growth.
Population Table – Numbers are wrong in some of the sections such as the North Cascades population objective.
Table 1, population objectives for the Yakima Herd should be left at 9,500 and work with farm community to solve their problems. The North Cascade Herd was 1,500 and should strive for permit only in this unit for both tribal and non-tribal hunters.
Page 29, table 2 – The criterion for hunting season structure is based entirely on the Peek et al. 2002 document this is not available at least as an appendix to this document. Furthermore the Peek report was never provide to the Tribes prior to the development to the Game Management Plan nor were they consulted with. The reality is that elk in Washington are under extreme pressure from State and Tribal hunters and thee objectives are un-likely to be met.
Table 2 – Are these bull to cow ratio numbers obtainable without radically changing our current hunting seasons?
Do not shorten the hunting season.
Objective 17, strategy "b". – The only techniques proposed in this document are harvest management. Cow mortality rate exceeds recruitment in the Green and White River in the absence of antlerless hunting from a variety of causes. When mortality exceeds recruitment and the antlerless season is closed this document does not propose to manage predation, highway mortality, or poaching. On page v it states the focus is on harvest management and those factors that have the greatest effect on game populations. Yet, there is little commitment throughout the document to directly manage those factors, especially when there is enough evidence to warrant such management.
Objective 17 – This objective entirely ignores the role of habitat and the problems of changes in habitat noted previously (Table 2, page 8). Do the population objectives in Table 1, page 29 recognize the habitat limitations, and if not are they even realistic or are you trying to attain objectives that cannot be attained? How were the population objectives in Table 1 established? Any particular criteria or is this the usual subjective view of the local biologists or regional managers? You need to add an alternative that determines population status and relationship to habitat limitations in each of the elk herd areas.
Objective 17 – delete strategy I and add additional early season archery days and reduce late season archery days in western WA. Give the elk a rest after late November
Objective 17 – Limit use of tables 1 and 2 criteria to eastern Washington herds. Especially for herds that are below population objectives, minimize hunting activity during the rut by all user groups.
Objective 17 – Manage for an achievable goal with an escalating ratio. Start with 14-16 and then evaluate in mid cycle before proceeding. Eliminate strategy "c" and eliminate the peak and valley issue in the current management plan.
Objective 17, strategy "c". - Tribes generally agreed upon the objective of 12/100 during the elk herd plan process. The rationale for increasing the objective to 18 is not presented in the text, so there is no way this ratio can be accepted without supportive information. The move to 18 from 12 would reduce hunting opportunity and harvest, something that the Muckleshoot Tribe cannot accept in light of the declining elk herds in the area hunted by the Tribe.
Objective 17, strategy "c'. – Muckleshoot Tribe recommends that WDFW first review and analyze different GMUs having similar habitats yet different post-season ratios and different age structures. Looking at the available data first may help understand if there are to be benefits derived from higher ratios. Areas such as the Green, Cedar, and Margaret units might provide insight.
Objective 17, strategy "c". – Muckleshoot Tribe recommend WDFW should outline a study to assess the effects in the future and answer the question of is the trade off worth it. Management in some areas should be directed toward higher ratios while other areas should have lower ratios. Responses should be measured and assessed to their value. Large-scale implementation should not occur without a documented positive outcome.
Objective 17, strategy "c". – Muckleshoot Tribe recommends limiting management efforts to reach the higher ratio objective to areas with healthy calf recruitment, >35 calves:100 cows. We also recommend keeping ratio objectives at 12 for most of the western Cascades GMUs due to generally low observed productivity compared to eastside GMU.
Objective 17, strategy "c". – If there are genetic issues affecting recruitment, these have arose out of the few introduced individuals and genetic drift. If higher bull to cow ratios and older age structure are intended to improve genetics, then translocating bulls among areas may be a suitable solution that would have less impact on hunting opportunity. Poaching of trophy bulls in high ratio areas with older age structure might offset the effort to reach those ratios.
Objective 17, strategy "c". There is no proven need to achieve the bull to cow ratios outlined in this study and probably impossible to do so.

PUBLIC COMMENT
Objective 17, strategy "c" will reduce hunter opportunity right from the start. Please consider a goal of 14:100 post hunt bull to cow ratio as a way of easing into such a plan, then improve on that year by year.
The Departments bull ratio objectives has always been on the very low side of maintaining herd health and balance.
Objective 17, strategy "c" – Why is it necessary to manage for a bull:cow ratio of 18-20 when we have been successfully managing for 10-12 and the recruitment in the Olympic Herd has been consistent for over 20 years? Why do we suddenly need to increase the number of bulls surviving if we are not seeing declines at the population level due to low bull:cow ratios? How are you going to measure this strategy?
Objective 17, strategy "d" – How does WDFW propose to measure this statistic?
Objective 17, strategy "e" – Managing for a post-hunt mature bull percentage of 5% of the bull subpopulation is a difficult statistic to measure. According to the Peek report, a 5% mature bull component of the total bull population equals 1 mature bull/100 cows. Will this strategy really do anything to promote breeding by older bulls?
Objective 17, strategy "f" – This strategy to manage for herd composition and population goals at the PMU level and strategy "h" contradict each other with regards to the scale that management will occur. Is management at the PMU or Herd scale the appropriate scale for management? The most efficient and biologically meaningful scale for management is at the GMU level.
Objective 17, strategy "f" – Objective 17 needs to be completed first. The current PMU aggregation may not be biologically reasonable when herd movements have been documented to be within the designated GMU. Tribal (Muckleshoot) radio-collaring studies can contribute valuable information to this process.
Objective 17, strategies "g" and "h". There is not data to support the population objectives identified in the report. Putting in set numbers without being able to revise them for 6 years is unwise. In addition, until the tribal issues are resolved and management plans from the State and Tribes are coordinated, achieving the objective will be nearly impossible while maintaining any recreational opportunities.
Objective 17, strategy "h" – The Olympic Herd is still considerably below the population objective. Management of the Olympic Herd should be targeting to increase the population not maintain the population. Therefore antlerless harvest should be tightly regulated to ensure continued herd growth.
Objective 17, strategy "h" Delete, instead address habitat issues to increase population.
Objective 17, strategy "i" – Pre-rut disturbance can also have an effect. The goal is to allow older bulls to breed without being killed and in relatively undisturbed situation. Rarely is this possible due to a variety of recreational activities taking place on public lands. Eliminate hunting prior to October 1 would need to be a cooperative effort among all user groups, including archery deer hunters.
Objective 17, strategy "i" is, in my opinion, a sacred cow. The elk don't breed according to a calendar.
Objective 17, strategy "i" – To realistically improve escapement of older age class bulls, hunting pressure should be minimized into October (probably the 10^{th} or the 15^{th}. Consideration should be given to delaying the State muzzleloader season until later in the month of October.
Objective 17 – Please do not base our elk management practices on another species of animal (red deer). Let's take a few years of accurate and specific unit harvest reporting through the WILD system before we jump ship. We haven't had that kind of harvest data in the past, only estimates.
Objective 17 – The elk management plan is an attempt to involve science in the decisions but a very poor attempt. Basing decisions on a study of red deer in Scotland and applying it to be species of Washington elk without regard to the differences in the species or habitat is preposterous.
Objective 17 – To let the current proposal fly would be a complete travesty. This red staff knucklehead should be sent back where he came from and not paid. How much has this cost us? Good grief guys…use the biologist on the payroll, and try something here that may sound a little off the wall…. Listen to your field agents!!
Objective 17 – It needs to be clear that the information presented either does or does not include tribal harvest.
Objective 17, alternative "e" Increase 5% to??? (not provided).
Objective 17, Alternative 'h' item 2 implies that bull harvest for the Selkirk herd will be managed under a permit system. Is this under consideration?
Objective 18, strategy "a" – Increasing the antlerless harvest may be justified when it has been documented that habitat is regulating productivity and survival. Tread lightly and explore all scenarios before taking action because mistakes are extremely costly.
Objective 18, strategy "a" – This strategy to incrementally increase the antlerless harvest each year should not be implemented unless the specific goal is to lower the population. It appears when reading the other Strategies of this objective that there is a concern that the population is energetically limited. More effort should be directed at habitat conditions and elk physiological condition prior to increasing antlerless harvest to determine if increasing the cow harvest is a sound solution. Other factors such as predation may be affecting elk numbers.
Objective 18 – You need to add an alternative to address the issue of habitat limitations, rather than just monitoring. Any opportunities for habitat enhancement?
Objective 18 – Use as a test for the 6-year cycle, then implement a plan.

