Washington State Elk Herd Plan

DRAFT

SELKIRK ELK HERD

Washington Department of Fish and Wildlife
Wildlife Management Program
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Olympia, WA 98501-1091

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Director, Washington Department of Fish & Wildlife

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SELKIRK ELK HERD PLAN

EXECUTIVE SUMMARY

The Selkirk Elk Herd is one of ten herds identified in Washington State. The population is comprised of two sub-herds, scattered through seven counties. This elk herd represents an important resource that provides substantial recreational, aesthetic, cultural, and economic benefits to Washington citizens and the Native American people of the area.

The purpose of this plan is to provide current and near-term future direction for managing the Selkirk Elk Herd. This is a five-year plan, subject to amendment. Before the end of the fifth year, the plan will be updated, re-evaluated, amended, and implemented for another 5-year period. This plan will serve as a valuable reference document and management guideline for the Washington Department of Fish and Wildlife, Tribes, agency cooperators, landowners and the general public. Priority management activities will be carried out as funding and resources are available.

Four primary goals guide the Selkirk Elk Herd Plan: (1) To preserve, protect, perpetuate, manage, and enhance elk and their habitats to ensure healthy, productive populations and ecosystem integrity; (2) To manage this elk herd for a sustained hunting yield; and (3) To manage elk for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, biodiversity, wildlife viewing, and photography, (4) To manage elk and elk habitat to minimize human conflicts and agricultural damage.

The Selkirk elk herd is primarily a reintroduced elk population, with reintroductions originating from Montana in 1915 and subsequent augmentations in 1932, 1969, 1970, and 2000. The Spokane Tribe of Indians and the Confederated Tribes of the Colville Indian Reservation have also translocated elk to their respective reservations within the last 25 years. (B.J. Kieffer, Spokane Tribe of Indians, personal communication; S. Judd, Colville Confederated Tribes, personal communication). Several translocations in British Columbia have reestablished elk north of the international border. These combined efforts have contributed to a general range expansion of elk in northeastern Washington.

The elk population prior to the 1970's was primarily confined to northern Pend Oreille County. During the 1970's and 1980's elk expanded into northern Spokane and Stevens Counties. Beginning in the 1990’s significant expansion of elk numbers and distribution took place within Ferry, Lincoln, Whitman, and southern Spokane Counties.

The Selkirk herd is comprised of two sub-herds: The Pend Oreille sub-herd occurs north of the Spokane River west to the Okanogan River. The Spokane sub-herd occurs south of the Spokane River to the Snake River. The Pend Oreille sub-herd is thought to number between 1,000 and 2,100 elk and the Spokane sub-herd consists of between 1,000 and 1,500 elk, making the total Selkirk herd less than 3,600 elk. These numbers are based upon information from sporadic surveys, harvest data, and discussions with hunters.

Few Selkirk elk were reported harvested from the 1930's to the early 1970's. Hunter activity and associated elk harvest increased significantly as the elk population grew and expanded within the Selkirk Herd boundary. Elk harvest from 1994-1999 averaged 205 animals annually with a peak in harvest occurring in 1999 when 338 elk were taken. The 2001-2010 average annual harvest was 380 elk taken with a high of 526 taken in 2010.

Specific elk herd and habitat management objectives, problems, and strategies are identified in the following sections. These priority objectives reflect key management issues and specific challenges in elk management. To accomplish each objective a variety of strategies have been developed. The following objectives have been identified:

Selkirk Elk Herd Management Objectives

- Develop and implement a formal survey protocol to generate an elk population estimate or index for the Selkirk elk herd by 2015.
- Expand the Pend Oreille sub-herd population numbers from today's current level (about 1,500) to an upper limit of 3,000.
- Maintain the Spokane sub-herd population numbers at today's current level (about 1,000) to an upper limit of 1,500.
- Manage for bull ratio estimates of 12 to 20 bulls per 100 cows post-hunt and/or 15 to 35 bulls per 100 cows pre-hunt.
- Encourage the conservation of elk habitat on private lands within the Selkirk Herd area.
- Use adaptive management to minimize the number of elk caused damage claims.
- Cooperate and collaborate with the Kalispel Tribe of Indians, Confederated Tribes of the Colville Indian Reservation, the Spokane Tribe of Indians, and the Coeur d'Alene Tribe to implement the Selkirk Elk Herd Plan, including development of hunting season packages conducted on a 3-year cycle.

Spending Priorities

Spending priorities have also been identified for the first five years. Achieving spending levels will be contingent upon availability of funds and creation of partnerships. The recommended prioritized expenditures for the Selkirk Elk Herd are as follows:

Priority	Current Expenditures	First Year Needs	Five Year Needs
Population Monitoring	$5,000	$150,000	$200,000
Harvest Management	$20,000	$20,000	$100,000
Elk-Human Conflict	$5,000	$15,000	$75,000
Total	$30,000	$185,000	$375,000

SELKIRK ELK HERD PLAN

INTRODUCTION

The Plan

The Selkirk Elk Herd Plan is one of ten elk herd plans under the umbrella of the Washington Department of Fish and Wildlife (the Department) Game Management Plan (WDFW 2008). It is a five-year planning document, subject to annual review and amendment, which describes the historical background, current conditions, and trends for the elk resource in northeastern Washington. The plan also identifies management issues and develops approaches to address them. It outlines goals, objectives, and strategies, helps establish priorities to use when resolving the issues, summarizes current biological data collected for the herd, and identifies where data collection needs to be improved.

Effective elk management requires partnerships among many governmental and private interests. In particular the Department acknowledges the sovereign status of federally recognized tribes. This document recognizes the responsibility of the Department and tribes to cooperate and collaborate. It also recognizes the critical role that private landowners and public land management agencies, notably the U.S. Forest Service (USFS), U.S. Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), Bureau of Reclamation (BOR), and Washington Department of Natural Resources (DNR) play in managing the Selkirk elk herd.

The Herd

For management and administrative purposes the State of Washington has been divided into numerous Game Management Units (GMUs). A group of GMUs used to manage and monitor an elk population is referred to as a Population Management Unit (PMU). In this context an elk herd is defined as a population within a recognized boundary as defined by a combination of GMUs and may include more than one PMU. In recent decades elk have re-colonized areas of Eastern and Northeastern Washington, expanding their distribution into more GMUs outside the historic core areas of the Selkirk population. The Selkirk elk herd now occupies GMUs 101 (Sherman), 105 (Kelly Hill), 108 (Douglas), 111 (Aladdin), 113 (Selkirk), 117 (49 Degrees North), 121 (Huckleberry), 124 (Mount Spokane), 127 (Mica Peak), 130 (Cheney), 133 (Roosevelt), 136 (Harrington), 139 (Steptoe), 142 (Almota) and 204 (Okanogan East).

Biologists have informally recognized two sub-herds within the Selkirk Herd, which were not specifically identified in the past relative to PMUs. This plan proposes to formalize current management by describing these two sub-herds and assigning each to their respective, new, PMUs. The area defined by GMUs 101-124 and 204 will be referred to as the Pend Oreille sub-herd range and designated as PMU 10 (Pend Oreille). The area defined by GMUs 127-142 will be referred to as the Spokane sub-herd range and designated as PMU 12 (Spokane) (Figs 1 and 2).

HERD AREA DESCRIPTION

Location

The range of the Selkirk elk (*Cervus elaphus nelsoni*) herd encompasses about 37,500 sq kilometers (14,500 sq miles) in northeastern Washington, and includes all or parts of Pend Oreille, Stevens, Ferry, Spokane, Lincoln, Whitman and Okanogan Counties. The current herd boundary is defined by 15 GMUs and the Spokane, Kalispel, and Colville Indian Reservations. (Figs 1 and 2).

Land Ownership

The land north of the Spokane River is an interspersion of public, private, and tribal ownership. Public ownership accounts for about 48% of the non-tribal land (Table 1). The USFS, mainly the Colville National Forest, manages the largest share of the Pend Oreille sub-herd elk range, but these elk also spend considerable time on adjacent private farms and industrial timberlands. Elk also use the Idaho Panhandle National Forest of eastern Pend Oreille County, but in lower numbers. Private industrial forest landowners, including Forest Capital Partners, Riley Creek Lumber Company, Inland Empire Paper, and Stimson Lumber Company own major portions of the elk range. State forest land managed by the DNR is another major component. Small numbers of elk can also be found on the USFWS's Little Pend Oreille National Wildlife Refuge. The Department owns very little elk range in this area. Tribal lands within Washington State used by Selkirk elk include the Colville Indian Reservation in Ferry County, the Spokane Indian Reservation in Stevens County, and the Kalispell Indian Reservation in Pend Oreille County. Just north of Spokane, Washington State Parks owns Riverside and Mt. Spokane State Parks that are also potentially used by elk.

Table 1. Public land ownership of the Selkirk herd area. Tribal ownership has been excluded. Some public holdings such as State Parks, DOD, and County and Municipal ownerships are included in the public lands total but are not detailed in the detail columns.

		---------- Square Miles ----------							
GMU	Name	Total	Public	DNR	USFS	USFWS	BLM	BOR	WDFW
Pend Oreille Sub-herd (PMU 10)									
204	Okanogan East	999	479	75	374	-	12	-	17
101	Sherman	1,103	807	52	728	-	14	3	11
105	Kelly Hill	296	143	32	86	-	7	18	-
108	Douglas	289	75	43	23	-	6	2	-
111	Aladdin	454	306	58	242	-	5	-	-
113	Selkirk	736	567	28	537	-	-	-	1
117	49 Degrees North	954	426	65	294	63	1	-	-
121	Huckleberry	796	175	117	-	-	20	38	-
124	Mount Spokane	771	86	58	-	-	-	-	-
Total		6,399	3,065	529	2,285	63	65	61	29
Spokane Sub-herd (PMU 12)									
127	Mica Peak	509	28	18	-	-	-	-	-
130	Cheney	940	109	45	-	25	14	-	-
133	Roosevelt	555	69	29	-	-	7	14	-
136	Harrington	1,585	181	69	-	-	82	-	30
139	Steptoe	1,327	70	51	-	-	9	-	-
142	Almota	774	74	38	-	-	1	-	-
Total		5,690	531	249	0	25	113	14	30

Figure 1. Selkirk herd area: Pend Oreille sub-herd range.

Green or yellow shading shows the sub-herd area. Yellow shading differentiates tribal lands, and diagonal lines show the Colville Reservation North Half.

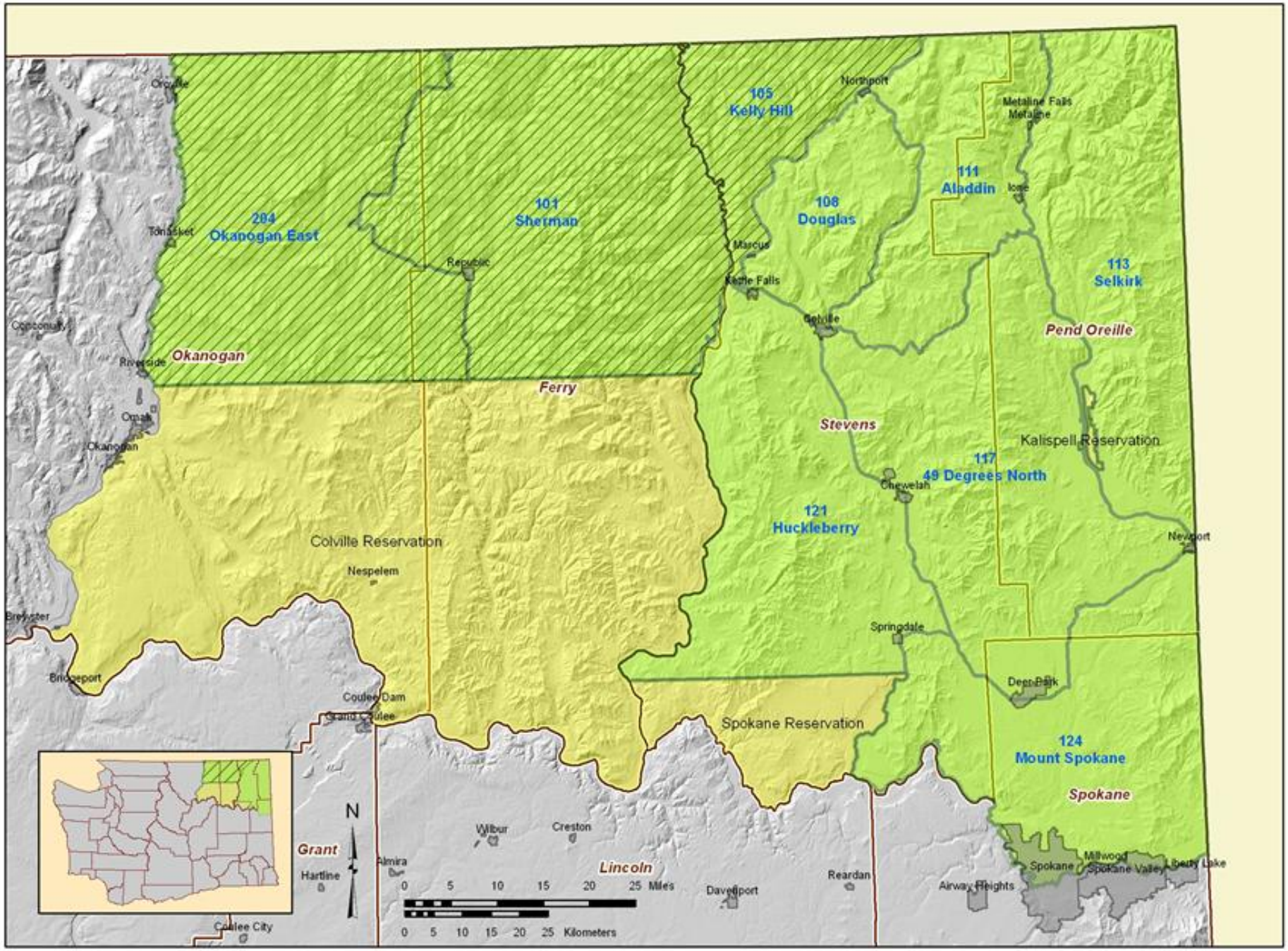
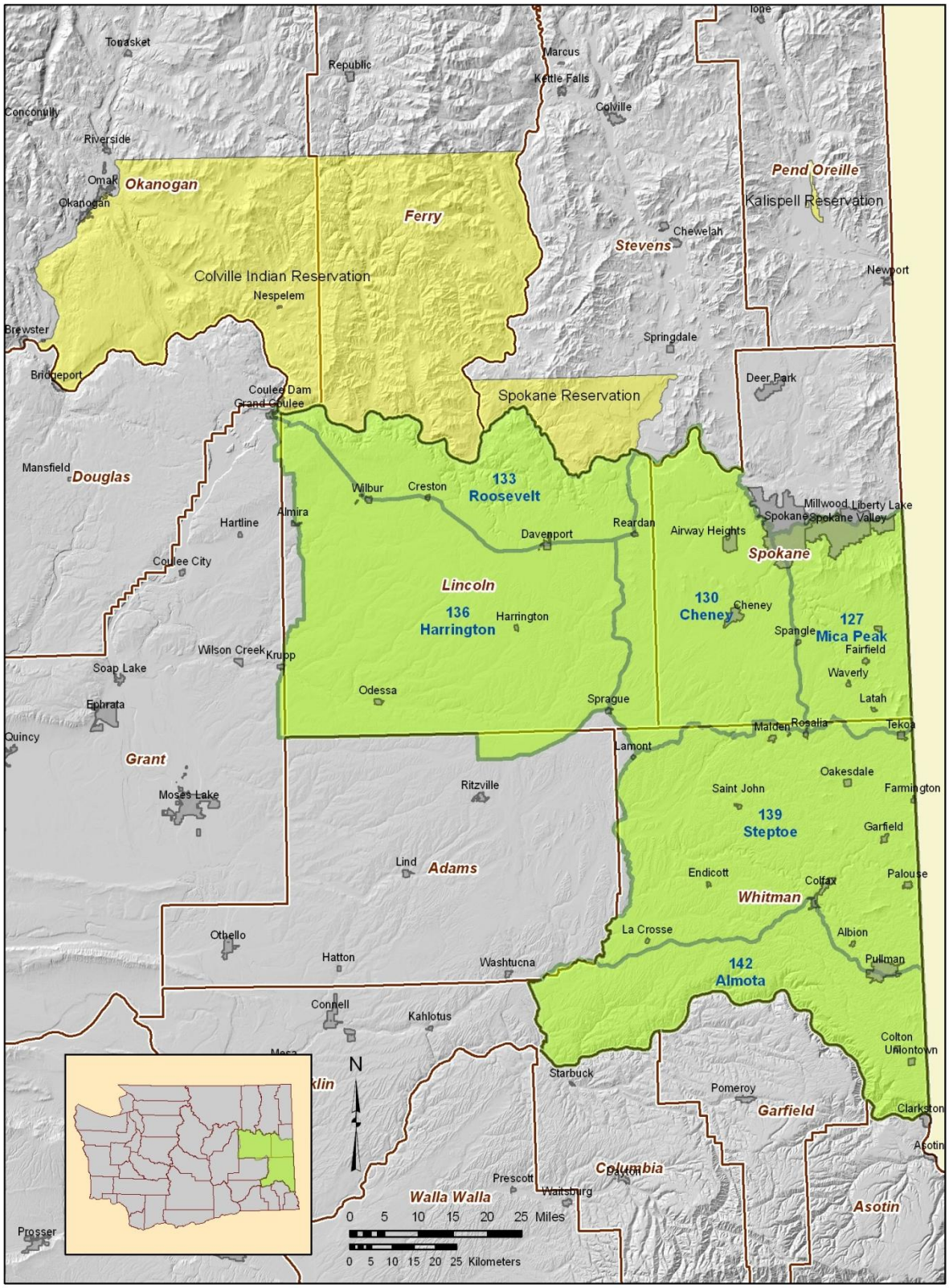


Figure 2. Selkirk herd area: Spokane sub-herd range.

Green shading shows the sub-herd area. Yellow shading shows adjacent tribal lands.



South of the Spokane River only 9% of the Spokane sub-herd range is publicly owned (Table 1). In comparison, that is about 1/5th the public land available north of the Spokane River. South of the Spokane River elk depend almost entirely on private land, with the exception of those that use the USFWS's Turnbull National Wildlife Refuge.

Topography, Vegetation, and Climate

The elk of the Selkirk Elk Herd exploit many diverse habitats. Elevations in the Selkirk Elk Herd area range from 366 meters (1,200 feet) at Keller Ferry along the Columbia River to 2,230 meters (7,309 feet) at Gypsy Peak in north Pend Oreille County. Elk are more common at the mid-range elevations from 610-1,220 meters (2,000-4,000 feet) than at higher elevations.

PMU 10 (the Pend Oreille sub-herd area) is a region of forested mountains and foothills, with agricultural development common in the valley bottoms. Dense conifer forests, with an abundance of shrubs and forbs, dominate the landscape. Elk make extensive use of meadows, old homestead pastures, and the few natural openings within the forest. Timber management and fire events, both prescribed and wild, create and maintain important elk use areas, which are often adjacent to mature forest stands that provide security cover.