PUBLIC COMMENT
We would like to see cow mortality managed for the desired rate of increase or decrease of the herd, depending on forage and range condition, landowner concerns, or maximizing herd numbers. If changes in the hunting seasons need annual adjustment, the department must be flexible enough to take these to the commission. Waiting the 3 years for changes to occur with the harvest numbers or seasons when conditions warrant could spell big setbacks to herd numbers.
The non-hunting public would like opportunities to view elk, if and where the viewing does not interfere with human safety or elk security. If herd numbers could be increased where feasible, public viewing could lead to better public support for wildlife in general and better hunting opportunities.
Objective 18- Why specify the technique at this level of planning?
Objective 18, alternatives "c" add, restrict motor vehicle access; "f" add, change to mature bull 6-point or better only; "g" add, reduce predator populations to reduce elk calf mortality (i.e. cougar, bear, coyote).
Objective 19 – It may be more efficient to review existing data instead of starting a new study as alternatives "b" and "c" suggest.
Objective 19 – The scale of management is very important and there are a lot of data available to help designate management areas. Studies of habitat type and use do not answer whether PMU designations are reasonable – studies need to be of movements and migrations.
Objective 19, strategies – This seems to be a re-invention of the wheel. I doubt that another radio-telemetry study will produce any new information with the exception of localized conditions. I would recommend deleting a, b, and c. You may want to redefine the PMU's but radio telemetry is not the appropriate technique.
Objective 19 should be accomplished prior to conducting objective 17.
Objective 19, Issue statement and strategies – I question the wisdom of managing at the PMU level for political/administrative ease. The strategies listed to address this problem are unclear and knowing current funding levels for WDFW, are unlikely to occur. An improved or more clearly stated strategy is needed.
Objective 20 – This is an important objective but it would be helpful to prioritize the elk and other species management objectives so the public would know how you would focus efforts as funds or staffing become limiting.
Objective 20, issue statement. – Use of Bender and Spencer 1999 is a poor reference for elk sexual segregation. Other literature is more appropriate.
Objective 20, elk sightability models. – The Muckleshoot Tribe has been involved in a study to develop these models yet WDFW has not participated in working with the Tribe on these models.
Objective 20, Issue statement and strategies – I agree that we need to look closely at utilizing sightability models to provide additional tools for managers to address population size.
Objective 21, strategy "e". – If the Peek et al. report determines that the goal is to promote a well-developed bull age structure and the means to this is a target bull:cow ratio of 18:100, then the 3-point restriction would be targeting just those animals desired in the population. This hunting restriction is in direct opposition to promoting old bull breeding.
Objective 21 strategies – I think about 40 – 50 more alternative choices for this would make the decision making even easier on this one.
Objective 21/22 – Apply tables 1 and 2 criteria to eastern Washington only.
Objective 21 - Again, are the values in Tables 1 and 2 justifiable, based on known declines in habitat as a result in the emphasis on late-successional forest management to benefit spotted owls?
Objective 21, strategy "d". – Based on substantial simulation modeling for an elk population assessment for British Columbia provincial government and evaluation of field data, I question the spike-only management, and would recommend a complete review of this approach. Unregulated spike-only seasons, designed to maintain hunter numbers, can greatly reduce recruitment of spikes, and hence branch bulls in later years. What studies justify this management? I would endorse strategy "g" and support more sound biological management of elk harvests. Strategy I needs to be rewritten, add>>minimize hunting opportunity, and focus (not focused)… This would be a reasonable alternative if the situation were extreme. Less extreme measures would seem to be indicated at this time. For strategy "q", How do you do this if the population is habitat limited? Do you know the trend in these populations? What does this strategy actually envision? More liberal seasons or more restricted seasons, or what?
Objective 21, strategy "f" will result in permit only hunting.
Objective 21, strategies "e" and "f". – I agree permit only hunting will increase bull ratios, however, WDFW has been reluctant to implement this strategy in the past due to the desire to provide maximum opportunity to State hunters. It will be a difficult sell to the public; just on the basis of increasing bull escapement, when there is no evidence that there will be any effect on population size. Strategies "h" and "j' are repeats of the strategies under objective 17. Strategy "i" states to minimize hunting pressure on older age class bulls during the peak of the breeding, September 15-30. To realistically improve escapement of older age class bulls, pressure should be minimized into October (probably to the 10th or 15th). Strategies "q' and "r" – The Olympic Herd is considerably below the population objective and should be managed for an increasing population not just maintenance level.
Objective 21 Delete strategies "c, o, p, q, r, s" improve the habitat and allow growth. Add a strategy to shorten seasons: bow too long, muzzleloader too close to rut and rifle too long, no December hunting except damage control.

PUBLIC COMMENT
Objective 21, strategy "i" Again, this sacred cow keeps real elk hunters away.
Objective 21, strategy J. Should open Sept. 15-30 time period to archery permit holders – if harvest of mature bulls goes up drop the number of permits to compensate.
Objective 21, strategy "l" – The intent sounds reasonable but exactly how will this occur? Simply implementing spike-only during the archery season Sept. 15-30 will not result in reduced disturbance, especially with archery deer hunting also occurring. A discussion among co-managers and agreement on regulations is needed if this strategy is to be accomplished.
Objective 21 – There is no proposal to evaluate calf recruitment and improve recruitment in areas where it is low. Without adequate recruitment there can be no harvest.
Objective 21 – several of the alternatives are redundant. Alternative "d" should mention the exception for the Selkirk herd, unless spike-only will be applied.
Objective 21, alternative "d" we agree, except 3-point or better and restrict motor vehicle traffic; "j" we agree, except change 5% to ???; "t" add, reduce poaching by limiting access to wintering grounds in the Colockum; "u" add, eliminate all tribal hunting of the Colockum herd; "v" add, control logging in vicinity of Author Coffin Game Reserve to enhance cover and to provide escapement.
Objective 22, stability of hunting seasons. - How can hunting season regulations remain stable if they have not produced the desired objective in many areas? Dramatic changes may be necessary to reach goals in some areas.
Objective 22 – Keep general hunting seasons as is. Consistent regulations should be maintained with only very minor change in response to management objectives.
Objective 22 – How can you maintain stability of elk hunting season regulation in 1997-2002 and still achieve your objectives?
Objective 22, strategies – These are all good, but I doubt that you have the resources to implement any of these, based on good solid field data, in any but a few localized areas. You certainly do not have the resources to implement statewide.
Objective 22 will be extremely difficult to accomplish. The current regulations on the Olympic Peninsular have been fairly successful. I fail to see how WDFW will meet the objectives in Table 1 and 2 without implementing large-scale permit only hunting.
With regard to Objective 24 keep the western Washington elk hunting opportunities as is.
Objective 23 – Lose this one. Only pursue this if your willing to charge the public to use these facilities as hunters are charged for their opportunities.
Objective 22,23, alternative "d" add, restrict motor vehicle access to hunting areas and enhance habitat for winter survival.
Objective 23 – To avoid creating additional maintenance needs and expenses the improvement of existing sites should be a higher priority than development of new sites. Partnership opportunities and the teaching of wildlife viewing ethics should be emphasized. The objective needs a target date or other measure of achievement.
Objective 24 – Not a bad idea. Alternate strategy "c", I like it. Low success (we are not all the same) = primitive equipment (compounds are not primitive) = hunting during the rut.
Objective 24 – This objective should be meshed with objective 2 and a measure of achievement added.
Objective 24 – This objective and the alternatives are very unclear. Hunters already can hunt all of eastern and western Washington.
Objective 25 – WDFW should explore the use of biologist from other agencies to assist in the collection of data.
Objective 25 – What does improve the utility of harvest data mean?
Objective 25 – Age data are needed to evaluate the effectiveness of regulations aimed at improving the bull age structure.
Objective 25, strategy "c". – This was tried with some substantial costs, and the data I analyzed found to be greatly wanting when compared to more intensive field study data (e.g., the 15-year Kapowsin Tree Farm deer study).
Objective 25 – Where the Heck is the WILD data? Alternate strategy (addition) "d" Collect specific weapon data (i.e., type of bow); this will show you the effects the different weapons have on the population.
Objective 26 needs a target date.
Objective 27, issue statement. – It is not necessarily so that "historically hunters and managers have been conservative…" Market hunting in the late 1800's is responsible for the re-introduction of elk from Yellowstone to many parts of the country. In contrast Native Americans lived harmoniously with the wildlife for thousands of years.
Objective 27 – The key assumption is density-dependence. Monitoring may not be responsive enough to prevent a steep decline caused by mortality factors that are inversely-density dependent, or depensatory.
Objective 27 is already covered by objectives 17 and 18.
Objective 27 – elk populations should be managed within a given GMU. If part of a GMU is having conflicts – try to harvest tin that area only.
Objective 27, Issue statement states that historically hunters and managers have been conservative in harvesting antlerless elk. This is not historically valid. The Olympic Herd had been reported to decline significantly by the mid-1990s to around 6000 elk outside of Olympic National Park. The decline has been primarily attributed to over harvest of cow elk from the mid 19980s and into the 1990s.
Objective 28 needs to address methods to prevent damage incidents and provide a measurable parameter.
Objective 28, alternative "f" add, relocate surplus elk to the North Cascade Herd to add new blood.
Objective 28, strategy "c". – Focus harvest to damage areas only. Exclude elk that may not be causing problems.

PUBLIC COMMENT
Objective 28, Damage management – Damage harvest needs to be reported as harvest in the state report.
Objective 29, strategy "b" add, reduce motor vehicle access to wintering grounds. Strategy "e" Departmental relationships with many of the large landowners are needlessly confrontational on the habitat side of WDFW operations. Negative feelings engendered in private landowners by such interactions with WDFW personnel are hard to overcome when you want them to cooperate with you in meaningful habitat enhancement activities.
Objective 29, strategy "d". – Muckleshoot Tribe agrees that this is a crucial step in the decision to implement habitat management programs. Many habitat improvement projects have been undertaken without documenting if the habitat is limiting, and without document responses to improvements.
Objective 29, strategy "e". It is very important that WDFW give incentives to private landowners to improve habitat for wildlife.
Objective 29, strategy "f" - A general comment regarding the U.S. Forest Service is the need to engage in a more active role in providing habitat for other species than those dependent on late successional forests. Habitat suitability is declining rapidly on the Olympic National Forest for elk through forest successional processes. I am not advocating major increases in clearcutting, however, large scale commercial thinning could enhance forest stands for elk. Tribes should be mentioned as an entity for cooperative cost share projects.
Objective 29, strategy "g" states to manage elk herd distribution within the tolerance limits of landowners. Landowners who develop elk habitat should not determine elk herd distribution. They should be made aware of the risks and be expected to bear the burden of damage or prevention of damage by fencing. This or another strategy should focus on minimizing human encroachment on important elk habitat.
Objective 29 needs to provide target dates, number of acres to be acquired or improved and other measurable parameters. It would also help to prioritize areas for enhancement or acquisition.
Objective 29 – Under strategy "f", Tribes need to be inserted as cooperators.
Objective 29 – Add strategy; WDFW needs to take a more active role in growth management planning. Human encroachment is responsible for many of the problems facing elk.
Objective 29 – In the White River we have documented malnutrition mortality. We recommend that there should be an added strategy for the White River elk herd in GMU 653 for habitat enhancements.
Objective 30 – the Olympic Herd should have a specific section as provided for the other herds. There is a real need to secure open/grass habitats that have been utilized for livestock or other agricultural uses through acquisitions or easements. Open grass habitats are critical to elk during the late winter-early summer.
Objective 30 – Add to objective statement; (1) minimize habitat encroachment and (2) play a more active role with USFS on management for timber stand age classes. This section needs to address all elk herds.
Objective 31 needs target dates associated with the alternatives.
Objective 32, strategy "e" add, "acquire wintering agricultural lands and manage the crops in the field for wintering elk."
Objective 32 needs target dates associated with the alternatives.
Objective 32 – The State needs to consider eliminating feed stations for elk to reduce the risk of contagious disease such as CWD (Smith, J. Wildl. Manage. 65(2):2001).
Objective 33 needs to explain if this is done annually or periodically.
Objective 34 seems contrary to the discussion on page 29 and the objectives that discuss reducing the size of the Yakima herd. Target dates are missing.
Objective 35 - After having recently completed a large-scale and costly study of the elk of the blue Mountains, the public is not likely to be supportive of another effort. How would this effort be different from the past research effort?
Objective 36, strategy "d" add, "reduce predators, poaching, tribal hunting, motorized access, spike bull hunting and harvest mature bulls 6-point or better only."
Objective 37 – The Muckleshoot Tribe has been involved with such studies since 1998 in the Green River and is assessing the response to large-scale habitat improvements in this area through 2004.
Objective 38, and supporting Issue Statement – a multi-year radio-telemetry study of the elk in this area has been conducted, published in the Mountain Star DEIS, and provided to WDFW personnel. The need for another such study is questionable. The agreement between the Yakama's, WDFW, and the landowner on a Land Stewardship plan is a model for how to deal with these issues on a cooperative basis. WDFW personnel need to actively work with the resort owners to implement the plan.
DEER
In northeastern Washington the buck/doe ratios are not healthy. Make harvesting a doe mandatory before harvesting a buck for two years and then evaluate.
Page 42 – Black-tailed deer represent 38% of the state harvest yet receive little research attention. Consider cooperative research studies with tribes to assess black-tailed deer population dynamics.
Hunters and the WDFW must be functioning on the same wavelength. The agency would do well by better communicating with their user constituents and not worry so much about appeasing animal rights extremist and the general public.
Deer in this state are having some real problems especially with habitat loss, habitat change, predation, and disease and there are no long range plans to counter these issues.

PUBLIC COMMENT
More depredation tags should be given to landowners and the names made public so the hunters can call and inquire about hunting.
Deer management needs some real attention. The 3-pt. restriction hasn't done much good to improve herd sizes and buck to doe ratios. What has occurred is a steady depletion of the breeding stock of our older bucks.
It is well know that the 3-point or better hunting plan used in eastern Washington is not a scientific plan, just a reaction to hunters requests to harvest mature bucks.
I believe that some GMUs need to be closed for rehabilitation while other that maintain a 25 buck/100 doe ratio remain selectively harvested.
White-tailed deer are over-populated and need to be reduced by increased hunter harvest.
White-tailed deer are increasing in number to the detriment of mule deer numbers in eastern Washington. Their numbers need to be reduced dramatically to allow mule deer greater access to the historic winter ranges currently dominated by whitetail. A more liberal whitetail season with an either sex hunt would be appropriate to reduce their numbers in areas identified as important mule deer winter range. On important mule deer winter range, reducing the post-season buck ratio for white-tails to <10:100 does will help keep white-tails from breeding with mule deer and may increase mule deer numbers. We need a plan to deal with this problem.
Close mule deer hunting for three years.
Random surveys for the various diseases affecting deer and other ungulates are important for our state's wildlife. An action plan for each major disease should be in place before the onset of the disease. These plans should be available to the public for review and comments in order to have public approval in the event of an "emergency."
Mule deer season openers in eastern WA need to be later. Suggest 3rd Saturday, or GMUs block units by area and weather conditions.
Stop DNR employees hunting behind locked DNR gates in private and state vehicles.
Restrict early season hunting before the rut to does only. This will allow the "Alpha buck" to do the majority of the breeding.
Initiate a study to determine if killing of alpha bucks leads to younger bucks doing the breeding and resulting in predominately female progeny.
Begin a herd sexual management program that restricts the taking of the mature bucks by GMU.
I noted that black-tailed deer comprise the majority of harvest and are undoubtedly the most heavily hunted of the three species of deer in Washington. However, in the remainder of the section on deer management the emphasis is primarily on white-tailed deer management and research.
Page 42 Deer. – This whole section is concentrated on mule deer than black-tailed deer, when black-tailed deer provides the majority of the harvest to state hunters.
A number of objectives are provided for management of the three species. As a general comment I note that the emphasis is placed on white-tailed deer. It would seem that resources would be better directed towards black-tailed deer management since this species has seen a decline in numbers over recent years and this species contributes the majority of opportunity for hunters. Mule deer also receives relatively little emphasis even though they are a popular species.
Deer Population Management goals are discussed, however, there is no discussion on the scale of management. Are deer managed by PMU or GMU scale or statewide based on the range of each species? It would be difficult to adequately measure success or address local needs unless they are managed at the GMU level.
Klickitat county has far too many deer, and of those, far too many are antlerless. Deer damage is s occurring on both residential and agricultural property. There needs to be a way for hunters to take a second antlerless only deer
Antlerless Permit holder should be required to harvest an antlerless only and not be able to hunt for a buck.
Deer management goals – Goal number 2 needs subsistence uses by Native Americans added.
Objective 39 – The three-point antler restriction has been in effect for more than 5 years and needs to change. Because of this, mature "superior genetics" breeding bucks are being depleted to low numbers that may never rebound.
Objective 39 Quality deer hunting GMUs referenced in alternative "b" should be identified.
Objective 39, "i" we disagree with this objective. Add strategy "d" restrict motorized vehicle traffic after post hunting to allow non-harassment.
Objective 39 – Where did the number 15 for a buck to doe ratio come from? Why is it lower than the elk objective?
Objective 39, strategy "i" – What is the justification for the objective of 15 bucks/100 does. Deer have a tending-bond breeding system where males stay with and tend a single female until she is bred, thereby exhibiting serial polygyny. Thus, a larger number of male deer per 100 does would be required for reproduction. With deer comprising the majority of big game harvest in Washington, why isn't there greater emphasis placed on quality management? What justification is there for maintaining the stated buck/doe ratio? There needs to be a reference or documentation for the stated goals as was indicated for elk.
Objective "ii" discusses a scale for management of older age structure for buck sub-population. This is the only issue for which a scale for management is addressed. A scale needs to be determined for managing each species of deer across their range.