The climate of PMU 10 is characterized by warm, dry summers and cool, moist winters with considerable snow accumulation at higher elevations. At Chewelah, an area representative of valley-bottom elk winter range with an elevation of about 515 m (1,690 ft), mean annual precipitation was 53 cm (21 inches) and mean annual snowfall was 107 cm (42 inches) for the period 1947 to 2005. At this elevation, mean daily snow depth during these years did not exceed 23 cm (nine inches) although extremes did reach as high as 86 cm (34 inches) (National Weather Service data; Chewelah Station). Parker et al. (1984) demonstrated that for elk the energy expenditure of locomotion increased as snow depth increased, and snow accumulation above 46 cm (18 inches) likely restricted distribution.

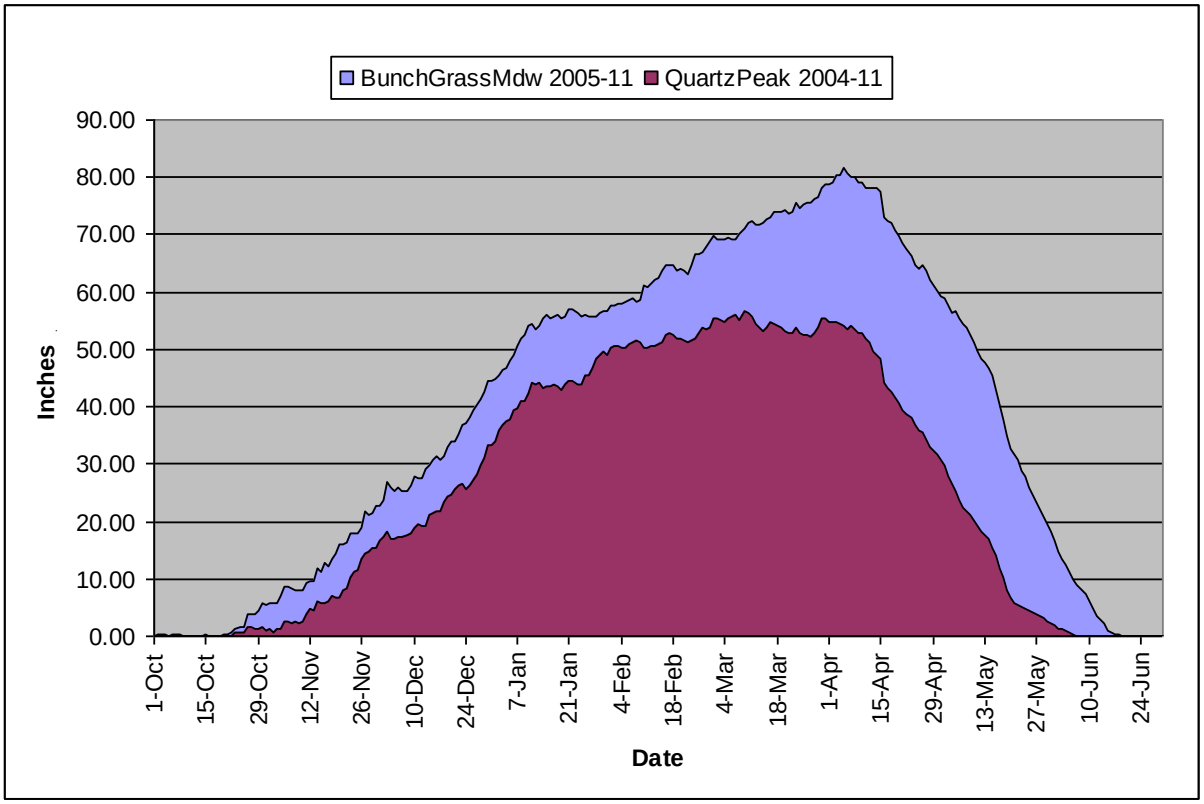
At higher elevations in the Pend Oreille sub-herd area snow accumulation frequently reaches the depths that restrict elk movement and limit winter forage availability, encouraging migrations to lower elevations. As an example, two SNOTEL sites (Fig 3) in the Pend Oreille Sub-herd area recorded average snow depths exceeding 46 cm from late November to mid-May. By mid-winter elk no longer frequent clear-cuts and shrub fields above 1,070 meters (3,500 feet) elevation. Winter range in PMU 10 is limited for all ungulates; consequently, elk, deer, and moose often forage on the same mid elevation sites.

PMU 12 (the Spokane sub-herd area) consists of agricultural or remnant shrub steppe plains, hills, and canyons. PMU 12 is drier than PMU 10, transitioning from forest to shrub-steppe. Here conifer woodlands are interspersed with urban, suburban housing, and large agricultural areas - primarily commercial hay and grain fields. Elk find security cover in the rugged canyons and coulees of areas such as Hangman (Latah) Creek and Rock Creek Canyon, and on the forested slopes of Mica Peak and Tekoa Mountain; they also exploit the diverse habitats of the Turnbull NWR. Elk in this PMU also make frequent movements into Idaho. In areas where the herd is expanding into shrub-steppe habitat, elk frequently favor the greener, wind protected coulees, or use private land enrolled in the federal Conservation Reserve Program (CRP).

The climate in PMU 12 is drier than in PMU 10. The mean annual precipitation measured at Rosalia, Washington for the period 1893 to 2010 was 18 inches. Snow accumulation for most

years is not a limiting factor for elk foraging in this PMU. While mean annual snowfall at Rosalia was 27 inches, average monthly snow depth did not exceed 3 inches for the period of record, which is representative of the entire PMU 12 area (Western Regional Climate Center http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?wa7180).

Figure 3. Comparison of mean daily snow depth at Selkirk herd area SNOTEL Sites*.



*Quartz Peak, SNOTEL Site Number 707, Spokane County. Latitude: 47 deg; 53 min N Longitude: 117 deg; 5 min W Elevation: 4700 feet.
Bunchgrass Mdw, Snotel Site Number 376, Pend Oreille County, Latitude : 48 deg, 41 min N Longitude: 117 deg, 11 min W Elevation: 5000 feet.

Human Influences

The greatest conflicts between elk and humans are related to agriculture damage and nuisance problems. The human population of the Selkirk elk herd area is estimated to be more than 600,000, including six counties in Region 1 and part of Okanogan county in Region 2 (Figs 1 and 2), (Washington Office of Financial Management [WOFM] 2010). More than 75% of those live in Spokane County, which has a population density greater than 100 people per km^2 (259 per mi^2). People living in the incorporated areas of Ferry, Lincoln, Pend Oreille, Spokane, Stevens, and Whitman counties total 389,645 with Spokane County accounting for 85%. The unincorporated region-wide population total is 200,005, with Spokane County accounting for 69%. Mean population density for the areas outside Spokane County is less than 8 people per km^2 (20 per mi^2).

Portions of both sub-herds within Spokane County are especially impacted by urban and suburban development and agricultural production. Since 2001, population growth in the unincorporated portions of Spokane County has increased by 51%, an increase of over 100,000

people (WOFM 2010). Private land access can be extremely difficult for elk hunters within Spokane County.

Like many rural areas, it is commonly assumed that the economic base for the Pend Oreille sub-herd area is largely tied to agriculture, timber production, and outdoor recreation. However, it appears that few workers in the Pend Oreille sub-herd area depend directly upon this segment of the economy (Table 2), with the exception of Okanogan County, which has few elk.

Table 2. Monthly average number of employees for each county in the Selkirk Herd area by industry for 2008 FY. (WOFM 2010)

Industry	COUNTY							
	Pend Oreille Sub-herd Area				Overlaps Both Sub-herds	Spokane Sub-herd Area		
	Pend Oreille	Stevens	Ferry	Okanogan	Spokane	Lincoln	Adams	Whitman
Agric., Forestry, Fishing & Hunting	45	352	68	5,219	562	281	1,412	425
Mining	*	70	*	113	*	*	--	*
Utilities	--	*	--	36	*	*	*	*
Construction	109	552	98	706	12,567	168	120	434
Manufacturing	333	1,377	*	316	17,765	41	1,020	*
Wholesale/Retail Trade	*	1,393	*	2,121	36,514	441	933	1,912
Transp. & Warehousing	55	244	5	136	5,250	38	323	220
Information	43	90	13	119	3,014	26	41	167
Fin., Ins., & Real Estate	105	212	45	370	12,469	92	105	490
Professional & Tech. Services	39	139	21	229	8,755	85	47	239
Mgmnt of Companies & Enterprises	--	*	*	36	2,590	--	--	15
Administrative & Waste Services	*	144	16	205	10,313	*	71	83
Educational Services	*	17	--	26	3,494	*	*	10
Health Care & Social Assistance	103	1,494	*	1,226	32,702	93	483	1,317
Arts, Entertainment,& Recreation	*	*	*	122	2,786	45	*	148
Accommodation & Food Services	202	610	92	1,195	17,544	132	455	1,384
Other Svcs, except Public Admin.	226	513	50	500	9,048	97	253	277
Government	1,406	3,057	966	5,024	33,784	1,394	1,537	7,838
Not Elsewhere Classified	548	221	332	--	770	49	36	1,527
Total	3,213	10,485	1,705	17,698	209,928	2,981	6,834	16,485

Note: An entry of "*" indicates data suppressed for confidentiality. An entry of "--" means that there is no employment in that category in that county

Economists often use the Location Quotient (LQ) statistic to assess the importance of different segments of a local economy. The LQ is the ratio between a local economy and the economy of some reference unit, such as the state or nation. This ratio is calculated for all industries to determine whether or not the local economy has a greater share of that industry than expected. The LQ is the most typical indicator used to describe a community's economic base. The economic base consists of those sectors that have an LQ greater than 1.0. This means that for a local area the percentage of employment in that economic sector was greater than the percentage of employment in that sector statewide. Table 3 shows the calculated LQs for each county by industry SuperSector.

The Accommodation and Food Services sector would benefit from elk hunting, but those data that are available indicate that LQ is below the statewide average in most counties in the Selkirk Elk Area as well (Table 3). Data are not available to determine what proportion of the overall Accommodation and Food Services sector LQ can be attributed to elk hunting.

Retail Trade would also benefit from elk hunting. The Retail Trade LQ is above average in almost all of the counties within the Selkirk Elk Herd Area (Table 3). Data are not available to determine what proportion of the overall Retail Trade LQ can be attributed to elk hunting.

Within the Pend Oreille sub-herd area, Okanogan County stands out with an LQ of 11.40 for the SuperSector for "agriculture, forestry, fishing and hunting". Stevens and Ferry Counties are just about 1.0, meaning they are at the statewide average, and Pend Oreille is 0.67 (Table 3).

Table 3. Location quotients by county for SuperSector categories[**]. Green shading highlights categories with values greater than 1.0.

	COUNTY							
	Pend Oreille Sub-herd Area				Overlaps Both Sub-herds	Spokane Sub-herd Area		
SuperSector	**Pend Oreille**	**Stevens**	**Ferry**	**Okanogan**	**Spokane**	**Adams**	**Lincoln**	**Whitman**
Agriculture, forestry, fishing and hunting	0.67	0.96	1.05	11.40	0.08	6.64	4.85	ND
Construction	0.86	0.99	2.52	0.66	0.98	0.33	1.43	0.68
Manufacturing	1.60	1.37	ND	0.23	0.79	1.71	0.20	1.61
Wholesale trade	0.07	ND	ND	0.34	1.10	1.33	2.76	1.32
Retail trade	1.09	1.31	1.51	1.08	1.13	0.81	1.15	1.05
Transportation and warehousing	0.91	0.93	0.16	0.21	0.85	ND	ND	ND
Information	0.64	0.31	0.40	0.21	0.37	0.18	0.33	0.43
Finance and insurance	1.31	0.46	0.61	0.43	1.37	0.33	1.30	0.66
Real estate and rental and leasing	0.91	0.47	1.15	0.49	0.84	0.32	0.32	1.29
Professional and technical services	0.40	0.31	0.38	0.25	0.74	0.14	0.74	0.40
Management of companies and enterprises	NC	ND	ND	ND	1.02	NC	NC	ND
Administrative and waste services	0.13	ND	ND	ND	1.04	0.15	0.11	0.20
Educational services	ND	0.13	NC	0.19	1.48	ND	ND	0.07
Health care and social assistance	ND	1.62	1.14	0.68	1.48	ND	ND	1.13
Arts, entertainment, and recreation	ND	1.02	ND	0.42	0.78	ND	1.17	0.83
Accommodation and food services	ND	0.89	ND	0.91	1.04	ND	0.72	1.70
Other services, except public administration	2.83	1.46	1.97	0.82	1.06	1.01	1.23	0.65

[**] U.S. Bureau of Labor Statistics - LQ Calculator accessed 4-27-2011

Note: An entry of ND indicates data are suppressed for confidentiality. An entry of NC means that there is no employment in that category in that county, or that the number is too small to calculate.

These numbers are a bit misleading however, and detail at the Sector level for "agriculture, forestry, fishing and hunting" helps clarify (Table 4). For most Pend Oreille sub-herd counties the sector "forestry and logging" contributes to the economic base. Okanogan County alone has "crop production" and its related sectors important to the base. In every county, the contribution by "fishing, hunting and trapping" is too small to calculate (Table 4).

Table 4. Location quotients by county for Sector categories within SuperSector NAICS 11: Agriculture, forestry, fishing and hunting[**]. Green shading highlights categories with values greater than 1.0.

	COUNTY							
	Pend Oreille Sub-herd Area				Overlap Both Sub-herds	Spokane Sub-herd Area		
SuperSector/Sector	Pend Oreille	Stevens	Ferry	Okanogan	Spokane	Adams	Lincoln	Whitman
Agriculture, forestry, fishing and hunting	0.67	0.96	1.05	11.40	0.08	6.64	4.85	ND
Crop production	ND	0.38	NC	14.33	0.07	5.27	5.71	1.66
Forestry and logging	13.31	11.38	22.13	2.36	ND	NC	NC	NC
Fishing, hunting and trapping	NC	NC	NC	NC	ND	NC	NC	NC
Agriculture and forestry support activities	ND	0.99	ND	7.52	0.12	ND	2.69	ND
Support activities for crop production	NC	ND	NC	7.94	0.01	ND	2.96	0.59
Support activities for forestry	ND	14.02	ND	ND	1.54	NC	NC	NC

[**]U.S. Bureau of Labor Statistics - LQ Calculator accessed 4-27-2011

Note: An entry of ND indicates data are suppressed for confidentiality. An entry of NC indicates that there is no employment in that category in that county, or that the number is too small to calculate.

Although extremely important to outdoor recreationists and the Department, per the U.S. Bureau of Labor's LQ statistics it appears that hunting, fishing, and trapping have little direct economic impact on the counties that make up the Selkirk Elk Herd Area.

Other Related Species

In recent decades the Selkirk elk herd has expanded its range into what has historically some of the better deer range of the state. Selkirk elk generally use the same areas as white-tailed deer (*Odocoileus virginianus*), and to a lesser degree, mule deer (*Odocoileus hemionus*). Elk and moose (*Alces alces*) also browse the same forested habitat within the Selkirk Elk Herd range. Sheehy and Vavra (1996) concluded that temporal and spatial separation of ungulates reduces potential for forage resource conflicts.

On the Starkey Experimental Forest in Oregon, radio marked mule deer and elk were used to assess habitat selection. Space use and habitat selection differed between mule deer and elk; evidence suggested deer avoided interactions with elk. Elk were not as strongly affected by deer space use (Johnson et al. 2000). Stewart et al. (2003) looked at diet composition for elk, cattle and mule deer also on the Starkey Experimental Forest. Using stable isotope ratios from fecal pellets they concluded that dietary niche separation existed for all 3 species. In the same study, space use measured via radio marked animals indicated avoidance mechanisms for elk, mule deer, and cattle. Mule deer and elk avoided each other in short temporal windows, but did show some overlap in space use over longer temporal windows (Stewart et al. 2002). In another study

in sage steppe habitat in southeast Idaho researchers looked at habitat selection between elk and mule deer. During winter, habitat selection differed between mule deer and elk; during summer, habitat selection did not differ, but within-habitat use of resources did (Stewart et al. 2010).

As lower elevation, winter range, habitats are lost to development and animals are concentrated on smaller areas, the potential for competition may increase. When such conditions occur, elk management will have to incorporate considerations to minimize competitive interactions with other ungulates (Miller 2002). Different ungulate species vary in their use of seasonal habitats, diets, susceptible to diseases, responses to predators, and harsh weather. A higher diversity of ungulate species may provide greater stability in the ungulate community, available forage, and recreational opportunity.

The elk range in the Selkirk GMU in northern Pend Oreille County includes about 559 sq kilometers (216 sq mi) of the recovery area of the endangered mountain caribou (*Rangifer tarandus caribou*). However, elk and caribou seldom use the same high elevation habitats and caribou habitats tend to be poor habitat for other ungulates [Mountain Caribou Technical Advisory Committee (MCTAC) 2002]. Although some overlap in forage selection does occur in spring caribou habitat, the low numbers of caribou produce little effect on elk numbers. However management of habitat to support caribou at other times of the year may reduce its suitability for elk, but the effect is likely minor because these are not core areas for elk.

HERD DISTRIBUTION

Historic Distribution

Archeological evidence indicates that elk were once widely distributed in eastern Washington. Coullier et al., (1942) reported numerous split elk bones from archeological sites along the upper Columbia River from Marcus down to Hellgate, indicating that elk meat was an important part of the diet of indigenous people of this area. By the late 1800's, year-round subsistence and commercial hunting eliminated Rocky Mountain elk in eastern Washington, except for possibly some remnant animals in the Blue Mountains.

Elk in the Selkirk herd originated from several releases into Stevens and Pend Oreille counties, British Columbia and on tribal lands. In 1915 elk from Montana (Yellowstone National Park) were reintroduced into Stevens County. There was also a small reintroduction of six elk to the Sullivan Lake area of Pend Oreille County in 1930 (Pautzke et al. 1939). These were animals that Manito Park in the City of Spokane could not care for during the depression era. The results of the release were closely monitored and recorded, and by 1946 staff with the Colville National Forest at Sullivan Lake reported sightings of elk from "all over the district." Also in the 1930s a release was made in British Columbia north of Washington's border in the area of Gladstone Provincial Park. In 1950 an either-sex hunting season was established in northeast Washington with 14 animals reported being taken. This was the first year that elk were observed west of the Pend Oreille River as well as the year that the first official elk damage complaint was received from the Metaline Falls area (Colville National Forest 1950).

In 1969 five captive elk from the Seattle Zoo were released at Sullivan Lake. In 1969 and 1970, the Washington Department of Game translocated a total of 60 elk, captured near Yakima, to

Pend Oreille County. The Spokane Tribe of Indians and the Confederated Tribes of the Colville Indian Reservation have also made translocations of elk to their respective reservations within the last 25 years. (B.J. Kieffer, Spokane Tribe of Indians personal communication; S. Judd, Colville Confederated Tribes, personal communication). While details are not available, it is thought that these tribal translocations have resulted in elk groups on tribal lands that may have contributed to the general range expansion of elk in northeastern Washington.

Elk management in British Columbia has likely contributed to the Selkirk herd in Washington. Releases of elk beginning in the 1920s have bolstered natural expansion. By 2000, elk occupied all management units in the Kootenay Region of B.C (Szkorupa and Mowat, 2010).

In the winter of 2000 the Department captured 82 elk from the Arid Lands Ecology Reserve near Hanford, Washington to augment populations in central Pend Oreille County (GMUs 113 and 117). All elk reintroduced to northeast Washington are believed to have been Rocky Mountain elk, with ancestry traced to Yellowstone National Park. Table 5 summarizes the reintroduction history for the Selkirk Herd.