PUBLIC COMMENT
Objective "iii" states maintaining 20-25 bucks/100 does in GMUs managed for older age class bucks. I question whether providing 5-10 extra bucks/100 does will provide significantly more, older bucks than those present in the GMUs managed for 15 bucks/100 does. What documentation exists to support this premise?
Objective "iv" states the need to maintain an adequate number of mature bucks in the post hunt population. What is the definition of "adequate" and "mature"? For elk the target was 5%, what percent is biologically significant for deer? How would the number of mature bucks in the population be effectively monitored?
Carrying capacities are still not known for many deer areas.
Objective 39 – What about improving winter range conditions to limit winter mortality?
Objective 40 – The WDFW needs to define their management scale for deer, PMU or GMU?
Objective 40 – This objective and alternatives do not address the issue statement. How will additional resources be invested to adequately survey mule deer (improved protocols are only part of the solution)?
Objective 40, alternative "a". – A thorough survey of deer census techniques was conducted in the early 1990's, and should be used as a basis for an up-date.
Objective 40 we agree, except step up to 2004. Strategy "a" we agree and use other states materials to save $$. Strategy "c" If it wasn't working why validate?
Objective 41 – The Muckleshoot Tribe maintains a base of 25 radio-collared adult deer in the Green River watershed to provide an index of sightability and rough Lincoln-Peterson population estimate during surveys. Survival data has also contributed to refining population estimates and guide harvest permit numbers.
Objective 41 – This objective and the rest of the section on deer utilize an outline that is different than the rest of the plan. If there is only one element to the objective, it should not be designated by "a".
Objective 41 – Please add most of the black-tail populations are lean on the mountain areas because of predator rise and populations are up in the lowlands and causing problems due to limited hunting access, lots of food, less predators. Strategy "c" add, differentiate lowland populations versus highland populations. Lowlands could actually stand bonus or damage hunts with weapon restrictions.
Objective 42 needs a target date.
Objective 42 - extend eastern Washington white-tailed deer season by 2 days to encourage hunters to switch to WT deer and away from mule deer.
Objective 43 needs target dates associated with alternatives.
Objective 43 – Why hasn't this been done already as this is basic science management?
Objective 44 needs a target date.
Objective 45 needs a target date. Completion of the mule deer study will not meet the stated objectives for black-tailed and white-tailed deer.
Objective 46 – We agree but add iv. Provide bonus antlerless hunting opportunities in lowlands utilizing weapons restrictions. Strategy "b" add, Provide bonus antlerless hunting opportunities in lowlands utilizing weapons restriction hunts. Try an antler restriction program. Most antlerless harvest should be by kids.
Objective 46 – Add strategy for mule deer by increasing season length by one week, while maintaining 3-point antler restriction indefinitely or add a 2nd week to start 2 weeks after the 1st, requiring hunters to choose either the tradition starting date (for one week) or the late (end of October) week.
Objective 47 – The outline format used here is incorrect.
Page 47, Research: this section seems to have not been completed. The alternatives are incomplete.
Objective 48 – are there targets that can be associated with this objective?
Page 47, Habitat Management section seems to have not been completed. The alternatives are incomplete.
Habitat management is also key to deer population sustainability. Fire suppression should not be encouraged where young stands are needed for deer and elk forage. Controlled burns should be conducted on department and cooperators' lands where feasible. Acquiring critical lands for deer and elk should also be a priority for the department, whether for hunting opportunity, refugia, or public viewing.
Objective 49 –There is a typo in the objective statement. Alternative "a" and "b" are not complete; I assume you mean to use these programs as a vehicle for distributing information about deer, but neither alternative addresses the general public. Alternative "c' needs a target date.
Objective 49 – We agree but do not downplay they are wild animals – enough of the "Walt Disney" syndrome.
Objective 50 needs a measurable parameter to evaluate achievement. Are their one or more areas in the state that need identified as priorities for treatment? Where does damage prevention fall into this strategy.
Objective 50, strategy "d" add, Offer bonus and or damage hunt opportunity in lowlands by utilizing weapons restriction hunts.
Objective 50 – Provide landowners 3 deer takes per 40 acres of agricultural land (irrigated) that are transferable to hunters of their choice for late season hunt.
Objective 50 – Add additional strategy "d." Increase qualified disabled hunter access to private lands.
Objective 51 – alternative "b" and "c" need target dates.

PUBLIC COMMENT
Objective 52 needs a target date.
Mandatory hunter reporting is an excellent program. Will there be possibilities of increased antlerless white-tailed deer hunting as a result?
Page 43, Table 1: The addition of a column showing success, as a function of license would be informative. Particularly, with a view to dropping number of license holders as a percentage of population falling.
Mule deer are declining partly due to whitetail encroachment. Areas/units should be designated as "whitetail deer" or "mule deer" or "both." Whitetail deer should be reduced in certain "mule deer" areas/units.
BIGHORN SHEEP
Habitat management section is very weak, and with the exception of burns, provides no strategies for plant community enhancement with the exception of the artificial fertilizing. The latter is like starting a feeding program for sheep, and should be used only if sustaining vegetation management methods cannot be employed.
Feeding of bighorn sheep may lead to increased risk for disease and should be avoided.
Table 1 – As noted above with elk, what is the basis for the numbers in the table, especially the "desired" column? Has habitat capacity been taken into consideration? Are populations above the desired level exhibiting any negative characteristics?
Objective 54 needs a target date for completion.
Objective 55, alternative "b" must have a type – it doesn't read correctly.
Objective 57, alternative "b" needs a target date.
Objective 58 needs a target date for completion.
Objective 59, Table 2 is confusing. Does it include Tribal harvest? Will al sheep herds be subject to this strategy? The Hall Mountain herd is currently un-hunted - will the status change under this plan?
Objective 60 needs a target date for completion. Also need to consider alternatives for the Noisy Cr. Viewing area if cougars continue to be a problem.
Objective 61 needs a target date for completion. Alternative "b" should be dropped or moved to objective 60.
Objective 62 – How is Tribal harvest factored into this?
Objective 63 – Research dollars are limited and can take funds away from other management needs.
Rather than reintroduce sheep to new areas, it is obvious that augmentation to herds with low numbers should be the first priority. Rather than allow more permits for herd reduction, conduct trap and augmentation instead. An assessment of habitat carrying capacity should determine potential herd numbers, a reasonable goal for conducting sustainable harvesting of mature and desired individuals, or trapping for augmentation or reintroductions.
Have past reintroductions been cost effective? Many of the current herds have depressed populations, are unable to coexist with domestic sheep, suffer poor forage conditions due to fire suppression and grazing by cows, or have suffered direct mortality due to wild fires. Has the department analyzed if this money could be better spent through doing better habitat and risk analysis?
To reduce the threats to bighorns, would it be cost effective for the Department to pay for vaccinations of domestic sheep in close proximity to bighorns or pay for the grazing leases affecting bighorns.
Bighorn viewing is a popular activity around the town of Loomis and in the Sinlahekin Valley. Publicizing these and other places where bighorn can be observed and the season to do so would continue to boost the public's appreciation of wildlife.
MOUNTAIN GOAT
Goats need attention.
Objective 64 needs target dates with alternatives.
Objective 64 – Do nothing more than maintain the very limited number of permits, which essentially allows for self-management. Hands-off management is best use of available funding.
Objective 65, alternative "b" is only valid for hunted population, therefore, needed data on non-hunted population would not be collected.
Objective 66 – This objective needs to accommodate tribal harvest.
Objective 66 – Is tribal hunting factored into the calculations?
Objective 66 – High priority should be given to turning around the declining mountain goat population.
Objective 66, strategy "b". – During what time of the year is the production survey conducted to trigger hunting? Pre and post season could be very different.
Objective 67 – both alternatives should continue to be employed.
Objective 67 – these strategies are the current policy, so maybe this needs to be rewritten to acknowledge that fact.
Objective 68 – a mountain goat viewing area already exists on the Colville N.F. and is featured on the WDFW web site in at least 2 location and in the Washington Wildlife Viewing Guide.
Objective 69 needs target dates for the alternatives.
Objective 70 – Does this include tribal harvest? Need a target date.
Objective 71 – Research dollars are limited and can take funds away from other management needs.
Objective 71 – Do nothing more than maintain the very limited number of permits, which essentially allows for self-management. Hands-off management is best use of available funding.