Table 5. Elk releases in the range of the Selkirk Elk Herd

Date	Location of release	Number released	Origin of elk
1915	E of Colville and Chewelah, Stevens County	40	Yellowstone National Park, MT
1927	N of Penticton, British Columbia [a]	25	Wainwright, Alberta
1930	Sullivan Lake Area, Pend Oreille County	6	Montana via Spokane Park
1969	E of River N of Ione, Pend Oreille County	34	Yakima, WA
1969	Sullivan Lake Area, Pend Oreille County	5	Seattle Zoo, WA
1970	W Branch LeClerc Creek, Pend Oreille County	26	Yakima, WA
1971	Grand Forks, British Columbia [a]	30	Banff National Park, B.C.
2000	Central Pend Oreille County	82	Hanford, Benton County, WA

[a] B. S. Harris, B.C. Ministry of Natural Resource Operations, personal communication.

In Kittitas County, the main Colockum herd developed from 45 Montana Rocky Mountain elk released near Boylston and driven north at Vantage in 1915 (Pautzke 1939). In 1939, the Colockum herd was estimated at 300-350. As this herd expanded into southern Chelan County conflicts with orchardists soon followed. In 1950, Chelan County was open to either sex elk hunting Oct. 28-Dec. 31. Concerns for Colockum elk crossing the Columbia River into the agricultural areas in the Columbia Basin created an Elk Area with an aggressive either sex season on Grant and Douglas counties in 1969. A separate Elk Area was established for Okanogan County in 1979. In, 1981 these areas were all combined and aggressive either sex elk seasons has been maintained in these counties, including GMU 204 in eastern Okanogan County. The main reason for these aggressive elk management is to minimize elk conflict with fruit growers.

Current Distribution

Prior to the 1970's the Selkirk Herd was primarily confined to northern Pend Oreille County. Beginning in the 1970's elk gradually expanded their distribution as their numbers grew. In the 1980 Big Game Status Report (Washington Game Department 1981) Selkirk Herd data was reported for the area equivalent to the current GMU 113 and indicated only 25 elk were harvested; 20 of those were bulls. Other units were too insignificant population and harvest-wise to warrant reporting. Today elk are relatively common in most of Pend Oreille, eastern and northwestern Stevens, and eastern and southwestern Spokane Counties. Elk are also present, but in fewer numbers within the rest of the Selkirk herd area, including portions of Ferry, Lincoln, and Whitman Counties.

On both the Spokane and Colville Indian Reservations, elk populations have become established through translocations by the Tribal wildlife departments since 1977. These elk groups continue to expand and have contributed to the presence of elk in the southern Huckleberry Mountain Range, Okanogan East, and northern Lincoln County areas. On the Coeur d'Alene Reservation, elk populations have remained abundant. CDA Tribal biologists have used radiotelemetry to document frequent movements of elk between Idaho and southern Spokane County.

Elk have substantially increased in the Spokane sub-herd since the late 1980's. While occasional elk observations were reported from the 1930's through 1970's, recreational harvest of elk was rare. The elk population began building in the late1980's. During the 1990's an increase in numbers and expansion of distribution occurred within the Spokane sub-herd, and this trend continues today. Elk have increased in GMU 130, especially on and adjacent to the Turnbull National Wildlife Refuge. In GMUs 133, 136, 139 and 142 isolated groups of elk have gained a foothold on private land.

Proposed Distribution

In the Pend Oreille sub-herd area, elk are widely distributed today but constrained by human population density in a few urban centers. Much of the area north of the Spokane River is heavily forested, with rugged, mountainous terrain, and current management practices by the Department will not change elk distribution. Habitat improvement projects or changing harvest strategies would more likely affect local elk density. In the Pend Oreille sub-herd area **the Department seeks to increase elk numbers in GMUs 101, 105, 108, 121 and 204**. Increasing the Pend Oreille sub-herd population from the current level (about 1,500) to an upper limit of 3,000 elk will increase the hunting and viewing opportunities, but may also create additional challenges for managing wildlife conflict related to agriculture.

In the Spokane sub-herd area, management by the Department can influence distribution, and aggressive harvest strategies can suppress local population levels. However, even here it is unreasonable to expect that elk can be eliminated from large areas or prevented from naturally expanding into new ones. Each year the management landscape here grows increasingly complex, emphasizing the conflicts between those who would like to see more elk and those who are less tolerant of elk. **The Department seeks to maintain the Spokane sub-herd population at today's current level (about 1,000) with an upper limit of 1,500 elk.** Where elk damage occurs, the Department will continue to attempt to control elk populations to balance them with landowner tolerance. Within more populated areas, the Department will work with county

planning departments and local non-governmental organizations (NGOs) to manage elk and to educate the public on living with elk in their communities.

HERD MANAGEMENT

Past Management

In the past, Game Management Units 111, 113, and 117, which contain large blocks of public or industrial timberlands, have been managed to encourage maximum elk distribution and numbers. In keeping with this approach, the general elk hunting season has been simple and consistent: any antlered bull has been legal for harvest. Antlerless hunting has been limited to a small number of permits to provide some additional opportunity or to address elk damage (See Appendix A for a summary of elk hunting seasons.). On farmland and in urban growth areas (in western Stevens, Ferry, Lincoln, Spokane, Whitman and Okanogan Counties) management by the Department has controlled elk numbers to help reduce landowner conflicts. Although season lengths remained consistent with the eastern Washington general seasons, general "either sex" harvest opportunities have helped control populations, minimizing crop damage and conflict within urban growth areas.

Estimated Population

Selkirk elk are mostly scattered in small groups throughout forested habitat. Surveys in these habitats present many challenges; formal statistical estimates have not been generated for the total population. Elk numbers have been assessed using localized surveys and hunter harvest data. The current Pend Oreille sub-herd is thought to be between 1,000 and 2,100 elk and the Spokane sub-herd between 1,000 and 1,500, making the total Selkirk herd less than 3,600 elk. Where the Selkirk Herd area borders Idaho and British Columbia, elk freely cross back and forth across borders.

Although survey data do not exist to permit precise estimates of the Selkirk Herd size, hunter effort and harvest trends suggest that the herd is stable or growing in all areas. In all areas, combined harvest for modern firearm hunting has increased since 2001, while both modern firearm hunter numbers and modern firearm hunter effort have remained relatively constant (Appendix E). Concurrently, the success rate has gone up and the number of days needed to harvest an elk has gone down. These trends would not likely occur together for a declining herd.

Harvest

Game harvest reports provide a means for reliable comparisons of antler point classes of bulls harvested. While not a reflection of age distribution in the living population, antler point classes in the harvest can be a useful index of classes of harvested bulls (e.g. adult, subadult, yearling). For the Pend Oreille sub-herd, the percentage of 6 point or greater bulls in the harvest has averaged 28% of all bulls harvested from 2005 to 2010 (Table 6), whereas for the Spokane sub-herd it has averaged 18% (Table 7).

Table 6. Antler point distribution from hunter harvested elk within GMUs 101-124, 204 (Pend Oreille sub-herd).

Year	1-2 points	3-5 points	6+ points	Total
2005	48 (39%)	48 (39%)	26 (21%)	122

2006	72 (44%)	46 (28%)	47 (28%)	165
2007	35 (26%)	57 (42%)	43 (32%)	135
2008	47 (33%)	50 (35%)	47 (33%)	144*
2009	79 (38%)	77 (37%)	50 (24%)	206*
2010	50 (27%)	58 (33%)	74 (41%)	182

*Some multiple-season permit harvest is not included in this total.

Table 7. Antler point distribution from hunter harvested elk within GMUs 127-142 (Spokane sub-herd).

Year	1-2 points	3-5 points	6+ points	Total
2005	40 (50%)	30 (38%)	9 (11%)	79
2006	37 (39%)	33 (34%)	26 (27%)	96*
2007	44 (44%)	37 (37%)	20 (20%)	101
2008	38 (33%)	46 (40%)	30 (26%)	114
2009	40 (39%)	48 (47%)	14 (14%)	102
2010	46 (41%)	48 (43%)	17 (15%)	111

*Some multiple-season permit harvest is not included in this total.

Herd Composition

GMU 130 (which includes the Turnbull NWR) is the only unit of the Selkirk herd area with reliable herd composition data. Since 2004, elk on the Turnbull National Wildlife Refuge (in GMU 130) have been surveyed with shared funding by USFWS and the Department. These data are derived from pre-season surveys, using helicopter counts, with an emphasis on and around Turnbull NWR. Bull:cow ratios have ranged from 17 to 42 bulls per 100 cows, with an average of 28. Calf:cow ratios have ranged from 50 to 76 calves per 100 cows, with an average of 59 (Table 8). No other units of the Selkirk herd area have received the same level of attention due to either lack of survey funds or an acceptable survey technique.

Table 8. Summary of Turnbull NWR aerial pre-season composition surveys.

Year	Bulls	Cows	Calves	Total	Ratio (bull/cow/calf)
2004	36	211	106	353	17 / 100 / 50
2005	No Survey Flown				
2006	49	207	113	369	24 / 100 / 55
2007	50	140	78	268	36 / 100 / 56
2008	61	145	110	316	42 / 100 / 76
2009	35	146	79	260	24 / 100 / 54
2010	66	248	146	460	27 / 100 / 59

Mortality

Recreational Harvest

From 2001 through 2010 the annual harvest for the Selkirk Herd averaged 380 elk, ranging from 229 to 526 (Tables 9 and 10). During this period hunters harvested an average of 225 antlered (range: 170-314) and 169 antlerless (range: 117-234) elk. Since 2001 the average annual harvest

in the Pend Oreille sub-herd has been 212 elk with an average of 141 antlered, and 71 antlerless elk (Table 9). Since 1985 the northeastern portion of the Pend Oreille sub-herd area (GMUs 111, 113 and 117) has been managed under an "antlered bull only" hunting season structure designed to foster population growth. Limited modern firearm antlerless permits were available to provide additional recreational opportunity and to reduce damage. Since 2001 a mean of 14 antlerless elk (ranging from 0 to 28) have been harvested annually from these GMUs. Since 1990, the aim of management in the remaining portion of the Pend Oreille sub-herd (GMUs 101, 105,121,124 and 204) has been to limit the growth and distribution of elk populations by allowing harvest of "any elk". Elk here are normally scattered and difficult for hunters to locate, which does affect success; however, the harvest of antlerless elk has been higher here than in the northeastern GMUs. Since 2001 a mean of 52 antlerless elk (ranging from 10 to 82) were harvested each year from these GMUs.

Table 9. Elk harvest and hunter numbers for the Pend Oreille sub-herd 2001–2010.

Year	Antlered	Antlerless	Total Harvest	Hunters	Hunter Days
2001	125	66	191	3,012	17,747
2002	87	30	117	3,015	17,799
2003	109	60	169	2,888	17,356
2004	128	74	202	3,211	20,267
2005	121	73	194	3,162	17,612
2006	165	70	234	3,654	21,075
2007	135	81	216	3,542	22,776
2008	145	61	206	3,865	25,791
2009	212	82	294	4,412	26,406
2010	182	110	292	4,553	25,224
Averages	141	71	212	3,606	21,228

Through the 1970's elk were rare in the Spokane sub-herd area. Beginning in the 1980's harvest was designed to limit elk numbers. In 1986, hunters harvested one elk in GMU 130. In recent years, 2001-2010, the average annual harvest for the Spokane sub-herd has increased to 169 elk with an average of 85 antlered, and 84 antlerless elk (Table 10). Shifting from permit controlled hunting to open general seasons in 1999 dramatically increased hunter participation and harvest. In the early 2000's, damage claims decreased because landowners now respond to increasing elk numbers by offering leased hunting access to their property. Whether the Department can achieve management goals from year to year in this area largely depends on continued landowner cooperation and weather conditions favorable to hunting during the season.

Table 10. Elk harvest and hunter numbers for the Spokane sub-herd 2001–2010.

Year	Antlered	Antlerless	Total Harvest	Hunters	Hunter Days
2001	61	56	117	2,551	7,126
2002	59	53	112	2,395	7,150
2003	61	66	127	2,264	6,082

2004	67	60	127	2,346	6,246
2005	77	117	194	2,188	5,042
2006	99	99	198	2,352	5,951
2007	101	76	177	2,346	6,463
2008	114	81	195	2,330	6,513
2009	102	102	204	2,564	6,401
2010	111	130	234	2,524	6,175
Averages	85	84	169	2,396	6,315

Tribal Hunting

Tribal elk hunting is presumed to not substantially affect the Selkirk Herd. The Spokane, Kalispel, and Coeur d'Alene Tribes do not have off-reservation hunting rights, so any elk hunting opportunity outside of the reservation is managed under state hunting regulations. State authorized hunters, including many state-licensed tribal members, hunt near the shared reservation boundaries of the Kalispel Tribe of Indians, the Spokane Tribe of Indians, and the Coeur d'Alene Tribe where habitat is contiguous and elk move on and off the reservations. Tribal wildlife departments manage for elk and set hunting regulations for tribal members within their reservations.

Members of the Colville Confederated Tribes retained hunting rights on the "North Half" of the original Colville Reservation, which includes northern Ferry County (GMU 101), Stevens County (GMU 105) west of the Columbia River, and part of Okanogan County (GMU 204) east of the Okanogan River. Elk harvests by Colville tribal members on the North Half are estimated at less than 10 elk annually. Elk harvest by state-licensed hunters in these three GMUs has averaged 23 elk (range 1 to 45) for the years 2001 to 2010. As the elk population increases in this area, elk may become more important to the tribe as a subsistence food resource. This plan is consistent with the Cooperative Agreement between the Colville Tribes and Washington Department of Fish Wildlife, April 4, 1998 (Appendix D). Non-tribal hunters may not take elk on the reservation under Article 15 of the Cooperative Agreement. The Cooperative Agreement also directs tribal and state biologists to collaborate and coordinate wildlife management efforts on the North Half.

Poaching

The level of poaching-caused mortality in the Selkirk Herd is unknown, although documented elk poaching has occurred. Three Washington studies found poaching ranged between 5.1 and 15% (Smith et al. 1994, Myers 1999, McCorquodale et al. 2010) and was influenced by road densities and distance to population centers. It is presumed that poaching within the Selkirk Herd is at a similar level and is affected by similar factors.

Predation

Predators that prey on elk include bobcat, lynx, coyote, black bear, grizzly bear, and cougar. In rural counties, domestic dogs can also be a source of predation. In recent years, gray wolves have recolonized a portion of the range of the Pend Oreille elk sub-herd. How this will impact the Selkirk elk population is yet unknown. Work done in Idaho found that wolf-caused predation on radio-marked cow elk reached as high as 20%, although in most zones it was lower (1-5%; Idaho Fish and Game 2011).

No studies of elk mortality have been carried out in the Selkirk Herd area. A study of mortality in the Blue Mountains of Washington found that predation was the third most common cause of mortality for elk older than 1-year, tallying 10 of 72 mortalities with known causes, or about 14% (McCorquodale et al. 2010). Elk in the Spokane sub-herd are probably less affected by predation than those in the northern mountainous portion of the Pend Oreille sub-herd. Hunter harvest provides some insights into bear and cougar numbers and distributions. Table 11 shows hunter harvest for black bear and Table 12 shows hunter harvest for cougar. This suggests that bear and cougar numbers are likely higher north of the Spokane River in the Pend Oreille sub-herd area than in the Spokane sub-herd area.

Table 11. Black bear harvest by GMU for the Selkirk herd area

	TOTAL BEAR HARVEST									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Pend Oreille Sub-herd										
101 - SHERMAN	54	80	48	34	47	83	57	52	64	85
105 - KELLY HILL	19	36	28	15	27	43	37	22	26	29
109* - THREEFORKS	33	56	NA	NA	NA	NA	NA	NA	NA	NA
108 - DOUGLAS	NA	NA	15	6	13	13	23	13	18	21
111 - ALADDIN	NA	NA	23	7	18	40	41	22	29	39
113 - SELKIRK	20	45	41	22	36	66	56	36	21	49
117 - 49 DEGREES NORTH	15	61	44	15	53	60	73	40	59	56
121 - HUCKLEBERRY	61	90	51	32	64	78	86	73	52	60
124 - MOUNT SPOKANE	22	30	16	12	23	23	32	21	28	19
204 – OKANOGAN EAST	35	45	58	47	53	35	39	45	45	33
Spokane Sub-herd										
127 - MICA PEAK	5	8	2	3	3	5	10	5	4	1
130 - CHENEY	1	2	0	0	2	1	0	0	0	0
133 - ROOSEVELT	1	6	2	1	8	3	3	9	3	8
136 - HARRINGTON	1	0	0	0	0	0	0	0	0	0
139 - STEPTOE	0	1	1	0	0	1	0	0	0	0
142 - ALMOTA	2	0	1	0	1	0	2	0	0	0

*In 2003 GMU 109 was divided into GMUs 108 and 111.

Table 12, Cougar harvest by GMU for the Selkirk herd area

	TOTAL COUGAR HARVEST									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Pend Oreille Sub-herd										
101 - SHERMAN	19	20	16	13	15	8	14	6	10	8
105 - KELLY HILL	6	5	3	4	10	6	6	2	4	9
109* - THREEFORKS	21	9	NA	NA	NA	NA	NA	NA	NA	NA
108 - DOUGLAS	NA	NA	8	7	2	1	9	2	1	4
111 - ALADDIN	NA	NA	5	7	4	3	2	3	1	5
113 - SELKIRK	15	7	1	5	10	2	6	7	4	4
117 - 49 DEGREES NORTH	13	9	20	5	6	9	5	6	4	5
121 - HUCKLEBERRY	12	8	8	5	5	4	9	1	2	5
124 - MOUNT SPOKANE	11	11	9	3	6	6	6	5	5	4
204- OKANOGAN EAST	12	17	15	7	10	9	6	5	4	1
Spokane Sub-herd										
127 - MICA PEAK	2	0	0	2	0	1	0	0	0	0
130 - CHENEY	2	0	0	0	0	1	0	0	0	1
133 - ROOSEVELT	2	4	1	7	7	4	2	4	6	2
136 - HARRINGTON	0	0	0	0	0	0	0	0	1	1
139 - STEPTOE	0	0	0	0	0	0	0	0	0	0
142 - ALMOTA	0	0	0	0	0	0	0	0	0	0

*In 2003 GMU 109 was divided into GMUs 108 and 111.

Gray Wolf

Gray wolves require a prey base of ungulates to be successful. In Washington, the primary prey species will be elk, moose, and deer. Secondary prey will likely include rabbits, rodents, birds, etc. Gray wolves are naturally expanding their range into Washington from populations in adjacent states and British Columbia and establishing packs defined as "two or more animals traveling together" (WDFW 2011). As of January 2012, three gray wolf packs had denned in northeast Washington: one using Pend Oreille and Stevens Counties, one that has about 25% of its territory in Idaho and the rest in Pend Oreille County, and one that overlaps portions of Pend Oreille County and British Columbia. There is a fourth pack that dens and mostly ranges in Idaho, but also extends into British Columbia and a small portion of Pend Oreille County.

Estimates in the Draft Wolf Conservation and Management Plan (WDFW 2011) suggest that, if they were only preying on elk wolves may kill and consume 17 elk per wolf per year. In May of 2011, wolves were delisted under the federal Endangered Species Act in the eastern one-third of Washington (east of State Route 97 from the Canadian border to Highway 17, east of Highway 17 to State Route 395, and east of State Route 395 to the Oregon border). The described area includes the entire Selkirk herd area. However, the gray wolf remains listed by Washington as an endangered species throughout the state, and the Department retains authority for wolf management in the Selkirk herd area and continues to extend it protection as a state endangered species.

Black Bear and Grizzly Bear

Washington is divided into 9 black bear management units. One of those units overlaps the Selkirk Elk Herd range. Black bear predation on elk typically comes in the form of predation on

calves during the first few weeks of life and its extent varies across black bear populations. Although grizzly bears are capable of preying on both young and adult elk, grizzly bear numbers are so low that they will have a negligible influence on the dynamics of the Selkirk Herd.

Black bears are classified as game animals and are hunted under the big game hunting season structure. The current black bear hunting season guidelines are designed to maintain black bear populations at their current level and those population levels are not expected to result in increased impacts to elk populations. The metrics used to direct black bear harvest include the percent of females in the harvest, the median age of harvested females, and the median age of harvested males. The black bear harvest guidelines are specified in the Game Management Plan 2009-2015 (WDFW 2008:80). At the time of this writing, the objectives for male median age in the harvest and percent of female bears in the harvest are both being met. The median age of females in the harvest is currently below objective.

Cougar

Cougar are capable of preying on both juvenile and adult elk. Cougars are classified as game animals and are hunted under the big game hunting season structure.

Washington is divided into 9 cougar management units (CMUs). One of those units, the Northeastern CMU, overlaps with the Selkirk Elk Herd range. The northeastern CMU is further divided into 3 cougar hunt zones- Okanogan-Ferry, Stevens-Pend Oreille, and Spokane. Female harvest quotas and total harvest quotas are set at the cougar hunt zone level.

Population objectives are met by managing for an annual female cougar harvest quota (WDFW 2008:89-94). Most cougar populations are managed to maintain a stable population. Cougar management objectives are being met in all parts of the northeastern cougar management unit (D. Martorello, Washington Department of Fish and Wildlife, personal communication).

Coyote

Coyotes are ubiquitous in Washington and occur on all of the Selkirk Elk Herd's range. Coyotes can prey on calves in the spring, usually in the first few weeks of life. They rarely cause adult elk mortality.

Currently there are year-round seasons with no bag limits related to coyote hunting. Coyote hunters must possess either a small game license or a big game license to hunt coyotes. Coyote harvest is typically ancillary to another active hunting season occurring at the time. Hunters that specifically target predators like coyotes are most active during the winter months, but those numbers are likely small. The Department assesses the coyote harvest via the small game harvest survey and trapper catch reports. Reported coyote harvest has declined since 2000 when Voter Initiative 713 made trapping more restrictive.

Bobcat and Lynx

Bobcats are distributed throughout the range of the Selkirk Elk Herd. Lynx are found in the northern tier of the herd range. Although not typically thought of as preying on elk, bobcats and lynx are capable of preying on calves.

The bobcat hunting season runs from September 1 to March 15. A small game license is required to hunt bobcat. The Department assesses the bobcat harvest via trapper catch reports and CITES

carcass checks. Reported bobcat harvest has declined since 2000 when Voter Initiative 713 made trapping more restrictive. Densities of lynx are low, they are protected under the federal Endangered Species Act, and as a Washington Species of Concern, and they are not hunted or trapped in Washington.

SOCIAL AND ECONOMIC VALUES

Economic Value

The 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reported that trip and equipment expenditures for big game hunting in 2006 averaged $1,100 per hunter (U. S. Department of Interior, et al. 2007). There were 7,077 elk hunters who reported hunting the Selkirk Herd in 2010 (WDFW unpubl data). Using the $1,100 average expenditure per hunter from the National Survey, Selkirk Herd elk hunters are projected to have added approximately $7.78 million to the local and state economy in 2010. The Pend Oreille sub-herd area accounted for 4,553 of the reported hunters, potentially generating more than $5 million in expenditures.

Number of Elk Hunters

The number of hunters that hunted the Selkirk Herd between 2001 and 2010 has been increasing. All of the increase is contributed by the Pend Oreille sub-herd hunter effort (Fig 4). For the Pend Oreille sub-herd, hunter numbers have ranged from a low of 2,888 in 2003 to a high of 4,553 in 2010 and averaged 3,606 annually (Table 9). For the Spokane sub-herd, hunter numbers ranged from a low of 2,188 in 2005 to a high of 2,564 in 2009, and averaged 2,396 hunters annually (Table 10). Hunters expended more effort in the Pend Oreille sub-herd area than in the Spokane sub-herd area (Fig 5).

Hunting

The Department's mission includes providing hunting recreation while conserving the state's wildlife populations. Every three years the Fish and Wildlife Commission adopts hunting seasons. This three-year hunting package serves as the state's harvest plan, regulating hunting and limiting harvest. Each year the Commission establishes special permit seasons and necessary amendments. As part of this process each Region recommends to the Commission season dates and permit levels for each GMU. Tribal participation in the season setting process occurs at the regional level.

Elk hunting on the entire Selkirk Herd area has been managed without antler point restrictions, under "any bull" or "any elk" seasons. To date, these popular season structures have not compromised bull escapement, and have allowed anyone with an Eastern Washington elk tag the opportunity to harvest an elk.

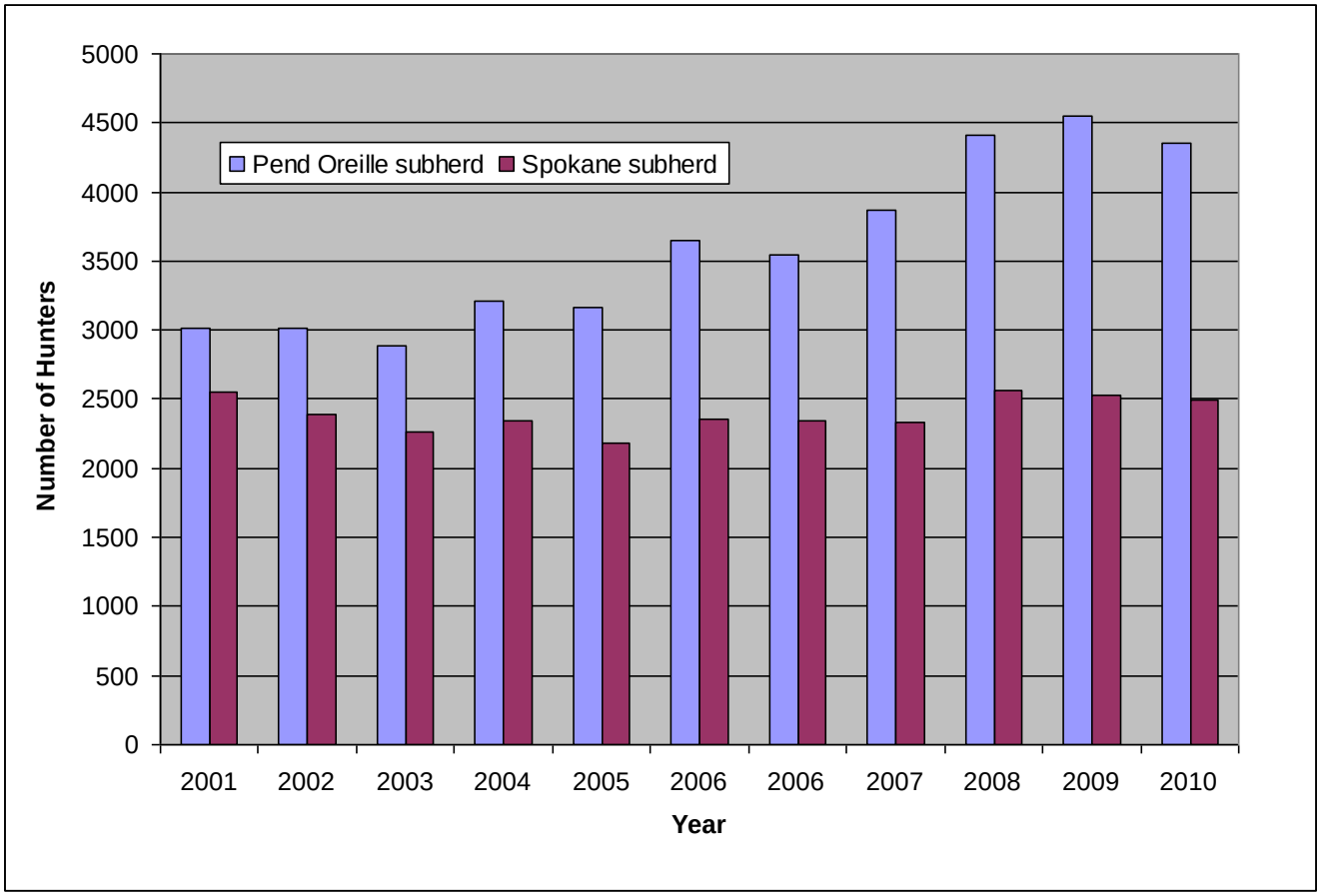
Table 13. Antlerless elk permit hunting activity in GMUs 111, 113 and 117, 2001 – 2010.

Year	Permits	Reports Returned	Hunters	Antlerless Elk Harvested
2001	30	29	25	4
2002	45	41	27	7
2003	55	54	41	6
2004	65	61	52	4
2005	75	71	63	5
2006	95	85	58	6
2007	120	121	76	10
2008	120	113	65	20
2009	116	110	76	16
2010	120	109	87	25

Antlerless hunting opportunity in the eastern portion of the Pend Oreille sub-herd (GMUs 111, 113, and 117) has been regulated through the use of a limited number of "any elk" permits. In these units hunters reported 8 to 31 percent success with a mean of 18 percent, over the period 2001-2010. Out of the 795 permits issued, 103 antlerless elk were reported taken (Table 13). This low harvest rate suggests that antlerless permit hunting in this area offers added hunter opportunity with minimal impact to the elk population. However, the low numbers of special permits, valid only during the general elk hunts do not result in effective population reduction and damage control.

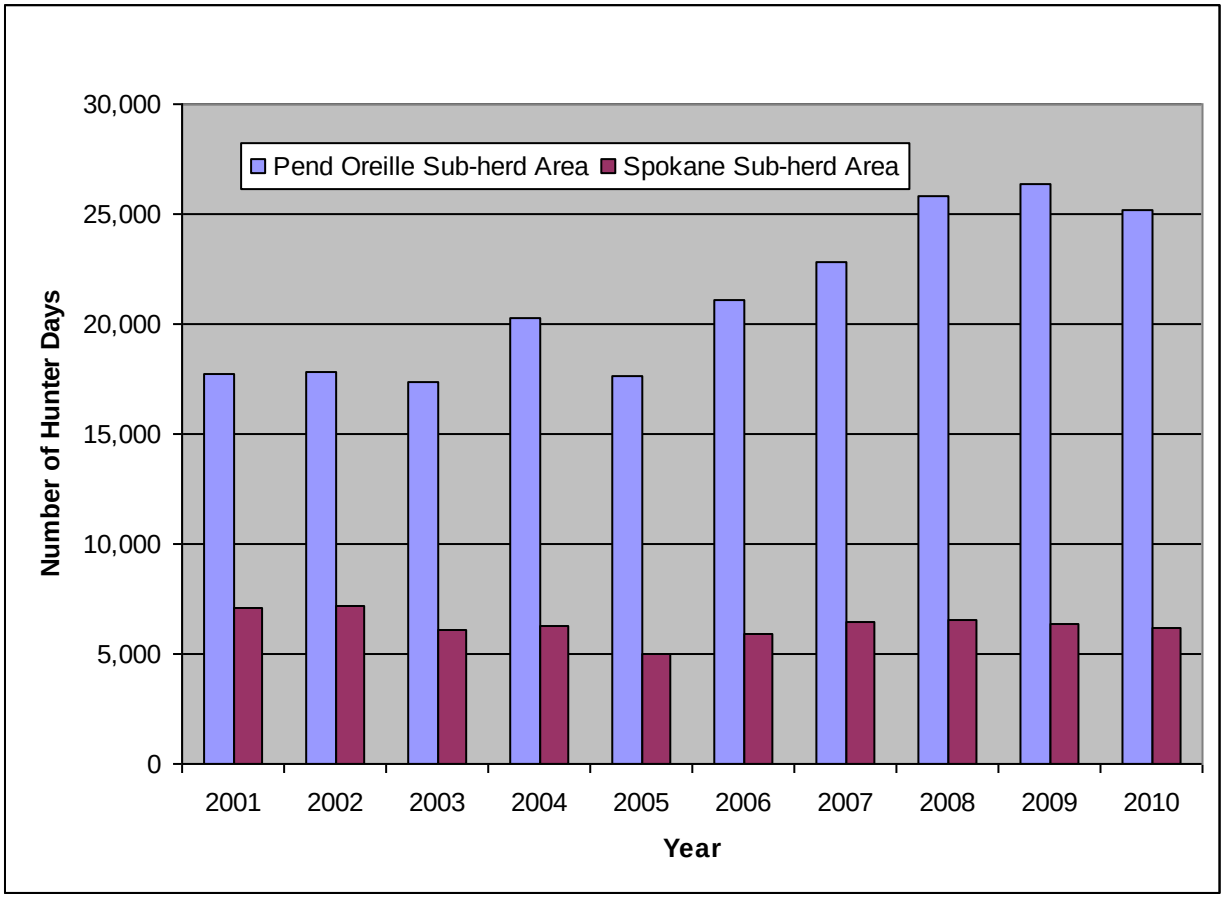
The western portion of the Pend Oreille sub-herd area has been open to either-sex elk hunting since 1990 (101,105,108,121 and 204). Elk here are scattered and until recently harvest has been low. In the last few years elk numbers have increased in this area, which has led to increased hunting opportunity and a strong local interest in elk. In this area the either-sex general elk seasons have been designed to keep populations in check within agricultural areas and to reduce potential competition with mule deer.

Figure 4. Number of hunters for the Selkirk herd area, by sub-herd area, 2001-2010



GMU 124 represents a transition between more open forest land to the north and urban areas to the south. Hunting in GMU 124 has changed as the need to limit elk population growth has increased. Up until 2003, in the eastern half (east of SR395) hunters were limited to bulls under "any-bull" general seasons, with some antlerless opportunity by special permits. This was essentially the same structure as that found in the adjoining GMUs to the north. The western half of GMU 124 was open to the harvest of "any-elk". Since 2003, management in GMU 124 has been designed to limit herd size (i.e. "any-elk" season).

Figure 5. Number of hunter days for the Selkirk herd area, by sub-herd area, 2001-2010



Hunters hunting the Spokane Sub-herd area may take "any-elk". The Spokane area is predominantly private land, and much of it is suburban in nature. Consequently, hunters often find it difficult to gain access. Even so, hunter success here can be high. Among GMUs with more than 20 antlerless permits, GMU 130 ranks 3rd in the state for both modern firearm (~23%) and muzzleloader (~19%) hunter success.

Watchable Wildlife

Nearly a third of the U.S. population enjoyed wildlife watching in 2006 (U. S. Department of Interior, et al. 2006) and land mammals, such as elk, deer, bears, and coyotes, were observed, fed, or photographed by 70 percent of all away-from-home survey participants. Elk viewing is a popular recreational activity throughout eastern Washington, and the Game Management Plan (WDFW 2008) calls for strategies to increase opportunities for the public to view elk. The most substantial viewing occurs in the spring when elk forage in open meadows and fields. Many people view elk from public roadways, often overlooking clear-cuts and natural meadows on USFS or USFWS – NWR – administered lands. There is great potential to develop elk viewing opportunities in the Spokane sub-herd area on public lands owned by Spokane County, especially considering that approximately 200,000 people reside within 15 minutes of the Spokane sub-herd. Every year in March, numerous "wildlife observers" come to watch the Green Bluff/Peone Prairie elk, and each year Spokane television stations highlight the elk in this area. In the early fall, the Turnbull NWR in GMU 130 also offers a tremendous watchable wildlife

opportunity to hear and view rutting bull elk.

Damage

Mitigating elk damage has been a concern for the Department for decades, wherever healthy populations of elk may range onto private land. Problems associated with elk include damage to tree farms and conifer plantations, hay and alfalfa fields, orchards, and other agricultural crops. When frightened, elk damage wire fences by running through them rather than jumping them. Finally, many dangerous vehicle/elk collisions occur each year in Washington.

Elk damage to agricultural crops and fences has been most severe on the range of the Spokane sub-herd. Even so, only 1.5 claims per year, on average, were filed for agricultural damage in the entire Selkirk Herd area from 2001 through 2010 (Table 14). The low number of claims indicates that the Department successfully resolves many conflicts without a formal landowner complaint. The increase in human/elk conflicts with the Spokane sub-herd began in the late 1980's. It was caused by two factors working in tandem: expanding herd distribution near agriculture and increasing suburbanization. County shooting closures and limited hunter access on small private ownerships complicate Spokane sub-herd management. Since the late 1990's, many private landowners have discovered that it is profitable to lease their lands to hunters; subsequently, elk conflicts and complaints have substantially decreased.

The Department has expended a great deal of effort to control elk by obtaining access for hunters on private lands. Increased harvest of antlerless elk has been the primary management tool used to reduce elk damage. In some cases the Department has utilized Master Hunters, landowner preference permits, landowner damage hunts, and hot spot hunts to satisfy landowner complaints.

Within the Pend Oreille sub-herd area there has been an increasing number of complaints regarding elk in pastures, crops, and hay barns. Generally these complaints have been addressed without resorting to formal cash payments for elk depredation (Table 14). In this area, antlerless permit hunting during the regular season has taken few elk (Table 13) and contributed little to mitigating damage. In GMUs 117 and 121 in Stevens County, several groups of elk regularly come into fields adjacent to forested habitat. Within southern GMU 121 these conflicts have been addressed through cooperative efforts with the Spokane Tribe. In the future, the Department will continue to search for ways to reduce damage in the Pend Oreille sub-herd while maintaining population objectives. Since general antlerless permit hunts have not been effective in targeting offending animals, other approaches that direct harvest toward specific locations of concern will be considered. Damage prevention permits may at times be the most efficient means of dealing with the problem.

Table 14. Selkirk Elk Herd agricultural damage cash claims - Annual Summary

Year	# Claims	Claim Amount	# Claims Paid	Amount Paid
2001	1	$1,000	1	$640
2002	3	$11,129	1	$810
2003	2	$8,769	0	$0
2004	0	$0	0	$0
2005	0	$0	0	$0
2006	2	$4,400	1	$2,462
2007	2	$110,693	1	$9,719
2008	4	$18,640	2	$5,311
2009	1	$3,756	1	$2,684
2010	0	$0	0	$0
TOTALS	15	$158,387	7	$21,626

Damage Prevention Permits

A landowner with elk-caused property damage may enter into a Cooperative Agreement with the Department, and thereby receive a damage prevention permit. The commission may establish a special season for these permits. In the Cooperative Agreement the landowner agrees not to claim damage payments and to allow access to hunters during the general hunting season, although they may select the hunters. The damage prevention permit allows extra opportunity such as antlerless harvest and extended seasons, designed to mitigate damage. The Department provides the damage prevention permit to the landowner who then gives it to a hunter. This authorizes the hunter to use an otherwise unused general elk tag to hunt and kill a legal animal during the appropriate prescribed season (WAC 232-28-266, Appendix C).