PUBLIC COMMENT
No hunting should occur on goat herds that have not been surveyed for a minimum of 3 years in order that short term population trend and herd health would have been assessed.
With the drastically declining numbers on may herds, developing a model for suitable habitats would be warranted. Also studying why the declines have occurred in select areas may give an index for possible reintroduction sites. Where herds are doing well, the department should forgo some the harvest permits and opt for trap and capture for augmenting herds elsewhere in the state.
MOOSE
Objective 72 needs a target date for completion.
Objective 73 needs target dates for alternative "b" and "c".
Objective 74 – Is tribal harvest a factor?
Objective 75 – I support the use of the existing permit system and "once-in-a-lifetime" strategy.
Objective 75, strategy "c" add, distribute harvest equally between user groups.
Objective 75, strategy "b" – What if all hunters decided to hunt moose the first year this was enacted?
Objective 76 – This issue statement is not correct. There is already a moose page on the WDFW website, as recognized in alternative "b". This objective needs a target date for completion.
Keeping with the trend of increasing moose numbers, the department should allow numbers to increase and their range to expand.
To control landowner damage a more liberal season could be allowed in Spokane county. Controlling the poaching in Pend Orielle, Stevens, and Ferry counties should be a priority.
We note that the desired bull to cow ratio is >50 bulls: 100 cows, yet the buck:doe ratio for deer and elk is much less. Will the department consider maintaining mature bull numbers by requiring a certain percentage of bull harvest being from immature or younger bulls? We like the idea of select hunts having a once-in-a-life-time opportunity as is done for moose, bighorns, and mountain goats.
BLACK BEAR
We find the proposal to increase sport hunting of black bear and expend limited resources on a PR campaign to increase public acceptance biologically reckless, ethically reprehensible, and fiscally irresponsible.
Allow bear baiting by including a strategy that would allow bear baiting every other hunting season.
There are no scientific (accurate) data on population numbers of our predator mammals of black bear and cougar, the emphasis in this GMP is still to emphasize and even promote their being hunted. I can find no reference to numbers of illegal takings even though these unreported takings may represent a high percentage of the overall totals.
Objective 77 needs a target date for accomplishment.
Objective 78 – Tribes are concerned about black bear reserves.
Objective 78 need target dates. Just because an area is closed to hunting does not mean that it is good black bear habitat, suitable for use as a population source. The proposed strategy does not include any consideration for habitat quality, only protection from hunting.
Objective 78 – What is the justification for needing to establish black bear reserves that are closed to hunting? A concept of reserves would need to be carefully planned at the landscape level and incorporated islands of core habitat with connectivity established through linked corridors. This level of planning is not indicated in the plan. The concept of black bear reserves doesn't appear to be a biological necessity considering the current population size and relative habitat security. Is 10% of a BBMU biologically, ecologically, or genetically significant to the perpetuity of black bear populations?
Objective 78, strategy "b". Identifying such lands as reserves does not allow their managers/owners to reopen them to bear hunting for the six-year period of the EIS, denying private owners their property rights.
While black bears are doing quite well in most areas, some places may develop extremely low and unsustainable population if legal hunting combines with poaching. Studies done in Arizona in the 80's (Mollohan and LeCount) stated that bear populations in a fragmented habitat (roaded) are not sustainable and these areas rely on dispersers from un-fragmented areas for their population viability. It is very important to map the refugia for bears, as it exists today and determine where bears are that would be susceptible to over harvest.
Objective 79 – Why propose alternative "c" if the technique produces misleading interpretations?
Population estimates are very inaccurate and much more effort needs to be put into obtaining accurate numbers; sound science is drastically needed.
Objective 80 – The BMU criteria for harvest, as proposed by percent of females in the harvest, are too liberal. There is only a 5% difference between a liberal harvest and restrictive harvest (liberal <35%, acceptable 35-39%, restrict >39%). How well can the agency determine that small a difference?
For the WDFW to establish harvest quotas is ludicrous due to inaccurate information about bear numbers, age, sex and maturity along with their respective hunted numbers.
Open bear hunting for hounds and bait.
Proposed median age for harvested males promotes younger bears. While this might be good for the bear-consuming hunter, it may not be good for the propagation of the species. We would recommend that management be for maintaining older bears by only having a liberal harvest when bears are brought in that average over 6-7 years old. As with most species, having older males doing the breeding promotes more resilient populations.

PUBLIC COMMENT
To avoid timber damage by bears, experiment with supplemental spring feeding. Pursuing a spring hunt that is not ever going to be popular with the public is not a good alternative.
Objective 81 – Trees per stand is not a good measure, as stand size can be variable. Trees per acre or some other measure (percent of stocking) would be more meaningful.
Objective 81 – What is considered a stand and how was the number 30 derived? Under strategy "b" where do relocated bears go and if they are relocated it should be mandatory that they are radio collard.
Poaching bears to sell body parts to the Asian market must be curtailed. We strongly encourage under cover operations to arrest anyone trafficking in wildlife parts.
Objective 81 – Capture and relocation is largely unsuccessful and should be abandoned.
Objective 81, strategy "b" encourages the use of non-lethal methods to address timber damage from bears. With high populations of black bears, capture-relocation will not address the problem of damage that occurs on industrial forestlands. A reduction in bear density seems to be the logical and cost efficient alternative. Moving bears from one location to another does not change the behavior, just moves the problem. Is WDFW willing to issue depredation permits for commercial/economic reasons for bear but not for protection of elk herds?
Objective 81, strategy "c" – Delete this strategy.
Objective 81, strategy "d" We disagree; damage causing bears almost always come back or start up the same pattern. Save the expenses and put cost into other bear programs.
Objective 81 – Use PLWMA program concept with landowners to manage damage issues for this species.
Objective 81 – Use boot hunter's not professional hunters with hounds in road closures.
Objective 82 – this objective needs target dates or some other parameter to measure success. Is there a strategy beyond undercover operations to reduce illegal trading of bear parts?
Objective 82 – Why some much emphasis on enforcement if black bear populations are healthy? It is understandable to deter illegal harvest for gall bladders, but the state population appears robust.
Bear and cougar tags are part of a package, thus their accurate hunter numbers, success and days of effort are skewed and we don't know how many animals are actually being targeted other than damage control hunts.
COUGAR
We find the proposal to increase sport hunting of cougar and expend limited resources on a PR campaign to increase public acceptance, biologically reckless, ethically reprehensible, and fiscally irresponsible.
The Muckleshoot Tribe feels that cougar reserves will not work over the long term because prey and subsequently cougars will be driven so low the reserve will no longer function as such.
Population status and trend – Be more specific on the methods used to arrive at this number. How are these animals distributed (include a column of population size range in Table 1). Is this an acceptable population size? Can the prey base support these numbers within CMU's?
Cougar management goal # 1. – The harvest strategies seem aimed at keeping the population status quo, however, it has not been determined if the present cougar population is too high or too low. Tribes worked on setting elk population goals and there should be cooperation with tribes to set cougar population goals as well. A sustained yield of cougars can be accomplished at any population size, so status quo population size may not be acceptable.
Cougar population and quota goals are being forced upon tribes by WDFW without they're being a discussion as to whether the cougar goals are reasonable. Elk population goals were jointly determined, however, cougar population goals have not undergone such a process.
Muckleshoot Tribes believes WDFW is not able to achieve maximum recreation days when predators are responsible for the inability of populations to maintain themselves in the absence of female hunting as we have seen in the Green and White River watersheds.
The state needs to push much harder to use available studies (i.e. Vancouver B.C,) and accurately determine the number of mountain lions statewide.
There are no scientific (accurate) data on population numbers of our predator mammals of black bear and cougar, the emphasis in this GMP is still to emphasize and even promote their being hunted. I can find no reference to numbers of illegal takings even though these unreported takings may represent a high percentage of the overall totals
Cougar management goal number 4. We disagree; the Department needs to minimize threats to game populations, not just public safety. Remember, Charlie the lonesome cougar eats a deer a week.
Cougar management goal number 4 belongs in the Black Bear Section.
The issue statement needs to address game species predation as well as public safety.
Why shouldn't NE Washington and the Puget Sound area (CMUs 2 and 7) map and document 10% of the land area as cougar reserves? Will not doing this jeopardize the ability of the areas to contain sustainable cougar populations over time?
Objective 83 needs target dates for accomplishment.
Objective 83 – cougar reserves; as many problems as we are having now and we want to make reserves for them? It lists 2,500-4,000 as population, which is quite a range and higher than the 2,000-2,500 previously estimated. We need a healthy population but not an over abundance.
Objective 83 – cougar reserves cannot occur where elk and deer are managed for sustained harvest by humans. Perpetual cougar reserves will depend on social tolerance of cats relative to prey base availability.

PUBLIC COMMENT
Objective 84 needs target dates. Just because an area is closed to hunting does not mean that it is good cougar habitat, suitable for use as a population source. The proposed strategy does not include any consideration for habitat quality, only protection from hunting.
Objective 84 – Why do we need to establish reserves with relatively secure habitats for cougars on Federal and industrial timberlands? What is the logic for 10% of a CMU being in reserve status? How will reserves be designed and will they be meaningful?
Objective 85 needs target dates.
Objective 85 calls for monitoring to detect a 20% decline in population size in 3 years or less, yet no science exists for doing so. We recommend that a scientific study look at the problem of trying to assess population's demographics from age and sex of harvest data. Modeling is a great exercise, but when it is not compared to an actual harvested and un-harvested population, it may get cougars in deep trouble. We also recommend that all cougar harvested be required for a mandatory check by agents and be tagged. The department can collect the biological information, even if the data wouldn't be analyzed until a later date.
We recommend that the department implement male and female harvest quotas for areas open to hunting. This should also be conducted for CMUs 2 and 7, despite the department alternative not to do so.
Objective 86, issue statement. – The statement, "…while at the same time ensuring long-term sustainability." This depends on sustainability of prey base relative to other competing objectives for prey management. WDFW is attempting to manage for the present number of cougars without determining if that number is reasonable within the constraints of other objectives.
Objective 86, cougar harvest quota. – Is there presently a cougar harvest quota? If not, why go to one? The quota is aimed to maintain the existing number of cougars without determining if that number is reasonable. The Muckleshoot Tribe intends to manage cougars using a prey-based approach. Our goal is to ensure long-term sustainability of deer and elk that allow for modest human harvest while still recognizing that cougar and bear have a place in the ecosystem. Management will not focus on protecting stable cougar numbers in areas where prey are documented to be limited by predation in the absence of hunting.
Objective 86 – The CMU numbers in the chart do not correspond to the CMU map shown on page 71. Current rules require reporting cougar kills within 72 hours. Is this sufficient to monitor cougar harvest as closely as you need? What measures are in place to notify hunters when CMU quotas have been reached? What happens when the quota for one sex is reached well before the quota for the other sex? Also need a strategy to address criticism that will be received if recreational hunting is shut off in any CMU due to quotas being reached, but additional cougars later need to be removed due to depredation or public safety.
Objective 86 establishes 236 as a maximum for harvest statewide. How was a harvest of 236 cougars determined? The minimum population size stated was 2,500 and harvest appears to be focused at 11% of the population. This would indicate a minimum harvest of 275 cougars. Why is harvest managed so conservatively?
Objective 86 – Based on previous numbers there is quite a range of possible under harvesting and doesn't the current practice of open season boot hunting give a more accurate indication of population levels?
Objective 86 – One very important thing to remember is that since I-655 the harvest was initially low, and then went back up because of illegal hound harvest. Therefore, the boot hunter harvest is not accurate.
Objective 86, strategies "a" and "b". To set quotas for cougars that will be used for the next six years cannot be considered professional scientific management. The management of any species must be fluid and needs to be determined based on hunting pressure and age, sex, and number of harvested animals in any particular year. Mature males should be targeted.
In regards to cougars, the GMP implies there will not be a quota for the Puget Sound Area, yet other areas in the state will have quotas. Does this mean there will be permits for cats?
Objective 86 – How can quotas be used when populations are unknown? Public safety dictates a better plan.
Objective 86 – Tribes are concerned about state imposed harvest quotas on cougar.
Open cougar season year around, 24 hours a day and use hounds and spot lights.
Objective 86 – Make harvest objective 500 per year. Do not allow any non-hunter to interfere with the season setting process.
For the WDFW to establish harvest quotas is ludicrous due to inaccurate information about cougar numbers, age, sex and maturity along with their respective hunted numbers.
Recreation management issue statement should include a statement to include livestock protection.
Objective 87 – The use of 11 complaints per GMU to gauge the success of this objective is meaningless. In GMUs that have little urban development and are primarily rural, 11 complaints may signal real problems, while in the more urban dominated GMUs 11 complaints may be acceptable.
Objective 87 – We agree but add problems of game species depredation problems also.
Objective 87, strategy "b" add, conduct predator reaction to game population, set harvest goals to keep game population available to hunters who fund your program.
Objective 87. Delete strategy "a". Develop a pursuit season for hounds. This will allow cougars to be programmed to avoid humans.

PUBLIC COMMENT
Objective 88 – The objective should be better stated. Accounting for ALL cougar mortalities is impossible and cannot be met with the alternative strategies presented. In addition, the alternative strategies are already in place. This should be mentioned in the plan to avoid confusing the public.
Objective 89 - Research dollars are limited and can take away from other needs. All research needs should be prioritized for funding.
Cougar and bear tags are part of a package, thus their accurate hunter numbers are skewed and we don't know how many animals are actually being targeted other than damage control hunts.
WATERFOWL
Open the waterfowl season on the 2nd or 3rd weekend of October and run until the 3rd week of January.
Reduce the bag limit on lean years.
Objective 90 needs target dates for the alternatives.
Objective 91 – Alternative "b" additional effort needs to be placed on solicitation for external organizations and agencies. Perhaps something could be developed to utilize the WDFW web site to this end.
Objective 92 – although it seems that his objective will be fairly easy to meet, I would like to see more marketing of the availability of funds and types of projects sought under this program. I think there are many potential partners out there that do not have an awareness of these funds and opportunities.
Objective 93 needs target dates for alternative "b", "c" and "d".
Objective 94 needs target date for alternative "b"
Objective 95 – It will be difficult to evaluate success of alternative "c" without a more solid time frame. Conducting an activity "as time allows" is too vague. What priority does this activity have in relation to others?
Objective 96 – these alternative need time frames or some other parameters to measure achievement.
Objective 97 – How does this compare to current management? Is this more intensive, less or the same as what is being done now?
Objective 98 – How does this compare to current management? Is this more intensive, less or the same as what is being done now?
Objective 99 – How does this compare to current management? Is this more intensive, less or the same as what is being done now?
Objectives 98 and 99 needs to address Department ban on electronic decoys, which was not consistent with the majority of waterfowl hunters or based on waterfowl population biology. Robo duck and goose ban has reduced quality hunting according to the 60% majority who express their opinions to the Fish and Wildlife Commission. This issue should be clearly stated in the EIS for historical background and reference.
Objective 100 – alternative "c" needs a target date
Objective 101 – maintaining hunter numbers should not come at the expense of the resource.
Objective 102 - Research dollars are limited and can take away from other needs. All research needs should be prioritized for funding.
Objective 103 – The alternatives need target dates.
Objective 104 – The public has told you that hunter compliance should be 100%. Is it wise to establish an objective accepting anything less? Perhaps this should be an "interim" objective to achieve by 2005 or 2006? The way alternative "b" is phrased makes one wonder what the current situation is.
Educating waterfowl hunters to shoot primarily single birds, as opposed to paired birds, would help soften the population lows of some species. Some sportsmen already do this. If the department promoted it in the hunter education classes, it could make a difference in population swings.
Require all steel shot use for all shotguns and the associated hunts, even for upland game birds.
MOURNING DOVE, PIGEON, COOT & SNIPE MANAGEMENT
Eliminate dove and crow hunting.
Objective 105 needs target dates.
Objective 105 – Add an alternative C. Work with private landowners to set aside important habitats by providing protection from development, hunting, and other detrimental effects until populations are shown to increase over a ten-year period.
Objective 106 – This seems like a meager amount of treatment. Is habitat being lost? How much is being accomplished now?
Objective 107 – It would be nice to show current trends – only band-tailed pigeons and doves are reported in the plan.
Objective 108 - Alternative "a" needs target dates.
Objective 109 – How does this compare to current management? Is this more intensive, less or the same as what is being done now?
Objective 110 – good link between recreation opportunity and the resource. For alternative "c", what is significant?
Objective 111 – Does this objective potentially clash with objective 110?
Objective 112 – Alternatives need target dates.
Objective 113 - Research dollars are limited and can take away from other needs. All research needs should be prioritized for funding.