Elk Areas

Elk Areas are established for specific management issues that require management on a smaller geographical scale than can be applied at a GMU level. One Elk Area currently occurs within area occupied by the Selkirk sub-herd. Turnbull Elk Area No. 1015 (Spokane County) occurs within the boundaries of Turnbull National Wildlife Refuge. Currently two deer areas (North Okanogan Deer Area 2013 and Central Okanogan Deer Area 2014) occur on private property along the Okanogan River to protect orchards from deer damage. If elk damage associated with these orchards develops, these areas could also be used as Elk Areas to implement more aggressive elk harvest. Additional Elk Areas could be established if needed.

HABITAT MANAGEMENT

The elk in the Pend Oreille sub-herd are found in widely scattered groups over large tracts of public and private forestland, ordinarily fewer than 20 animals in any one locale. No quantitative information exists to explain what specific factors may limit elk populations here. In general, silvicultural treatments and prescribed fire are the primary means by which elk habitat can be altered (Hall and Thomas 1979). In this sub-herd area timber management activities on private industrial forest, DNR, and USFS lands create a mosaic of cover and forage areas. Reduction or

removal of the tree overstory by timber harvest creates forage areas for elk (Hall and Thomas 1979), which provide abundant, highly nutritious shrub and grass habitat (Hedrick et al. 1968). These are important as summer range when elk are accumulating adequate fat deposits that influence conception, lactation, and survival (Cook et al. 2004). In most cases in the Pend Oreille sub-herd area, silivicultural practices are not designed specifically to benefit elk, and some practices such as herbicide treatments accelerate forest regeneration, reducing the benefit. The resulting grass and shrub habitats available to elk are dispersed over large areas. Anecdotal observations suggest that elk numbers and distribution have increased across the northern counties after logging and/or prescribed fire. The Pend Oreille sub-herd depends upon continued timber harvest, prescribed burns, and/or wildfires to provide quality elk foraging habitat.

Local members of the Rocky Mountain Elk Foundation (RMEF) have supported many elk habitat enhancement projects and have involved a variety of cooperative funding partners . Whereas the Colville National Forest has been the primary project partner, several projects have involved state agencies, tribes, private timber companies, other agencies, and conservation groups. Since 1989, RMEF and partners have funded more than $1 million worth of elk projects in the Selkirk Herd area (Table 15). Habitat conservation and enhancement projects are vital for maintaining or enhancing Selkirk elk populations. The Department will continue to encourage project funding and help identify critical elk project areas or needs.

Habitat management in the Spokane sub-herd area must address different problems than those facing the Pend Oreille sub-herd. The burgeoning human population within the area, coupled with new housing subdivisions encroaching upon rural elk habitat, presents an enormous challenge.
It is likely that social tolerance will limit elk numbers within growth management areas or areas dominated by agriculture. If substantial elk populations are able to persist in this sub-herd, critical elk habitat will need to be acquired or otherwise protected.

Table 15. Completed and pending Selkirk elk habitat enhancement projects from 1989 to 2011.

PROJECT NAME	ACRES	RMEF $	PARTNER $	TOTAL $
Colville District Prescribed Burn	500	5,000	5,000	10,000
North End District Prescribed Burn	200	3,500	3,500	7,000
LeClerc Creek Prescribed Burn	100	1,750	1,750	3,500
Dry Canyon Prescribed Burn	100	1,750	1,750	3,500
Vaagen Brothers Land Donation - 40 Acres	40	-	-	-
Turnbull Elk Telemetry and Aspen Impact Study	NA	14,500	39,500	54,000
Iron Mountain Browse Rehabilitation	187	874	1,945	2,819
Cottonwood Creek Browse Rehabilitation	320	873	3,310	4,183
Lost Creek Winter Range Burn	120	873	1,600	2,473
High Lake/Addy Basin Prescribed Burn	350	4,563	4,563	9,126
South Dry Canyon Prescribed Burn	180	1,500	1,500	3,000
Half Moon Prescribed Burn	185	1,500	1,500	3,000
Ione Hill West Underburn	32	800	800	1,600
Ledgerwood Prescribed Burn	130	3,000	3,000	6,000
July Canyon Prescribed Burn	100	1,500	1,500	3,000
Deer Feeder Prescribed Burn	25	1,036	125	1,161
Woodward Prescribed Burn	80	2,600	3,500	6,100
Exposure Creek Habitat Projects	300	8,600	8,550	17,150
Kettle Falls Winter Range Overflights	0	1,000	800	1,800
Smick Meadows Interpretive Project	0	3,500	25,500	29,000
Kettle Falls Road Restoration Ii	5440	3,500	2,600	6,100
Colville District Road Closures	2240	800	-	800
Cee Cee Ah Habitat Enhancement	170	8,500	8,500	17,000
Dry Canyon Ridge Prescribed Burn	56	1,200	1,600	2,800
Power Winchester Habitat Enhancement	240	12,000	12,000	24,000
Churchill Mountain Prescribed Burn	346	4,700	4,700	9,400
Cedar Creek Winter Range Prescribed Burn	100	2,200	3,200	5,400
Addy Mountain Access Management	500	1,600	1,600	3,200
Rocky Underburn	70	1,400	2,100	3,500
Cottonwood Ck Drainage Forage Enhance	2900	3,229	4,982	8,211
Colville District Access Management #2	640	500	500	1,000
Bon Ayre Underburn	336	4,000	8,000	12,000
Pend Oreille East Habitat Treatment	1600	10,000	10,000	20,000
Tri-County Biological Control Program	10000	2,500	100,950	103,450
Pend Oreille East Habitat Treatment & Population Monitoring	250	8,000	8,000	16,000
Deadman Creek Road Closure & Obliteration	4160	1,600	9,600	11,200
Cedar Creek Habitat Enhancement	400	1,000	1,000	2,000
LeClerc Creek Forage Enhancement	80	2,240	3,620	5,860
Addy Leslie Forage Enhancement	840	1,600	29,686	31,286
Whiteman & Saucon Ck Prescribed Burn	200	2,300	2,300	4,600
Blacktail Butte Winter Range Burn	350	2,000	4,000	6,000
Granite Peak Elk Habitat Improvement	168	4,000	7,500	11,500
Addy-Leslie-Eagle Mt Underburns	300	6,000	6,000	12,000
Lake Basin Prescribed Burn	350	3,600	3,600	7,200
Rattlesnake Hills Elk Relocation	0	12,750	141,000	153,750
Stevens & Pend Oreille Forage Enhancement	600	4,500	4,500	9,000
Rattlesnake Hills Elk Monitoring	0	6,000	6,000	12,000
Ruby And Indian Prescribed Burns	360	5,400	5,400	10,800

PROJECT NAME	ACRES	RMEF $	PARTNER $	TOTAL $
Newport Rd Closed Road Re-vegetation	300	5,000	8,000	13,000
Sullivan Lake Ranger District Closed Road Re-vegetation	300	1,500	1,500	3,000
Exposure Creek 2002& Ruby Creek 2002prescribed Burns	800	6,375	7,384	13,759
Newport Rd Closed Road Re-vegetation #2	300	2,005	2,005	4,010
Lost Ridge Prescribed Burn	350	2,550	2,550	5,100
New Moon 2003 Prescribed Burns	300	6,500	7,000	13,500
Fourth Of July Creek Meadow Restoration	40	3,800	4,000	7,800
New Moon Prescribed Burns #2	500	10,000	10,000	20,000
Exposure Creek Prescribed Burns #3	600	3,500	4,500	8,000
Newport Ranger District Aspen Restoration	30	2,400	2,400	4,800
Boundary Meadows Restoration	81	2,830	6,370	9,200
North Baldy Noxious Weed Control	4	150	150	300
Spokane Elk Watchable Wildlife And Ecology Project	0	12,500	15,000	27,500
Newport Rd Closed Road Rehabilitation #3	4960	3,500	3,500	7,000
East Branch LeClerc Creek Prescribed Burn	255	3,300	3,300	6,600
United Eagle Prescribed Burn	358	3,500	3,660	7,160
Pend Oreille Valley Aspen Restoration	29	4,000	10,200	14,200
Browns Lake, Maitlen, Z Slumber And Sullivan Beetle Prescribed Fire Elk Winter Range Projects	500	10,000	10,000	20,000
New Moon Prescribed Burns #3	700	10,000	25,000	35,000
Half Moon Prescribed Burn	200	6,000	6,000	12,000
Jim Creek Prescribed Burn	300	7,100	7,100	14,200
Bartlett Road Aspen Restoration	5	3,000	4,000	7,000
E. Branch LeClerc Creek Road Reclamation	320	2,300	12,700	15,000
POV Access Management	3200	1,100	4,500	5,600
Sherman Highway Prescribed Burn	1400	5,000	6,040	11,040
Burnt Valley Prescribed Burn	300	3,370	3,899	7,269
Berton Unit B (Bamber Mountain)	1022	3,370	3,599	6,969
Chewelah Mountain Elk Habitat Improvement	20	2,000	3,500	5,500
Pend Oreille Valley Access Management	3840	2,750	5,903	8,653
Pend Oreille Valley Meadow Enhancements	100	5,960	10,540	16,500
Brewer Prescribed Fire	200	3,000	12,000	15,000
Bangs F2 Prescribed Burn	550	3,000	27,000	30,000
Cottonwood Divide Prescribed Burn	200	4,800	5,050	9,850
Lost Ridge Prescribed Burn	90	2,160	4,805	6,965
Cascade Prescribed Burn	200	4,800	5,520	10,320
Quartzite 73 Prescribed Burn	200	3,000	23,265	26,625
OVERALL TOTAL:	**58,199**	**$331,958**	**$774,571**	**$1,106,529**

Road Management

Research has well established that elk avoid areas near open roads (Rowland et al, 2004). This can result in loss of otherwise suitable habitat. In addition, elk vulnerability to mortality from hunter harvest, both legal and illegal, increases as open road density increases (McCorquodale et al. 2003). Conversely, closed roads can provide roadside foraging areas and easy travel corridors, which help elk conserve energy (Lyon and Christensen 2002). Road closures have often been seen as a remedy for disturbance caused by high road densities, but road closures on some national forests have proven less than effective (Havlick 2002). Factors affecting road closure

effectiveness include proximity to population centers, topography, density of forest stand, frequency of closure maintenance, closure type (gate vs. earthen berms / boulders, etc.), and level of enforcement. Road closures that don't effectively exclude all motorized vehicles and that are not adequately enforced may not eliminate the effects of traffic disturbance and increased vulnerability for elk (Havlick 2002, Rowland et al, 2004). When implementation of road closures is necessary, the Department recommends the use of earthen berms and rock barriers whenever possible `as these seem to be more effective.

Reducing the number of open roads on public land may also help mitigate elk damage on nearby private lands. Wertz (2004) found that by reducing road densities on public lands in Oregon, they caused 48% of their study animals to move from private to public land for at least a portion of the hunting season. Rowland et al. (2005) reported that road closures may improve the animals' performance, increase the amount of effective habitat, increase hunting opportunities, decrease damage to crops, increase hunter satisfaction, and decrease vulnerability of elk during the hunting season. For a more extensive treatise on road management including a literature review we direct the reader to Lyon and Chrsitensen (2002).

RESEARCH

Research on the Selkirk Elk Herd has been limited to several studies conducted by Eastern Washington University on elk in the vicinity of Turnbull National Wildlife Refuge. These projects have mainly focused on studying elk movements and the effects of elk on vegetation communities.

In addition, 13 of the 82 elk translocated to the Pend Oreille sub-herd area from the Hanford Site in 2000 were fitted with radio transmitters (Zender 2001). The Pend Oreille County Sportsman's Club and the Inland Northwest Wildlife Council regularly monitored these elk for several years. Eighteen months after release, 77% of the marked elk still survived, and had remained within the target enhancement area. Observed habitat use patterns of the marked elk showed that they were using the same areas as the resident elk.

Research Needs

There are some biological/management aspects of the Selkirk elk herd that warrant investigation. The following will be addressed as funding becomes available:

1. Survival studies to document baseline values and variability for specific age classes and gender. This may prove valuable for comparisons as wolf numbers increase in the Selkirk Herd area.
2. Condition index- organ collection from harvested elk. This is a relatively low cost means of quantifying elk body condition and making inference about the balance between elk density and available habitat.

HERD MANAGEMENT GOALS

As stated in the Game Management plan (WDFW 2008) the statewide management goals for elk are:

- Preserve, protect, perpetuate, manage, and enhance elk and their habitats to ensure healthy, productive populations, ecosystem integrity, and Washington's biodiversity.
- Manage elk for a variety of recreational, educational and aesthetic purposes including hunting, scientific study, cultural and ceremonial uses by Native Americans, wildlife viewing and photography.
- Manage the elk for a sustainable annual harvest.
- Manage elk and elk habitat to minimize human conflicts and agricultural damage.

OBJECTIVES AND STRATEGIES

Population Monitoring and Harvest Management

Background: While this elk population appears to be within the range of the current population objective, better estimates are needed. Precise estimates of the total population, post hunting season bull:cow ratios, and bull age structure cannot be calculated using current data and methods. More intense management calls for better data, but surveys in the Selkirk Herd area are hampered by extensive forested habitat. Additional effort, additional resources, and new techniques will be needed to meet the following objective.

For management purposes the Selkirk Herd should be viewed as two sub-herds with somewhat different management needs. The Pend Oreille sub-herd includes GMU's 101-124 and 204, which cover Ferry, Stevens, and Pend Oreille Counties and the northern half of Spokane County and the eastern half of Okanogan County. Elk here are primarily associated with forest environments. Conflicts between humans and elk in this area are generally related to cattle or hay operations near the forest edge. In general, management of the Pend Oreille sub-herd has maintained current elk populations and harvests. When conflicts occur or appear inevitable, localized control may be used to bring local elk numbers to socially acceptable levels.

The Spokane sub-herd (GMUs 127-142) includes northern Lincoln and southern Spokane counties, and Whitman County. The management strategy for the Spokane sub-herd is to maintain the sub-population at a level that is tolerable to agricultural landowners and the increasing population of suburban residents.

Objective 1
Adopt and implement a formal survey protocol to generate an elk population estimate or index for the Selkirk elk herd by 2015.

Strategies

1. Evaluate the efficacy of the Eastside Elk Survey Protocol for the Selkirk Elk Herd.
2. If the Eastside Elk Survey Protocol does not seem to be suitable for the Selkirk Herd, explore other techniques that account for sightability bias to provide needed estimates and measures of precision.

3. Explore other techniques (e.g., DNA mark-recapture, mark-resight, etc.) that might provide needed estimates and measures of precision.
4. Coordinate survey efforts with adjacent management agencies (IDFG, Tribes) to improve survey efficiency.

Objective 2

The population objective for the Pend Oreille sub-herd is to increase elk numbers to a level between today's current level (about 1,500) and an upper limit of 3,000. The population objective for the Spokane sub-herd is to maintain elk numbers between today's current level (about 1000) and an upper limit of 1,500. **The Department is willing to exceed the upper limits of the ranges to provide more recreational opportunity as long as agricultural damage can be mitigated.**

Strategies

1. Recommend hunting season structures and opportunity that will maintain or increase elk numbers and distribution while still mitigating elk agricultural damage. For example, change "any elk" hunting seasons to "any bull" hunting seasons and offer antlerless hunting opportunity by special permit.
2. Expand programs that promote public hunting access to private lands.
3. Continue working with Turnbull National Wildlife Refuge to maintain a hunting program to address the increasing number of elk using the refuge during the hunting season.
4. Work with Spokane County on their designation of "no shooting" areas to allow harvest of elk in developing areas and the reduction of elk in high damage areas.

Objective 3

Manage for bull ratio estimates of 12 to 20 bulls per 100 cows post-hunt and/or
15 to 35 bulls per 100 cows pre-hunt (WDFW 2008).

Strategies

1. Use a formal survey protocol, when available, to calculate population ratios and statistical confidence intervals.
2. Maintain the current level of harvest sampling/reporting.
3. Maintain the current survey level at Turnbull National Wildlife Refuge.
4. Make adjustments to hunting season structure if required, based upon available data.
5. Maintain enforcement emphasis to minimize poaching.

Habitat Management

Background: Limited elk habitat mapping information has been gathered to date, and that has generally been taken from anecdotal observations and based upon local knowledge rather than specific survey data. Critical winter, summer, and transition range has not been formally delineated.

The human population has expanded into open rangeland and forest. These residential conversions are reducing available habitat. As a result elk find reduced forage and increased vulnerability as people demand protection from damage.

Elk avoid areas near open roads in many instances (Rowland et al, 2004). Elk vulnerability to mortality increases as open road density increases (McCorquodale et al. 2003). Closed roads can provide roadside foraging areas and travel corridors which help elk conserve energy (Lyon and Christensen 2002). Havlick (2002) reported that over half of the 800 plus road closures assessed on national forests in Idaho, Montana, Washington and Wyoming were ineffective. Road closures alone may not eliminate effects of roads and traffic on elk because of inadequate enforcement (Rowland et al, 2004). The intuitive conclusion is that road closures alone do not provide the full potential of reduced vulnerability for elk without adequate enforcement and adequate exclusion of off-highway vehicles. On the Colville National Forest, the operation of off-highway vehicles (OHVs) is now restricted to roads and trails designated for their use on the forest's Motor Vehicle Use Map (MVUM). Off-road travel by OHVs is prohibited, with the exception of access to established campsites within 300 feet of open roads. Off-road travel for game retrieval is prohibited. Thousands of copies of the MVUMs have been given out to the public by the Forest Service. Travel restrictions on the maps are being enforced by Colville National Forest staff. OHV use on closed roads and off-road seems to have been reduced since the adoption of the MVUM in 2008 (M. Borysewicz 2011, pers. comm.)

Reducing the number of open roads on public land may also help mitigate elk damage on nearby private lands. Wertz's (2004) research suggested that a reduction of open road densities on public lands in Oregon, contributed to study animals occupying public land more. Rowland et al. (2005) reported that road closures may improve the animals' performance, increase the amount of effective habitat, increase hunting opportunities, decrease damage to crops, increase hunter satisfaction, and decrease vulnerability of elk during the hunting season.

Objective 4

Delineate occupied and potential habitat and improve at least 2000 acres per year by 2016.

Strategies

1. Identify and map important elk range.
2. Work with USFS and RMEF using prescribed fire management to maintain and enhance habitat.
3. Work with USFS and DNR on site-specific timber management that will benefit elk.
4. Encourage timberland owners (USFS, DNR, and private) to enhance elk habitat.
5. Encourage and help facilitate continued partnerships with state, federal, private timber, and non-governmental entities (e.g. RMEF), to improve elk habitat, including partnerships to address noxious weed control.
6. Secure important elk habitat especially valley bottom and southern-aspect shrub fields.
7. Encourage eligible private landowners to participate in Federal Farm Bill Programs and implement Conservation Practices that improve and/or maintain elk habitat.

Objective 5

Encourage the conservation of elk habitat on private lands within the Selkirk Herd area.

Strategies

1. Ensure that current PHS maps of critical elk habitat are up to date and available to county planning departments and other interested parties.

2. Work with local grass roots groups, local non-governmental organizations (NGOs), and state and national groups to help secure funding for the conservation of high value elk habitat being threatened by development.
3. Through Washington State's Growth Management Act Planning, encourage local governments to adopt the Department's PHS program into their Critical Areas Ordinances or Development Regulations.
4. Work with local planning departments and boards to designate important elk use areas as low-density housing zones.