PUBLIC COMMENT
There is a paucity of data available for the common snipe, and all of it suggests that it should no longer be classified as a game species within Washington State. 1) Breeding bird survey data (1980-00) indicates a negative population growth rate for Washington. No population trend data was provided in the EIS. 2) Available evidence (Paulson, 1993) suggests steep declines of winter population. 3) WDFW wing survey data revealed that 1 out of every 5 common snipe shot is actually a different shorebird species mistakenly identified by hunters as common snipe. The true percentage may actually be quite a bit higher… Anecdotal evidence suggests that hunting common snipe is decreasing other wildlife related recreation opportunities. There are no resources available to collect more accurate data on either population status/trends or incidental take of other shorebird species. The agency does not appear able to devote sufficient resources to monitor populations or incidental take issues.
We feel the bag limit on coot (25 per day) is unjustifiable. We have seen rafts of coots decline in numbers as much as half or more in the last 20 years.
Mourning doves are being brought to the public's attention by the animal rights in other states. What is the department doing to stem this tide of potential opposition to dove hunting? Couple this with the department's data showing a precipitous decline in the dove population, we would like the department to consider recommending that the commission close the season, at least until the numbers come back up.
There is no biological reason to allow hunting of band-tailed pigeons or snipe. Both these species have very depressed numbers. Any surplus birds should be used to augment other populations rather than allow hunting of these birds.
The non-hunting public could be a great source for census taking of migratory birds. Bird watching is the largest group partaking of outdoor activities. The Department should develop a survey protocol for local bird watchers or organizations to conduct in specified areas of concern.
Need to initiate work on snipe habitat use, survival, and effects of harvest.
UPLAND GAME BIRDS
Research and develop a long-term plan to increase pheasant populations so that releasing pheasants to support hunting will not be required.
Allow the use of electric scooters for the disabled hunter on the Vancouver Lake pheasant release site.
Objective 134 – Is any increase acceptable, or should you specify a percentage or number of acres?
Objective 134 – While surface water is a part of habitat management, I don't see it given much attention. Consider the impact of the USDA 1970's water draining programs, tilling, had on the availability of surface water and its impact on wildlife on agricultural lands.
Objective 134 strategy "d" we disagree; we need these lands for additional west side release sites to help reduce crowding. Strategy "f" we agree but also expand program for land acquisitions.
Objective 135 – Good measurable objective
Objective 136 – Need a timeframe for accomplishment of the alternatives
Objective 136, strategy "c" add, "implement the introduction of wild stock to said key habitat areas plus CRP holdings or the release of young pen raised birds as was done successfully in the late 60's and early 70's (weeks before the season)."
Objective 137 – Be sure to mesh this with objective 134.
Objective 137, strategy "b" - Do you mean general public funding or our hunting license fees?
Objective 137 – More emphasis on developing private property access agreements for upland bird hunting. Increase in area should be much greater than 10% by 2008, say to about 50% increase.
Objective 138 – Good measurable objective. Need a timeframe for alternative "c".
Objective 137 – Information about where to hunt on private land would also be helpful.
Objective 140 – With data already available it shouldn't take you 6 years to figure this out. Strategies "a" through "c" we disagree. Data research, factors, and studies have already been done. Use it; don't waste any more time and our limited funds.
Objective 140 - Research dollars are limited and can take away from other needs. All research needs should be prioritized for funding.
Objective 140 – add alternative strategy "d". Identify lead contamination both in the birds and the environment that may contribute to mortality of these or other species. Should lead be found as a contributor or potential contributor to mortality, institute a statewide ban on lead shot ammunition for the hunting of birds.
Objective 141 – Just evaluate? Why not reduce weed population? See research comment above. Use Washington State's Noxious Weed Control Boards or other agencies studies.
Objective 142 – This is long overdue. Glad to see the 2003 target date.
Objective 142 – We agree but add, then extend habitat enhancement to habitat areas such as CRP lands.
Objective 143 issue statement needs to address the quality of birds being released and season length.
Objective 143 – Good measurable objective. Strategy "c" we agree but when you're looking to save money don't drop quality.
Objective 144 – What level of reduction is targeted? Strategies "a" we agree and this should be a priority; "b" we agree and other crowding solutions should be addressed; "c" we agree and other sites as well to provide more acres and less crowding.
Objective 145 – Good measurable objective.

PUBLIC COMMENT
Objective 145 - Issue statement is mute; all birds are being harvested for sure. Strategy "a" we disagree, this could result in even greater hunter over crowding; "c" we disagree, save the money and visit the site.
Objective 146, strategy "a" we agree but maintain presence through out entire day, not just make an appearance.
Objective 146 – Is there a target level of reduction?
Please continue with the pheasant release program in western WA.
Procure more sites to hunt on and spread out the hunters.
Upland game birds need a helping hand. A program to raise and transplant new stock would increase bird population and hunter numbers.
More emphasis should be placed on wild upland bird establishment by planting birds and habitat enhancement/protection. Public surveys showed little support for planting birds for hunters and this is not good biology.
More emphasis on chukar and Hungarian partridge recovery programs, such as population monitoring, establishment/planting of wild birds.
The numbers of upland game birds are far below what they were 25 years ago and demand immediate attention.
Open the quail season at the same time as the chukar and Hungarian partridge season.
Stop wasting money on pheasant release programs and spend the money on habitat improvement and game land purchase or long-term leases.
Hunters participating in the pheasant release program from Cowlitz County must drive to over-hunted and over-populated release sites in the Woodland Bottoms or Scatter Creek. Please fix the problem.
Page 106, Figure 3:Add a line showing human population estimate trend.
Page 110 Eastern Washington Pheasant Enhancement. Consider using other sportsman organizations such as the Snake River Sportsman and Gun Dog Association.
We strongly recommend that the funding emphasis of the Eastern Washington Pheasant Enhancement Program be shifted from 80% for the release of pheasants to 80% for habitat development.
Pheasant, California quail, chukar, and Hungarian partridge are not native birds. What assessments or research has been conducted for these species and their impacts to native species of wildlife, especially sharp-tailed grouse and sage grouse as many of these birds like similar habitat conditions? The release, relocation, or augmentation of these birds should be studied before any additional birds are moved around.
Pg 109 – Consider using the non-hunting public sources such as Audubon bird counts as a resource. They are probably no weaker than the WDFW own counts and would bring another segment of the public into the decision making process.
WILD TURKEY
Page 93, title should read *Meleagris gallopavo*
Wild turkey management goals: There is no issue statement, objectives, or alternate strategies in this section that addresses habitat management. We recommend a habitat section be developed.
Want to see introductions in Whatcom and Skagit counties.
Non-native wild turkey represents one of the greatest threats to native ecosystems and the Department's wild turkey management goals are contrary to modern conservation ethics and practice.
I would like to see more detail in the DEIS as it relates to the management of introduced wild turkey populations and their potential impact on other native species of wildlife. While documentation of direct competition between western gray squirrel and turkey are lacking, two the three major foods used by squirrels are also staple foods for wild turkeys. If wild turkeys do compete with western gray squirrels for food, conflict management may be in order.
Introducing potentially destructive non-native species to provide convenient hunting opportunities to placate the desires of a small fraction of the taxpaying public is just a few steps away from the Department operating an exotic game ranch on public land.
Make the fall turkey hunt "tom's only."
Run the turkey season from April 15 to May 15.
Objective 114 – judging by the objectives that follow this one, is population enhancement the objective, or population management and maintenance?
The importation of 3 types of turkeys was never analyzed for their impacts to native wildlife. There is no alternative listed under Objective 114 to do the long over due assessment, starting with an Environmental Assessment. No more augmentations, introductions, or movement of turkeys in our state by agencies, hunting clubs, or the members of the public should be allowed until the proper assessments are completed.
Objective 115 – Good measurable objective.
Objective 115 – In some areas with the increase in wild turkey populations, there is a perception that wild turkeys are causing significant damage. However, that perception is generally not borne out by facts. Turkeys are large, diurnal birds and often get blamed for damage caused by other wildlife.
Objective 115 – In developing a plan or response strategy for damage/nuisance, it is imperative that a wide range of methods or a combination be made available to alleviate or reduce damage including education and habitat management. Depredation permits should be considered an extreme measure.

PUBLIC COMMENT
Turkeys are already becoming a nuisance in some areas. Liberalize the harvest of this non-native species to reflect landowner complaints.
Objective 116 – Good measurable objective.
Objective 117 – Good measurable objective.
Objective 118 – Good measurable objective. Hasn't alternative "a" already been done?
We recommend that the turkey tag continue to be included with the purchase of a small game license.
Charge a nominal fee for the turkey tag and earmark the funds received from these fees for wild turkey and wild turkey habitat management.
Objective 118 – NWTF members and others have expressed concern over the issuance of a free turkey tag with the purchase of a small game license.
Turkey tags should be separated from the small game license. While I agree this is good for exposing more people to the sport and species, it isn't the way to recruit safe, informed, ethical hunters.
Objective 119 – Good measurable objective.
Objective 119 – WDFW should address access issues and increase public hunting opportunities on private lands. A 10% increase should be considered a bare minimum. Also this strategy is inconsistent with 15% increase identified under private land program.
Objective 120 – Good measurable objective.
Objective 120 – We concur with an adaptive management strategy that will allow for management changes or decisions based upon analyses of index trends, harvest data, and other monitoring information.
Objective 121 – I encourage alternatives "d" and "e".
Objective 121 – We concur with the strategies for developing educational and outreach products as part of the turkey management program.
Objective 122 - Research dollars are limited and can take away from other needs. All research needs should be prioritized for funding.
Objective 122 – NWTF strongly concurs with this objective and will continue to assist and support research for the conservation and wise management of wild turkey and other natural resources.
Objective 123 – What level of reduction is targeted?
Fall turkey seasons should coincide with deer and elk seasons along with weapons type during these seasons. After all the fall seasons are based on damage and or over populations.
MOUNTAIN QUAIL MANAGEMENT
Objective 124 – Good measurable objective.
Objective 124, alternative "a" – We agree with the alternative strategy for developing a map of potential mountain quail habitat for eastern Washington. We would like to expand that recommendation to include western Washington as well.
Objective 125 – Need a target date for accomplishment.
Objective 126 – Need a target date for accomplishment.
No harvest should be allowed at this time in western Washington. Any "surplus" birds should be either used to augment existing population or should be used in reintroduction to former habitats. The alternative to allow harvest until there is a 50% decline over 3 years on a minimal population is putting mountain quail persistence in jeopardy in our state!
Objective 127 – Good measurable objective. Change decline percentages from 50% to 30%.
FOREST GROUSE
Objective 128 – Good measurable objective.
Objective 129 – Good measurable objective.
Objective 129 – We disagree, detection should be 30% not 50% decline.
Objective 129 – The department recommends improving harvest estimation to detect a 50% decline over a 3-year period at the region level. A region level detection would represent too great a chance of local extirpations. We recommend requiring hunter result report. It is also important for the region or local biologists to track local weather tends.
Add; "brood surveys will be conducted during critical spring periods to determine production and survival."
We are concerned about the drop in populations of forest grouse. Average number harvested in the last 20 years is half the average of the 20 years before that. Nowhere is it mentioned that this also corresponds to the large growth of wild turkey numbers across the state, many of which now reside in forest grouse habitat.
Objective 130 – Good measurable objective.
Objective 131 – Where did this objective go?
Objective 132 – Need a timeframe for accomplishment.
Objective 132 – In the objective and strategy statements interject the wording "and ammunition" following the word "weapons" or "firearms".
Objective 133 – Need a timeframe for accomplishment.
We support the existing regulations for use of a center-fire cartridge firearm to hunt forest grouse. We do not believe that the concerns of ethical fair chase, wastage or respect for the game bird are issues warranting attention.

PUBLIC COMMENT
Issue statement – We totally disagree. Grouse harvest is one of the most enjoyable hunts because we can use all types of weapons, especially center-fire guns.
Objective 133 – We agree but strategy "b" we disagree. If objective 133 is successful, this is not necessary.
Objective 134 strategy "b" we disagree, save the money.
We need more public access.
The department needs to increase grouse through accurate assessments, closures and captive relocation.
SMALL GAME, FURBEARERS & UNCLASSIFIED WILDLIFE
Population Status and Trend – We take exception to the statement "the risk of over-exploitation is low." As fur prices improve for these species, a repeat of the past precipitous declines can happened due to over harvest, especially if the body gripping trap ban is overturned and the state returns to an unregulated trapper area policy.
I would encourage WDFW in its efforts to promote recreational hunting of deleterious non-native species. Although not currently classified as such, two examples are the eastern gray squirrel and the bullfrog. Both of these species create management problems, but have the potential to be desirable game species. Current harvest levels are inadequate for population control.
Data Collection should be IV.
Population management issue statement says, "There is little documentation on the known distribution and relative densities of individual small game and furbearer species in Washington. In the case of furbearers, prior to 1982 detailed data was collected and compiled and should be available in the archives.
The Department seeks to "maximize recreational opportunities," i.e., trapping, of furbearing mammals in the DEIS once again demonstrates how out of sync the agency is with its constituents.
API strongly opposes the trapping and killing of wildlife for profit, recreation, or "management" and request that the Department accurately reflect public opposition to trapping in a revised DEIS.
API recommends that WDFW develop a reporting system for non-target wildlife trapping.
API recommends that WDFW establish a 24-hour trap check requirement for all traps and snares. API recommends reducing liberal bag limits and seasons.
Replace the wording "recreational trapper." The concept by which the modern fur harvester is portrayed, as a fun seeking recreational pursuit is a perpetuated inaccuracy and should be viewed as a "commercial activity."
We agree with most objectives and strategies, but feel the Department has dropped a big ball on the whole subject of control of these animals. Trapping education for the general public is not favorable we know, but realistically it is the only viable solution to population control. A kill harvest is needed. The Department needs to do their job and re-instigate legislation for trapping.
The ability to accurately census furbearing animal population in our state as outlined in the EIS, is probably an impossible goal in terms of both funding and the physical ability to gather the necessary data as a result of I-713.
Objective 147 – Good measurable objective.
Objective 148 – Good measurable objective but it seems out of order with objective 147.
Objective 149 – Good measurable objective.
Objective 150 – I'm confused. Objective 3 relates to electronic hunting gear regulations.
Objective 151 – Bravo on expanding use of the web site. No timeframe provided for accomplishment.
Objective 152 – With expanding human populations, is this really the proper measure of achievement?
Objective 153 – Need timeframe for accomplishment.
Objective 154 – Just reaching 100,000 people doesn't mean they understood your message. Need another parameter to evaluate success.
Snowshoe hares are very important to the Canada lynx. In lynx recovery areas, the hare should not be a game animal as this could compete with lynx recovery in the low of the hare cycle. The 2,398 hares taken in 2000 represented the needs of approximately 7 lynx for one year.
Badgers are still very limited in number in many places. The very limited harvest would be better served by capture and relocation than as dead animals.
You state that because "accurate information on the status of furbearer populations is absent; as a result harvest levels are conservative." Later, "…managers typically set conservative harvest levels…" Other than maybe otter, what limits exist for harvest of any of these species? It is not unusual for trapped species to suffer a precipitous decline before the seasons are curtailed or stopped altogether.
We would like to see the department work with the Washington Trappers Association to develop a web based reporting system for trappers (harvest). The mail in catch forms should also be allowed as not everyone has access to the web.
Educational materials should be developed to help the public learn to live with the wildlife around them. Wetland boardwalks and any other possible public viewing of furbearers that could be developed would also be a big help to raise the public's consciousness of furbearers.
We support the continued ban on body gripping traps for recreational harvest. Professional, licensed companies who are regulated by WDFW should be allowed the use of conibear traps for underwater sets to catch nuisance wildlife.
Trapping – Past harvest figures for furbearers was heavily influenced by fluctuation of prices and demand for different furs. When the price was up for a specific species so was harvest.