Objective 6

Promote road management to limit open road density in GMUs 111, 113 and 117 (areas with substantial public land ownership) to not exceed 2.5 miles per mile^2 (1.6 km/km^2) in areas zoned as open-land and forest-land, and no more than 1.5 miles per mile^2 (0.9 km/km^2) in known elk range.

Strategies

1. Collaborate with the DNR, USFS, and private timber companies to gate non-essential secondary forest roads to address elk disturbance and escapement.
2. Develop formal road management agreements within known high use areas to increase the number of permanent motor vehicle road closures.

Elk-Human Conflict

Background: At various times and places elk numbers and distribution may exceed landowner tolerance. Elk management is difficult because of extensive private landownership and limited public access. Elk damage and elk-human conflict will continue to occur in agricultural areas and where human populations are expanding. Current management has been successful in keeping claims filed to a very low level: 0 to 4 per year (Table 14).

Objective 7

Use adaptive management to keep the number of elk-caused damage claims filed to less than 5 per year.

Strategies

1. Use preventative, non-lethal methods to reduce elk damage.
2. Use damage prevention permits and other methods to address damage problems.
3. Use Master Hunter special permits when/where appropriate.
4. Rely less on general season "any elk" hunts at the GMU level to address localized damage problems and use antlerless special permits when appropriate.
5. Encourage habitat enhancement projects on public lands to attract and hold elk away from private agricultural lands.

Watchable Wildlife

Background: Viewing wildlife has become an important recreation in Washington. When people value wildlife, they become more supportive when local conflicts need resolution, and

conservation of elk and elk habitat is more likely the result. However, many people do not know where and when elk viewing opportunities exist, and most will likely never find them on their own.

Objective 8
Continue to promote elk viewing opportunities in Watchable Wildlife outreach efforts.

Strategies
1. Provide information on popular spring viewing areas for elk in Watchable Wildlife viewing guides or other public outreach.
2. Work cooperatively with other agencies and the public to conserve elk concentration areas that are appropriate for public viewing.
3. Provide information to the public on the potential impacts of shed antler hunting in an attempt to limit adverse affects of this activity on elk in early winter and spring.

Intergovernmental Coordination

Background: State harvest goals may be adjusted to account for tribal harvest. Several tribes have reservations designated by Executive Order. These include the Colville, Spokane, and Kalispel Reservations in eastern Washington. Tribal hunting rights for these tribes are typically limited to areas on the reservations. The Colville Confederated Tribes' hunting rights extend to an area formerly part of the reservation, which is known as the "North Half." The Colville's hunting rights to the North Half were upheld by the U.S. Supreme Court's decision in *Antoine v. Washington* in 1975.

Objective 9
Cooperate and collaborate with the Kalispel Tribe of Indians, Confederated Tribes of the Colville Indian Reservation, the Spokane Tribe of Indians, and the Coeur d'Alene Tribe to implement the Selkirk Elk Herd Plan, and collaborate on season setting packages.

Strategies
1. Continue to implement the Agreement (Appendix D) between the Department and the Confederated Tribes of the Colville Indian Reservation.
2. Discuss and/or coordinate hunting season proposals with tribal authorities.
3. Share harvest and survey data, and promote joint enforcement efforts with the tribes to achieve management goals.

SPENDING PRIORITIES

The following priority investments are needed to implement the Selkirk Elk Herd Plan.

Population Monitoring - High Priority
Develop and evaluate a post-hunt, elk survey protocol.
- *Time line*: By 2015
- *Cost*: $200,000

Harvest Management- High Priority

- *Time line*: Annually
- *Cost*: $20,000 annually

Elk-Human Conflict- High Priority

Provide compensation to landowners who experience elk damage to agricultural crops where appropriate and provide assistance to minimize damage.

- *Time line*: Ongoing
- *Cost*: $15,000 annually

Establish Elk Watchable Wildlife Areas- Low Priority

Assist and cooperate with other agencies to develop and provide important elk viewing areas for the public throughout the Selkirk Herd.

- *Time Line*: Ongoing
- *Cost:* Up to $10,000 per project, covered by partners

PLAN REVIEW AND MAINTENANCE

The Selkirk Elk Herd Plan is a five-year document subject to annual review and amendment. As new information is gathered and conditions change, it will be necessary to track strategies and their impact on the plan's goals and objectives to re-evaluate and modify the plan as needed. A free exchange of information and open communication between the Department, Tribes, and cooperators will be key to the plan's effectiveness. Review meetings will include delegates from each Tribe in the Selkirk Elk Herd Plan area and will be held with the Department's Region 1 Wildlife Program Manager. Developing issues can be addressed, as needed either at the technical or policy level.

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APPENDICES

APPENDIX A. Elk Hunting Seasons in the Selkirk Herd

YEAR	GMU # and (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
2011	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 133, 136, 139, 142	09/06 - 09/18	13	Any elk	Early Archery General (EA)
	101, 105, 108, 117, 121, 124, 127	11/23 - 12/08	16	Any elk	Late Archery General (EA)
	204	10/29 - 11/15	18	Any elk	
	111, 113, 117	10/01-10/07	7	Any bull	Early Muzzleloader General (EM)
	101, 105, 108,121, 124, 127, 130, 133, 136, 139, 142	10/01-10/07	7	Any elk	
	130, 133, 136, 139, 142	11/23 - 12/08	16	Any elk	Late Muzzleloader General (EM)
	204	10/29 – 11/15	18	Any elk	
	111, 113, 117	10/29 - 11/06	9	Any bull	Modern Firearm General (EF)
	101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/29 - 11/06	9	Any elk	
	204	10/29 – 11/15	18	Any elk	
	127, 130, 133, 136, 139, 142 AHE Only	12/09 - 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
	111 Aladdin **(15)**	10/29 - 11/06	9	Antlerless	Modern Firearm Permit Hunts (EF)
	113 Selkirk **(20)**	10/29 - 11/06	9	Antlerless	
	117 49 Degrees North **(45)**	10/29 - 11/06 and 12/16 - 12/31	9 16	Antlerless	
	130 Turnbull, Elk Area 1015 (**6**)	10/25 – 10/30	6	Antlerless	
	130 Turnbull, Elk Area 1015 (**6**)	11/01 – 11/06	8	Antlerless	
	130 Turnbull, Elk Area 1015 (**6**)	11/08 – 11/13	6	Antlerless	
	111 Aladdin **(10)**	10/01-10/07	9	Any elk	Muzzleloader Permit Hunts (EM)
	113 Selkirk **(10)**	10/01-10/07	9	Any elk	
	117 49 Degrees North **(20)**	10/01-10/07 and 12/16 - 12/31	9 16	Any elk Any elk	
	130 Turnbull, Elk Area 1015 (**9**)	10/01-10/07	9	Antlerless	
	130 Turnbull, Elk Area 1015 (**9**)	11/23 -12/08	17	Antlerless	
	130 Turnbull, Elk Area 1015 (**14**)	09/06 – 09/18	13	Antlerless	Archery Permit Hunts (EA)
	130 Turnbull, Elk Area 1015 (**1**)	10/22 – 11/13	23	Any bull	Quality Permit Hunts (EA, EM, EF)
	130 Turnbull, Elk Area 1015 (**6**)	10/09 – 10/16	8	Antlerless	Disability Permit Hunts (EA, EM, EF)
	130 Turnbull, Elk Area 1015 (**6**)	12/10 – 12/31	22	Antlerless	Master Hunter Permit Hunts (Any)
	111 Aladdin **(5)**	10/29 - 11/06	9	Antlerless	65 and Over Permit Hunts (EF)

YEAR	GMU # and (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
2010	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 133, 136, 139, 142	09/07 - 09/19	13	Any elk	Early Archery General (EA)
	101, 105, 108, 117, 121, 124, 127	11/25 - 12/08	15	Any elk	Late Archery General (EA)
	204	10/30 - 11/15	17	Any elk	
	111, 113, 117	10/02-10/08	7	Any bull	Early Muzzleloader General (EM)
	101, 105, 108,121, 124, 127, 130, 133, 136, 139, 142	10/02-10/08	7	Any elk	
	130, 133, 136, 139, 142	11/24 - 12/08	16	Any elk	Late Muzzleloader General (EM)
	204	10/30 – 11/15	17	Any elk	
	111, 113, 117	10/30 - 11/07	9	Any bull	Modern Firearm General (EF)
	101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/30 - 11/07	9	Any elk	
	204	10/30 – 11/15	17	Any elk	
	127, 130, 133, 136, 139, 142 AHE Only	12/09 - 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
	111 Aladdin **(15)**	10/30 - 11/07	9	Antlerless	Modern Firearm Permit Hunts (EF)
	113 Selkirk **(20)**	10/30 - 11/07	9	Antlerless	
	117 49 Degrees North **(45)**	10/30 - 11/07 and 12/16 - 12/31	9 16	Antlerless	
	130 Turnbull, Elk Area 1015 (**6**)	10/26 – 10/31	6	Antlerless	
	130 Turnbull, Elk Area 1015 (**6**)	11/02 – 11/07	6	Antlerless	
	130 Turnbull, Elk Area 1015 (**6**)	11/09 – 11/14	6	Antlerless	
	111 Aladdin **(10)**	10/02-10/08	9	Any elk	Muzzleloader Permit Hunts (EM)
	113 Selkirk **(10)**	10/02-10/08	9	Any elk	
	117 49 Degrees North **(20)**	10/02-10/08 and 12/16 - 12/31	9 16	Any elk Any elk	
	130 Turnbull, Elk Area 1015 (**9**)	10/02-10/08	9	Antlerless	
	130 Turnbull, Elk Area 1015 (**9**)	11/24 -12/08	16	Antlerless	
	130 Turnbull, Elk Area 1015 (**14**)	09/07 – 09/19	13	Antlerless	Archery Permit Hunts (EA)
	130 Turnbull, Elk Area 1015 (**1**)	10/26 – 11/14	20	Any bull	Quality Permit Hunts (EF)
	130 Turnbull, Elk Area 1015 (**6**)	10/10 – 1017	8	Antlerless	Disability Permit Hunts (EA, EM, EF)
	130 Turnbull, Elk Area 1015 (**6**)	12/10 – 12/31	22	Antlerless	Master Hunter Permit Hunts (Any)
2009	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 133, 136, 139, 142	09/08 - 09/20	13	Any elk	Early Archery General (EA)
	101, 105, 108, 117, 121, 124, 127	11/25 - 12/08	15	Any elk	Late Archery General (EA)
	204	10/31 - 11/15	16	Any elk	
	111, 113, 117	10/03-10/09	7	Any bull	Early Muzzleloader General (EM)
	101, 105, 108,121, 124, 127, 130, 133, 136, 139, 142	10/03-10/09	7	Any elk	
	130, 133, 136, 139, 142	11/25 - 12/08	15	Any elk	Late Muzzleloader General (EM)
	204	10/31 – 11/15	16	Any elk	
	111, 113, 117	10/31 - 11/08	9	Any bull	Modern Firearm General (EF)
	101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/31 - 11/08	9	Any elk	
	204	10/31 – 11/15	16	Any elk	
	127, 130, 133, 136, 142 AHE Only	12/09 - 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
	111 Aladdin A **(15)**	10/31 - 11/08	9	Any elk	Modern Firearm Permit Hunts (EF)
	113 Selkirk A **(20)**	10/31 - 11/08	9	Any elk	
	117 49 Degrees North A **(45)**	10/31 - 11/08	9 9	Any elk	
	111 Aladdin B **(10)**	10/03-10/11	9	Any elk	Muzzleloader Permit Hunts
	113 Selkirk B **(10)**	10/03-10/11	9	Any elk	
	117 49 Degrees North B **(20)**	10/03-10/11	9	Any elk	

YEAR	GMU # and (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
2008	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 133, 136, 139, 142	09/08 - 09/21	14	Any elk	Early Archery General (EA)
	101, 105, 108, 117, 121, 124, 127 204	11/20 - 12/08 10/25 – 11/15	19 22	Any elk Any elk	Late Archery General (EA)
	111, 113, 117 101, 105, 108,121, 124, 127, 130, 133, 136, 142	10/04-10/10 10/04-10/10	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	130, 133, 136, 142 204	11/20 - 12/08 10/25 – 11/15	19 22	Any elk Any elk	Late Muzzleloader General (EM)
	111, 113, 117 101, 105, 108, 121, 124, 127, 130, 133, 136 204	10/25 - 11/02 10/25 - 11/02 10/25 – 11/15	9 9 22	Any bull Any elk Any elk	Modern Firearm General (EF)
	127, 130, 133, 136, 142 AHE Only	12/09 - 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
	111 Aladdin A **(15)** 113 Selkirk A **(20)** 117 49 Degrees North A **(45)** 111 Aladdin B **(10)** 113 Selkirk B **(10)** 117 49 Degrees North B **(20)**	10/25 - 11/02 10/25 - 11/02 10/25 - 11/02 10/04-10/10 10/04-10/10 10/04-10/10	9 9 9 9 7 7 7	Any elk Any elk Any elk Any elk Any elk Any elk	Modern Firearm Permit Hunts (EF) Muzzleloader Permit Hunts
2007	101, 105, 108, 111, 113, 117 121, 124, 127, 130, 133, 136, 139, 142	09/08 - 09/21	14	Any elk	Early Archery General (EA)
	101, 105, 108, 117, 121, 124, 127 204	11/20 - 12/08 10/27 - 11/15	19 20	Any elk Any elk	Late Archery General (EA)
	111, 113, 117 101, 105, 108,121, 124, 127, 130, 133, 136, 142	10/06 - 10/12 10/06 - 10/12	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	130, 133, 136, 142 204	11/20 - 12/08 10/27 - 11/15	19 20	Any elk Any elk	Late Muzzleloader General (EM)
	111, 113, 117 101, 105, 108, 121, 124, 127, 130, 133, 136, 142 204	10/27 - 11/04 10/27 - 11/04 10/27 - 11/15	9 9 20	Any bull Any elk Any elk	Modern Firearm General (EF)
	127, 130, 133, 136, 142 AHE Only	12/09 - 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
	111 Aladdin A **(15)** 113 Selkirk A **(20)** 117 49 Degrees North A **(45)** 111 Aladdin B **(10)** 113 Selkirk B **(10)** 117 49 Degrees North B **(20)**	10/27 - 11/04 10/27 - 11/04 10/27 - 11/04 10/06-10/12 10/06-10/12 10/06-10/12	9 9 9 9 7 7 7	Any elk Any elk Any elk Any elk Any elk Any elk	Modern Firearm Permit Hunts (EF) Muzzleloader Permit Hunts

YEAR	GMU # and (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
2006	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 135, 136, 139, 142	09/08-09/21	14	Any elk	Early Archery General (EA)
	101, 105, 108, 117, 121, 124, 127 204	11/20-12/08 10/28-11/15	19 19	Any elk Any elk	Late Archery General (EA)
	111, 113, 117 101,105,108,121,124,127,133,136,142	10/07-10/13 10/07-10/13	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	130, 133, 136, 139, 142 204	11/20-12/08 10/28-11/15	19 19	Any elk Any elk	Late Muzzleloader General (EM)
	111, 113, 117 101,105,108,121,124,127,133,136,142 204	10/28-11/05 10/28-11/05 10/28-11/15	9 9 19	Any bull Any elk Any elk	Modern Firearm General (EF)
	127, 130, 133, 136, 139, 142 AHE Only	12/9 – 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
	111 Aladdin A **(15)** 113 Selkirk A **(20)** 117 49 Degrees North **(30)** 111 Aladdin B **(10)** 113 Selkirk B **(10)** 117 49 Degrees North **(10)**	10/28-11/05 10/28-11/05 10/28-11/05 10/07-10/13 10/07-10/13 10/07-10/13	9 9 9 7 7 7	Any elk Any elk 	Modern Firearm Permit Hunts (EF) Muzzleloader Permit Hunts
2005	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 135, 136, 139, 142	09/08-09/21	14	Any elk	Early Archery General (EA)
	101, 105, 117, 121, 124, 127	11/20-12/08	19	Any elk	Late Archery General (EA)
	111, 113 101, 105, 108, 121, 124, 127, 130, 133,136, 139,142	10/01-10/07 10/01-10/07	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	130, 133, 136, 139, 142	11/20-12/08	19	Any elk	Late Muzzleloader General (EM)
	111, 113, 117 101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/29-11/06 10/29-11/06	9 9	Any bull Any elk	Modern Firearm General (EF)
	111 Aladdin A **(10)** 113 Selkirk A **(10)** 117 49 Degrees North **(15)** 111 Aladdin B **(10)** 113 Selkirk B **(20)** 117 49 Degrees North **(10)**	10/29-11/06 10/01-10/07 	9 9 9 7 7 7	Any elk Antlerless only 	Modern Firearm Permit Hunts (EF) Muzzleloader Permit Hunts
	127, 130, 133, 136, 139, 142 AHE Only 204	12/09 - 12/31 10/29-11/15	23 18	Any elk Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
2004	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 135, 136, 139, 142	09/08-09/21	14	Any elk	Early Archery General (EA)
	101, 105, 117, 121, 124, 127	11/20-12/08	19	Any elk	Late Archery General (EA)
	111, 113 101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/02-10/08 10/02-10/08	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	130, 133, 136, 139, 142	11/20-12/08	19	Any elk	Late Muzzleloader General (EM)
	111, 113, 117 101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/30-11/07 10/30-11/07	9 9	Any bull Any elk	Modern Firearm General (EF)
	111 Aladdin A **(10)** 113 Selkirk A **(10)** 117 49 Degrees North **(15)** 111 Aladdin B **(10)** 113 Selkirk B **(20)**	10/30-11/07 10/02-10/10 	9 9 9 9 9	Any elk Any elk 	Modern Firearm Permit Hunts (EF) Muzzleloader Permit Hunts
	127, 130, 133, 136, 139, 142 AHE Only 204	12/09 - 12/31 10/30-11/15	23 17	Any elk Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)

YEAR	GMU # and (Number of Permits)	Dates	Days	Legal Animal	Hunt Description and Tag Type
2003	101, 105, 108, 111, 113, 117, 121, 124, 127, 130, 133, 136, 139, 142	09/08-09/21	14	Any elk	Early Archery General (EA)
	101, 105, 117, 121, 124, 127	11/20-12/08	19	Any elk	Late Archery General (EA)
	111, 113 101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/04-10/10 10/04-10/10	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	130, 133, 136, 139, 142	11/20-12/08	19	Any elk	Late Muzzleloader General (EM)
	111, 113, 117 101, 105, 108, 121, 124, 127, 130, 133, 136, 139, 142	10/25-11/02 10/25-11/02	9 9	Any bull Any elk	Modern Firearm General (EF)
	111 Aladdin A **(10)** 113 Selkirk A **(10)** 117 49 Degrees North **(15)** 111 Aladdin B **(10)** 113 Selkirk B **(10)**	10/25-11/02 10/04-10/10 	9 9 9 7 7	Any elk Any elk 	Modern Firearm Permit Hunts (EF)
	127, 130, 133, 136, 139, 142 AHE Only 204	12/09 - 12/31 10/28-11/15	23 19	Any elk Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM, EF)
2002	101, 105, 109, 121, 124, 127, 130, 133, 136, 139, 142 113, 117	09/01 - 09/14 09/01 - 09/14	14 14	Any elk Any elk	Early Archery General (EA)
	101, 105, 117, 121, 124, 127	11/20 - 12/08	19	Any elk	Late Archery General (EA)
	109 127, 130, 133, 136, 139, 142	10/05 - 10/11 10/05 - 10/11	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	101, 105, 121, 124 W. of Hwy 395 130, 133, 136, 139, 142	10/26 - 11/03 11/20 - 12/08	9 19	Any elk Any elk	Late Muzzleloader General (EM)
	109 E. of Aladdin/Northport rd, 113, 117, 124 E. of Hwy 395 101, 105, 109 W. of Aladdin/Northport rd., 121, 124W, 127, 130, 133, 136, 139, 142	10/26 - 11/03 10/26 - 11/03	9 9	Any bull Any elk	Modern Firearm General (EF)
	127, 130, 133, 136, 139, 142 AHE Only	12/09 - 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM)
	109 Three Forks **(15)** 113 Selkirk **(15)** 117 49 Degrees North **(15)** 124 E. 395, Mt. Spokane **(50)**	10/26 - 11/03 10/26 - 11/03 10/26 - 11/03 10/26 - 11/03	9 9 9 9	Any elk Any elk Any elk Any elk	Modern Firearm Permit Hunts (EF, EM)
2001	101, 105, 109, 121, 124, 127, 130, 133, 136, 139, 142 113, 117	09/01 - 09/14 09/01 - 09/14	14 14	Any elk Any elk	Early Archery General (EA)
	101, 105, 117, 121, 124, 127	11/21 - 12/08	16	Any elk	Late Archery General (EA)
	109 127, 130, 133, 136, 139, 142	10/06 - 10/12 10/06 - 10/12	7 7	Any bull Any elk	Early Muzzleloader General (EM)
	101, 105, 121, 124 W. of Hwy 395 130, 133, 136, 139, 142	10/27 - 11/04 11/21 - 12/08	9 18	Any elk Any elk	Late Muzzleloader General (EM)
	109, 113, 117, 124 E. of Hwy 395 101, 105, 121, 124W of Hwy 395, 127, 130, 133, 136, 139, 142	10/27 - 11/04 10/27 - 11/04	9 9	Any bull Any elk	Modern Firearm General (EF)
	127, 130, 133, 136, 139, 142 AHE Only	12/09 - 12/31	23	Any elk	Elk Hunts Open to Specified Tag Holders (EA, EM)
	109 Three Forks **(15)** 117 49 Degrees North **(15)** 124 E. 395, Mt. Spokane **(50)**	10/27 - 11/04 10/27 - 11/04 10/27 - 11/04	9 9 9	Any elk Any elk Any elk	Modern Firearm Permit Hunts (EF, EM)

APPENDIX B. Authority for Controlling Elk Damage (RCW, Title 77)

RCW 77.36.010
Definitions. (Effective if E2SSB 5688 is approved at the November 2009 election under Referendum Measure 71.) (Effective July 1, 2010.)
The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Claim" means an application to the department for compensation under this chapter.

(2) "Commercial crop" means a horticultural or agricultural product, including the growing or harvested product. For the purposes of this chapter all parts of horticultural trees shall be considered a commercial crop and shall be eligible for claims.

(3) "Commercial livestock" means cattle, sheep, and horses held or raised by a person for sale.

(4) "Compensation" means a cash payment, materials, or service.

(5) "Damage" means economic losses caused by wildlife interactions.

(6) "Immediate family member" means spouse, state registered domestic partner, brother, sister, grandparent, parent, child, or grandchild.

(7) "Owner" means a person who has a legal right to commercial crops, commercial livestock, or other property that was damaged during a wildlife interaction.

(8) "Wildlife interaction" means the negative interaction and the resultant damage between wildlife and commercial crops, commercial livestock, or other property.

[2009 c 521 § 184; 2009 c 333 § 54; 1996 c 54 § 2; (2001 c 274 § 2 expired June 30, 2004).]

RCW 77.36.030
Trapping or killing wildlife threatening human safety or causing property damage — Limitations and conditions — Rules. (Effective July 1, 2010.)

(1) Subject to limitations and conditions established by the commission, the owner, the owner's immediate family member, the owner's documented employee, or a tenant of real property may trap, consistent with RCW 77.15.194, or kill wildlife that is threatening human safety or causing property damage on that property, without the licenses required under RCW 77.32.010 or authorization from the director under RCW 77.12.240.

(2) The commission shall establish the limitations and conditions of this section by rule. The rules must include:

(a) Appropriate protection for threatened or endangered species;

(b) Instances when verbal or written permission is required to kill wildlife;

(c) Species that may be killed under this section; and

(d) Requirements for the disposal of wildlife trapped or killed under this section.

(3) In establishing the limitations and conditions of this section, the commission shall take into consideration the recommendations of the Washington state wolf conservation and management plan.

[2009 c 333 § 61; 1996 c 54 § 4.]

RCW 77.36.070
Limit on total claims from wildlife account per fiscal year. (Effective July 1, 2010.)

The department may pay no more than one hundred twenty thousand dollars per fiscal year from the state wildlife account created in RCW 77.12.170 for claims and assessment costs for damage to commercial crops caused by wild deer or elk submitted under RCW 77.36.100.

[2009 c 333 § 59; 1996 c 54 § 8.]

RCW 77.36.080
Limit on total claims from general fund per fiscal year — Emergency exceptions. (Effective July 1, 2010.)

(1) Unless the legislature declares an emergency under this section, the department may pay no more than thirty thousand dollars per fiscal year from the general fund for claims and assessment costs for damage to commercial crops caused by wild deer or elk submitted under RCW 77.36.100.

(2)(a) The legislature may declare an emergency if weather, fire, or other natural events result in deer or elk causing excessive damage to commercial crops.

(b) After an emergency declaration, the department may pay as much as may be subsequently appropriated, in addition to the funds authorized under subsection (1) of this section, for claims and assessment costs under RCW 77.36.100. Such money shall be used to pay wildlife interaction claims only if the claim meets the conditions of RCW 77.36.100 and the department has expended all funds authorized under RCW 77.36.070 or subsection (1) of this section.

[2009 c 333 § 60; 1996 c 54 § 9; (2001 c 274 § 3 expired June 30, 2004).]

RCW 77.36.100
Payment of claims for damage to commercial crops or commercial livestock — Noncash compensation — Offer of materials or services to offset or prevent wildlife interactions — Appeal of decisions. (Effective July 1, 2010.)

(1)(a) Except as limited by RCW 77.36.070 and 77.36.080, the department shall offer to distribute money appropriated to pay claims to the owner of commercial crops for damage caused by wild deer or elk or to the owners of commercial livestock that has been killed by bears, wolves, or cougars, or injured by bears, wolves, or cougars to such a degree that the market value of the commercial livestock has been diminished. Payments for claims for damage to commercial livestock are not subject to the limitations of RCW 77.36.070 and 77.36.080, but may not exceed the total amount specifically appropriated therefor.

(b) Owners of commercial crops or commercial livestock are only eligible for a claim under this subsection if:

(i) The owner satisfies the definition of "eligible farmer" in RCW 82.08.855;

(ii) The conditions of RCW 77.36.110 have been satisfied; and

(iii) The damage caused to the commercial crop or commercial livestock satisfies the criteria for damage established by the commission under this subsection.

(c) The commission shall adopt and maintain by rule criteria that clarifies the damage to commercial crops and commercial livestock qualifying for compensation under this subsection. An owner of a commercial crop or commercial livestock must satisfy the criteria prior to receiving compensation under this subsection. The criteria for damage adopted under this subsection must include, but not be limited to, a required minimum economic loss to the owner of the commercial crop or commercial livestock, which may not be set at a value of less than five hundred dollars.

(2)(a) The department may offer to provide noncash compensation only to offset wildlife interactions to a person who applies to the department for compensation for damage to property other than commercial crops or commercial livestock that is the result of a mammalian or avian species of wildlife on a case-specific basis if the conditions of RCW 77.36.110 have been satisfied and if the damage satisfies the criteria for damage established by the commission under this subsection.

(b) The commission shall adopt and maintain by rule criteria for damage to property other than a commercial crop or commercial livestock that is damaged by wildlife and may be eligible for compensation under this subsection, including criteria for filing a claim for compensation under this subsection.

(3)(a) To prevent or offset wildlife interactions, the department may offer materials or services to a person who applies to the department for assistance in providing mitigating actions designed to reduce wildlife interactions if the actions are designed to address damage that satisfies the criteria for damage established by the commission under this subsection.

(b) The commission shall adopt and maintain by rule criteria for mitigating actions designed to address wildlife interactions that may be eligible for materials and services under this section, including criteria for submitting an application under this section.

(4) An owner who files a claim under this section may appeal the decision of the department pursuant to rules adopted by the commission if the claim:

(a) Is denied; or

(b) Is disputed by the owner and the owner disagrees with the amount of compensation determined by the department.

[2009 c 333 § 55.]

APPENDIX C. WAC 232-28-266

DAMAGE PREVENTION PERMIT HUNTS

(1) Pursuant to RCW 77.12.150 and 77.12.260, a landowner with deer, elk, or turkey-caused property damage may enter into a Cooperative Agreement (contract) with WDFW, and thereby receive a damage prevention permit. The commission may establish a special season for these permits, as described by this rule.

The landowner agrees not to claim damage payments, except for Elk Areas 3721 and 3722, and will allow access to hunters during the general hunting seasons. Landowner selects hunters. A damage prevention permit provided to a landowner by WDFW and given to the hunter will authorize the hunter to use an unused general deer, elk, or turkey tag to hunt and kill a legal animal during the appropriate prescribed season.

(2) Landowners who violate this section will be punished under RCW 77.15.750(1). Hunters who violate this section will be punished under RCW 77.15.400 or 77.15.410, depending on the species hunted.

(3) Deer:

Tag Required: Deer hunter must have a current valid, unaltered, unnotched deer tag on his/her person.
Hunting Method: Any legal weapon
Season Framework: August 1 - March 31

Location: Statewide
Legal Deer: Antlerless Only
Kill Quota: 300 per license year

Location: Region One
Legal Deer: Antlerless Only
Kill Quota: 300 per license year

Location: GMUs 105-124
Legal Deer: Whitetail Antlerless Only
Kill Quota: 300 per license year

(4) Elk:

Tag Required: Elk hunter must have a current valid, unaltered, unnotched elk tag on his/her person.
Hunting Method: Any legal weapon
Season Framework: August 1 - March 31

Location: Statewide
Legal Elk: Antlerless Only
Kill Quota: 200 per license year

Location: Hanford Area - GMUs 372 and 379
Legal Elk: Antlerless Only
Kill Quota: 60 per license year

Location: Elk Area 3721
Legal Elk: Spike or antlerless during Aug. 1 - March 31; bulls only during May 15 - July 31, except spike only July 1-31
Kill Quota: 50 Spike or antlerless per license year; 30 bulls per license year.

Location: GMU 501 - 578
Legal Elk: Antlerless Only
Kill Quota: 50 per license year

Special Note: Access in Elk Area 3721 may not be sold as a condition of use of these permits. The director may consider damage claims from landowners in Elk Areas 3721 and 3722 who accept these permits and do not charge for access.

(5) Turkey:

Tag Required: Turkey hunter must have a current valid, unaltered, unnotched turkey tag on his/her person.
Hunting Method: Any legal turkey hunting method
Season Framework: October 10 - March 1

Location: GMUs 105 - 130
Legal Turkey: Either sex
Kill Quota: 200 per license year.

[Statutory Authority: RCW 77.12.047, 77.12.020, 77.12.570, 77.12.210, 77.12.150, 77.12.240, 77.32.070, 77.32.530. 10-10-061 (Order 10-94), § 232-28-266, filed 4/30/10, effective 5/31/10. Statutory Authority: RCW 77.12.047, 77.12.020, 77.12.570, 77.12.210, 77.12.150, 77.12.240. 09-09-083 (Order 09-53), § 232-28-266, filed 4/15/09, effective 5/16/09. Statutory Authority: RCW 77.12.015 and 77.12.240. 07-09-060 (Order 07-38), § 232-28-266, filed 4/13/07, effective 5/14/07. Statutory Authority: RCW 77.12.047. 06-11-032 (Order 06-92), § 232-28-266, filed 5/8/06, effective 6/8/06; 05-11-021 (Order 05-85), § 232-28-266, filed 5/10/05, effective 5/15/05; 03-10-009 (Order 03-80), § 232-28-266, filed 4/25/03, effective 5/26/03. Statutory Authority: RCW 77.12.040, 77.12.010, 77.12.020, 77.12.770, 77.12.780. 00-11-137 (Order 00-50), § 232-28-266, filed 5/23/00, effective 6/23/00. Statutory Authority: RCW 77.12.020, 77.12.030, 77.12.040 and 77.32.220. 97-05-074, § 232-28-266, filed 2/19/97, effective 3/22/97.]

APPENDIX D. Agreement With the Confederated Tribes of the Colville Indian Reservation.

AGREEMENT BETWEEN THE CONFEDERATED TRIBES OF THE COLVILLE INDIAN RESERVATION AND THE WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE

PARTIES

This Agreement is entered into by and between the confederated Tribes of the Colville Indian Reservation, Nespelem, Washington (Colville Tribes), and the Washington State Department of Fish and Wildlife, Olympia, Washington (WDFW).

PREAMBLE

Colville Tribes currently occupy a reservation of approximately 1.3 million acres in north central Washington. The original reservation was created by Executive Order of President Grant in 1872. In 1892, the Tribes ceded back to the federal government approximately one-half of the original reservation ("North Half"), reserving to themselves the right to hunt and fish on the "North Half." These "North Half" rights have been affirmed by the U.S. Supreme Court.

The Colville Indian Reservation was set aside for the exclusive use of eight bands and numerous individual Indians who were not party to any treaty. This agreement addresses hunting and fishing issues on the Colville Indian Reservation and "North Half."

For many years, there were disagreements and disputes between the Colville Tribes and the state of Washington regarding the regulation of hunting and fishing by non-members on the Colville Indian Reservation. Between 1975 and 1981, the Colville Tribes and State were engaged in litigation over the competing claims of authority.

Ultimately, the District Court issued a preliminary injunction preventing the State from applying its hunting and fishing laws to non-Indians on the reservation. The Ninth Circuit Court of Appeals reviewed the District Court's decision. The Ninth Circuit Court of appeals agreed with the District Court. In an opinion issued June 22, 1981, Ninth Circuit Court of Appeals affirmed the injunction issued against the State. In light of the Court of Appeals opinion, the state elected to negotiate with the Colville Tribes rather than to further pursue the litigation. These negotiations led to a cooperative agreement between the State and Tribe that has been in place continuously since 1982.

Although the factual and legal landscape has changed somewhat since the above referenced litigation, the complex legal and jurisdictional issues persist. It is the shared opinion of the Colville Tribes and the State Department of Fish and Wildlife that this complex and confusing jurisdictional framework hinders the discharge of the respective parties' obligations to maximize hunting and fishing opportunity while at the same time preserving, perpetuating, and protecting the wildlife resource.

The parties to this agreement have concluded that the resource is best protected, the federally protected rights of the Colville Indian people implemented, and reasonable recreation opportunity of the general public maximized through this cooperative agreement between the Tribes and Washington State Department of Fish and Wildlife.

RECITALS

It is a primary purpose and intent of this document to:

A. Identify as clearly as possible the respective licensing, management, and regulatory responsibilities of the parties within the boundaries of the Colville Indian Reservation.

B. Improve the protection of fish and wildlife on the reservation on the North Half.

C. Protect and enhance recreational hunting and fishing opportunities on the reservation.

D. Protect the Colville Tribe's core interest in providing ceremonial and subsistence hunting and fishing for tribal members and preserving the cultural significance of the wildlife resource on the reservation.

E. Foster productive and mutually beneficial partnerships between the Washington State Department of Fish and Wildlife and the Colville Tribes.

In consideration of the mutual promises and covenants herein, the parties agree as follows:

2. **No Waiver of Rights, claims or Arguments.** Nothing in this Agreement shall be deemed as a concession by either party as to the other party's claims, nor an admission of same, nor a waiver of the right to challenge such claims. Neither this Agreement nor the activities of the parties pursuant to this Agreement shall be utilized to affect the equitable or legal position of either party in any future litigation.

3. No Effect on Jurisdiction or Authority. This Agreement does not purport to declare legal rights or authorities. Nothing herein shall be deemed as enlarging or diminishing the jurisdiction or authority of the state or Colville Tribes to regulate the activities of persons within the reservation.

4. **Terms of Agreement.** This Agreement shall be for a term of one year, commencing on the effective date of this Agreement, provided, however, this Agreement shall be extended from year to year automatically thereafter until terminated by either party by delivery of written notice of termination to the other party not less than 60 days prior to the date of the desired termination.

5. **Annual Review.** The parties anticipate that this Agreement will be dynamic and that modifications may be necessary to respond to changing circumstances. Therefore, the parties, acting through the Policy Committee, agree to review this Agreement annually and to make such necessary modifications as to which the parties mutually agree.

6. **Policy Committee.** A Policy committee, composed of one member of the Natural Resources Committee of the Business Council of the Colville Tribes, one Fish and Wildlife Commissioner, the Director of the Colville Tribes Fish and Wildlife Department, and one WDFW Regional Director, is hereby established. The purpose of the Policy Committee is to facilitate cooperative action by the Parties and to resolve disputes which may arise under this Agreement.

   The Policy Committee shall annually designate a chair and shall meet at such times as are appropriate to conduct business and/or resolve disputes as described in the Agreement.

7. **Non-Member Fishing on the Reservation.** The Colville Tribes and WDFW desire to protect and manage fishing on the reservation for conservation, subsistence and recreational purposes. Consistent with these goals, the Colville Tribes commit to maintaining non-member fishing opportunities on the reservation.

8. **Consultation on Fishing Season Setting.** Fish biologists of the Tribes and WDFW shall meet to exchange information and to develop proposed parallel non-member fishing regulations for the waters on the Reservation and Lake Roosevelt, Rufus Woods, Okanogan River and Crawfish Lake. Such

proposed regulations shall include, by way of example but not limitation, seasons dates, size limits, bag limits, open and closed areas, and other conservation initiatives necessary to management and conservation of the fisheries. The objectives of these proposed parallel regulations shall be the conservation of the fishery resource and harvest for subsistence and recreational purposes.

In the event that the biologists cannot agree on proposed parallel non-member fishery regulations, such matters shall be referred to the Policy Committee established under this Agreement for resolution of any dispute.

The proposed regulations of the biologists or Policy Committee, as the case may be, shall then be forwarded to the Colville Tribes and to the WDFW for promulgation pursuant to their respective rule-making procedures. Nothing in this section, however, is intended to supersede the respective rule promulgation procedures of the parties.

9. **Boundary Waters License Requirement for Non-members.** The Colville Tribes agree that possession of a valid Washington State fishing license shall be deemed possession of a valid tribal fishing permit for fishers angling by boat, on the Columbia and Okanogan Rivers where they form the boundaries of the Colville Indian Reservation and on Washburn Island Pond and on Crawfish lake.

   Anglers fishing from the Reservation shore of boundary waters should check with the Colville Tribal Fish and Wildlife Department to determine licensing and other appropriate regulations.

10. **Licensing Requirements for Non-members Fishing on Other Reservation Waters.** WDFW agrees that for purposes of enforcement, possession of a valid tribal fishing permit shall be deemed possession of a valid state fishing license for fishing activities on waters, other than boundary waters, that are within the boundaries of the Colville Reservation.

    The purpose of Sections 8 and 9 above is to avoid the conflict, confusion, and difficulty of locating the Reservation Boundary in or on the boundary waters of the Columbia and Okanogan Rivers and in resolving the jurisdiction issues with regard to lakes and ponds lying wholly within the exterior boundaries of the Colville Reservation.

11. **Boundary Water Fishing by Colville Members.** While fishing by boat on boundary waters, including waters that form the boundary to the North Half, the Colville I.D. card shall be the sole document necessary for fishing.

12. **Revenues.** The Colville Tribes are engaged in Fishery Management Activities on Reservation Boundary waters. These activities benefit non-member angler and the general public through preservation and protection of the fishery resource. By accepting the licensing provisions of this agreement, potential tribal revenue is lost which would have been utilized for fishery management. The WDFW and Colville Tribes agree to assess the management impacts of lost revenue and establish mechanisms that mitigate the losses and result in the implementation of fishery management benefits.

13. **Wildlife Protection and Preservation.** The WDFW and the Colville Tribes agree to work together to protect, preserve, and enhance wildlife populations on the reservation and the North Half, through the following strategies:

    1. Joint and cooperative surveying of wildlife populations where feasible.
    2. The sharing of population and harvest statistics.
    3. Mutual support of supplementation efforts for species such as sharp-tailed grouse and big horned sheep.
    4. Development of a joint wildlife habitat protection and enhancement strategy; and a
    5. Commitment to mule deer conservation in north central Washington.

14. **Consultation on Hunting Season Setting.** The WDFW and Colville Tribe wildlife biologists shall meet at least twice annually to develop hunting season recommendations that meet the conservation

and recreation goals of this agreement. The timing of these meetings shall be subject to the season setting process of the Colville Business Council and the Washington Fish and Wildlife Commission.

15. **Wildlife harvest by Non-members on the Colville Reservation.** The WDFW and Colville Tribes agree to the following opportunities and restrictions for non-member hunting on the Colville Reservation.

    - Non-member hunters shall have the opportunity to hunt upland birds, including pheasants, migratory birds, including dove and rabbits, within the limits of sound wildlife management and conservation practice on the portions of the Colville Indian Reservation opened by the Colville Tribes.
    - Non-members will be prohibited from trapping furbearing animals and from hunting big game and grouse within the boundaries of the Colville Reservation. This section shall not apply to Colville members.

16. **Problem Wildlife.** The WDFW and the Colville Tribes agree to work together to develop a protocol and provide solutions for landowners with problems involving dangerous wildlife and/or wildlife depredation.

17. **Enforcement.** The WDFW and the Colville Tribes agree to work cooperatively to reduce violations of state and tribal fish and game laws. To that end, the parties agree to produce a joint enforcement agreement which will outline procedures for joint patrols and investigations and protocols for directing violations to the appropriate court system.

18. **Tribal and State Information.** The WDFW shall include in its fishing and hunting pamphlets and any other similar sources of information provided by the state to the public the following provision: "When fishing or hunting within the boundaries of the Colville Indian Reservation, you should contact the office of the Colville confederated Tribes Fish and Wildlife Department to determine the Tribal permits and regulations applicable to such activities."

    The Colville Tribes shall include in its fishing and hunting pamphlets and any other sources of information provided by the tribe to the public the following provision: "When fishing or hunting within the boundaries of the Colville Indian Reservation, you should contact the Washington State Department of Fish and Wildlife to determine state license and regulations applicable to such activities."

19. **Approvals.** This Agreement shall be effective upon approval by the Colville Business Council and the Director of the Washington State Department of Fish and Wildlife and ratification by the Washington State Fish and Wildlife Commission.

20. **Upon Whom Binding.** The covenants and agreement herein mentioned shall extend to and be binding upon the assigns, successors, agents and administrators of the parties and to all persons acting by or through the parties.

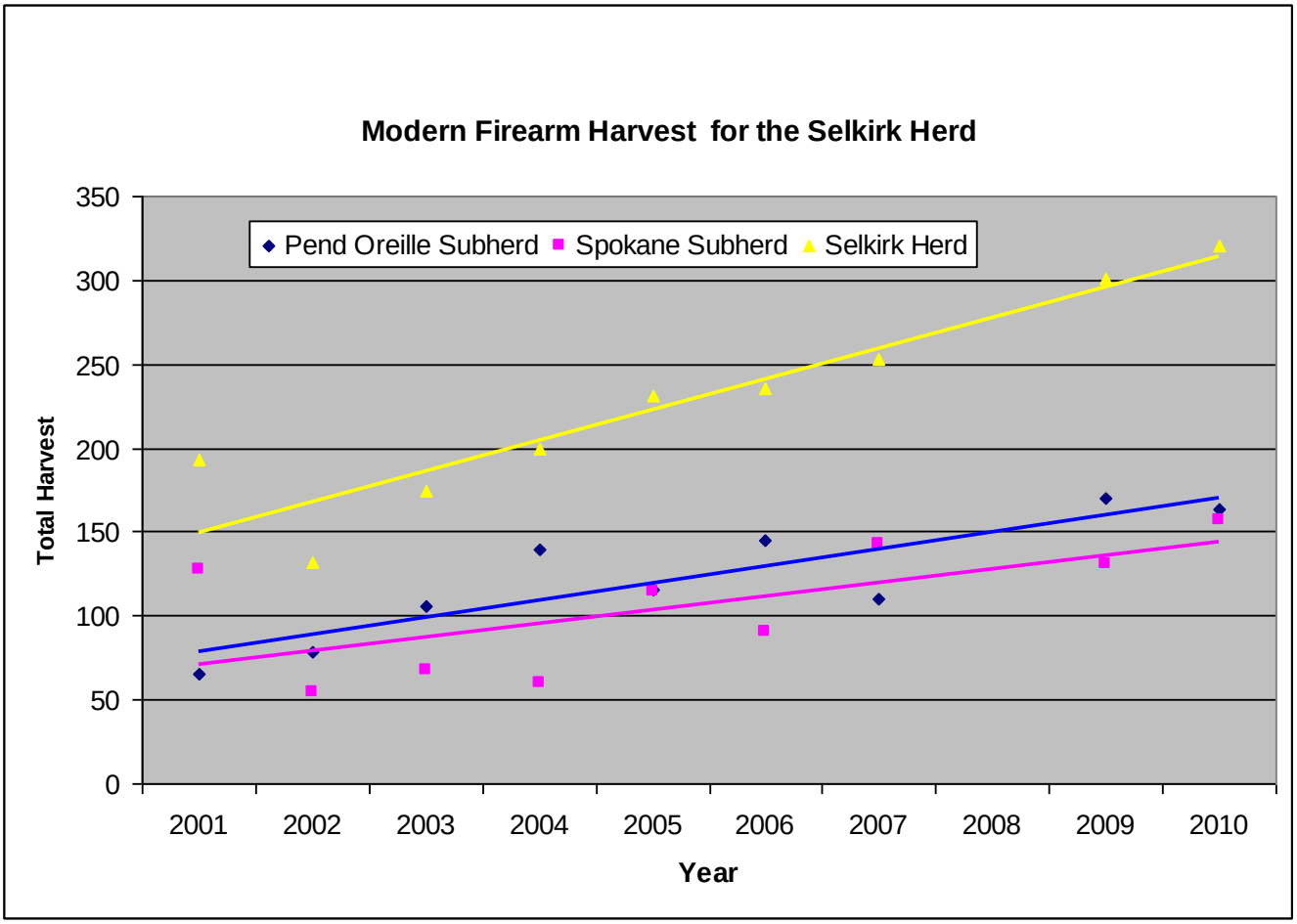
DATED this 4th day of April, 1998.

Larry W. Peck — April 4, 1998

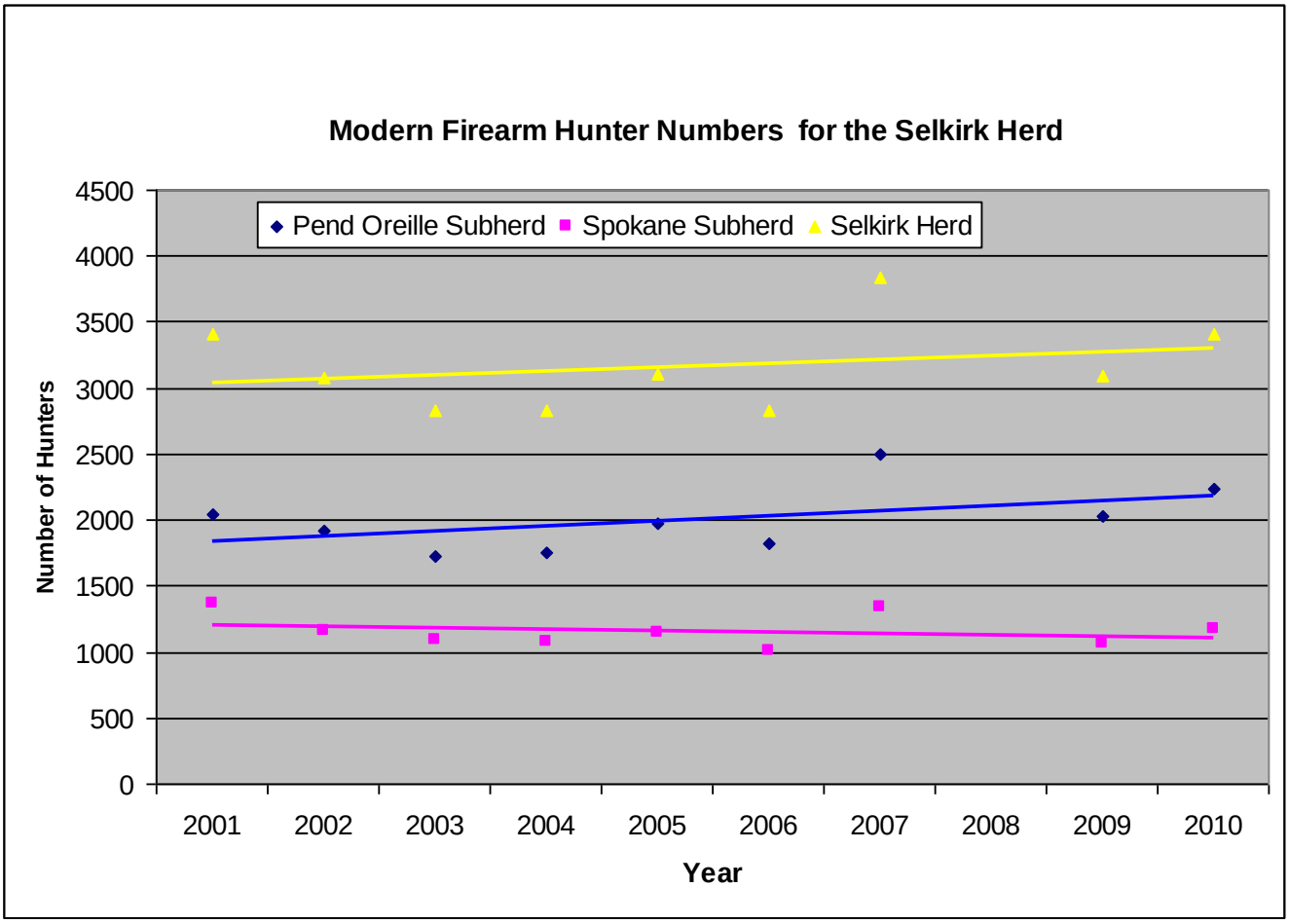
Joseph A. Pakootas — April 4, 1998

Bern Shanks — April 16, 1998

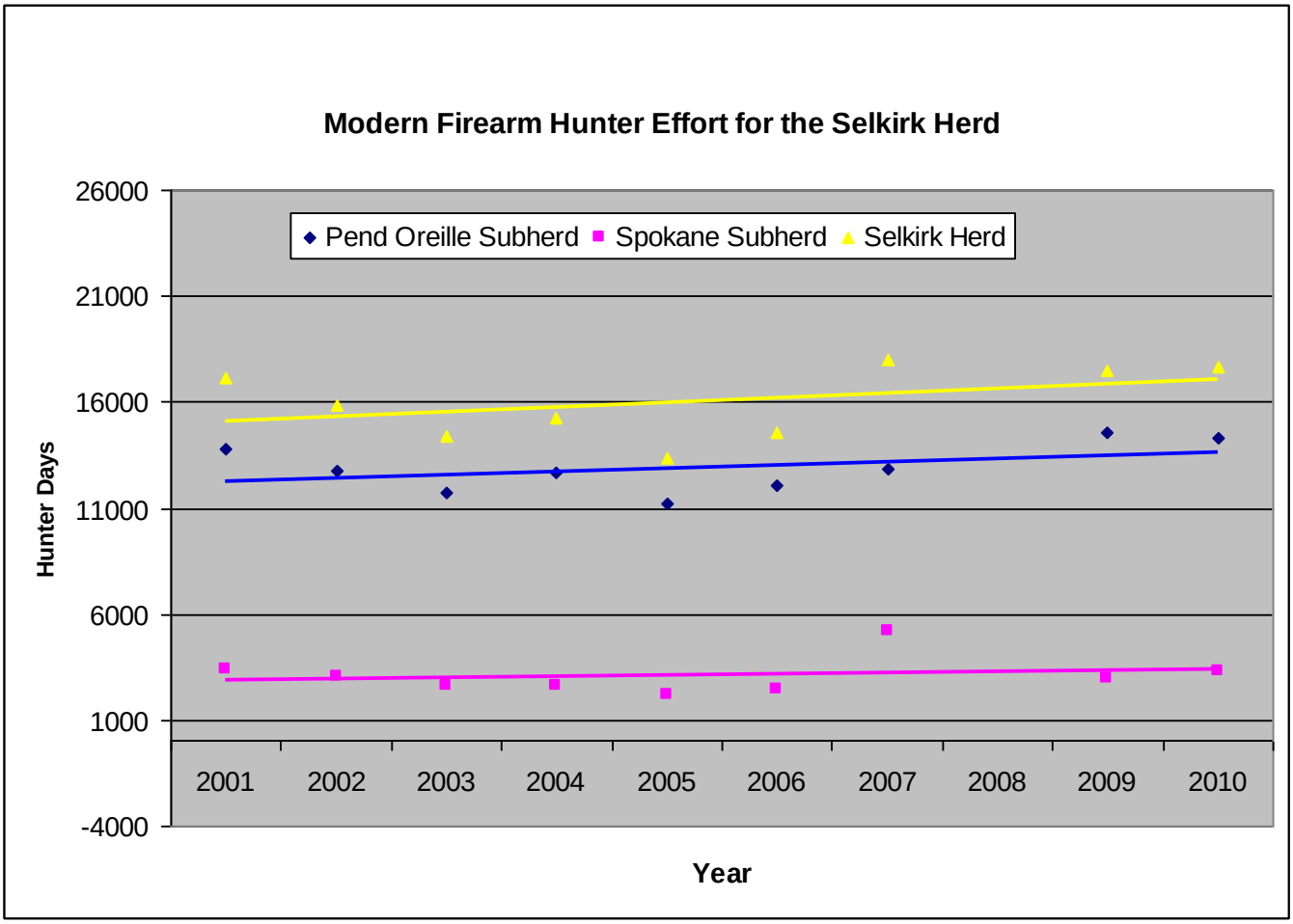
Appendix E-1: Modern firearm harvest for the Selkirk herd



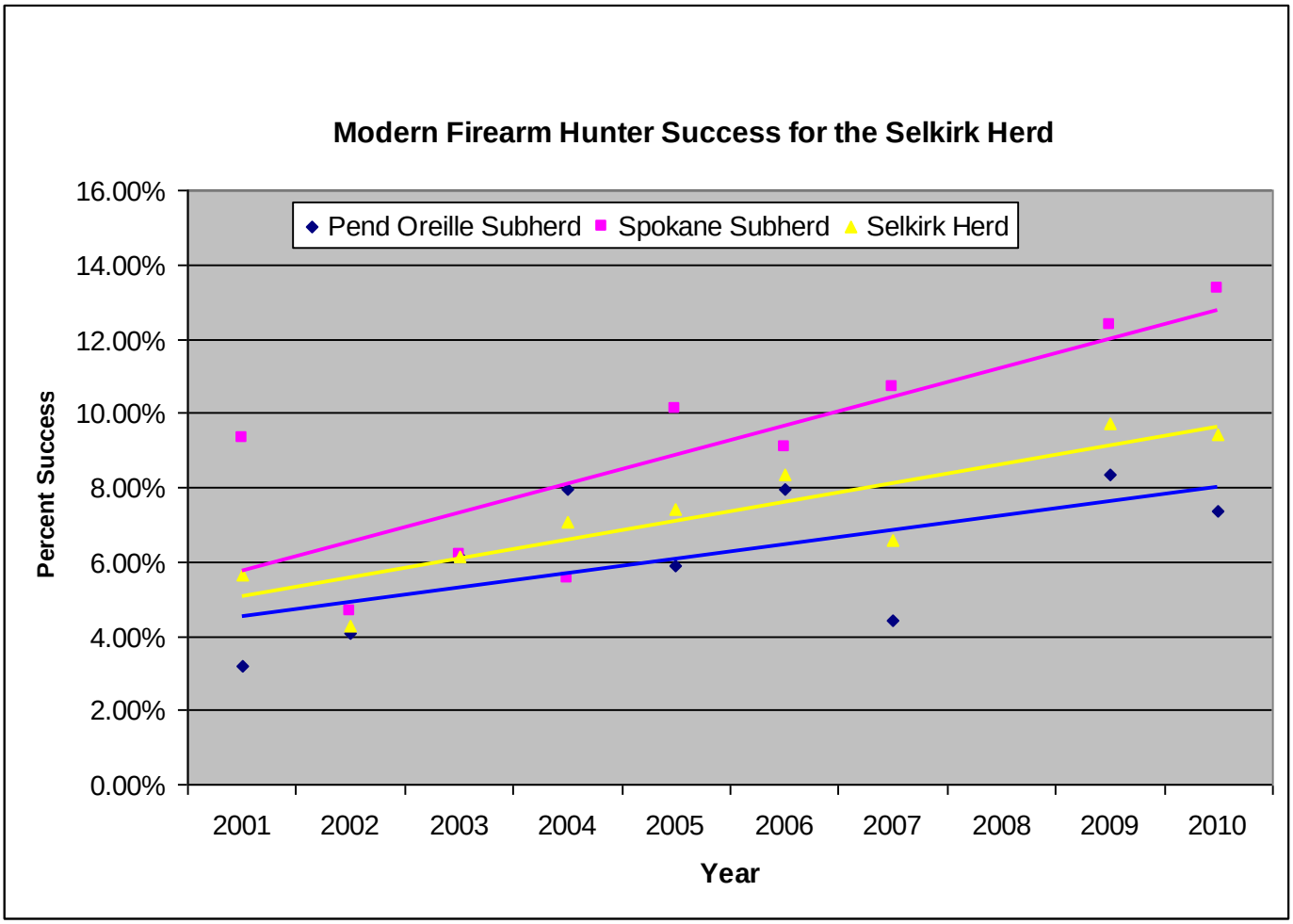
Appendix E-2: Modern firearm hunter numbers for the Selkirk herd



Appendix E-3: modern firearm hunter effort for the Selkirk herd



Appendix E-4: Modern firearm hunter success for the Selkirk herd



Appendix E-5: Modern firearm days per kill for the Selkirk herd